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G. A. Adelmann, Bucharest, Romania

Clinical Cardiology Companion

This is a general cardiology handbook that addresses the entire cardiological pathology. The information is in a Q & A format and accompanies the reader through each significant condition, from incidence and severity, to mechanisms, clinical and lab diagnosis, and up to treatment and prognosis. The chapters have an uniform structure fostering a methodical approach to heart disease. The level is intermediate, with an accent on clinical practice. At the same time, an excellent tool for preparing for exams, as i) disease mechanisms are systematically discussed; ii) guidelines are explained and summarized; iii) novel research directions are explained. The book provides conciseness, completeness, and updateness, while offers: for residents, familiarization with the discipline of cardiology; for cardiology fellows, the book will be a friendly companion for practice and Boards study; for primary care physicians, the book represents an update to their knowledge; while for clinical cardiologists, the book represents a companion reference.

Features
- Broad scope and in-depth approach
- Conciise, yet highly readable style

Contents

Fields of interest
Cardiology; Emergency Medicine; General Practice / Family Medicine

Target groups
Professional/practitioner

Discount group
MR

H. Baars, University Medical Centre, Utrecht, The Netherlands; J. van der Smagt, University Medical Centre, Utrecht, The Netherlands; P. Doevendans, University Medical Centre, Utrecht, The Netherlands

Clinical Cardiogenetics

Clinical management and signs are the focus of this practical cardiogenetic reference for those who are involved in the care for cardiac patients with a genetic disease. With detailed discussion of the basic science of cardiogenetics in order to assist in the clinical understanding of the topic. The genetic causes of various cardiovascular diseases are explained in a concise clinical way that reinforces the current management doctrine in a practical manner. The authors will cover the principles of molecular genetics in general but also specific to cardiac diseases. They will discuss the etiology, pathogenesis, pathophysiology, clinical presentation, clinical diagnosis, molecular diagnosis and treatment of each cardiogenetic disease separately. Therapy advice, ICD indications, indications for and manner of further family investigation will all be covered, while each chapter will also contain take-home messages to reinforce the key points. The chapters reviewing the different diseases will each contain a table describing the genes involved in each. Each chapter will also contain specific illustrations, cumulatively giving a complete, practical review of each cardiogenetic disease separately.

Features
- Practical cardiac genetics textbook for the clinician
- Contains detailed information on disease-causing genes
- Bench-to-bedside approach

Contents
Section I: BASIC CONCEPTS - Introduction, Introduction to molecular genetics, Molecular genetics in cardiology, Clinical Genetics of cardiac diseases. - Section II: CARDIOMYOPATHY - Hypertrophic cardiomyopathy. - Dilated cardiomyopathy, Arrhythmogenic Right Ventricular Cardiomyopathy, Other cardiomyopathies.

Fields of interest
Cardiology; Human Genetics; Internal Medicine

Target groups
Professional/practitioner

Discount group
MR

L. Badano, Azienda Ospedaliero-Universitaria, Udine, Italy; R. M. Lang, University of Chicago Hospitals, IL, USA; J. L. Zamorano, Hospital Clinico San Carlos, Madrid, Spain (Eds.)

Textbook of Real-Time Three Dimensional Echocardiography

This Textbook will give the reader a detailed understanding of the use of 3D echo covering a wide range of topics; from the evolution of RT3D echo to the role of RT3D echo in drug trials, including chapters on the Principles of Transthoracic and Transesophageal Real-time 3D echocardiography. Other books in this area are more varied, less specific.

Features
- Focusses solely on three-dimensional echocardiography and its clinical use
- Covers a wide range of topics in detail from the evolution of RT3D echo to the role of RT3D echo in drug trials, including chapters on the Principles of Transthoracic and Transesophageal Real-time 3D echocardiography
- Over 300 unique colour figures

From the contents

Fields of interest
Cardiology; Imaging / Radiology; Internal Medicine

Target groups
Professional/practitioner

Discount group
MR

Due July 2010
2010. X, 690 p. 60 illus., 30 in color. Softcover
- approx. $49.00
ISBN 978-1-84996-304-6

Due October 2010
2010. XVI, 400 p. 340 illus., 170 in color. Hardcover
- approx. $199.00
ISBN 978-1-84996-470-6

Due October 2010
2010. X, 150 p. 200 illus., 100 in color. Hardcover
- approx. $199.00
ISBN 978-1-84996-404-4
Surgical Disorders of the Peripheral Nerves

Since the highly praised first edition of Surgical Disorders of the Peripheral Nerves was published in 1998, greater understanding of the physiology of the nervous system has been achieved. This second edition has been fully updated in line with new clinical knowledge, and also incorporates the extensive study of thousands of surgical case studies spanning repairs of the supraclavicular lesion in the adult, the birth lesion of the brachial plexus, repair of major nerves, and reconstruction. Beginning with the fundamentals of the anatomy and function of the peripheral nervous system, and working its way through various types of injury, operative methods, the regeneration and recovery of nerves, surgical reconstruction, pain, and rehabilitation, this eloquently written work provides the reader with the solid understanding required to successfully perform surgery on the peripheral nervous system. This thorough and authoritative look at the surgical treatment of the peripheral nerves is fully illustrated throughout with exquisite line diagrams and clear, instructive photographs.

Gastrointestinal Oncology
A Practical Guide

Gastrointestinal Oncology is an evidence-based, practical reference intended to assist in the diagnosis and management of patients with gastrointestinal malignancies. It is designed to be as user friendly as possible and is distinguished by the extremely practical, concrete nature of the information presented and by the multidisciplinary approach adopted. In addition to disease-oriented chapters spanning sites from the esophagus to the anus, non-anatomic subjects such as modern imaging techniques are also addressed. Translational science is supplied where useful in the decision-making process. All of the authors are internationally recognized experts. This book is an ideal resource for oncologists, surgeons, gastroenterologists, and primary-care providers looking for the latest and best information on how to deal with a wide variety of gastrointestinal neoplasms.

Features
- Written by a leader in the field with two expert guest contributors
- Exquisitely illustrated throughout
- Fully updated from the first edition

From the contents

Fields of interest
Surgery; Neurology; Neurosurgery

Target groups
Professional/practitioner

Discount group
MR

Due September 2010

Mitral Valve Surgery

Part of the Monographs in Cardiac Surgery Series – Introducing ‘basic science into the cardiac operating room’. Fast systematic review of small areas of cardiac surgery including up-to-date information. This will allow more rapid publication than the alternative cardiac surgery ‘tomes’. This entry into the series will provide readers with a complete review of the current understanding in mitral valve surgery and include extensive details on the diagnosis and surgical management of patients with mitral valve disease.

Features
- Complete and thorough review of the surgical aspects of mitral valve surgery
- Provides readers with a rapid review of the current understanding in mitral valve surgery
- Includes extensive details on the diagnosis and surgical management of patients with mitral valve disease

From the contents

Fields of interest
Cardiac Surgery; Cardiology; Infectious Diseases

Target groups
Professional/practitioner

Discount group
MR

Due October 2010

approx. $239.00
ISBN 978-1-84882-107-1

Due October 2010

2010. X, 150 p. 120 illus., 60 in color. Hardcover
approx. $139.00
ISBN 978-3-642-13305-3

Due October 2010

2011. Approx. 445 p. 68 illus., 52 in color. Hardcover
approx. $129.00
ISBN 978-3-642-13306-0

approx. $239.00
ISBN 978-1-84882-107-1
Radiological Anatomy for FRCR Part 1

The new FRCR part 1 Anatomy examination comprises 200 cases/images, with five questions about each. The cases are labelled 01 to 20 and the five questions are labelled (a) to (e). The authors have set out to emulate this format by gathering 200 cases which, from their experience, are representative of the cases on which candidates will be tested. The book consists of 10 tests with 20 cases each, and 5 stem questions each. The answers, along with an explanation and tips, accompany each test at the end of the chapter. This will help candidates to identify the level of anatomical knowledge expected by the Royal College of Radiologists. The aim of this book is not to replace the already available literature in radiological anatomy, but to complement it as a revision guide. Whereas radiological anatomy atlases and textbooks provide images with labels for every possible identifiable structure in an investigation, the cases in this book have only 5 labels, simulating the exam.

Features
- First book to offer practice test material and tips for the new FRCR part 1 Anatomy exam
- Comprises ten tests in exam format that serve to identify the level of knowledge of anatomical detail expected by the Royal College of Radiologists
- Includes practical tips on how to answer questions based on the first-hand experience of registrars who have passed the exam and the knowledge of experienced consultants

Contents
Test 1.- Test 2.- Test 3.- Test 4.- Test 5.- Test 6.- Test 7.- Test 8.- Test 9.- Test 10.- List of important anatomical variants.

Field of interest
Imaging / Radiology

Target groups
Professional/practitioner

Discount group
MR

Improving Patient Treatment Adherence
A Clinician’s Guide

Despite its direct effect on a patient’s health, the literature on treatment adherence does not yet include a summary of proven methods for identifying and addressing patient non-adherence. Improving Patient Treatment Adherence Across Multiple Behaviors: A Clinician’s Guide differs significantly from many treatment adherence books on the market by focusing on clinicians and the practical tactics they need to improve patient adherence. The book is organized by behavior and special issues as opposed to other texts, which look at treatment adherence as a theoretical concept. Each chapter provides a summary of existing literature regarding the impact of patient non-adherence, including costs, clinical outcomes and health-related quality of life, as well as a review of patient factors related to treatment adherence across behaviors, diseases, and special populations. A discussion of methods for improving treatment adherence takes a look at both proven methods and new technological advances in the field. Each chapter includes a table listing 3-5 key bullets that a clinician could use to address treatment adherence. Actual questions and scoring algorithms for widely used measures of treatment adherence make this book a useful guide for practicing clinicians.

Features
- Only book on treatment adherence geared toward the practicing clinician
- Broad range of topics addresses many conditions a primary care physician might see
- Focuses on practical, proven, clinical recommendations for improving adherence instead of theory

Target groups
Professional/practitioner

Discount group
MC

Cardiac CT Imaging
Diagnosis of Cardiovascular Disease

CT is an accurate technique for assessing cardiovascular structure and function, but advances in computing power and scanning technology have resulted in increased popularity. It is useful in evaluating the myocardium, coronary arteries, pulmonary veins, thoracic aorta, pericardium, and cardiac masses; because of this and the speed at which scans can be performed, CT is even more attractive as a cost-effective and integral part of patient evaluation. This book collates all the current knowledge of cardiac CT and presents it in a clinically relevant and practical format appropriate for both cardiologists and radiologists. The images have been supplied by an experienced set of contributing authors and represent the full spectrum of cardiac CT. As increasing numbers have access to cardiac CT scanners, this book provides all the relevant information on this modality. A CD-ROM is included containing a large number of cardiac CT images and videos, providing the reader with a dynamic primer in cardiac CT diagnosis. This is an extensive update of the previous edition bringing the reader up-to-date with the immense amount of updated content in the discipline.

Features
- Brand new reference in cardiovascular CT
- Lavishly illustrated
- Contains information on new imaging technologies including 256-slice cardiac CT
- Includes use of CT in peripheral cardiovascular imaging
- Contains extensively revised supportive CD including stunning cardiac CT cine clips and loops

Fields of interest
Cardiology; Imaging / Radiology; Diagnostic Radiology

Target groups
Professional/practitioner

Discount group
MR


**Infectious Disease Informatics and Biosurveillance**

**Research, Systems and Case Studies**

Drawing on their collective and respective expertise, the Editors and contributing authors are developing a handbook project on two intersecting modern problems: infectious disease informatics and biosurveillance. Infectious Disease Informatics (IDI) is a field that has emerged from biomedical informatics. Biosurveillance is an IDI application focusing on monitoring for new outbreaks of infectious diseases. Both areas are closely related and they have significant practical implications in the globalized world we live in.

**INFECTIOUS DISEASE INFORMATICS AND BIOSURVEILLANCE: A Handbook of Research, Systems and Case Studies** will be a systematic combined work which will accomplish the following: (1) provide structure to the multidisciplinary research in this fast moving, dynamic field, (2) define and further build the field, and (3) create an authoritative reference book for researchers, students and practitioners in the field.

**Features**

- Discusses the technologies involved in collecting, sharing, reporting, and analyzing, infectious disease data
- Provides data & decision-making support for infectious disease prevention, detection, & management
- Outlines how to detect, analyze, & stop bio-terrorism of both natural causes & political motivation that are major problems for the researchers, students & practitioners of the medical & public health

**Fields of interest**

Health Informatics; Public Health; Information Systems

**Target groups**

Research

**Discount group**

P

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**Anatomic Basis of Echocardiographic Diagnosis**

The aim of this book is to provide a systematic approach to echocardiographic diagnosis based upon a comprehensive understanding of cardiac anatomy. We shall provide abundant anatomic correlates of echocardiographic findings throughout the book. The book will be divided into three sections. Each chapter will cover both normal and pathological findings on echocardiography with anatomic correlation. The first section will address the normal findings which can be appreciated by current day echocardiography. The impact of aging on cardiac structure and function will also be covered in this section. In the second section, specific cardiac diseases will be discussed. The differentiating features between normal and pathologic conditions will be discussed. The last section will address specific clinical settings where echocardiography is pivotal for diagnosis and patient management.

**Features**

- Comprehensive systematic approach to echocardiographic diagnosis
- Provides abundant correlations of cardiac anatomy and echocardiographic findings
- Covers the impact of aging, features of pathologic conditions along with normal findings

**From the contents**

Normal findings and age related changes - Normal cardiac anatomy – orientation and imaging approach, Impact of age upon cardiac structure.
Cardiac Diseases - Aortic valve, Mitral valve, Tricuspid and pulmonic valve, Cardiomyopathies, Coronary artery disease, Right ventricular diseases, Diseases of the aorta, Pericardial diseases Special Clinical Settings - Prosthetic heart valves, Endocarditis and valvular thrombi, Cardiac tumors, Congenital heart disease, Suspected cardiac source of embolism.

**Fields of interest**

Cardiology; Ultrasound; Internal Medicine

**Target groups**

Professional/practitioner

**Discount group**

MR

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**Information Technology Essentials for Behavioral Health Clinicians**

The purpose of this book is to be the premier resource for behavioral health clinicians who are considering adopting technology into their practice. Written by experts and policy makers in the field this book will be recognized as the gold standard. Other books currently in this field are extremely technical and are geared primarily to policy makers, researchers and informaticians. While this book will be a useful adjunct to that audience, it is primarily designed for the over .5 million behavioural health clinicians in the U.S. and the millions others around the world. Adoption of technology is slow in behavioural healthcare, and this book will enhance the adoption and utilization of various technologies in practice. I.T. vendors may also purchase this book for their customers.

**Features**

- Relevance to the practicing clinicians so they are knowledgeable and comfortable with the use of technology in day to day practice
- A book that will be appreciated by informatics experts as well because of the detail, but understandable to the non-informatician
- Application to the behavioural health field, from psychiatrist, psychologists, social workers, counsellors and students in those professions

**From the contents**


**Fields of interest**

Health Informatics; Psychiatry; Psychotherapy

**Target groups**

Professional/practitioner

**Discount group**

MR

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Due September 2010


$239.00


Due September 2010

2010. X. 550 p. 664 illus., 332 in color. Hardcover

$149.00

ISBN 978-1-84996-386-7

Due September 2010

2010. X. 200 p. 200 illus., 100 in color. Hardcover

$89.00

Cardiac CT

Computed tomography of the heart has become a highly accurate diagnostic modality that is attracting increasing attention. This extensively illustrated book aims to assist the reader in integrating cardiac CT into daily practice, while also reviewing its current technical status and applications. Clear guidance is provided on the performance and interpretation of imaging using the latest technology, which offers greater coverage, better spatial resolution, and faster imaging. The specific features of scanners from all four main vendors, including those that have only recently become available, are presented. Among the wide range of applications and issues to be discussed are coronary artery bypass grafts, stents, plaques, and anomalies, cardiac valves, congenital and acquired heart disease, and radiation exposure. Upcoming clinical uses of cardiac CT, such as plaque imaging and functional assessment, are also explored.

Features
► Provides clear guidance on the performance and interpretation of cardiac CT, with a view to assisting the reader in integrating the modality into daily practice
► Describes the specific features of the most recent scanners from all four main vendors
► Discusses upcoming clinical applications such as plaque imaging and functional assessment

From the contents

Fields of interest
Imaging / Radiology; Cardiology; Internal Medicine

Target groups
Professional/practitioner

ISBN 978-3-642-14021-1

Due October 2010
2011. 285 p. 270 illus., 162 in color. Hardcover
► $179.00
ISBN 978-3-642-14021-1

Imaging of Brain Tumors with Histological Correlations

This volume provides a deeper understanding of the diagnosis of brain tumors by correlating radiographic imaging features with the underlying pathological abnormalities. All modern imaging modalities are used to complete a diagnostic overview of brain tumors with emphasis on recent advances in diagnostic neuroradiology. High-quality illustrations depicting common and uncommon imaging characteristics of a wide range of brain tumors are presented and analysed, drawing attention to the ways in which these characteristics reflect different aspects of pathology. Important theoretical considerations are also discussed. Since the first edition, chapters have been revised and updated and new material has been added, including detailed information on the clinical application of functional MRI and diffusion tensor imaging. Radiologists and other clinicians interested in the current diagnostic approach to brain tumors will find this book to be an invaluable and enlightening clinical tool.

Features
► Provides a deeper understanding of the diagnosis of brain tumors by correlating radiographic imaging characteristics with underlying pathology
► One of the few neuroradiological books to focus specifically on the diagnosis of brain tumors
► Special emphasis on CT and MRI findings
► Revised and updated edition that includes much new material, including on the use of functional MRI and diffusion tensor imaging

From the contents

Fields of interest
Imaging / Radiology; Neuroradiology; Pathology

Target groups
Professional/practitioner

ISBN 978-3-540-87648-9

Due October 2010
2nd ed. 2011. Approx. 300 p. 400 illus., 200 in color. Hardcover
► approx $179.00
ISBN 978-3-540-87648-9

Antibiotics and Antiseptics in Periodontal Therapy

Periodontal diseases are the major cause of tooth mortality in many industrialized countries and most developing nations. The significance of microorganisms in the development of virtually all types of periodontal disease is indisputable. This book is an encyclopedic collection of data from scientific papers and textbooks that form a sound basis for a thorough understanding of the antibiotics and antiseptics used in periodontal therapy. The prophylactic, systemic, and topical uses of antibiotics are discussed in detail, identifying the indications, advantages, disadvantages, and efficacy of each approach and regimen. The use of antiseptics is also carefully examined, with particular attention to the merits of different delivery methods and oral hygiene agents. The closing chapter addresses the role of non-steroidal anti-inflammatory drugs. This book will be of value to undergraduate and postgraduate dental students, dental hygienists, dental practitioners, and other associated professionals.

Features
► Provides an encyclopedic collection of data from scientific papers and textbooks that form a sound basis for a thorough understanding of the antibiotics and antiseptics used in periodontal therapy
► Discusses in detail the prophylactic, systemic, and topical uses of antibiotics
► Evaluates antiseptic agents and the different delivery methods
► Examines the role of non-steroidal anti-inflammatory drugs

Fields of interest
Dentistry; Pharmacology/Toxicology; Immunology

Target groups
Professional/practitioner

ISBN 978-3-642-13210-7

Due November 2010
2011. Approx. 295 p. 36 illus., 20 in color. Hardcover
► $189.00
ISBN 978-3-642-13210-7
Inherited Cancer Syndromes

Current Clinical Management

The second edition of Inherited Cancer Syndromes incorporates new genetic markers data with the clinical utility and practicality of the first edition.

Features
- Practical, concise and clinical resource for surgeons specifically addressing the special issues surrounding the management of patients with heritable cancers
- Specifically designed to educate physicians and health care workers about the genetic aspects of inherited syndromes of cancer
- Expanded clinical content is tightly focused on the real-world implications of emerging therapies on patient treatment plans

Fields of interest
General Surgery; Oncology; Surgical Oncology

Target groups
Professional/practitioner

Discount group
MR

Fabry Disease

Fabry disease is an X-linked inborn error of metabolism wherein deficiency of a lysosomal enzyme results in systemic deposition of glycosphingolipids. Storage deposition, and hence pathological disease, occurs preferentially in renal glomerular and tubular epithelial cells, myocardial cells, heart valve fibrocytes, neurons of dorsal root ganglia, and in endothelial smooth muscle cells of blood vessels. Thus, Fabry disease is a multi-system disorder, albeit with considerable phenotypic heterogeneity in onset and in severity; however, it is progressive, exhibits extensive morbidity, and is life-threatening. Within the past two decades, there has been a radical change in the natural course Fabry disease by virtue of the availability of specific enzyme replacement therapy. Moreover, there has been a concerted effort to better understand the underlying pathology and equally to identify patients prior to the onset of irreversible end-organ damage. It is to be hoped that the future for patients with Fabry disease can be viewed with greater, albeit guarded, optimism. This state-of-the-art textbook attempts to bridge the span of pre-clinical studies, clinical finding, and management options in a readable but comprehensive manner for the medical practitioner as well as the interested non-medical reader.

Features
- First full-length textbook about Fabry disease
- Includes chapters on the therapeutic management options
- Complete and state-of-the-art range of pre-clinical studies
- Comprehensive chapters on clinical findings
- All authors are experts with many years of clinical and research experience

Fields of interest
Metabolic Diseases; Human Genetics

Target groups
Research

Discount group
MR

Gravitation as a Plastic Distortion of the Lorentz Vacuum

Addressing graduate students and researchers in theoretical physics and mathematics, this book presents a new formulation of the theory of gravity. In the new approach the gravitational field has the same ontology as the electromagnetic, strong, and weak fields. In other words it is a physical field living in Minkowski spacetime. Some necessary new mathematical concepts are introduced and carefully explained. Then they are used to describe the deformation of geometries, the key to describing the gravitational field as a plastic deformation of the Lorentz vacuum. It emerges after further analysis that the theory provides trustworthy energy-momentum and angular momentum conservation laws, a feature that is normally lacking in General Relativity.

Features
- Introduces a new theory of the gravitational field
- Novel mathematical concepts are presented and explained in detail
- Explicitly demonstrates advantages over previous descriptions of the gravitational field

Contents

Fields of interest
Classical and Quantum Gravitation, Relativity Theory; Internal Medicine; General Practice / Family Medicine

Target groups
Research

Discount group
P
Practical Aspects of Cosmetic Testing
How to Set up a Scientific Study in Skin Physiology

Skin physiology assessment is moving rapidly from a descriptive approach to a deeper understanding of biophysical and biochemical processes in the stratum corneum, e.g. on stratum corneum barrier function as well on stratum corneum hydration. The research with bioengineering methods offers now reliable and reproducible approaches for product testing in the pharmaceutical and cosmetic industry as well as in basic research. This cookbook is intended to give basic information regarding skin physiology, the assessment of skin functions in controlled studies using non-invasive biophysical instruments. It provides basic knowledge on how to plan, perform and evaluate scientific studies. The authors are recognized expert in the field and provide comprehensive chapters with specific emphasis on the practical aspects of non-invasive measurements.

Features
- Basic cookbook on how to plan, perform and evaluate scientific studies
- Including practical checklists
- Written by leading experts

Contents
History and Progress of Objective Skin Analysis.
- Legal Aspects.
- Research Staff.
- Testing Population.
- Testing Devices and Methods.
- Factors Influencing Measurements.
- Study Design.
- Practical Aspects of Cosmetic Testing: Test Settings.
- Compliance Control.
- Practical Aspects of Skin Disease Evaluation.
- Practical Aspects in Chart Form.

Fields of interest
Dermatology; Allergology

Target groups
Professional/practitioner

Discount group
MR

Aesthetic Applications of Intense Pulsed Light

The book is structured into eight chapters:
1. Skin anatomy. This chapter is intended to describe the pertinent anatomy related to IPL applications.
2. Light-tissue interaction. This chapter describes the interaction between IPL and different skin structures.
3. IPL safety and legal issues. This chapter describes the needs of the environment for a safe treatment.
4. Patient selection. This chapter describes the pearls and pitfalls in selecting patients for IPL treatment.
5. Skin rejuvenation. This chapter starts with a description of skin aging.
6. Hair removal. This chapter starts with a description of the hair follicle cycle, hair types and important structures for treatment.
7. Vascular lesions treatment. This chapter describes the types of vascular lesions that can benefit from IPL treatment.
8. Complications. At the end of each chapter, there is a section on the practical points highlighting the most important points of the chapter. An extensive literature review of this technology is presented alongside numerous illustrations, tables and color pictures. The book will benefit any doctor or healthcare professional who uses IPL for cosmetic purposes, such as plastic surgeons, dermatologists, ophthalmologists, maxillofacial surgeons and otolaryngologists dealing with aesthetics of the face, as well as residents interested in learning the subject.

Features
- Only description on market about neuromuscular monitoring
- Written by an expert
- With many colour illustrations

Contents
Principles of neuromuscular transmission.
- Principles of neuromuscular monitoring.
- Clinical application.
- Acceleromyography.
- FAQs.

Field of interest
Anesthesiology

Target groups
Professional/practitioner

Discount group
MR

Due October 2010
2010. Approx. 260 p. 27 illus., 14 in color. Hardcover

$189.00
ISBN 978-3-642-05066-4

Due October 2010
2011. IV, 140 p. Hardcover

approx $139.00

Due October 2010
2010. 215 p. Softcover

$29.95
ISBN 978-3-642-13476-0

Neuromuscular Monitoring

Neuromuscular monitoring is critical for the judicious use of muscle relaxants. In combination with reversal, it is fundamental to every successful strategy for managing postoperative residual blocks. This reference work is a compendium of all the essential information needed to monitor neuromuscular function. Physiological and pharmacological basics of neuromuscular transmission, principles of neuromuscular monitoring: How to place stimulation electrodes, properly select the stimulation mode and interpret findings, practical techniques for clinical routine, clinical concepts behind qualitative and quantitative nerve stimulators, comprehensive presentation of acceleromyography including a question & answer section, summaries of all key points, current guidelines on the scientific use of acceleromyography.

Features
- Details various applications of IPL
- Includes chapters on getting to know the devices, patient selection, and legal issues which are no less important for someone using this treatment

Contents
Principles of neuromuscular transmission.
- Principles of neuromuscular monitoring.
- Clinical application.
- Acceleromyography.
- FAQs.

Field of interest
Anesthesiology

Target groups
Professional/practitioner

Discount group
MR
Gamma Knife Neurosurgery
A Guide for Users, Residents and Referring Physicians

Today, over 500,000 patients have been treated worldwide in 250 Gamma Knife Centres in 37 countries each one treating between 150 and 700 patients a year. The current book serves as a textbook, training manual and reference book for those involved in Gamma Knife practice covering the theoretical background, the practical aspects of treatment, the social side of the method and necessary information not only for users but for those who refer to the Gamma Knife. It also covers some aspects of the hospital and social administration required for optimal use of the technology, also looking at the effect of the internet on specialist medical practice. It also presents the completely new Gamma Knife (Perfexion), a new technology which extends the range of the Gamma Knife and will be the treatment standard for the future.

Features
➤ Current state of knowledge for various indications for which the Gamma Knife is used
➤ Showing various steps in the assessment, acceptance and management of Gamma Knife patients
➤ Frequently met problems and their solutions are described

From the contents

Field of interest
Neurosurgery

Target groups
Professional/practitioner

Discount group
MR

Hormone Use and Abuse by Athletes

Physical activity exerts an important influence on the endocrine system, modulating synthesis and secretion of several hormones. Almost every organ and system in the body is affected by physical activity and exercise, mainly through the endocrine and neuroendocrine system. Mode, intensity, and duration of the exercise bout, age, gender and fitness level of the individual as well as environmental and psychological factors may affect the endocrine response to physical activity. On the other hand, several hormones are able to influence physical performance and body composition. Thus, a bi-univocal interrelationship between exercise and hormones exists.

In this book new developments on metabolic and endocrine response to exercise are revised and introduce the "hot topic" of hormonal doping in sports. In the past decades, hormone abuse has become a widespread habit among professional and – most of all and more frequently – recreational athletes. A substantial part of this volume is devoted to the effects of exogenous hormones on performance. Anabolic steroids, growth hormone and erythropoietin properties, use and misuse in sports are widely described. Specific methods to detect hormone abuse are presented and discussed.

Features
➤ Current scientific and clinical data will be provided on hormone use by athletes - vital for clinicians caring for patients in both the professional and non-professional athletic arenas.
➤ International authors renowned with a compact and comprehensive volume

Fields of interest
Endocrinology; Cardiology

Target groups
Professional/practitioner

Discount group
MR

The MassGeneral Hospital for Children Adolescent Medicine Handbook

The MassGeneral Hospital for Children Adolescent Medicine Handbook, is a definitive, practical guide for the optimal clinical care of adolescents. This unique and invaluable resource is not only replete with user-friendly diagrams, tables, charts and pathways; it most importantly covers in detail the best practices in adolescent medicine where practice not only means the most appropriate approaches, diagnostic evaluation and best treatments, but also the best ways to connect, communicate and continue care with teenagers. Divided into three sections, the handbook covers general adolescent medicine, sexuality, and mental health. Chapters are written by outstanding physician authors who represent expertise in pediatric or adult specialties and have taught or trained at Massachusetts General Hospital. The MassGeneral Hospital for Children Adolescent Medicine Handbook joins together the collective knowledge and wisdom of its esteemed contributors to provide a multi-specialty approach to adolescent healthcare that balances the science and the art of adolescent medicine.

Features
➤ Practical and user-friendly, with a multi-specialty approach to care ➤ Replete with user-friendly diagrams, tables, charts, figures, and pathway models ➤ Addresses best practices in adolescent medicine including best ways to provide optimal provider-patient relations

From the contents

Fields of interest
Pediatrics; Internal Medicine; General Practice / Family Medicine

Target groups
Professional/practitioner

Discount group
MR
N. Gourtsoyiannis, University of Crete, Heraklion, Greece (Ed.)

**Clinical MRI of the Abdomen**

Why, How, When

This volume, which explains why, when, and how abdominal MRI should be used, focuses in particular on the most recent developments in the field. After introductory chapters on technical considerations, protocol optimization, and contrast agents, MRI of the various solid and hollow viscera of the abdomen is addressed in a series of detailed chapters. Relevant clinical information is provided, and state of the art protocols presented. With the help of numerous high-quality illustrations, normal, variant, and abnormal imaging findings are described and potential artefacts highlighted. Differential diagnosis is given extensive consideration, and comparisons are made with competing methodologies when relevant. Each of the chapters is rounded off by a section on “pearls and pitfalls”.

The closing chapters focus on findings in the pediatric abdomen, advances in MRI specifically relevant to cancer patients, and the use of abdominal MRI at 3 Tesla. This book, written by leading experts, will be of value to all who are involved in learning, performing, interpreting, and reporting abdominal MRI examinations.

**Features**

- Provides disease-oriented state of the art examination protocols
- Clearly explains why, when, and how abdominal MRI should be used
- Includes a wealth of high-quality illustrations
- Offers chapters on pediatric MRI, advances relevant to cancer patients, and the use of abdominal MRI at 3 Tesla

**From the contents**


**Fields of interest**

Imaging / Radiology; Gastroenterology; Internal Medicine

**Target groups**

Professional/practitioner

**Discount group**

MR

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A. Griffiths, T. Lowes, Great North Air Ambulance, Darlington, UK; J. Henning, James Cook University Hospital, Middlesbrough, UK

**Pre-Hospital Anesthesia Handbook**

Pre-Hospital Anaesthesia is one of the most demanding interventions that can be made in the field. The exact incidence of failed intubation is difficult to quantify, but it is clear that it is higher than in hospital. Equally it is certain that anyone undertaking it should have clear instruction in the technique and a thorough understanding of all it entails. This handbook details the procedures, drugs and algorithms used by the crews of the Great North Air Ambulance who have been providing this life saving intervention since 2004. It draws on huge experience in the field and provides a spring board for any practitioner who wishes to take it on.

**Features**

- Details the procedures, drugs and algorithms used by the expert crews of the Great North Air Ambulance
- Provides a focused, evidence-based foundation for any practitioner who wishes to learn this potentially life-saving procedure

**Contents**

Introduction. - Indications and decision making. - Pre-hospital Rapid Sequence Intubation. - Post-Intubation Management. - Equipment and minimum monitoring standards. - Drugs and sedation. - Special circumstances. - Complications & Adverse Events.

**Fields of interest**

Anesthesiology; Emergency Medicine; Intensive / Critical Care Medicine

**Target groups**

Professional/practitioner

**Discount group**

MR

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G. Halwachs-Baumann, Landeskrankenhaus Steyr, Austria (Ed.)

**Congenital Cytomegalovirus Infection**

Epidemiology, Diagnosis, Therapy

Congenital cytomegalovirus (CMV) infection is the most common intrauterine transmitted viral infection, with a tremendous impact on fetuses and newborns. In this book the history of this disease, its pathophysiological background, epidemiology and symptoms, as well as diagnostic and therapeutic strategies, will be discussed. Since economic aspects are gaining more and more importance in health politics, one chapter is dedicated to this issue in the context of congenital CMV infection. The content is based on the latest scientific findings and written in an understandable manner, allowing persons not working in the field of congenital CMV to also profit from it.

Thus, this book is of interest for medical doctors, nurses, midwives, economists, but also for men and women who want to inform themselves about this topic.

**Features**

- Latest scientific findings
- Written in understandable manner
- Informative overview on the topic
- Socioeconomic factors are discussed

**Contents**


**Fields of interest**

Gynecology; Medical Microbiology; Infectious Diseases

**Target groups**

Professional/practitioner

**Discount group**

MR

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**Due October 2010**

2009. Approx. 600 p. 1200 illus., 600 in color. Hardcover

- approx. $239.00
- ISBN 978-3-540-85688-7

**Due August 2010**

2010. XIII, 102 p. 18 illus., 9 in color. Softcover

- approx. $39.95

**Due December 2010**

2010. Approx. 350 p. 40 illus., 10 in color. Hardcover

- approx. $209.00
- ISBN 978-3-7091-0207-7
Microbial Zoonoses and Sapronoses

This book presents the state of art in the field of microbial zoonoses and sapronoses. It could be used as a textbook or manual in microbiology and medical zoology for students of human and veterinary medicine, including Ph.D. students, and for biomedicine scientists and medical practitioners and specialists as well. Surprisingly, severe zoonoses and sapronoses still appear that are either entirely new (e.g., SARS), newly recognized (Lyme borreliosis), resurging (West Nile fever in Europe), increasing in incidence (campylobacteriosis), spatially expanding (West Nile fever in the Americas), with a changing range of hosts and/or vectors, with changing clinical manifestations or acquiring antibiotic resistance. The collective term for those diseases is (re)emerging infections, and most of them represent zoonoses and sapronoses (the rest are arthropod-borne). The number of known zoonotic and sapronotic pathogens of humans is continually growing – over 800 today.

Features
► Complexity ► Up to date ► Succint

From the contents

Fields of interest
Infectious Diseases

Target groups
Research

Discount group
MR

T. Johnson, Institut für Radiologische Diagnostik, Ludwig-Maximilians-Universität, Munich, Germany; C. Fink, S. O. Schönberg, University Hospital Mannheim, Mannheim, Germany; M. F. Reiser, Ludwig-Maximilians-Universität, Klinikum Großhadern, Munich, Germany (Eds.)

Dual Energy CT in Clinical Practice

Dual-energy CT is a novel, rapidly emerging imaging technique which offers important new functional and specific information. In this book, physicists and specialists from different CT manufacturers provide an insight into the technological basis of, and the different approaches to, dual-energy CT. Renowned medical scientists in the field explain the pathophysiologic and molecular background of the technique, discuss its applications, provide detailed advice on how to obtain optimal results, and offer hints regarding clinical interpretation. The main focus is on the use of dual-energy CT in daily clinical practice, and individual sections are devoted to imaging of the vascular system, the thorax, the abdomen, and the extremities. Evaluations and recommendations are based on personal experience and peer-reviewed literature. Plenty of carefully chosen high-quality images are included to illustrate the clinical benefits of the technique.

Features
► First book devoted exclusively to this new and rapidly emerging technique ► Meets the great demand for up-to-date, substantiated information on dual-energy CT and its use in clinical practice ► Provides advice on how to obtain optimal imaging results and on their interpretation ► Includes many high-quality images to illustrate the clinical benefits of the technique

Fields of interest
Imaging / Radiology; Diagnostic Radiology; Internal Medicine

Target groups
Professional/practitioner

Discount group
MR

B. Kastler, Service de Radiologie, CHU Jean-Minjoz, Besançon, France (Ed.)

MRI of Cardiovascular Malformations

MRI is a non-invasive and non-ionizing imaging modality that is perfectly suited for the diagnosis and follow-up of both pediatric and adult congenital heart disease. It provides a large field of view and has the unique ability to depict complex cardiac and vascular anatomy and to measure cardiac function and flow within one examination. MRI is the ideal complement to echocardiography whenever the information provided by the latter is limited.

This book has been conceived as a self-teaching manual that will assist qualified radiologists, cardiologists, and pediatricians, as well as those in training. It is richly illustrated with numerous images and drawings that cover all usual and most unusual anomalies. The principal author, Professor Bruno Kastler, is head of radiology at Besançon University Hospital, France and is board certified in both radiology and cardiology.

Features
► A self-teaching manual for both qualified and trainee radiologists, cardiologists, and pediatricians ► Richly illustrated with numerous images and drawings ► Covers all usual and most unusual anomalies

Contents

Fields of interest
Imaging / Radiology; Cardiology; Pediatrics

Target groups
Professional/practitioner

Discount group
MR
Basic Sciences of Nuclear Medicine

Nuclear medicine has become an ever-changing and expanding diagnostic and therapeutic medical profession. The day-to-day innovations seen in the field are, in great part, due to the integration of many scientific bases with complex technologic advances. The aim of this reference book, Basic Sciences of Nuclear Medicine, is to provide the reader with a comprehensive and detailed discussion of the scientific bases of nuclear medicine, covering the different topics and concepts that underlie many of the investigations and procedures performed in the field. Topics include radiation and nuclear physics, Tc-99m chemistry, single-photon radiopharmaceuticals and PET chemistry, radiobiology and radiation dosimetry, image processing, image reconstruction, quantitative SPECT imaging, quantitative cardiac SPECT, small animal imaging (including multimodality hybrid imaging, e.g., PET/CT, SPECT/CT, and PET/MRI), compartmental modeling, and tracer kinetics.

Features
- Comprehensive and detailed discussion of the scientific bases of nuclear medicine
- Covers a wide range of topics and concepts that underlie investigations and procedures performed in the field
- Includes much information relevant to the latest multimodality hybrid imaging modalities

From the contents

Field of interest
Nuclear Medicine

Target groups
Professional/practitioner

Discount group
MR

Ultrasound Diagnostics of Thyroid Diseases

As the basis for this book, the authors have analyzed more than 100,000 ultrasound examinations performed between 1995 and 2008 in patients with thyroid and parathyroid disease, as well as many thousands of diagnostic and therapeutic ultrasound-guided minimally invasive procedures. The opening chapters include discussion of current ultrasound techniques, pitfalls, and ultrasound examination of the thyroid in children. Detailed attention is then devoted to findings in the normal thyroid and in the presence of diffuse and focal changes. Further chapters focus on such topics as the role of ultrasound after thyroid surgery and ultrasound diagnosis of parathyroid disease, recurrent goiter, and neck masses. Ultrasound-guided minimally invasive techniques, such as fine-needle aspiration biopsy and percutaneous laser ablation, are considered in depth. This up-to-date and richly illustrated book will interest and assist specialists in ultrasound diagnostics, radiologists, endocrinologists, and neck surgeons.

Features
- Based on the analysis of more than 100,000 ultrasound examinations in patients with thyroid and parathyroid disease, as well as many thousands of ultrasound-guided minimally invasive procedures
- Provides up-to-date information on ultrasound techniques and findings in a wide variety of settings
- Discusses diagnostic and therapeutic ultrasound-guided minimally invasive procedures in depth
- Richly illustrated

Contents
Introduction.- Diagnostics of Thyroid Pathology with Radiological Methods.- Complex Ultrasound Diagnosis of Thyroid Diseases.- Ultrasound Examination of the Thyroid Gland in Children.- Normal Thyroid.- Diffuse Changes of Thyroid Gland.

Fields of interest
Diagnostic Radiology

Discount group
MR

Small Animal Imaging Basics and Practical Guide

Small animal imaging has been recognized as an important tool in preclinical research. Nevertheless, the results of non-invasive imaging are often disappointing owing to choice of a suboptimal imaging modality and/or shortcomings in study design, experimental setup, and data evaluation. This textbook is a practical guide to the use of non-invasive imaging in preclinical research. Each of the available imaging modalities is discussed in detail, with the assistance of numerous informative illustrations. In addition, many useful hints are provided on the installation of a small animal unit, study planning, animal handling, and the cost-effective performance of small animal imaging. Cross-calibration methods, data postprocessing, and special imaging applications are also considered in detail. This is the first book to cover all the practical basics in small animal imaging, and it will prove an invaluable aid for researchers, students, and technicians.

Features
- Provides a unique practical guide to the use of non-invasive imaging in preclinical research
- Discusses each of the available imaging modalities in detail, with the assistance of numerous informative illustrations
- Offers many useful hints on the installation of a small animal unit, study planning, animal handling, and cost-effective imaging
- Will be an invaluable aid for researchers, students, and technicians

Fields of interest
Imaging / Radiology; Laboratory Medicine; Pharmacology/Toxicology

Target groups
Research

Discount group
MR
Gestational Diabetes During and After Pregnancy

Gestational Diabetes Mellitus is becoming an increasingly prevalent disease as obesity and other chronic diseases are on the rise. It requires careful and informed clinical management as the care received during pregnancy affects not only perinatal health but the risk of developing type 2 diabetes even decades into the future, in both the mother and the child. From epidemiology and pathophysiology to diagnosis and management, covering recent breakthroughs in research and up-to-date developments in clinical practice, Gestational Diabetes During and After Pregnancy offers the reader a comprehensive and current look at Gestational Diabetes. Anyone involved in the research, public health or clinical aspects of Gestational Diabetes will find this volume a valuable aid in consolidating all recent developments regarding this disease.

Features
- Gestational Diabetes During and After Pregnancy provides a comprehensive and current look at gestational diabetes
- Includes the results of the landmark Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study
- Addresses public health issues, with discussions on screening, control programs and policy

From the contents
An Overview of Problems and Solutions in the Diagnosis and Treatment of Gestational Diabetes.
- SECTION I: SCREENING FOR AND IDENTIFICATION OF GDM DURING PREGNANCY.
- Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study: An Overview.
- Evolution of screening and diagnosis criteria for GDM worldwide.
- SECTION II: BURDEN OF GDM IN US POPULATIONS.
- Prevalence of GDM.
- Risk Factors for Gestational Diabetes: From an Epidemiological Standpoint.

Fields of interest
Endocrinology; Maternal and Child Health; Obstetrics/Perinatology

Target groups
Professional/practitioner

Discount group
MR

Nutrition for Healthy Skin
Strategies for Clinical and Cosmetic Practice

This extraordinary reference describes the scientific basis, summarizes the existing evidence that functional food for skin really works, and addresses the key questions asked by dermatologists and patients when it comes to practical aspects of nutrition based strategies in clinical and cosmetic dermatology. It is believed that this helpful guide will become the golden standard, the ‘bible’ for this given topic, which will be used by dermatologists, industry people and interested patients.

Features
- First clinical guide which addresses the key questions about practical aspects of nutrition
- Based strategies in clinical and cosmetic dermatology
- Reader-friendly structured and lavishly illustrated
- Written by international experts of the field

From the contents
THE SCIENTIFIC BASIS: Historical Aspects: From Vitamin Deficiencies to Functional Food for Skin.
- Structure, Function and Nutrition of the skin.
- Skin Aging.
- Skin Cancer.
- Skin Barrier Function.
- FUNCTIONAL FOOD FOR SKIN WORKS: INTERVENTION STUDIES IN HUMANS AND ANIMAL MODELS:
- Botanical Antioxidants for Skin Protection: Overview.
- Systemic Photoprotection by Carotenoids.
- Systemic and Topical Use of Green-Tea Polyphenols for Healthy Skin.
- Flavanoid-Rich Micronutrients.
- Omega-3 Fatty Acids and Skin.
- Probiotics for Healthy and Diseased skin.
- Prebiotic Cosmetics.
- Functional Dairy Products for Healthy Skin.
- Micronutrients for Hair and Nails.
- HOW TO USE FUNCTIONAL FOOD IN CLINICAL DERMATOLOGY: Legal Aspects: How do Micronutrients Differ from Drugs and Medical Products.

Fields of interest
Dermatology; Internal Medicine; General Practice / Family Medicine

Target groups
Professional/practitioner

Discount group
MR

A Dictionary of Neurological Signs

The first two editions of the Dictionary of Neurological Signs were very well-received by readers and reviewers alike. Like those editions, this Third Edition, updated and expanded, can be almost as well described in terms of what the book is not, along with details about what it is. The Dictionary is not a handbook for treatment of neurological disorders. While many entries provide the latest treatment options, up-to-the-minute therapies are not discussed in bedside detail. The Dictionary is not a board review book because it is not in Q&A format but could easily serve in that capacity since each entry is a fairly complete snapshot of a specific disorder or disease. The Dictionary is an alphabetical listing of commonly presenting neurological signs designed to guide the physician toward the correct clinical diagnosis. The Dictionary is focused, problem-based, concise and practical. The structured entries in this practical, clinical resource provide a thumbnail of a wide range of neurological signs.

Features
- Portable and robust, making for ease of use in clinical environments such as the ward and the outpatient clinic
- Alphabetical listing of entries and extensive cross referencing
- Pragmatic text for busy clinicians who want information at their fingertips

Field of interest
Neurology

Target groups
Professional/practitioner

Discount group
MC
A Pattern Approach to Lymph Node Diagnosis

While a pattern approach to diagnosis is taught and practiced with almost every other tissue or organ in the body, the lymph node remains a mystery to most residents starting out in pathology and those pathologists with limited experience in the area. A Pattern Approach to Lymph Node Diagnosis demonstrates that a systematic approach to lymph node examination can be achieved through recognition of morphological patterns produced by different disease processes. It presents a combination of knowledge-based assessment and pattern recognition for diagnosis covering the major primary neoplastic and non neoplastic diseases and metastatic tumors in lymph nodes. This volume demonstrates that lymph node compartments can be recognized histologically especially with the aid of immunohistological markers and how this knowledge can be employed effectively to localize and identify pathological changes in the different compartments in order to facilitate histological diagnosis. It also defines histological features that, because of their pathological occurrence in lymph nodes, are useful pointers to specific diagnoses or disease processes.

Features
- Written by experts in lymphoproliferative diseases
- High quality color illustrations of each major diagnostic entity
- The volume is organized in accordance with the primary pattern of presentation of each diagnostic entity

Contents

Fields of interest
Pathology; Hematology

Target groups
Professional/practitioner

Discount group
MR

Due October 2010

2010. 290 p. Hardcover
- approx. $189.00

Topics in Dental Biochemistry

Over the last 20 years, our knowledge of biochemistry and molecular biology has undergone a revolution that has affected our understanding of the biology of the oral cavity. This book is designed to related ideas in biochemistry and molecular biology to selected, dentally related topics in physiology, nutrition, anatomy, histology, microbiology and immunology. Dentistry was developed to treat diseases of the teeth: originally, dental caries and periodontal disease, but later genetic diseases, such as impacted and overcrowded teeth, or unusual genetic conditions, such as cleft palate. Treatment has progressed enormously over the last 30 years, like those for many other diseases. New treatments have come in the form of fluoridation as well as applying oral hygiene measures and new materials, but diagnosing and treating the 10% of the population who will become severely affected remains a problem. This book is directly relevant to the practice of dentistry today as background for understanding bone, tooth, saliva and surrounding soft tissue research and also for appreciating how dental caries and periodontal disease might be better diagnosed and controlled in the future.

Features
- Direct relevance to the practice of dentistry today
- Written by well-known author
- With numerous illustrations

From the contents

Fields of interest
Dentistry; Medical Biochemistry

Target groups
Professional/practitioner

Discount group
P

Due October 2010

2009. 150 p. 160 illus., 80 in color. Hardcover
- $139.00

Infant Feeding Practices

A Cross-Cultural Perspective

It’s natural... It’s unsightly... It’s normal... It’s dangerous. To breastfeed or not? For millions of women around the world, this personal decision is influenced by numerous social, cultural, and health factors. Infant Feeding Practices is the first book to delve into these factors from a global perspective, revealing striking similarities and differences from country to country. Dispatches from Asia, Australia, Africa, the U.K., and the U.S. explore as wide a gamut of salient issues affecting feeding practices as traditional beliefs about colostrums, “breast is best” campaigns, partner attitudes, workplace culture, direct government intervention, and the pressure to be a “good mother.” Throughout these informative pages, women are seen balancing innovation and tradition to nurture healthy, thriving babies.

Features
- Brings together current research on infant feeding beliefs and practices around the world
- Uniquely written from a cross-cultural perspective
- Makes recommendations for the provision of health and social services to mothers and families

From the contents

Fields of interest
Maternal and Child Health; Public Health; Anthropology

Target groups
Research

Discount group
P

Due October 2010

2011. XX, 350 p. Hardcover
- approx. $129.00
Glycemic Control in the Hospitalized Patient: A Comprehensive Clinical Guide

Glycemic Control in the Hospitalized Patient: A Comprehensive Clinical Guide is a unique, practical resource for health care providers dealing with hyperglycemia in the inpatient setting. Outlining a hands-on approach used by the Duke University Inpatient Diabetes Management team, the book discusses a wide range of scenarios that occur while treating patients with hyperglycemia, including challenging circumstances such as steroids and tube feeding regimens. Special emphasis is given to insulin therapy. The chapters are written by a group of health care providers with extensive, pioneering experience in hyperglycemia control in the inpatient setting at the Duke University Medical Center. The book includes the most up-to-date scientific evidence and information and is addressed to not only hospitalists and general internists but also endocrinology fellows, residents, nurse practitioners, nurses, and other primary care practitioners who treat patients in the inpatient setting.

Features
- Discusses a wide range of scenarios
- Special emphasis is given to insulin therapy
- Useful and practical resource for health care providers who treat hyperglycemia in the inpatient setting

From the contents
Physiology of Diabetes Mellitus and Types of Insulin.- Subcutaneous insulin: A Guide for Dosing Regimens in the Hospital.- IV Insulin Infusions: How to Use an "Insulin Drip".- Laboratory Testing in Hospitalized Patients with Diabetes Mellitus.- Inpatient Diabetes Education: Realistic and Evidence-Based.- Hyperglycemic Emergencies: Diabetic Ketonacidosis and Hyperosmolar Hyperglycemic State.- Medical Nutrition Therapy in the Hospital.

Fields of interest
Internal Medicine; General Practice / Family Medicine; Primary Care Medicine

Target groups
Professional/practitioner

Discount group
MR

Decision Making in Radiation Oncology

Decision Making in Radiation Oncology is a reference book designed to enable radiation oncologists, including those in training, to make diagnostic and treatment decisions effectively and efficiently. The design is based on the belief that "a picture is worth a thousand words." Knowledge is conveyed through an illustrative approach using algorithms, schemas, graphics, and tables. Detailed guidelines are provided for multidisciplinary cancer management and radiation therapy techniques. In addition to the attention-riveting algorithms for diagnosis and treatment, strategies for the management of disease at individual stages are detailed for all the commonly diagnosed malignancies. Clinical trials that have yielded “gold standard” treatment and their results are documented in the schemas. Moreover, radiation techniques, including treatment planning and delivery, are presented in an illustrative way. This groundbreaking publication is an essential tool for physicians in their daily clinical practice.

Features
- Up-to-date reference book that will enable radiation oncologists, including those in training, to make diagnostic and treatment decisions effectively and efficiently
- Conveys knowledge using an illustrative approach involving algorithms, schemas, graphics, and tables
- Documents management strategies at individual stages for all commonly diagnosed malignancies
- Provides detailed guidelines for radiation therapy

Fields of interest
Imaging / Radiology; Radiotherapy; Oncology

Target groups
Professional/practitioner

Discount group
MR

Obesity Before Birth
Maternal and prenatal influences on the offspring

This volume will explore the epidemiology and the basic mechanisms of each of these prenatal phenomena, in an attempt to explain the role of the prenatal environment in promoting postnatal weight gain. This information will contribute to resolving the nature-nurture controversy. This information provides guidance to clinical practitioners involved in both prenatal and postnatal care. This volume further stimulates research into underlying mechanisms and prevention and treatment of this phenomenon.

Features
- Discusses a wide range of scenarios
- Special emphasis is given to insulin therapy
- Useful and practical resource for health care providers who treat hyperglycemia in the inpatient setting

From the contents
Obesity: nature or nurture?.- The contribution of heredity to clinical obesity.- Monogenic disorders within the energy balance pathway.- Ciliary syndromes and obesity.- Genome-wide association studies and human population obesity.- Known clinical epigenetic disorders with an obesity phenotype: Prader-Willi Syndrome and the GNAS locus.- Evidence for epigenetic changes as a cause of clinical obesity.- Epigenetic changes associated with intrauterine growth retardation and adipogenesis.- Exposure to diabetes in utero, offspring growth, and risk for obesity.- Maternal weight gain during pregnancy and obesity in the offspring.- Intrauterine growth restriction, small for gestational age, and experimental obesity.- Experimental models of maternal obesity and high-fat diet during pregnancy and programmed obesity in the offspring.

Fields of interest
Endocrinology; Human Genetics; Food Science

Target groups
Professional/practitioner

Discount group
MR
Hematopoietic Growth Factors in Oncology

Progress in the treatment of cancer over the past two decades has been rapid with many new and novel therapeutic modalities arriving at an unprecedented pace. Overall cancer mortality rates have actually begun to fall in parallel with progress in the diagnosis and treatment of malignant disease. Despite our advances in the understanding of the biology and molecular genetics of cancer, as well as the availability of an increasing array of effective therapies, cancer treatment today and for the foreseeable future will include the traditional modalities of surgery, radiation therapy and chemotherapy. Myelosuppressive agents with their potential hematopoietic toxicities remain the mainstay of systemic treatment for both metastatic and early stage cancer. The complications of cancer chemotherapy have serious impact on a patient's well being and overall quality of life. Fortunately, advances in cancer treatment have been accompanied by equally impressive progress in the availability of a wide array of supportive care modalities which have greatly enhanced the ability of oncologists to minimize the impact of cancer and its treatment on patient quality of life as well improve delivery of potentially curative cancer treatment.

Features
- Clinically focused chapters take an evidence-based approach to the management of pediatric surgical patients for residents in training and general surgeons in practice Targets the practitioner who is well-versed in the basic tenets of patient care but who seeks to benefit from the expertise of a seasoned expert A practical guide in the everyday clinical care of pediatric surgical patients for the advanced reader

From the contents

Fields of interest
Pediatric Surgery; Surgery; General Surgery

Target groups
Professional/practitioner

Discount group
MR

Minimally Invasive Surgical Oncology

State-of-the-Art Cancer Management

Minimal Invasive Surgical Oncology is aimed at the minimal invasive surgeon as well as at the general surgeon and surgical trainee who wish to explore this field. It covers disciplines like gastroenterology, gynecology, urology, thoracic and pediatrics and builds bridges to oncologists and internal medicine. It gives a state-of-the-art overview and perspectives for future developments and research as well. The book serves as an operative guide for a new generation of surgeons and offers the extraordinary feature being a text book, an operative atlas and a quick reference guide as well. The reader is provided with a tool in hand which synthesizes the latest knowledge in traditional therapies like chemotherapies and gives a comprehensive overview how to proceed in treating a cancer patient using minimal access techniques.

Features
- Clear operative guide for minimally invasive surgical oncology - Overview of the state-of-the-art knowledge with special focus on future developments - DVD summarizes and illustrates all major procedures

From the contents

Fields of interest
Surgery

Target groups
Professional/practitioner

Discount group
MR
Molecular Pathology of Liver Diseases

Cellular and Molecular Pathology of the Liver is extensive, complex and ranges from the understanding of basic molecular mechanisms that dictate everything from liver homeostasis to liver disease. Molecular Pathology of the Liver is complicated due to some of the important functions inherent and unique to the Liver, including its innate ability to regenerate and the multitude of functions it plays for the wellbeing of an organism. With all this in mind, Molecular Pathology of Liver Diseases is organized in different sections, which will coherently and cohesively present the molecular basis of hepatic physiology and pathology. The first two sections are key to understanding the liver anatomy and physiology at a cellular level and go on to define the molecular mechanisms in various liver cell types. These sections also cover the existing paradigms in liver development, regeneration and growth. The next section is key to understanding the Molecular Pathology unique to liver diseases and associated phenotypes. The final sections are geared towards the existing knowledge of the molecular basis of many common and uncommon liver diseases in both neoplastic and non-neoplastic areas including pathologies associated with intra-hepatic and extra-hepatic biliary tree.

Features
- One-stop reference for comprehending the molecular mechanisms of hepatic pathobiology.
- Unique format, readability and information.
- Visual approach includes an abundance of tables and diagrams

Field of interest
Pathology

Target groups
Professional/practitioner

Discount group
Professional/practitioner

Ecotoxicological Diagnosis in the Tanning Industry

The primary focus in this book is to identify the ecotoxicological impacts related to the tanning industry on terrestrial and aquatic systems. The research incorporated both field related and laboratory based techniques in the experimental design to address the underlying environmental problems in the tanning sector.

Features
- Identifying ecotoxicological impacts related to the tanning industry on terrestrial and aquatic systems
- The research incorporated both field related and laboratory based techniques in the experimental design to address the underlying environmental problems in the tanning sector
- Different initiatives were used throughout the research in order to establish the ecotoxicological impact of the tanning industry using the most current developed bioassays.

Contents

Fields of interest
Ecotoxicology; Radiotherapy; Surgical Oncology

Target groups
Professional/practitioner

Discount group
Professional/practitioner

Thyroid Disease in Adults

This book is a comprehensive guide to the assessment and management of adults with thyroid disorders in daily clinical practice. All important aspects and disorders are considered. Relevant information on basic anatomy, embryology, immunology, and physiology is included to provide a better basis for understanding the development of disease and its diagnosis and treatment. Currently available biochemical tests and other specific diagnostic tools are also considered in detail. The various common thyroid disorders are then discussed in a series of individual chapters that focus on etiology, pathophysiology, symptomatology, diagnosis, and treatment. Numerous high-quality illustrations and concise fact boxes are included. The authors are all experts with wide experience in three disciplines and a long-standing interest in thyroid disease.

Features
- Comprehensive guide to the assessment and management of adults with thyroid disorders in daily clinical practice
- Unique “hands-on” perspective that will make the book invaluable for all professionals who deal with thyroid patients
- Written by experts with wide experience in three disciplines and a long-standing interest in thyroid disease
- Includes numerous high-quality illustrations and concise fact boxes

From the contents

Fields of interest
General Practice / Family Medicine; Internal Medicine; Endocrinology

Target groups
Professional/practitioner

Discount group
Professional/practitioner
**Head, Thoracic, Abdominal, and Vascular Injuries**

**Trauma Surgery I**

There currently is a clear tendency to an increasing number of accidental injuries in elderly people, in sport injuries and car crashes also in countries which recently joined the European Union and candidates to join the European Union. Patients expect very good functional results even after serious injuries. But in contrast to this development, Trauma Surgery as an independent field, is not yet established in all European countries. Therefore, it seems mandatory to compile a book that covers the state of the art in Trauma Surgery.

The book also serves to harmonise the practice of Trauma Surgery within the European Union, and to prepare for the exam of the U.E.M.S. This third volume presents head injuries, thoracic injuries, abdominal injuries and peripheral vascular injuries.

**Features**

- Clearly structured and to-the-point
- Sets a European standard in the field
- Indispensable for all physicians dealing with trauma patients and in preparing for the European Board Exam

**From the contents**


**Fields of interest**

Surgery

**Target groups**

Professional/practitioner

**Discount group**

MR

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**Lymph Node Cytopathology**

This volume in the Essentials in Cytopathology book series will focus on the cytopathology of lymph nodes. It will address the topic of fine needle aspiration of lymph nodes and fulfill the need for an easy-to-use and authoritative synopsis of lymph node cytopathology. The book with adopt an algorithmic diagnostic approach, starting from the cytomorphic pattern of the lymph node aspirate. The focus will be on the appropriate and effective use of ancillary studies (immunohistochemistry, flow cytometry, fluorescence in situ hybridization and molecular techniques) and integration of their results into the final diagnosis. The book will present the cytopathologic features and differential diagnoses for the major cytologic patterns in lymph node fine needle aspiration.

The entities typically falling within each of these patterns will be discussed with illustration of the spectrum of cytologic features, differential diagnoses and pitfalls.

**Features**

- Published in the Essentials in Cytopathology book series
- Designed to be concise and easy to use
- Fits in lab coat pocket
- Site specific
- Majority of illustrations are in four color
- Illustration oriented accompanied by text in outline format

**From the contents**


**Fields of interest**

Pathology; Oncology

**Target groups**

Professional/practitioner

**Discount group**

MR

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**Vesicoureteral Reflux**

Vesicoureteral Reflux (VUR) offers a leading reference on the diagnosis and therapeutic approach to the pediatric patient with this common disorder, found in 1-2% of children. Representing the first book on this topic, this comprehensive text covers in detail the etiology, diagnosis and management of this disease. Pediatric urologists, Urologists, Nephrologists, Pediatric Surgeons and Pediatricians will benefit from this unique review.

**Features**

- Comprehensive text on the etiology, diagnosis and management of Vesicoureteral Reflux
- First book available on the most common urological problem in children
- Well illustrated and invaluable for all pediatric surgeons, nephrologists and urologists

**From the contents**


**Fields of interest**

Pediatric Surgery; Pediatrics; Surgery

**Target groups**

Professional/practitioner

**Discount group**

MR

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**Due December 2010**


> approx. $89.95

ISBN 978-3-540-88121-6

**Due October 2010**


> approx. $59.95


**Due March 2011**

2011. 300 p. 111 illus., 61 in color. Hardcover

> approx. $159.00

ISBN 978-3-540-69503-5
**Childhood Leukemia: A Practical Handbook**

This book is a comprehensive and up-to-date compendium on all aspects of childhood leukemia. After introductory chapters on the epidemiology and biology of pediatric leukemia, treatment considerations are extensively reviewed, with emphasis on the use of risk-adjusted treatment approaches. Promising targeted agents are discussed, and strategies for the development of new agents are appraised. The late effects of leukemia and its therapy are then considered in depth, with due attention to management of the psychosocial impact of the disease. Finally, global strategies to improve leukemia care and outcome are reviewed, and future directions discussed. The authors are internationally recognized experts and offer a largely evidence-based consensus on etiology, biology, and treatment. This handbook has far-reaching applicability to the clinical diagnosis and management of pediatric leukemia and will prove invaluable to specialists, generalists, and trainees alike.

**Features**
- Comprehensive and up-to-date compendium on the biology, diagnosis, and treatment of childhood leukemia
- Focuses especially on genomic approaches to risk stratification and the use of risk-adjusted treatment approaches
- Includes detailed discussion of promising targeted agents and strategies for the development of new agents
- Proves invaluable to specialists, generalists, and trainees alike

**Fields of interest**
- Oncology; Hematology; Pediatrics

**Target groups**
- Professional/practitioner

**Discount group**
- MR

**Rare and Uncommon Gynecological Cancers: A Clinical Guide**

This book is intended as a reference manual that will provide the busy clinician with up-to-date information on the diagnosis and treatment of uncommon and rare gynecological cancers. While standard textbooks briefly cover these tumors, this is intended as a more comprehensive yet easy-to-use guide. After opening chapters on epidemiology, pathology, and diagnostic imaging, the full range of infrequently encountered gynecological cancers (ovarian, uterine, cervical, vaginal, and vulval) is presented and discussed with the aid of high-quality illustrations. In each case, detailed attention is paid to both differential diagnosis and current treatment options. The book has been written by an international panel of experts and is the first to gather all the uncommon and rare gynecological cancers together within one volume.

**Features**
- First book to gather all the uncommon and rare gynecological tumors together within one volume
- A reference manual and guide that provides the busy clinician with up-to-date information on the diagnosis and treatment of uncommon and rare gynecological cancers
- Written by an international panel of experts

**From the contents**
- Introduction
- Epidemiology and data bases
- Pathology
- Ovarian Rare Cancers: Ovarian Mucinous Cancers
- Pseudomyxoma peritonei
- Ovarian Clear Cell Cancers 1: The Western View
- Ovarian Clear Cell Cancers 2: A view from the East
- Borderline and Low grade serous tumours
- Sex cord and stromal tumours
- Squamous Cell Carcinoma Arising within Dermoid
- Carcinomas of Ovary
- Small Cell Carcinomas of Ovary

**Fields of interest**
- Gynecology; Oncology; Pathology

**Target groups**
- Professional/practitioner

**Discount group**
- P

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**Resilience in Aging: Concepts, Research, and Outcomes**

The many significant technological and medical advances of the 21st century cannot overcome the escalating risk posed to older adults by such stressors as pain, weakness, fatigue, depression, anxiety, memory and other cognitive deficits, hearing loss, visual impairment, isolation, marginalization, and physical and mental illness. In order to overcome these and other challenges, and to maintain as high a quality of life as possible, older adults and the professionals who treat them need to promote and develop the capacity for resilience, which is innate in all of us to some degree. The purpose of this book is to provide the current scientific theory, clinical guidelines, and real-world interventions with regard to resilience as a clinical tool. To that end, the book addresses such issues as concepts and operationalization of resilience; relevance of resilience to successful aging; impact of personality and genetics on resilience; relationship between resilience and motivation; relationship between resilience and survival; promoting resilience in long-term care; and the lifespan approach to resilience.

**Features**
- This is the only book to focus exclusively on resilience and the aging process
- Editor was the recipient of the Gerontological Society of America’s (GSA’s) 2008 Doris Schwartz Gerontological Nursing Research Award
- The theme of the 2008 conference was “Resilience in an Aging Society: Risks and Opportunities”

**Fields of interest**
- Geriatrics/Gerontology; Personality and Social Psychology; Health Promotion and Disease Prevention

**Target groups**
- Professional/practitioner

**Discount group**
- MR
Pediatric Retina

Pediatric retinal diseases are not simply retinal diseases that occur in children; rather, they are unique disorders that often are not found in adults. This textbook of the pediatric retina offers in-depth guidance on congenital and acquired diseases of the retina in the pediatric population. It is organized according to disease onset and timing, as well as anatomy. All chapters are written by leading authorities in the field from both the pediatric and the retinal perspective. A multidisciplinary approach to the topic is adopted, and critical information is included on disease classification and diagnosis, pathophysiology, genetics, complications, and prognosis. Pediatric Retina will be a useful source of information for pediatric ophthalmologists, retina specialists, and other eye care providers who care for children.

Features
► Offers in-depth guidance on congenital and acquired diseases of the retina in the pediatric population ► Provides critical information on disease classification and diagnosis, pathophysiology, genetics, complications, and prognosis ► Written by leading authorities in the field ► Includes a CD presenting color photographs of a wide range of diseases discussed in the text

From the contents

Fields of interest
Ophthalmology; Pediatrics; Anatomy

Target groups
Professional/practitioner

Discount group
MR

Hereditary Colorectal Cancer

Colorectal cancer is the third most commonly diagnosed cancer in the US and the third most recently linked to cancer deaths. The national annual incidence rate of colorectal cancer is approximately 148,000+, striking slightly more females than males. The lifetime risk of colorectal cancer is 5-6%, however patients with a familial risk (with two or more first or second degree relatives) make up 20% of the patients. Persons who carry genetic mutations linked to hereditary colorectal cancer are the most likely to develop the disease.

Features
► Hereditary nonpolyposis colorectal cancer (HNPPC), also known as the Lynch syndrome, has not yet been covered in one comprehensive text ► Basic and clinical knowledge related to hereditary colorectal cancer is expanding and evolving rapidly ► Panel of worldwide experts address the issues surrounding hereditary colorectal cancer

Contents

Fields of interest
Oncology; Surgical Oncology; Gastroenterology

Target groups
Professional/practitioner

Discount group
MR

Principles and Practice of Geriatric Surgery

“In the preface to this impressive and well-produced book, the editors state that their aim is not to describe a new surgical specialty, since most surgeons will soon need to be “geriatric surgeons,” but to assemble a comprehensive account that will allow “all providers of healthcare to the elderly to understand the issues involved in choosing surgery as a treatment option for their patients.” This is a useful book that deserves to do well. I hope that the editors and their publisher will have the stamina to make this the first of several editions, as it is clear that updated information about surgery in the elderly will be required to keep pace with this important field.” NEJM Book Review

Features
► Only comprehensive, evidence-based textbook the covers the special issues facing surgeons whose patients are elderly ► A complete overview of geriatric care written by leaders in the field ► An updated edition which improves upon the first with the new procedures, methods, and information required to keep pace with this rapidly evolving field

From the contents

Fields of interest
Surgery; Geriatrics/Gerontology; General Surgery

Target groups
Professional/practitioner

Discount group
MR
Ultrasonography in Vascular Diagnosis
A Therapy-Oriented Textbook and Atlas

This is the second edition of a well-received book that has been recommended for inclusion in any vascular library or vascular radiology suite. The first edition has been fully revised so as to provide a comprehensive, up-to-date account of vascular ultrasound that reflects recent advances. The emphasis remains on the clinical aspects most relevant to angiologists and vascular surgeons. Ultrasound anatomy is discussed, examination procedures explained, normal and pathological findings described, and the clinical impact of ultrasound assessed. Atlas sections present pertinent case material to illustrate typical ultrasound findings for both the more common vascular diseases and rarer conditions. This book will serve not only as an invaluable guide for beginners, but also as an indispensable reference for experienced sonographers, who will benefit from the detailed evaluation of the role of ultrasound as compared with other modalities and the discussion of ultrasound findings in their clinical context.

Features
- Comprehensive and up-to-date account of vascular ultrasound
- The main chapters include atlas sections that present pertinent case material for both common and rare vascular diseases
- The role of ultrasound as compared with other modalities is evaluated in detail
- Ultrasound findings are discussed in their clinical context
- Useful for beginners as well as for experienced sonographers

Contents

Fields of interest
Ophthalmology; Pharmacology/Toxicology; Human Physiology

Target groups
Professional/practitioner

Discount group
MR

Ocular Blood Flow
Adequate blood supply to the eye is an important prerequisite for normal visual function. Over the past 40 years our knowledge of ocular blood flow regulation has improved significantly. This reader-friendly textbook provides a comprehensive overview of the current knowledge of ocular blood flow. Lavishly illustrated, it evaluates the wide array of methods for measuring ocular blood flow which have already been used. It offers the reader not only an evidence-based summary on physiological and pharmacological properties of ocular blood flow regulation, but also demonstrated the ocular blood flow abnormalities in different vascular diseases. This book will enhance the understanding of all readers interested in the current knowledge on ocular blood flow in health and disease.

Features
- Comprehensive up-to-date reference book on ocular blood flow
- Provides a unique state of the art review of the current knowledge in this field
- Lavishly illustrated, reader-friendly structured and written by international experts

Contents

Fields of interest
Ophthalmology; Pharmacology/Toxicology; Human Physiology

Target groups
Professional/practitioner

Discount group
MR

Chemical Ocular Burns
New Understanding and Treatments

More than 25,000 chemical products have the potential to cause ocular burns. Because such burns can result in loss of sight or the need for corneal transplantation, they must be taken very seriously. This book is the first to be devoted entirely to chemical ocular burns. All aspects of the subject are covered, including history, epidemiology, chemical agents and reactions, histology, pathophysiology, clinical signs, medical and surgical treatments, and emergency care. Particular attention is paid to the mechanisms involved in ocular burns and to the links between the chemical reactivity of corrosive agents and the clinical manifestations. Current principles of decontamination are fully explained and the latest treatment techniques are discussed in detail. This book stands at the interface of the chemical and medical sciences. It will be of great practical value to ophthalmologists and doctors in emergency medical and burns units, and will acquaint chemists with the clinical consequences of corrosivity.

Features
- First book to be devoted entirely to chemical ocular burns
- Covers all aspects of the subject
- Explains the mechanisms involved in ocular burns, discusses the current principles of decontamination, and presents the latest treatment and emergency care techniques
- Will assist ophthalmologists and doctors in emergency medical and burns units, and acquaint chemists with the clinical consequences of corrosivity

Fields of interest
Ophthalmology

Target groups
Professional/practitioner

Discount group
MR

Due November 2010

2nd ed. 2011. 450 p. 471 illus., 339 in color. Hardcover
- approx. $299.00
ISBN 978-3-642-02508-2

Due May 2011

2011. 300 p. 250 illus., 125 in color. Hardcover
- approx. $279.00
ISBN 978-3-540-69468-7

Due November 2010

2011. 150 p. 200 illus., 100 in color. Hardcover
- approx. $139.00
ISBN 978-3-642-14540-9
Heart Failure in Congenital Heart Disease
From Fetus to Adult

This book will provide both an evidence base and practical recommendations for the treatment of patients with congenital heart disease. It will be a resource to all health care providers, including pediatric cardiologists, pediatric intensivists, pediatric heart surgeons, fetal specialists, maternal fetal medicine specialists, neonatologists, nurses, advanced practice nurses, in addition to trainees in the field. It will summarize world knowledge on the topic of heart failure in patients with congenital heart disease. It will provide an in depth analysis of the current methods of diagnosis and treatment of heart failure. Now that surgical results are at record current methods of diagnosis and treatment of failure and congenital heart disease.

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Glutamate-based Therapies for Psychiatric Disorders

Both metabotropic and ionotropic glutamate receptors present attractive “druggable” targets in treating disorders of the central nervous system. There has been a dramatic shift in the focus of glutamate-based therapies away from neurologic diseases such as stroke and traumatic brain injury to the treatment of psychiatric disorders. This “Milestones in Drug Therapy” volume offers a unique, contemporary overview of preclinical and clinical evidence that modulating glutamatergic tone is an effective means of treating psychiatric disorders ranging from depression and anxiety to schizophrenia and drug abuse. The ability to treat diseases such as depression and schizophrenia through multiple, glutamate-based mechanisms offers a unique therapeutic opportunity, as described in this book.

Features
► Contemporary monograph on glutamate-based approaches to treat psychiatric drugs
► The approaches described in this text exploit both metabotropic and ionotropic glutamate receptors
► Focus on translational research, with many of the authors coming from industry
► All are acknowledged authorities in the glutamate field

From the contents

Fields of interest
Psychopharmacology; Pharmacology/Toxicology; Psychiatry

Target groups
Research

Discount group
P

Clinical and Pathological Aspects of Skin Diseases in Endocrine, Metabolic, Nutritional and Deposition Disease

Through a unique presentation of clinical photographs and accompanying histologic photomicrographs, Clinical and Pathological Aspects of Skin Diseases in Endocrine, Metabolic, Nutritional and Deposition Disease provides the practicing surgical pathologist, dermatologist, endocrinologist, internal medicine physician and dermatopathologist with a single volume source that reviews the clinical and pathologic features of metabolic and endocrine disorders that display cutaneous manifestations. Color photographs are presented for each condition followed by a series of photomicrographs depicting each entity microscopically. The text includes Clinical Features, Pathology, Etiopathogenesis, Differential Diagnosis and Therapy for all entities, described in a clear, concise style. In-depth discussions of the clinical findings, as well as the histologic features of these diseases are included. Additionally, laboratory data used to make and support the diagnoses is discussed for each entity.

Features
► Unique presentation of clinical photographs and accompanying histologic photomicrographs
► In-depth discussions of the clinical findingsServes as a “bed-side” clinical reference
► Laboratory data is presented

Fields of interest
Pathology; Dermatology; Metabolic Diseases

Target groups
Professional/practitioner

Discount group
MR

International Handbook of Occupational Therapy Interventions

Resources for rehabilitation specialists tend to follow a straight line: injury – disability – limitation – intervention. The International Handbook of Occupational Therapy Interventions breaks with this tradition, organized by type of intervention (based on recommendations in the International Classification of Functioning) rather than disability, medical condition, or level of impairment. This innovative, user-friendly system identifies candidates for particular interventions in terms of the range of syndromes and illnesses they are applicable to, encouraging critical thinking, problem solving, and best practice. The book’s wide spectrum of interventions coupled with its international perspective creates a unique source of evidence-based strategies for improving patients’ adaptation, functioning, relearning, recovery, and the prevention of ill health.

Features
► Utilizes an entirely new organizational system based around intervention to increase its functionality in clinical settings
► First book to be structured on the goals of Occupational Therapy: patient adaptation, learning, recovery and health/wellness promotion
► Contains contributions from an international list of authors

From the contents

Fields of interest
Occupational Therapy; Health Psychology; Rehabilitation

Target groups
Professional/practitioner

Discount group
MR
Radiotherapy for Hodgkin Lymphoma

This book deals in detail with all aspects of the best practice in modern radiotherapy for Hodgkin lymphoma. It provides the background and rationale for the inclusion of radiotherapy in today's combined-modality approach, including special clinical situations such as Hodgkin lymphoma in children, in the pregnant patient, and in the elderly. Radiotherapy planning using state-of-the-art imaging, target definition, planning software, and treatment equipment is expounded in detail. Acute and long-term side effects of radiotherapy are analyzed, and the implications for modern radiotherapy approaches in Hodgkin lymphoma are explained.

Features
► First and only book that covers ALL aspects of radiotherapy in Hodgkin lymphoma ► Presents the state-of-the-art methods and techniques in radiotherapy ► Includes a chapter on treatment planning using the latest high-precision equipment and planning software ► Practice-oriented ► Written by internationally renowned experts

From the contents
History of radiotherapy of Hodgkin's disease (now Hodgkin lymphoma). - Background and rationale for radiotherapy in early stage Hodgkin lymphoma (HL). - Background and rationale for radiotherapy in advanced stage HL. - Salvage therapy for relapsed and refractory HL. - Principles of chemotherapy in HL. - Management of lymphocyte predominant HL. - Pediatric HL, the rationale for radiation therapy. - The role of imaging in radiotherapy for HL. - Target definitions for HL. - The involved node radiation field concept. - Traditional and modern techniques for radiation treatment planning. - Quality assurance of radiotherapy for HL. - Evaluation of response after radiotherapy for HL. - HL in special populations and rare localizations.

Fields of interest
Radiotherapy; Oncology; Hematology

Target groups
Professional/practitioner

Discount group
MR

Clinical Functional MRI
Presurgical Functional Neuroimaging
Foreword by: K. Sartor

Functional magnetic resonance imaging (fMRI) permits noninvasive imaging of the "human brain at work" under physiological conditions. This is the first textbook on clinical fMRI. It is devoted to preoperative fMRI in patients with brain tumors and epilepsies, which are the most well-established clinical applications. By localizing and lateralizing specific brain functions, as well as epileptogenic zones, fMRI facilitates the selection of a safe treatment and the planning and performance of function-preserving neurosurgery. State of the art fMRI procedures are presented, with detailed consideration of the physiological and methodological background, imaging and data processing, normal and pathological findings, diagnostic possibilities and limitations, and other related techniques. All chapters are written by recognized experts in their fields, and the book is designed to be of value to beginners, trained clinicians and experts alike.

Features
► First textbook on clinical fMRI ► Comprehensive presentation of state of the art fMRI procedures, their applications, and background information ► Focuses specifically on preoperative fMRI in patients with brain tumors and epilepsies, the most well-established clinical applications ► Written by recognized experts ► Of value to beginners, trained clinicians and experts

From the contents

Fields of interest
Imaging / Radiology; Diagnostic Radiology; Neuroradiology

Target groups
Professional/practitioner

Discount group
MR

Reconstruction of Upper Cervical Spine and Craniovertebral Junction

An illustrative manual for general spine surgeons, this text atlas covers all currently available techniques of upper cervical spine and craniovertebral junction reconstruction. All the surgical risks and benefits are discussed and compared with the outcome of more than 300 surgeries of this region. The surgical procedures are demonstrated step-by-step in instructive drawings and illustrations describing the approach, technique of implant introduction and spine reconstruction. A special focus is on real-time and virtual navigation techniques as well as potential complications and their avoidance.

Features
► First publication in this subspecialty of spine surgery ► Step-by-step guide for all common procedures ► Special focus on real-time and virtual navigation

Contents

Fields of interest
Surgical Orthopedics; Neurosurgery; Orthopedics

Target groups
Professional/practitioner

Discount group
MR

Due October 2010
► approx. $159.00

Due September 2010
2007. XII, 272 p. 182 illus., 144 in color. (Medical Radiology / Diagnostic Imaging) Softcover
► $119.00
ISBN 978-3-642-14005-1

Due November 2010
2011. 304 p. 280 illus., 55 in color. Hardcover
► $179.00
ISBN 978-3-642-13157-8
Tendon transfer for irreparable cuff tear

Treatment of symptomatic irreparable cuff tear is rare, but represents a difficult challenge for the surgeon. Tendon transfer from periscapular muscles group is a therapeutic option. Many tendon transfers are reported as latissimus dorsi, teres major, split of anterior deltoid and pectoralis major. The goal of this book is to remind the biomechanical and anatomical basis of these tendon transfers and to report tips and tricks and results of these techniques. A treatment algorithm is proposed in patients who have both pain and weakness or have loss of active forward elevation or external rotation. Moreover, tendon transfer can be combined with reverse shoulder prosthesis in patients with an unstable gleno humeral arthritis.

Features
► Details of Surgical Anatomy ► Tips and tricks to harvest and to fix tendon transfer flap ► Results of clinical series of each tendon transfer ► Indications on algorithms ► Contains drawings of surgical techniques, figures, and multimedia on website

Fields of interest
Surgery; Orthopedics

Target groups
Professional/practitioner

Discount group
MR

Gynecologic Radiation Therapy

Novel Approaches to Image-Guidance and Management

Recent advances in the treatment of gynecologic malignancies led to a new worldwide consensus to introduce image guidance to gynecologic radiation therapy, particularly to brachytherapy. The book summarizes the changed practice of management: treatment planning for cervical cancer, not modified for over 60 years, has been shifted to an image-based approach, endometrial cancer management with an increase in the use of chemotherapy and vaginal brachytherapy, and vaginal cancer therapy including image guidance and high-dose delivery with IMRT.

Features
► Covers the most recent advances in gynecologic image-based radiation therapy ► Includes the changed practice of management of gynecologic brachytherapy ► Written by an international panel of experts

From the contents

Fields of interest
Imaging / Radiology; Oncology; Radiotherapy

Target groups
Professional/practitioner

Discount group
MR
Textbook of Pulmonary Vascular Disease

Textbook of Pulmonary Vascular Diseases combines basic scientific knowledge on the pulmonary circulatory system at levels of the molecule, cell, tissue, and organ with clinical diagnosis and treatment of pulmonary vascular diseases. State-of-the-art techniques and their potential applications in research, diagnosis, and treatment of pulmonary vascular diseases are also covered.

Features
- Comprehensive reference
- Clarifies regulation of normal pulmonary vasculature
- Clarifies pathogenic mechanisms of PVDs
- Shows advanced research techniques and technology
- Includes conventional and molecular approaches for diagnosis and treatment
- Includes surgical approaches for treatment of PVDs

From the contents

Fields of interest
Cardiology; Intensive / Critical Care Medicine

Target groups
Professional/practitioner

Discount group
MR
Software Tools and Algorithms for Biological Systems

“Software Tools and Algorithms for Biological Systems” is composed of a collection of papers received in response to an announcement that was widely distributed to academicians and practitioners in the broad area of computational biology and software tools. Also, selected authors of accepted papers of BIOCOMP’09 proceedings (International Conference on Bioinformatics and Computational Biology: July 13-16, 2009; Las Vegas, Nevada, USA) were invited to submit the extended versions of their papers for evaluation.

Features

► All aspects of software tools and algorithms as they relate to biological systems will be covered in this book. ► This book looks at the major progress that has been made in a wide range of topics that fall under the field of biological systems. ► Important topics in the area of computer-based medical systems appear are examined.

Contents

Preface.- Computational Methods for Microarray, Gene Expression Analysis, and Gene Regulatory Networks.- Bioinformatics Databases, Data Mining, and Pattern Discovery Techniques.- Protein Classification & Structure Prediction, and Computational Structural Biology.- Comparative Sequence, Genome Analysis, Genome Assembly, and Genome Scale Computational Methods.- Experimental Medicine and Analysis Tools.- Computational Methods for Filtering, Noise Cancellation, and Signal & Image Processing.- Computer-Based Medical Systems.- Software Packages and Other Computational Topics in Bioinformatics.- Index.

Fields of interest

Bioinformatics; Computational Biology/Bioinformatics; Systems Biology

Target groups

Research

Discount group

P

Mathematical Approaches to Polymer Sequence Analysis and Related Problems

An edited volume describing the latest developments in approaching the problem of polymer sequence analysis, with special emphasis on the most relevant biopolymers (peptides and DNA) but not limited to them. The chapters will include peptide sequence analysis, DNA sequence analysis, analysis of biopolymers and nonpolymers, sequence alignment problems, and more.

Features

► Most up-to-date book to describe problems in approaching polymer sequence analysis ► Special emphasis on the most relevant biopolymers ► This volume describes the latest developments in the problem of polymer sequence development

Contents


Fields of interest

Bioinformatics; Computational Biology/Bioinformatics; Biomedical Engineering

Target groups

Professional/practitioner

Discount group

P

Novel Insights into Adipose Cell Functions

Obesity is a disease of society and economic transition spreading at an epidemic pace throughout the world. According to the World Health Organization, obesity is defined as an increased or abnormal accumulation of body fat mass to the extent that individual’s health will be negatively affected. Overweight is thus being considered as top at risk condition in the world and it is mandatory to identify the physiopathological causes involved in adipose tissue enlargement and related metabolic and cardiovascular health disorders. This volume provides the most up to date insights into the biology of a complex endocrine organ: the adipose tissue.

Features

► Obesity is considered as top at risk condition in the world and it is mandatory to identify the physiopathological causes involved in adipose tissue enlargement and related metabolic and cardiovascular health disorders ► Environmental, behavioural, genetic, epigenetic and multiple biological factors interact to cause obesity ► In this context adipose tissue depots have been under focus in the last decades and pivotal concepts have emerged from the studies of their complex biology

From the contents


Fields of interest

Biomedicine general

Target groups

Research

Discount group

P

Due August 2010

Bulk: 100 copies to the office of Fondation IPSEN in Boulogne-Billancourt, 65 Quai Georges Gorse, the remaining 1900 to storage center STACI

Due November 2010

2010. 550 p. 246 illus. (Advances in Experimental Medicine and Biology, Volume 696) Hardcover

► approx. $239.00 ISBN 978-1-4419-7045-9

Due October 2010

2011. 188 p. 96 illus., 48 in color. Hardcover

► approx. $159.00 ISBN 978-1-4419-6799-2

Due October 2010

2010. X, 160 p. 32 illus., 16 in color. (Research and Perspectives in Endocrine Interactions) Hardcover

► $189.00 ISBN 978-3-642-13516-3
Cookbook for Starters on SPSS

This small book contains all statistical tests that are relevant for starters on SPSS. Each test is explained using a data example from clinical practice, including every step in SPSS and the main tables of results with an accompanying text with interpretations of the results and hints convenient for data reporting, i.e., scientific clinical articles and poster presentations. In order to facilitate the use of this cookbook the data files of the examples are made available by the publisher on the Internet.

From the contents

Features
- Few SPSS cookbooks for the medical community have been published
- Using real data files
- Step-by-step entire analyses are described
- Maximal technical and minimal theoretical information is given
- An accompanying textbook is available for those searching for basic statistical knowledge

From the contents

Fields of interest
Biomedicine general; Biometrics; Statistical Theory and Methods

Target groups
Research

Discount group
P

Rethinking the BSE Crisis
A Study of Scientific Reasoning under Uncertainty

In 1986, the emergence of a novel brain disease in British cattle presented a unique challenge to scientists. How that challenge was addressed has been the subject of a public inquiry and numerous academic studies conducted to date. However, none of these investigations has sought to examine the reasoning of scientists during this critical period in the public health of the UK. Using concepts and techniques in informal logic, argumentation and fallacy theory, this study reconstructs and evaluates the reasoning of scientists in the ten-year period between 1986 and 1996. Specifically, a form of presumptive reasoning is described in which extensive use is made of arguments traditionally identified as informal fallacies. In the context of the adverse epistemic conditions that confronted scientists during the BSE epidemic, these arguments were anything but fallacious, serving instead to confer a number of epistemic gains upon scientific inquiry.

Features
- First study of scientific reasoning during the BSE epidemic in the UK
- Comprehensive discussion of the transmissible spongiform encephalopathies that is accessible to non-scientific readers
- Longitudinal study of scientific reasoning as opposed to study of reasoning at a discrete point in time
- Examples of reasoning drawn from primary sources (e.g. evidence presented to the public inquiry into BSE; minutes of meetings of scientific advisory committees)

From the contents
Acknowledgements.-- Preface.-- 1. BSE – A LEAP INTO THE UNKNOWN.-- 1.1 Introduction.-- 1.2 Transmissible Spongiform Encephalopathies.-- 1.3 The BSE Knowledge Problem.-- Notes.-- 2 THE SCIENTIFIC CHALLENGE.-- 2.1 Introduction.-- 2.2 The Current Paradigm in Epidemiology.-- 2.3 Early Epidemiological Investigations.

Fields of interest
Medicine/Public Health, general; Logic; Epidemiology

Target groups
Research

Discount group
MR

Current Topics in Microbiology and Immunology


Volume 342
A. M. Arvin, Stanford University Medical Center, Stanford, CA, USA; A. Abendroth, The University of Sydney, NSW, Australia; J. F. Moffat, Upstate Medical University, Syracuse, NY, USA (Eds.)
Current Topics in Microbiology and Immunology


Volume 344
G. Dranoff, Dana Farber Cancer Institute, Harvard University, Boston, MA, USA (Ed.)

Cancer Immunology and Immunotherapy

The interplay between tumors and their immunologic microenvironment is complex, difficult to decipher, but its understanding is of seminal importance for the development of novel prognostic markers and therapeutic strategies. The present review discusses tumor-immune interactions in several human cancers that illustrate various aspects of this complexity and proposes an integrated scheme of the impact of local immune reactions on clinical outcome. Current active immunotherapy trials have shown durable tumor regressions in a fraction of patients. However, clinical efficacy of current vaccines is limited, possibly because tumors skew the immune system by means of myeloid-derived suppressor cells, inflammatory type 2 T cells and regulatory T cells (Tregs), all of which prevent the generation of effector cells. To improve the clinical efficacy of cancer vaccines in patients with metastatic disease, we need to design novel and improved strategies that can boost adaptive immunity to cancer, help overcome Tregs and allow the breakdown of the immunosuppressive tumor microenvironment.

Features
► The interplay between tumors and their immunologic microenvironment is complex, difficult to decipher, but its understanding is of seminal importance for the development of novel prognostic markers and therapeutic strategies

Fields of interest
Cancer Research; Immunology

Target groups
Research

Discount group
P

Due September 2010

► approx. $179.00
ISBN 978-3-642-14135-5

Current Topics in Microbiology and Immunology


Volume 346
C. Rommel, B. Vanhaesebroeck, University College of London, UK; P. K. Vogt (Eds.)

Phosphoinositide 3-kinase in Health and Disease

Volume 1

From humble beginnings over 25 years ago as a lipid kinase activity associated with certain oncoproteins, PI3K (phosphoinositide 3-kinase) has been catapulted to the forefront of drug development in cancer, immunity and thrombosis, with the first clinical trials of PI3K pathway inhibitors now in progress. Here we give a brief overview of some key discoveries in the PI3K area and their impact, and include thoughts on the current state of the field, and where it could go from here.

Features
► PI3K has become a very intense area of research, with over 2000 publications on PI3K in PubMed for 2009 alone ► The expectations for a therapeutic impact of intervention with PI3K activity are high, and progress in the clinical arena is being monitored by many ► However, targeted therapies almost invariably encounter roadblocks, often exposing unresolved questions in the basic understanding of the target

Fields of interest
Immunology; Virology; Microbiology

Target groups
Research

Discount group
P

Due July 2010

2010. 280 p. Hardcover
► approx. $179.00
ISBN 978-3-642-13662-7

Hot Topics in Infection and Immunity in Children VII

Course covers topics in infectious diseases in children and is intended for Pediatric Infectious disease trainees, trainers, and all those who manage children with infections.

Features
► Each of the chapters in this book is based on a lecture given at the seventh 'Infection and Immunity in Children' (IIC) course held at the end of June 2009 at Keble College, Oxford ► Various aspects of paediatric infectious diseases written by the leading authorities in the field ► Collectively provide succinct and readable updates on just about every aspect of the discipline of Paediatric Infectious Diseases

Fields of interest
Immunology; Virology; Microbiology

Target groups
Research

Discount group
P

Due October 2010

2011. 450 p. 50 illus., 25 in color. (Advances in Experimental Medicine and Biology, Volume 697) Hardcover
► approx. $209.00

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Fields of interest
Immunology; Virology; Microbiology

Target groups
Research

Discount group
P

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Fields of interest
Immunology; Virology; Microbiology

Target groups
Research

Discount group
P

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Fields of interest
Immunology; Virology; Microbiology

Target groups
Research

Discount group
P
Suppression and Regulation of Immune Responses
Methods and Protocols

Over the past several years, a high diversity of regulatory cells and suppressive molecules has taken centre stage in the field of immunoregulation. In Suppression and Regulation of Immune Responses: Methods and Protocols, expert researchers highlight recent advances in the identification, characterization, and generation of regulatory cells not only of the T cell lineage but also of other origins such as B, NK, myeloid, and dendritic cells, as well as the role of several suppressive molecules in immunoregulation.

Particular emphasis is placed on the characterization of the molecular mechanisms and the therapeutic applications of regulatory cells and molecules in human diseases. Written as a volume in the highly successful Methods in Molecular Biology™ series, this work provides the kind of detailed description and implementation advice that is crucial for getting optimal results.

Features
- Features the most recent advances in the field of immunoregulation with detailed but accessible chapters
- Contains many step-by-step, laboratory protocols complete with lists of materials and vital notes from the experts
- Includes chapters on physiological situations where immunoregulation play a central role, as in pregnancy

Field of interest
Immunology

Target groups
Professional/practitioner

Discount group
P

Animal Models of Dementia
With an ever-increasing elderly population and the resultant rising levels of dementia-related disorders, preclinical research based on animal models is pivotal to our knowledge of underlying molecular mechanisms and drug discovery aiming at the development of therapeutic strategies alleviating or preventing the neurological devastation. In Animal Models of Dementia, expert researchers provide contributions that stress the importance of extensively validated animal models in drug discovery and development in order to predict clinical activity. Beginning with general aspects of animal modeling, related ethical issues, and essential methodological considerations, the highly detailed volume then continues with various levels of model validation, including pathological, behavioral, neurochemical, pharmacological, and imaging aspects, followed by sections focused on specific disorders, such as Alzheimer's disease, Parkinson's disease, metachromatic leukodystrophy and adrenoleukodystrophy, amyotrophic lateral sclerosis, frontotemporal dementia as well as vascular dementia and more.

Features
- Appeals to a broad readership from neuropathologists, pharmacists, biochemists, and biologists to clinical neurologists
- Features a large, comprehensive section on Alzheimer's disease
- Includes contributions from prominent investigators sharing their experience through detailed, easily accessible methods

Fields of interest
Neurosciences; Neurology; Animal Models

Target groups
Research

Discount group
P

Marsupial Genetics and Genomics

Marsupials belong to the Class Mammalia, sharing some features with other mammals, yet they also possess many unique features. It is their differences from the more traditionally studied mammals, such as mice and humans, that is of greatest value to comparative studies. Sequencing of genomes from two distantly related marsupials, the short grey-tailed opossum from South America and the Australian tammar wallaby, has launched marsupials into the genomics era and accelerated the rate of progress in marsupial research. With the current worldwide concern for the plight of the endangered Tasmanian devil, marsupial genetics and genomics research is even more important than ever if this species is to be saved from extinction. This volume recounts some of the history of research in this field and highlights the most recent advances in the many different areas of marsupial genetics and genomics research.

Features
- This book is the only book on marsupials to be focused on the latest advances genetics and genomics
- A comprehensive compilation of all the latest marsupial genetics and genomics research
- Chapters contributed by leaders in the field

Fields of interest
Animal Genetics and Genomics

Target groups
Research

Discount group
P
Genital Autonomy

Protecting Personal Choice

Circumcision affects 15.3 million children and young adults annually. In terms of gender, 13.3 million boys and 2 million girls are subjected to the involuntary removal of part or all of their external sexual organs every year. The problem of female circumcision has been addressed on an international level, but male circumcision remains a controversial subject that many academics have been reluctant to examine. Circumcision is tolerated today because it has been practiced for millennia by a small but vocal minority of religious and ethnic groups, however, when the practice is examined through the lens of modern legal, ethical, and human rights advances, no place remains in civilized society for this body-altering ritual.

Features
► Provides the latest research on the topics of male and female circumcision ► Reveals how male and female circumcision violates law, ethics, and human rights ► Exposes the harmful effects of male and female genital cutting and female genital modification

From the contents

Fields of interest
Biomedical research; Medicine/Public Health, general; Theory of Medicine/Bioethics

Target groups
Research

Discount group
P
RNA Technologies and Their Applications

Innovation in biotechnology that combine molecular biology, cell biology, microfabrication and bioinformatics are moving nucleic acid technologies from futuristic possibilities into common laboratory and clinical procedures. They have potential to revolutionize biomedical research and medicine. Three variants of RNA technologies are known, namely antisense oligonucleotides, RNA interference, and ribozymes. In spite of different mechanisms of action, all of them are united by the common principle: an antisense preparation works after binding with RNA-target by forming a duplex. Today all three approaches are intensively used in vivo. RNA mediated gene silencing is a powerful technology to downregulate the expression of targeted genes within the cell. Now RNA interference based therapeutics is to be released. This book provides a state-of-the-art review of the molecular basis as well as applications of RNA based technologies in molecular biology and medicine.

Features

- RNA mediated gene silencing is a powerful technology to downregulate the expression of targeted genes within the cell
- Now RNA interference based therapeutics is to be released.
- This book provides a state-of-the-art review concerning the molecular basis as well as applications of RNA based technologies in molecular biology and medicine

Fields of interest

- Molecular Medicine; Nucleic Acid Chemistry;
- Human Genetics

Target groups

Research

Discount group

P

Neuropeptide Systems as Targets for Parasite and Pest Control

This book was assembled to focus attention on this promising field by compiling a comprehensive review of recent research on neuropeptides in arthropods and helminths, with contributions from many of the leading laboratories working on these systems. The organization of the chapters is intended to provide an overview of the organism-level biology of neuropeptidergic function in insects and helminths, progressing to an understanding of the molecular biology of the genes that encode their precursors and receptors in these organisms. We include for perspective consideration of the state of the art in discovery of insecticides and anthelmintics, a review of drugs that affect similar systems in nematodes, and a summary of drug discovery efforts that target mammalian neuropeptide receptors for therapy of non-infectious diseases in humans.

Features

- Provides an overview of the organism-level biology of neuropeptidergic function in insects and helminths
- Discusses discovery of insecticides and anthelmintics, a review of drugs that affect similar systems in nematodes
- Summary of drug discovery efforts that target mammalian neuropeptide receptors for therapy of non-infectious diseases in humans

From the contents


Fields of interest

- Biomedicine general; Parasitology

Target groups

Research

Discount group

P

Healthy Ties

Social Capital, Population Health and Survival

Social capital is a widely acknowledged candidate for implementing beneficial democratic processes and promoting public health. Healthy ties. Social capital, population health and survival traces the path from the conceptualization to the implementation of social capital. To provide empirical proof of the effects of social capital on public health is a serious challenge and the main focus of the book. In the Nordic countries, personal identification codes linking data from various sources, nationwide population registers, nationally representative and re-tested health surveys, and the long tradition of epidemiology submit to well the research into social capital and public health. Up-to-date longitudinal data on social capital and health outcomes are carefully described and reviewed in this book.

In Finland, the Swedish-speaking minority is very long-lived and has better health as compared with the Finnish-speaking majority.

Features

- Prospective empirical data, based on nationwide population health surveys
- Cultural, rather than regional, inequalities in social capital and health
- Exceptionally healthy community that is rich in social capital
- Carefully examined effects of social capital on public health
- Significance of cultural traditions for social capital and health

From the contents


Fields of interest

- Biomedicine general; Epidemiology; Quality of Life Research

Target groups

Research

Discount group

P
Zebrafish Models in Neurobehavioral Research

Animal models have traditionally played a crucial role in improving our understanding of brain pathogenesis. Zebrafish (Danio rerio) have generated considerable discoveries in the areas of genetics, embryology, endocrinology, and neuroscience. Zebrafish Models in Neurobehavioral Research emphasizes the growing importance of zebrafish in neurobehavioral research and portrays an extensive, thorough perspective on the emergence of zebrafish as robust and translational models. Written by leading international experts, the book covers major topics ranging from stress to learned recognition of environment, encompassing a wide spectrum of the utility of zebrafish within neurobiological disciplines. The chapters provide authoritative reviews of many zebrafish paradigms commonly used in the field today. This book will be a useful guide for zebrafish researchers, and will complement another related book from the popular Neuromethods series, Zebrafish Neurobehavioral Protocols.

Features
- Portrays an extensive, thorough perspective on the emergence of zebrafish in neuroscience
- Encompasses a wide spectrum of the utility of zebrafish
- Uses zebrafish to investigate pathological mechanisms underlying neuropsychiatric disorders

From the contents
Zebrafish Ecology and Behavior.
- Modeling Stress and Anxiety in Zebrafish.
- Nicotinic Receptor Systems and Neurobehavioral Function in Zebrafish.
- QTL Mapping of Behavior in the Zebrafish.
- Genetics of Ethanol-Related Behaviors.
- Conditioned Place Preference Models of Drug-Dependence and Relapse to Drug Seeking: Studies with Nicotine and Ethanol.

Fields of interest
Neurosciences; Animal Models

Target groups
Professional/practitioner

Discount group
P

Patient-Specific Modeling of the Cardiovascular System

The main purpose of the book is to demonstrate the design of a variety of patient-specific models within the cardiovascular system in computational biology. The maturation of computational biology could lead to a new approach to medicine. During the last five to ten years, there have been many improvements in diagnostic medical technologies such as multi-slice cardiac CT imaging, 3-D electroanatomic mapping, and many types of applications of Magnetic Resonance Imaging (i.e. magnetic resonance tagging and diffusion tensor imaging). Combined with more powerful computing resources and more accurate predictive computational models it is feasible to begin developing mechanistic patient-specific models that may help diagnosis, guide therapy or surgery, and predict outcomes of the latter.

Features
- First book to focus on patient-specific modeling of the heart
- This book covers the design of a variety of patient-specific models within the cardiovascular system in computational biology
- Focus on the potential of patient-specific computational models of cardiovascular physiology to predict or optimize outcomes of clinical treatments

From the contents
Foreward.
- Preface.
- Integrating State-of-the-Art Computational Modeling with Clinical Practice: The Promise of Numerical Methods.
- Patient-specific Modeling of Cardiovascular Dynamics with a Major Role for Adaptation.
- Patient-specific Modeling of Structure and Function of Cardiac Cells.
- Studies of Therapeutic Strategies for Atrial Fibrillation based on a Biophysical Model of the Human Atria.
- Patient-specific Modeling for Critical Care.
- Biomechanical Analysis of Abdominal Aortic Aneurysms.

Fields of interest
Bioinformatics; Computational Biology/Bioinformatics; Biomedical Engineering

Target groups
Professional/practitioner

Discount group
P
Animal Models of Pain

With the loss of work days, the price of health care and payments for compensation, litigation, and malpractice, and the overwhelming cost of human suffering, chronic pain syndromes affect humanity enormously on both an economic and personal level. In Animal Models of Pain, expert investigators in the field provide a consolidated review of the current state of pain research by capturing the diversity of animal models that are used to investigate pain mechanisms, which range from surgical incision to mechanical compression and from spinal cord injury to cutaneous/local inflammation and beyond. As a volume in the respected Neuromethods series, this book delivers its vital content through detailed descriptions of a wide variety of step-by-step laboratory methods. Authoritative and cutting-edge, Animal Models of Pain seeks to lead scientists closer to the ultimate goal of improving the quality of life and relieving the unbearable burden of chronic pain for millions of people throughout the world.

Features
▶ Consolidates a diverse selection of animal models along with cutting-edge, lab-ready methodologies ▶ Investigates pain mechanisms ranging from surgical incision to mechanical compression and from spinal cord injury to cutaneous/local inflammation ▶ Provides practical details from leading researchers in the field

From the contents

Fields of interest
Neurosciences; Animal Models

Target groups
Professional/practitioner

Discount group
P

The Police Composite Sketch

The police composite sketch, one of the most crucial investigative tools in law enforcement, is developed during a composite session—an intense display of communication and art in which the words of a witness are transformed into the features of a suspect. Despite the incredible technological leaps made in investigative work, the forensic science of composite sketching still relies on the basic elements of drawing skill, interpretive ability and the spoken word. The Police Composite Sketch is a comprehensive manual on how to conduct a complete composite session. Through an array of case studies, it details several disciplines that comprise this specialized forensic art, including composite sketching, image modification, age progression, facial comparison analysis, demonstrative evidence and postmortem/skull reconstruction. It also explores how to intuit insights that are often inadvertently revealed by witnesses, victims and perpetrators during the composite session.

Features
▶ Offers proven and unique philosophies and strategies that will help developed successful police composite sketches ▶ A practical exploration of drawing and sketching. It is a useful tool for all forensic and general artists ▶ The information has been presented in a format that may encompass greater readership population

Contents
Acknowledgements.- Introduction.- I. FORENSIC ART and COMPOSITE ART.- II. THE COMPOSITE SESSION.- III. DRAWING THE COMPOSITE SKETCH.- IV. WITNESSES and VICTIMS.- V. DESCRIPTIVE TERMINOLOGIES, RESPONSES and SOLUTIONS.- VI. MANAGING DIFFICULT COMPOSITE SESSIONS.- VII. GENERAL DRAWING TIPS.- VIII. COMPOSITE SESSION TIPS.

Fields of interest
Forensic Science; Forensic Medicine; Fine Arts

Target groups
Professional/practitioner

Discount group
P

Emerging Drugs and Targets for Alzheimer’s Disease

Volume 1: Beta-Amyloid, Tau Protein and Glucose Metabolism

Alzheimer’s disease is the most prevalent neuro-degenerative disorder in the elderly. A recent study from the Bloomberg School of Public Health recently estimated that over 26 million people were living with the disease in 2006 and that the global prevalence of the disease will grow to 106 million by 2050. By that time, 43 per cent of those living with the disease will need high-level care, equivalent to that of a nursing home. However, even if modest advances in preventing or delaying the disease’s progression were made, it could have a huge impact on global public health. According to this study, interventions that could delay the onset of the disease by as little as one year would reduce the prevalence of the disease by 12 million fewer cases in 2050. These figures reinforce how important it is to find an effective intervention for Alzheimer’s disease.

Features
▶ Timely ▶ Written by a team of experts ▶ Collects some of the most outstanding examples of new drugs currently under pharmaceutical development

Fields of interest
Pharmaceutical Sciences/Technology; Medicinal Chemistry; Pharmacology/Toxicology

Target groups
Research

Discount group
P

RSCPublishing

Available

Only available in print

Due August 2010
2010. 317 p. (RSC Drug Discovery, Number 2) Hardcover
Approx. $249.00
ISBN 978-1-84973-063-1

Due October 2010
2011. 230 p. 50 illus., 25 in color. (Neuromethods, Volume 49) Hardcover
Approx. $119.00

Due August 2010
2010. 150 p. 250 illus., 125 in color. Hardcover
Approx. $139.00

Due October 2010
2011. 230 p. 50 illus., 25 in color. (Neuromethods, Volume 49) Hardcover
Approx. $119.00
B. R. Minev, Moores UCSD Cancer Center, La Jolla, CA, USA (Ed.)

Cancer Management in Man: Chemotherapy, Biological Therapy, Hyperthermia and Supporting Measures

This book represents a comprehensive description and evaluation of the most up-to-date approaches to cancer management. Each chapter, prepared by leading basic researchers and clinicians, provides an in depth description of a specific method for cancer management. The chemotherapy section of the book is updated to include the newest drugs as well as those currently in development. Organized by drug class, this section provides the latest information on most drugs, including their mechanisms of action, interactions with other agents, toxicities, side effects, and mechanisms of resistance. The biological therapy section of the book provides expanded coverage of the currently used cytokines, vaccines, and cell based therapies of cancer. Full consideration is also given to other modern treatment approaches, such as tyrosine kinase inhibitors, inhibitors of tumor angiogenesis, and the transcatheter management of cancer. Current advances in hyperthermia in cancer treatment, hematologic and nutritional support, bone marrow transplantation, pain management and care of the terminally ill patients with cancer are also presented.

Features
► Comprehensive coverage of cancer management  ► Most recent information  ► Critical reviews

Fields of interest
Cancer Research; Oncology

Target groups
Research

Discount group
P

S. Monticelli, Institute for Research in Biomedicine, Bellinzona, Switzerland (Ed.)

MicroRNAs and the Immune System
Methods and Protocols

In recent years, the critical role of microRNAs has been revealed within the biology of cells that constitute the immune system. In MicroRNAs and the Immune System: Methods and Protocols, expert researchers explore the latest techniques for studying miRNA expression, including the most up-to-date data on splinted ligation and qRT-PCR assays, as well as high-throughput profiling through cloning, deep sequencing, and microarrays. Chapters outline methods to study miRNA functions in various cell types from a single cell type level to entire model organisms, and present studies of miRNAs in the context of viruses and the immune response. Tools are also provided to help navigate bioinformatics databases on miRNAs and their targets. Composed in the highly successful Methods in Molecular Biology” series format, each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a Notes section which shares tips on troubleshooting and avoiding known pitfalls.

Features
► Offers cutting edge methods to analyse microRNA expression, function and post-transcriptional modifications  ► Includes methods to isolate and manipulate cells of the immune system  ► Provides a description of bioinformatics databases on miRNAs and their targets, as well as instructions to navigate them

Field of interest
Immunology

Target groups
Professional/practitioner

Discount group
P

A. Mozayani, Harris County Medical Examiner’s Office, Houston, TX, USA; C. Noziglia, Senior Forensic Advisor, Aiken, SC, USA (Eds.)

The Forensic Laboratory Handbook Procedures and Practice

Forensic science has come a long way in the past ten years. It is much more in-depth and much broader in scope, and the information gleaned from any evidence yields so much more information than it had in the past because of incredible advances in analytic instruments and crucial procedures at both the crime scene and in the lab. Many practices have gone digital, a concept not even fathomed ten years ago. And from the first collection of evidence to its lab analysis and interpretation to its final presentation in court, ethics has become an overriding guiding principle. That’s why this new edition of this classic handbook is indispensable.

Features
► Covers the tried and true topics of fingerprints, trace evidence, chemistry, biology, explosives and arson, forensic anthropology, forensic pathology, forensic documents, firearms and toolmarks  ► Each chapter contains educational requirements needed for the discipline it covers  ► Written by real-life practitioners, it includes real crime scene photos and questions at the end of each chapter

From the contents

Fields of interest
Forensic Science

Target groups
Professional/practitioner

Discount group
P
Clinical Trials in Rheumatology

Over 400 therapeutic studies have been published in rheumatology and clinical immunology and the number grows yearly. As such, it is quite difficult to keep track of the multitude of studies and the emerging trends. Further to this, a particular study can be referred to in a variety of ways, either a shortened version of the title or an acronym, adding to the confusion. Clinical Trials in Rheumatology provides a summary of all the studies in existence, for easy reference by those in the basic scientific and clinical communities who deal with immunosuppressive drugs. Every study is listed on one page each with authors, complete citation, name (and/or acronym), study aim(s), results and summary. An acronym finder is supplied at the end of the book.

Features
► Puts all the basic information on clinical trials in this area (i.e. immunosuppressant drugs) into the same place ► Provides all necessary information for delving deeper into any of the trials presented by providing the journal citation ► Provides all of the various names by which a particular trial may be referred to at meetings or in other publications to mitigate confusion ► Appendix with all acronyms and other abbreviations of clinical trials for quick reference

From the contents
Rheumatoid Arthritis:—Corticosteroids:—Atoxavastatin:—Azathioprine:—Chloroquine/Hydroxychloroquine:—Ciclosporin:—Cyclophosphamide:—Gold:—Leflunomide:—Methotrexate:—Sulfasalazine:—Tacrolimus:—Combination Therapy:—Methotrexate and Hydroxychloroquine:—Methotrexate and Doxycycline:—Methotrexate and Sulfasalazine:—Methotrexate and Ciclosporin:—Methotrexate and Hydroxychloroquine and Sulfasalazine:—Methotrexate and Leflunomide:—Methotrexate and Azathioprine:—Methotrexate and Gold:—Gold and Hydroxychloroquine:—Abatacept:—Adalimumab:—Anakinra:—Cetolizumab pegol:—Etanercept:—Golimumab:—Infliximab:—Rituximab:—Tocilizumab:—Ankylosing Spondylitis:—Corticosteroids:—Cyclophosphamide.

Target groups
Professional/practitioner

Discount group
P

S. Nag, University of Toronto, ON, Canada (Ed.)

The Blood-Brain and Other Neural Barriers
Reviews and Protocols

Even though evolving technologies starting with tracer studies, and more recently with genomics and proteomics, have provided novel information about the molecular properties of cerebral endothelium and astrocytes; however, further studies must be done in animal models of neurological diseases and in humans to get a clearer understanding of the pathogenesis of blood-brain barrier (BBB) breakdown in nervous system diseases. In The Blood-Brain and Other Neural Barriers: Reviews and Protocols, experts in the field present a series of cutting-edge protocols which can be used to study the barriers. Opening with detailed information on components of the neurovascular unit as well as the blood-cerebrospinal, blood-retinal, and blood-nerve barriers, the book continues with meticulous techniques to image the barriers in humans and experimental animals, followed by cutting-edge molecular techniques to study the BBB and novel models to study the barriers, and it concludes with techniques for the delivery of therapeutic agents across the BBB.

Features
► Reviews the relevant aspects of brain biology then delves into in-depth, practical laboratory protocols ► Explores beyond the blood-brain barrier into other vital neural barriers ► Features tips for completing the protocols successfully, relayed by the expert contributors from their wealth of experience

From the contents

Fields of interest
Neurosciences; Human Physiology; Neurochemistry

Target groups
Professional/practitioner

Discount group
P

M. C. Olmstead, Queen’s University, Kingston, ON, Canada (Ed.)

Animal Models of Drug Addiction

Our understanding of addiction and how it is treated has advanced remarkably over the past decades, and much of the progress is related directly to animal research. This is true for both the behavioural aspects of drug use as well as the biological underpinnings of the disorder. In Animal Models of Drug Addiction, experts in the field provide an up-to-date review of complex behavioural paradigms that model different stages of this disorder and explain how each test is used to effectively replicate the progression of drug addiction. This detailed and practical book begins with the most common laboratory measures of addiction in animals, including intracranial self-stimulation (ICSS), drug self-administration, place conditioning, and sensitization. Later chapters describe how these paradigms are used to model the progression of drug addiction, providing insight into the clinical symptomatology of addiction from acquisition of drug use through compulsive drug taking to withdrawal and relapse. Written for the popular Neuromethods series, the contributions offer both methodological detail and a theoretical perspective, appealing to readers familiar with preclinical research on drug addiction as well as those who are newcomers to the field.

Features
► Provides both methodological detail and a theoretical perspective in order to appeal to a wide base of readers ► Tackles the current major challenge of the field: translation of laboratory findings to therapeutic tools ► Presents step-by-step, clear and precise protocols for the lab

From the contents
Intracranial Self-Stimulation:—Stimulant Self-Administration:—Opium Self-Administration:—Nicotine Self-Administration:—Alcohol Self-Administration.

Fields of interest
Neurosciences; Psychiatry; Animal Models

Target groups
Professional/practitioner

Discount group
P
PCR Protocols

Known for flexibility and robustness, PCR techniques continue to improve through numerous developments, including the identification of thermostable DNA polymerases which exhibit a range of properties to suit given applications. PCR Protocols, Third Edition selects recently developed tools and tricks, contributed by field-leading authors, for the significant value that they add to more generally established methods. Along with the cutting-edge methodologies, this volume describes many core applications, such as PCR cloning and sequencing, expression, copy number or methylation profile analysis, ‘DNA fingerprinting’, diagnostics, protein engineering, interaction screening as well as a chapter highlighting workflow considerations and contamination control, crucial for all PCR methods. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary reagents and materials, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Features
► Presents detailed, independent methods, the core principles of which have broad and varied applications in the lab
► Describes thoroughly the most recent and exciting fully developed protocols along with tips from the expert contributors
► Inspires alternative approaches to aid all labs in producing successful results

Fields of interest
Human Genetics; Nucleic Acid Chemistry; Laboratory Medicine

Target groups
Professional/practitioner

Discount group
P

Animal Models of Behavioral Analysis

Despite the difficulty in comparing clinic-based human tests with animal model testing, there is still great value in pursuing translational approaches, as tests and treatment strategies might be developed to improve brain function in humans suffering from neurological conditions and knowledge obtained from human behavioral studies can be used to further improve the animal models of behavioral analysis. In Animal Models of Behavioral Analysis, expert neuroscientists focus on approaches to translate and compare behavioral tests used in animals with those used in humans not only to increase our understanding of brain function across species but also to provide objective performance measures and bridge the gap between behavioral alterations in humans with cognitive disorders and the correlating animal models of these conditions. Written in the Neuromethods series format, the chapters provide authoritative reviews of many commonly used approaches in the field today.

Features
► Offers vital translational approaches to studying behavioral function across species
► Provides clear direction in an easy to reference format
► Covers the most essential behavioral studies which correlate to a wide variety of neurological conditions

From the contents

Fields of interest
Neurosciences; Neurology; Animal Models

Target groups
Professional/practitioner

Discount group
P

From Molecular to Modular Tumor Therapy

Tumors are Reconstructible Communicatively Evolving Systems

The traditional problem of the poor presentability as well as diagnostic and therapeutic practicability of individual patient care is still unresolved. The present book aims at leading the reader (cancer researchers, pharmacologists, biologists) away – in a scientifically accessible manner – from the daily conflicts between theory and practice and between the generalized and individual tumor patient, so that more personalized diagnostic and therapeutic strategies can be developed for controlling metastatic tumor disease: First, recording the systems concept of tumor biology based on rather different sciences (biochemistry, cell biology, and medical oncology) including their potential contribution to communication; then, giving reductionistically derived systems features an internal communicative context (formal-pragmatic communication theory); and finally, binding the systems features to (tumor-immanent) evolutionary processes (modularity of biochemical and cellular processes).

Fields of interest
Cancer Research; Pharmaceutical Sciences/Technology; Evolutionary Biology

Target groups
Research

Discount group
P

Due October 2010

► approx. $139.00
ISBN 978-1-60761-943-7

Due October 2010

2011. 360 p. 122 illus., 61 in color. (Neuromethods, Volume 50) Hardcover
► approx. $139.00
ISBN 978-1-60761-887-8

Due September 2010

2010. DXX, 510 p. (The Tumor Microenvironment, Volume 3) Hardcover
► approx. $239.00
Alzheimer’s Disease and Frontotemporal Dementia

Methods and Protocols

Alzheimer’s disease and frontotemporal dementia, two of the most prevalent neurodegenerative diseases, are dreaded disorders that attack the neural networks underlying memory and personality, systems that make us who we are. Major breakthroughs in recent years have spurred new research approaches to these conditions. In Alzheimer’s Disease and Frontotemporal Dementia: Methods and Protocols, expert investigators bring together the many divergent areas of expertise used to study these diseases, including behavior, electrophysiology, confocal microscopy, and hardcore biochemistry. Beginning with an overview of the two diseases and contemporary research on them, the book continues with specialized protocols for working with amyloid-β peptide, tau, and apolipoprotein E as well as experimental systems for studying AD and FTD, including cell and animal models, and outcome measures that can be used to assess neuronal function in these systems. Written in the highly successful Methods in Molecular Biology™ series format, chapters include brief introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls.

Features
► Supplies easily accessible techniques for the complex and wide-ranging avenues of AD and FTD research
► Features invaluable descriptions of the experience of experts in the field to aid in the successful completion of experiments
► Examines the diversity of the field today in a practical, lab-ready manner

Fields of interest
Molecular Medicine; Neurology

Target groups
Professional/practitioner

Discount group
P

From the contents

Field of interest
Biomedicine general

Target groups
Research

Discount group
P

Therapeutic Angiogenesis for Vascular Diseases

Molecular Mechanisms and Targeted Clinical Approaches for the Treatment of Angiogenic Disease

Angiogenesis is the growth of new blood vessels and is a key process which occurs during pathological disease progression. Excessive and damaging angiogenesis occurs in diseases such as cancer, diabetic retinopathies, age-related macular degeneration and atherosclerosis. In other diseases such as stroke and myocardial infarction, insufficient or improper angiogenesis results in tissue loss and ultimately higher morbidity and mortality. In this book we will begin by providing the reader with an overview of the process of angiogenesis including normal embryological development of blood vessels. The following chapters will each focus on a key angiogenic disease incorporating current scientific knowledge concerning the causes of activation of the “angiogenic switch”, pathological consequences, current treatment options and future perspectives. Where appropriate, results from pre-clinical trials, novel imaging modalities and nanotechnological approaches will be incorporated into these sections. Finally, since it is now believed that the process of angiogenesis operated via different signalling mechanisms in different vascular beds, we will discuss our current understanding of this phenomenon.

Features
► A definitive guide to the pathology of all the major angiogenic diseases
► Detailed description of the latest medical imaging and treatment protocols
► Concise overview of the mechanisms of angiogenesis in health and disease

Fields of interest
Cancer Research; Oncology; Molecular Medicine

Target groups
Professional/practitioner

Discount group
P
Diagnostic Virology Protocols

Recent outbreaks of swine influenza and avian influenza, along with the remaining and in some cases expanding threats from HIV, dengue virus, and the viruses causing hepatitis, have reinforced the need for rapid, accurate and cost-effective diagnosis of viral disease. Diagnostic Virology Protocols, Second Edition brings the field fully up-to-date with a focus on protocols involving nucleic acid detection, most often through some form of the polymerase chain reaction (PCR). The expert contributors also delve into the key technology of robotics as well as future prospects, such as further refined point-of-care testing and the increasing importance of mathematical modeling. Written in the highly successful Methods in Molecular Biology™ series format, chapters include brief introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Features
► Highlights the major changes in the virus diagnostic laboratory ► Presents cutting-edge protocols in an easy to use, reproducible fashion with a focus on nucleic acid detection ► Includes expert notes on troubleshooting and avoiding common pitfalls

Fields of interest
Immunology; Virology

Target groups
Professional/practitioner

Discount group
P

Atherosclerosis Disease Management

Atherosclerosis is a degenerative process affecting blood vessels, which determines narrowing of the lumen, plaque growth, and hardening of the walls. It is a risk factor for cardiovascular diseases. The focus of this book is on the management of the atherosclerotic disease. The coverage of this book spans from histological presentation of the various stages of atherosclerotic lesions to the earliest studies in atherosclerosis therapy, from advanced clinical diagnosis to monitoring, follow-up, and home-care of the atherosclerotic patient.

Features
► Recent State of the Art Advances in Atherosclerosis Imaging ► Excellent color photos of plaque build-up in carotids and coronaries ► New Methods for measuring IMT in Carotid Ultrasound ► Imaging Atherosclerosis at Molecular Level ► Excellent source of information for scientists, medical doctors, Ultrasound and Magnetic Resonance Radiologists, Sonographers, Vascular Surgeons, Pathologists, Pharmaceutical Professionals and Cardiologists

From the contents

Fields of interest
Biomedicine general; Cardiology

Target groups
Research

Discount group
P

Behavioral Neurobiology of Schizophrenia and Its Treatment

This book describes the state-of-the-art of treatment of schizophrenia and reflects its development in 22 chapters written by leading authorities in the field.

Features
► Gives a comprehensive account of the state-of-the-art of treatment of schizophrenia ◄ Features new tools to access and target real-life function and functional outcome in the schizophrenia ◄ With contributions by international experts

Contents

Fields of interest
Neurosciences; Psychiatry; Psychopharmacology

Target groups
Research

Discount group
P
N. Tavernarakis, Institute of Molecular Biology and Biotechnology, Heraklion, Greece (Ed.)

**Protein Metabolism and Homeostasis in Aging**

The focus of this book is on the role of protein metabolism and homeostasis in aging. An overview is provided of the current knowledge in the area, including protein synthesis, accuracy and repair, post-translational modifications, degradation and turnover, and how they define and influence aging. The chapters mainly focus on well-characterized factors and pathways, but new areas are also presented, where associations with aging are just being elucidated by current experimental data.

**Features**
- Illustrates that aging cells are characterized by alterations in the rate, level and accuracy of protein synthesis compared to young ones, and that mRNA translation is controlled at multiple levels
- Discusses paradoxical situation of autophagy up-regulation in models of premature aging
- Role of mitochondria in protein quality control and the influence of reactive oxygen species

**From the contents**


**Field of interest**
Biomedicine general

**Target groups**
Research

**Discount group**
P

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B. D. Theophilus, Birmingham Childrens Hospital NHS Foundation Trust, Birmingham, UK; R. Rapley, University of Hertfordshire, Hatfield, Hertfordshire, UK (Eds.)

**PCR Mutation Detection Protocols**

Since the publication of the popular first edition, the explosion of DNA sequence information, the access to bioinformatics and mutation databases coupled with the ability to readily detect and confirm mutations has cemented the role of molecular diagnostics in medicine and, in particular, mutation detection by the polymerase chain reaction (PCR). In PCR Mutation Detection Protocols, Second Edition, expert researchers bring the subject up-to-date with key protocols involving the PCR and its many various incarnations such as SSCP, CGE, and dHPLC. The volume also addresses key areas such as Southern blotting, accurate diagnostics with high throughput, as well as microarray systems. Written in the highly successful Methods in Molecular Biology® series format, chapters include brief introductions to the respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes which provide the often hard to find information that may mean the difference between the success and failure of the method.

**Features**
- Fully updates the popular previous edition
- Offers cutting-edge techniques, such as those for microarrays, with the underlying basis of the method for successful implementation
- Features key tips from the expert contributors drawing upon their extensive experience

**Fields of interest**
Human Genetics; Laboratory Medicine

**Target groups**
Professional/practitioner

**Discount group**
P

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R. Toledo, University of Valencia, Spain; B. Fried, Lafayette College, Easton, PA, USA (Eds.)

**Biomphalaria Snails and Larval Trematodes**

The purpose of this book is to provide an overview of the biology of the planorbid snail Biomphalaria glabrata mainly related to the snail’s role as a host of larval trematodes. This snail is of great importance in medical and economic zoology as a vector of important trematode (fluke) diseases in human and veterinary medicine and in wildlife biology. Moreover, this snail is a useful model for numerous basic studies in biology and chemistry. A book that provides modern coverage of diverse topics from the molecule to the community of this snail as related to larval trematode parasitism is not available. This book should appeal to a wide audience of biologists, ecologists, biochemists, malacologists, parasitologists, public health workers, epidemiologists, and graduate and advanced undergraduate students in biomedical and allied health sciences.

**Features**
- This book provides an overview of the biology of the planorbid snail Biomphalaria glabrata
- This snail is of great importance in medical and economic zoology as a vector of important trematode fluke diseases in human and veterinary medicine and in wildlife biology
- This book appeals to a wide scientific audience with its approach and focus

**From the contents**


**Fields of interest**
Parasitology; Infectious Diseases; Biomedicine general

**Target groups**
Research

**Discount group**
P
Post-Transcriptional Regulation by STAR Proteins

Control of RNA Metabolism in Development and Disease

This book aims to bring to the forefront a field that has been developing since the late 1990s called the STAR pathway for Signal Transduction and Activation of RNA. It is a signaling pathway that targets RNA directly; in contrast to the canonical signal—kinase cascade—transcription factor—DNA—RNA. It is proposed to allow quick responses to environment changes such as those necessary in many biological phenomena such as the nervous system and during development.

Features
- Reviews the available information on the structure of the RNA binding STAR domain and provides insights into how these proteins discriminate between different RNA targets
- Overviews of the post-translational modifications of STAR proteins and their effects on biological functions
- Reviews what is known about STAR proteins and human disease including osteoporosis, schizophrenia, cancer, infertility and ataxia

From the contents

Fields of interest
Pharmacology/Toxicology; Neurosciences

Target groups
Research

Discount group
P

Endotoxins: Structure, Function and Recognition

Endotoxins are potentially toxic compounds produced by Gram-negative bacteria including some pathogens. Unlike exotoxins, which are secreted in soluble form by live bacteria, endotoxins are comprised of structural components of bacteria. Endotoxins can cause a whole-body inflammatory state, sepsis, leading to low blood pressure, multiple organ dysfunction syndrome and death. This book brings together contributions from researchers in the forefront of these subjects. It is divided into two sections. The first deals with how endotoxins are synthesized and end up on the bacterial surface. The second discusses how endotoxins activate TLR4 and, in turn, how TLR4 generates the molecular signals leading to infectious and inflammatory diseases.

Features
- Gives new insights into the role of the innate immune system in infection by gram-negative bacteria
- Presents a description of endotoxins according to their biosynthesis, genetic constitution, structure, function and mode of interaction with host cells
- Brings together contributions from researchers in the forefront of endotoxin research
- Provides fundamental understanding of the mechanism behind whole-body inflammation or sepsis

From the contents

Fields of interest
Medical Microbiology; Infectious Diseases; Pharmacology/Toxicology

Target groups
Research

Discount group
P

Cancer Susceptibility
Methods and Protocols

Over the past two decades, spectacular advances have been made in our understanding of the molecular genetics of cancer, leading to the pursuit of identifying genes that, when mutated, result in an increased susceptibility to the disease. In Cancer Susceptibility: Methods and Protocols, experts in the field bring together the most recent technological developments for identifying and screening cancer susceptibility genes. Divided into two clear sections, the book begins with gene identification, which updates and informs scientists working at identifying novel cancer susceptibility genes, while the second part deals with mutation screening technologies that aid scientists and clinicians working to translate this knowledge into the clinic. Written in the highly successful Methods in Molecular Biology® series format, chapters contain introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls.

Features
- Contains convenient protocols dealing with the characterization, identification, and screening of cancer genes
- Lists expert tips to aid the processes
- Provides step-by-step, readily reproducible instruction

From the contents
The Identification of Colon Cancer Susceptibility Genes by Using Genome-Wide Scans. - Prioritizing Candidate Genetic Modifiers of BRCA1 and BRCA2 Using a Combinatorial Analysis of Global Expression and Polymorphism Association Studies of Breast Cancer. - Microarray Based Comparative Genomic Hybridization (Array-CGH) as a Useful Tool for Identifying Genes Involved in Glioblastoma (GBM).

Fields of interest
Cancer Research; Human Genetics

Target groups
Professional/practitioner

Discount group
P
**Inhibitory Synaptic Plasticity**

This volume will explore the most recent findings on cellular mechanisms of inhibitory plasticity and its functional role in shaping neuronal circuits, their rewiring in response to experience, drug addiction and in neuropathology. Inhibitory Synaptic Plasticity will be of particular interest to neuroscientists and neurophysiologists.

**Features**
- Summarizes and integrates studies that examine the induction, expression and functional role of inhibitory synaptic plasticity at different organizational levels (from the neuron to the circuit)
- Material clearly divided by theme into four parts that highlight the major functions of inhibitory synaptic plasticity: Refinement, Addition, Pain & Injury, and Learning & Memory
- Brings together a large portion of the current thinking about the plasticity of inhibitory synapses

**Contents**

**Fields of interest**
Neurosciences; Human Physiology; Neurobiology

**Target groups**
Research

**Discount group**
P

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**MicroRNA and Cancer**

**Methods and Protocols**

The tiny microRNAs (miRNAs) can have huge impacts on the regulation of a variety of genes and play crucial roles in the fundamental cellular processes. Recent miRNA studies change the landscape of cancer genetics by scrutinizing the alterations of genome-wide miRNA expressions in most common cancers and their regulatory functions during the development of cancer. The connections between miRNAs and cancer are widespread enough to warrant more comprehensive investigations in the systems biology perspective. In MicroRNA and Cancer: Methods and Protocols, internationally renowned experts provide the latest miRNA knowledge, the various techniques and methodologies currently available for cancer research application.

**Features**
- Highlights the fast-growing field of microRNAs with the pivotal, cutting-edge knowledge of its relation to cancer biology
- Provides contributions from experts, including their invaluable experience in the form of notes and tips from the lab
- Serves as a practical guide for scientists of all levels of study

**From the contents**


**Fields of interest**
Cancer Research; Human Genetics

**Target groups**
Professional/practitioner

**Discount group**
P

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**Signal Transduction in Cancer Metastasis**

The poor prognosis and high mortality for cancer patients are majorly ascribed to tumor metastasis, one of the most complicated pathological processes. Elucidation of molecular mechanisms for metastasis is essential for management and prevention of this lethal condition. In the book to be published, we take comprehensive review in regard with the signal mechanisms responsible for triggering a series of phenotypical changes of primary tumor which may lead to final colonisation of the tumor in a second home. Specifically, the initial stage of tumor metastasis will be highlighted. The complex tumor microenvironment accumulate a lot of growth factors, inflammatory cytokines and extracellular matrix which may turn into a group of potent metastatic factors. An integrated and sustained signaling induced by these metastatic factors may trigger EMT, migration and invasion of primary tumor into surround tissue.

**Features**
- Comprehensive reviews of signal transduction triggering tumor metastasis
- The novel mechanisms for how cross talks of different signal pathways achieve
- Encouraging potential clinical applications for prevention of tumor metastasis

**From the contents**

Preface. - Chapter 1 Overview of signal transduction in tumor metastasis. - Chapter 2 Multiple signal pathway triggering initiation of tumor metastasis. - Chapter 3 Insights into the dynamics of focal adhesion protein trafficking in invasive cancer cells and clinical implications.

**Fields of interest**
Cancer Research; Molecular Medicine; Cytokines and Growth Factors

**Target groups**
Professional/practitioner

**Discount group**
P
Folding for the Synapse

Folding for the Synapse addresses the current view on how protein folding and misfolding, controlled by molecular chaperones, contribute to synapse function and dysfunction. Molecular chaperones have been studied in relation to de novo protein folding, but there is increasing awareness that chaperone function is required for the regulation of protein dynamics when functioning physiologically as an isolated moiety or part of a protein complex. This book will introduce both important concepts of folding machineries and give examples of the biological relevance of further chaperone functions.

Features
- Introduces important concepts of folding machineries.
- Gives examples of the biological relevance of further chaperone functions.
- Addresses the current view on how protein folding and misfolding contribute to synapse function and dysfunction.

Contents
Introduction.- Protein Folding and Molecular Chaperones.- Transport of Proteins and Vesicles to the Synapse.- Protein Synthesis, Folding and Degradation in the Synaptic Compartment.- Synaptic Protein Interactions/Regulation by Molecular Chaperones.- Folding/Misfolding and Synaptic Dysfunction During Chronic Neurodegeneration.

Fields of interest
Neurosciences; Molecular Medicine; Neurobiology

Target groups
Research

Discount group
MR

Link Mining: Models, Algorithms, and Applications

This book presents in-depth surveys and systematic discussions on models, algorithms and applications for link mining. Link mining is an important field of data mining. Traditional data mining focuses on “flat” data in which each data object is represented as a fixed-length attribute vector. However, many real-world data sets are much richer in structure, involving objects of multiple types that are related to each other. Hence, recently link mining has become an emerging field of data mining, which has a high impact in various important applications such as text mining, social network analysis, collaborative filtering, and bioinformatics. At present, there are no books in the market focusing on the theory and techniques as well as the related applications for link mining.

On the other hand, due to the high popularity of linkage data, extensive applications ranging from governmental organizations to commercial businesses to people’s daily life call for exploring the techniques of mining linkage data; people need such a reference book to systematically apply the link mining techniques to these applications to develop the related technologies. Therefore, such a book is in high demand on the market.

Features
- Link mining has become an emerging field of data mining, which has a high impact in various important applications such as text mining, social network analysis, collaborative filtering, and bioinformatics.
- This will be the first book on the market focusing on the theory and techniques as well as the related applications for link mining.
- Presents in-depth surveys and systematic discussions on models, algorithms and applications for link mining.

Fields of interest
Bioinformatics; Data Mining and Knowledge Discovery; Computational Biology/Bioinformatics

Target groups
Research

Discount group
P
S. Brinkmann, University of Aarhus, Denmark

Psychology as a Moral Science

Perspectives on Normativity

What does morality have to do with psychology in a value-neutral, postmodern world? According to a provocative new book, everything. Taking exception with current ideas in the mainstream (including cultural, evolutionary, and neuropsychology) as straying from the discipline’s ethical foundations, Psychology as a Moral Science argues that psychological phenomena are inherently moral, and that psychology, as prescriptive and interventive practice, reflects specific moral principles. The book cites normative moral standards, as far back as Aristotle, that give human thoughts, feelings, and actions meaning, and posits psychology as one of the critical methods of organizing normative values in society; at the same time it carefully notes the discipline’s history of being sidetracked by overemphasis on theoretical constructs and physical causes — what the author terms “the psychologizing of morality.” This synthesis of ideas brings an essential unity to what can sometimes appear as a fragmented area of inquiry at odds with itself.

Features
► Unique integration of the philosophy of science and cultural critique ► Unifies European and American philosophical traditions

Contents

Fields of interest
Psychology Research; Philosophy of Science; History of Psychology

Target groups
Research

Discount group
P

G. Carlo, L. J. Crockett, M. A. Carranza, University of Nebraska, Lincoln, NE, USA (Eds.)

Health Disparities in Youth and Families

Research and Applications

Amid its growing diversity and shifting demographics, the U.S. is still home to glaring health inequities by race, ethnicity, and class. Yet while it is customary to identify poverty as their root cause, other complex mechanisms are involved in their perpetuation. Based on recent major studies on African-American, Latino, Asian-American, and Native American populations, Health Disparities in Youth and Families offers a thorough, nuanced examination of a wide range of causal and protective factors. Rigorous theories and models take into account cultural, contextual, and personal variables, including the roles of family identity, school, and neighborhood, and motivation toward health awareness (with attention paid to less frequently studied phenomena such as within-group inequalities and the Hispanic Health Paradox). Contributors approach their subjects with realism as well as optimism as the book: provides reliable information on the scope and etiology of health disparities. Identifies the methodological and political challenges associated with this issue, proposes comprehensive, integrative models for understanding disparities, features examples of innovative programs for improving minority health, includes an in-depth chapter on substance use and mental health among Native American youth, offers a useful starting point for the exchange of ideas necessary to address health disparities.

Features
► Provides basic information on the scope and etiology of health disparities ► Identifies the methodological and political challenges involved with this issue ► Provides a starting point for exchange of ideas to address these challenges and reduce these disparities

Fields of interest
Cross Cultural Psychology; Public Health

Target groups
Research

Discount group
P

S. C. Carr, Massey University, Auckland, New Zealand (Ed.)

The Psychology of Global Mobility

Human mobility has been a defining feature of human social evolution. In a global community, the term “mobility” captures the full gamut of types, directions, and patterns of human movement. The psychology of mobility is important because movement is inherently behavioral. Much of the behavioral study of mobility has focused on the negative — examining the trauma of forced migration, or the health consequences of the lack of adaptation — but this work looks into the benefits of mobility, such as its impact on career capital and well-being. Recent years have witnessed a phenomenal increase in efforts to understand human mobility, by social scientists, think-tanks, and policymakers alike. The book focuses on the transformational potential of mobility for human development.

Features
► Includes chapters which connect studies of mobility and motivation with development studies and international health ► Incorporates a global approach to the issue of mobility, taking into account various examples of mobility worldwide ► Offers a synthesis that is both multi-disciplinary and inter-disciplinary

Contents

Fields of interest
Cross Cultural Psychology; Demography; Personality and Social Psychology

Target groups
Research

Discount group
P
Systems of Psychotherapy
Dialectical Tensions and Integration

Psychotherapy today encompasses a broad spectrum of approaches that focus to a varying extent on psychophysiological, behavioral, environmental, or other aspects of human problems. Despite the overlap that exists between many of these approaches, there is no method that integrates more than a few of these aspects. It is therefore important to understand the inherent advantages and disadvantages of each therapy system, and how each helps people to solve their problems. Systems of Psychotherapy: Dialectical Tensions and Integration provides an in-depth overview of the major therapeutic systems in practice today and outlines the philosophical differences and opportunities for integration among them. This volume also considers the new ideas and approaches to therapy stemming from the postmodernist and integrative movements. By highlighting the unique merits of each system, readers are encouraged to combine factors present in the various systems to create a comprehensive view of human nature and functioning that will improve therapeutic outcomes.

Features
► Practical and accessibly written  ► Surveys and compares a range of psychotherapy treatments  ► Provides integrative system across therapeutic modalities  ► Demonstrates how to choose appropriate therapies

From the contents

Fields of interest
Clinical Psychology; Psychotherapy; Social Work

Target groups
Professional/practitioner

Discount group
P

Psychosocial and Legal Perspectives of Marital Breakdown
With Special Emphasis on Spain

The book provides a comprehensive overview of the psychosocial and legal aspects of divorce with special reference to the situation in Spain, addressing the grounds for divorce and its impact on parents and children. Theoretical approaches are applied that take into account the psychosocial conditions and the Spanish legislation. Subsequently, an empirical analysis of preferred custody arrangements reveals some of the current problems that are associated with a joint custody regime. Lastly, the suitability of divorce mediation is examined within the framework of the Spanish legislation.

Features
► The interdisciplinary approach to the mass phenomenon of divorce with a focus on the psychosocial and legal conditions in Spain  ► Insights into the new legislation in Spanish family law and the socio-economic conditions associated with divorce  ► Representative empirical study of verdicts in Spain divorce appeals cases in relation to joint parental custody

Contents
1 Grounds for Divorce. - 2 Factors Influencing Ex-spouses’ Adjustment to Divorce. - 3 Post-divorce Adjustment of Children and Adolescents. - 4 Characteristics and Problems of Custody Arrangements. - 5 Divorce Mediation. - Conclusion. - References.

Fields of interest
Law and Psychology; Sociology; Civil Law

Target groups
Research

Discount group
P

Psychodynamic Perspectives on Aging and Illness

More than ever, the aging process is recognized as carrying a special set of emotional challenges—especially when acute or chronic medical conditions are involved. In this light, Psychodynamic Perspectives on Aging and Illness presents a fresh, contemporary application of psychodynamic theory, addressing the complex issues surrounding declining health. Informed by the spectrum of psychodynamic thought from self, relational, and classical theories, this forward looking volume offers more modern interpretations of theory, and techniques for working with a growing, complicated, but surprisingly resilient population. It illuminates how to enhance the therapeutic relationship in key areas such as addressing body- and self-image issues, approach sensitive topics, and understand the disconnect that can occur between medical patients and the often impersonal, technology-driven health care system. At the same time, the author cogently argues for pluralism in a therapeutic approach that is frequently threatened by forces both within and outside the field.

Features
► New application of psychodynamic approaches to medical conditions  ► Appropriate for a variety of geriatric practitioners  ► Helps therapists understand the developmental consequences of illness  ► Simultaneous examination of illness and aging  ► Discusses normative and non-normative populations

Fields of interest
Clinical Psychology; Psychiatry; Aging

Target groups
Professional/practitioner

Discount group
P

D. K. Fromme, Pacific University, Forest Grove, OR, USA

M. Gaffal, Universidad de Castilla-La Mancha, Toledo, Spain

T. Greenberg, University of California, San Francisco, CA, USA
New Series

The Loyola University Symposium on the Human Rights of Children

Series editor: J. Garbarino

As part of its program of activities, the Loyola University Chicago’s Center for the Human Rights of Children supports a biennial Symposium on the Human Rights of Children to provide an academic perspective on important social justice issues affecting children and youth. This biennial program brings together scholars, advocates, and practitioners from around the world to present and discuss their work in understanding and advancing the human rights of children. Each symposium is chaired by Loyola University faculty and focuses on an important human rights issue from the perspective of the well-being and development of children. Professor James Garbarino serves as Senior Faculty Fellow for the Center for the Human Rights of Children and as Series Editor for the Symposium Books published by Springer Publishing. In this role he coordinates with the Center Director, Katherine Kaufka Walts to produce a series of volumes that will be of interest to a multidisciplinary audience of academics and advocates with an interest in social justice issues affecting children—among them professionals in health care, social work, clinical/child/school psychology, and human development.

J. Garbarino, Loyola University, Chicago, IL, USA; G. Sigman, Stritch School of Medicine, Maywood, IL, USA (Eds.)

A Child’s Right to a Healthy Environment

It’s a startling reality that more American children are victims—and perpetrators—of violence than those of any other developed country. Yet unlike the other nations, the United States has yet to ratify the United Nations Convention on the Rights of the Child. Compelling, readable, and interdisciplinary, A Child’s Right to a Healthy Environment provides an abundance of skilled observation, important findings, and keen insights to place children’s well-being in the vanguard of human rights concerns, both in the United States and globally.

• War and natural disasters.
• Environmental toxins (e.g., malaria and lead poisoning).
• The child obesity epidemic.
• Gun violence.
• Child slavery and trafficking.
• Toxic elements in contemporary culture.

A Child’s Right to a Healthy Environment is a powerful call to action for researchers and professionals in developmental, clinical child, school, and educational psychology as well as psychiatry, pediatrics, social work, general and special education, sociology, and other fields tasked with placing children’s well-being in the vanguard of human rights concerns, both in the United States and globally.

Features

• Is the premiere volume in Springer’s new series from the Loyola University Symposium on the Human Rights of Children
• Examines, from multidisciplinary perspectives, how important issues that affect the physical and mental health of children can be understood from a human rights perspective
• Provides a much-needed scientist-practitioner perspective on the important social justice issue of ensuring a healthy environment for the world’s children and youth

Fields of interest

Child and School Psychology; Education (general); Medicine/Public Health, general

Target groups

Professional/practitioner

Discount group

P

Due August 2010

2010. 235 p. 38 illus., 19 in color. (The Loyola University Symposium on the Human Rights of Children, Volume 1) Hardcover

approx. $129.00

Due October 2010

2011. 350 p. 28 illus., 14 in color. Hardcover

approx. $169.00

T. M. Lionetti, Walden University, Minneapolis, MN, USA; E. P. Snyder, Edinboro University of Pennsylvania, Edinboro, PA, USA; R. W. Christner, Cognitive Health Solutions, LLC, Hanover, PA, USA (Eds.)

A Practical Guide to Building Professional Competencies in School Psychology

Designed as a research-based yet matter-of-fact guide for beginning and future scientist-practitioners, A Practical Guide to Developing Competencies in School Psychology skillfully augments the reader’s training, supervision, and experience by providing a framework for honing essential skills in the field. This reader-friendly, evidence-based text encourages the continuing development of expertise in communication and collaborative skills, diversity awareness, technical knowledge, and other domains critical to building and maintaining an ethical, meaningful practice.

Each chapter in this must-have volume examines a core area of expertise in depth, and provides checklists (linked to competencies set out in NASP’s Blueprint III) and the Development and Enhancement of Competencies Assessment Form are included to enable readers to gain a more complete understanding of their professional strengths and needs.

Features

• Aligns with Blue Print III and current NASP training standards
• Easy to read and understand and provides straightforward presentation of ideas and information
• Synthesizes research and practice, with each chapter coauthored by a two-person team – one academic expert, the other a practicing school psychologist
• Demonstrates how empirical evidence translates into current practice

Fields of interest

Child and School Psychology; Education (general)

Target groups

Professional/practitioner

Discount group

P
Developing and Evaluating Educational Programs for Students with Autism

Recent years have witnessed a marked increase both in the number of children diagnosed with autism spectrum disorders (ASDs) and those placed alongside their typically developing peers in general education classrooms. These events bring with them a plethora of challenges, particularly in the areas of program design and educational practices. Developing and Evaluating Educational Programs for Students with Autism Spectrum Disorders offers systematic, evidence-based guidelines—as well as tools, checklists, and other resources—for creating effective learning environments for students across the autism spectrum and the grade span.

Features
► Addresses the information needs of school psychologists who play a role in the development and evaluation of educational programming for students with ASDs
► Presents evidence-based information that provides the reader with the knowledge and resources to assist with developing their own programs for students with ASDs
► Is a unique resource that combines information for purposes of program development and continuous program improvement and sustainability in educating students with ASD

From the contents

Fields of interest
Child and School Psychology; Education (general); Psychiatry

Target groups
Professional/practitioner

Discount group
P

Lonely Children and Adolescents
Self-Perceptions, Social Exclusion, and Hope

From texting and social networking sites to after-school activities, young people have many opportunities to interact with one another, and yet loneliness and isolation trouble today’s youth in increasing numbers. Many children and teens report feeling lonely even in the midst of family and friends, and childhood loneliness is a prime risk factor for adult alienation. Lonely Children and Adolescents: Self-Perceptions, Social Exclusion, and Hope illuminates seldom-explored experiences of social isolation among young people as well as the frustrations of the parents and teachers who wish to help. This groundbreaking book conceptualizes loneliness not simply as the absence of social connections, but as a continuum of developmental experience, often growing out of the conflict between opposite needs: to be like one’s peers yet be one’s unique self. The author draws clear distinctions between loneliness and solitude and identifies genetic and environmental characteristics (i.e., social, psychological, familial, and educational) that can be reinforced to help children become more resilient and less isolated. In addition, therapeutic approaches are described that challenge loneliness by encouraging empowerment, resilience, and hope, from proven strategies to promising tech-based interventions.

Features
► Presents a new developmental paradigm for understanding loneliness in youth
► Examines neurobiological and genetic factors as well as psychological and sociological risk and protective factors in childhood loneliness
► Emphasizes resilience rather than a deficit approach
► Examines youths’ strong urge to stay connected and explores the social exclusion and the alienating experience of technology
► Discusses the importance of family and school environments to challenge loneliness

Field of interest
Child and School Psychology

Target groups
Research

Discount group
P

Identifying, Assessing, and Treating Self-Injury at School

Non-suicidal self-injury (NSSI) among young people—most notably in the form of forearm- or wrist-cutting—occurs across cultural groups, social strata, and developmental stages, puzzling and repelling adults. Youth engaging in NSSI behaviors are at a higher risk for suicidality as well as other mental health and academic problems. And because NSSI is often first noticed in the school setting (as is the case with many children’s disorders), school professionals are being encouraged to take a more proactive role in intervention. The first book specifically geared toward education personnel, Identifying, Assessing, and Treating Self-Injury at School clearly defines NSSI, differentiating it from suicidal, borderline, and other behaviors and analyzing the psychological contexts in which it occurs. This school-based perspective gives readers a practical framework for earlier, more accurate diagnosis; relevant consulting with parents, teachers, and colleagues; and effective, science-based treatment.

Features
► Clearly articulate the importance of why today’s educators need to be prepared, willing, and able to identify and serve students who engage in self-injury
► Provide the only and most current guidance for school psychologists on working with student self-injury in school settings
► Focus on the school’s role in identifying students who engage in self-injury and will be especially useful to pre- and in-service school psychologists, counselors, social workers, and special educators

Contents
Introduction and Overview. - Causes. - Prevalence and Associated Conditions. - Case Finding, Screening, and Referral. - Diagnostic Assessment. - Psycho-Educational Assessment. - Treatment. - Appendix. - References

Fields of interest
Child and School Psychology; Education (general); Psychotherapy and Counseling

Target groups
Professional/practitioner

Discount group
P
Emotion Regulation and Well-Being

Emotion is a basic phenomenon of human functioning, most of the time having an adaptive value enhancing our effectiveness in pursuing our goals in the broadest sense. Regulation of these emotions, however, is essential for adaptive functioning, and suboptimal or dysfunctional emotion regulation may even be counterproductive and result in adverse consequences, including a poor well-being and ill health.

Features
- Covers biologocial, psychological, social and clinical aspects of emotion
- Comprehensive enough to be a useful postgraduate text in health psychology and psychosomatics, clinical psychology, and social psychology
- With contributions by an international collection of experts

Contents

Fields of interest
Personality and Social Psychology; Neurology; Clinical Psychology

Target groups
Professional/practitioner

Discount group
P
Handbook of Genomics and the Family
Psychosocial Context for Children and Adolescents

Today’s consumer can send a company a DNA sample and receive a detailed set of genetic test results in return all without ever visiting a health care provider. Although knowing one’s personal risk for serious disease may lead some individuals to make more informed health choices, an ever-growing set of questions remains: Are predictive genetic tests meaningful? Can the results be harmful as well as helpful? In what ways can genetic information be used by health care providers to predict disease risk and optimize medical management within concerned families? Most important, how might the landscape of genetic testing affect the care of children’s health? Although there are no easy answers, the Handbook of Genomics and the Family details in one authoritative volume the challenges entailed by the latest genetic advances and offers insights into the potential translation of this knowledge in pediatric and family practice and public health.

Features
► Provides a much-needed resource for professionals—Genomics is increasingly becoming part of pediatric healthcare, and few resources are available to educate professionals in this area
► Addresses the social and behavioral aspects of genomics that have a wide reach and broad applications in society, including fairness, privacy and confidentiality, psychological impact and stigmatization, consent, professional education, human responsibility

Fields of interest
Child and School Psychology; Psychiatry; Pediatrics

Target groups
Professional/practitioner

Discount group
P

Risk and Resilience in U.S. Military Families

War related separations challenge military families in many ways. The worry and uncertainty associated with absent family members exacerbates the challenges of personal, social, and economic resources on the home front. U.S. military operations in Iraq and Afghanistan have sent a million service personnel from the U.S. alone into conflict areas leaving millions of spouses, children and others in stressful circumstances. This is not a new situation for military families, but it has taken a toll of magnified proportions in recent times. In addition, medical advances have prolonged the life of those who might have died of injuries. As a result, more families are caring for those who have experienced amputation, traumatic brain injury, and profound psychological wounds.

Features
► Presents new data and new analyses of the research on military families
► Offers interdisciplinary perspective from military to mental health
► Contributors are leading researchers in the field
► Offers a mix of research and intervention

From the contents

Fields of interest
Psychotherapy and Counseling

Target groups
Research

Discount group
P

Disability and Aging Discrimination
Perspectives in Law and Psychology

Two things are certain in the contemporary workplace: the aging of employees, and negative attitudes toward them—especially those with disabilities—by younger colleagues and supervisors. Related phenomena seem less clear: how do negative stereotypes contribute to discrimination on the job? And how are these stereotypes perceived in legal proceedings? Bringing theoretical organization to an often unfocused literature, Disability and Aging Discrimination offers research in these areas at the same level of rigor as research into racial and gender discrimination. The book applies Social Analytic Jurisprudence, a framework for testing legal assumptions regarding behavior, and identifies controversies and knowledge gaps in age-discrimination and disability law. Chapters provide historical background or present-day context for the prevalence of age and disability prejudices, and shed light on the psychosocial concepts that must be understood, in addition to medical considerations, to make improvements in legal standards and workplace policy.

Features
► Applies a new model social analytic jurisprudence
► Provides an interdisciplinary perspective
► Contributors are prominent legal scholars and social scientists
► Covers often overlooked problems

Contents

Fields of interest
Law and Psychology; Aging; Psychiatry

Target groups
Research

Discount group
P
Nonsmooth Modeling and Simulation for Switched Circuits

Nonsmooth Modeling and Simulation for Switched Circuits concerns the modeling and the numerical simulation of switched circuits with the nonsmooth dynamical systems (NSDS) approach, using piecewise-linear and multivalued models of electronic devices like diodes, transistors, switches. Numerous examples (ranging from introductory academic circuits to various types of power converters) are analyzed and many simulation results obtained with the INRIA open-source SICONOS software package are presented. Comparisons with SPICE and hybrid methods demonstrate the power of the NSDS approach.

Nonsmooth Modeling and Simulation for Switched Circuits is intended to researchers and engineers in the field of circuits simulation and design, but may also attract applied mathematicians interested by the numerical analysis for nonsmooth dynamical systems, as well as researchers from Systems and Control.

Features
- Shows that using piecewise linear and multi-valued models of electronic components with a suitable numerical method may be of interest for the virtual prototyping of circuits
- Essentially dedicated to the numerical implementation, with a lot of numerical results obtained with the open-source simulation platform SICONOS developed at the INRIA
- Files for the simulation will be available on the SICONOS website so that anyone can use them to make his/her further simulations and comparisons

Fields of interest
- Applied Mathematics/Computational Methods of Engineering; Electronics and Microelectronics; Instrumentation; Simulation and Modeling

Target groups
Research

Discount group
P

Principles of Discontinuous Dynamical Systems

Discontinuous dynamical systems have played an important role in both theory and applications during the last several decades. This is still an area of active research and techniques to make the applications more effective are an ongoing topic of interest. Principles of Discontinuous Dynamical Systems is devoted to the theory of differential equations with variable moments of impulses. It introduces a new strategy of implementing an equivalence to systems whose solutions have prescribed moments of impulses and utilizing special topologies in spaces of piecewise continuous functions. The achievements obtained on the basis of this approach are described in this book. The text progresses systematically, by covering preliminaries in the first four chapters. This is followed by more complex material and special topics such as Hopf bifurcation, Devaney's chaos, and the shadowing property are discussed in the last two chapters.

Features
- Introduces a new strategy of solving equations with discontinuous moments
- Utilizes special topologies in spaces of piecewise continuous functions
- Progresses systematically, beginning with preliminaries

Contents
- Introduction
- Description of the System with Fixed Moments of Impulses and its Solutions
- Stability and Periodic Solutions of Systems with Fixed Moments of Impulses
- Basic Systems
- Non-Autonomous Systems with Variable Moments of Impulses
- Differentiability Properties of Non-Autonomous Systems
- Periodic Solutions of Nonlinear Systems
- Discontinuous Dynamical Systems
- Perturbations and Hopf Bifurcation of a Discontinuous Limit Cycle
- Chaos and Shadowing
- Bibliography

Fields of interest
- Dynamical Systems and Ergodic Theory
- Ordinary Differential Equations
- Partial Differential Equations

Target groups
Research

Discount group
P
Recent Developments in Fractals and Related Fields

This book—an outgrowth of an international conference held in honor of Jacques Peyrière—provides readers with an overview of recent developments in the mathematical fields related to fractals. Included are original research contributions as well as surveys written by experts in their respective fields.

Features

- Provides an overview of recent developments in the mathematical fields related to fractals
- Includes original research contributions as well as surveys written by experts in their respective fields
- Readers will find interesting and motivating results as well as new avenues for further research

Contents


Fields of interest

Geometry; Abstract Harmonic Analysis; Functional Analysis

Target groups

Research

Discount group

P

The Art of Proof

Basic Training for Deeper Mathematics

The Art of Proof is designed for a one-semester or two-quarter course. A typical student will have studied calculus (perhaps also linear algebra) with reasonable success. With an artful mixture of chatty style and interesting examples, the student’s previous intuitive knowledge is placed on solid intellectual ground. The topics covered include: integers, induction, algorithms, real numbers, rational numbers, modular arithmetic, limits, and uncountable sets. Methods, such as axiom, theorem and proof, are taught while discussing the mathematics rather than in abstract isolation. Some of the proofs are presented in detail, while others (some with hints) may be assigned to the student or presented by the instructor. The authors recommend that the two parts of the book -- Discrete and Continuous -- be given equal attention.

Features

- Presents fundamental mathematics, integers and real numbers, in a way that asks for student participation, while teaching how mathematics is done
- Provides students with methods and ideas they can use in future courses
- Primarily for: undergraduates who have studied calculus or linear algebra
- Mathematics teachers and teachers-in-training; scientists and social scientists who want to strengthen their command of mathematical methods
- Extra topics in appendices give instructor flexibility

From the contents


Fields of interest

Mathematics, general

Target groups

Lower undergraduate

Discount group

P
K. Bezdek, University of Calgary, AB, Canada

Classical Topics in Discrete Geometry

This multipurpose book can serve as a textbook for a semester long graduate level course giving a brief introduction to Discrete Geometry. It also can serve as a research monograph that leads the reader to the frontiers of the most recent research developments in the classical core part of discrete geometry. Finally, the forty-some selected research problems offer a great chance to use the book as a short problem book aimed at advanced undergraduate and graduate students as well as researchers.

Features
- A valuable source of geometric problems
- User-friendly exposition and up-to-date bibliography provide insight into the latest research
- Useful as a textbook or a research monograph

Contents
Preface.- Part I.- Sphere Packings.- Finite Packings by Translates of Convex Bodies.- Coverings by Homothetic Bodies - Illumination and Related Topics.- Coverings by Planks and Cylinders.- On the Volume of Finite Arrangements of Spheres.- Ball-Polyhedra as Intersections of Congruent Balls.- Part II.- Selected Proofs on Sphere Packagings.- Selected Proofs on Finite Packagings of Translates of Convex Bodies.- Selected Proofs on Illumination and Related Topics.- Selected Proofs on Coverings by Planks and Cylinders.- Selected Proofs on the Kneser-Poulsen Conjecture.- Selected Proofs on Ball-Polyhedra.- References.

Fields of interest
Geometry

Target groups
Graduate

Discount group
P

D. E. Blair, Michigan State University, East Lansing, MI, USA

Riemannian Geometry of Contact and Symplectic Manifolds

This second edition, divided into fourteen chapters, presents a comprehensive treatment of contact and symplectic manifolds from the Riemannian point of view. The monograph examines the basic ideas in detail and provides many illustrative examples for the reader. Riemannian Geometry of Contact and Symplectic Manifolds, Second Edition provides new material in most chapters, but a particular emphasis remains on contact manifolds. New principal topics include a complex geodesic flow and the accompanying geometry of the projectivized holomorphic tangent bundle and a complex version of the special directions discussed in Chapter 11 for the real case. Both of these topics make use of Étienne Ghys' attractive notion of a holomorphic Anosov flow.

Features
- New material in most chapters, but particularly in Chapters 3, 7, and 12
- Major new topics are covered such as a complex geodesic flow and the accompanying geometry of the projectivized holomorphic tangent bundle
- Improvements and general corrections based off of the first edition are made throughout
- Intended for a broad audience of mathematicians, researchers, and students in Riemannian geometry

From the contents

Fields of interest
Differential Geometry; Manifolds and Cell Complexes (incl. Diff.Topology)

Target groups
Research

Discount group
P

S. Butenko, Texas A & University, College Station, TX, USA; J. Gil-Lafuente, University of Barcelona, Spain; P. M. Pardalos, University of Florida, Gainesville, FL, USA (Eds.)

Optimal Strategies in Sports Economics and Management

This volume presents original contributions from renowned researchers in sports economics, management, and optimization. The book discusses up-to-date developments in several topics, including resource allocation strategies in sports industry, impact of the financial crisis on professional sports around the world, fairness in sports competitions, and optimization-based gambling strategies.

“Optimal Strategies in Sports Economics and Management” will be of interest not only to students, researchers and practitioners involved with the sports industry, but also to the general public interested in sports such as soccer, hockey, American football, basketball, golf, and jai alai.

Features
- Presents contributions from renowned researchers in sports economics, management, and optimization
- Describes up-to-date developments in several topics as resource allocation strategies in sports industry, impact of the financial crisis on professional sports around the world, fairness in sports competitions and optimization-based gambling strategies
- With tables and illustrations

From the contents
Affinity in the Selection of a Player.- Game Systems in Team Sports.- The Impact of the Global Financial Crisis on Sport in North America.- Managing and Modeling the Combination of Resources in Professional Sporting Events.- Governance and Sporting Success of Top 20 Football Clubs after Economic Crisis.- The Stadium Game in an Uncertain Environment: A Preliminary Look at Arena Discourse in Edmonton, Canada.- A Complex Network Approach to Crisis Recovering in Sport Applications.- A Study of Fairness in Fourball Golf Competition.- Can Subsidies Help Buy Success?

Fields of interest
Financial Economics; Control; Calculus of Variations and Optimal Control; Optimization

Target groups
Research

Discount group
P
Mathematical Analysis II

The purpose of this textbook is to present an array of topics in Calculus, and conceptually follow our previous effort Mathematical Analysis I. The present material is partly found, in fact, in the syllabus of the typical second lecture course in Calculus as offered in most Italian universities. While the subject matter known as ‘Calculus 1’ is more or less standard, and concerns real functions of real variables, the topics of a course on ‘Calculus 2’ can vary a lot, resulting in a bigger flexibility. For these reasons the Authors tried to cover a wide range of subjects, not forgetting that the number of credits the current programme specifications confers to a second Calculus course is not comparable to the amount of content gathered here. The reminders disseminated in the text make the chapters more independent from one another, allowing the reader to jump back and forth, and thus enhancing the versatility of the book.

**Fields of interest**
Mathematics, general; Analysis; Functional Analysis

**Target groups**
Lower undergraduate

**Discount group**
P

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Cellular Automata and Groups

Cellular automata were introduced in the first half of the last century by John von Neumann who used them as theoretical models for self-reproducing machines. The authors present a self-contained exposition of the theory of cellular automata on groups and explore its deep connections with recent developments in geometric group theory, symbolic dynamics, and other branches of mathematics and theoretical computer science. The topics treated include in particular the Garden of Eden theorem for amenable groups, and the Gromov-Weiss surjunctivity theorem as well as the solution of the Kaplansky conjecture on the stable finiteness of group rings for sofic groups.

**Features**
- First and unique book dedicated to cellular automata and groups
- 90% of the material presented appears for a first time
- Entirely self-contained with more than 300 exercises
- Appeals to a large audience including specialists as well as newcomers in the field

**Contents**

**Fields of interest**
Dynamical Systems and Ergodic Theory

**Target groups**
Research

**Discount group**
P

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Triangulations

**Structures for Algorithms and Applications**

Triangulations appear everywhere, from volume computations and meshing to algebra and topology. This book studies the subdivisions and triangulations of polyhedral regions and point sets and presents the first comprehensive treatment of the theory of secondary polytopes and related topics. A central theme of the book is the use of the rich structure of the space of triangulations to solve computational problems (e.g., counting the number of triangulations or finding optimal triangulations with respect to various criteria), and to establish connections to applications in algebra, computer science, combinatorics, and optimization.

**Features**
- First comprehensive treatment of the theory of regular triangulations, secondary polytopes and related topics appearing in book form
- Discusses the geometric structure behind the algorithms and shows new emerging applications
- Theory discusses high-dimensional situations, an area that is not always covered in computational geometry
- Step-by-step introduction assuming very little background
- Hundreds of illustrations, examples, and exercises

**Contents**
1 Triangulations in Mathematics.- 2 Configurations, Triangulations, Subdivisions, and Flips.- 3 Life in two Dimensions.- 4 A Tool Box.- 5 Regular Triangulations and Secondary Polytopes.- 6 Some Interesting Configurations.- 7 Some Interesting Triangulations.- 8 Algorithmic Issues.- 9 Further Topics.- Bibliography.- Index

**Fields of interest**
Convex and Discrete Geometry; Mathematics of Computing; Computational Mathematics and Numerical Analysis

**Target groups**
Upper undergraduate

**Discount group**
P

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**Due October 2010**
2nd Ed. 2010. X, 543 p. (Universitext) Softcover
- approx. $89.95

**Due October 2010**
1st Edition 2011. XX, 443 p. (Springer Monographs in Mathematics, 0) Hardcover
- $124.00
- ISBN 978-3-642-14033-4

**Due August 2010**
- $84.95
- ISBN 978-3-642-12970-4
**Classical Mechanics**

**Theory and Mathematical Modeling**

Classical mechanics is a chief example of the scientific method organizing a “complex” collection of information into theoretically rigorous, unifying principles; in this sense, mechanics represents one of the highest forms of mathematical modeling. This textbook covers standard topics of a mechanics course, namely, the mechanics of rigid bodies, Lagrangian and Hamiltonian formalism, stability and small oscillations, an introduction to celestial mechanics, and Hamilton–Jacobi theory, but at the same time features unique examples—such as the spinning top including friction and gyroscopic compass—seldom appearing in this context. In addition, variational principles like Lagrangian and Hamiltonian dynamics are treated in great detail.

**Features**
- Offers a rigorous mathematical treatment of mechanics as a text or reference
- Revisits beautiful classical material, including gyroscopes, precessions, spinning tops, effects of rotation of the Earth on gravity motions, and variational principles
- Employs mathematics not only as a "unifying" language, but also to exemplify its role as a catalyst behind new concepts and discoveries

**Contents**

**Fields of interest**
Applications of Mathematics; Mechanics; Mathematical Methods in Physics

**Target groups**
Graduate

**Discount group**
P

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**The Analysis of Fractional Differential Equations**

**An Application-Oriented Exposition Using Differential Operators of Caputo Type**

Fractional calculus was first developed by pure mathematicians in the middle of the 19th century. Some 100 years later, engineers and physicists have found applications for these concepts in their areas. However there has traditionally been little interaction between these two communities. In particular, typical mathematical works provide extensive findings on aspects with comparatively little significance in applications, and the engineering literature often lacks mathematical detail and precision. This book bridges the gap between the two communities. It concentrates on the class of fractional derivatives most important in applications, the Caputo operators, and provides a self-contained, thorough and mathematically rigorous study of their properties and of the corresponding differential equations. The text is a useful tool for mathematicians and researchers from the applied sciences alike. It can also be used as a basis for teaching graduate courses on fractional differential equations.

**Features**
- Provides a detailed mathematical description of the class fractional differential operators that is most important in applications, the Caputo operators, and provides a self-contained, thorough and mathematically rigorous foundation on which researchers from outside of mathematics can build their models
- Is written in a style suitable for use as textbook

**Fields of interest**
Ordinary Differential Equations; Integral Equations; Analysis

**Target groups**
Graduate

**Discount group**
P

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**Analysis and Design of Descriptor Linear Systems**

Descriptor linear systems theory is an important part in the general field of control systems theory, and has attracted much attention in the last two decades. In spite of the fact that descriptor linear systems theory has been a topic very rich in content, there have been only a few books on this topic. This book provides a systematic introduction to the theory of continuous-time descriptor linear systems and aims to provide a relatively systematic introduction to the basic results in descriptor linear systems theory. The clear representation of materials and a large number of examples make this book easy to understand by a large audience. General readers will find in this book a comprehensive introduction to the theory of descriptor linear systems. Researchers will find a comprehensive description of the most recent results in this theory and students will find a good introduction to some important problems in linear systems theory.

**Features**
- Well structured and hence offers good readability and clarity
- Chapter 1 introduces real-world examples of descriptor systems
- Includes three appendices which supply additional relative materials supporting the content of certain chapters in the book
- Step-by-step algorithms provided for important analysis and design problems and theoretical solutions
- The clear presentation of materials and a large number of examples make this book easy to understand by a wide audience

**From the contents**

**Fields of interest**
Linear and Multilinear Algebras, Matrix Theory; Vibration, Dynamical Systems, Control; Ordinary Differential Equations

**Target groups**
Graduate

**Discount group**
P

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E. DiBenedetto, Vanderbilt University, Nashville, TN, USA

K. Diethelm, GNS Gesellschaft für Numerische Simulation mbH, Braunschweig, Germany

G. Duan, Harbin Institute of Technology, China
Discrete Integrable Systems

QRT Maps and Elliptic Surfaces

This book is devoted to Quispel, Roberts, and Thompson (QRT) maps, considered as automorphisms of rational elliptic surfaces. The theory of QRT maps arose from problems in mathematical physics, involving difference equations. The application of QRT maps to these and other problems in the literature, including Poncelet mapping and the elliptic billiard, is examined in detail. The link between elliptic fibrations and completely integrable Hamiltonian systems is also discussed. The book begins with a comprehensive overview of the subject, including QRT maps, singularity confinement, automorphisms of rational elliptic surfaces, action on homology classes, and periodic QRT maps. Later chapters cover these topics and more in detail. While QRT maps will be familiar to specialists in algebraic geometry, the present volume makes the subject accessible to mathematicians and graduate students in a classroom setting or for self-study.

Features
► Makes the theory of QRT maps accessible to non-specialists in algebraic geometry
► May be used as introduction to the theory of general elliptic surfaces
► Applies theory to Poncelet mappings, the elliptic billiard, and difference equations from mathematical physics
► Almost everything can be explicitly computed

Contents

Fields of interest
Algebraic Geometry; Functions of a Complex Variable; Theoretical, Mathematical and Computational Physics

Target groups
Graduate

Discount group
P

Lévy Matters I

Recent Progress in Theory and Applications Foundations, Trees and Numerical Issues in Finance

This is the first volume of a subseries of the Lecture Notes in Mathematics called Lévy Matters, which will appear randomly over the next years. Each volume will describe some important topic in the theory or applications of Lévy processes and pay tribute to the state of the art of this rapidly evolving subject with special emphasis on the non-Brownian world. The three expository articles of this first volume have been chosen to reflect the breadth of the area of Lévy processes.

Features
► Over the past 10–15 years, we have seen a revival of general Lévy processes theory as well as a burst of new applications
► There is a lively and growing research community in this area
► Expository articles help to disseminate important theoretical and applied research to other researchers and in particular to young researchers like PhD students and Postdocs
► Chapters attract different focus groups of readers

Fields of interest
Probability Theory and Stochastic Processes

Target groups
Research

Discount group
P
Progress in Industrial Mathematics at ECMI 2008

This volume is the Proceedings of the European Conference on Mathematics for Industry held in London in June 2008. The aim of the meeting was to reinforce the role of mathematics as an overarching resource for industry and business. Contributions cover a wide range of mathematical techniques and the applications include manufacturing and technology, finance and policy-making, networks, medicine, and sport.

Features
- Top quality selection of material presented at ECMI 2008
- Most important conference proceedings in industrial mathematics, held biannually
- Main industrial math conference, see www.ecmi2008.org

Contents
Part I - Plenary Lectures. - Part II Minisymposia. - Part III Contributed Papers.

Fields of interest
Computational Mathematics and Numerical Analysis; Partial Differential Equations; Computational Science and Engineering

Target groups
Research

Discount group
P

Commutative Algebra

Noetherian and Non-Noetherian Perspectives

Commutative algebra is a rapidly growing subject that is developing in many different directions. This volume presents several of the most recent results from various areas related to both Noetherian and non-Noetherian commutative algebra. This volume contains a collection of invited survey articles by some of the leading experts in the field. The authors of these chapters have been carefully selected for their important contributions to an area of commutative-algebraic research. Some topics presented in the volume include: generalizations of cyclic modules, zero divisor graphs, class semigroups, forcing algebras, syzygy bundles, tight closure, Gorenstein dimensions, tensor products of algebras over fields, as well as many others. This book is intended for researchers and graduate students interested in studying the many topics related to commutative algebra.

Features
- Contains a collection of invited survey articles by some of the leading experts in commutative algebra
- The included contributions have been carefully selected for their impact on the field

From the contents

Fields of interest
Commutative Rings and Algebras; Algebraic Geometry

Target groups
Research

Discount group
P

Approximation and Computation

In Honor of Gradimir V. Milovanović

Approximation theory and numerical analysis are central to the creation of accurate computer simulations and mathematical models. Research in these areas can influence the computational techniques used in a variety of mathematical and computational sciences. This collection of contributed chapters, dedicated to renowned mathematician Gradimir V. Milovanović, represent the recent work of experts in the fields of approximation theory and numerical analysis. These invited contributions describe new trends in these important areas of research including theoretic developments, new computational algorithms, and multidisciplinary applications.

Features
- Includes results from diverse areas of mathematics, engineering and the computational sciences
- Presents approximation methods in various computational settings including: polynomial and orthogonal systems, analytic functions, and differential equations
- Provides a historical overview of approximation theory and many of its subdisciplines
- Contains new results from diverse areas of research spanning mathematics, engineering, and the computational sciences

Fields of interest
Optimization; Computational Mathematics and Numerical Analysis; Approximations and Expansions

Target groups
Research

Discount group
P
50th IMO – 50 Years of International Mathematical Olympiads

In July 2009 Germany hosted the 50th International Mathematical Olympiad (IMO). For the very first time the number of participating countries exceeded 100, with 104 countries from all continents. Celebrating the 50th anniversary of the IMO provides an ideal opportunity to look back over the past five decades and to review its development to become a worldwide event. This book is a report about the 50th IMO as well as the IMO history. A lot of data about all the 50 IMOs are included. We list the most successful contestants, the results of the 50 Olympiads and the 112 countries that have ever taken part. It is impressive to see that many of the world’s leading research mathematicians were among the most successful IMO participants in their youth. Six of them gave presentations at a special celebration: Bollobás, Gowers, Lovász, Smirnov, Tao and Yoccoz. This book is aimed at students in the IMO age group and all those who have interest in this worldwide leading competition for highschool students.

Features
► Official publication of the 50th anniversary of IMO
► Reviews the development from the beginning to a worldwide movement
► Indispensable for everyone interested in the IMO

Fields of interest
Mathematics, general

Target groups
Lower undergraduate

Discount group
P

Probability and Statistical Models
Foundations for Problems in Reliability and Financial Mathematics

With an emphasis on models and techniques, this textbook introduces many of the fundamental concepts of stochastic modeling that are now a vital component of almost every scientific investigation. These models form the basis of well-known parametric lifetime distribution classes as well as change-point and mixture models. The authors also consider more general notions of non-parametric lifetime distribution classes. In particular, emphasis is placed on laying the foundation for solving problems in reliability, insurance, finance, and credit risk. Significantly, many of the chapters that examine central topics in applied probability can be read independently, allowing both instructors and readers extra flexibility in their use of the book. The material has been carefully selected to cover the basic concepts and techniques on each topic, making this an ideal introductory gateway to more advanced learning.

Features
► Lays the foundation for solving problems in reliability, insurance, finance, and credit risk
► Exercises and solutions to selected problems accompany each chapter
► Many of the chapters that examine central topics in applied probability can be read independently, allowing both instructors and readers extra flexibility in the use of the book

Fields of interest

Target groups
Upper undergraduate

Discount group
P

Due September 2010
A. K. Gupta, Bowling Green State University, Bowling Green, OH, USA; W. Zeng, University of Louisville, KY, USA; Y. Wu, California State University at Stanislaus, Turlock, CA, USA

Due August 2010
A. Holme, University of Bergen, Norway

Geometry
Our Cultural Heritage

This book contains selected topics from the history of geometry, with “modern” proofs of some of the results, as well as a fully modern treatment of selected basic issues in geometry. It is geared towards the needs of future mathematics teachers. One of my goals for this book is to open up for the dynamic character of geometry as such, and to extend an invitation to geometry as a gateway to mathematics in general. It is unfortunate that today, at a time when mathematics is more important than ever, phrases like math avoidance and math anxiety are very much in the public vocabulary. Making a serious effort to heal these ills is an essential task. Thus the book also aims at an informed public, interested in making a new beginning in math. For the 2nd edition, some of the historical material has been expanded and numerous illustrations have been added, as has a chapter on polyhedra and tessellations and their symmetries. A large number of exercises with some suggestions for solutions is also included.

Features
► Very readable short history of geometry
► No prerequisites required
► Easy to understand by beginners
► New edition with large number of exercises with some suggestions for solutions

From the contents

Fields of interest
Geometry; Mathematics, general; Theoretical, Mathematical and Computational Physics

Target groups
Lower undergraduate

Discount group
P
Imperfect Bifurcation in Structures and Materials

Engineering Use of Group-Theoretic Bifurcation Theory

This book provides a modern investigation into the bifurcation phenomena of physical and engineering problems. Systematic methods - based on asymptotic, probabilistic, and group-theoretic standpoints - are used to examine experimental and computational data from numerous examples (soil, sand, kaolin, concrete, domes). Engineers may find this book, with its minimized mathematical formalism, to be a useful introduction to modern bifurcation theory. For mathematicians, static bifurcation theory for finite-dimensional systems, as well as its implications for practical problems, is illuminated by the numerous examples. This second edition strengthens the theoretical backgrounds of group representation theory and its application, uses of block-diagonalization in bifurcation analysis, and includes up-to-date topics of the bifurcation analysis of diverse materials from rectangular parallelepiped sand specimens to honeycomb cellular solids.

Features

- Exercises at the ends of chapters or sections
- Solutions to selected exercises in the book
- Detailed Illustrations

From the contents


Fields of interest

Dynamical Systems and Ergodic Theory; Structural Mechanics

Target groups

Research

Discount group

P

Due August 2010

2nd edition


$84.95
ISBN 978-1-4419-7075-6

M. K. Ikeda, Tohoku University, Aoba Sendai, Japan; K. Murota, University of Tokyo, Japan

G.W. Stewart

Selected Works with Commentaries

Published in honor of his 70th birthday, this volume explores and celebrates the work of G.W. (Pet) Stewart, a world-renowned expert in computational linear algebra. It is widely accepted that Stewart is the successor to James Wilkinson, the first giant in the field, taking up the perturbation theory research that Wilkinson so ably began and using it as a foundation for algorithmic insights. Stewart's results in many areas of computational linear algebra broke new ground and are still widely used in an increasing number of applications. Stewart's papers, widely cited, are characterized by elegance in theorems and algorithms and clear, concise, and beautiful exposition. His six popular textbooks are excellent sources of knowledge and history. Stewart is a member of the National Academy of Engineering and has received numerous additional honors, including the Bauer Prize.

Features

- Celebrates and honors the work of G.W. Stewart, a world-renowned expert in computational linear algebra
- Comprehensively includes forty-four of Stewart's most influential research papers in two subject areas: matrix algorithms, and rounding and perturbation theory
- Includes a biography of Stewart

Fields of interest

Linear and Multilinear Algebras, Matrix Theory; Algorithms; Computational Mathematics and Numerical Analysis

Target groups

Research

Discount group

P

Due July 2010


$199.00
ISBN 978-0-8176-4967-8

M. Knebusch, University of Regensburg, Regensburg, Germany

Specialization of Quadratic and Symmetric Bilinear Forms

Translated by: T. Unger, University College Dublin, Ireland

The specialization theory of quadratic and symmetric bilinear forms over fields and the subsequent generic splitting theory of quadratic forms were invented by the author in the mid-1970's. They came to fruition in the ensuing decades and have become an integral part of the geometric methods in quadratic form theory. This book comprehensively covers the specialization and generic splitting theories. These theories, originally developed for fields of characteristic different from 2, are explored here without this restriction. In addition to chapters on specialization theory, generic splitting theory and their applications, the book contains a final chapter containing research never before published on specialization with respect to quadratic places and will provide the reader with a glimpse towards the future.

Features

- Written by the founder of specialization theory of quadratic and symmetric bilinear forms over fields and the subsequent generic splitting theory of quadratic forms
- Comprehensively covers specialization and generic splitting theories
- Contains a final chapter containing research never before published on specialization with respect to quadratic place

Contents

Fundamentals of Specialization Theory.- Generic Splitting Theory.- Some Applications.- Specialization with Respect to Quadratic Places.- Forms.- References.- Index

Fields of interest

Algebra

Target groups

Research

Discount group

P

Due September 2010

2010. 188 p. (Algebra and Applications, 11) Hardcover

$599.00
ISBN 978-1-84882-241-4

M. Knebusch, University of Regensburg, Regensburg, Germany
Second Order Differential Equations

Special Functions and Their Classification

Second Order Differential Equations presents a classical piece of theory concerning hypergeometric special functions as solutions of second-order linear differential equations. The theory is presented in an entirely self-contained way, starting with an introduction of the solution of the second-order differential equations and then focusing on the systematic treatment and classification of these solutions. Each chapter contains a set of problems which help reinforce the theory. Some of the preliminaries are covered in appendices at the end of the book, one of which provides an introduction to Poincaré–Perron theory, and the appendix also contains a new way of analyzing the asymptomatic behavior of solutions of differential equations. This textbook is appropriate for advanced undergraduate and graduate students in Mathematics, Physics, and Engineering interested in Ordinary and Partial Differential Equations. A solutions manual is available online.

Features
- Contains problems at the end of each chapter which reinforce the material
- Features solutions of the Heun equation, usually only found in more advanced monographs
- Includes useful appendices on background material, including the Poincaré–Perron theory

Contents

Fields of interest
Ordinary Differential Equations; Special Functions; Functions of a Complex Variable

Target groups
Graduate

Discount group
P

Elements of Operator Theory

This second edition of Elements of Operator Theory is a concept-driven textbook including a significant expansion of the problems and solutions used to illustrate the principles of operator theory. Written in a user-friendly, motivating style intended to avoid the formula-computational approach, fundamental topics are presented in a systematic fashion, i.e., set theory, algebraic structures, topological structures, Banach spaces, and Hilbert spaces, culminating with the Spectral Theorem.

Features
- Second edition of popular textbook
- More than 300 fully rigorous proofs, specially tailored to the presentation
- As many as 150 examples, and several interesting counterexamples that demonstrate the frontiers of an important theorem
- Over 300 problems, many with hints, and including 20 pages of additional problems for the second edition

Contents

Fields of interest
Operator Theory; Functional Analysis; Applications of Mathematics

Target groups
Research

Discount group
P

Topology, Geometry and Gauge fields

Foundations

This is a book on topology and geometry and, like any books on subjects as vast as these, it has a point-of-view that guided the selection of topics. Naber takes the view that the rekindled interest that mathematics and physics have shown in each other of late should be fostered and that this is best accomplished by allowing them to cohabitate. The book weaves together rudimentary notions from the classical gauge theory of physics with the topological and geometrical concepts that became the mathematical models of these notions. We ask the reader to come to us with some vague notion of what an electromagnetic field might be, a willingness to accept a few of the more elementary pronouncements of quantum mechanics, a solid background in real analysis and linear algebra and some of the vocabulary of modern algebra. To such a reader we offer an excursion that begins with the definition of a topological space and finds its way eventually to the moduli space of anti-self-dual SU(2) connections on S4 with instanton number -1. I would go over both volumes thoroughly and make some minor changes in terminology and notation and correct any errors I find.

Features
- Detailed calculations of a number of concrete examples
- Written for both mathematicians who want to see something of the applications of topology and geometry to modern physics
- Written for physicists who want to see the foundations of their subject treated with mathematical rigor

Contents
Contents Preface.- Physical and geometrical motivation 1 Topological spaces.- Homotopy groups.- Principal bundles.- Differentiable manifolds and matrix Lie groups.- Gauge fields and Instantons. Appendix. References. Index.

Fields of interest
Topology; Geometry; Elementary Particles, Quantum Field Theory

Target groups
Graduate

Discount group
P
Mathematical Modeling of Collective Behavior in Socio-Economic and Life Sciences

Mathematical modeling using dynamical systems and partial differential equations is now playing an increasing role in the understanding of complex multi-scale phenomena. Behavior in seemingly different areas such as sociology, economics, and the life sciences can be described by closely related models. Using examples from financial markets and modern warfare to the flocking of birds and the swarming of bacteria, the collected research in this volume demonstrates the common methodological approaches and tools for modeling and simulating collective behavior. The topics presented point toward new and challenging frontiers of applied mathematics, making the volume a useful reference text for applied mathematicians, physicists, biologists, and economists involved in the modeling of socio-economic systems.

Features
- A comprehensive and concise presentation of current research from experts in various disciplines compiled in one volume
- Applications to a variety of disciplines including finance, social science, and the life sciences
- Broad range of topics covered: analysis of wealth distribution, dynamics of price formation, spreading of behaviors, and partial differential equations is now playing an increasing role in the understanding of complex multi-scale phenomena.

Fields of interest
Mathematical Modeling and Mathematics in Industry; Statistical Physics, Dynamical Systems and Complexity; Partial Differential Equations

Target groups
Research

Discount group
P

Homotopy Theory of C*-Algebras

Homotopy theory and C*-algebras are central topics in contemporary mathematics. This book introduces a modern homotopy theory for C*-algebras. One basic idea of the setup is to merge C*-algebras and spaces studied in algebraic topology into one category comprising C*-spaces. These objects are suitable fodder for standard homotopy theoretic moves, leading to unstable and stable model structures. With the foundations in place one is led to natural definitions of invariants for C*-spaces such as homology and cohomology theories, K-theory and zeta-functions. The text is largely self-contained. It serves a wide audience of graduate students and researchers interested in C*-algebras, homotopy theory and applications.

Features
- First account of the homotopy theoretic viewpoint of C*-algebras encoded in the notion of a C*-space
- Unifies two separate mathematical topics
- Opens up for a whole host of new research problems

Contents
1 Introduction.- 2 Preliminaries.- 2.1 C*-spaces.- 2.2 G – C*-spaces.- 2.3 Model categories.- 3 Unstable C*-homotopy theory.- 3.1 Pointwise model structures.- 3.2 Exact model structures.- 3.3 Matrix invariant model structures.- 3.4 Homotopy invariant model structures.- 3.5 Pointed model structures.- 3.6 Base change.- 4 Stable C*-homotopy theory.- 4.1 C*-spectra.- 4.2 Bispectra.- 4.3 Triangulated structure.- 4.4 Brown representability.- 4.5 C*-symmetric spectra.- 4.6 C*-functors.- 5 Invariants.- 5.1 Cohomology and homology theories.- 5.2 KK-theory and the Eilenberg-MacLane spectrum.- 5.3 HL-theory and the Eilenberg-MacLane spectrum.- 5.4 The Chern-Connes-Karoubi character.- 5.5 K-theory of C*-algebras.- 5.6 Zeta functions.- 6 The slice filtration.- References.- Index.

Fields of interest
Algebraic Topology; Functional Analysis

Target groups
Research

Discount group
P
PDE and Martingale Methods in Option Pricing

This book offers an introduction to the mathematical, probabilistic and numerical methods used in the modern theory of option pricing. The text is designed for readers with a basic mathematical background. The first part contains a presentation of the arbitrage theory in discrete time. In the second part, the theories of stochastic calculus and parabolic PDEs are developed in detail and the classical arbitrage theory is analyzed in a Markovian setting by means of of PDEs techniques. After the martingale representation theorems and the Girsanov theory have been presented, arbitrage pricing is revisited in the martingale theory optics. General tools from PDE and martingale theories are also used in the analysis of volatility modeling. The book also contains an Introduction to Lévy processes and Malliavin calculus. The last part is devoted to the description of the numerical methods used in option pricing: Monte Carlo, binomial trees, finite differences and Fourier transform.

Features
- Unified and detailed treatment of PDE and martingale methods in option pricing
- Full treatment of arbitrage theory in discrete and continuous time
- Self-contained introduction to advanced methods (Malliavin calculus, Levy processes, Fourier methods, etc)

Fields of interest
Quantitative Finance; Probability Theory and Stochastic Processes; Applications of Mathematics

Target groups
Professional/practitioner

Discount group
P

Dynamical Systems
Stability, Controllability and Chaotic Behavior

At the end of the nineteenth century Lyapunov and Poincaré developed the so called qualitative theory of differential equations and introduced geometric-topological considerations which have led to the concept of dynamical systems. In its present abstract form this concept goes back to G.D. Birkhoff. This is also the starting point of Chapter 1 of this book in which uncontrolled and controlled time-continuous and time-discrete systems are investigated. Controlled dynamical systems could be considered as dynamical systems in the strong sense, if the controls were incorporated into the state space. We, however, adapt the conventional treatment of controlled systems as in control theory. We are mainly interested in the question of controllability of dynamical systems into equilibrium states. In the non-autonomous time-discrete case we also consider the problem of stabilization. We conclude with chaotic behavior of autonomous time discrete systems and actual real-world applications.

Features
- Interesting and actual topic
- Unique characterization
- Relevant related real-world examples

Contents

Fields of interest
Dynamical Systems and Ergodic Theory; Operations Research/Decision Theory; Control, Robotics, Mechatronics

Target groups
Graduate

Discount group
P

Numerical Solution of Stochastic Differential Equations with Jumps in Finance

In financial and actuarial modeling and other areas of application, stochastic differential equations with jumps have been employed to describe the dynamics of various state variables. The numerical solution of such equations is more complex than that of those only driven by Wiener processes, described in Kloeden & Platen: Numerical Solution of Stochastic Differential Equations (1992). The present monograph builds on the above-mentioned work and provides an introduction to stochastic differential equations with jumps, in both theory and application, emphasizing the numerical methods needed to solve such equations. It presents many new results on higher-order methods for scenario and Monte Carlo simulation, including implicit, predictor corrector, extrapolation, Markov chain and variance reduction methods, stressing the importance of their numerical stability. Furthermore, it includes chapters on exact simulation, estimation and filtering. Besides serving as a basic text on quantitative methods, it offers ready access to a large number of potential research problems in an area that is widely applicable and rapidly expanding.

Features
- The presented book is accessible to a wide readership and contains many new results on numerical methods but also innovative methodologies in quantitative finance.
- To help the reader to develop a good understanding of the underlying mathematics, exercises with solutions are included

Fields of interest
Probability Theory and Stochastic Processes; Statistics for Business/Economics/Mathematical Finance/Insurance; Quantitative Finance

Target groups
Graduate

Discount group
P
Geometric Theory of Discrete Nonautonomous Dynamical Systems

Nonautonomous dynamical systems provide a mathematical framework for temporally changing phenomena, where the law of evolution varies in time due to seasonal, modulation, controlling or even random effects. Our goal is to provide an approach to the corresponding geometric theory of nonautonomous discrete dynamical systems in infinite-dimensional spaces by virtue of 2-parameter semigroups (processes). These dynamical systems are generated by implicit difference equations.- 3 Linear difference equations.- 4 Invariant fiber bundles.- 5 Linearization.

Features

- Comprehensive approach to discrete dynamical systems
- Applications to numerical discretizations
- Extensive invariant manifold theory

Contents

1 Nonautonomous dynamical systems.
2 Nonautonomous difference equations.
3 Linear difference equations.
4 Invariant fiber bundles.
5 Linearization.

Field of interest
Dynamical Systems and Ergodic Theory

Target groups
Research

Discount group
P
Holomorphic Dynamical Systems
Cetraro, Italy, July 7-12, 2008

The theory of holomorphic dynamical systems is a subject of increasing interest in mathematics, both for its challenging problems and for its connections with other branches of pure and applied mathematics. This volume collects the Lectures held at the 2008 CIME session on “Holomorphic Dynamical Systems” held in Cetraro, Italy. This CIME Course focused on a number of important topics in the study of discrete and continuous dynamical systems, including both local and global aspects, providing a fascinating introduction to many key problems in current research. The contributions provide an ample description of the phenomena occurring in central themes of holomorphic dynamics such as automorphisms and meromorphic self-maps of projective spaces, of entire maps on complex spaces and holomorphic foliations in surfaces and higher dimensional manifolds, elaborating on the different techniques used and familiarizing readers with the latest findings on current research topics.

Features
► Includes contributions by six well known researchers in different topics of the ample subject
► Contributions are as much self-contained as possible ► Provides a fascinating introduction to many key problems of the current research

Fields of interest
Dynamical Systems and Ergodic Theory; Functions of a Complex Variable; Several Complex Variables and Analytic Spaces

Target groups
Research

Discount group
P

Ramsey Theory
Yesterday, Today, and Tomorrow

Ramsey theory is a relatively “new,” approximately 100 year-old direction of fascinating mathematical thought that touches on many classic fields of mathematics such as combinatorics, number theory, geometry, ergodic theory, topology, combinatorial geometry, set theory, and measure theory. Ramsey theory possesses its own unifying ideas, and some of its results are among the most beautiful theorems of mathematics. The underlying theme of Ramsey theory can be formulated as: any finite coloring of a large enough system contains a monochromatic subsystem of higher degree of organization than the system itself, or as T.S. Motzkin famously put it, absolute disorder is impossible.

Ramsey Theory: Yesterday, Today, and Tomorrow explores the theory’s history, recent developments, and some promising future directions through invited surveys written by prominent researchers in the field. The first three surveys provide historical background on the subject; the last three address Euclidean Ramsey theory and related coloring problems. In addition, open problems posed throughout the volume and in the concluding open problem chapter will appeal to graduate students and mathematicians alike.

Features
► Explores Ramsey theory’s history, recent developments, and some promising future directions through invited surveys written by prominent researchers in the field ► Provides historical background on the subject ► Addresses Euclidean Ramsey theory and related coloring problems ► Open problems are posed throughout the volume and in the concluding open problem chapter

Fields of interest
Dynamical Systems and Ergodic Theory; Convex and Discrete Geometry

Target groups
Graduate

Discount group
P

Mathematics and Its History

From the reviews of the second edition
► “This book covers many interesting topics not usually covered in a present day undergraduate course, as well as certain basic topics such as the development of the calculus and the solution of polynomial equations. The fact that the topics are introduced in their historical contexts will enable students to better appreciate and understand the mathematical ideas involved...If one constructs a list of topics central to a history course, then they would closely resemble those chosen here
► David Parrott, Australian Mathematical Society

This third edition includes new chapters on simple groups and combinatorics, and new sections on several topics, including the Poincaré conjecture. The book has also been enriched by added exercises.

Features
► New edition extensively revised and updated ► The author’s style and exposition are unique ► Features new exercises throughout the book ► Contains a new section on the Poincaré conjecture ► Includes new chapters on simple groups and combinatorics

Contents

Fields of interest
History of Mathematical Sciences; Geometry; Number Theory

Target groups
Graduate

Discount group
P

Birkhäuser
**Partial Differential Equations I**

**Basic Theory**

The first of three volumes on partial differential equations, this one introduces basic examples arising in continuum mechanics, electromagnetism, complex analysis and other areas, and develops a number of tools for their solution, in particular Fourier analysis, distribution theory, and Sobolev spaces. These tools are then applied to the treatment of basic problems in linear PDE, including the Laplace equation, heat equation, and wave equation, as well as more general elliptic, parabolic, and hyperbolic equations. The book is targeted at graduate students in mathematics and at professional mathematicians with an interest in partial differential equations, mathematical physics, differential geometry, harmonic analysis, and complex analysis.

**Features**
- Three volumes offer complete reference to PDE's
- Includes both theory and applications
- Lots of examples and exercises

**Field of interest**
Partial Differential Equations

**Target groups**
Graduate

**Discount group**
P

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**Partial Differential Equations II**

**Qualitative Studies of Linear Equations**

This second in the series of three volumes builds upon the basic theory of linear PDE given in volume 1, and pursues more advanced topics. Analytical tools introduced here include pseudo-differential operators, the functional analysis of self-adjoint operators, and Wiener measure. The book also develops basic differential geometrical concepts, centred about curvature. Topics covered include spectral theory of elliptic differential operators, the theory of scattering of waves by obstacles, index theory for Dirac operators, and Brownian motion and diffusion.

**Features**
- Three volumes offer complete reference to PDE's
- Includes both theory and applications
- Lots of examples and exercises

**Field of interest**
Partial Differential Equations

**Target groups**
Research

**Discount group**
P

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**Partial Differential Equations III**

**Nonlinear Equations**

The third of three volumes on partial differential equations, this is devoted to nonlinear PDE. It treats a number of equations of classical continuum mechanics, including relativistic versions, as well as various equations arising in differential geometry, such as in the study of minimal surfaces, isometric imbedding, conformal deformation, harmonic maps, and prescribed Gauss curvature. In addition, some nonlinear diffusion problems are studied. It also introduces such analytical tools as the theory of $L^p$ Sobolev spaces, Hölder spaces, Hardy spaces, and Morrey spaces, and also a development of Calderon-Zygmund theory and paradifferential operator calculus. The book is aimed at graduate students in mathematics, and at professional mathematicians with an interest in partial differential equations, mathematical physics, differential geometry, harmonic analysis and complex analysis.

**Features**
- Three volumes offer complete reference to PDE's
- Includes both theory and applications
- Lots of examples and exercises

**Field of interest**
Partial Differential Equations

**Target groups**
Research

**Discount group**
P
Spinors in Four-Dimensional Spaces

Without using the customary Clifford algebras frequently studied in connection with the representations of orthogonal groups, this book gives an elementary introduction to the two-component spinor formalism for four-dimensional space with any signature. Some of the useful applications of four-dimensional spinors, such as Yang–Mills theory, are derived in detail using illustrative examples.

### Features

- Systematic, coherent exposition throughout
- Introductory treatment of spinors, requiring no previous knowledge of spinors or advanced knowledge of Lie groups
- Includes a detailed bibliography and index

### Contents

1. Spinor Algebra
   - 1.1 Orthogonal Groups
   - 1.2 Null Tetrads and the Spinor Equivalent of a Tensor
   - 1.3 Spinorial Representation of the Orthogonal Transformations
   - 1.3.1 Euclidean Signature
   - 1.3.2 Lorentzian Signature
   - 1.3.3 Ultrahyperbolic Signature
   - 1.4 Reflections
   - 1.5 Clifford Algebra. Dirac Spinors
   - 1.6 Inner Products. Mate of a Spinor
   - 1.7 Principal Spinors. Algebraic Classification
   - Exercises
2. Curvature
   - 2.1 Covariant Differentiation
   - 2.2 Curvature Spinors
   - 2.2.1 Algebraic Classification of the Conformal Curvature
   - 2.3 Conformal Rescalings
   - 2.4 Killing Vectors. Lie Derivative of Spinors
   - Exercises
3. Applications
   - 3 Applications to General Relativity
   - 3.1 Maxwell’s Equations
   - 3.2 Dirac’s Equation
   - 3.3 The Goldberg–Sachs Theorem
   - 3.3.1 The Goldberg–Sachs Theorem. The Goldberg–Sachs Theorem
   - 3.3.2 Space-Times with Symmetries. Ernst Potentials

### Fields of interest

- Topological Groups, Lie Groups
- Mathematical Methods in Physics
- Classical and Quantum Gravitation
- Relativity Theory

### Target groups

Research

### Discount group

P

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Hilbert Functions of Filtered Modules

Hilbert Functions play major roles in Algebraic Geometry and Commutative Algebra, and are becoming increasingly important also in Computational Algebra. They capture many useful numerical characters associated to a projective variety or to a filtered module over a local ring. Starting from the pioneering work of D.G. Northcott and J. Sally, we aim to gather together in one place many new developments of this theory by using a unifying approach which gives self-contained and easier proofs. The extension of the theory to the case of general filtrations on a module, and its application to the study of certain graded algebras which are not associated to a filtration are two of the main features of the monograph. The material is intended for graduate students and researchers who are interested in Commutative Algebra, in particular in the theory of the Hilbert Functions and related topics.

### Features

- Hilbert functions are becoming of increasing interest
- Numerical examples help the reader
- Includes new developments and easier proofs of classical results

### Fields of interest

Algebra; Commutative Rings and Algebras; Algebraic Geometry

### Target groups

Graduate

### Discount group

P
The Hill-Brown Theory of the Moon’s Motion

Its Coming-to-be and Short-lived Ascendancy (1877-1984)

This book, in three parts, describes three phases in the development of the modern theory and calculation of the Moon's motion—the last of which, in 1984, resulted in the transfer in the responsibility of producing lunar tables from the Nautical Almanac Office in Washington, D.C., to the Jet Propulsion Laboratory in Pasadena, CA—definitively ending an era. The mathematical, philosophical, and historical interest in the analytic solution to the lunar problem using the Hill–Brown method still engages celestial mechanicians and is the primary focus of this work.

Features
- Illustrates the complete history of the theory begun by G.W. Hill through to its completion by E.W. Brown
- Numerous historical accounts reveal how and why perspectives on the lunar problem have changed over time
- Uniquely present the set of lunar properties that made the moon a more difficult subject for celestial mechanicians than any other celestial body
- Provides elementary explanation of the dynamics involved in the Hill-Brown theory making the book accessible to the non-professional

Contents
Preface.- Part I. Hill lays the foundation (1877-1878).- Part II. Brown completes the theory (1892-1908) and constructs tables (1908-1919).- Part III. Revolutionary developments in time measurement, computing, and data collection.- Appendix.- Index.

Fields of interest
History of Mathematical Sciences; Astronomy, Observations and Techniques; History and Philosophical Foundations of Physics

Target groups
Research

Discount group
P
Ancient Indian Leaps into Mathematics

This book presents contributions of mathematicians covering topics from ancient India, placing them in the broader context of the history of mathematics. Although the translations of some Sanskrit mathematical texts are available in the literature, Indian contributions are rarely presented in major Western historical works. Yet some of the well-known and universally-accepted discoveries from India, including the concept of zero and the decimal representation of numbers, have made lasting contributions to the foundation of modern mathematics. Ancient Indian Leaps into Mathematics examines these ancient mathematical ideas that were spread throughout India, China, the Islamic world, and Western Europe. Through a systematic approach, it gives an historical account of the development of mathematics in these regions and their influence on other parts of the world.

Features
► Follows the movement of mathematical ideas that were spread from India, China, the Islamic world, and Western Europe  ► Discusses concepts and ideas developed in different regions in India, China, and Greece  ► Includes methods and a computer program to help the reader fully understand the ideas presented for the chapter on calendrical calculations

From the contents

Fields of interest
History of Mathematical Sciences; Non-Western Philosophy

Target groups
Research

Discount group
P

Morrey and Campanato Meet Besov, Lizorkin and Triebel

During the last 60 years the theory of function spaces has been a subject of growing interest and increasing diversity. Based on three formally different developments, namely, the theory of Besov and Triebel-Lizorkin spaces, the theory of Morrey and Campanato spaces and the theory of Q spaces, the authors develop a unified framework for all of these spaces. As a byproduct, the authors provide a completion of the theory of Triebel-Lizorkin spaces when p = ∞.

Features
► A new general framework unifying Besov-Triebel-Lizorkin spaces, Morrey spaces, Campanato spaces and Q spaces is established
► In the key theorems characterizations by atoms, molecules, wavelets, differences and oscillations are given
► Special cases of these new scales (namely Besov-Triebel-Lizorkin spaces built on Morrey spaces) have been shown to be useful in the study of Navier-Stokes equations

Contents
1 Introduction.- 2 The Spaces BS,TP,q(Rn) and FS,TP,q(Rn). - 3 Almost Diagonal Operators and Atomic and Molecular Decompositions.- 4 Several Equivalent Characterizations.- 5 Pseudo-differential Operators.- 6 Key Theorems.- 7 Inhomogeneous Besov-Hausdorff and Triebel-Lizorkin-Hausdorff Spaces.- 8 Homogeneous Spaces.

Fields of interest
Fourier Analysis; Functional Analysis; Operator Theory

Target groups
Research

Discount group
P

Evolution Inclusions and Variation Inequalities for Earth Data Processing I

Operator Inclusions and Variation Inequalities for Earth Data Processing

Here, the authors present modern mathematical methods to solve problems of differential-operator inclusions and evolution variation inequalities which may occur in fields such as geophysics, aerohydrodynamics, or fluid dynamics. For the first time, they describe the detailed generalization of various approaches to the analysis of fundamentally nonlinear models and provide a toolbox of mathematical equations. These new mathematical methods can be applied to a broad spectrum of problems. Examples of these are phase changes, diffusion of electromagnetic, acoustic, vibro-, hydro- and seismoacoustic waves, or quantum mechanical effects.

This is the first of two volumes dealing with the subject.

Features
► Unique mathematical toolbox for solving problems in geophysics and earth sciences
► Introduces new concepts
► Written by experts

Contents
Preliminary Results.- Operator Inclusions and Variation Inequalities in Infinite-Dimensional Spaces.

Fields of interest
Applications of Mathematics; Geophysics and Environmental Physics; Mathematical Applications in Earth Sciences

Target groups
Research

Discount group
P
Evolution Inclusions and Variation Inequalities for Earth Data Processing II

Differential-Operator Inclusions and Evolution Variation Inequalities for Earth Data Processing

Here, the authors present modern mathematical methods to solve problems of differential-operator inclusions and evolution variation inequalities which may occur in fields such as geophysics, aerohydrodynamics, or fluid dynamics. For the first time, they describe the detailed generalization of various approaches to the analysis of fundamentally nonlinear models and provide a toolbox of mathematical equations. These new mathematical methods can be applied to a broad spectrum of problems. Examples of these are phase changes, diffusion of electromagnetic, acoustic, vibro-, hydro- and seismoacoustic waves, or quantum mechanical effects.

This is the second of two volumes dealing with the subject.

Features

- Unique mathematical toolbox for solving problems in geophysics and earth sciences
- Introduces new concepts
- Written by experts

Contents


Fields of interest

Applications of Mathematics; Geophysics and Environmental Physics; Mathematical Applications in Earth Sciences

Target groups

Research

Discount group

P
Frontiers of Statistical Decision Making and Bayesian Analysis
In Honor of James O. Berger

Research in Bayesian analysis and statistical decision theory is rapidly expanding and diversifying, making it increasingly more difficult for any single researcher to stay up to date on all current research frontiers. This book provides a review of current research challenges and opportunities. While the book cannot exhaustively cover all current research areas, it does include some exemplary discussion of most research challenges and opportunities. Topics include objective Bayesian inference, shrinkage estimation and other decision based estimation, model selection and testing, nonparametric Bayes, the interface of Bayesian and frequentist inference, data mining and machine learning, methods for categorical and spatio-temporal data analysis and posterior simulation methods. Several major application areas are covered: computer models, Bayesian clinical trial design, epidemiology, phylogenetics, bioinformatics, climate modeling and applications in political science, finance and marketing. As a review of current research in Bayesian analysis the book presents a balance between theory and applications. The lack of a clear demarcation between theoretical and applied research is a reflection of the highly interdisciplinary and often applied nature of research in Bayesian statistics. The book is intended as an update for researchers in Bayesian statistics, including non-statisticians who make use of Bayesian inference to address substantive research questions in other fields. It would also be useful for graduate students and research scholars in statistics or biostatistics who wish to acquaint themselves with current research frontiers.

Fields of interest
Statistical Theory and Methods

Target groups
Research

Discount group
P

Due July 2010

P. Doukhan, UFR Sciences-Techniques, Cergy-Pontoise, France; G. Lang, INRA AgroParisTech, Paris, France; G. Teysière, Aarhus University, Denmark; D. Surgailis, Stochastic Processes Department, Vilnius, Lithuania (Eds.)

Dependence in Probability and Statistics

This volume collects recent works on weakly dependent, long-memory and multifractal processes and introduces new dependence measures for studying complex stochastic systems. Other topics include the statistical theory for bootstrap and permutation statistics for infinite variance processes, the dependence structure of max-stable processes, and the statistical properties of spectral estimators of the long memory parameter. The asymptotic behavior of Fejér graph integrals and their use for proving central limit theorems for tapered estimators are investigated. New multifractal processes are introduced and their multifractal properties analyzed. Wavelet-based methods are used to study multifractal processes with different multiresolution quantities, and to detect changes in the variance of random processes. Linear regression models with long-range dependent errors are studied, as is the issue of detecting changes in their parameters.

Features
► This volume provides the reader with a comprehensive recent account on dependent stochastic processes ► This book is a reference book for theorectical works, and provides some results that are of straight practical interest for the applied statistician/econometrician

From the contents

Fields of interest
Statistics and Computing/Statistics Programs; Statistical Theory and Methods

Target groups
Research

Discount group
P

Due August 2010

J. Jiang, University of California, Davis, CA, USA

Large Sample Techniques for Statistics

This book offers a comprehensive guide to large sample techniques in statistics. More importantly, it focuses on thinking skills rather than just what formulae to use; it provides motivations, and intuition, rather than detailed proofs; it begins with very simple techniques, and connects theory and applications in entertaining ways. The first five chapters review some of the basic techniques, such as the fundamental epsilon-delta arguments, Taylor expansion, different types of convergence, and inequalities. The next five chapters discuss limit theorems in specific situations of observational data. Each of the first 10 chapters contain at least one section of case study. The last five chapters are devoted to special areas of applications. The sections of case studies and chapters of applications fully demonstrate how to use methods developed from large sample theory in various, less-than-textbook situations.

Features
► Focuses on thinking skills rather than just what formulae to use ► Provides motivations, and intuition, rather than detailed proofs
► Begins with very simple and basic techniques, and connects theory and applications in entertaining ways

Contents

Fields of interest
Statistical Theory and Methods

Target groups
Graduate

Discount group
P

Due July 2010

2010. XXII, 624 p. Hardcover
► approx. $79.95

► approx. $59.95
ISBN 978-3-642-14103-4

► approx. $59.95
ISBN 978-1-4419-6876-1
Theoretical Statistics
Topics for a Core Course

R. W. Keener, University of Michigan, Ann Arbor, MI, USA

Applied Probability

K. Lange, University of California, Los Angeles, CA, USA

A Comparison of the Bayesian and Frequentist Approaches to Estimation

F. J. Samaniego, University of California, Davis, CA, USA

Intended as the text for a sequence of advanced courses, this book covers major topics in theoretical statistics in a concise and rigorous fashion. The discussion assumes a background in advanced calculus, linear algebra, probability, and some analysis and topology. Measure theory is used, but the notation and basic results needed are presented in an initial chapter on probability, so prior knowledge of these topics is not essential. The presentation is designed to expose students to as many of the central ideas and topics in the discipline as possible, balancing various approaches to inference as well as exact, numerical, and large sample methods. Moving beyond more standard material, the book includes chapters introducing bootstrap methods, nonparametric regression, equivariant estimation, empirical Bayes, and sequential design and analysis.

Features
► Comprehensive, coverage of estimation and hypothesis testing; frequentist and Bayesian paradigms; large and small sample methods; and the theory underlying various numerical algorithms ► Exposition is detailed and rigorous and designed to make the material as clear and accessible as possible ► Has a rich collection of exercises, many with solutions, pushing students to learn this material well enough to use it in their own research and helping them appreciate its relevance to diverse applications

From the contents

Fields of interest
Statistical Theory and Methods

Target groups
Graduate

Discount group
P

Applied Probability presents a unique blend of theory and applications, with special emphasis on mathematical modeling, computational techniques, and examples from the biological sciences. It can serve as a textbook for graduate students in applied mathematics, biostatistics, computational biology, computer science, physics, and statistics. Readers should have a working knowledge of multivariable calculus, linear algebra, ordinary differential equations, and elementary probability theory.

Features
► Comprehensive coverage of Applied Probability ► Emphasis on concrete calculations and computational methods ► Clarity of writing and mathematical explanation

Contents

Fields of interest
Statistical Theory and Methods; Probability Theory and Stochastic Processes; Probability and Statistics in Computer Science

Target groups
Graduate

Discount group
P

This monograph contributes to the area of comparative statistical inference. Attention is restricted to the important subfield of statistical estimation. The book is intended for an audience having a solid grounding in probability and statistics at the level of the year-long undergraduate course taken by statistics and mathematics majors.

Features
► An excellent introduction to Bayesian theory and methods, while taking an impartial view of their merits relative to the alternative “classical” or “frequentist” approach ► A very readable presentation of the basic characteristics of statistical inference from a Bayesian and from a frequentist perspective ► Offers a resolution of one of the most intense scientific debates in the past 250 years

Contents
Point estimation from a decision theoretic viewpoint. - An overview of the frequentist approach to estimation. - An overview of the Bayesian approach to estimation. - The threshold problem. - Comparing Bayesian and frequentist estimators of a scalar parameter. - Conjugacy, self consistency, and Bayesian consensus. - Bayesian vs. frequentist shrinkage in multivariate normal problems. - Comparing Bayesian and frequentist estimators under asymmetric loss. - The treatment of nonidentifiable models. - Improving on standard Bayesian and frequentist estimators. - Combining data from “related” experiments. - Fatherly advice.

Field of interest
Statistical Theory and Methods

Target groups
Research

Discount group
P

Due October 2010
► approx. $99.95

Due September 2010
► approx. $79.95

Due July 2010
► approx. $79.95
Recursive Partitioning and Applications

The routes to many important outcomes including diseases and ultimately death as well as financial credit consist of multiple complex pathways containing interrelated events and conditions. We have historically lacked effective methodologies for identifying these pathways and their non-linear and interacting features. This book focuses on recursive partitioning strategies as a response to the challenge of pathway characterization. A highlight of the second edition is the many worked examples, most of them from epidemiology, bioinformatics, molecular genetics, physiology, social demography, banking, and marketing. The statistical issues, conceptual and computational, are not only treated in detail in the context of important scientific questions, but also an array of substantively-driven judgments are explicitly integrated in the presentation of examples.

Features
- Integrates conceptual and computational treatment of tree representations of complex pathways to important outcomes across diverse scientific applications
- Introduces random and alternative deterministic forests to facilitate interpretability of pathways with many contributing conditions and non-linear relationships
- Illustrates the interplay between scientific judgments and constraints on allowed pathway constructions; comparisons with conventional statistical methods

From the contents

Fields of interest
Statistics for Life Sciences, Medicine, Health Sciences

Target groups
Research

Discount group
P

Due July 2010

Hardcover

ISBN 978-1-4419-6823-4
Handbook of Cloud Computing

Cloud computing has become a significant technology trend. Experts believe cloud computing is currently reshaping information technology and the IT marketplace. The advantages of using cloud computing include cost savings, speed to market, access to greater computing resources, high availability, and scalability. Handbook of Cloud Computing includes contributions from world experts in the field of cloud computing from academia, research laboratories and private industry. This book presents the systems, tools, and services of the leading providers of cloud computing; including Google, Yahoo, Amazon, IBM, and Microsoft. The basic concepts of cloud computing and cloud computing applications are also introduced. Current and future technologies applied in cloud computing are also discussed. Case studies, examples, and exercises are provided throughout.

Features
► Introduces current systems, services, and the main players in this explosive new field of cloud computing
► Includes contributions from world experts in the field of cloud computing from academia, research laboratories and private industry
► Provides case studies, examples, and exercises throughout this handbook
► Present the systems, tools, and services of the leading providers of cloud computing such as Google, Yahoo, Amazon, IBM, and Microsoft

Fields of interest
Computer Communication Networks; Communications Engineering, Networks; Computer Systems Organization and Communication Networks

Target groups
Research

Discount group
P
A. Adamatzky, University of the West of England, UK (Ed.)

Game of Life Cellular Automata

In the late 1960s British mathematician John Conway invented a virtual mathematical machine that operates on a two-dimensional array of square cell. Each cell takes two states, live and dead. The cells' states are updated simultaneously and in discrete time. A dead cell comes to life if it has exactly three live neighbours. A live cell remains alive if two or three of its neighbours are alive, otherwise the cell dies. Conway's Game of Life became the most programmed solitary game and the most known cellular automaton.

Features
► Simple to understandable examples of cellular automata dynamics
► Abundance of illustrations, working examples, and codes
► Efficient techniques for evaluating space-time dynamics of discrete non-linear systems
► References to online interacting demonstrations
► Overview of exciting concepts at the edge of mathematics, computer science, engineering and physics

From the contents

Fields of interest
Theory of Computation; Computation by Abstract Devices; Discrete Mathematics in Computer Science

Target groups
Research

Discount group
P

M. R. Berthold, Konstanz University, Germany; C. Borgelt, European Center for Soft Computing, Mieres, Spain; F. Höppner, Ostfalia University of Applied Sciences, Wolfsburg, Germany; F. Klawonn, Ostfalia University of Applied Sciences, Wolfenbüttel, Germany

Guide to Intelligent Data Analysis

How to Intelligently Make Sense of Real Data

Each passing year bears witness to the development of ever more powerful computers, increasingly fast and cheap storage media, and even higher bandwidth data connections. This makes it easy to believe that we can now – at least in principle – solve any problem we are faced with for so long as we only have enough data. Yet this is not the case. Although large databases allow us to retrieve many different single pieces of information and to compute simple aggregations, general patterns and regularities often go undetected. Furthermore, it is exactly these patterns, regularities and trends that are often most valuable. To avoid the danger of "drowning in information, but starving for knowledge" the branch of research known as data analysis has emerged, and a considerable number of methods and software tools have been developed. However, it is not these tools alone but the intelligent application of human intuition in combination with computational power, of sound background knowledge with computer-aided modeling, and of critical reflection with convenient automatic model construction, that results in successful intelligent data analysis projects.

Features
► Presents a broad-range of perspectives on data analysis, providing readers with a comprehensive account of the field
► Focuses on the practical aspects as well as presenting the theory comprehensively
► A special emphasis is given to putting on pointing out the pitfalls that lead to wrong or insufficient analysis of results
► Hands-on examples are given to provide readers with further insight into the topic

Fields of interest
Artificial Intelligence (incl. Robotics)

Target groups
Graduate

Discount group
P

R. Böhme, Technische Universität Dresden, Germany

Advanced Statistical Steganalysis

Steganography is the art and science of hiding information in inconspicuous cover data so that even the existence of a secret message is kept confidential, and steganalysis is the task of detecting secret messages in covers. This research monograph focuses on the role of cover signals, the distinguishing feature that requires us to treat steganography and steganalysis differently from other secrecy techniques. The main theoretical contribution of the book is a proposal to structure approaches to provably secure steganography according to their implied assumptions on the limits of the adversary and on the nature of covers. A further contribution is the emphasis on dealing with heterogeneity in cover distributions, crucial for security analyses. The author's work complements earlier approaches based on information, complexity, probability and signal processing theory, and he presents numerous practical implications. The scientific advances are supported by a survey of the classical steganography literature; a new proposal for a unified terminology and notation that is maintained throughout the book; a critical discussion of the results achieved and their limitations; and an assessment of the possibility of transferring elements of this research's empirical perspective to other domains in information security.

Features
► The first book dedicated to modern steganography and steganalysis
► The scientific advances are complemented by a survey of the classical steganography literature
► Author presents numerous practical implications of his work

From the contents

Fields of interest
Image Processing and Computer Vision; Data Encryption; Signal, Image and Speech Processing

Target groups
Research

Discount group
P

Due August 2010
2010. XVI, 621 p. 926 illus., 463 in color. Hardcover
► $159.00

Due July 2010
2010. XII, 397 p. (Texts in Computer Science, Volume 42) Hardcover
► approx. $89.95
ISBN 978-1-84882-759-7

Due August 2010
► approx. $109.00
ISBN 978-3-642-14312-7
Testing Techniques in Software Engineering
Second Pernambuco Summer School on Software Engineering, PSSE 2007, Recife, Brazil, December 3-7, 2007, Revised Lectures

This tutorial book presents an augmented selection of the material presented at the Second Pernambuco Summer School on Software Engineering, PSSE 2007, held in Recife, Brazil in December 2007. The 8 contributions are the thoroughly revised versions of the papers presented by the invited lecturers. The revision was inspired by the synergy generated by the opportunity for the lecturers to present and discuss their work among themselves, and with the school’s attendees. The courses cover a wide spectrum of topics in software engineering with a special focus on testing - a key activity for assuring software quality. Apart from foundational issues, languages and techniques, the courses also cover the semantic underpinnings of refinement, as well as industrial applications and refinement tools.

Features
- The book gives a detailed tutorial introduction to the scientific basis of testing
- This book is the outcome of Pernambuco Summer School on Software Engineering (PSSE) 2007, devoted to the study of computer science and to the promotion of international scientific collaboration
- Includes state of the art contributions from invited lecturers

Fields of interest
Software Engineering; Programming Techniques; Programming Languages, Compilers, Interpreters

Target groups
Research

Discount group
P

Due August 2010

P. Borba, Universidade Federal de Pernambuco, Recife, PE, Brazil; A. Cavalcanti, University of York, UK; A. Sampao, Universidade Federal de Pernambuco, Recife, PE, Brazil; J. Woodcock, University of York, UK (Eds.)

C. Care, University of Warwick, Coventry, UK

Technology for Modelling
Electrical Analogies, Engineering Practice, and the Development of Analogue Computing

Historians have different views on the core identity of analogue computing. Some portray the technology solely as a precursor to digital computing, whereas others stress that analogue applications existed well after 1940. Even within contemporary sources, there is a spectrum of understanding around what constitutes analogue computing. To understand the relationship between analogue and digital computing, and what this means for users today, the history must consider how the technology is used. Technology for Modelling investigates the technologies, the concepts, and the applications of analogue computing. The text asserts that analogue computing must be thought of as not just a computing technology, but also as a modelling technology, demonstrating how the history of analogue computing can be understood in terms of the parallel themes of calculation and modelling. The book also includes a number of detailed case studies of the technology’s use and application.

Features
- Suggests a new interpretation of the history of analogue computing, taking into account how the technology has been used and applied
- Demonstrates how the history of analogue computing can be understood in terms of the two parallel themes of calculation and modelling, and describes how the technology evolved
- Includes a number of detailed case studies examining analogue modelling in academic research, oil reservoir modelling, aeronautical design, and meteorology

Fields of interest
History of Computing; Simulation and Modeling

Target groups
Research

Discount group
P

Due July 2010

O. Celma, BMAT, Barcelona, Spain

Music Recommendation and Discovery
The Long Tail, Long Fail, and Long Play in the Digital Music Space

With so much more music available these days, traditional ways of finding music have diminished. Today radio shows are often programmed by large corporations that create playlists drawn from a limited pool of tracks. Similarly, record stores have been replaced by big-box retailers that have ever-shrinking music departments. Instead of relying on DJs, record-store clerks or their friends for music recommendations, listeners are turning to machines to guide them to new music. In this book, Oscar Celma guides us through the world of automatic music recommendation. He describes how music recommenders work, explores some of the limitations seen in current recommenders, offers techniques for evaluating the effectiveness of music recommendations and demonstrates how to build effective recommenders by offering two real-world recommender examples. He emphasizes the user’s perceived quality, rather than the system’s predictive accuracy when providing recommendations, thus allowing users to discover new music by exploiting the long tail of popularity and promoting novel and relevant material (“non-obvious recommendations”). In order to reach out into the long tail, he needs to weave techniques from complex network analysis and music information retrieval.

Features
- Starts with a formalization of the general recommendation problem
- Presents the pros and cons of most-used recommendation approaches, with a focus on the music domain
- Combines elements from recommender systems, complex network analysis, music information retrieval, and personalization
- Emphasizes “user’s perceived quality” versus “system’s predictive accuracy”

Fields of interest
Information Storage and Retrieval; Discrete Mathematics in Computer Science; Artificial Intelligence (incl. Robotics)

Target groups
Graduate

Discount group
P

Due July 2010

2010. IX, 313 p. (Lecture Notes in Computer Science, Volume 6153) Softcover

$79.95
ISBN 978-3-642-14334-2

2010. XVIII, 203 p. 64 illus., 32 in color. (History of Computing) Hardcover

$99.00
ISBN 978-1-84882-947-3

2010. 208 p. Hardcover

$69.95
ISBN 978-3-642-13286-5
Playing with the Past

How can we increase awareness and understanding of other cultures using interactive digital visualizations of past civilizations? In order to answer the above question, this book first examines the needs and requirements of virtual travelers and virtual tourists. Is there a market for virtual travel? Erik Champion examines the overall success of current virtual environments, especially the phenomenon of computer gaming. Why are computer games and simulations so much more successful than other types of virtual environments? Arguments that virtual environments are impeded by technological constraints or by a paucity of evaluation studies can only be partially correct, for computer games and simulations are also virtual environments. Many of the underlying issues are caused by a lack of engagement with the philosophical underpinnings of culture, presence and inhabitation, and there are few exemplars that engage the public with history and heritage using interactive media in a meaningful and relevant manner.

Features
► There is very little concentrated literature on theory and practice in creating meaningful interaction in virtual environments, especially those designed to communicate heritage or history
► The book covers the gap between theory, the design and the evaluation of virtual places for learning, especially for history and heritage
► It will cover the gap between the theory, the design and the evaluation of virtual places for learning

Contents

Fields of interest
Computer Appl. in Social and Behavioral Sciences; Computer Appl. in Arts and Humanities; Media Design

Target groups
Research

Discount group
P

Model-Based Software Performance Analysis

Poor performance is one of the main quality-related shortcomings that cause software projects to fail. Thus, the need to address performance concerns early during the software development process is fully acknowledged, and there is a growing interest in the research and software industry communities towards techniques, methods and tools that permit to manage system performance concerns as an integral part of software engineering. Model-based software performance analysis introduces performance concerns in the scope of software modeling, thus allowing the developer to carry on performance analysis throughout the software lifecycle. With this book, Cortellessa, Di Marco and Inverardi provide the cross-knowledge that allows developers to tackle software performance issues from the very early phases of software development. They explain the basic concepts of performance analysis and describe the most representative methodologies used to annotate and transform software models into performance models. To this end, they go all the way from performance primers through software and performance modeling notations to the latest transformation-based methodologies.

Features
► Integrates performance modeling into the software development process
► Describes both the basic concepts of performance modeling and analysis, and state-of-the-art methodologies
► Self-contained textbook for courses on software performance

Contents

Fields of interest
Software Engineering; System Performance and Evaluation; Simulation and Modeling

Target groups
Professional/practitioner

Discount group
P

Specification and Verification of Multi-agent Systems

Specification and Verification of Multi-agent Systems presents a coherent treatment of the area of formal specification and verification of agent-based systems with a special focus on verification of multi-agent programs. This edited volume includes contributions from international leading researchers in the area, addressing logical formalisms and techniques, such as model checking, theorem proving, and axiomatisations for (semi) automatic verification of agent-based systems.

Features
► Addresses diverse topics with known results to provide a useful tool for students, practitioners, researchers
► Ties together in a coherent conceptual framework most of the available results in this relevant area of research
► Includes contributions from international leading researchers in the area, addressing logical formalisms and techniques

From the contents

Fields of interest
Software Engineering/Programming and Operating Systems; Artificial Intelligence (incl. Robotics); Mathematical Logic and Formal Languages

Target groups
Research

Discount group
P
A 25-Year Perspective on Logic Programming

Achievements of the Italian Association for Logic Programming, GULP

This book celebrates the 25th anniversary of GULP—the Italian Association for Logic Programming. Authored by Italian researchers at the leading edge of their fields, it presents a state-of-the-art survey of logic programming, making it a useful reference for both researchers and students. The volume contains 14 invited papers, each giving a detailed analysis of a specific field of logic programming and providing both a historical perspective and a precise discussion of current research. The book closes with a chapter reviewing in detail the main applications of logic programming developed in Italian researchers in the last 25 years, illustrating successful work done and potential directions for future developments.

Features
► Celebrating the 25th anniversary of GULP — the Italian Association for Logic Programming
► Authored by Italian researchers at the leading edge of their fields
► A state-of-the-art survey of logic programming

From the contents
Logic Programming in Italy: A Historical Perspective
- Theoretical Foundations and Semantics of Logic Programming
- Theory-Specific Automated Reasoning
- Constraint Logic Programming
- Knowledge Representation and Non-monotonic Reasoning
- The Transformational Approach to Program Development
- Static Analysis
- Abstract Interpretation
- Verification in (Constraint Logic) Programming
- Answer Set Programming
- Logic Programming Languages for Databases and the Web
- Agents, Multi-Agent Systems and Declarative Programming

Fields of interest
Mathematical Logic and Formal Languages;
Logics and Meanings of Programs; Programming Techniques

Target groups
Research

Discount group
P

Open Networked “i-Learning”

Models and Cases of “Next-Gen” Learning

A new overall interdisciplinary framework called “i-learning” integrates managerial organization and technology aspects also known as “technology enhanced learning”. Open Networked i-Learning: Models and Cases of “Next-Gen” Learning begins its investigation with the important changes that have recently occurred within the management, technology and society fields. Social and cultural aspects of society that influence the “dynamics” and the “styles” of the learning processes are presented as well. The last section of this edited volume focuses on possible future scenarios of the learning processes by describing the main models, processes, tools, technologies, and involved organizations. Open Networked i-Learning: Models and Cases of “Next-Gen” Learning is suitable for advanced under- and graduate level students and professors concentrating on computer science, engineering and business management as a secondary text or reference book. Professionals and researchers who work in the related industry of “technology enhanced learning” will find this book useful as well.

Features
► This is the first available book that specifically focuses on “i-Learning”
► Includes descriptive case studies that describe how the “i-Learning” framework has been instanced and implemented
► Presents social and cultural aspects of society that influence the “dynamics” and the “styles” of the learning processes

Contents
Introduction
- Chapter 1 – The emerging of the “i-Learning” paradigm
- Chapter 2 – Collaborative i-Learning
- Chapter 3 – Problem Based i-Learning
- Chapter 4 – Case Based i-Learning
- Chapter 5 – Networked i-Learning
- Chapter 6 – Future i-Learning
- Conclusions

Fields of interest
Computer Appl. in Social and Behavioral Sciences;
Information Systems Applications (incl.Internet);
Computer Systems Organization and Communication Networks

Target groups
Professional/practitioner

Discount group
P

Network Science

Complexity in Nature and Technology

Network Science is the emerging field concerned with the study of large, realistic networks. This interdisciplinary endeavor, focusing on the patterns of interactions that arise between individual components of natural and engineered systems, has been applied to data sets from activities as diverse as high-throughput biological experiments, online trading information, smart-meter utility supplies, and pervasive telecommunications and surveillance technologies.

This unique text/reference provides a fascinating insight into the state of the art in network science, highlighting the commonality across very different areas of application and the ways in which each area can be advanced by injecting ideas and techniques from another. The book includes contributions from an international selection of experts, providing viewpoints from a broad range of disciplines. It emphasizes networks that arise in nature—such as food webs, protein interactions, gene expression, and neural connections—and in technology—such as finance, airline transport, urban development and global trade.

Features
► Presents a broad, topical overview of the new and emerging discipline of network science
► Provides viewpoints from disciplines as varied as computer science, mathematics, engineering, physics, chemistry, biology, ecology, neurosciences, epidemiology, and the social sciences
► Includes contributions from an international selection of experts

Fields of interest
Computer Communication Networks; Analysis;
Algorithm Analysis and Problem Complexity

Target groups
Research

Discount group
P
Frontiers in Computational and Systems Biology

This unique volume surveys state-of-the-art research on statistical methods in molecular and systems biology, with contributions from leading experts in the field. Each chapter discusses theoretical aspects, applications to biological problems, and possible future developments. Topics and features: presents the use of thermodynamic models to analyze gene regulatory mechanisms; reviews major algorithms for RNA secondary structure prediction; discusses developments in the area of oligo arrays; examines the application of models of stochastic processes in nonequilibrium thermodynamics and biological signal transduction; describes phylogenetic footprinting methods for TFBS identification; introduces penalized regression-based methods for constructing genetic interaction or regulatory networks; investigates the specific role played by irreversible genetic interaction or regulatory networks; explores the concept of gene modules in a transcriptional regulatory network.

Features
- Reviews the current hot topics in computational biology and system biology, using probability and statistics as mathematical tools
- With contributions by towering figures in the field from across the globe, including Prof. Michael Waterman and Prof. Terry Speed

Fields of interest
Computational Biology/Bioinformatics; Systems Biology; Statistics and Computing/Statistics Programs

Target groups
Research

Discount group
P

Handbook of Social Network Technologies and Applications

Social networking is a concept that has existed for a long time; however, with the explosion of the Internet, social networking has become a tool for people to connect and communicate in ways that were impossible in the past. The recent development of Web 2.0 has provided many new applications, such as Myspace, Facebook, and LinkedIn. The purpose of Handbook of Social Networks: Technologies and Applications is to provide comprehensive guidelines on the current and future trends in social network technologies and applications in the field of Web-based Social Networks. This handbook includes contributions from world experts in the field of social networks from both academia and private industry. A number of crucial topics are covered including Web and software technologies and communication technologies for social networks. Web-mining techniques, visualization techniques, intelligent social networks, Semantic Web, and many other topics are covered. Standards for social networks, case studies, and a variety of applications are covered as well.

Features
- Provides current and future trends in creating intelligent social networks, and the main players and their social networks applications
- Presents web-mining techniques, visualization techniques, social networks and Semantic Web, and many other topics
- Includes contributions from world experts in the field of social networks from both academia and private industry
- Presents standards for social networks, case studies, and a variety of applications

Fields of interest
Management of Computing and Information Systems; Information Systems Applications (incl. Internet); Computer Systems Organization and Communication Networks

Target groups
Research

Discount group
P

Preference Learning

The topic of preferences is a new branch of machine learning and data mining, and it has attracted considerable attention in artificial intelligence research in recent years. It involves learning from observations that reveal information about the preferences of an individual or a class of individuals. Representing and processing knowledge in terms of preferences is appealing as it allows one to specify desires in a declarative way, to combine qualitative and quantitative modes of reasoning, and to deal with inconsistencies and exceptions in a flexible manner. And, generalizing beyond training data, models thus learned may be used for preference prediction. This is the first book dedicated to this topic, and the treatment is comprehensive. The editors first offer a thorough introduction, including a systematic categorization according to learning task and learning technique, along with a unified notation. The first half of the book is organized into parts on label ranking, instance ranking, and object ranking; while the second half is organized into parts on applications of preference learning in multiattribute domains, information retrieval, and recommender systems.

Features
- This is the first book dedicated to this topic
- This topic has attracted considerable attention in artificial intelligence research in recent years
- A comprehensive treatment

Fields of interest
Artificial Intelligence (incl. Robotics); Data Mining and Knowledge Discovery

Target groups
Research

Discount group
P
Composing Software Components

A Software-testing Perspective

Software components and component-based software development (CBSD) are acknowledged as the best approach for constructing quality software at reasonable cost. Composing Software Components: A Software-testing Perspective describes a 10-year investigation into the underlying principles of CBSD.

Features
- Provides more than a dozen revealing case studies of component synthesis
- Includes supporting software (written in Perl for Linux, Mac, and Windows) with tutorial examples and data for the replication of experiments
- Presents an original, fundamental theory of component composition based on software testing rather than proof-of-programs

From the contents

Fields of interest
Computer-Aided Engineering (CAD, CAE) and Design; Models and Principles; Performance and Reliability

Target groups
Research

Discount group

P

Due October 2010
2011. VI, 310 p. (Computer Communications and Networks) Hardcover

$99.00

Due September 2010
2010. XVIII, 368 p. 100 illus., 50 in color. Hardcover

$129.00
ISBN 978-1-4419-7142-7

Due August 2010
2010. VI, 385 p. (Cognitive Technologies) Hardcover

appro. $139.00
ISBN 978-3-642-14158-4

Fields of interest
Artificial Intelligence (incl. Robotics); Database Management

Target groups
Research

Discount group

P
C. Hazay, Y. Lindell, Bar Ilan University, Israel

**Efficient Secure Two-Party Protocols**

**Techniques and Constructions**

The authors present a comprehensive study of efficient protocols and techniques for secure two-party computation. They study both general constructions that can be used to securely compute any functionality, and protocols for specific problems of interest. The aim of the book is to focus on techniques for both constructing protocols and proving them secure. In addition, the authors study the different definitional paradigms used and compare the efficiency of protocols achieved under these different definitions. This book is essential for practitioners and researchers in the field of secure protocols, particularly those with a focus on efficiency, and for researchers in the area of privacy-preserving data mining.

**Features**

- Essential reading for researchers in the area of secure protocols
- The authors compare the efficiencies of different protocols
- Essential reading for researchers in the area of privacy-preserving data mining

**Contents**

Introduction.- Definitions.- Semi-honest Adversaries.- Malicious Adversaries.- Covert Adversaries.- Sigma Protocols and Efficient Zero-Knowledge.- Oblivious Transfer and Applications.- The k-th Ranked Element.- Search Problems.- References.- Index

**Fields of interest**

Data Structures, Cryptology and Information Theory; Computer Communication Networks; Data Mining and Knowledge Discovery

**Target groups**

Research

**Discount group**

P

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A. G. Hoekstra, J. Kroc, P. M. Sloot (Eds.)

**Simulating Complex Systems by Cellular Automata**

Deeply rooted in fundamental research in Mathematics and Computer Science, Cellular Automata (CA) are recognized as an intuitive modeling paradigm for Complex Systems. Already very basic CA, with extremely simple micro dynamics such as the Game of Life, show an almost endless display of complex emergent behavior. Conversely, CA can also be designed to produce a desired emergent behavior, using either theoretical methodologies or evolutionary techniques. Meanwhile, beyond the original realm of applications - Physics, Computer Science, and Mathematics - CA have also become work horses in very different disciplines such as epidemiology, immunology, sociology, and finance.

**Features**

- A well balance and up-to-date introduction to both foundations and applications
- Edited and authored by leading researchers in the field
- Excellent starting point for own research for newcomers to the field

**Contents**

Theory of Cellular Automata.- Applications.- Cellular Automata Software.

**Fields of interest**

Simulation and Modeling; Statistical Physics, Dynamical Systems and Complexity; Computational Science and Engineering

**Target groups**

Research

**Discount group**

P

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H. Isomäki, University of Jyväskylä, Finland;
S. Pekkola, Tampere University of Technology, Finland (Eds.)

**Reframing Humans in Information Systems Development**

Modern society has been transformed by the digital convergence towards a future where technologies embed themselves into the fabric of everyday life. This ongoing merging of social and technological infrastructures provides and necessitates new possibilities to renovate past notions, models and methods of information systems development that accommodates humans as actors within the infrastructure. This shift introduces new possibilities for information systems designers to fulfil more and more everyday functions, and to enhance their value and worth to the user. Reframing Humans in Information Systems Development aims to reframe the phenomenon of human-centered development of information systems by connecting scientific constructs produced within the field of information systems which has recently provided a plethora of multidisciplinary user views, without explicitly defining clear constructs that serve the IS field in particular.

**Features**

- Provides a comprehensive overview of the perceptions of the end-users in different ISD methods and approaches
- Reduces the current detached viewpoints of human-centred ISD by synthesizing and concentrating on the most essential viewpoints
- Offers conceptualisations that serve as key constructs for theory development in information systems science and thus promotes grounds for multi-perspective theory development within the field of IS

**Fields of interest**

User Interfaces and Human Computer Interaction; Computer Appl. in Social and Behavioral Sciences; History of Computing

**Target groups**

Research

**Discount group**

P

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Due October 2010


- approx. $109.00
  
  ISBN 978-3-642-14302-1

Available

2010. XXI, 384 p. (Understanding Complex Systems) Hardcover

- $169.00
  
  ISBN 978-3-642-12202-6

Due September 2010

2011. XII, 300 p. 32 illus. (Computer Supported Cooperative Work, Volume 201) Hardcover

- $129.00
  
Modeling in Systems Biology

The Petri Net Approach

The emerging, multi-disciplinary field of systems biology is devoted to the study of the relationships between various parts of a biological system, and computer modeling plays a vital role in the drive to understand the processes of life from an holistic viewpoint. Advancements in experimental technologies in biology and medicine have generated an enormous amount of biological data on the dependencies and interactions of many different molecular cell processes, fueling the development of numerous computational methods for exploring this data. The mathematical formalism of Petri net theory is able to encompass many of these techniques. This essential text/reference presents a comprehensive overview of cutting-edge research in applications of Petri nets in systems biology, with contributions from an international selection of experts. Those unfamiliar with the field are also provided with a general introduction to systems biology, the foundations of biochemistry, and the basics of Petri net theory. Further chapters address Petri net modeling techniques for building and analyzing biological models, as well as network prediction approaches, before reviewing the applications to networks of different biological classification.

Features

- Presents a comprehensive overview of cutting-edge research in applications of Petri nets in systems biology
- Enables readers to apply and develop their own biochemical models using Petri net techniques
- Contains a glossary of the concepts and notation used in the book, in addition to exercises at the end of each chapter

Fields of interest

Computational Biology/Bioinformatics; Systems Biology

Target groups

Research

Discount group

P

The P=NP Question and Gödel’s Lost Letter

The P=NP question is one of the great problems of science, which has intrigued computer scientists and mathematicians for decades. Despite the abundant research in theoretical computer science regarding the P=NP question, it has not been solved.

Features

- A cutting edge discussion of the “The P=NP Question”
- Includes free access to the author’s blog “The P=NP Question”
- “This is a much needed treatment of great open problem computing,” states Richard Demillo, Professor, Georgia Institute of Technology

From the contents


Fields of interest

Theory of Computing; Mathematics of Computing; History of Computing

Target groups

Professional/practitioner

Discount group

P

Robot Intelligence

An Advanced Knowledge Processing Approach

Robot intelligence has become a major focus of intelligent robotics. Recent innovation in computational intelligence including fuzzy learning, neural networks, evolutionary computation and classical Artificial Intelligence provides sufficient theoretical and experimental foundations for enabling robots to undertake a variety of tasks with reasonable performance. This book reflects the recent advances in the field from an advanced knowledge processing perspective; there have been attempts to solve knowledge based information explosion constraints by integrating computational intelligence in the robotics context.

Features

- Recent innovations on robot learning and adaptive methods
- Advanced knowledge-based qualitative reasoning
- Integration of robot learning and robot control

From the contents


Fields of interest

Artificial Intelligence (incl. Robotics)
Learning to Rank for Information Retrieval

Due to the fast growth of the Web and the difficulties in finding desired information, efficient and effective information retrieval systems have become more important than ever, and the search engine has become an essential tool for many people. The ranker, a central component in every search engine, is responsible for the matching between processed queries and indexed documents. Because of its central role, great attention has been paid to the research and development of ranking technologies. In addition, ranking is also pivotal for many other information retrieval applications, such as collaborative filtering, definition ranking, question answering, multimedia retrieval, text summarization, and online advertisement. Leveraging machine learning technologies in the ranking process has led to innovative and more effective ranking models, and eventually to a completely new research area called “learning to rank”.

Features
- Only comprehensive overview of a key innovative technology for search engine development
- Written by one of the leading authorities in this field
- Combines scientific theoretical soundness with broad development and application experiences

Contents
1. Ranking in IR.
2. Learning to Rank for IR.
7. Advanced Topics.

Fields of interest
Information Storage and Retrieval; Artificial Intelligence (incl. Robotics); Probability and Statistics in Computer Science

Target groups
Research

Discount group
P

Applications of Pulse-Coupled Neural Networks

“Applications of Pulse-Coupled Neural Networks” explores the fields of image processing, including image filtering, image segmentation, image fusion, image coding, image retrieval, and biometric recognition, and the role of pulse-coupled neural networks in these fields. This book is intended for researchers and graduate students in artificial intelligence, pattern recognition, electronic engineering, and computer science.

Features
- First book focusing on efficient adaptive pulse coupled neural networks
- New spiking cortical models proposed and analysis on their behaviors
- Comprehensive and systematical introduction to pulse coupled neural networks
- Robust and novel application examples on image processing

Contents
I. Pulse Coupled Neural Networks.
II. Image filter.
III. Adaptive PCNN Model for Image segmentation.
IV. Image coding.
V. Image enhancement.
VI. Image fusion.
VII. Feature extraction using entropy.
VIII. Combinatorial Optimization.

Fields of interest
Artificial Intelligence (incl. Robotics); Pattern Recognition; Electrical Engineering

Target groups
Research

Discount group
P

Time for Verification
Essays in Memory of Amir Pnueli

This volume is dedicated to the memory of the 1996 Turing Award winner Amir Pnueli, who passed away in November 2009. The Festschrift contains 15 scientific articles written by leading scientists who were close to Amir Pnueli either as former students, colleagues or friends. The topics covered span the entire breadth of the scientific work of Amir Pnueli, with a focus on the development and the application of formal methods. Also included is the first chapter of the unpublished Volume III of Zohar Manna and Amir Pnueli’s work on the verification of reactive systems using temporal logic techniques.

Fields of interest
Programming Techniques; Mathematical Logic and Formal Languages; Computation by Abstract Devices

Target groups
Research

Discount group
P

Discount group
P

Due September 2010

Distribution rights in China: Higher Education Press

2010. 300 p. Hardcover
$179.00
ISBN 978-3-642-13744-0

Due July 2010

2010. VIII, 413 p. (Lecture Notes in Computer Science / Theoretical Computer Science and General Issues, Volume 6200) Softcover
$95.00
ISBN 978-3-642-13753-2
From Sociology to Computing in Social Networks

Theory, Foundations and Applications

Important aspects of social networking analysis are covered in this work by combining experimental and theoretical research. A specific focus is devoted to emerging trends and the industry needs associated with utilizing data mining techniques. Some of the techniques covered include data mining advances in the discovery and analysis of communities, in the personalization of solitary activities (like searches) and social activities (like discovering potential friends), in the analysis of user behavior in open fora (like conventional sites, blogs and fora) and in commercial platforms (like e-auctions), and in the associated security and privacy-preservation challenges; as well as social network modeling, scalable, customizable social network infrastructure construction, and the identification and discovery of dynamic growth and evolution patterns using machine learning approaches or multi-agent based simulation. These topics will be of interest to practitioners and researchers alike in this dynamic and growing field.

Features

► Experts in Social Networking and Data Mining have come together to create this volume
► Special Focus on emerging trends and the needs of industry associated with data mining techniques for social networking ► Useful applications for utilizing the commercial aspects of social networking

Fields of interest

Computer Appl. in Social and Behavioral Sciences

Target groups

Research

Discount group

P

Moving Objects Management
Models, Techniques and Applications

The continued advances in wireless communication and positioning technologies such as GPS have made new data management applications possible, such as location-based services (LBS) that store and manage the continuously changing positions of moving objects. “Moving Objects Management - Models, Techniques and Applications” focuses on moving objects management, from the location management perspective to the exploration of how the continually changing locations affect the traditional database and data mining technology. Specifically, the book describes the topics of moving objects modeling and location updating, indexing and querying, clustering, location uncertainty and privacy issues, as well as their application to intelligent transportation systems.

Features

► A comprehensive architecture including not only basic theories and new concepts but also practical technologies and applications ► A set of new database techniques in modeling, indexing, querying and updating locations as well as data mining techniques in clustering analysis of moving objects ► A typical application of moving objects management in intelligent transportation systems

Contents


Fields of interest

Database Management; Data Mining and Knowledge Discovery; Information Systems and Communication Service

Discount group

P

Due August 2010

2010. XIX, 430 p. 127 illus. in color. (Lecture Notes in Social Networks, Volume 1) Hardcover
► approx. $139.00
ISBN 978-3-7091-0293-0

Due September 2010

2010. 300 p. 50 illus. Hardcover
► $189.00
ISBN 978-3-642-13198-1

Distribution rights in China: Tsinghua University Press.

Jointly published with Tsinghua University Press
Privacy and Anonymity in Information Management Systems
New Techniques for New Practical Problems

The development of information technologies in the last few years has been remarkable. Large amounts of data are collected and stored by both public institutions and private companies every day. There are clear threats to the privacy of citizens if no care is taken when collecting, storing and disseminating data. Ensuring privacy for individuals in a society when dealing with digital information, is a task which involves many agents, including politicians, legal authorities, managers, developers, and system administrators. Privacy and Anonymity in Information Management Systems deals with the more technical parts of this ‘privacy cycle’, those issues that are mostly related to computer science, and discusses the process by which different privacy mechanisms are motivated, designed, analyzed, tested and finally implemented in companies or institutions.

Features
- A snapshot of the research that privacy researchers are currently carrying out
- A book that can be considered as an actual baseline of privacy and anonymity research
- The different profiles of the two editors bring the areas of theoretical cryptography and privacy in real life closer
- A combination of theory and practice; that wills serve as a bridge between researchers in cryptography and researchers in other, more applied, topics such as statistical/medical databases

From the contents

Fields of interest
Systems and Data Security

Target groups
Research

Discount group
P

Due July 2010

2010, XVI, 229 p. 62 illus., 31 in color.
(Advanced Information and Knowledge Processing)
Hardcover

$99.00

M. Rusiñol, J. Herranz, Universitat Autònoma de Barcelona, Bellaterra, Barcelona, Spain
Symbol Spotting in Digital Libraries
Focused Retrieval over Graphic-rich Document Collections

The specific problem of symbol recognition in graphical documents requires additional techniques to those developed for character recognition. The most well-known obstacle is the so-called Sayre paradox: Correct recognition requires good segmentation, yet improvement in segmentation is achieved using information provided by the recognition process. This dilemma can be avoided by techniques that identify sets of regions containing useful information. Such symbol-spotting methods allow the detection of symbols in maps or technical drawings without having to fully segment or fully recognize the entire content. This unique text/reference provides a complete, integrated and large-scale solution to the challenge of designing a robust symbol-spotting method for collections of graphic-rich documents. The book examines a number of features and descriptors, from basic photometric descriptors commonly used in computer vision techniques to those specific to graphical shapes, presenting a methodology which can be used in a wide variety of applications. Additionally, readers are supplied with an insight into the problem of performance evaluation of spotting methods. Some very basic knowledge of pattern recognition, document image analysis and graphics recognition is assumed.

Features
- The first book to address the particular problem of symbol spotting in graphics/document image analysis and recognition
- Supplies an insight into performance evaluation of spotting methods
- With a Foreword by Professor Karl Tombre, Director of INRIA Nancy – Grand Est Research Centre

Field of interest
Pattern Recognition

Target groups
Research

Discount group
P

Due August 2010

2010, XII, 244 p. 40 illus., 20 in color.
(Advances in Information Security, Volume 49)
Hardcover

approx $99.00
ISBN 978-1-4419-7132-6

C. W. Probst, Technical University of Denmark, Kongens Lyngby, Denmark; J. Hunker, Pittsburgh, PA, USA; D. Gollmann, Technical University Hamburg-Harburg, Hamburg, Germany; M. Bishop, University of California, Davis, CA, USA (Eds.)
Insider Threats in Cyber Security

Insider Threats in Cyber Security is a cutting edge text presenting IT and non-IT facets of insider threats together. This volume brings together a critical mass of well-established worldwide researchers, and provides a unique multidisciplinary overview. Monica van Huystee, Senior Policy Advisor at MCI, Ontario, Canada comments “The book will be a must read, so of course I’ll need a copy.” Insider Threats in Cyber Security covers all aspects of insider threats, from motivation to mitigation. It includes how to monitor insider threats (and what to monitor for), how to mitigate insider threats, and related topics and case studies. Insider Threats in Cyber Security is intended for a professional audience composed of the military, government policy makers and banking; financing companies focusing on the Secure Cyberspace industry. This book is also suitable for advanced-level students and researchers in computer science as a secondary text or reference book.

Features
- A cutting-edge book bringing together IT and non-IT facets of insider threats
- Covers all aspects of insider threats – from motivation to mitigation
- Provides a unique multidisciplinary overview

From the contents

Fields of interest
Systems and Data Security; Computer Communication Networks; Data Encryption

Target groups
Professional/practitioner

Discount group
P

Available

2010, XIV, 188 p. 140 illus., 70 in color.
Hardcover

$99.00
ISBN 978-1-84996-207-1
Towards Hardware-Intrinsic Security
Foundations and Practice

Foreword by: P. Tuyls, Intrinsic-ID, Eindhoven, The Netherlands

Hardware-intrinsic security is a young field dealing with secure secret key storage. By generating the secret keys from the intrinsic properties of the silicon, e.g., from intrinsic Physical Unclonable Functions (PUFs), no permanent secret key storage is required anymore, and the key is only present in the device for a minimal amount of time. The field is extending to hardware-based security primitives and protocols such as block ciphers and stream ciphers entangled with the hardware, thus improving IC security. While at the application level there is a growing interest in hardware security for RFID systems and the necessary accompanying system architectures. This book brings together contributions from researchers and practitioners in academia and industry, an interdisciplinary group with backgrounds in physics, mathematics, cryptography, coding theory and processor theory. It will serve as important background material for students and practitioners, and will stimulate much further research and development.

Features
► First book on this topic
► Contains important background material for students and practitioners
► Many contributions from interdisciplinary teams

Fields of interest
Data Structures, Cryptology and Information Theory; Computer Hardware; Electrical Engineering

Target groups
Research

Discount group
P

Computational Methods in Biometric Authentication
Statistical Methods for Performance Evaluation

Biometrics, the science of using physical traits to identify individuals, is playing an increasing role in our security-conscious society and across the globe. Biometric authentication, or bioauthentication, systems are being used to secure everything from amusement parks to bank accounts to military installations. Yet developments in this field have not been matched by an equivalent improvement in the statistical methods for evaluating these systems. Compensating for this need, this unique text/reference provides a basic statistical methodology for practitioners and testers of biometric authentication devices, supplying a set of rigorous statistical methods for evaluating biometric authentication systems. This framework of methods can be extended and generalized for a wide range of applications and tests.

Features
► The first single resource on statistical methods for estimation and comparison of the performance of biometric authentication systems
► Supplies decision-makers with the tools needed to choose the appropriate biometric device for an application
► With more than 120 examples

Contents
Part I: Introduction.- Introduction.- Statistical Background.- Part II: Primary Matching and Classification Measures.- False Non-Match Rate.- False Match Rate.- Receiver Operating Characteristic Curve and Equal Error Rate.- Part III: Biometric Specific Measures.- Failure to Enrol.- Failure to Acquire.- Part IV: Additional Topics and Appendices.- Additional Topics and Discussion.- Tables.

Fields of interest
Biometrics; Math Applications in Computer Science; Computational Mathematics and Numerical Analysis

Target groups
Research

Discount group
P

Multimedia Interaction and Intelligent User Interfaces
Principles, Methods and Applications

Consumer electronics (CE) devices, providing multimedia entertainment and enabling communication, have become ubiquitous in daily life. However, consumer interaction with such equipment currently requires the use of devices such as remote controls and keyboards, which are often inconvenient, ambiguous and non-interactive. An important challenge for the modern CE industry is the design of user interfaces for CE products that enable interactions which are natural, intuitive and fun. As many CE products are supplied with microphones and cameras, the exploitation of both audio and visual information for interactive multimedia is a growing field of research.

Features
► Describes recent advances in multimedia interaction and intelligent user interfaces, with applications for consumer electronics
► Covers different techniques in computer vision, machine learning, audio and speech processing, communications, artificial intelligence and media technology
► Contains contributions from leading researchers in industry, with an emphasis on practical issues of multimedia interaction
► Uniquely combines multimedia content analysis and human-machine interaction

Contents

Fields of interest
Multimedia Information Systems; User Interfaces and Human Computer Interaction; Artificial Intelligence (incl. Robotics)

Target groups
Research

Discount group
P
Transactions on Data Hiding and Multimedia Security V

Since the mid 1990s, data hiding has been proposed as an enabling technology for securing multimedia communication, and is now used in various applications including broadcast monitoring, movie fingerprinting, steganography, video indexing and retrieval, and image authentication. Data hiding and cryptographic techniques are often combined to complement each other, thus triggering the development of a new research field of multimedia security. Besides, two related disciplines, steganalysis and data forensics, are increasingly attracting researchers and becoming another new research field of multimedia security. This journal, LNCS Transactions on Data Hiding and Multimedia Security, aims to be a forum for all researchers in these emerging fields, publishing both original and archival research results. This issue contains a special section on forensic image analysis for crime prevention including two papers. The additional four papers deal with collusion-resistant fingerprinting systems;

Fields of interest
Systems and Data Security; Computer Communication Networks; Data Encryption

Target groups
Research

Discount group
P

Transactions on Rough Sets XII

The LNCS journal Transactions on Rough Sets is devoted to the entire spectrum of rough sets related issues, from logical and mathematical foundations, through all aspects of rough set theory and its applications, such as data mining, knowledge discovery, and intelligent information processing, to relations between rough sets and other approaches to uncertainty, vagueness, and incompleteness, such as fuzzy sets and theory of evidence.

This volume contains 8 revised selected papers from 11 submissions to the Rough Set and Knowledge Technology Conference (RSKTI 208), together with 5 papers introducing advances in rough set theory and its applications. The topics covered are: perceptually near Pawlak partitions, hypertext classification, topological space versus rough set theory in terms of lattice theory, feature extraction in interval-valued information systems, jumping emerging patterns (JEP), and rough set theory.

Features
- The twelfth title in the LNCS series Transactions on Rough Sets
- Includes extended versions of papers accepted for presentation at the Rough Set and Knowledge Technology Conference (RSKTI) 2008, which are part of a special issue on rough set structuring of knowledge
- With 8 selected and reviewed submission papers and 5 papers introducing advances in rough set theory

Fields of interest
Mathematical Logic and Formal Languages; Computation by Abstract Devices; Theory of Computation

Target groups
Research

Discount group
P
Locally Decodable Codes and Private Information Retrieval Schemes

Locally decodable codes (LDCs) are codes that simultaneously provide efficient random access retrieval and high noise resilience by allowing reliable reconstruction of an arbitrary bit of a message by looking at only a small number of randomly chosen codeword bits. Local decodability comes with a certain loss in terms of efficiency – specifically, locally decodable codes require longer codeword lengths than their classical counterparts. Private information retrieval (PIR) schemes are cryptographic protocols designed to safeguard the privacy of database users. They allow clients to retrieve records from public databases while completely hiding the identity of the retrieved records from database owners.

Features
- First book on this topic
- A fresh look at the theory
- Related thesis won the ACM Dissertation Award in 2007

Contents

Field of interest
Data Structures, Cryptology and Information Theory

Target groups
Research

Discount group
P

Data Mining Concepts, Methods and Applications in Management and Engineering Design

Data Mining introduces in clear and simple ways how to use existing data mining methods to obtain effective solutions for a variety of management and engineering design problems. Data Mining is organised into two parts: the first provides a focused introduction to data mining and the second goes into greater depth on subjects such as customer analysis. It covers almost all managerial activities of a company.

Features
- Introduces data mining methods for the solution of design issues
- Presents methods for preprocessing data prior to mining
- Written by experts

Contents

Fields of interest
Data Mining and Knowledge Discovery; Engineering Economics, Organization, Logistics, Marketing, Operations Research/Decision Theory

Target groups
Research

Discount group
P

Transactions on Edutainment IV

This journal subline serves as a forum for stimulating and disseminating innovative research ideas, theories, emerging technologies, empirical investigations, state-of-the-art methods, and tools in all different genres of edutainment, such as game-based learning and serious games, interactive storytelling, virtual learning environments, VR-based education, and related fields. It covers aspects from educational and game theories, human-computer interaction, computer graphics, artificial intelligence, and systems design.

Features
- Fourth volume in the Transactions on Edutainment series
- Outstanding contributions from EDUTAINMENT 2010 are presented together with regular papers collected for this issue
- Rich overview of how edutainment technologies can be creatively used for training and education purposes

From the contents

Fields of interest
Computers and Education

Target groups
Research

Discount group
P
**Advances in Biochemical Engineering Biotechnology**  
Series editor: T. Scheper  
**Volume 120**  
C. Wittmann, R. Krull, Technical University Braunschweig, Germany (Eds.)

**Biosystems Engineering I**  
Creating Superior Biocatalysts

**Features**  
- Covers trends in modern biotechnology  
- All aspects of this interdisciplinary technology, where knowledge, methods and expertise are required from chemistry, biochemistry, microbiology, genetics, chemical engineering and computer science, are treated  
- More information as well as the electronic version available at springer.com

**Fields of interest**  
Biotechnology; Human Genetics; Molecular Medicine

**Target groups**  
Research

**Discount group**  
P

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**Advances in Biochemical Engineering Biotechnology**  
Series editor: T. Scheper  
**Volume 121**  
C. Wittmann, R. Krull, University of Braunschweig, Germany (Eds.)

**Biosystems Engineering II**  
Linking Cellular Networks and Bioprocesses

**Features**  
- Covers trends in modern biotechnology.  
- All aspects of this interdisciplinary technology, where knowledge, methods and expertise are required from chemistry, biochemistry, microbiology, genetics, chemical engineering and computer sciences, are treated.  
- More information as well as the electronic version available at springer.com

**Fields of interest**  
Biotechnology; Systems Biology

**Target groups**  
Research

**Discount group**  
P

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**Advances in Polymer Science**  

**Volume 230**  
K. Dusek, Academy of Sciences of the Czech Republic, Prague, Czech Republic; J. Joanny, Institut Curie, Paris, France (Eds.)

**Polymer Characterization**  
Rheology, Laser Interferometry, Electrooptics

**Features**  
- Highest Impact Factor of all publications ranked by ISI within Polymer Science  
- Short and concise reports on physics and chemistry of polymers, each written by the world renowned experts  
- Still valid and useful after 5 or 10 years  
- The electronic version is available free of charge for standing order customers at: springer.com/series/12/

**Contents**  

**Fields of interest**  
Polymer Sciences; Optical and Electronic Materials; Soft and Granular Matter, Complex Fluids and Microfluidics

**Target groups**  
Research

**Discount group**  
P

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**Due August 2010**  
2010. XII, 192 p. Hardcover  
$259.00  
ISBN 978-3-642-14230-7

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**Due August 2010**  
2010. XII, 176 p. Hardcover  
$259.00  
ISBN 978-3-642-13865-2

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**Due August 2010**  
2010. XII, 280 p. Hardcover  
$309.00  
ISBN 978-3-642-13531-6
Advances in Polymer Science
Volume 231
K. Lee, Hannam University, Daejeon, South Korea; S. Kobayashi, Kyoto Institute of Technology, Japan (Eds.)

Polymer Materials
Block-Copolymer, Nanocomposites, Organic/Inorganic Hybrids, Polymethylene

Features
- Highest Impact Factor of all publications ranked by ISI within Polymer Science
- Short and concise reports on physics and chemistry of polymers, each written by the world renowned experts
- Still valid and useful after 5 or 10 years
- The electronic version is available free of charge for standing order customers at: springer.com/series/12/

Fields of interest
Polymer Sciences; Nanotechnology; Soft and Granular Matter, Complex Fluids and Microfluidics

Target groups
Research

Discount group P

Due August 2010
2010. XII, 280 p. Hardcover
$309.00
ISBN 978-3-642-13626-9

Food Chain Security
This volume addresses a wide range of issues related to food terrorism, food security and safety in a comprehensive and up-to-date survey. Emerging issues in Food Chain Security relevant to all countries and stakeholders are summarized, including relevant technical information relating to the various strands. These include: risk assessment and vulnerability; food defence strategies; awareness and response aspects. The analyses, based on practices and strategies evolved in different countries, yield an objective and scientific treatment of this vital area.

Features
- Comprehensive and update information about food terrorism, food security and safety
- Excellent profiles of emerging issues in terms of Food Chain Security important to both NATO member and partner countries
- Various food chain security issues and up to date technical information are analyzed

From the contents

Fields of interest
Food Science; Quality Control, Reliability, Safety and Risk

Target groups
Research

Discount group P

Due September 2010
2010. XII, 210 p. Hardcover
$259.00
ISBN 978-3-642-13629-0

Also available as Softcover
$89.95
ISBN 978-3-642-13630-6
Chiral Recognition in Separation Methods
Mechanisms and Applications

The importance of chiral interactions for both preparative and analytical separations, particularly for pharmaceutical applications, is underlined by numerous publications in this field. Here, for the first time, a team of experienced analysts from industry and academe presents a comprehensive review of the various mechanisms that result in enantiomer separations. A better understanding of these processes is crucial for setting as well as improving chiral separation procedures and also for developing new applications. The coverage in this book includes a range of separation methods, such as gas, liquid, or countercurrent chromatography, and capillary electrophoresis. The special case of chiral ionic liquids is examined in detail. Most modern chiral selectors are discussed, including derivatized polysaccharide- and cyclodextrin-based selectors, along with a newly introduced class of carbohydrates: the cyclofructose selectors.

Features
► The first monograph to focus on the mechanisms of chiral selection in separation processes
► Important reading for research and development departments of the pharmaceutical industry, but also for researchers in toxicology, environmental monitoring, or food research
► Written by a team of experienced experts from industry and academe

From the contents
Chiral recognition mechanisms in enantiomers separations: a general view
Preparation and chiral recognition of polysaccharide-based Selectors
Description and evaluation of chiral interactive sites on bonded cyclodextrin stationary phases for liquid chromatography
Cyclofructans, a new class of chiral stationary phases
Chiral recognition and enantioseparation mechanisms in capillary electrokinetic chromatography

Fields of interest
Chromatography; Pharmacy; Pharmacology/Toxicology

Target groups
Research

Discount group
P

Available
2010. XV, 337 p. 280 illus., 140 in color. Hardcover
► $189.00
ISBN 978-3-642-12444-0

Due September 2010
2010. 420 p. Hardcover
► approx $199.00

Due October 2010
► $189.00

Also available as Softcover
► $89.95
ISBN 978-90-481-9746-0
This volume is focused on one of the most important challenges in sensing and imaging technologies: the design of fluorescence reporters with advanced properties. Here, organic dyes occupy leading positions, in tough competition with novel materials such as metal chelating complexes and semiconductor nanoparticles. 11 chapters written by top experts in the field show new possibilities in the design of organic dyes as fluorescent labels and reporters. They particularly highlight the progress that has been made in enhancing the response to intermolecular interactions and their excited-state reaction dynamics (intramolecular charge and proton transfers), and on the development of dyes with strong two-photon absorption and emitting in the near-IR region. Furthermore, fluorophores incorporated into new members of the green fluorescent protein family, an invaluable tool for live cell imaging, are examined.

Features
➤ A comprehensive review ➤ Written by experts ➤ Contains numerous color illustrations

Contents

Fields of interest
Analytical Chemistry; Molecular Medicine; Medical Biochemistry

Target groups
Research

Discount group
P

Due August 2010
2010. 440 p. 50 illus. in color. (Springer Series on Fluorescence, Volume 9) Hardcover
➤ $409.00
ISBN 978-3-642-04699-5

Due August 2010
2010. 380 p. (SPR Spectroscopic Properties of Inorganic and Organometallic Compounds (RSC), Volume 41) Hardcover
➤ $599.00
ISBN 978-1-84755-047-7

S. Duckett, R. Douthwaite, University of York, UK; J. Yarwood, Sheffield Hallam University, UK (Eds.)

Spectroscopic Properties of Inorganic and Organometallic Compounds: Techniques, Materials and Applications

Spectroscopic Properties of Inorganic and Organometallic Compounds: Techniques, Materials and Applications provides a unique source of information in an important area of chemistry.

Features
➤ Provides a unique source of information

Contents
The Inorganic Chemistry of Surface Enhanced Raman Scattering.- IR spectroscopy of Clay minerals and Nanocomposites.- Applications of XPS to the study of inorganic compounds.- Applications of NMR in inorganic chemistry.- Electrochemical methods in bioinorganic chemistry.- Spectroscopic studies of Electrode reactions and processes.- Femtosecond mid-infrared spectroscopy of liquid water and aqueous solutions.- Transient Spectroscopy of Inorganic Complexes.- In situ photochemistry with NMR detection of organometallic complexes.- Mass spectrometry in inorganic chemistry.- Nuclear Quadrupole Resonance Spectroscopy.

Fields of interest
Spectroscopy/Spectrometry; Inorganic Chemistry; Organometallic Chemistry

Target groups
Research

Discount group
P

RSCPublishing

Due June 2010

Only available in print

Distribution rights outside North and South America: Royal Society of Chemistry, Cambridge, UK

2010. 380 p. (SPR Spectroscopic Properties of Inorganic and Organometallic Compounds (RSC), Volume 41) Hardcover
➤ $599.00
ISBN 978-1-84755-047-7
**Encyclopedia of Applied Electrochemistry**

Editor-in-chief: K. Ota

G. Kreyss, Technical University of Clausthal and former chief executive of DEHEMA; R. F. Savinell, Case Western University, Cleveland, OH, USA

**Features**
- First applications-oriented interdisciplinary reference on the critical technologies underlying advances such as energy efficiency (e.g. batteries for electric cars, fuel cells, capacitors, solar cells, etc.), green and sustainable chemical industries, and new materials (corrosion resistant and low-friction)
- Alphabetically organized for ready reference and comprehensiveness
- Fully international in scope (editors-in-chief from US, Europe, and Asia) and up-to-date (Biocorrosion)

**Fields of interest**
Electrochemistry; Power Engineering; Tribology, Corrosion and Coatings

**Target groups**
Research

**Discount group**
P

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**Nuclear Analytical Techniques for Metallomics and Metalloproteomics**

Y. Gao, Z. Chai, The Chinese Academy of Sciences, Beijing, China; C. Chen, The Chinese Academy of Sciences, Beijing, China (Eds.)

**Features**
- Covers the latest developments
- Relevant for both chemists involved in nuclear techniques and speciation, and environmental, nutritional and clinical researchers and drug developers
- Includes many illustrations, tables and documents
- Well-organized bibliography

**From the contents**
Introduction.- Neutron activation analysis.- X-ray Fluorescence (XRF).- Isotopic techniques combined with ICP-MS and ESI-MS.- Mössbauer Spectroscopy.- X-ray absorption spectroscopy.- Mössbauer spectrometry, X-ray absorption spectrometry, and neutron scattering and diffraction. They provide useful information both for chemical speciation analysis and structural characterization of metalloproteins and metals in biological systems.

**Fields of interest**
Analytical Chemistry; Biochemistry, general; Math. Applications in Chemistry

**Target groups**
Research

**Discount group**
P

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**Modern Charge-Density Analysis**

C. Gatti, CNR-ISTM Istituto di Scienze e Tecnologie Molecolari, Italy; P. Macchi, University of Bern, Switzerland (Eds.)

**Features**
- Provides an extensive and up-to-date overview of the interdisciplinary field of charge-density analysis
- A useful tool both for scientists already working in the field and scientists and PhD students who wish to familiarize themselves with the topic area
- Of interest to chemists, physicists, crystallographers, materials scientists and biochemists

**From the contents**

**Fields of interest**
Theoretical and Computational Chemistry; Crystallography; Materials Science, general

**Target groups**
Research

**Discount group**
P

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Due May 2011

2011. 4000 p. (In 5 volumes, not available separately)
Hardcover

- approx. $2700.00
  ISBN 978-1-4419-6995-8

(In 5 volumes, not available separately)

- approx. $2700.00

(In 5 volumes, not available separately)
Softcover

- approx. $3400.00

Due July 2010

Only available in print

Distribution rights outside North and South America: Royal Society of Chemistry, Cambridge, UK

2010. 416 p. Hardcover

- $249.00

Due December 2010

2011. Approx. 500 p. 150 illus. Hardcover

- approx. $199.00
M. Kallurand, M. Koel, Tallinn University of Technology, Estonia

Green Analytical Chemistry

Concerns about environmental pollution, global warming and hazards to human health have increased demands for chemical analysis. The development of analytical chemistry continues apace and every new discovery in chemistry, physics, molecular biology, and materials science brings new applications. Contemporary analytical chemistry does not consume resources optimally. Indeed, usage of toxic compounds is at its highest rate to date. This makes the emerging field of green chemistry a hot topic in industrial and governmental laboratories as well as in academia.

Features
- Presents a hot topic in industrial and governmental laboratories as well as in academia
- Evaluates the current analytical methodologies
- Suggests application of the ideas and concepts of green chemistry in chemical analysis

Contents
- Introduction to green chemistry. - Concepts and trends in green analytical chemistry. - “Greening” sample preparation. - Green instrumental analysis. - Separation methods in analytical chemistry. - Greening analytical chemistry by improving signal acquisition and processing. - Conclusions.

Fields of interest
Analytical Chemistry; Environmental Health; Environmental Engineering/Biotechnology

Target groups
Research

Discount group
P

Bioawa 2010

2010. 550 p. 400 illus., 200 in color. Hardcover

Due August 2010

ISBN 978-1-4419-6669-8

Approx. $259.00

Available

Only available in print

Due October 2010

2010. 304 p. 144 illus., 72 in color. (Methods in Molecular Biology, Volume 671) Hardcover

ISBN 978-1-934115-95-4

Approx. $139.00

Available

Only available in print
The text is easy to understand and particularly relevant to courses on Clean Technology and Green Chemistry. It includes case studies and real examples from industry to demonstrate how the techniques work in practice.

Features
- Encourages new ways of thinking about how products and processes are developed
- The text is easy to understand and particularly relevant to courses on Clean Technology and Green Chemistry
- Includes case studies and real examples from industry

Contents

Fields of interest
Organic Chemistry; Physical Chemistry

Target groups
Professional/practitioner

Discount group
P

E. G. Lewars, Trent University, Peterborough, ON, Canada

Computational Chemistry
Introduction to the Theory and Applications of Molecular and Quantum Mechanics

This corrected second edition contains new material which includes solvent effects, the treatment of singlet diradicals, and the fundamentals of computational chemistry. The book provides an overview of the field, explains the basic underlying theory at a meaningful level that is not beyond beginners, and it gives numerous comparisons of different methods with one another and with experiment. Topics are placed in a historical context, adding interest to them and removing much of their apparently arbitrary aspect. The large number of references, to all significant topics mentioned, should make this book useful not only to undergraduates but also to graduate students and academic and industrial researchers.

Features
- The second edition of this popular textbook takes a pedagogical approach
- Includes questions (classed as 'harder' and 'easier') which are aimed at students of varying abilities
- The only textbook on this subject to genuinely cover the basics
- Each chapter is presented with an initial historical overview thus enlightening students and guiding them away from the usual 'dry' presentation of facts.
- A must for computational chemistry university lecturers

Fields of interest
Theoretical and Computational Chemistry; Computer Applications in Chemistry; Organic Chemistry

Target groups
Graduate

Discount group
P

T. K. Lindhorst, Christian-Albrechts-Universität zu Kiel
A. Pilar Rauter, Universidade de Lisboa, Portugal (Eds.)

Carbohydrate Chemistry
Chemical and Biological Approaches

Carbohydrate Chemistry provides review coverage of all publications relevant to the chemistry of monosaccharides and oligosaccharides in a given year. The amount of research in this field appearing in the organic chemical literature is increasing because of the enhanced importance of the subject, especially in areas of medicinal chemistry and biology. In no part of the field is this more apparent than in the synthesis of oligosaccharides required by scientists working in glycoanalysis. Glycomedical chemistry and its reliance on carbohydrate synthesis is now very well established, for example, by the preparation of specific carbohydrate-based antigens, especially cancer-specific oligosaccharides and glycoconjugates. Coverage of topics such as nucleosides, amino-sugars, alditols and cyclitols also covers much research of relevance to biological and medicinal chemistry.

Features
- Compiled by team of experts
- Serves as a comprehensive database
- Highlights latest developments

From the contents
Synthetic Vaccines Based on N- and O-Glycopeptides.- Molecular Tools for Immunotherapy and Diagnostics.- Mycobacterial Lipoarabinomannan Fragments as Haptens for Potential Anti-Tuberculosis Vaccines.- A-Galactosylceramides and Analogues as Important Immunomodulators for Use as vaccine Adjuvants.

Fields of interest
Carbohydrate Chemistry

Target groups
Research

Discount group
P
Emerging Drugs and Targets for Alzheimer's Disease
Volume 2: Neuronal Plasticity, Neuronal Protection and Other Miscellaneous Strategies

Alzheimer's disease is the most prevalent neurodegenerative disorder in the elderly. A recent study from the Bloomberg School of Public Health recently estimated that over 26 million people were living with the disease in 2006 and that the global prevalence of the disease will grow to 106 million by 2050. By that time, 43 per cent of those living with the disease will need high-level care, equivalent to that of a nursing home. However, even if modest advances in preventing or delaying the disease's progression were made, it could have a huge impact on global public health. According to this study, interventions that could delay the onset of the disease by as little as one year would reduce the prevalence of the disease by 12 million fewer cases in 2050. These figures reinforce how important it is to find an effective intervention for Alzheimer's disease.

Features
► Timely
► Written by a team of experts
► Collects some of the most outstanding examples of new drugs currently under pharmaceutical development

From the contents
Neuronal Plasticity as target.- Regeneration of Degenerated Brain: A Promising Therapeutic Target.- Promoting synaptic resilience in AD patients through PDE inhibition.- A new generation of non invasive NGF-based therapies for Alzheimer's disease.- Possible clinical applications of stem cell strategies in AD therapies; Neuronal protection as target.

Fields of interest
Medicinal Chemistry; Pharmacology/Toxicology

Target groups
Research

Discount group
P

Biotechnology for Fuels and Chemicals
The Thirty-First Symposium

In Biotechnology for Fuels and Chemicals: The Thirty-First Symposium, leading researchers from academia, industry, and government offer surveys and reviews of their cutting-edge research and latest applications in the production of fuels and chemicals through biotechnology. The book's focus is on how best to improve and optimize these technologies and their economics to produce the fuels and chemicals so vital to many industrial sectors.

Features
► Offers state-of-the-art research by leading experts
► Covers advanced feedstock production and processing
► Details the latest research breakthroughs and results
► Identifies new trends in thinking about integrated multiproduct biorefineries
► Reviews international progress in producing liquid biofuels
► Presents bioprocess research and development innovations
► Discusses the development and commercialization of biobased products

Fields of interest
Biotechnology; Biochemical Engineering

Target groups
Professional/practitioner

Discount group
P
Research Target groups
Biotechnology; Biochemical Engineering

Fields of interest
Sorghum and Its Effectiveness on Enzyme Hydro-
SSF and SSCF.Dilute Ammonia Pretreatment of
from Marine Biomass Gelidium amansii.Biocon-
temperature, Long-term Diluted Ammonia Treat-
sional Changes in Sugarcane Bagasse on Low
chemical Properties and Cellulolytic Hydrolysis
solv Pretreatment Chemicals on the Physico-
SESSION 3: BIOMASS PRETREATMENT AND
From the contents

Features
► Written by leading researchers from academia,
industry, and government ► Collects surveys and
reviews of cutting-edge research and latest applica-
tions in the production of fuels and chemicals
through biotechnology ► Focuses on how best
to improve and optimize these technologies and
their economics to produce the fuels and chemicals so
vital to many industrial sectors

From the contents
SESSION 3: BIOMASS PRETREATMENT AND
FRACTIONATION. The Effect of Varying Organo-
solv Pretreatment Chemicals on the Physico-
chemical Properties and Cellulolytic Hydrolysis
of Mountain Pine Beetle-Killed Lodgepole Pine.
Optimizing Dilute-Acid Pretreatment of Rapeseed
Straw for Extraction of Hemicellulose.Compo-
sitional Changes in Sugarcane Bagasse on Low
Temperature, Long-term Diluted Ammonia Treat-
ment. Production of Sugars and Levulinic Acid
from Marine Biomass Gelidiun amansii.Biocon-
version of Kraft Paper Mill Sludges to Ethanol by
SSF and SSSF.Dilute Ammonia Pretreatment of
Sorghum and Its Effectiveness on Enzyme Hydro-
dysis and Ethanol Fermentation.

Fields of interest
Biotechnology; Biochemical Engineering

Target groups
Research

Discount group
P

Due August 2010
2010. 300 p. DVD. (ABAB Symposium) Special type
► $189.00
ISBN 978-3-60761-299-5

Due September 2010
2nd ed. 2010. 470 p. Hardcover
► $269.00
ISBN 978-3-642-11457-1
Subscription price, valid for subscribers of the
whole series ► $239.00

Due August 2010
2010. X. 200 p. 200 illus., 100 in color. (Springer Series in
Materials Science, Volume 141) Hardcover
► $129.00
ISBN 978-3-642-17619-2

J. R. Mielzen, Oak Ridge National Laboratory, TN,
USA; K. T. Klasson, Southern Regional Research
Center, New Orleans, LA, USA; W. S. Adney,
J. D. McMillan, National Renewable Energy
Laboratory, Lakewood, CO, USA (Eds.)

Biotechnology for Fuels and
Chemicals
The Thirtieth Symposium
In Biotechnology for Fuels and Chemicals,
leading researchers from academia, industry,
and government offer surveys and reviews of their
cutting-edge research and latest applications in
the production of fuels and chemicals through
biotechnology. The book’s focus is on how best
to improve and optimize these technologies and
their economics to produce the fuels and chemicals so
vital to many industrial sectors.

Features
► Written by leading researchers from academia,
industry, and government ► Collects surveys and
reviews of cutting-edge research and latest applica-
tions in the production of fuels and chemicals
through biotechnology ► Focuses on how best
to improve and optimize these technologies and
their economics to produce the fuels and chemicals so
vital to many industrial sectors

From the contents
SESSION 3: BIOMASS PRETREATMENT AND
FRACTIONATION. The Effect of Varying Organo-
solv Pretreatment Chemicals on the Physico-
chemical Properties and Cellulolytic Hydrolysis
of Mountain Pine Beetle-Killed Lodgepole Pine.
Optimizing Dilute-Acid Pretreatment of Rapeseed
Straw for Extraction of Hemicellulose.Compo-
sitional Changes in Sugarcane Bagasse on Low
Temperature, Long-term Diluted Ammonia Treat-
ment. Production of Sugars and Levulinic Acid
from Marine Biomass Gelidiun amansii.Biocon-
version of Kraft Paper Mill Sludges to Ethanol by
SSF and SSSF.Dilute Ammonia Pretreatment of
Sorghum and Its Effectiveness on Enzyme Hydro-
dysis and Ethanol Fermentation.

Fields of interest
Biotechnology; Biochemical Engineering

Target groups
Research

Discount group
P

Characterization and Design
of Zeolite Catalysts
Solid Acidity, Shape Selectivity and Loading
Properties
Zeolites are microporous, aluminosilicate minerals
commonly used as commercial adsorbents.
Zeolite-based catalysts are used by industrial
chemical companies in the interconversion of
hydrocarbons and the alkylation of aromatic
compounds. The current book deals with the char-
acterization of specific properties of Zeolites and
calculations for the design of catalysts. Measure-
ments and utilization of solid acidity, shape
selectivity, and loading properties, that are three
prominent properties of a Zeolite catalyst, are
treated in detail. These features concern chemical
catalyst deposition of silica, shape selectivity, loading
properties, solid activity, Bronsted or Lewis char-
acter, ammonia temperature programmed desorp-
tion, control of the pore-opening size by chemical
deposit vapor deposition of silica and XAFS analysis of
metals being highly dispersed inside and outside a
framework.

Features
► Summarizes the current knowledge on the
characterization of Zeolite catalysts ► Gives a
guidance to simulation calculations for catalysts
► Provides an overview of the application of cata-
lysts ► Useful reference to researchers, chemical
engineers and graduate students

Contents
Preface.- Solid acidity of zeolites.- IRMS-TPD
measurements of acid sites.- DFT calculation of
the solid acidity.- Catalytic activity and adsorption
property.- CVD of silica for the shape selective
reaction.- Shape selective reaction.- Loading
property.- Catalytic reaction on the metal-loaded
zeolites.

Fields of interest
Physical Chemistry; Characterization and Evaluation
of Materials; Condensed Matter Physics

Target groups
Research

Discount group
P

The Mycota
A Comprehensive Treatise on Fungi as
Experimental Systems for Basic and
Applied Research
Series editor: K. Esser
Volume 10
M. Hofrichter, Internationales Hochschulstitut
Zittau, Germany (Ed.)

Industrial Applications
This volume gives a survey of the state of the art
in the traditional fields of industrial mycology
as well as of selected novel applications of fungi.
The first section deals with the use of fungi in
the production and processing of bread, cheese,
butter and wine, traditional Asian fermentation
products and edible mushrooms. The second
section is devoted to the production of fungal
metabolites and enzymes representing value-added
products. In addition to antibiotics, alkaloids
organic acids, vitamins and industrial enzymes,
which have successfully been in use for decades,
it is also dedicated to fungal metabolites, such as
insecticidal and nematicidal compounds,
immunosuppressants and flavors with promising
biotechnological potential. In the next section,
the recent developments in fungal biotransfor-
mation of small molecules, the bioconversion of
lignocelluloses as well as the use of fungi in metal
recovery are presented. The final part introduces
some innovative new trends in the field of applied
mycology: the preparation of fungal bioherbicides,
recent genomic approaches for the identification of
biopolymer degrading enzymes, current develop-
ments and utilization of solid acidity, shape
selectivity, and loading properties, that are three
prominent properties of a Zeolite catalyst, are
treated in detail. These features concern chemical
catalyst deposition of silica, shape selectivity, loading
properties, solid activity, Bronsted or Lewis char-
acter, ammonia temperature programmed desorp-
tion, control of the pore-opening size by chemical
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metals being highly dispersed inside and outside a
framework.

Features
► Summarizes the current knowledge on the
characterization of Zeolite catalysts ► Gives a
guidance to simulation calculations for catalysts
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engineers and graduate students

Contents
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property.- CVD of silica for the shape selective
reaction.- Shape selective reaction.- Loading
property.- Catalytic reaction on the metal-loaded
zeolites.

Fields of interest
Physical Chemistry; Characterization and Evaluation
of Materials; Condensed Matter Physics

Target groups
Research

Discount group
P
**Future of Glycerol**

**Features**
- Reports and comments on employable, practical avenues applicable to convert glycerol into value added products of mass consumption
- Best-selling reference book in the field
- Written by experts

**Contents**
Glycerol: Properties and Production.
- Reforming.
- Selective Reduction.
- Chlorination.
- Etherification.
- Esterification.
- Dehydration.
- Bioglycerol in the Construction Industry.
- Sustainability of Bioglycerol.

**Fields of interest**
Organic Chemistry; Industrial Chemistry; Chemical Engineering; Environmental Engineering/Biotechnology

**Target groups**
Research

**Discount group**
P

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**Interfacial Electrochemistry**

Electrochemistry is an old branch of physical chemistry. Due to the development of surface sensitive techniques, and a technological interest in fuel cells and batteries, it has recently undergone a rapid development. This textbook treats the field from a modern, atomistic point of view while integrating the older, macroscopic concepts. The increasing role of theory is reflected in the presentation of the basic ideas in a way that should appeal to experimentalists and theorists alike.

Special care is taken to make the subject comprehensible to scientists from neighboring disciplines, especially from surface science. The book is suitable for an advanced course at the master or Ph.D. level, but should also be useful for practicing electrochemists, as well as to any scientist who wants to understand modern electrochemistry.

**Features**
- New version of a successful textbook
- Electrochemistry is a must for all chemistry students
- New version important because of the application of electrochemistry in energy technology, a fast developing area.
- Each chapter is supplemented by problems

**From the contents**
Preliminaries.
- Structure of water and aqueous solutions.
- The metal-solution interface.
- Principles of adsorption on metal electrodes.
- Structure of electrode surfaces.
- Phenomenological treatment of electron-transfer reactions.
- Theoretical considerations of electron-transfer reactions.
- The semiconductor-electrolyte interface.
- Self-assembled monolayers.
- Selected experimental results for electron-transfer reactions.
- Proton- and ion-transfer reactions.
- Electrocatalysis.
- Metal deposition and dissolution.
- Complex reactions.
- Liquid-liquid interfaces.
- Transient techniques.
- Convection techniques.

**Fields of interest**
Electrochemistry; Surfaces and Interfaces, Thin Films

**Target groups**
Research

**Discount group**
P

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**Chemical Modelling**

**Applications and Theory**

Chemical Modelling: Applications and Theory comprises critical literature reviews of molecular modelling, both theoretical and applied. Molecular modelling in this context refers to modelling the structure, properties and reactions of atoms, molecules and materials. Each chapter is compiled by experts in their fields and provides a selective review of recent literature, incorporating sufficient historical perspectives for the non-specialist to gain an understanding.

**Features**
- Provides a unique source of information
- Presents a comprehensive survey
- Keeps abreast of the latest developments in the field

**Contents**
Modelling Photochemical Pharmaceutics and Photodegrading.
- Proton transport.
- Polarizabilities and hyperpolarizabilities.
- Numerical Methods in Chemistry.
- Elongation method.
- Quantum Monte Carlo Methods.
- Neural Networks.
- Protein Folding.
- Mechanically Induced Chemistry: First-Principles Simulation.
- Nanoelectronics.
- Orbital Dependent Exact Exchange Methods in Density Functional Theory.
- Computer-Aided Drug Design.

**Field of interest**
Theoretical and Computational Chemistry

**Target groups**
Research

**Discount group**
P
Structure and Bonding
Series editor: D. M. Mingos
Volume 137
P. Roesky, Technical University of Karlsruhe (Ed.)
Molecular Catalysis of Rare-Earth Elements

Features
► This series presents critical reviews of the present position and future trends in modern chemical research concerned with chemical structure and bonding
► Short and concise reports, each written by the world's renowned experts
► Still valid and useful after 5 or 10 years
► More information as well as the electronic version of the whole content available at: springerlink.com

Contents

Fields of interest
Inorganic Chemistry; Catalysis; Organometallic Chemistry

Target groups
Research

Discount group
P

Topics in Current Chemistry
Volume 293
M. Schröder, University of Nottingham, UK (Ed.)

Functional Metal-Organic Frameworks: Gas Storage, Separation and Catalysis

Features
► This series presents critical reviews of the present position and future trends in modern chemical research
► Short and concise reports on chemistry, each written by the world renowned experts
► Still valid and useful after 5 or 10 years
► More information as well as the electronic version of the whole content available at: springerlink.com

Field of interest
Organic Chemistry

Target groups
Professional/practitioner

Discount group
P

Biocatalysis Based on Heme Peroxidases
Peroxidases as Potential Industrial Biocatalysts

This monograph describes many applications of peroxidase-based biocatalysis in the biotechnology industry. The need for such a book emerges from the considerable amount of new data regarding the phylogeny, reaction mechanisms, thermodynamic characterization and structural features of fungal and plant heme peroxidases that has been generated in the past 10 years, since the last specialized book on peroxidases was published. The aim of this book is to present recent advances on such basic aspects as evolution, structure-function relation and catalytic mechanism as well as applied aspects, such as bioreactor and protein engineering, to provide the tools for rational design of enhanced biocatalysts and biocatalytic processes.

Features
► First monograph on the subject for 10 years
► Especially covers the application in the biotechnology industry including the limitations
► Summarizes new data

Contents
1.-Introduction. MOLECULAR AND STRUCTURAL ASPECTS OF PEROXIDASES
2.- Molecular phylogeny of heme peroxidases (Marcel Zámocký and Christian Obinger)
3.- Structural and functional features of peroxidases with a potential as industrial biocatalysts (Francisco J. Ruiz-Dueñas and Angel T. Martínez)
4.- Redox potential of heme peroxidases (Marcela Ayala)
5.- Catalytic mechanisms of heme peroxidases (Paul R. Ortiz de Montellano)
6.- Potential applications of peroxidases in the fine chemicals industry (Luigi Casella, Enrico Monzani and Stefania Nicolis)

Fields of interest
Biotechnology; Enzymology; Physical Chemistry

Target groups
Research

Discount group
P

Due July 2010
Approx. 250 p. 2010. 250 p. Hardcover
► approx. $259.00
ISBN 978-3-642-12810-3

Due August 2010
2010. XIV, 258 p. Hardcover
► $309.00
ISBN 978-3-642-14612-1

Due August 2010
2010. 325 p. Hardcover
► approx. $189.00
ISBN 978-3-642-12626-0
B. W. Wenclawiak, University of Siegen, Germany; M. Koch, University of Stuttgart, Germany; E. Hadjicostas, Quintessence Enterprises Ltd., Nicosia, Cyprus (Eds.)

Quality Assurance in Analytical Chemistry

Training and Teaching

This new edition of a successful textbook has been completely revised and enlarged. In particular the chapters on measurement uncertainty, calibration and validation are practically all new. The authors provide an in-depth but easy to understand coverage of quality assurance for chemical measurements. This includes both internal as well as external quality assurance, necessary statistics as well as total quality management. All this is presented with more than 800 commented slides, which are also provided as downloadable Extra Material. The book will serve as an advanced textbook for analytical chemistry students and professionals in industry and service labs and as a reference text and source of course materials for lecturers.

Features

- Helps to get acquainted with this important topic quickly and easily
- Over 800 Powerpoint slides available for download
- Practically all-new chapters on measurement uncertainty, calibration and validation

Contents

Glossary of Analytical Chemistry Terms (GAT).
- ISO 9000 Quality Management System.
- Accreditation or Certification for Laboratories?
- Good Laboratory Practice.
- Total Quality Management and Cost of Quality.
- Basic Statistics.
- Calibration.
- Metrology in Chemistry and Traceability of Analytical Measurement Results.
- Validation of Analytical Methods – to be Fit for the Purpose.
- Measurement Uncertainty.
- Control Charts.
- (Certified) Reference Materials.
- Interlaboratory Tests.

Fields of interest

Analytical Chemistry; Monitoring/Environmental Analysis; Pharmaceutical Sciences/Technology

Target groups

Professional/practitioner

Discount group

P

Due August 2010

2nd ed. 2010. 320 p. Hardcover

$99.00

ISBN 978-3-642-13608-5
Nonsmooth Modeling and Simulation for Switched Circuits

Nonsmooth Modeling and Simulation for Switched Circuits concerns the modeling and the numerical simulation of switched circuits with the nonsmooth dynamical systems (NSDS) approach, using piecewise-linear and multivalued models of electronic devices like diodes, transistors, switches. Numerous examples (ranging from introductory academic circuits to various types of power converters) are analyzed and many simulation results obtained with the INRIA open-source SICONOS software package are presented. Comparisons with SPICE and hybrid methods demonstrate the power of the NSDS approach. Nonsmooth Modeling and Simulation for Switched Circuits is intended to researchers and engineers in the field of circuits simulation and design, but may also attract applied mathematicians interested by the numerical analysis for nonsmooth dynamical systems, as well as researchers from Systems and Control.

Features
- Shows that using piecewise linear and multivalued models of electronic components with a suitable numerical method may be of interest for the virtual prototyping of circuits
- Essentially dedicated to the numerical implementation, with a lot of numerical results obtained with the open-source simulation platform SICONOS developed at the INRIA
- Files for the simulation will be available on the SICONOS website so that anyone can use them to make his/her further simulations and comparisons

Fields of interest
- Applied Mathematics/Computational Methods of Engineering; Electronics and Microelectronics; Instrumentation; Simulation and Modeling

Target groups
- Research

Discount group
- P

Tactile Perception of Textiles in a Virtual-Reality System

This work was part of the EU funded HAPTEX project, which aimed at developing a VR system for the visual and haptic presentation of textiles. The project was coordinated by the MIRALab at the University of Geneva which also contributed the physical based simulation system of the fabrics.

Features
- Presents the state of the art of Virtual Reality based tactile perception
- Devoted to the special case of tactile perception of textiles
- Written by experts in the field

Contents
- Introduction
- Human Perception
- Devices for Tactile Simulation
- Generation of Virtual Surfaces
- Tactile Rendering
- Summary and Outlook

A Fabrics

Fields of interest
- Computational Intelligence; Artificial Intelligence (incl. Robotics); Textile Engineering

Target groups
- Research

Discount group
- P

Computational Methods in Elasticity and Plasticity: Solids and Porous Media

The book presents the latest developments in the area of elasto-plastic finite element modeling of solids, particulates and pressure-dependent materials and structures. It covers the following topics in depth: the mathematical foundations of solid mechanics, the finite element equations for solids and porous media, the theory of plasticity (as applied to constitutive modeling), as well as: Complete coverage of elasto-plastic modeling, presenting details of the finite element method, constitutive models, implementation and boundary value application results, an easy to use finite element software program used to generate the one-element and multi-element problems is available for download, discussion of recent advances in the analysis of porous materials and pressure-dependent materials in more detail than other books currently available.

Features
- Complete coverage of elasto-plastic modeling, presenting details of the finite element method, constitutive models, implementation and boundary value application results
- An easy to use finite element software program used to generate the one-element and multi-element problems is available for download
- Discusses recent advances in the analysis of porous materials and pressure-dependent materials in more detail than other books currently available

From the contents
- Introduction
- Mathematical Foundations
- Governing Equations in Solid Mechanics
- Elastic Constitutive Laws
- Finite Element Analysis of Solids and Structures
- Governing Equations in Porous Media
- Finite Element Analysis of Porous Media
- Methods of Nonlinear Analysis
- Theory of Rate-Independent Elasto-Plasticity

Fields of interest
- Theoretical and Applied Mechanics; Continuum Mechanics and Mechanics of Materials; Computational Mathematics and Numerical Analysis

Target groups
- Graduate

Discount group
- P
Handbook for Heat Exchangers and Tube Banks design

When a heating fluid transfers heat to a heated fluid through a wall, if the fluids are in parallel flow or counter flow it is possible to compute exactly both the transferred heat and the temperature of the fluids via well-known equations. This holds true both for design and verification computation. However, the motion of the fluids is never in parallel flow or counter flow in heat exchangers and in tube banks. Instead, it is rather complex and consists of a combination of various cross flows. Hence, a precise design of the above components requires, on a case-by-case basis, the availability of the value of certain crucial factors or of corrective factors so as to make it possible to use the equations relative to parallel flow or counter flow. This handbook contains the introduction to the problem, its design criteria, and about 70 tables for the exact design and verification computation. It also indicates how to proceed in the case of cross flow.

Features
- Uniquely deals with the precise calculation of Flows in Heat Exchangers and in Tube Banks
- Contains a concise introduction to design criteria
- Includes many tables for exact design and verification computation

Contents

Features
- Recent research on Intelligent Information Access
- State-of-the-art book
- Written by leading experts in this field

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics)

Target groups
Research

Discount group
P

Due August 2010

Hardcover
- approx. $139.00
ISBN 978-3-642-13308-4

Due September 2010

Available
2010. 150 p. 1 illus. in color. (Studies in Computational Intelligence, Volume 301) Hardcover
- $129.00
ISBN 978-3-642-13099-4

Also available as Softcover
- $119.00
Computational Intelligence in Healthcare 4

Advanced Methodologies

This book is a continuation of the volumes providing various perspectives on computational intelligence in healthcare [1-3].

This book is aimed to provide a sample of the state of art in the practical applications of computational intelligence paradigms in healthcare. It includes nineteen chapters on using various computational intelligent paradigms in healthcare such as intelligent agents and case-based reasoning. A number of applications and case studies are presented.

This book is targeted towards scientists, application engineers, professors, health professionals, professors and students.

Features
- Applications of advanced computational intelligence paradigms in medicine
- State-of-the-Art book
- Written by leading experts

Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Biomedical Engineering

Target groups
Research

Discount group
P

Due September 2010

Natural Computing in Computational Finance

Volume 3

This book consists of eleven chapters each of which was selected following a rigorous, peer-reviewed, selection process. The chapters illustrate the application of a range of cutting-edge natural computing and agent-based methodologies in computational finance and economics. While describing cutting edge applications, the chapters are written so that they are accessible to a wide audience. Hence, they should be of interest to academics, students and practitioners in the fields of computational finance and economics. The inspiration for this book was due in part to the success of EvoFIN 2009, the 3rd European Workshop on Evolutionary Computation in Finance and Economics. This book follows on from Natural Computing in Computational Finance Volumes I and II.

Features
- Reports recent research results Computational Intelligence in Finance
- Written by leading experts in this field
- Inspired by EvoFIN 2009, the 3rd European Workshop on Evolutionary Computation in Finance and Economics

From the contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Economics general

Target groups
Research

Discount group
P

Due November 2010

ASIC Physical Design

A practical guide to ASIC design implementation

ASIC Physical Design is for anyone who would like to learn VLSI physical design as practiced in the industry. It is an essential introduction for senior undergraduates, graduates or for anyone starting work in the field of VLSI physical design. It covers all aspects of physical design, with related topics such as logic synthesis (from a physical design viewpoint), IP integration and design for manufacturing. It treats the physical design of very large scale integrated circuits in deep-submicron processes in a gradual and systematic manner. There are separate chapters dedicated to all the different tasks associated with ASIC physical design. In each chapter, real world examples show how decisions need to be made depending on the type of chips as well as the primary goals of the design methodology. It discusses the current capabilities of the available commercial EDA tools wherever applicable.

Features
- Practical guide to ASIC physical design with current real world examples
- High-level and detailed description of the entire ASIC physical design process
- Focus on 65nm and beyond process technologies
- Provides guidance in making tradeoffs in methodology depending on project priorities such as schedule, die-size, performance and power
- Provides insight into the interaction of physical design team with other teams

From the contents

Fields of interest
Circuits and Systems; Computer-Aided Engineering (CAD, CAE) and Design; Computer Hardware

Target groups
Upper undergraduate

Discount group
P
Design and Manufacturing of Active Microsystems

This book presents the design and manufacturing of microsystems as well as necessary key technologies developed within the Collaborative Research Center 516. The research efforts of this collaboration are focused on active micro systems which are based on the electromagnetic actuator principle. The travel of the investigated actuator systems is on the order of several millimeters. The total construction size of the actuator is on the range of several centimeters whereas essential structures being several micrometers. The methods and the production technologies that are investigated on the basis of various research models incorporate the fundamental process chains of microsystems.

Features
► State-of-the-art design and application of electromagnetic microactuators ► Newly developed microproduction technologies

Contents

Fields of interest
Nanotechnology and Microengineering; Mechatronics; Operating Procedures, Materials Treatment

Target groups
Research

Discount group
P

Conceptual Graphs and Fuzzy Logic

A Fusion for Representing and Reasoning with Linguistic Information

In this volume, first we formulate a framework of fuzzy types to represent both partial truth and uncertainty about concept and relation types in conceptual graphs. Like fuzzy attribute values, fuzzy types also form a lattice laying a common ground for lattice-based computation of fuzzy granules. Second, for automated reasoning with fuzzy conceptual graphs, we develop foundations of order-sorted fuzzy set logic programming, extending the theory of annotated logic programs of Kifer and Subrahmanian (1992). Third, we show some recent applications of fuzzy conceptual graphs to modelling and computing with generally quantified statements, approximate knowledge retrieval, and natural language query understanding.

Features
► Fusing conceptual graphs and fuzzy logic into a formalism for computing with words; fusing conceptual graphs and fuzzy logic into a formalism for computing with words ► State-of-the-Art book ► Written by leading experts

Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics)

Target groups
Research

Discount group
P

Ultra-Low Energy Domain-Specific Instruction-Set Processors

Modern consumers carry many electronic devices, like a mobile phone, digital camera, GPS, PDA and an MP3 player. The functionality of each of these devices has gone through an important evolution over recent years, with a steep increase in both the number of features as in the quality of the services that they provide. However, providing the required compute power to support (an uncompromised combination of) all this functionality is highly non-trivial. Designing processors that meet the demanding requirements of future mobile devices requires the optimization of the embedded system in general and of the embedded processors in particular, as they should strike the correct balance between flexibility, energy efficiency and performance. In general, a designer will try to minimize the energy consumption (as far as needed) for a given performance, with a sufficient flexibility. However, achieving this goal is already complex when looking at the processor in isolation, but, in reality, the processor is a single component in a more complex system. In order to design such complex system successfully, critical decisions during the design of each individual component should take into account effect on the other parts, with a clear goal to move to a global Pareto optimum in the complete multi-dimensional exploration space.

Features
► A systematic methodology for exploiting word-width information in embedded compilers ► Software method to enable heterogeneous data parallelism (SIMD) ► Technique for a context-driven strength reduction for constant multiplications, including a trade-off with application accuracy requirements

Fields of interest
Circuits and Systems; Processor Architectures

Target groups
Research

Discount group
P
Modeling Biomolecular Networks in Cells

Structures and Dynamics

Modeling Biomolecular Networks in Cells shows how the interaction between the molecular components of basic living organisms can be modelled mathematically and the models used to create artificial biological entities within cells. Such forward engineering is a difficult task but the nonlinear dynamical methods espoused in this book simplify the biology so that it can be successfully understood and the synthesis of simple biological oscillators and rhythm-generators made feasible. Such simple units can then be co-ordinated using intercellular signal biomolecules. The formation of such man-made multicellular networks with a view to the production of biosensors, logic gates, new forms of integrated circuitry based on "gene-chips" and even biological computers is an important step in the design of faster and more flexible "electronics". The book also provides theoretical frameworks and tools with which to analyze the nonlinear dynamical phenomena which arise from the connection of building units in a biomolecular network.

Features
► Shows the reader how nature has often evolved different more efficient solutions from those produced by traditional human approaches to circuits and systems ► Gives the reader mathematical tools to produce simplified models of molecular networks and interactions ► Demonstrates how simple biological systems can be synthesised with controllable properties facilitating their use in novel forms of electronics

Fields of interest
Biomedical Engineering

Discount group
P

The MPEG Digital Representation of Information

More and more information, audio and video but also a range of other information type, is generated, processed and used by machines today, even though the end user may be a human. The result over the past 15 years has been a substantial increase in the type of information and change in the way humans generate, classify, store, search, access and consume information. Conversion of information to digital form is a prerequisite for this enhanced machine role, but must be done having in mind requirements such as compactness, fidelity, interpretability etc. This book presents new ways of dealing with digital information and new types of digital information underpinning the evolution of society and business.

Features
► Offers an overview of what’s behind MP3, digital television, online movies and why these innovations changed the world ► Provides a comprehensive treatment of all aspects of signal digitization. ► Presents not only the state-of-the-art, but also what are the drivers of what is coming next and what is developing in key R&D labs ► Provides examples of new human sense experiences for all sorts of users and new business opportunities these offer ► Represents an invaluable reference for anyone interested in the state-of-the-art of digital media

Contents

Fields of interest
Signal, Image and Speech Processing; Circuits and Systems; Computer-Aided Engineering (CAD, CAE) and Design

Discount group
P

Cognitive Systems

Design of cognitive systems for assistance to people poses a major challenge to the fields of robotics and artificial intelligence. The Cognitive Systems for Cognitive Assistance (CoSy) project was organized to address the issues of i) theoretical progress on design of cognitive systems ii) methods for implementation of systems and iii) empirical studies to further understand the use and interaction with such systems. To study, design and deploy cognitive systems there is a need to considers aspects of systems design, embodiment, perception, planning and error recovery, spatial insertion, knowledge acquisition and machine learning, dialog design and human robot interaction and systems integration. The CoSy project addressed all of these aspects over a period of four years and across two different domains of application – navigation of space and task / knowledge acquisition for manipulation. The present volume documents the results of the CoSy project.

Features
► Wide coverage of the emerging field of cognitive systems ► Provides the basis for a graduate course on cognitive system ► Overview of an EU project cognitive systems for cognitive assistants ► Can serve both as a reference and as a basis for a graduate course cognitive systems

From the contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Statistical Physics, Dynamical Systems and Complexity

Discount group
P
Rheology of Complex Fluids

The aim of the School on Rheology of Complex fluids is to bring together young researchers and teachers from educational and R&D institutions, and expose them to the basic concepts and research techniques used in the study of rheological behavior of complex fluids. The lectures will be delivered by well-recognized experts. The book contents will be based on the lecture notes of the school.

Features
- Discusses how to understand multicomponent-multiphase systems of which most of complex fluids are examples
- Covers a wide variety of application areas from polymers, emulsions to biological systems
- Introduces active fluids and their rheology, with chemical energy generation
- Involves multidisciplinary tools, the book proposes to bring together contributors from different backgrounds

Contents

Field of interest
- Complexity

Target groups
- Research

Discount group
- P

Recruitment Learning

This monograph provides an overview of recruitment learning ap-proaches from a computational perspective. Recruitment learning is a unique machine learning technique that: (1) explains the physical or functional acquisition of new neurons in sparsely connected networks as a biologically plausible neural network method; (2) facilitates the acquisition of new knowledge to build and extend knowledge bases and ontologies as an artificial intelligence technique; (3) allows learning by use of background knowledge and a limited number of observations, consistent with psychological theory.

Features
- Provides an overview of recruitment learning approaches from a computational perspective
- State-of-the-art book
- Written by leading experts in this field

Contents

Fields of interest
- Appl.Mathematics/Computational Methods of Engineering; Artificial Intelligence (incl. Robotics)

Target groups
- Research

Discount group
- P

Accelerating Test, Validation and Debug of High Speed Serial Interfaces

Testing of high-speed serial interfaces has been a challenging topic because of signal integrity issues, long test time and the need of expensive instruments. Accelerating Test, Validation and Debug of High Speed Serial Interfaces provides detailed instructions on how to arrive to practical test of modern high-speed interfaces. Innovative test approaches is proposed that can speed up the testing by 1000 times. A low cost solution is also presented, where no expensive high-speed test instrument is needed.

Features
- Detailed instructions on how to arrive to practical test of modern high-speed interfaces
- Self-contained, with the background and tutorial included
- Explains statistical measures of confidence and the ways to arrive at them
- Presents novel multi-GHz infrastructure that allows designers to test without buying extremely expensive automated test equipment
- Presents the solid ways to inject jitter and bit errors

From the contents
- Abstract. List of Figures. List of Tables.
- Chapter 1 – Introduction. 1.1 Motivation.
- 1.2 Contributions. 1.3 Overview of the Book.
- Chapter 2 – Background. 2.1. High-Speed Serial Communication. 2.2 Timing Jitter. 2.3 Amplitude Noise.
- Chapter 3 – Accelerating Receiver Jitter Tolerance Testing on ATE. 3.1 Introduction.
- 3.2 Jitter Test Signal Generation. 3.3 Receiver Bit Error Monitoring. 3.4 Jitter Tolerance Extrapolation.
- 3.5 Other Applications of the New Method.
- Chapter 4 – Transmitter Jitter Extraction on ATE. 4.1 Introduction. 4.2. Test Setup for Data Acquisition.
- 4.3. Jitter Extraction. 4.4. Experimental Results. Chapter 5 – Testing HSSIs with or without ATE Instruments. 5.1 DFT in HSSIs.

Fields of interest
- Circuits and Systems; Software Engineering/Programming and Operating Systems

Target groups
- Research

Discount group
- P
Innovations in Defence Support Systems – 1

Innovations in the area of Defence Support Systems are multi-disciplinary, cover a broad range of technologies, and could not possibly be covered within a single volume. The book is directed to the application engineers, research students, professors, decision makers and scientists & engineers working in defence and related areas.

Features
- Latest research in the area of intelligent defence support systems
- State-of-the-art book
- Written by leading experts

Contents

Field of interest
Appl.Mathematics/Computational Methods of Engineering

Target groups
Research

Discount group

Mass Customization
Engineering and Managing Global Operations

Mass customization (MC) has been hailed as a successful operations strategy across manufacturing and service industries for the past three decades. However, the wider implications of using MC approaches in the broader industrial and economic environment are not yet clearly understood.

Features
- Covers mass customization in the context of global industrial economics and operations
- Includes case studies from the service industry
- Contains chapters written by international experts

From the contents

Fields of interest
Manufacturing, Machines, Tools; Operations Research/Decision Theory; Industrial Organization

Target groups
Research

Discount group
P

Emotional Engineering
Service Development

In an age of increasing complexity, diversification and change, customers expect services that cater to their needs and to their tastes. Emotional Engineering describes how their expectations can be satisfied and managed throughout the product life cycle, if producers focus their attention more on emotion. Emotion plays a crucial role in value recognition, but it is also important for team work, which extends beyond human-human to human-machine and human-environment to enable people to cope with frequently and extensively changing situations. Emotional Engineering proposes the development of services beyond product realization and the creation of value on a lifetime, not just a one-off, basis.

Features
- Proposes an engineering version of Web 2.0 to transform customer relationships
- Provides a multi-disciplinary approach to the combination of emotion and engineering
- Contains numerous figures

From the contents

Features
- Proposes an engineering version of Web 2.0 to transform customer relationships
- Provides a multi-disciplinary approach to the combination of emotion and engineering
- Contains numerous figures

From the contents

Features
- Proposes an engineering version of Web 2.0 to transform customer relationships
- Provides a multi-disciplinary approach to the combination of emotion and engineering
- Contains numerous figures

From the contents
Precision Nanometrology
Sensors and Measuring Systems for Nanomanufacturing

Precision Nanometrology describes the new field of precision nanometrology, which plays an important part in nanoscale manufacturing of semiconductors, optical elements, precision parts and similar items. It pays particular attention to the measurement of surface forms of precision workpieces and to stage motions of precision machines. The first half of the book is dedicated to the description of optical sensors for the measurement of angle and displacement, which are fundamental quantities for precision nanometrology. The second half presents a number of scanning-type measuring systems for surface forms and stage motions.

Features
► Presents the techniques and basics of precision nanotechnology for nanoscale manufacturing
► Includes methods for reducing Abbe errors in various systems
► Describes applications of nanoscale motion-control and nanoscale machining

Contents

Fields of interest
Manufacturing, Machines, Tools; Measurement Science and Instrumentation; Nanotechnology

Target groups
Research

Discount group
P

Block-oriented Nonlinear System Identification

Block-oriented Nonlinear System Identification deals with an area of research that has been very active since the turn of the millennium. The book makes a pedagogical and cohesive presentation of the methods developed in that time. These include: iterative and over-parameterization techniques; stochastic and frequency approaches; support-vector-machine, subspace, and separable-least-squares methods; blind identification method; bounded-error method; and decoupling inputs approach. The identification methods are presented by authors who have either invented them or contributed significantly to their development. All the important issues e.g., input design, persistent excitation, and consistency analysis, are discussed. The practical relevance of block-oriented models is illustrated through biomedical/physiological system modelling. The book will be of major interest to all those who are concerned with nonlinear system identification whatever their activity areas. This is particularly the case for educators in electrical, mechanical, chemical and biomedical engineering and for practising engineers in process, aeronautic, aerospace, robotics and vehicles control. Block-oriented Nonlinear System Identification serves as a reference for active researchers, new comers, industrial and education practitioners and graduate students alike.

Features
► An exhaustive treatment of an important area of nonlinear systems research
► Large and international author pool ensures authoritative treatment
► Presents results illustrated by applications in biomedical and physiological systems

Fields of interest
Control; Systems Theory, Control; Systems Biology

Target groups
Research

Discount group
P

Analog Layout Synthesis
A Survey of Topological Approaches

Integrated circuits are fundamental electronic components in biomedical, automotive and many other technical systems. A small, yet crucial part of a chip consists of analog circuitry. This part is still in large part designed by hand and therefore represents not only a bottleneck in the design flow, but also a permanent source of design errors responsible for re-designs, costly in terms of wasted test chips and in terms of lost time-to-market. Layout design is the step of the analog design flow with the least support by commercially available, computer-aided design tools. This book provides a survey of promising new approaches to automated, analog layout design, which have been described recently and are rapidly being adopted in industry.

Features
► Offers a tutorial introduction to analog layout
► Presents a comprehensive survey of promising new methods for automated, analog layout design
► Represents a one-of-a-kind, single-source reference to the latest advances in analog layout design

Contents

Fields of interest
Circuits and Systems; Computer-Aided Engineering (CAD, CAE) and Design

Target groups
Research

Discount group
P
Solid Biofuels for Energy
A Lower Greenhouse Gas Alternative
Fossil fuels are widely used for electricity generation and heating, creating greenhouse gas emissions and other toxic pollutants, which should be minimised according to the most recent environmental legislation. The utilisation of solid fuels with biogenic origin could contribute to the minimisation of these emissions. Solid Biofuels for Energy presents the current status of the engineering disciplines in this area, providing an improved background on the energy exploitation options of solid biomass. Within this framework, all thematic priorities related to the solid bioenergy potential and standardisation, commercialised and emerging energy technologies, and quality of solid residues are presented.

Features
➤ Provides comprehensive information on all key aspects of the exploitation of solid biofuels for energy ➤ Is accessible, even for amateurs ➤ Gives practical information on European standards

Contents

Fields of interest
Renewable Energy Sources; Power Engineering; Biochemical Engineering

Target groups
Research

Discount group
P

Due October 2010
2010. VIII, 258 p. 96 illus. (Green Energy and Technology) Hardcover
➤ approx. $129.00

Due September 2010
2010. Approx. 300 p. 140 illus. in color. Softcover
➤ $39.95
ISBN 978-3-642-12885-1

Due August 2010
➤ $289.00
ISBN 978-3-642-12886-8
Multiscale Modelling of Plasticity and Fracture by Means of Dislocation Mechanics

The latest state of simulation techniques to model plasticity and fracture in crystalline materials on the nano- and microscale is presented. Discrete dislocation mechanics and the neighbouring fields molecular dynamics and crystal plasticity are central parts. The physical phenomena, the theoretical basics, their mathematical description and the simulation techniques are introduced and important problems from the formation of dislocation structures to fatigue and fracture from the nano- to microscale as well as its impact on the macro behaviour are considered.

Fields of interest

Target groups
Research

Discount group
P

Agent and Multi-agent Technology for Internet and Enterprise Systems

Research in multi-agent systems offers a promising technology for problems with networks, online trading and negotiations but also social structures and communication. This is a book on agent and multi-agent technology for internet and enterprise systems. The book is a pioneer in the combination of the fields and is based on the concept of developing a platform to share ideas and presents research in technology in the field and application to real problems. The chapters range over both applications, illustrating the possible uses of agents in an enterprise domain, and design and analytic methods, needed to provide the solid foundation required for practical systems.

Features
- Latest research in the area of Agent and Multi-agent Technology for Internet and Enterprise Systems
- State-of-the-Art Book
- Written by leading experts in this field

Contents

Fields of interest
Appl.Mathematics/Computational Methods of Engineering; Artificial Intelligence (incl. Robotics); Information Systems Applications (incl.Internet)

Target groups
Research

Discount group
P

Due July 2010
2010. 402 p. 187 illus. (CISM International Centre for Mechanical Sciences, Volume 522) Hardcover
$249.00
ISBN 978-3-7091-0282-4

Available
2010. 380 p. 5 illus. in color. (Studies in Computational Intelligence, Volume 289) Hardcover
$179.00
ISBN 978-3-642-13525-5

Available
2010. 295 p. (Studies in Computational Intelligence, Volume 278) Hardcover
$129.00
ISBN 978-3-642-13964-2
Smart AD and DA Conversion

While technology evolution is beneficial for digital circuits, it can cause performance limitations for analog circuits. To benefit from the technology evolution for analog circuits as well, the smart concept aims at improving the analog performance by using digital intelligence. In Smart AD and DA Conversion, the smart concept is applied to AD and DA converters by using on-chip intelligence to detect analog imperfections and to correct for them.

First, general trends and challenges in data converter design are studied and a generalized view on smart conversion is introduced. Then, the smart concept is applied to solve specific imperfections in two design examples: a sub-binary variable-radix current-steering DA converter and a time-interleaved open-loop track&hold circuit. In both cases, the developed concepts are supported by theory and implemented test chips. The examples show that the smart concept can be successfully applied to improve the performance of AD and DA converters with respect to chip area, power consumption, static accuracy and/or dynamic accuracy.

Features
- Selection of relevant smart concepts to improve the performance
- Development and analysis of the selected smart concepts, including methods for detection, processing and correction
- Implementation and evaluation of the selected smart concepts

Contents
- List of symbols and abbreviations
- 1. Introduction
- 2. AD And DA Conversion
- 3. Smart Conversion
- 4. Smart DA Conversion
- 5. Design Of A Sub-Binary Variable-Radix DAC
- 6. Smart AD Conversion
- 7. Design of an Open-Loop T&H Circuit
- 8. T&H Calibration
- 9. T&H Calibration for Time-Interleaved ADCS
- 10. Conclusions. References. Index

Fields of interest
- Circuits and Systems
- Solid State Physics

Target groups
- Research

Discount group
- P

E-maintenance

E-maintenance is the synthesis of two major trends in today’s society: the growing importance of maintenance as a key technology and the rapid development of information and communication technology. E-maintenance gives the reader an overview of the possibilities offered by new and advanced information and communication technology to achieve efficient maintenance solutions in industry, energy production and transportation, thereby supporting sustainable development in society.

Features
- Provides the reader an overview of the possibilities that the new and advanced information and communication technology offers to achieve efficient maintenance solutions in industry
- Includes five industrial cases to make the subject of practical use to the reader
- Outlines a global application solution so the reader can apply this to his/her own work

Contents
- Maintenance Today and Future Trends
- Information and Communication Technologies Within E-maintenance
- A New Integrated E-maintenance Concept
- Intelligent Wireless Sensors
- MEMS Sensors
- Lubricating Oil Sensors
- Smart Tags
- Mobile Devices and Services
- Wireless Communication
- Semantic Web Services for Distributed Intelligence
- Strategies for Maintenance Cost-effectiveness
- Dynamic and Cost-effective Maintenance Decisions
- Industrial Demonstrations of E-maintenance Solutions
- E-training in Maintenance
- Conclusions and Future Perspective

Fields of interest
- Quality Control, Reliability, Safety and Risk
- Computer-Aided Engineering (CAD, CAE)
- Design, Information Systems

Target groups
- Research

Discount group
- P

Cooperative Communications and Networking

Cooperative and relay communications have recently become the most widely explored topics in communications, whereby users cooperate in transmitting their messages to the destination, instead of conventional networks which operate independently and compete among each other for channel resources. As the field has progressed, cooperative communications have become a design concept rather than a specific transmission technology. This concept has revolutionized the design of wireless networks, allowing increased coverage, throughput, and transmission reliability even as conventional transmission techniques gradually reach their limits. Cooperative and relay technologies have also made their way toward next generation wireless standards, such as IEEE802.16 (WiMAX) or LTE, and have been incorporated into many modern wireless applications, such as cognitive radio and secret communications.

Features
- Provides a comprehensive treatment of cooperative communications
- Introduces the reader to various cooperation and relay techniques
- Provides a survey of the next generation wireless standards

Contents
- Introduction
- Basics in Wireless Communications and Diversity Techniques
- Fundamental Limits in Cooperative Systems
- Two-User Cooperative Relay Channels
- Cooperative and Multiple Relays
- Cooperative Multiple Access Systems
- Cooperative Medium Access Control Protocols
- Cross-Layered Networking and High-Layer Perspectives

Fields of interest
- Communications Engineering, Networks
- Coding and Information Theory
- Computer Communication Networks

Target groups
- Research

Discount group
- P
Microwave Circuits for 24 GHz Automotive Radar in Silicon-based Technologies

There are continuous efforts focussed on improving road traffic safety worldwide. Numerous vehicle safety features such as driver assistance systems have been invented. Many driver assistance features rely on radar-based sensors, but are highly-priced. Realization of low-cost radar front-end circuits would enable their implementation in less expensive economy cars, considerably contributing to traffic safety. Cost reduction requires high-level integration of the microwave front-end circuitry, specifically analog and digital circuit blocks co-located on a single chip. The book presents the design, implementation, and characterization of microwave receiver circuits in CMOS and SiGe bipolar technologies. The applicability of a standard digital 0.13 μm CMOS technology for realization of a 24 GHz narrow-band radar front-end sensor is investigated. The presented circuits are suitable for automotive, industrial and consumer applications, as e.g. lane-change assistant, door openers or alarms.

Features
- Describes advanced circuits and techniques around 24GHz for radar applications
- Uniquely compares circuits in CMOS and SiGe technology
- Systematic comparison of active and passive mixers
- Compiles handy methods and tips for de-embedding, numerical calculations etc.

Contents

Fields of interest
Circuits and Systems; Microwaves, RF and Optical Engineering; Automotive Engineering

Target groups
Lower undergraduate

Discount group
P

VLSI Physical Design: From Graph Partitioning to Timing Closure

Design and optimization of integrated circuits are essential to the creation of new semiconductor chips, and physical optimizations are becoming more prominent as a result of semiconductor scaling. Modern chip design has become so complex that it is largely performed by specialized software, which is frequently updated to address advances in semiconductor technologies and increased problem complexities. A user of such software needs a high-level understanding of the underlying mathematical models and algorithms. On the other hand, a developer of such software must have a keen understanding of computer science aspects, including algorithmic performance bottlenecks and how various algorithms operate and interact. VLSI Physical Design: From Graph Partitioning to Timing Closure introduces and compares algorithms that are used during the physical design phase of integrated-circuit design, wherein a geometric chip layout is produced starting from an abstract circuit design. The emphasis is on essential and fundamental techniques, ranging from hypergraph partitioning and circuit placement to timing closure.

Features
- Comprehensive coverage of Physical Design of Integrated Circuits, PCBs and MCMs, with emphasis on practical algorithms and methodologies
- A chapter on timing closure that includes a discussion of design flows
- Detailed illustrations of key concepts, numerous examples
- Brief surveys of recent research results with up-to-date references for further reading
- Accessible to beginners and students
- Problem sets for students, with solutions

Fields of interest
Circuits and Systems; Logic Design; Electronics and Microelectronics, Instrumentation

Target groups
Research

Discount group
P

Field and Service Robotics

Results of the 7th International Conference

The seventh edition of Field and Service Robotics, edited by Andrew Howard, Karl Iagnemma and Alonzo Kelly, offers an eleven chapter collection of a broad range of topics spanning: design, perception and control; tracking and sensing; localization and mapping; multi-robot cooperation and human–robot interaction; mining, maritime and planetary robotics. The volume's forty-five contributions represent a cross-section of the current state of robotics research from one particular aspect: field and service applications. Pursuing technologies aimed at realizing robots operating in complex and dynamic environments, as well as robots working closely with humans, is the overarching theme running throughout this collection.

Features
- Post-conference proceedings of the 7th International Conference on Field and Service Robotics held in Cambridge, USA at July 2007
- State-of-the-Art Book
- Written by leading experts in this field

Contents

Fields of interest
Control, Robotics, Mechatronics; Machinery and Machine Elements; Systems Theory, Control

Target groups
Research

Discount group
P
Context-aware Emotion-based Multi-agent Systems

This is the first book to systematically cover the modelling of emotions and emotional states in human decision-making and to describe how human problem-solving may be integrated with intelligent technologies and intelligent agents. The result is an intelligent multi-agent architecture whose application is described in real-world applications of the internet in business. The authors' expertise covers research and real business and industry experience in computer science, management, HCI and computer vision and e-business, thus providing a well-balanced survey of an important multi-disciplinary topic.

Frontiers of Assembly and Manufacturing

The objective of this volume is to show how the assembly and manufacturing technologies evolve along with the advancement of enabling technologies and how the emergence of a high complexity of micro/nano system products dictate the development of new technologies and tools for their assembly and manufacturing. To this end, we have chosen 19 papers, top-rated yet relevant, out of the 140 papers accepted to present at the 7th IEEE International Symposium on Assembly and Manufacturing. The 19 papers chosen are further revised into the final manuscripts for book chapters that are organized into three parts: Part I: Fixture, Grasping and Manipulation in Assembly and Manufacturing. Part II: Micro/Macro Assembly and Disassembly, and Part III: Manufacturing System Scheduling and Control. Part I, II and III are reviewed and organized by the co-editors of this volume, Prof. Raul Suarez, Prof. Sukhan Lee and Dr. Byungwook Choi, respectively.

Frontiers of Assembly and Manufacturing

Selected papers from ISAM’09

The objective of this volume is to show how the assembly and manufacturing technologies evolve along with the advancement of enabling technologies and how the emergence of a high complexity of micro/nano system products dictate the development of new technologies and tools for their assembly and manufacturing. To this end, we have chosen 19 papers, top-rated yet relevant, out of the 140 papers accepted to present at the 7th IEEE International Symposium on Assembly and Manufacturing. The 19 papers chosen are further revised into the final manuscripts for book chapters that are organized into three parts: Part I: Fixture, Grasping and Manipulation in Assembly and Manufacturing. Part II: Micro/Macro Assembly and Disassembly, and Part III: Manufacturing System Scheduling and Control. Part I, II and III are reviewed and organized by the co-editors of this volume, Prof. Raul Suarez, Prof. Sukhan Lee and Dr. Byungwook Choi, respectively.

Fields of interest

- Complexity
- Target groups
  - Research

Discount group

P

Electromechanical Systems in Microtechnology and Mechatronics

Electrical, Mechanical and Acoustic Networks, their Interactions and Applications

Electromechanical systems consisting of electrical, mechanical and acoustic subsystems are of special importance in various technical fields, e.g. precision device engineering, sensor and actuator technology, electroacoustics and medical engineering. Based on a circuit-oriented representation, providing readers with a descriptive engineering design method for these systems is the goal of this textbook. It offers an easy and fast introduction to mechanical, acoustic, fluid, thermal and hydraulic problems through the application of circuit-oriented basic knowledge. The network description methodology, presented in detail, is extended to finite network elements and combined with the finite element method (FEM): the combination of the advantages of both description methods results in novel approaches, especially in the higher frequency range. The book offers numerous current examples of both the design of sensors and actuators and that of direct coupled sensor-actuator systems. The appendix provides more extensive fundamentals for signal description, as well as a compilation of important material characteristics.

Fields of interest

- Electronics and Microelectronics, Instrumentation;
  - Mechanical Engineering, Vibration, Dynamical Systems, Control

Target groups

Research

Discount group

P

Electromechanical Systems in Microtechnology and Mechatronics

Networks, their Interactions and Applications

Electromechanical systems consisting of electrical, mechanical and acoustic subsystems are of special importance in various technical fields, e.g. precision device engineering, sensor and actuator technology, electroacoustics and medical engineering. Based on a circuit-oriented representation, providing readers with a descriptive engineering design method for these systems is the goal of this textbook. It offers an easy and fast introduction to mechanical, acoustic, fluid, thermal and hydraulic problems through the application of circuit-oriented basic knowledge. The network description methodology, presented in detail, is extended to finite network elements and combined with the finite element method (FEM): the combination of the advantages of both description methods results in novel approaches, especially in the higher frequency range. The book offers numerous current examples of both the design of sensors and actuators and that of direct coupled sensor-actuator systems. The appendix provides more extensive fundamentals for signal description, as well as a compilation of important material characteristics.

Fields of interest

- Electronics and Microelectronics, Instrumentation;
  - Mechanical Engineering, Vibration, Dynamical Systems, Control

Target groups

Research

Discount group

P
B. Liu, Tsinghua University, Beijing, China (Ed.)

**Uncertainty Theory**
A Branch of Mathematics for Modeling Human Uncertainty

Uncertainty theory is a branch of mathematics based on normality, monotonicity, self-duality, countable subadditivity, and product measure axioms. Uncertainty is any concept that satisfies the axioms of uncertainty theory. Thus uncertainty is neither randomness nor fuzziness. It is also known from some surveys that a lot of phenomena do behave like uncertainty. How do we model uncertainty? How do we use uncertainty theory? In order to answer these questions, this book provides a self-contained, comprehensive and up-to-date presentation of uncertainty theory, including uncertain programming, uncertain risk analysis, uncertain reliability analysis, uncertain process, uncertain calculus, uncertain differential equation, uncertain logic, uncertain entailment, and uncertain inference. Mathematicians, researchers, engineers, designers, and students in the field of mathematics, information science, operations research, system science, industrial engineering, computer science, artificial intelligence, finance, control, and management science will find this work a stimulating and useful reference.

**Features**
- Recent research in Agents and multi-agent systems in distributed systems
- Presents new applications of multi-agent systems to digital economy and e-commerce
- Written by a leading expert in the field

**Contents**

**Fields of interest**
Computational Intelligence; Artificial Intelligence (incl. Robotics); e-Commerce/e-business

**Target groups**
Research

**Discount group**
P

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S. Liu, Nanjing University of Aeronautics and Astronautics, China; J. Y. Forrest, Slippery Rock University, PA, USA (Eds.)

**Advances in Grey Systems Research**
Recent research on Grey Systems; contain the edited outcome of the 2009 IEEE International Conference on Grey Systems and Intelligent Services, November 11 – 12, 2009, Nanjing, Jiangsu, People’s Republic of China. This event was jointly sponsored by IEEE Systems, Man, and Cybernetics Society, Natural Science Foundation of China, and Grey Systems Society of China. Additionally, Nanjing University of Aeronautics and Astronautics also invested heavily in this event with its direct and indirect financial and administrative supports.

**Features**
- Recent research on Grey Systems; contain the edited outcome of the 2009 IEEE International Conference on Grey Systems and Intelligent Services (IEEE GSIS 2009), November 10 – 12, 2009, Nanjing, PR China
- Systematically presents the fundamental theory, methods, and techniques of practical application of grey systems theory
- Presents methods and models with practical applicability
- Written by leading experts in the field

**Contents**
Part 1: buffer operator and theoretical basis of grey systems theory.
Part 2: grey incidence analysis and application.
Part 3: grey cluster evaluation models.
Part 4: grey forecast model.
Part 5: grey decision-making.
Part 6: grey cybernetics and intelligent services.

**Fields of interest**
Complexity; Statistical Physics, Dynamical Systems and Complexity

**Target groups**
Research

**Discount group**
P

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W. A. Lodwick, University of Colorado, Denver, CO, USA; J. Kacprzyk, Polish Academy of Sciences, Warsaw, Poland (Eds.)

**Fuzzy Optimization**
Recent Advances and Applications

Optimization is an extremely important area in science and technology which provides powerful and useful tools and techniques for the formulation and solution of a multitude of problems in which we wish, or need, to find a best possible option or solution. The volume is divided into a couple of parts which present various aspects of fuzzy optimization, some related more general issues, and applications.

**Features**
- Overview over the latest research and applications in fuzzy optimization
- Written by leading experts
- State-of-the-art book

**Contents**
Part I: Introductory Sections.
Part II: Basic Issues.
Part V: Applications.

**Fields of interest**
Applied Mathematics/Computational Methods of Engineering; Artificial Intelligence (incl. Robotics)

**Target groups**
Research

**Discount group**
P

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Due August 2010
2010. 350 p. (Studies in Computational Intelligence, Volume 300) Hardcover

$179.00
ISBN 978-3-642-13958-1

Due August 2010
2010. 853 p. (Understanding Complex Systems, Preliminary entry 0) Hardcover

$219.00
ISBN 978-3-642-13037-6

Due October 2010

$229.00
ISBN 978-3-642-13034-5
Time-interleaved Analog-to-Digital Converters

Time-interleaved Analog-to-Digital Converters describes the research performed on time-interleaved Analog-to-Digital Converters. A detailed theoretical analysis is made of the time-interleaved Track & Hold, since it must be capable of handling signals in the GHz range, while consuming little power. Timing calibration is not attractive, and therefore design techniques are presented which do not require timing calibration. The design of power efficient subADCs is addressed with a theoretical analysis of a successive approximation converter and a pipeline converter. It turns out that the first can be about 10 time less power consuming and this conclusion is supported by literature. Time-interleaved Analog-to-Digital Converters describes the design of a high performance time-interleaved ADC, with much attention for practical design aspects, aiming at both industry and research. Measurements show best-in-class performance with a sample-rate of 1.8 GS/s, 7.9 ENOBs and a power efficiency of 1 pJ/conversion-step.

Features
► Comprehensive theoretical analysis of the building blocks of a time-interleaved ADC
► Easy readable with a lot of practical design techniques aiming at both industry and research
► Focus on low-power design techniques including successive approximation ADCs
► Presentation of a state-of-the-art high-speed low-power 1.8 GS/s ADC

Contents

Fields of interest
Circuits and Systems

Target groups
Research

Discount group
P
Finite Element Model Updating Using Computational Intelligence Techniques

Applications to Structural Dynamics

FEM updating allows FEMs to be tuned better to reflect measured data. It can be conducted using two different statistical frameworks: the maximum likelihood approach and Bayesian approaches. This book applies both strategies to the field of structural mechanics, using vibration data. Computational intelligence techniques including: multi-layer perceptron neural networks; particle swarm and GA-based optimization methods; simulated annealing; response surface methods; and expectation maximization algorithms, are proposed to facilitate the updating process. Based on these methods, the most appropriate updated FEM is selected, a problem that traditional FEM updating has not addressed. This is found to incorporate engineering judgment into finite elements through the formulations of prior distributions. Case studies, demonstrating the principles test the viability of the approaches, and, by critically analysing the state of the art in FEM updating, this book identifies new research directions.

Features
- Shows the reader advanced methods for tuning finite element simulations to measured data
- Dual use of expectation maximization and response surface methods compensates for computational complexity
- Robust optimisation techniques reconcile local with global models

From the contents

Fields of interest
Computational Intelligence; Structural Mechanics; Computational Science and Engineering

Target groups
Research

Discount group
P

Available
2010. XVI, 247 p. 18 illus., 2 in color. Hardcover
$129.00
ISBN 978-1-84996-322-0

Power System Modelling and Scripting

Power system modelling and scripting is a quite general and ambitious title. Of course, to embrace all existing aspects of power system modelling would lead to an encyclopedia and would be likely an impossible task. Thus, the book focuses on a subset of power system models based on the following assumptions: (i) devices are modelled as a set of nonlinear differential algebraic equations, (ii) all alternate-current devices are operating in three-phase balanced fundamental frequency, and (iii) the time frame of the dynamics of interest ranges from tenths to tens of seconds. These assumptions basically restrict the analysis to transient stability phenomena and generator controls. The modelling step is not self-sufficient. Mathematical models have to be translated into computer programming code in order to be analyzed, understood and “experienced”. It is an object of the book to provide a general framework for a power system analysis software tool and hints for filling up this framework with versatile programming code.

Features
- A systematic methodology for computer modelling of electric power systems
- State-of-the-art algorithms for power system analysis
- Hybrid between a monograph about electrical power system modelling and a practical guide
- for power system scripting
- Support of theoretical concepts with a complete and well-assessed software package
- The software package (available via authors webpage) is open source so that the reader can freely and fully hack the code

Contents

Fields of interest
Power Electronics, Electrical Machines and Networks; Power Engineering; Simulation and Modeling

Target groups
Research

Discount group
P
Fractional-order Systems and Controls

Fundamentals and Applications

Fractional-order Systems and Controls details the use of fractional calculus in the description and modeling of systems, and in a range of control design and practical applications. It is largely self-contained, covering the fundamentals of fractional calculus together with some analytical and numerical techniques and providing MATLAB® codes for the simulation of fractional-order control (FOC) systems.

Many different FOC schemes are presented for control and dynamic systems problems. Practical material relating to a wide variety of applications is also provided. All the control schemes and applications are presented in the monograph with either system simulation results or real experimental results, or both. Fractional-order Systems and Controls provides readers with a basic understanding of FOC concepts and methods, so they can extend their use of FOC in other industrial system applications, thereby expanding their range of disciplines by exploiting this versatile new set of control techniques.

Features

▷ Gives readers powerful tools for dealing with control in systems with overshoot and resonance, as well as time-diffuse applications
▷ Shows readers the uses of fractional-order control in real control systems related to a variety of real-world problems from fields like mechatronics, civil engineering, and biological systems

From the contents

Part I: Fundamentals of Fractional-order Control
- Introduction. - Fundamental Definitions of Fractional Calculus. - Fractional-order Control. - Part II: Fractional-order Controllers: PID and Other Fractional-order Control Strategies. - Fractional-order Proportional Integral Controller Tuning for First-order-plus Delay Time Plants.

Successful Case-based Reasoning Applications

Case-based reasoning (CBR) is an Artificial Intelligence (AI) technique to support the capability of reasoning and learning in advanced decision support systems. CBR exploits the specific knowledge collected on previously encountered and solved situations, which are known as cases. In this book, we have collected a selection of papers on very recent CBR applications. These, after an in-depth analysis of their specific application domain needs, propose proper methodological solutions and give encouraging evaluation results, which have in some cases led to the commercialization step. The collected contributions demonstrate the capability of CBR to solve or handle issues which would be too difficult to manage with other classical AI methods and techniques, such as rules or models. The heterogeneity of the involved application domains indicates the flexibility of CBR, and its applicability in all those fields where experiential knowledge is (readily) available.

Features

▷ Latest research using Based-Based Reasoning paradigms in healthcare
▷ Surveys the use of advanced Cased-Based Reasoning Paradigms
▷ State-of-the-art book

From the contents


Fields of interest

Computational Intelligence; Artificial Intelligence (incl. Robotics); Health Informatics

Available

2010. XXII, 418 p. 100 illus. With online files/update. (Advances in Industrial Control) Hardcover

$169.00

Discount group P

Due August 2010

2010. 214 p. (Studies in Computational Intelligence, Volume 305) Hardcover

$129.00
ISBN 978-3-642-14077-8

Discount group P

Due September 2010

2010. 330 p. 130 illus. in color. (Lecture Notes in Electrical Engineering, Volume 64) Hardcover

$179.00
ISBN 978-3-642-12706-9

Discount group P
Complex System Reliability
Multi-Channel Systems with Imperfect Fault Coverage

Complex System Reliability presents a state-of-the-art treatment of complex multi-channel system reliability assessment and provides the requisite tools, techniques and algorithms required for designing, evaluating and optimizing ultra-reliable redundant systems.

Features
► Considers the treatment of redundant systems subject to imperfect fault coverage ► Provides the most recent techniques for assessing the reliability of redundant systems ► Includes numerous fully worked examples

Contents

Fields of interest
Quality Control, Reliability, Safety and Risk; Complexity; Aerospace Technology and Aeronautics

Target groups
Professional/practitioner

Discount group
P

Model Predictive Control of Wastewater Systems

This book shows how sewage systems can be modelled and controlled within the framework of model predictive control (MPC). Several MPC-based strategies are proposed, accounting for the inherently complex dynamics and the multi-objective nature of the control required. The effect of system disturbance, represented by data from real rain episodes, on the performance of the control loop, is also accommodated. Complementary to these considerations is the incorporation of the closed-loop system within a fault-tolerant architecture and the study of faults in system actuators. Actuator faults are represented using hybrid modelling techniques, avoiding the loss of convexity of the related optimisation problem when the linear case is considered. The methods and control designs described in this book can easily be extrapolated to other complex systems of similar nature. A MATLAB® toolbox (available for download) will assist readers in implementing the MPC methods described within a sewer network.

Features
► Introduces readers to the implementation of a powerful and increasingly popular control method in a group of applications of vital importance

From the contents

Fields of interest
Control; Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution

Target groups
Research

Discount group
P

Microsystems Dynamics

In recent years microelectromechanical systems (MEMS) have emerged as a new technology with enormous application potential. MEMS manufacturing techniques are essentially the same as those used in the semiconductor industry, therefore they can be produced in large quantities at low cost. The added benefits of lightweight, miniature size and low energy consumption make MEMS commercialization very attractive. Modeling and simulation is an indispensable tool in the process of studying these new dynamic phenomena, development of new microdevices and improvement of the existing designs. MEMS technology is inherently multidisciplinary since operation of microdevices involves interaction of several energy domains of different physical nature, for example, mechanical, fluidic and electric forces. Dynamic behavior of contact-type electrostatic microactuators, such as a microswitches, is determined by nonlinear fluidic-structural, electrostatic-structural and vibro-impact interactions. The latter is particularly important: therefore it is crucial to develop accurate computational models for numerical analysis of the aforementioned interactions in order to better understand coupled-field effects, study important system dynamic characteristics and thereby formulate guidelines for the development of more reliable microdevices with enhanced performance, reliability and functionality.

Features
► State-of-the-art science ► Applicable to modern technology ► Fast developing field

From the contents

Fields of interest
Nanotechnology and Microengineering; Engineering Design; Structural Mechanics

Target groups
Research

Discount group
P
Mono- and Multivariable Control and Estimation
Linear, Quadratic and LMI Methods

E. Ostertag, University of Strasbourg, France

This book presents the various design methods of a state-feedback control law, and of an observer for the case the system state is not fully measurable. The considered systems are as well continuous-time as discrete-time, monovariable or multivariable, the last ones being of main consideration.

Features

- A large number of exercises, all given with their detailed solutions
- With Matlab programs for download
- Revised translation and actualization of the succesful French textbook

Contents


Fields of interest

Control; Systems Theory, Control; Appl.Mathematics/Computational Methods of Engineering

Target groups

Upper undergraduate

Discount group

P

Due January 2011

2011. 360 p. 100 illus. With online files/update. (Mathematical Engineering, Volume 2) Softcover

$99.00
ISBN 978-3-642-13733-4

Computational Intelligence in Power Engineering

B. K. Panigrahi, Indian Institute of Technology, New Delhi, India; A. Abraham, Jadavpur University, Calcutta, India; S. Das, Norwegian University of Science and Technology, Trondheim, Norway (Eds.)

Computational Intelligence (CI) is one of the most important powerful tools for research in the diverse fields of engineering sciences ranging from traditional fields of civil, mechanical engineering to vast sections of electrical, electronics and computer engineering and above all the biological and pharmaceutical sciences. The existing field has its origin in the functioning of the human brain in processing information, recognizing pattern, learning from observations and experiments, storing and retrieving information from memory, etc. In particular, the power industry being on the verge of epoch changing due to deregulation, the power engineers require Computational intelligence tools for proper planning, operation and control of the power system. Most of the CI tools are suitably formulated as some sort of optimization or decision making problems. These CI techniques provide the power utilities with innovative solutions for efficient analysis, optimal operation and control and intelligent decision making.

Features

- Reports recent research results Computational Intelligence in Power Engineering
- Written by experts in the field
- Introduces new concepts

Contents


Fields of interest

Appl.Mathematics/Computational Methods of Engineering; Artificial Intelligence (incl. Robotics); Power Electronics, Electrical Machines and Networks

Target groups

Research

Discount group

P

Due August 2010

2010. 400 p. (Studies in Computational Intelligence, Volume 302) Hardcover

$179.00
ISBN 978-3-642-14012-9

Analog-to-Digital Conversion

M. J. Pelgrom, NXP, Eindhoven, The Netherlands

The design of an analog-to-digital converter or digital-to-analog converter is one of the most fascinating tasks in micro-electronics. In a converter the analog world with all its intricacies meets the realm of the formal digital abstraction. Both disciplines must be understood for an optimum conversion solution. In a converter also system challenges meet technology opportunities. Modern systems rely on analog-to-digital converters as an essential part of the complex chain to access the physical world. And processors need the ultimate performance of digital-to-analog converters to present the results of their complex algorithms. The same progress in CMOS technology that enables these VLSI digital systems creates new challenges for analog-to-digital converters: lower signal swings, less power and variability issues. Last but not least, the analog-to-digital converter must follow the cost reduction trend. These changing boundary conditions require micro-electronics engineers to consider their design choices for every new design.

Features

- State-of-the-art text book, covering the most relevant developments in Analog-to-digital conversion
- Extensive treatise of all aspects concerning accuracy, including the statistical aspects
- A 100-pages summary of the relevant fields of knowledge for the micro-electronics engineer
- Many practical tips, from designing a PCB to lay-out aspects

Contents


Fields of interest

Circuits and Systems; Solid State Physics; Spectroscopy and Microscopy

Target groups

Research

Discount group

P

Due July 2010

2010. 375 p. Hardcover

$179.00
Micro Transport Phenomena During Boiling

“Micro Transport Phenomena During Boiling” reviews the new achievements and contributions in recent investigations at microscale. The content mainly includes (i) fundamentals for conducting investigations of micro boiling, (ii) microscale boiling and transport phenomena, (iii) boiling characteristics at microscale, (iv) some important applications of micro boiling transport phenomena. This book is intended for researchers and engineers in the field of micro energy systems, electronic cooling, and thermal management in various compact devices/systems at high heat removal and/or heat dissipation.

Dr. Xiaofeng Peng, who had passed away on Sep. 10, 2009, was a professor at the Department of Thermal Engineering, Tsinghua University, China.

Features
- Studies micro & nano-scale boiling or heat-transfer phenomena
- Presents some original research results
- Discusses topics at the frontier of thermal and fluid sciences that have great applicability

Contents

Fields of interest
Engineering Thermodynamics, Heat and Mass Transfer; Engineering Fluid Dynamics

Target groups
Research

Discount group
P

Due October 2010

Distribution rights in China: Tsinghua University Press
Jointly published with Tsinghua University Press
2010. Approx. 400 p. Hardcover
$279.00
ISBN 978-3-642-13453-1

Advance in Intelligent Decision Technologies

Research of the Second KES International Symposium IDT 2010

Intelligent Decision Technologies (IDT) seeks an interexchange of research on intelligent systems and intelligent technologies which enhance or improve decision making in industry, government and academia. The focus is interdisciplinary in nature, and includes research on all aspects of intelligent decision technologies, from fundamental development to the applied system. This volume represents leading research from the Second KES International Symposium on Intelligent Decision Technologies (KES IDT’10), hosted and organized by the Sellinger School of Business and Management, Loyola University Maryland, USA, in conjunction with KES International. The symposium was concerned with theory, design development, implementation, testing and evaluation of intelligent decision systems.

Features
- Recent research in intelligent decision technologies
- Edited outcome of the IDT 2010 conference held in Baltimore, US, in July 2010
- Written by experts in the field

From the contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Computers and Education

Target groups
Research

Discount group
P

Micromechanisms of Fracture and Fatigue

In a Multi-scale Context

Micromechanisms of Fracture and Fatigue forms the culmination of 20 years of research in the field of fatigue and fracture. It discusses a range of topics and comments on the state of the art for each. The first part is devoted to models of deformation and fracture of perfect crystals. Using various atomistic methods, the theoretical strength of solids under simple and complex loading is calculated for a wide range of elements and compounds, and compared with experimental data. The connection between the onset of local plasticity in nanoindentation tests and the ideal shear strength is analysed using a multi-scale approach. Moreover, the nature of intrinsic brittleness or ductility of perfect crystal lattices is demonstrated by the coupling of atomistic and mesoscopic approaches, and compared with brittle/ductile behaviour of engineering materials.

Features
- Provides a detailed insight into the basic micromechanisms of the fracture behaviour of materials
- Includes applications in the engineering industry
- Develops new approaches to help readers understand integrated micro- and macro-aspects of materials fracture

Contents

Fields of interest
Continuum Mechanics and Mechanics of Materials; Structural Mechanics; Mechanical Engineering

Target groups
Research

Discount group
P
Differential Evolution in Electromagnetics

Differential evolution has proven itself a very simple while very powerful stochastic global optimizer. It has been applied to solve problems in many scientific and engineering fields. This book focuses on applications of differential evolution in electromagnetics to showcase its achievement and capability in solving synthesis and design problems in electromagnetics.

Features
- State-of-the-art review on differential evolution
- Systematic coverage of applications of differential evolution in electromagnetics providing real-world insights
- Written by experts in this field

Contents
Part 1 A Literature Survey on Differential Evolution.
- Part 3 A Retrospective of Differential Evolution in Electromagnetics.
- Part 4 Application of Differential Evolution to a Two-dimensional Inverse Scattering Problem.
- Part 5 The Use of Differential Evolution for the Solution of Electromagnetic Inverse Scattering Problems.
- Part 6 Modeling of Electrically Large Equipment with Distributed Dipoles Using Metaheuristic Methods.
- Part 7 Application of Differential Evolution to a Multi-objective Real-world Frequency Assignment Problem.
- Part 8 Chapter 8. RNN Based MIMO Channel Prediction.

Fields of interest
Computational Intelligence; Microwaves, RF and Channel Prediction.

Target groups
Research

Discount group
P

Underwater SLAM for Structured Environments Using an Imaging Sonar

This book is a revised version of the doctoral dissertation presented by D. Ribas in the Department of Computer Engineering at the University of Girona. The main purpose of this work is to present different techniques developed with the objective of providing a solution to the navigation problem for Autonomous Underwater Vehicles (AUVs) operating in structured environments, with special attention to localization techniques but, particularly, to the application of SLAM (Simultaneous Localization And Mapping) techniques as a self-contained system which requires neither previous knowledge of the scenario nor the use of absolute positioning systems like GPS, LBL or USBL.

Features
- Provides solutions to the navigation problem for Autonomous Underwater Vehicles (AUVs) operating in structured environments
- Presents recent research in autonomous Underwater Research
- Presents techniques for feature extraction capable of dealing with a mechanically scanned imaging sonar

Contents
Part 1 Introduction.
- Part 2 State of the Art.
- Part 3 Design and development of the Ictineu AUV.
- Part 4 Understanding Mechanically Scanned Imaging Sonars.
- Part 5 Localization with an a priori Map.
- Part 6 Simultaneous Localization and Mapping.
- Part 7 Conclusion.

Fields of interest
Robotics and Automation; Artificial Intelligence (incl. Robotics)

Target groups
Research

Discount group
P

Machine Learning and Systems Engineering

A large international conference on Advances in Machine Learning and Systems Engineering was held in UC Berkeley, California, USA, October 20-22, 2009, under the auspices of the World Congress on Engineering and Computer Science (WCECS 2009). Machine Learning and Systems Engineering contains forty-six revised and extended research articles written by prominent researchers participating in the conference. Topics covered include Expert system, Intelligent decision making, Knowledge-based systems, Knowledge extraction, Data analysis tools, Computational biology, Optimization algorithms, Experiment designs, Complex system identification, Computational modeling, and industrial applications. Machine Learning and Systems Engineering offers the state of the art of tremendous advances in machine learning and systems engineering and also serves as an excellent reference text for researchers and graduate students, working on machine learning and systems engineering.

Features
- Offers the state of the art of tremendous advances in machine learning and systems engineering
- Serves as an excellent reference text for researchers and graduate students, working on machine learning and systems engineering
- Contains forty-six revised and extended research articles written by prominent researchers

From the contents
1. Multimodal Human Spacecraft Interaction In Remote Environments.
- 3. Piecewise Bezier Curves Path Planning With Continuous Curvature Constraint For Autonomous Driving.

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Systems and Data Security

Target groups
Research

Discount group
P
Mechatronics and Intelligent Systems for Off-road Vehicles

Rapid developments in electronics over the past two decades have induced a move from purely mechanical vehicles to mechatronics design. Recent advances in computing, sensors, and information technology are pushing mobile equipment design to incorporate higher levels of automation under the novel concept of intelligent vehicles. Mechatronics and Intelligent Systems for Off-road Vehicles introduces this concept, and provides an overview of recent applications and future approaches within this field. Several case studies present real examples of vehicles designed to navigate in off-road environments typically encountered by agriculture, forestry, and construction machines. The examples analyzed describe and illustrate key features for agricultural robotics, such as automatic steering, safeguarding, mapping, and precision agriculture applications.

Features
- Provides an overview of the recent applications within the field of mechatronics design in automated and intelligent vehicles
- Anticipates future approaches to the study of mechatronics design in automated and intelligent vehicles
- Contains numerous figures

Contents
1. Introduction
2. Off-road Vehicle Dynamics
3. Global Navigation Systems
4. Local Perception Systems
5. Three-dimensional Perception and Localization
6. Communication Systems for Off-road Intelligent Vehicles
7. Electrohydraulic Steering Control
8. Design of Intelligent Systems

Fields of interest
Control, Robotics, Mechatronics; Automotive Engineering; Artificial Intelligence (incl. Robotics)

Discount group
Professional/practitioner

Beyond World-Class Productivity
Industrial Engineering Practice and Theory

From the automotive industry to the semiconductor industry, manufacturers are suffering from an overabundance of automation methods that they cannot fully comprehend or afford, and glamorous leadership techniques that are simply not sustainable. In this respect, management has lost its way. Beyond World-Class Productivity shows why a return to traditional tools and the power of people can help companies meet today’s challenges in the manufacturing sector.

Features
- Case studies illustrate actual productivity results from companies that have employed the author as a consultant
- Provides new insights into effectiveness in unit labour costs
- Makes productivity results easy to understand through use of figures

Contents
1. Changing Strategy for Productivity and Profitability Activity
2. Systematic Approach for Manufacturing Strategy
3. General Meaning of Engineering as It Relates to Management
4. Definition of Productivity/Requirements for Improving It
5. Three Dimensions of Productivity
6. Methods Design Concept
7. Work Measurement
8. White-Collar Productivity
9. MBM: Measurement/Monitoring Based Management
10. Changing for Productivity

Fields of interest
Engineering Economics, Organization, Logistics, Marketing; Technology Management; Organization/Planning

Target groups
Research

Discount group
P

Singular Problems in Shell Theory
Computing and Asymptotics

This book deals with various aspects in relation with thin shell theory: general geometric formality of shell theory, analysis of singularities, numerical computing of thin shell problems, mathematical considerations on boundary value problems which enable to understand the sensitive problems encountered. Therefore, the lecture of this book may not be continuous and the reader who wants to improve his knowledge in a specific area may refer directly to the chapters concerned with.

Features
- State of the art of singular problems in shell theory
- Written by experts in the field
- Introduces new concepts

Contents
Geometric formality of shell theory
- Singularities and boundary layers in thin elastic shell theory
- Anisotropic error estimates in the layers
- Numerical simulation with anisotropic adaptive mesh
- Singularities of parabolic inhibited shells
- Singularities of hyperbolic inhibited shells
- Singularities of elliptic well-inhibited shells
- Generalities on boundary conditions for equations and systems
- Introduction to sensitive problems
- Numerical simulations for sensitive shells
- Examples of non-inhibited shell problems (non-geometrically rigid problems)

Fields of interest
Structural Mechanics; Mechanics; Continuum Mechanics and Mechanics of Materials

Target groups
Research

Discount group
P
Active Braking Control Systems Design for Vehicles

Active Braking Control Design for Road Vehicles focuses on two main brake system technologies: hydraulically-activated brakes with on-off dynamics and electromechanical brakes, tailored to brake-by-wire control. The physical differences of such actuators enjoin the use of different control schemes so as to be able fully to exploit their characteristics.

**Features**
- Extensive industrial collaboration during the research presented ensures that results are relevant in the real world as well as in pure academic research
- Discusses the differences in control systems necessary for two widely-used forms of braking system
- Offers the reader a structured and detailed treatment, not matched elsewhere, of the uses of control in various aspects of modern automotive braking systems, contributing to vehicle safety and ride quality

**Contents**

**Fields of interest**
Control; Automotive Engineering; Vibration, Dynamical Systems, Control

**Target groups**
Research

**Discount group**
P

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Digital Filters
Basics and Design

The second, strongly enlarged edition of the textbook gives a substantial insight into the characteristics and the design of digital filters. It briefly introduces to the theory of continuous-time systems and the design methods for analog filters. Time-discrete systems, the basic structures of digital filters, sampling theorem, and the design of IIR filters are widely discussed. The author devotes important parts to the design of non-recursive filters and the effects of finite register length. The explanation of techniques like oversampling and noise shaping conclude the book. The author has substantially updated all chapters and added some important topics like Allpass filters. With an emphasize put on the practical implementation of theoretical concepts, the book is a reference for advanced students as well as practicing engineers.

**Features**
- Essential for engineers in the various applications in communication and information technology
- Gives insight into the characteristics and the design of digital filters
- Comprehensive reference for advanced students and practitioners

**Contents**

**Fields of interest**
Signal, Image and Speech Processing; Control, Robotics, Mechatronics

**Target groups**
Graduate

**Discount group**
P

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Yearbook on Space Policy 2008/2009

Setting New Trends

The Yearbook on Space Policy aims to be the reference publication analysing space policy developments. Each year it presents issues and trends in space policy and the space sector as a whole. Its scope is global and its perspective is European. The Yearbook also links space policy with other policy areas. It highlights specific events and issues, and provides useful insights, data and information on space activities. The Yearbook on Space Policy is edited by the European Space Policy Institute (ESPI) based in Vienna, Austria. It combines in-house research and contributions of members of the European Space Policy Research and Academic Network (ESPRAN), coordinated by ESPI.

**Features**
- Unique collection of unique facts and figures for the year (chronology, bibliography)
- Perspectives on selected issues by profound experts
- Summary and analysis of the main policy issues of the year

**Contents**
PART 1: The Year in Space 2008/2009

**Fields of interest**
Aerospace Technology and Astronautics; Political Science

**Target groups**
Research

**Discount group**
P
Embedded Microcontroller Interfacing
Designing Integrated Projects

Mixed-Signal Embedded Microcontrollers are commonly used in integrating analog components needed to control non-digital electronic systems. They are used in automatically controlled devices and products, such as automobile engine control systems, wireless remote controllers, office machines, home appliances, power tools, and toys. Microcontrollers make it economical to digitally control even more devices and processes by reducing the size and cost, compared to a design that uses a separate microprocessor, memory, and input/output devices. In many undergraduate and post-graduate courses, teaching of mixed-signal microcontrollers and their use for project work has become compulsory.

Features
► Describes the architecture, operating principles and programming details in high level language of embedded microcontrollers and provides many design examples of interfacing the microcontroller for students’ project  ► Includes many practical tips for students and researchers on designing integrated project environment using embedded microcontroller  ► Written by experts in the field

From the contents

Fields of interest
Electronics and Microelectronics, Instrumentation; Control Structures and Microprogramming; Control, Robotics, Mechatronics

Target groups
Research

Discount group
P

Towards Hybrid and Adaptive Computing
A Perspective

Soft Computing today is a very vast field whose extent is beyond measure. The boundaries of this magnificent field are spreading at an enormous rate making it possible to build computationally intelligent systems that can do virtually anything, even after considering the hostile practical limitations. Research over the years by numerous scholars has made this field today stand like a giant in solving all kinds of problems. At one end, the positive developments are a source of great encouragement and motivation for all whose fantasies of future and slowly turning out to be realities of today. At the other end the enormous research along with the gigantic literature is a scary sight for many young researchers who will to master this game. The dynamic nature of the field further ensures a person once on the cliff of awareness soon happens to come at the level of the shore unless updated. The other characteristic of the domain is its multi-disciplinary nature that involves knowledge from different fields to effectively make and deploy a system based on soft computing principles. This has again been the prime reason for the presence of people from different domains who make their contributions into the field in their own way. Further this result in a unique multi-directional development in a collaborative manner.

Features
► Well structured presentation of the basic concepts of Artificial Neural Networks, Fuzzy Inference Systems and Evolutionary Algorithms that enable better understanding of problem solving using Soft Computing  ► Explores the various hybrid approaches one by one  ► Discusses the important traditional and modern evolutionary approaches

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics)

Target groups
Research

Discount group
P

Generalized Low-Voltage Circuit Techniques for Very High-Speed Time-Interleaved Analog-to-Digital Converters

Analog-to-Digital Converters (ADCs) play an important role in most modern signal processing and wireless communication systems where extensive signal manipulation is necessary to be performed by complicated digital signal processing (DSP) circuitry. This trend also creates the possibility of fabricating all functional blocks of a system in a single chip (System On Chip - SoC), with great reductions in cost, chip area and power consumption. However, this tendency places an increasing challenge, in terms of speed, resolution, power consumption, and noise performance, in the design of the front-end ADC which is usually the bottleneck of the whole system, especially under the unavoidable low supply-voltage imposed by technology scaling, as well as the requirement of battery operated portable devices. Generalized Low-Voltage Circuit Techniques for Very High-Speed Time-Interleaved Analog-to-Digital Converters will present new techniques tailored for low-voltage and high-speed Switched-Capacitor (SC) ADC with various design-specific considerations.

Features
► Detailed mathematical analysis in the various imperfections in the design of the data converters  ► Comprehensive analysis on the various low-voltage analog circuits techniques, and their trade-offs  ► Innovative solutions that enable the implementation of ADCs in low-voltage environments  ► This book is based on the practical works published in IEEE Int. Journals, ensure high-level peer-reviewed contents

Fields of interest
Electronics and Microelectronics, Instrumentation; Circuits and Systems

Target groups
Research

Discount group
P
Extreme Statistics in Nanoscale Memory Design

This book explains the problem of estimating statistics of memory performance variation induced due to IC manufacturing process variations, and provides solutions recently proposed in the Electronic Design Automation (EDA) community. The material serves as a comprehensive reference for researchers and practitioners interested in the problem of estimating extreme statistics for memories.

Features
- Includes a treatment of memory design from the perspective of statistical analysis
- Covers relevant theoretical background from other fields: statistics, machine learning, optimization, reliability
- Explains the problem of estimating statistics of memory performance variation
- Shows solutions recently proposed in the Electronic Design Automation (EDA) community
- Contains chapters contributed from both industry and academia

Contents

Fields of interest
Circuits and Systems; Electronics and Microelectronics, Instrumentation

Target groups
Research

Discount group
P

Symmetries and Groups in Signal Processing

An Introduction

Symmetries and Groups in Signal Processing: An Introduction deals with the subject of symmetry, and with its place and role in modern signal processing. In the sciences, symmetry considerations and related group theoretic techniques have had a place of central importance since the early twenties. In engineering, however, a matching recognition of their power is a relatively recent development. Despite that, the related literature, in the form of journal papers and research monographs, has grown enormously. A proper understanding of the concepts that have emerged in the process requires a mathematical background that goes beyond what is traditionally covered in an engineering undergraduate curriculum.

Features
- Highlights the role of modern algebra in signal processing
- Introduces group theoretic techniques of exploiting symmetry for engineering students
- Explains group representation theory with the help of examples
- Discusses relevance of contemporary theories of measurement and modelling

Contents

Fields of interest
Signal, Image and Speech Processing; Computer Science, general; Circuits and Systems

Target groups
Research

Discount group
P

Progress in Wall Turbulence: Understanding and Modeling

Proceedings of the WALLTURB International Workshop held in Lille, France, April 21-23, 2009

This book will consist of a coherent collection of recent results on near wall turbulence including theory, new experiments, DNS, and modeling with RANS, LES and Low Order Dynamical Systems.

Features
- Material presented is original and rich
- Physical understanding and modeling by different approaches in one workshop
- Some of the WALLTURB results presented are a breakthrough in the field

Contents

Fields of interest
Engineering Fluid Dynamics; Fluid- and Aerodynamics; Automotive Engineering

Target groups
Research

Discount group
P
Poisson Point Processes
Imaging, Tracking, and Sensing

“Poisson Point Processes provides an overview of non-homogeneous and multidimensional Poisson point processes and their numerous applications. Readers will find constructive mathematical tools and applications ranging from emission and transmission computed tomography to multiple target tracking and distributed sensor detection, written from an engineering perspective. A valuable discussion of the basic properties of finite random sets is included. Maximum likelihood estimation techniques are discussed for several parametric forms of the intensity function, including Gaussian sums, together with their Cramer-Rao bounds.

Features
► Offers an overview of non-homogeneous Poisson point processes  ► Covers applications ranging from emissions tomography to multi-target tracking  ► Discusses topics which competitive texts lack, such as intensity estimation techniques and finite random sets

Contents

Fields of interest
Signal, Image and Speech Processing; Probability Theory and Stochastic Processes; Probability and Statistics in Computer Science

Target groups
Research

Discount group
P

R. L. Streit, Metron Inc., Reston, VA, USA

E. Strømmen, Norwegian University of Science and Technology, Trondheim, Norway

Theory of Bridge Aero-dynamics

In this second edition a new chapter has been added covering the buffeting theory in a finite element format. The motivation for this has been that a finite element format is becoming more and more dominant in all areas of structural mechanics. It is streamlined for computer programming, and it facilitates the use of general purpose routines that are applicable in several types of structural engineering problems. In this book the finite element formulation of the problem of dynamic response calculations follows the general principle of virtual work, a general principle which may be found in many other text books. While the buffeting wind load itself has with no trouble been included in a finite element format, the main challenge has been to obtain a consistent formulation that includes all the relevant motion induced forces. This has been important, because, while many structures (e.g. long-span suspension bridges) may suffer greatly and become unstable at high wind velocities, the same structures may also benefit from these effects at the design wind velocity. It is well known that motion induced forces will change the stiffness and damping properties of the combined structure and flow system. If calculations are performed for a suitably close set of increasing mean wind velocities and the changing mechanical properties (stiffness and damping) are updated from one velocity to the next, then the response of the system may be followed up to wind velocities close to the stability limit, i.e. up to response values that are perceived as unduly large. Finite element calculations may be performed in time domain, in frequency domain or converted into a modal format. All these options have been included.

Features
► Clear and thorough presentation of the basic concepts of Bridge Aero-dynamics  ► Written by expert in the field  ► New applications on Theory of Bridge Aerodynamics

Fields of interest
Structural Mechanics; Continuum Mechanics and Mechanics of Materials; Civil Engineering

Target groups
Research

Discount group
P

A. Thess, Ilmenau University of Technology, Ilmenau, Germany

The Entropy Principle
A Thermodynamics Textbook Supplement

Entropy - the key concept of thermodynamics finally newly developed and understandable using the classical approaches for the derivation of entropy. It is not easy to understand this important concept of thermodynamics. This book presents a new and essentially better structured derivation and formulation which does not “put the cart before the horse” anymore and in this description is suitable even for the basic university courses in thermodynamics. Entropy is the most important and at the same time most difficult to understand term of thermodynamics. Many people are discontent with its classical derivation since it is either based on “temperature” or “heat” which both can only exactly defined by entropy, or since it includes concepts such as “molecular disorder” which does not fit in a macroscopic theory. The physicists Elliott Lieb and Jakob Yngvason have recently developed a new description of thermodynamics which is free of these problems.

Features
► Fascinating and entertaining Textbook - Companion for graduate students and researchers in engineering, physics and chemistry  ► New view and understanding view of the entropy principle  ► Based on the recently published Lieb-Yngvason Theory of Thermodynamics  ► A fresh look on entropy  ► Author has taught thermodynamics and heat and mass transfer to students of engineering, chemistry, and physics for years

Contents

Fields of interest
Engineering Thermodynamics, Heat and Mass Transfer; Thermodynamics; Engineering Fluid Dynamics

Target groups
Research

Discount group
P
Intelligent Interactive Multimedia Systems and Services

This volume contains the Proceedings of the 3rd International Symposium on Intelligent Interactive Multimedia Systems and Services (KES-IIMSS 2010). This third edition of the KES-IIMSS Symposium was jointly organized by the Department of Informatics of the University of Piraeus, Greece and the Department of Information Technologies of the University of Milan, Italy in conjunction with KES International.

Features

- Recent research in Intelligent Interactive Multimedia Systems and Services
- Edited outcome of the KES_IIMSS 2010 conference held in Baltimore, USA, in July 2010
- Written by experts in the field

Contents

Adapting Spreading Activation Techniques towards a New Approach to Content-based Recommender Systems.

BioStories: Intelligent and Flexible Multimedia Interfaces Based on Real-time Emotion Assesment.

A Framework for Automatic Detection of Abandoned Luggage in Airport Terminal.

A Mobile Phone Based Ambient Assisting Living.

Modeling Student’s Knowledge on Programming Using Fuzzy Techniques.

Camera angle invariant shape recognition in surveillance systems.

Multicriteria-based decision for services discovery and selection.

Building a minimalistic multimedia user interface for quadrileptic patients.

Biofeedback-based brain hemispheric synchronizing employing man-machine interface.

Performance of Watermarking-based spheric synchronizing employing man-machine interface.

Features

- Presents Software Development Challenges and Solutions in multimedia services in intelligent environments
- Sate-of-the-Art Book
- Written by leading experts in this field

Target groups

Research

Discount group

P

Target groups

Research

Discount group

P

Due August 2010

2010. 380 p. (Smart Innovation, Systems and Technologies, Volume 6) Hardcover

$179.00

ISBN 978-3-642-14618-3

Due October 2010

2010. 200 p. (Smart Innovation, Systems and Technologies, Volume 2) Hardcover

$129.00

ISBN 978-3-642-13354-1

Due October 2010

2010. 350 p. (Smart Innovation, Systems and Technologies, Volume 3) Hardcover

$179.00

ISBN 978-3-642-13305-4
Dynamic Stabilisation of the Biped Lucy Powered by Actuators with Controllable Stiffness

This book reports on the developments of the bipedal walking robot Lucy. Special about it is that the biped is not actuated with the classical electrical drives but with pleated pneumatic artificial muscles. In an antagonistic setup of such muscles both the torque and the compliance are controllable. From human walking there is evidence that joint compliance plays an important role in energy efficient walking and running. Moreover pneumatic artificial muscles have a high power to weight ratio and can be coupled directly without complex gearing mechanism, which can be beneficial towards legged mechanisms. Additionally, they have the capability of absorbing impact shocks and store and release motion energy. This book gives a complete description of Lucy: the hardware, the electronics and the software. A hybrid simulation program, combining the robot dynamics and muscle/valve thermodynamics, has been written to evaluate control strategies before implementing them in the real biped.

Features
- Reports recent research in bipedal walking exercised with the robot Lucy; the biped robot Lucy is introduced which is not actuated with the classical electrical drives but with pleated pneumatic artificial muscles
- State-of-the-Art Book
- Written by leading experts in this field

Contents
Part I Introduction.- Part 2 Description of Lucy.- Part 3 Trajectory generator.- Part 4 Trajectory tracking.- Part 5 Compliance.- Part 6 General conclusions and future work

Fields of interest
Robotics and Automation; Artificial Intelligence (incl. Robotics); Control

Target groups
Research

Discount group
P

Incremental Learning for Motion Prediction of Pedestrians and Vehicles

The monograph written by Alejandro Vasquez Govea focuses on the practical problem of moving in a cluttered environment with pedestrians and vehicles. A framework based on Hidden Markov models is developed to learn typical motion patterns which can be used to predict motion on the basis of sensor data. All the theoretical results have been implemented and validated with experiments, using both real and simulated data. Remarkably, the monograph is based on the author’s doctoral thesis, which received the prize of the Eight Edition of the EURON Georges Giralt PhD Award devoted to the best PhD thesis in Robotics in Europe. A very fine addition to STAR!

Features
- Recent research in the area of motion prediction of Pedestrians and Vehicles
- Presents the modeling, learning and prediction of motion
- Based on the winning thesis of the EURON Georges Giralt award

Contents

Fields of interest
Robotics and Automation; Artificial Intelligence (incl. Robotics); Pattern Recognition

Target groups
Research

Discount group
P

Reliability and Safety Engineering

Reliability and safety are core issues that must be addressed throughout the life cycle of engineering systems. Reliability and Safety Engineering presents an overview of the basic concepts, together with simple and practical illustrations. The authors present reliability terminology in various engineering fields, viz., electronics engineering, software engineering, mechanical engineering, structural engineering, and power systems engineering. They describe the latest applications in the area of probabilistic safety assessment, such as technical specification optimization, risk monitoring and risk informed in-service inspection. Reliability and safety studies must, inevitably, deal with uncertainty, so the book includes uncertainty propagation methods: Monte Carlo simulation, fuzzy arithmetic, Dempster-Shafer theory and probability bounds. Reliability and Safety Engineering also highlights advances in system reliability and safety assessment including dynamic system modeling and uncertainty management. Case studies from typical nuclear power plants, as well as from structural, software, and electronic systems are also discussed.

Features
- Provides an overview of the basic concepts of reliability and safety engineering and describes the advances in different domains
- Gives simple and practical illustrations to improve the reader’s comprehension
- Describes state-of-the-art methods used in reliability and safety engineering to assist practicing engineers

Fields of interest
Quality Control, Reliability, Safety and Risk; Automotive Engineering; Power Engineering

Target groups
Research

Discount group
P

Due October 2010

► $159.00
ISBN 978-3-642-13416-6

Available

2010. 160 p. 35 illus. in color. (Springer Tracts in Advanced Robotics, Volume 64) Hardcover
► $109.00
ISBN 978-3-642-13641-2

Due June 2010

2010. XX, 557 p. 243 illus. (Springer Series in Reliability Engineering) Hardcover
► approx. $229.00
Computational Space Flight Mechanics

The general practice in this book is to provide numerical solutions for all discussed topics and problems. This could be the orbit determination by the orbital elements, Lagrange’s perturbation equations for disturbed Earth’s orbits, the flight of a mass point in flight path coordinates (three degree of freedom), and the flight of a controlled space vehicle in body fixed coordinates (six degree of freedom). This book has been written not only for graduate and doctoral students but also for non-specialists who may be interested in this subject or concerned with space flight mechanics.

Features
► Presents numerical solutions of the governing equations of space flight mechanics ► Enables the reader to understand the complicated physics behind ► Incl. FORTRAN and MATLAB codes as well as solutions to problems

Contents

Fields of interest
Aerospace Technology and Astronautics; Automotive Engineering; Extraterrestrial Physics, Space Sciences

Target groups
Research

Discount group
P

Roots of Modern Technology
An Elegant Survey of the Basic Mathematical and Scientific Concepts

If the ancient Greek philosopher Socrates came to life again today he would not marvel much about the political and social changes the world underwent since his time, but why light bulbs shine and airplanes fly. The author puts himself in the position of explaining to Socrates the technological fundamentals of all the modern comforts. As he takes Socrates seriously, the author accepts the challenge of introducing the relevant mathematical and technical concepts, and he does so in a remarkably easy-to-understand but accurate way. The result is a comprehensive overview of the constituents of our technical civilization properly based upon elementary but solid mathematical and scientific ground. Everybody with an inclination for science and technology can take advantage from the clear structuring and the comprehensive presentation the book provides to this body of knowledge.

Features
► Provides a comprehensive historic view on the foundations of contemporary technology ► Revisits mathematical and other abstract scientific concepts in an surprisingly easy-to-understand but exact manner ► Avoids misleading metaphors, analogies and descriptions by introducing the real scientific fundamental ► Joins together the pieces of distributed knowledge of an educated reader to a consistent world view

Contents

Fields of interest
Engineering, general; History of Science; Computers and Society

Target groups
Research

Discount group
P

Due August 2010


Due September 2010

2010. 300 p. 112 Illus., 17 in color. (Springer Praxis Books / Popular Science) Softcover

► approx. $59.95
ISBN 978-1-4419-6750-1

S. Wendt, Hasso-Platttner-Institut für Softwaresystemtechnik, Potsdam, Germany

A. Wheen, Mott MacDonald, Brighton, UK

From Dot-Dash to Dot.com
The Telecommunication Revolution

Telecommunications is a major global industry, and this unique book chronicles the development of this complex technology from the electric telegraph to the Internet in a simple, accessible, and entertaining way. The book opens with the early years of the electric telegraph. The reader will learn how the Morse telegraph evolved into an international network that spanned the globe, starting with the development of international undersea cables, and the heroic attempts to lay a trans-Atlantic cable. The book describes the events that led to the invention of the telephone, and the subsequent disputes over who had really invented it. It takes a look at some of the most important applications that have appeared on the Internet, the mobile revolution, and ends with a discussion of future key developments in the telecommunications industry.

Features
► Chronicles the development of communications technology from the electric telegraph to the Internet ► Appeals to a wide audience by explaining complex technologies in simple terms ► Looks at the origins of modern telecommunications for a wide and less technical audience

Contents

Fields of interest
Communications Engineering, Networks; History of Computing; Computer Communication Networks

Target groups
Popular/general

Discount group
P
Towards a Design Flow for Reversible Logic

The development of computing machines has found great success in the last decades. But the ongoing miniaturization of integrated circuits will reach its limits in the near future. Shrinking transistor sizes and power dissipation are the major barriers in the development of smaller and more powerful circuits. Reversible logic provides an alternative that may overcome many of these problems in the future. For low-power design, reversible logic offers significant advantages since zero power dissipation will only be possible if computation is reversible. Furthermore, quantum computation profits from enhancements in this area, because every quantum circuit is inherently reversible and thus requires reversible descriptions. However, since reversible logic is subject to certain restrictions (e.g. fanout and feedback are not directly allowed), the design of reversible circuits significantly differs from the design of traditional circuits. Nearly all steps in the design flow (like synthesis, verification, or debugging) must be redeveloped so that they become applicable to reversible circuits as well. But research in reversible logic is still at the beginning. No continuous design flow exists so far.

Features
- Currently, no other book considers several design steps of reversible circuits within an integrated flow
- Proposes several techniques for synthesis of very large functions in reversible logic
- So far, synthesis was only possible for small functions
- Questions like debugging of reversible logic have been considered for the first time
- Reversible logic is an emerging area. Once this kind of technology advances from the academic level to the industrial level, these approaches are required

From the contents

Field of interest
Circuits and Systems

Target groups
Research

Discount group
P

R. Wille, R. Drechsler, University of Bremen, Germany

J. Worms, European Science Foundation, Strasbourg, France; K. Schrog, European Space Policy Institute, Vienna, Austria; N. Remuss, European Space Policy Institute, Vienna, Austria; U. Landfester, University of St. Gallen, Switzerland (Eds.)

Humans in Outer Space – Interdisciplinary Perspective

Following the first comprehensive transdisciplinary dialogue on humans in outer space which resulted in “Humans in Outer Space – Interdisciplinary Odysseys”, the European Science Foundation (ESF), the European Space Agency (ESA), and the European Space Policy Institute (ESPI) have continued and deepened this transdisciplinary dialogue, which can now be found in Humans in Outer Space - Interdisciplinary Perspectives. Going further than regarding humans as better-than-robot tools for exploration, it investigates the human quest for odysseys beyond Earth’s atmosphere and reflects on arising issues related to Europe’s role among the States conducting human exploration. It provides perspectives related to governance, management of space exploration, space settlements, the role of astronauts in the future as well as related to the encounter of extra-terrestrial life.

Features
- Unique transdisciplinary approach to space matters
- Perspectives on selected issues by prominent experts
- Bridge between Hard Sciences, Social Sciences and Humanities

Fields of interest
Aerospace Technology and Astronautics; Political Science

Target groups
Research

Discount group
P

J. Xiong, NSE Software, Shanghai, China

New Software Engineering Paradigm Based on Complexity Science

An Introduction to NSE

This book describes a complete revolution in software engineering based on complexity science through the establishment of NSE – Nonlinear Software Engineering paradigm which complies with the essential principles of complexity science, including the Nonlinearity principle, the Holism principle, the Complexity Arises From Simple Rules principle, the Initial Condition Sensitivity principle, the Sensitivity to Change principle, the Dynamics principle, the Openness principle, the Self-organization principle, and the Self-adaptation principle. The aims of this book are to offer revolutionary solutions to solve the critical problems existing with the old-established software engineering paradigm based on linear thinking and simplistic science complied with the superposition principle, and make it possible to help software development organizations double their productivity, halve their cost, and remove 99% to 99.99% of the defects in their software products, and efficiently handle software complexity, conformity, visibility, and changeability. It covers almost all areas in software engineering.

Features
- New foundation (complexity science) for establishing software engineering paradigm
- New software development methodology driven by defect prevention and traceability
- New software diagramming paradigm using interactive and traceable graphics
- New software testing paradigm based on the transparent-box approach which combines functional testing and structural testing together seamlessly

Fields of interest
Complexity; Algorithm Analysis and Problem Solvability; Complex Networks

Target groups
Research

Discount group
P
Internet-based Control Systems
Design and Applications

Internet-based Control Systems addresses the challenges that need to be overcome before the Internet can be beneficially used not only for remote control and monitoring of industrial plants but also of domestic appliances and in medicine and education. New design issues such as requirement specification, architecture selection and user-interface design are dealt with. Irregular data transmission and data loss, and whole-system instability may result from Internet time-delay; this book guards against such phenomena. Specific advice for avoiding security breaches in an Internet-based control system are given. Practical perspectives are explored both through case studies in several chapters and through real applications including: virtual supervision parameter control of a water tank system; model predictive control for a process control unit; remote integration of real-time software; robot arm control; simulator for a catalytic reactor; and monitoring and control of a home environment.

Features
- Shows the reader how to use the already ubiquitous Internet as a means of communicating control instructions without having to spend money on a dedicated special network
- Deals with security issues to prevent Internet control systems being compromised
- Covers a variety of real applications which can be used as exemplars for implementing Internet control

From the contents

Fields of interest
Control, Robotics, Mechatronics; Information Systems Applications (incl. Internet); Communications Engineering, Networks

Target groups
Research

Discount group
P

Due September 2010
2010. XII, 211 p. 60 illus. (Advances in Industrial Control) Hardcover
approx. $129.00

Due October 2010
approx. $149.00

R. Yin, Central Iron & Steel Research Institute, Beijing, China

Metallurgical Process Engineering

“Metallurgical Process Engineering” discusses large-scale integrated theory on the level of manufacturing production processes, putting forward concepts for exploring far-from-equilibrium and irreversible complex system. It emphasizes the dynamic and orderly operation of the steel plant manufacturing process, the major elements of which are the flow, process network and program. The book aims at establishing a quasi-continuous and continuous process system for improving several techno-economic indices, minimizing dissipation and enhancing the market competitiveness and sustainability of steel plants. The book is intended for engineers, researchers and managers in the fields of metallurgical engineering, industrial design, and process engineering.

Features
- Describes the concepts of the operating dynamics of the whole steel manufacturing process, not only some procedures, but also the relationship with different procedures
- First covers the field from design, engineering, operation, to technologies
- Covers the development strategy of steel plants and the industry

From the contents

Fields of interest
Circuits and Systems; Biomedical Engineering; Electronics and Microelectronics, Instrumentation

Target groups
Research

Discount group
P

Due August 2010
2010. 400 p. 130 illus. Hardcover
approx. $279.00
ISBN 978-3-642-13955-1

H. Yoo, KAIST, Daejeon, Korea; C. v. Hoof, IMEC, Leuven, Belgium (Eds.)

Bio-Medical CMOS ICs

This book is based on a graduate course entitled, Ubiquitous Healthcare Circuits and Systems, that was given by one of the editors at his university. It includes an introduction and overview to the field of biomedical ICs and provides information on the current trends in research. The material focuses on the design of biomedical ICs rather than focusing on how to use prepared ICs.

Features
- Contains information on the design of ICs rather than the implementation
- Presents the trends of current research
- Includes an introduction and overview to the field of biomedical ICs

Contents

Fields of interest
Circuits and Systems; Biomedical Engineering; Electronics and Microelectronics, Instrumentation

Target groups
Research

Discount group
P

Due September 2010
approx. $149.00

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Fields of interest
Circuits and Systems; Biomedical Engineering; Electronics and Microelectronics, Instrumentation

Target groups
Research

Discount group
P

Due October 2010
approx. $149.00
A. Zjajo, Delft University of Technology, Delft, The Netherlands; J. Pineda de Gyvez, Eindhoven University of Technology, Eindhoven, The Netherlands

Low-Power High-Resolution Analog to Digital Converters

Design, Test and Calibration

With the fast advancement of CMOS fabrication technology, more and more signal-processing functions are implemented in the digital domain for a lower cost, lower power consumption, higher yield, and higher re-configurability. This has recently generated a great demand for low-power, low-voltage A/D converters that can be realized in a mainstream deep-submicron CMOS technology. However, the discrepancies between lithography wavelengths and circuit feature sizes are increasing. Lower power supply voltages significantly reduce noise margins and increase variations in process, device and design parameters. Consequently, it is steadily more difficult to control the fabrication process precisely enough to maintain uniformity. The inherent randomness of materials used in fabrication at nanoscopic scales means that performance will be increasingly variable, not only from die-to-die but also within each individual die. Parametric variability will be compounded by degradation in nanoscale integrated circuits resulting in instability of parameters over time, eventually leading to the development of faults. Process variation cannot be solved by improving manufacturing tolerances; variability must be reduced by new device technology or managed by design in order for scaling to continue. Similarly, within-die performance variation also imposes new challenges for test methods.

Features
► Unique combination of design, test, debugging and calibration of A/D converters (probably only on the market) ► Numerous examples and easy to follow procedure for design, test, debugging and calibration of A/D converters ► Both state-of-the-art software and hardware implementations and their chip realizations are given

Fields of interest
Electronics and Microelectronics, Instrumentation; Circuits and Systems; Computer-Aided Engineering (CAD, CAE) and Design

Target groups
Research

Discount group
P

Due December 2010

2011. 250 p. 100 illus. in color. (Analog Circuits and Signal Processing) Hardcover
► approx. $139.00
Introduction to the Physics of Electrons in Solids

This textbook sets out to enable readers to understand fundamental aspects underlying quantum macroscopic phenomena in solids, primarily through the modern experimental techniques and results. The classic independent-electrons approach for describing the electronic structure in terms of energy bands helps explain the occurrence of metals and insulating states and to introduce their magnetic and semiconducting properties. Since superconductivity and magnetism can only be understood by taking into account the interactions between electrons, the text recounts the experimental observations that have revealed the main properties of the superconductors and were essential to track its physical origin. While fundamental concepts are underlined, those which are required to describe the high technology applications, present or future, are emphasized as well. Problem sets involve experimental approaches and tools which support a practical understanding of the materials and their behaviour.

Features

- Employ a modern experimental approach that deemphasizes mathematical derivations
- Uniquely combine fundamental explanation of both magnetism and band structure
- Learning reinforced by content-rich figures, chapter-end summaries, exercises and solutions
- Developed and class-tested in the eminent program of the Ecole Polytechnique

Fields of interest

Condensed Matter Physics; Magnetism, Magnetic Materials; Physical Chemistry

Target groups

Graduate

Discount group

P

The Gaussian Approximation Potential

An Interatomic Potential Derived from First Principles Quantum Mechanics

Simulation of materials at the atomic level is an important tool in studying microscopic structures and processes. The atomic interactions necessary for the simulations are correctly described by Quantum Mechanics, but the size of systems and the length of processes that can be modelled are still limited. The framework of Gaussian Approximation Potentials that is developed in this thesis allows us to generate interatomic potentials automatically, based on quantum mechanical data. The resulting potentials offer several orders of magnitude faster computations, while maintaining quantum mechanical accuracy. The method has already been successfully applied for semiconductors and metals.

Features

- Describes an important advance in the generation of accurate interatomic potentials
- The method yields several orders of magnitude faster computations
- Nominated as an outstanding contribution by the Theory of Condensed Matter Group of Cambridge University’s Cavendish Laboratory

Contents

Introduction.- Representation of Atomic Environments.- Gaussian Process.- Interatomic Potentials.- Computational Methods.- Results.- Conclusion and Further Work.- Appendices.

Fields of interest

Solid State Physics; Theoretical, Mathematical and Computational Physics

Target groups

Research

Discount group

P

Clusters in Nuclei

Volume 1

Following the pioneering discovery of alpha clustering and of molecular resonances, the field of nuclear clustering is presently one of the domains of heavy-ion nuclear physics facing both the greatest challenges and opportunities. After many summer schools and workshops, in particular over the last decade, the community of nuclear molecular physics decided to team up in producing a comprehensive collection of lectures and tutorial reviews covering the field. By promoting new ideas and developments while retaining a pedagogical nature of presentation throughout, these lectures will both serve as a reference and as advanced teaching material for future courses and schools in the fields of nuclear physics and nuclear astrophysics.

Features

- State-of-the-art content written by the leading experts in the field
- Tutorial self-contained style, useful as a self-study guide
- First volume of a set of volumes on the topic

Contents

Cluster Radioactivity.- Coexistence of Cluster States and Mean-field-type States.- Alpha-cluster Condensations in Nuclei and Experimental Approaches for their Studies.- Cluster Structure of Neutron-rich Nuclei Studied With Antisymmetrized Molecular Dynamics Model.- Di-neutron Clustering and Neutron-like Tensor Correlation in Nuclear Structure Focusing on 11Li.- Collective Clusterization in Nuclei and Excited Compound Systems: The Dynamical Cluster-decay Model.- Giant Nuclear System of Molecular Type.

Field of interest

Nuclear Physics, Heavy Ions, Hadrons

Target groups

Research

Discount group

P
Introduction to the Physics of Massive and Mixed Neutrinos

The discovery of neutrino oscillations opened a new era in neutrino physics: an era of investigation of neutrino masses, mixing, magnetic moments and other neutrino properties. On the other hand small neutrino masses cannot be explained by the standard Higgs mechanism of mass generation. Thus, small neutrino masses are the first signature of particle physics of a new beyond the Standard Model physics. One of the most important challenges ahead is the problem of the very nature of neutrinos with definite masses: are they Dirac neutrinos possessing a conserved lepton number which distinguish neutrinos and antineutrinos or Majorana neutrinos with identical neutrinos and antineutrinos? Many experiments of the next generation and new neutrino facilities are now under preparation and investigation.

Features
- Written by one of the pioneers in the field of modern neutrino physics (Bruno Pontecorvo Prize in 2002).
- Self contained introduction useful for a self-study guide.
- Integrates classic material and state-of-the-art survey.

Contents

Field of interest
Physics, general

Target groups
Research

Discount group
P

Analysis of Excitation and Ionization of Atoms and Molecules by Electron Impact

The content of this book describes in detail the results of the present measurements of the partial and total doubly differential cross sections for the multiple-ionization of rare gas atoms by electron impact. These measurements show, beside other trends, the role of Auger transitions in the production of multiply ionized atoms in the region where the incident electron energy is sufficient to produce inner shell ionization. Other processes like Coster-Kronig transitions and shake off also contribute towards increasing the charge of the ions. The incident electron having energy of 6 keV, for example, in a collision with xenon atom can remove up to nine electrons! (*). X-ray coincidence spectroscopy of the electron xenon atom collisions is also described.

Features
- Describes the apparatuses, experimental techniques and results for the investigations of the fundamental processes of multiple ionizations and dissociative ionizations.
- Shows how sulfur dioxide can be removed from the atmosphere by electron impact dissociation.
- Explores in detail the measurements of the partial and total doubly differential cross sections for the multiple-ionization of rare gas atoms by electron impact.

Contents
Introduction.- Theoretical Approaches.- Apparatus for the electron-atom collision studies.- Experimental Techniques.- Results and Discussion.- Conclusion.

Fields of interest
Atomic, Molecular, Optical and Plasma Physics; Environmental Physics; Spectroscopy/Spectrometry

Target groups
Research

Discount group
P

New Structures for Physics

This volume provides a series of tutorials on mathematical structures which recently have gained prominence in physics, ranging from quantum foundations, via quantum information, to quantum gravity. These include the theory of monoidal categories and corresponding graphical calculi, Girard’s linear logic, Scott domains, lambda calculus and corresponding logics for typing, topos theory, and more general process structures. Most of these structures are very prominent in computer science; the chapters here are tailored towards an audience of physicists.

Features
- Only coherent collection of reviews available on this emergent topic.
- Tutorial approach will facilitate the use by graduate students and newcomers to the field.

Contents

Target groups
Graduate

Discount group
P
Classical Mechanics
Hamiltonian and Lagrangian Formalism

Hamiltonian formalism of classical mechanics is the basis of a few powerful mathematical methods, widely used in theoretical and mathematical physics. In this book we have collected the basic facts of the Hamiltonian mechanics as well as the related topics: canonical transformations, integral invariants, potential motion in geometric setting, symmetries and the Noether theorem. Only the elementary mathematical methods are used in the exposition of the material. The only prerequisites are linear algebra, multivariable calculus and some familiarity with the Lagrangian formulation of classical mechanics. Other mathematical constructions involved are explicitly described and explained, so the book can be a good starting point for the undergraduate student new to this field. At the same time we have tried, where possible, to replace the intuitive motivations by explicit proofs and direct computations, preserving the level of rigor that makes the book useful for the graduate students intended to work in one of the branches of a vast field of theoretical physics.

Features
► With worked examples, 55 end of chapter exercises and chapter summaries ► The equivalence of various definitions of the canonical transformation is proved explicitly, in contrast to competing books ► Discussion of (global) symmetries and the Noether theorem in the framework of classical mechanics gives a new approach not covered by most mechanics textbooks

Fields of interest
Mechanics; Applications of Mathematics; Appl. Mathematics/Computational Methods of Engineering

Target groups
Graduate

Discount group
P

The Pursuit of Quantum Gravity
Memoirs of Bryce DeWitt from 1946 to 2004

1946 is the year Bryce DeWitt entered Harvard graduate school. Quantum Gravity was his goal and remained his goal throughout his lifetime until the very end. The pursuit of Quantum Gravity requires a profound understanding of Quantum Physics and Gravitation Physics. As G. A. Vilkovisky commented, “Quantum Gravity is a combination of two words, and one should know both. Bryce understood this as nobody else, and this wisdom is completely unknown to many authors of the flux of papers that we see nowadays.” Distinguished physicist Cecile DeWitt-Morette skillfully blends her personal and scientific account with a wealth of her late husbands often unpublished writings on the subject matter. This volume, through the perspective of the leading researcher on quantum gravity of his generation, will provide an invaluable source of reference for anyone working in the field.

Features
► This volume, through the perspective of the leading researcher on quantum gravity of his generation, provides a unique source of reference for anyone working in the field ► Gives a unique historical perspective on the early days and the development of quantum gravity ► Contains little known or unpublished material from personal archives ► Written by an eminent and well-respected researcher (American Society of the French Legion of Honor 2007 Medal for Distinguished Achievement)

Fields of interest
Classical and Quantum Gravitation, Relativity Theory; History and Philosophical Foundations of Physics; Quantum Physics

Target groups
Research

Discount group
P

Density Functional Theory
An Advanced Course

Density Functional Theory (DFT) has firmly established itself as the workhorse for the atomic-level simulation of condensed matter phases, pure or composite materials and quantum chemical systems. The present book is a rigorous and detailed introduction to the foundations up to and including such advanced topics as orbital-dependent functionals and both time-dependent and relativistic DFT. Given the many ramifications of contemporary DFT, this text concentrates on the self-contained presentation of the basics of the most widely used DFT variants. This implies a thorough discussion of the corresponding existence theorems and effective single particle equations, as well as of key approximations utilized in implementations. The formal results are complemented by selected quantitative results, which primarily aim at illustrating strengths and weaknesses of a particular approach or functional. DFT for superconducting or nuclear and hadronic systems are not addressed in this work.

Features
► Written by two well-known experts in the field ► Useful as advanced study text, self-study guide and reference regarding the fundamentals ► Contains advanced level material such as time-dependent and relativistic DFT

From the contents

Fields of interest
Atomic, Molecular, Optical and Plasma Physics; Theoretical and Computational Chemistry; Numerical and Computational Physics

Target groups
Graduate

Discount group
P

Due September 2010
2010. 388 p. 80 illus., 40 in color. Hardcover
► approx. $139.00
ISBN 978-3-642-14036-5

Due October 2010
2010. Approx. 200 p. Hardcover
► approx. $59.95
ISBN 978-3-642-14269-7

Due September 2010
2010. 530 p. (Theoretical and Mathematical Physics) Hardcover
► approx. $129.00
ISBN 978-3-642-14089-1
S. Flörchinger, Universität Heidelberg; Germany

**Functional Renormalization and Ultracold Quantum Gases**

Modern techniques from quantum field theory are applied in this work to the description of ultracold quantum gases. This leads to a unified description of many phenomena including superfluidity for bosons and fermions, classical and quantum phase transitions, different dimensions, thermodynamic properties and few-body phenomena as bound state formation or the Efimov effect. The non-perturbative treatment with renormalization group flow equations can account for all known limiting cases by solving one single equation. It improves previous results quantitatively and brings qualitatively new insights. As an example, new quantum phase transitions are found for fermions with three spin states. Ultracold atomic gases can be seen as an interesting model for features of high energy physics and for condensed matter theory. The research reported in this thesis helps to solve the difficult complexity problem in modern theoretical physics.

**Features**
- A major contribution to the way we describe ultracold quantum gases
- Represents a quantitative improvement over previous methods and brings qualitatively new insights.
- Nominated by the University of Heidelberg as an outstanding theoretical contribution.

**Contents**

**Fields of interest**
Quantum Physics; Low Temperature Physics; Quantum Gases and Condensates

**Target groups**
Research

**Discount group**
P

**B. L. Friman, C. Höhne, J. E. Knoll, GSI Helmholtzzentrum, Darmstadt, Germany; S. K. Leupold, Uppsala University, Uppsala, Sweden; J. Randrup, Lawrence Berkeley National Laboratory, Berkeley, CA, USA; R. Rapp, Texas A&M University, Colleges Station, TX, USA; P. Senger, GSI Helmholtzzentrum, Darmstadt, Germany (Eds.)**

**Strongly Interacting Matter**

**The CBM Physics Book**

This exhaustive survey is the result of a four year effort by many leading researchers in the field to produce both a readable introduction and a yardstick for the many upcoming experiments using heavy ion collisions to examine the properties of nuclear matter. The book falls naturally into five large parts, first examining the bulk properties of strongly interacting matter, including its equation of state and phase structure. Part II discusses elementary hadronic excitations of nuclear matter, Part III addresses the concepts and models regarding the space-time dynamics of nuclear collision experiments, Part IV collects the observables from past and current high-energy heavy-ion facilities in the context of the theoretical predictions specific to compressed baryonic matter. Part V finally gives a brief description of the experimental concepts. The book explicitly addresses everyone working or planning to enter the field of high-energy nuclear physics.

**Features**
- The ultimate and exhaustive introduction and review of the topic by leading scientists in the field.
- Comprehensive account, written by leading researchers in the field.
- Suitable also for self-study and advanced level teaching.

**Contents**

**Fields of interest**
Nuclear Physics, Heavy Ions, Hadrons; Particle Acceleration and Detection, Beam Physics; Astrophysics and Astroparticles

**Target groups**
Research

**Discount group**
P

This book addresses the confinement problem, which quite generally deals with the behavior of non-abelian gauge theories, and the force which is mediated by gauge fields, at large distances. The word “confinement” in the context of hadronic physics originally referred to the fact that quarks and gluons appear to be trapped inside mesons and baryons, from which they cannot escape. There are other, and possibly deeper meanings that can be attached to the term, and these will be explored in this book. Although the confinement problem is far from solved, much is now known about the general features of the confining force, and there are a number of very well motivated theories of confinement which are under active investigation. This volume gives a both pedagogical and concise introduction and overview of the main ideas in this field, their attractive features, and, as appropriate, their shortcomings.

**Features**
- Written by a leading expert in the field.
- Useful both as a reference and self-study guide.
- Clear, concise and modern approach and presentation.

**Contents**

**Fields of interest**
Nuclear Physics, Heavy Ions, Hadrons; Mathematical Methods in Physics; Elementary Particles, Quantum Field Theory

**Target groups**
Research

**Discount group**
P

**J. Greensite, San Francisco State University, San Francisco, CA, USA**

**An Introduction to the Confinement Problem**

Due September 2010

2010. 180 p. 120 illus., 60 in color. (Springer Theses) Hardcover

$129.00
ISBN 978-3-642-14112-6

Due September 2010

2010. 960 p. (Lecture Notes in Physics, Volume 814) Hardcover

$159.00
ISBN 978-3-642-13292-6

Due October 2010

2011. 220 p. (Lecture Notes in Physics, Volume 821) Softcover

approx. $69.95
ISBN 978-3-642-14381-6
Measurement of the Top Quark Mass in the Dilepton Final State Using the Matrix Element Method

The top quark discovered in 1995 at the Fermilab Tevatron Collider is the heaviest known elementary particle. The precise knowledge of its mass yields important constraints on the mass of the yet undiscovered Higgs boson. A novel measurement technique described in this book allows to probe for physics beyond the Standard Model. With an excellent adaption of a novel measurement technique described and applied for the first time here, the sensitivity to the top quark mass in the dilepton final state at the D0 experiment could have been improved by more than 30%. Moreover, an extension to the method is presented which allows future measurements to reduce the main limiting systematic uncertainty significantly.

Features
► Describes an important advance in measuring mass of top quark
► With many colour illustrations
► Nominated as an outstanding contribution by the University of Munich

Contents

Field of interest
Particle Acceleration andDetection, Beam Physics

Target groups
Research

Discount group
P

The Physics of Semiconductors
An Introduction Including Devices and Nanophysics

The Physics of Semiconductors provides material for a comprehensive upper-level undergraduate and graduate course on the subject, guiding readers to the point where they can choose a special topic and begin supervised research. The textbook provides a balance between essential aspects of solid-state and semiconductor physics, on the one hand, and the principles of various semiconductor devices and their applications in electronic and photonic devices, on the other. It highlights many practical aspects of semiconductor devices such as alloys, strain, heterostructures, nanostructures, that are necessary in modern semiconductor research but typically omitted in textbooks. For the interested reader some additional advanced topics are included, such as Bragg mirrors, resonators, polarized and magnetic semiconductors are included. Also supplied are explicit formulas for many results, to support better understanding. In the second edition many topics have been extended and are treated in more depth, dopant diffusion, nanowires, recombination in organic semiconductors, multi-junction solar cells, quantum dot and organic LEDs, thin film transistors, carbon-based nanostructures and transparent conductive oxides, e.g. The Physics of Semiconductors requires little or no prior knowledge of solid-state physics and evolved from a highly regarded two-semester course.

Features
► One of the best existing textbooks with the broadest scope
► Treats semiconductor physics from the basics to modern applications
► Connects semiconductor material physics with devices and nanostructures

Fields of interest
Semiconductors; Electronic Circuits and Devices; Electrical Engineering

Target groups
Graduate

Discount group
P

Handbook of Particle Detection and Imaging

The handbook centers on detection techniques in the field of particle physics, medical imaging and related subjects. It is structured into three parts. The first one is dealing with basic ideas of particle detectors, followed by applications of these devices in high energy physics and other fields. In the last part the large field of medical imaging using similar detection techniques is described. The different chapters of the book are written by world experts in their field. Clear instructions on the detection techniques and principles in terms of relevant operation parameters for scientists and graduate students are given. Detailed tables and diagrams will make this a very useful handbook for the application of these techniques in many different fields like physics, medicine, biology and other areas of natural science.

Fields of interest
Particle Acceleration and Detection, Beam Physics; Imaging / Radiology; Nuclear Engineering

Target groups
Professional/practitioner

Due July 2011

2011. 1000 p. 500 illus., 50 in color. Hardcover
► $679.00
ISBN 978-3-642-13270-4

2011. 1000 p. 500 illus., 50 in color. eReference.
► approx. $679.00
ISBN 978-3-642-13271-1

2nd ed. 2010. 900 p. 1300 illus., 650 in color. (Graduate Texts in Physics) Hardcover
► approx. $599.00
ISBN 978-3-642-13883-6

2011. 1000 p. 500 illus., 50 in color. Print + eReference. Hardcover
► approx. $5849.00
ISBN 978-3-642-14621-3

A. Grohsjean, CEA Saclay Irfu/SPP, Gil-sur-Yvette, France

M. Grundmann, University of Leipzig, Germany

C. Grupen, University of Siegen, Germany; I. Buvat, IMNC, Campus d’Orsay, France; D. McGregor, Kansas State University, Manhattan, KS, USA (Eds.)
Control of Complex Nonlinear Systems with Delay

This research addresses delay effects in nonlinear systems, which are ubiquitous in various fields of physics, chemistry, biology, engineering, and even in social and economic systems. They may arise as a result of processing times or due to the finite propagation speed of information between the constituents of a complex system. Time delay has two complementary, counterintuitive and almost contradictory facets. On the one hand, delay is able to induce instabilities, bifurcations of periodic and more complicated orbits, multi-stability and chaotic motion. On the other hand, it can suppress instabilities, stabilize unstable stationary or periodic states and may control complex chaotic dynamics. This thesis deals with both aspects, and presents novel fundamental results on the controllability of nonlinear dynamics by time-delayed feedback, as well as applications to lasers, hybrid-mechanical systems, and coupled neural systems.

Features
- Contains fundamental new results on the controllability of nonlinear dynamics by time-delayed feedback
- Demonstrates potentially important applications in physics and medicine
- Nominated as an outstanding contribution by the Technical University of Berlin

Contents

Field of interest
Statistical Physics, Dynamical Systems and Complexity

Target groups
Research

Discount group
P

High-Tc Superconductors Based on FeAs Compounds

Physical properties and models of electronic structure are analyzed for a new class of high-Tc superconductors which belong to iron-based layered compounds. Despite their variable chemical composition and differences in the crystal structure, these compounds possess similar physical characteristics, due to electron carriers in the FeAs layers and the interaction of these carriers with fluctuations of the magnetic order. A tremendous interest towards these materials is explained by the prospects of their practical use. In this monograph, a full picture of the formation of physical properties of these materials, in the context of existing theory models and electron structure studies, is given. The book is aimed at a broad circle of readers: physicists who study electronic properties of the FeAs compounds, chemists who synthesize them and specialists in the field of electronic structure calculations in solids. It is helpful not only to researchers active in the fields of superconductivity and magnetism, but also for graduate and postgraduate students and all those who would like to get acquainted with this vivid area of the materials science.

Features
- First book on the new class of High-Tc superconductors based on FeAs-compounds
- Systematically summarizes the current knowledge about these superconductors
- Full picture of the formation these new materials with theoretical background

Contents
Introduction.- Compounds of the ReFeAs Type.- Compounds of the AFe2As2 (A=Ba, Sr, Ca) Type.- Other FeAs-Based Compounds.- Theory Models.- Conclusion.

Fields of interest
Low Temperature Physics; Solid State Physics; Structural Materials

Target groups
Graduate

Discount group
P

Microfluidics Based Microsystems

Features
- The Book is prepared in order to provide a better understanding of Microfluidics based Microsystems fundamentals and applications
- The subject is treated by invited lecturers eminent in the field of international standing
- The book provides a comprehensive state of the art review of the fundamentals and applicaitons of the microfluidics based microsystems. As the world becomes increasingly concerned with terrorism, early on-spot detection of terrorist's weapon, particularly bio-weapons agents such as bacteria and viruses are extremely important. Microfluidics are great tools for security and anti-terrorism with many applications. New and better diagnostic technology must be developed in order to be prepared for an act of bio-terrorism.

Fields of interest
Fluid- and Aerodynamics; Microengineering; Engineering Thermodynamics, Heat and Mass Transfer

Target groups
Graduate

Discount group
P

Due October 2010

2010. 290 p. 462 illus., 231 in color. (Springer Theses) Hardcover

$129.00
ISBN 978-3-642-14109-6

Due November 2010


$169.00
ISBN 978-3-642-14579-2

Due July 2010


$279.00

Also available as softcover

$129.00
G. V. Khazanov, GSFC/NASA, Greenbelt, MD, USA

**Kinetic Theory of the Inner Magnetospheric Plasma**

The inner magnetosphere plasma is a very unique composition of different plasma particles and waves. It covers a huge energy plasma range with spatial and time variations of many orders of magnitude. In such a situation, the kinetic approach is the key element, and the starting point of the theoretical description of this plasma phenomena which requires a dedicated book to this particular area of research.

**Features**
- Presents a full theoretical description of the inner magnetospheric plasma which is uniquely composed of very different particles and waves
- The first book to utilize a kinetic description of the inner magnetospheric plasma
- Provides an understanding of how to determine the best approach to any upper atmospheric or space physics problem

**Contents**

**Fields of interest**
Plasma Physics; Planetology; Extraterrestrial Physics, Space Sciences

**Target groups**
Research

**Discount group**
P

A. C. Luo, Southern Illinois University Edwardsville, IL, USA; V. Afraimovich, San Luis Potosi University, San Luis Potosi, Mexico (Eds.)

**Hamiltonian Chaos Beyond the KAM Theory**

**Dedicated to George M. Zaslavsky (1935–2008)**

The book covers the recent developments and advances in the theory and application of Hamiltonian chaos in nonlinear Hamiltonian systems. It is dedicated to Dr. George Zaslavsky, who was one of three founders of the theory of Hamiltonian chaos. Each chapter in this book was written by well-established scientists in the field of nonlinear Hamiltonian systems. The development presented in this book goes beyond the KAM theory, and the onset and disappearance of chaos in the stochastic and resonant layers of nonlinear Hamiltonian systems are predicted analytically, instead of qualitatively.

**Features**
- Explains a theory on resonant mechanism of Hamiltonian chaos in stochastic layers and webs
- Develops newest methods and ideas on Hamiltonian chaos in nonlinear Hamiltonian systems
- Direct applies Hamiltonian chaos to quantum dynamics and ray dynamics
- Predicts Hamiltonian chaos beyond the KAM theory

**Contents**

**Fields of interest**
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

**Target groups**
Research

**Discount group**
P

**Due August 2010**

**Distribution rights in China: Higher Education Press**

Jointly published with Higher Education Press

2010. 275 p. 110 illus., 10 in color. (Nonlinear Physical Science) Hardcover

**approx $139.00**
ISBN 978-3-642-12342-9

A. C. Luo, Southern Illinois University, Edwardsville, IL, USA; V. Afraimovich, San Luis Potosi University, Mexico (Eds.)

**Long-range Interactions, Stochasticity and Fractional Dynamics**

**Dedicated to George M. Zaslavsky (1935–2008)**

In memory of Dr. George Zaslavsky, “Long-range Interactions, Stochasticity and Fractional Dynamics” covers the recent developments of long-range interaction, fractional dynamics, brain dynamics and stochastic theory of turbulence, each chapter was written by established scientists in the field. The book is dedicated to Dr. George Zaslavsky, who was one of three founders of the theory of Hamiltonian chaos. The book discusses self-similarity and stochasticity and fractionality for discrete and continuous dynamical systems, as well as long-range interactions and diluted networks. A comprehensive theory for brain dynamics is also presented. In addition, the complexity and stochasticity for soliton chains and turbulence are addressed.

**Features**
- A new theory for fractionality of nonlinear discrete mappings
- Recent results and achievements on long range interaction and non-equilibrium dynamics
- Systematic presentation on self-similarity, stochasticity and fractional dynamics
- Fundamental theory of brain dynamics and brain thinking mechanism
- Newest developments for stochastic turbulence and soliton chains from simple to chaotic motions

**Fields of interest**
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

**Target groups**
Research

**Discount group**
P

**Due August 2010**

**Distribution rights in China: Higher Education Press**

Jointly published with Higher Education Press

2010. 275 p. 110 illus., 10 in color. (Nonlinear Physical Science) Hardcover

**approx $139.00**
ISBN 978-3-642-12342-9

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**Fields of interest**
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

**Target groups**
Research

**Discount group**
P


**approx $199.00**
ISBN 978-1-4419-6796-1

A. C. Luo, Southern Illinois University Edwardsville, IL, USA; V. Afraimovich, San Luis Potosi University, San Luis Potosi, Mexico (Eds.)

**Hamiltonian Chaos Beyond the KAM Theory**

**Dedicated to George M. Zaslavsky (1935–2008)**

The book covers the recent developments and advances in the theory and application of Hamiltonian chaos in nonlinear Hamiltonian systems. It is dedicated to Dr. George Zaslavsky, who was one of three founders of the theory of Hamiltonian chaos. Each chapter in this book was written by well-established scientists in the field of nonlinear Hamiltonian systems. The development presented in this book goes beyond the KAM theory, and the onset and disappearance of chaos in the stochastic and resonant layers of nonlinear Hamiltonian systems are predicted analytically, instead of qualitatively.

**Features**
- Explains a theory on resonant mechanism of Hamiltonian chaos in stochastic layers and webs
- Develops newest methods and ideas on Hamiltonian chaos in nonlinear Hamiltonian systems
- Direct applies Hamiltonian chaos to quantum dynamics and ray dynamics
- Predicts Hamiltonian chaos beyond the KAM theory

**Contents**

**Fields of interest**
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

**Target groups**
Research

**Discount group**
P

2010. 275 p. 110 illus., 10 in color. (Nonlinear Physical Science) Hardcover

**approx $139.00**
ISBN 978-3-642-12342-9
H. Lüth, Forschungszentrum Jülich GmbH, Jülich, Germany

**Solid Surfaces, Interfaces and Thin Films**

This book emphasises both experimental and theoretical aspects of surface, interface and thin film physics. As in previous editions the preparation of surfaces and thin films, their atomic and morphological, their vibronic and electronic properties as well as fundamentals of adsorption are treated. Because of their importance in modern information technology and nanostructure physics particular emphasis is paid to electronic surface and interface states, semiconductor space charge layers and heterostructures as well as to superconductor/semiconductor interfaces and magnetic thin films. The latter topic was significantly extended in this new edition by more details about the giant magnetoresistance and a section about the spin-transfer torque mechanism including one new problem as exercise. Two new panels about Kerr-effect and spin-polarized scanning tunneling microscopy were added, too. Furthermore, the meanwhile important group III-nitride surfaces and high-k-oxide/semiconductor interfaces are shortly discussed in this new 5th edition of the book.

**Features**

- Well established standard textbook around the world at many universities and research institutions
- Most comprehensive textbook on surfaces, interfaces and thin films in one volume
- Didactically well written textbook with exercises after the chapters
- Theoretical concepts and experimental techniques and practical applications presented
- In 5th edition new material topics about the surfaces of the important class of group III-nitride and high k-oxide/semiconductor heterostructures added

**Fields of interest**

Surface and Interface Science, Thin Films; Surfaces and Interfaces; Thin Films; Semiconductors

**Target groups**

Graduate

**Discount group**

P

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**Due August 2010**

Originally published in the series: Advanced Texts in Physics

5th ed. 2010. XIV, 600 p. 594 illus., 297 in color.
(Graduate Texts in Physics) Hardcover

- **approx. $109.00**
  - ISBN 978-3-642-13591-0

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**Due September 2010**

N. Monks, Hertfordshire, UK

**Go-To Telescopes Under Suburban Skies**

Go-To Telescopes Under Suburban Skies is the first book specifically written for amateur astronomers who own, or who are about to purchase, a computer-controlled ‘go-to’ telescope. The advantage of the ‘go-to’ capability is enormous – the telescope can be aimed at any object in the sky with great speed and accuracy – which is why these instruments are so popular.

Making the realistic assumption that the observer is using a relatively small telescope and is observing from a backyard in a suburban area, this book provides literally hundreds more targets beyond those offered by the built-in ‘nightly tours’ that feature on the telescope’s computer tours. And instead of wasting many pages on maps and coordinates, it leads the computer to locate the targets, and so has room to suggest many more fascinating deep-sky objects and provide detailed observing lists and information about what’s being viewed.

**Features**

- Appeals to both beginners and more experienced amateur astronomers who already have a Go-To telescope or want to buy one
- Includes information on many different manufacturers
- Gives advice on maintaining Go-To telescopes for optimum performance

**Contents**

Introduction.– Go-To Telescopes.– Using a Go-To Telescope: Setting Up; Alignment; Maintenance.– Winter Objects.– Spring Objects.– Summer Objects.– Autumn Objects.– Appendices: Light Pollution Reduction Filters; Nebular Filters; Go-To Telescope manufacturers; Useful Books; Useful Websites.

**Fields of interest**

Astronomy, Astrophysics and Cosmology; Popular Science in Astronomy

**Target groups**

Popular/general

**Discount group**

P

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**Due September 2011**

Planets, Stars and Stellar Systems

**Features**

- Planets, Stars and Stellar Systems is a 6-volume compendium of modern astronomical research covering subjects of key interest to the main fields of contemporary astronomy and astrophysical cosmology

**Fields of interest**

Astronomy, Astrophysics and Cosmology; Planetary Science; Astronomy, Observations and Techniques

**Target groups**

Professional/practitioner

**Discount group**

P

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2011. 4760 p. 2400 illus., 240 in color.
(In 6 volumes, not available separately) Hardcover

- **approx. $3750.00**

2011. 4760 p. 2400 illus., 240 in color.
(eReference.
(In 6 volumes, not available separately)

- **approx. $3000.00**

2011. 4760 p. 2400 illus., 240 in color.
Print + eReference.
(2-volume-set)

- **approx. $3375.00**

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(Springer Reference)
The Power of Stars
How Celestial Observations Have Shaped Civilization

What are some of the connections that bind us to the stars? How have these connections been established? And how have people all around the world and throughout time reacted to the night sky, the sun and moon, in their poetry, mythology, rituals, and temples? This book explores the influence of the sky on both ancient and modern civilizations, by providing a clear overview of the many ways in which humans have used the stars as an ordering principle in their cultures, and which today still inspire us intellectually, emotionally, and spiritually. The book explores constellation lore from around the world, celestial alignments of monuments and temples, both from ancient and modern civilizations, and the role the sky has played in the cultures of the Greek, Egyptian, Babylonian, Native American, Chinese, Mayan, Aztec, and Inca. Models of the universe from each of these cultures are described clearly, and each culture's explanation of the stars, planets, and other celestial objects are described. The roots of astronomy and astrology are presented with original imagery and reproductions of ancient manuscripts that portray the structure of the physical universe as conceived by a diverse array of human cultures over the centuries. Our own scientific Big Bang cosmology and the origin of stars and elements are discussed in a philosophical context, to explore how we as modern people learn about the Universe, and incorporate the findings of science into our world views.

Features
➤ Considers the present-day context – how does astrology and the modern Big Bang cosmology get incorporated into our modern understanding of the skies? ➤ First hand accounts of celestial events, and interviews with several practitioners of cosmology archaeoastronomy ➤ Includes an interactive planisphere of ancient cultures

Fields of interest
Astronomy, Astrophysics and Cosmology; Popular Science in Astronomy; History of Science

Target groups
Popular/general

Discount group
T

Due September 2010
2011. 400 p. 70 illus., 35 in color. With online files/update. Hardcover
➤ approx. $39.95

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Space, Time, and Spacetime
Physical and Philosopical Implications of Minkowski’s Unification of Space and Time

This volume is dedicated to the centennial anniversary of Minkowski’s discovery of spacetime. It contains selected papers by physicists and philosophers on the Nature and Ontology of Spacetime. The first six papers, comprising Part I of the book, provide examples of the impact of Minkowski’s spacetime representation of special relativity on the twentieth century physics. Part II also contains six papers which deal with implications of Minkowski’s ideas for the philosophy of space and time. The last part is represented by two papers which explore the influence of Minkowski’s ideas beyond the philosophy of space and time.

Features
➤ Addresses some of the deepest questions in all of physics ➤ Describes how other areas of physics are influenced by our choice of spacetime description ➤ Substantial contributions provide overviews for newcomers to the area

From the contents

Field of interest
Classical and Quantum Gravitation, Relativity Theory

Target groups
Research

Discount group
P

Due August 2010
2010. 300 p. 40 illus., 20 in color. (Fundamental Theories of Physics, Volume 167) Hardcover
➤ approx. $129.00
ISBN 978-3-642-13537-8

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Magnetothermal Properties near Quantum Criticality in the Itinerant Metamagnet Sr3Ru2O7

The compound Sr3Ru2O7 of the strontium ruthenate family has been intensely studied because experimental evidence suggests that quantum fluctuations dominate the magnetic phase diagram in the vicinity of a novel low-temperature phase. In order to understand the interplay between the quantum critical fluctuations and the phase formation, comprehensive thermodynamic information is essential. This thesis reports the results of both specific-heat and magnetocaloric experiments carried out with a bespoke experimental apparatus whose design particularly addresses the demanding constraints of the low-temperature, high-magnetic-field environment. The experimental data give evidence for unusual thermodynamic properties of the novel phase and its bounding phase transitions. Furthermore they show that the phase formation takes place against a background of strongly peaking entropy, suggesting that quantum criticality plays a key role in the physics of this system.

Features
➤ Sheds light on interplay of quantum critical fluctuations and phase formation ➤ Describes new and highly acclaimed experimental approach ➤ Nominated as an outstanding contribution by the University of St. Andrews

Contents

Field of interest
Magnetism, Magnetic Materials

Target groups
Research

Discount group
P

Due September 2010
2010. IV, 162 p. 64 illus., 17 in color. (Springer Theses) Hardcover
➤ $129.00
ISBN 978-3-642-14522-1
**Aperture Synthesis**

Methods and Applications to Optical Astronomy

This book deals with the fundamentals of stellar interferometry with emphasis on aperture synthesis using sparse array of telescopes particularly at optical/IR wavelengths, the origin, properties, and optical effects of turbulence in the Earth's atmosphere, techniques developed to overcome image degradation. Studded with more than one hundred and fifty illustrations and tens of footnotes, it addresses the basic tricks of trade, current trend, motivation, methods, and path to future promise of true interferometry both from the ground and space. Also discussed are the technical challenge involved, such as beam transportation and recombination, detecting fringes using modern sensors, and image synthesis. Astronomical science that benefits from aperture synthesis imaging are highlighted as well.

**Features**

- Discusses the fundamentals of electromagnetic fields, wave optics, interference, diffraction, and imaging at length
- Deals with the fundamentals of stellar interferometry
- Includes more than 100 illustrations

**Contents**


**Fields of interest**

Astronomy, Observations and Techniques; Optics, Optoelectronics, Plasmonics and Optical Devices

**Target groups**

Graduate

**Discount group**

P

**Due October 2010**


- approx. $119.00

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**Discount group**

P

**Due August 2010**

2010. 146 p. (Lecture Notes in Physics, Volume 811) Softcover

- $49.95
- ISBN 978-3-642-12865-3

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**Discount group**

P

**Due November 2010**

2010. 320 p. 10 illus. (The Frontiers Collection) Hardcover

- approx. $79.95
- ISBN 978-3-642-13195-7

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**S. K. Saha, Indian Institute of Astrophysics, Bangalore, India**

**A. Schmitt, Technische Universität Wien, Austria**

**H. P. Shuch, The SETI League, Inc., Little Ferry, NJ, USA**

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**Searching for Extraterrestrial Intelligence**

SETI Past, Present, and Future

This book is a collection of essays written by the very scientists and engineers who have led, and continue to lead, the scientific quest known as SETI, the search for extraterrestrial intelligence. Divided into three parts, the first section, 'The Spirit of SETI Past', written by the surviving pioneers of this then emerging discipline, reviews the major projects undertaken during the first 50 years of SETI science and the results of that research. In the second section, 'The Spirit of SETI Present', the present-day science and technology is discussed in detail, providing the technical background to contemporary SETI instruments, experiments, and analytical techniques, including the processing of the received signals to extract potential alien communications. In the third and final section, 'The Spirit of SETI Future', the book looks ahead to the possible directions that SETI will take in the next 50 years, addressing such important topics as interstellar message construction, the risks and assumptions of interstellar communications, when we might make contact, what aliens might look like and what is likely to happen in the aftermath of such a contact.

**Features**

- The only book that brings together seminal papers on SETI science, each authored by the pre-eminent authority on the topic
- Reviews the technical aspects of this highly interdisciplinary intellectual pursuit
- Covers the past, present and future of SETI science
- Demonstrates how new scientific knowledge, coupled with emerging technologies, promise a positive result within the next half-century

**Fields of interest**

Astronomy, Observations and Techniques; Astrobiology; Signal, Image and Speech Processing

**Target groups**

Popular/general

**Discount group**

P
Laser Precision Microfabrication

Miniaturization and high precision are rapidly becoming a requirement for many industrial processes and products. As a result, there is greater interest in the use of laser microfabrication technology to achieve these goals. This book composed of 16 chapters covers all the topics of laser precision processing from fundamental aspects to industrial applications to both inorganic and biological materials. It reviews the state of the art of research and technological development in the area of laser processing.

Features
► Covers the major developments in laser-assisted materials processing
► Includes theory, design of laser technologies, applications to inorganic as well as biological materials and to microtechnology
► Most comprehensive scientific monograph with the widest scope
► A must for all researchers in applied laser technology
► Graduate students will also benefit from this systematically written book

From the contents

Fields of interest
Laser Technology, Photonics; Nanotechnology

Target groups
Photonics; Nanotechnology

Discount group
P

Due July 2010
2010. 320 p. 195 illus., 5 in color. (Springer Series in Materials Science, Volume 135) Hardcover
► $169.00
ISBN 978-3-642-10522-7

Induction Accelerators

A broad class of accelerators rests on the induction principle whereby the accelerating electrical fields are generated by time-varying magnetic fluxes. Particularly suitable for the transport of bright and high-intensity beams of electrons, protons or heavy ions in any geometry (linear or circular) the research and development of induction accelerators is a thriving subfield of accelerator physics. This text is the first comprehensive account of both the fundamentals and the state of the art about the modern conceptual design and implementation of such devices. Accordingly, the first part of the book is devoted to the essential features of and key technologies used for induction accelerators at a level suitable for postgraduate students and newcomers to the field. Subsequent chapters deal with more specialized and advanced topics.

Features
► Edited and written by leading experts in the field (K. Takayama received the Japanese 21st Century Invention Prize for 2008) ► The only comprehensive monograph on the topic available
► Introduces new concepts

Contents

Fields of interest
Particle Acceleration and Detection, Beam Physics; Measurement Science and Instrumentation; Electrical Engineering

Target groups
Research

Discount group
P

Due October 2010
2011. 340 p. (Particle Acceleration and Detection) Hardcover
► approx $179.00
ISBN 978-3-642-13016-1

Fractional Dynamics
Applications of Fractional Calculus to Dynamics of Particles, Fields and Media

“Fractional Dynamics: Applications of Fractional Calculus to Dynamics of Particles, Fields and Media” presents applications of fractional calculus, integral and differential equations of non-integer orders in describing systems with long-time memory, non-local spatial and fractal properties. Mathematical models of fractal media and distributions, generalized dynamical systems and discrete maps, non-local statistical mechanics and kinetics, dynamics of open quantum systems, the hydrodynamics and electrodynamics of complex media with non-local properties and memory are considered. This book is intended to meet the needs of scientists and graduate students in physics, mechanics and applied mathematicians who are interested in electrodynamics, statistical and condensed matter physics, quantum dynamics, complex media theories and kinetics, discrete maps and lattice models, and nonlinear dynamics and chaos.

Features
► Describes modern approaches and new results in fractional dynamics ► Both self-contained and can be used as a teaching resource in fractional calculus and theory of fractals ► Describes some modern applications of fractional calculus to complex physical systems and new results of recent years

Contents
Fractional Models of Fractal Distributions of Particles.- Fractional Dynamics and Long-Range Interactions.- Fractional Dynamics of Particles and Fields.- Fractional Temporal Dynamics.- Fractional Quantum Dynamics.

Fields of interest
Statistical Physics, Dynamical Systems and Complexity; Theoretical, Mathematical and Computational Physics; Calculus of Variations and Optimal Control; Optimization

Target groups
Research

Discount group
P

Due November 2010

Distribution rights in China: Higher Education Press

Jointly published with Higher Education Press

2010. 450 p. (Nonlinear Physical Science) Hardcover
► $169.00
ISBN 978-3-642-14002-0
CFN Lectures on Functional Nanostructures – Volume 2
Nanoelectronics

This series of books contains selected and edited lectures from summer schools organized by the Center for Functional nanostructures (CFN) at the University of Karlsruhe. The mission of the CFN is to carry out research in the following areas: nanophotonics, nanoelectronics, molecular nanostructures and nanostructured materials. The aim of the summer schools is mainly to exchange new ideas and illustrate emerging research methodologies through a series of topical, introductory lectures. This is reflected by both the selection of topics addressed in the present volume, nanoelectronics, as well as the tutorial aspect of the contributions.

Features
► Written by leading experts in the field
► Tutorial and introductory style ► Useful both as reference and self-study guide

Contents

Fields of interest
Nanoscale Science and Technology; Nanotechnology; Quantum Information Technology, Spintronics

Target groups
Research

Discount group

Due August 2010

2010. 170 p. (Lecture Notes in Physics, Volume 820)
Softcover
► approx. $49.95
ISBN 978-3-642-14375-5

Self-organization and Pattern-formation in Neuronal Systems Under Conditions of Variable Gravity
Life Sciences Under Space Conditions

The book describes the interaction of gravity with neuronal systems. To deliver the basic scientific and technological background, the structures of neuronal systems are described and platforms for gravity research are presented. The book is rounded off by information about the interaction of chemical model systems with gravity and some simulations, and results about the interaction of gravity with neuronal systems from single molecules to the entire human brain are demonstrated. This is the first book to give a complete overview about neurophysiological research under conditions of variable gravity.

Features
► Brings together nonlinear biological systems and gravitational research ► Describing neurophysiological research under conditions of variable gravity from single molecules to the human brain ► Discussing a classical model for non-linear systems (BZ) under the influence of gravity including micro-gravity

From the contents

Fields of interest
Nonlinear Dynamics; Neurosciences; Neurobiology

Target groups
Research

Discount group

Due December 2010

Distribution rights in China: Higher Education Press
Jointly published with Higher Education Press

(Nonlinear Physical Science) Hardcover
► $249.00
ISBN 978-3-642-14471-4
Biomaterials for Clinical Applications

S. K. Bhatia, DuPont, Wilmington, DE, USA

Biomaterials for Clinical Applications is organized according to the World Health Organization’s report of the top 11 causes of death worldwide, and lays out opportunities for both biomaterials scientists and physicians to tackle each of these leading contributors to mortality. The introductory chapter discusses the global burden of disease. Each of the subsequent eleven chapters focuses on a specific disease process, beginning with the leading cause of death worldwide, cardiovascular disease. The chapters start with describing diseases where clinical needs are most pressing, and then envisions how biomaterials can be designed to address these needs, instead of the more technologically centered approach favored by most books in the field. This book, then, should appeal to chemical engineers and bioengineers who are designing new biomaterials for drug delivery and vaccine delivery, as well as tissue engineering.

Features
► Bridges the gap between the laboratory and the clinic by identifying needs for biomedical materials in the context of the most prevalent diseases worldwide
► While other books in the field take a technology-centered approach to biomaterials, this book takes a disease-centered approach
► Written by an expert with experience in both the private sector and academia

Contents

Fields of interest
Biomaterials; Biomedical Engineering; Biotechnology

Target groups
Research

Discount group
P

Due September 2010

B. S. G. van der Stelt, Delft Univ. Tech., Delft, Netherlands

Surface Magnetism
Correlation of Structural, Electronic and Chemical Properties with Magnetic Behavior

M. Getzlaff, University of Düsseldorf, Germany

This volume reviews on selected aspects related to surface magnetism, a field of extraordinary interest during the last decade. The special emphasis is set to the correlation of structural, electronic and magnetic properties in rare earth metal systems and ferromagnetic transition metals. This is made possible by the combination of electron emission techniques (spin polarized photoelectron spectroscopy, magnetic dichroism in photoemission and spin polarized metastable deexcitation spectroscopy) and local probes with high lateral resolution down to the atomic scale (spin polarized scanning tunneling microscopy / spectroscopy).

Features
► Up-to-date review on surface magnetism focusing on rare-earth metal systems.

Contents

Fields of interest
Surfaces and Interfaces, Thin Films; Metallic Materials; Atomic, Molecular, Optical and Plasma Physics

Target groups
Research

Discount group
P

Advanced Computing in Electron Microscopy

E. J. Kirkland, Cornell University, Ithaca, NY, USA

This book provides a summary of methods for numerical computation of high resolution conventional and scanning transmission electron microscope images. At the limits of resolution, image artifacts due to the instrument and the specimen interaction can complicate image interpretation. Image calculations can help interpret and understand high resolution information in recorded electron micrographs. This revised edition contains new sections on recent instrumental developments and updated references. It should be useful for beginning and experienced users at the advanced undergraduate or graduate level.

This new edition will be a revision of the existing text, including new developments in this field since the original manuscript and updated references. Additional material will include aberration corrected instruments and confocal electron microscopy. The references and examples will be improved and expanded and some sections polished to improve ease of understanding.

Features
► This book features numerical computation of electron microscopy images as well as multislice methods
► High resolution CTEM and STEM image interpretation are included in the text
► This newly updated second edition will bring the reader up to date on new developments in the field since the 1990’s
► The only book that specifically addresses computer simulation methods in electron microscopy

From the contents
Introduction.- The transmission electron microscope.- Linear image approx.- Sampling and the fast fourier transform.- Calculating images of thin specimens.- Calculating images of thick specimens.- Some worked examples.

Fields of interest
Characterization and Evaluation of Materials; Electrical Engineering

Target groups
Professional/practitioner

Discount group
P

Due August 2010

2nd ed. 2010. XII, 293 p. 250 illus., 125 in color. (Springer Tracts in Modern Physics, Volume 240) Hardcover

E. J. Kirkland, Cornell University, Ithaca, NY, USA

Advanced Computing in Electron Microscopy

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Fields of interest
Characterization and Evaluation of Materials; Electrical Engineering

Target groups
Professional/practitioner

Discount group
P

Due August 2010

2010. 162 p. 260 illus., 130 in color. (Springer Tracts in Modern Physics, Volume 240) Hardcover

$159.00
ISBN 978-3-642-14188-1

Due August 2010

2nd ed. 2010. XII, 293 p. 250 illus., 125 in color. (Springer Tracts in Modern Physics, Volume 240) Hardcover

$159.00
ISBN 978-3-642-14188-1
L. Rebohle, W. Skorupa, Forschungszentrum Dresden-Rossendorf e. V, Germany

**Rare-Earth Implanted MOS Structures**

**Microstructural, Electrical and Optoelectronic Properties**

The book concentrates on the microstructural, electric and optoelectronic properties of rare-earth implanted MOS structures and their use as light emitters in potential applications. It describes the structural formation processes in the gate oxide during fabrication and under operation, how this microstructure development will affect the electrical device performance and how both microstructure and electrical characteristics determine the optoelectronic features of the light emitters. However, most of the discussed physical processes as well as the described fabrication methods and device characterization techniques are of general interest and are beyond the scope of this type of light emitter. The book will be of value to engineers, physicists, and scientists dealing either with Si based photonics in particular or optoelectronic device fabrication and characterization in general.

**Features**
- Summarizes the current knowledge in implanted rare earth materials
- Includes structural microelectric device aspects
- A reference work for researchers and engineers alike

**Contents**
- Introduction
- Si-based Light Emitters
- Microstructure
- Electrical Properties
- Electroluminescence Spectra
- Electroluminescence Efficiency
- Stability and Degradation
- Applications

**Fields of interest**
- Optical and Electronic Materials

**Target groups**
- Research

**Discount group**
P

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J. Tichý, St. Gallen, Switzerland; J. Erhart, Liberec, Czech Republic; E. Kittinger, Innsbruck, Austria; J. Přívratská, Liberec, Czech Republic

**Fundamentals of Piezoelectric Sensors**

**Mechanical, Dielectric, and Thermodynamical Properties of Piezoelectric Materials**

Intended as an introduction and reference for materials scientists and physicists, this book treats the fundamental physics of piezoelectric sensors. It begins with the elements of phenomenological crystal physics to develop a fundamental understanding of piezoelectricity. Subsequently the constitutive equations for elastic and electric field quantities are discussed involving both linear and nonlinear material constants. Ferroelectric phenomena in crystals, phase transitions and ferroelastic hysteresis in a-quartz are summarized. It concludes with a chapter that explains several important piezoelectric materials in a straightforward and easy to grasp way.

**Features**
- Presents the fundamental physics of piezoelectric sensors
- Only book with this scope
- Targeted to those engineers, physicists and chemists who are involved in materials processing, device design and manufacturing

**Contents**
- Principles of Piezoelectricity
- Introduction to Phenomenological Crystal Structure
- Elastic properties of crystals
- Basic thermodynamics of piezoelectric crystals
- Piezoelectric properties
- Nonlinear material properties
- Piezoelectric materials

**Fields of interest**
- Optical and Electronic Materials; Ceramics, Glass, Composites, Natural Materials; Mechanical Engineering

**Target groups**
- Research

**Discount group**
P

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Due October 2010
2010. 220 p. 280 illus., 140 in color. (Springer Series in Materials Science, Volume 142) Hardcover
- approx. $129.00
ISBN 978-3-642-14446-2

Due August 2010
2010. 200 p. Hardcover
- $129.00
ISBN 978-3-540-43966-0
Advances in Research in Karst Media

The Malaga Symposia Series provides an international forum for scientific debate on the progress made in research into karst environments. The 2010 meeting of the 4th International ISKA presents 80 papers in four key areas: karst hydrogeology and investigations, karst landscape and ecosystems, human interaction with karst environments, and engineering geology in karst areas. This book will be a useful edition to the libraries of consultants, scientists, lecturers, and policy makers concerned with the special issues of karst terrains.

Features
- Karst media and recent investigations to a high level
- Provides new insights into Karst Hydrogeology
- Concentrates on groundwater recharge and protection of Karst aquifers

Contents

Fields of interest
Hydrogeology; Sustainable Development; Environment, general

Target groups
Research

Discount group P

Integrated Systems of Meso-Meteorological and Chemical Transport Models

This book, based on the selected presentations given at the COST-728/ NetFAM workshop, focuses on the following main topics: 1. On-line modelling and feedbacks, 2. Off-line modelling and interfaces, 3. Validation and case studies, 4. Integration of atmospheric chemical transport models with numerical weather prediction. This volume summarizes presentations, discussions, conclusions, and provides recommendations for the 1) on-line and off-line coupling of meteorological and air quality models, 2) implementation of feedback mechanisms, direct and indirect effects of aerosols, 3) advanced interfaces between numerical weather prediction and atmospheric chemical transport models, and 4) model validation studies, including air quality related episode cases. The book is oriented towards numerical weather prediction and air quality modelling communities.

Features
- This book for the first time gives an overall view of the current situation with the on-line and off-line coupling of meteorological and air quality models around the world as well as discusses advantages and disadvantages

Contents

Fields of interest
Meteorology/Climatology; Atmospheric Protection/Air Quality Control/Air Pollution

Target groups
Research

Discount group P

Advances in Earth Observation of Global Change

Global Change studies are increasingly being considered a vital source of information to understand the Earth Environment, in particular in the framework of human-induced climate change and land use transformation. Satellite Earth Observing systems provide a unique tool to monitor those changes. While the range of applications and innovative techniques is constantly increasing, this book provides a summary of key case studies where satellite data offer critical information to understand the causes and effects of those environmental changes, minimizing their negative impacts. This book will be of interest to researchers and practitioners in the field of remote sensing, geographical information, meteorology and environmental sciences. Also scientists and graduate up to post-graduate level students in environmental science will find valuable information in this book.

Features
- Few books cover the contributions of Remote Sensing to Global Change issues
- Leading-edge material will be used, since it is the output of a specialized conference
- Many new imaging satellites have been launched since 2006, research findings on the use of new EO data for global change studies will be included in the new book

Contents

Fields of interest
Remote Sensing/Photogrammetry; Climate Change; Applied Earth Sciences

Target groups
Research

Discount group P
Remote Sensing Tools for Exploration
Observing and Interpreting the Electromagnetic Spectrum

This is a comprehensive book on remote sensing, covering the entire spectrum of energies, wave and particle interactions and field generation, spectrum and image production, from magnetosphere to surface, from high energy gamma-rays to low energy sonic waves, for the Earth and planets. Software and hardware tools specific to each spectral region for capturing, analyzing, and combining data will also be discussed. This book reviews and creates a basis for those experts in one energy region or one system to gain insight in understanding and combining data from other regions and systems (data fusion).

Features
► This book reviews and creates the basis for those experts in one energy region or one system to gain insight in understanding and combining data from other regions and systems ► The book is clearly organized by spectral region, with discussion of production mechanism, instrumentation, analytical methods, and data interpretation ► Written in an accessible for engineers and scientists in a wide range of fields

Contents

Fields of interest
Remote Sensing/Photogrammetry; Aerospace Technology and Astronautics; Astrophysics and Astroparticles

Target groups
Popular/general

Discount group
P

The Mjølnir Impact Event and its Consequences
Geology and Geophysics of a Late Jurassic/Early Cretaceous Marine Impact Event

The Mjølnir impact structure was recognized in 1993 and included in the Earth Impact Database in 1996, based on the discoveries of unequivocal meteorite impact indicators such as shocked quartz, Ir-enrichments, possible glass remnants, fragments of nickel-rich iron oxides, in addition to the convincing complex crater shape of the structure. This book presents the geological and geophysical history of the Barents Sea region along with the discovery of the Mjølnir impact crater. We place the Mjølnir event into the geological framework of the region and present elaborative numerical models of its formation and associated tsunami generation. The book represents an update and synthesis as well as the complete compilation of the Mjølnir crater studies.

Features
► Represents an update and synthesis as well as the complete compilation of the Mjølnir crater studies

Contents

Fields of interest
Geology; Geophysics/Geodesy; Paleontology

Target groups
Professional/practitioner

Discount group
P

Hurricanes and Climate Change
Volume 2

Hurricanes are nature’s most destructive agents. Widespread interest surrounds the possibility that they might get even more destructive in the future. Policy makers consider it a call for action. Answers about when and by how much hurricanes will change are sought by financial institutions especially industry. And scientists are challenged by the range and interactions of the processes involved. This book, arising from the 2nd International Summit on Hurricanes and Climate Change, contains new research on topics related to hurricanes and climate change since the 1st Summit. Chapters are grouped into research studies using global climate models and those taking empirical and statistical approaches. The latter include investigations of basin-wide and regional hurricane activity.

Features
► Unique book, drawing on an international community of scholars in the field of hurricane climate science ► Latest research results on topics related to hurricanes and climate change ► Intriguing new results on the relationship between solar variability and hurricanes ► Latest new on how global climate models can be used to project future changes in hurricane activity

From the contents

Fields of interest
Earth Sciences, general; Climate Change; Meteorology/Climatology

Target groups
Graduate

Discount group
P
Earthquake Engineering in Europe

This book contains 22 state-of-the-art papers on earthquake engineering from carefully selected very eminent researchers mainly from Europe but also from the USA and Japan. The topics covered by the contributions form a very comprehensive collection of on earthquake engineering, making a unique book. This volume may serve as a good reference book for researchers in the field of earthquake engineering.

Features
- Comprehensive coverage of earthquake engineering topics
- Written by well-known experts in the field
- Mostly composed of state-of-the-art papers

From the contents

Fields of interest
Geotechnical Engineering; Civil Engineering; Structural Foundations, Hydraulic Engineering

Target groups
Research

Discount group
P

Chitin
Formation and Diagenesis

There are several books on properties of chitin and associated biomolecules and their biochemical significance. However, the present volume deals with a wide variety of biogeochemical and organic geochemical aspects of this vital macromolecule written by leading authors and experts in the field. Each chapter is carefully peer reviewed and is an updated account of recent research in isotopic, nanostructural, biochemical, microstructural, geochemical, paleontological and experimental aspects of chitin formation, distribution and preservation in the environment and earth history.

Features
- First volume on chitin formation, distribution and preservation in the environment and earth history
- Featuring experimental, analytical, mass spectrometric, spectroscopic, enzymatic and microscopic methods
- Benefits biogeochemists, geochemists and paleontologists

Contents

Fields of interest
Earth Sciences, general; Biogeosciences; Geochemistry

Target groups
Professional/practitioner

Discount group
P
Astromineralogy

Astromineralogy deals with the science of gathering mineralogical information from the astronomical spectroscopy of asteroids, comets and dust in the circumstellar environments in general. This field has received a tremendous boost with the reliable identification of minerals by the Infrared Space Observatory. The first edition of this book, published in 2003, was the first comprehensive and coherent account of this exciting field. Data obtained in the meantime with the Spitzer Infrared Space Telescope, the Stardust mission to the comet 81P / Wild 2, and with the Cassini mission, together with progress in ground-based observations and laboratory astrophysics form the basis for this updated and widely extended second edition. Beyond addressing the specialist in the field, the book is intended as a high-level but readable introduction to astromineralogy for both the nonspecialist researcher and the advanced student.

Features

- Comprehensive and coherent account of astromineralogy
- Largely extended 2nd edition
- Explains complicated life cycle of cosmic dust
- Shows synergies from astronomical observations and laboratory astrophysics resulting in unambiguous identification of minerals in space

Contents


Fields of interest

Mineralogy; Extraterrestrial Physics; Space Sciences; Astronomy, Observations and Techniques

Target groups

Research

Discount group

P

Preservation in Digital Cartography

Archiving Aspects

The definition of cartographic heritage can be depicted by actual projects in modern cartography. A very basic structure of cartographic heritage is given by isolating map content, the development, preparation and creation of map content as well as map media and media carrier based issues. Therefore the topics within cartographic heritage span from archiving, reproduction, usage, education, geometric precision to psychological aspects. The contributions of this unique book describe the main focus of cartographic heritage with the help of theory, state-of-the-art practices and experience reports. It includes topics on the field of cybercartography, which uses interactive, dynamic, multi-sensory formats with employing multimedia and multimodal interfaces, which urgently necessitate new methods, structures and technologies.

Features

- Describes the main focus of cartographic heritage with the help of theory, state-of-the-art practices and experience reports
- The topics span from archiving, reproduction, usage, education, geometric precision to psychological aspects
- Includes topics on the field of cybercartography

Fields of interest

Geographical Information Systems/Cartography; Computer Applications in Earth Sciences

Target groups

Professional/practitioner

Discount group

P

Groundwater Base Level Changes and Adjoining Hydrological Systems

The proposed book deals with the role of changing groundwater base level on the adjacent hydrological systems. It summarizes, compiles and compares results of current and paleo base levels, using examples from all over the world. A classification is given for marine or continental groundwater base levels with special attention to those below sea level. The factors controlling base level changes and the methods for their determination are elaborated. Holocene and future changes are discussed with their effect on salinization and flushing mechanisms of groundwater. All topics described in the book are accompanied by examples and references from all over the world.

Features

- Classification for marine or continental groundwater base level
- All topics are accompanied by examples and references
- Discussion of holocene and future changes

From the contents

Introduction.- The main types of groundwater base levels.- Factors controlling base level elevation changes.- General.- Global, regional and local climate changes.- Tectonic movements.- Isostatic and glacio-isostatic movements.- Land subsidence through compaction and dewatering.- Groundwater cones of depression caused by natural process of evapotranspiration.- Groundwater cones of depression caused by groundwater exploitation.- Methods and techniques to define base-level elevation and to measure and assess.- The effect of their variation on adjoining groundwater systems.- Base level elevation.- Current ground level measurements.- Current sea and lake level measurements.- Paleo- and historic shorelines.

Fields of interest

Hydrogeology; Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution

Target groups

Research

Discount group

P
Geophysical Studies in the Caucasus

The subject of this book is the methodology and results of integrated geophysical investigations in the Caucasian region, mainly interpretation of magnetic and gravity anomalies with utilization of a huge petrophysical database for the evaluation of geological structure and mineral resources. Relative voluminous geophysical data are useful for the Earth Sciences researchers interested in the Caucasian region characterized by complicated geological structure, inclined magnetization (polarization), uneven topography and mountain/sea transition. Examination of geophysical fields verified by superdeep wells drilling indicates that magnetic rocks of the Lesser Caucasus are extended northward under thick sedimentary cover of the Kura Depression up to the Greater Caucasus. These rocks form hidden petroleum-bearing traps of a newly identified type. On the basis of geophysical studies (mainly inexpensive magnetic and electric methods), a new copper-polymetallic province in the Greater Caucasus has been revealed, a newly developed integrated approach and special information-statistical techniques for processing and interpretation of geophysical data facilitate detection of important geological features.

Features
► New geological results of geophysical methods application and practical recommendations for the revealing of additional mineral resources and prevention of dangerous geodynamical phenomena
► Effective methodological approaches and techniques of geophysical studies ► New scientific concepts regarding the geological structure of one of the key regions in the Earth and integration of petroleum and mining geophysics

Contents
1. Overview of recent results in this field.
3. Lesser Caucasus.
5. Kura Depression.

Fields of interest
Geophysics/Geodesy; Geology; Hydrogeology

Discount group
P

Due November 2010

The Vent and Seep Biota
Aspects from Microbes to Ecosystems

Oases of life around black smokers and hydrocarbon seeps in the deep-sea were among the most surprising scientific discoveries of the past three decades. These ecosystems are dominated by animals having symbiotic relationships with chemosynthetic bacteria. Their study developed into an international, interdisciplinary venture where scientists develop new technologies to work in some of the most extreme places on Earth. This book highlights discoveries, developments, and advances made during the past 10 years, including remarkable cases of host-symbiont coevolution, worms living on frozen methane, and a fossil record providing insights into the dynamic history of these ecosystems since the Paleozoic.

Features
► Highlights recent discoveries, developments, and advances in a broad range of vent and seep-related topics ► Covers the most surprising scientific discoveries of the past three decades of life around black smokers and hydrocarbon seeps in the deep-sea ► Features explanatory illustrations, maps, and new images of vent and seep animals and their habitats

Contents
1. Introduction: Chemosynthetically-driven ecosystems in the deep sea.
2. Genetics and evolution of deep-sea chemosynthetic bacteria and their invertebrate hosts.
4. Microbial chemofossils in specific marine hydrothermal and methane cold seep settings.
5. Chemosymbiotic bivalves.
6. The diversity of deep-sea mussels and their bacterial symbioses.

Fields of interest
Biogeochemistry; Freshwater & Marine Ecology

Discount group
P

Due September 2010

Physics of Space Storms
From the Surface of the Sun to the Earth

This unique, authoritative book introduces and accurately depicts the current state-of-the-art in the field of space storms. Professor Koskinen, renowned expert in the field, takes the basic understanding of the system, together with the physics of space plasmas, and produces a treatment of space storms. He combines a solid base describing space physics phenomena with a rigorous theoretical basis. The topics range from the storms in the solar atmosphere through the solar wind, magnetosphere and ionosphere to the production of the storm-related geoelectric field on the ground. The most up-to-date information available is presented in a clear, analytical and quantitative way.

Features
► Introduces and summarizes the current state of the art in the field of so-called space storms ► Bridges the gap between fundamental space plasma physics and scientific research articles ► Differs from practically all past literature in space physics ► Covers the whole chain from the Sun to the Earth focusing on strong disturbances ► Includes definitions of concepts from fundamental plasma physics to phenomena relevant to the main theme ► Up-to-date information in a young, fast developing field ► Includes research problems which may trigger investigations leading to scientific progress

Fields of interest
Meteorology/Climatology; Astronomy, Astrophysics and Cosmology; Astrophysics and Astroparticles

Discount group
P

Due November 2010
Landscapes and Societies

Selected Cases

This book contains case histories intended to show how societies and landscapes interact. The range of interest stretches from the small groups of the earliest Neolithic, through Bronze and Iron Age civilizations, to modern nation states. The coexistence is, of its very nature reciprocal, resulting in changes in both society and landscape. In some instances the adaptations may be judged successful in terms of human needs, but failure is common and even the successful cases are ephemeral when judged in the light of history.

Features
- Illustrates the point by examining typical cases illustrating the interaction between the landscape and ancient and recent few societies
- Rigorous, interdisciplinary analyses of selected cases prepared by active researchers dealing, among others, with geological surficial processes, geomorphology, archaeology, environmental history, and land use
- Simple, synthetic, linear presentations for students and professionals

From the contents

Fields of interest
Physical Geography; Geology; Geoecology/Natural Processes

Target groups
Research

Discount group
P

Due September 2010

2010, 150 p. (NATO Science for Peace and Security Series C: Environmental Security, Volume 00) Hardcover

$189.00

Also available as Softcover

$119.00

P. Norris, Leatherhead, Surrey, UK

Watching Earth from Space

How Surveillance Helps and Harms Us

Our planet is constantly monitored by hundreds of space-borne instruments. This book describes the technology of those instruments and the sciences that provide useful information from them. It also discusses the political implications of space-borne monitoring. From the moment satellites were launched into orbit their ability to see what was happening on a global scale was appreciated—and feared. This well researched book strives to answer such diverse questions as: Are satellites really a threat to individual privacy? How bad, really, is climate change and global warming? Why can’t we find Osama bin Laden? Does the world have enough fresh water? The military side of the story is linked to the big security issues that we face, such as terrorism and civil wars. The civilian side of the story involves numerous successful collaborations in weather forecasting, navigation, communications, and other such “peaceful” uses of satellite surveillance.

Features
- Explains the power, limitations, and possible threats posed by satellite imagery
- Recounts the politics, economics, and science driving the growth of imaging from space
- Shows how the effects of global warming and climate change are revealed by imaging satellites

From the contents

Fields of interest
Remote Sensing/Photogrammetry; Popular Science in Nature and Environment; Measurement Science and Instrumentation

Target groups
Popular/general

Discount group
P

Due September 2010

2010, 300 p. 60 illus. (Springer Praxis Books / Space Exploration) Softcover

$34.95
**Exploration of Gas Hydrates**

Geophysical Techniques

Gas hydrates are ice-like crystalline substances that form a rigid cage of water molecules and entrap hydrocarbon and non-hydrocarbon gas by hydrogen bonding. Natural gas hydrate is primarily composed of water and methane. These are solid, crystalline, ice-like substances found in permafrost areas and deepwater basins around the world. They naturally occur in the pore space of marine sediments, where appropriate high pressure and low temperature conditions exist in an adequate supply of gas (mainly methane). Gas hydrates are considered as a potential non conventional energy resource. Methane hydrates are also recognized as, an influence on offshore platform stability, a major factor in climate change contributing to global warming and a significant contribution to the ocean carbon cycle. The proposed book treats various geophysical techniques in order to quantify the gas hydrate reserves and their impact on environment. The primary goal of this book is to provide the state of art for gas hydrate exploration. The target audiences for this book are non-specialist from different branches of science, graduate students and researchers.

**Features**
- Provides state of the art for gas hydrate exploration
- Treats various geophysical techniques in order to qualify gas hydrates reserves
- Interdisciplinary approach

**Contents**

**Fields of interest**
Geophysics/Geodesy

**Target groups**
Research

**Discount group**
P

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**Topics in Igneous Petrology**

The second half of the past century witnessed a remarkable paradigm shift in approach to the understanding of igneous rocks. Global literature records a change from a classical petrographic approach to emphasis on mineral chemistry, trace element characteristics, tectonic setting, phase relations, and theoretical simulation of magma generation and evolution processes. This book is dedicated to the late Dr Mihir K. Bose, former professor of the Department of Geology, Presidency College, Calcutta, India, who actively participated in the development of this new global view of igneous petrology. This book is a collection of contributions from key professionals in the field intended for petrologists and geoscientists.

**Features**
- A multifaceted approach to igneous petrology with a wide perspective
- State-of-the-art contributions by international experts
- Valuable resource for graduate students and researchers

**From the contents**
- Foreword.
- Acknowledgments.
- List of contributors.

**Fields of interest**
Geochemistry

**Target groups**
Research

**Discount group**
P

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**Synchronization and Triggering: from Fracture to Earthquake Processes**

Laboratory, Field Analysis and Theories

This monograph contains experimental and theoretical considerations on synchronization and triggering in laboratory fracture experiments and in earthquake processes. Non-linear dynamics and physics of rotation motions reveal such ordering in geophysical processes and observed time series. Presented experiments with electromagnetic and mechanical forcing present synchronization of the slip instabilities observed as acoustic burst emission. New observational results, based on the net of broadband seismic stations, indicate the hidden periodicities, multiple coherence effects in the low-frequency microseismic oscillations observed tens of hours before the earthquakes. These results are supported by observational evidence on synchronization between shear oscillations and rotation motions in microseismic field before earthquakes.

**Features**
- Contains experimental and theoretical considerations on synchronization and triggering in laboratory fracture experiments and in earthquake processes
- Presents new observational results based on the net of broadband seismic stations
- Provides new insights to this interesting field

**Contents**
Theoretical Studies.- Laboratory Experiments.- Field Observations.

**Fields of interest**
Geophysics/Geodesy; Classical Continuum Physics; Geotechnical Engineering

**Target groups**
Research

**Discount group**
P

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2011. XX, 380 p. Hardcover

[approx. $179.00](https://isbn.dlib.org/978-3-642-14233-8)

2010. VIII, 360 p. 120 illus. Hardcover

[approx. $169.00](https://isbn.dlib.org/978-90-481-9599-2)


[$179.00](https://isbn.dlib.org/978-3-642-17220-3)

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Impacts of Global Change on the Hydrological Cycle in West and Northwest Africa

Africa is highly vulnerable to the impacts of climate change. In particular, shortage of fresh water is expected to be the dominant water problem for West and Northwest Africa by the 21st century. In order to solve present and projected future problems concerning fresh water supply, a highly interdisciplinary approach is used in the book. Strategies are offered for a sustainable and future-oriented water management. Based on different scenarios, a range of management options is suggested with the aid of Information Systems and Spatial Decision Support Systems for two river catchments in Northwest and West Africa: the wadi Drâa in south-eastern Morocco and the Ouémé basin in Benin. The selected catchments are representative in the sense: “what can be learnt from these catchments for other similar catchments?”

Features
► Highly interdisciplinary approach ► Offers strategies for a sustainable water management ► Case studies from two different catchments in Africa

Contents

Fields of interest
Hydrogeology; Medicine/Public Health, general; Demography

Target groups
Research

Discount group
P

Human Casualties in Earthquakes
Progress in Modelling and Mitigation

Assessment of human casualties in earthquakes has become a topic of vital importance for national and urban authorities responsible for emergency provision, for the development of mitigation strategies and for the development of adequate insurance schemes. In the last few years there has been important work on a number of recent events (including earthquakes in Kocaeli, Turkey 1999, Niigata Japan, 2004, Sichuan, China 2008 and L’Aquila, Italy 2009). These events have created new and detailed casualty data, which has not until now been properly assembled and evaluated. This book draws the new evidence from recent events together with existing knowledge. It summarises current trends in the understanding of the factors influencing the numbers and types of casualties in earthquakes; it offers methods to incorporate this understanding into the estimation of losses in future events in different parts of the world; it discusses ways in which pre-event mitigation activity and post-event emergency management can reduce the toll of casualties in future events; and it identifies future research needs.

Features
► The only book dealing specifically with human casualties in natural disasters ► Worldwide authorship of papers ► Brings together short contributions from many eminent specialists across a variety of disciplines ► Up-to-date summary results from recent research both in laboratory and post disaster field investigations

Fields of interest
Natural Hazards

Target groups
Professional/practitioner

Discount group
P

Due July 2010
2010. XX, 676 p. 40 illus., 20 in color. Hardcover
► approx. $179.00
ISBN 978-3-642-12956-8

Due October 2010
2010. X, 270 p. 100 illus., 50 in color. (Advances in Natural and Technological Hazards Research, Volume 29) Hardcover
► approx. $129.00

Due December 2010
2010. 550 p. Hardcover
► approx. $259.00
ISBN 978-3-642-12495-2

Hydrogeology; Medicine/Public Health, general; Demography

Fields of interest
Hydrogeology; Medicine/Public Health, general; Demography

Target groups
Research

Discount group
P

R. Spence, Emeritus, Department of Architecture, Cambridge University, UK, and Cambridge Architectural Research Ltd, Cambridge, UK; E. So, Cambridge Architectural Research Limited, Cambridge, UK; C. Scawthorn, Emeritus, Graduate School of Engineering, Kyoto University, Japan (Eds.)

R. K. Srivastava, Banaras Hindu University, Varanasi, India

Dyke Swarms
Keys for Geodynamic Interpretation

Dykes occur in a wide variety of geological and tectonic settings and their detailed study through space and time is imperative for understanding several geological events. Dykes are believed to be an integral part of continental rifting and when they occur as spatially extensive swarms of adequate size they can be of immense utility in continental reconstructions and also help to identify large Igneous Provinces (LIPs). It is known that continental flood basalts and major dyke swarms have their origin related in some way to the up-rise of hot mantle plumes which may lead to rifting and eventual continental break-up. Dykes signify crustal extension and are important indicators of crustal stabilisation events, supercontinental assembly and dispersal, crust-mantle interaction and play a significant role in the delineation of crustal provinces as well as in deciphering crustal evolution events. Many economic mineral deposits of the world are also associated with a variety of dykes. The volume will provide state-of-the-art information on all aspects of dykes with emphasis on the origin, evolution and emplacement of dykes.

Features
► Provides state-of-the-art information on all aspects of dykes ► Emphasizes the origin, evolution and emplacement of dykes ► Unique book giving well founded information on the subject

Fields of interest
Geophysics/Geodesy; Sedimentology; Geology

Target groups
Research

Discount group
P
**MATLAB® Recipes for Earth Sciences**

MATLAB® is used for a wide range of applications in geosciences, such as image processing in remote sensing, the generation and processing of digital elevation models, and the analysis of time series. This book introduces methods of data analysis in geosciences using MATLAB, such as basic statistics for univariate, bivariate and multivariate datasets, jackknife and bootstrap resampling schemes, processing of digital elevation models, gridding and contouring, geostatistics and kriging, processing and georeferencing of satellite images, digitizing from the screen, linear and nonlinear time-series analysis, and the application of linear time-invariant and adaptive filters. The revised and updated Third Edition includes ten new sections and has greatly expanded on most chapters from the previous edition, including a step by step discussion of all methods before demonstrating the methods with MATLAB functions. New sections include: Data Storage and Handling, Data Structures and Classes of Objects, Generating M-Files to Regenerate Graphs, Publishing M-Files, Structures and Classes of Objects, Generating structures and classes of objects, and Grain Size Analysis from Microscope Images.

**Features**
- Contains 10 new sections and has greatly expanded on most chapters from the previous edition
- Contains exercises and fully worked-out solutions
- Many detailed illustrations
- Digital version of MATLAB recipes on CD-ROM

**Contents**

**Fields of interest**
Computer Applications in Earth Sciences; Quantitative Geology; Mathematical Applications in Earth Sciences

**Target groups**
Research

**Discount group**
P

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**Landscape-scale Conservation Planning**

This book applies the latest thinking and techniques of systematic conservation planning to the problems that arise in protecting ecosystem pattern and process in human-dominated landscapes such as seascapes, multiple countries and conservation targets.

**Features**
- Ecoregional, transboundary approach with interdisciplinary and international appeal
- Integrates social and natural sciences with cutting edge conservation planning technologies
- Provides case studies of actual conservation planning projects
- Relevant to real world problem solving by complementing more technical, how-to books recently published on conservation planning

**From the contents**

**Fields of interest**
Landscape/Regional and Urban Planning; Landscape Ecology; Nature Conservation

**Target groups**
Professional/practitioner

**Discount group**
P

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**Coastal Altimetry**

The book describes experience in application of coastal altimetry to different parts of the World Ocean. It presents the principal problems related to the altimetry derived products in coastal regions of the ocean and ways of their improvement. This publication is based on numerous satellite and observational data collected and analyzed by the authors of the various chapters in the framework of a set of international projects, performed in UK, France, Italy, Denmark, Russia, USA, Mexico and India. The book will contribute both to the ongoing International Altimeter Service effort and to the building of a sustained coastal observing system in the perspective of GMES (Global Monitoring for Environment and Security) and GEOSS (Global Earth Observation System of Systems) initiatives. This book is aimed at specialists concerned with research in the various fields of satellite altimetry, remote sensing, and coastal physical oceanography. The book will be also interesting for lecturers, students and post-graduate students.

**Features**
- Application of coastal altimetry
- Presents principle problems and their solutions
- International case studies

**From the contents**

**Fields of interest**
Remote Sensing/Photogrammetry; Oceanography; Geophysics/Geodesy

**Target groups**
Research

**Discount group**
P
Carbontate Depositional Systems: Assessing Dimensions and Controlling Parameters
The Bahamas, Belize and the Persian/Arabian Gulf

Carbonate sediments are of increasing relevance for archives of past environmental conditions and for economical reasons in areas of geothermal energy and hydrocarbon reservoirs. Complex interaction of physical and chemical parameters with biological parameters determines the architecture and composition of carbonate sedimentary bodies. This book closes some of the still existing gaps in our understanding of the influence and interplay of physical, chemical, and biological parameters with carbonate sedimentation. An understanding of this interaction is not only required for reliable prediction of reservoir quality but also for a robust interpretation of environmental conditions in the past and the present.

Features
- First comprehensive compilation of parameters influencing carbonate depositional systems
- Complete overview of environmental control on major sedimentological settings
- Data useful for biologists and geologists for model development

From the contents
1. Parameters controlling modern carbonate depositional environments - Approach Hildegard Westphal, Gregor P. Eberli and Bernhard Riegl
2. Controlling parameters on facies geometries of the Bahamas, an isolated carbonate platform environment, Kelly L. Bergman, Hildegard Westphal, Xavier Janson, Anthony Poiriez, and Gregor P. Eberli
3. Belize - A Modern Example of a Mixed Carbonate-Siliciclastic Shelf, Donald F. McNeill, Xavier Janson, Kelly L. Bergman, and Gregor P. Eberli
4. The Bahamas, an isolated carbonate platform environment
5. Belize - A Modern Example of a Mixed Carbonate-Siliciclastic Shelf, Donald F. McNeill, Xavier Janson, Kelly L. Bergman, and Gregor P. Eberli

Fields of interest
Geology; Geocology/Natural Processes; Sedimentology

Target groups
Research

Discount group P

High-Rise Building Living in Asian Cities

This book is intended to fill a knowledge gap in the study of contemporary high-rise living. While there has been much documentation on the engineering and technological aspects of tall buildings, relatively little has been written about the social and livability of high-rise. Much less is written about Asian cities even though Asia is the current hotbed of high-rise development. Even though traditional discourse of high-rise housing is not always positive, new forces are redefining its place in 21st century urbanity. Many cities around the world are reemerging high-rise urban agenda under current narrative of sustainable development. High-rise is fast becoming a priority area in international research agenda. The quest is for livable and sustainable high-rise development. Against the background of current trends--globalization, urbanization, mixed-use development, and new-built taller buildings in inner city areas in both developed and developing countries, this book examines the software: design, economics, estate management, legal and property rights, physical environment, planning, community development, and social dimensions of high-rise living.

Features
- Deals with current hot topic on high-rise living in fast-growing Asian cities
- Interrogates the question of 'good' and 'bad' high-rise living environment
- Offers insight to the factors that promote high-rise livability

From the contents
1. Introduction: Tall Building Living in Asian Cities.
2. Tall Building Living in High Density Cities: A Comparison of Hong Kong and Singapore.
3. Planning and Design of Tall Residential Buildings.
4. Physical Environment of Tall Residential Buildings: The Case of Hong Kong.
5. Planning and Design of Environmentally Sustainable High-rises.

Fields of interest
Landscape/Regional and Urban Planning; Housing; Quality of Life Research

Target groups
Research

Discount group P

Due July 2010

2010, 270 p. Hardcover
approx. $139.00

Due October 2010

2011, VI, 276 p. Hardcover
approx. $129.95

Due October 2010

2010, 264 p. 7 illus., 2 in color. Hardcover
approx. $139.00
ISBN 978-90-481-9593-0

Rural Electrification
Strategies for Distributed Generation

For those in developed nations, suddenly being without electricity is a disaster: power cuts have us fretting over the food stored in the freezer, and even a few hours without lights, televisions, or air conditioning is an ordeal. However, for an estimated 1.6 billion people worldwide, the absence of electricity is their daily experience. An untold number of others live with electricity that is erratic and of poor quality. How can electric power be brought into their lives when the centralized utility models that have evolved in developed nations are not an economically viable option? Poor, rural communities in developing nations cannot simply be ‘plugged in’ to a grid. Small-scale Distributed Generation (DG), ranging from individual solar home systems to village level grids run off diesel generators, could provide the answer, and this book compares around 20 DG enterprises and projects in Brazil, Cambodia and China, each of which is considered to be a “business model” for distributed rural electrification. While large, centralized power projects often rely on big subsidies, this study shows that privately run and localized solutions can be both self-sustaining and replicable. Its three sections provide a general introduction to the issue of electrification and rural development, set out the details of the case studies and compare the models involved, and discuss the important thematic issues of equity, access to capital and cost-recovery.

Features
- Presents comparative study of distributed rural electrification in three countries
- Examines both the institutional and business model factors for distributed electrification projects
- Discusses a wide range of technologies
- Provides macro-level policy and institutional recommendations

Field of interest
Economic Geography

Target groups
Research

Discount group P

Due July 2010

2010, 270 p. Hardcover
approx. $139.00

Due October 2010

2011, VI, 276 p. Hardcover
approx. $129.95

Due October 2010

2010, 264 p. 7 illus., 2 in color. Hardcover
approx. $139.00
ISBN 978-90-481-9593-0
Fundamentals of Irrigation and On-farm Water Management: Volume 1

The comprehensive and compact presentation in this book is the perfect format for a resource/textbook for undergraduate students in the areas of Agricultural Engineering, Biological Systems Engineering, Bio-Science Engineering, Water Resource Engineering, and Civil & Environmental Engineering. This book will also serve as a reference manual for researchers and extension workers in such diverse fields as agricultural engineering, agronomy, ecology, hydrology, and meteorology.

Features
- The book’s objective is to present the fundamental principles of irrigation need assessment, and water relations in the soil-plant-atmosphere continuum
- Readers will learn about the principles needed to adopt the most appropriate approach toward irrigation development and management
- The book looks at factors affecting the phenomena/parameter related to irrigation, and exploring the relationship of irrigation need to the relevant factors

Contents
Introduction: Perspectives of Irrigation.
- Fundamentals of Irrigation Development and Planning.
- Weather - A Driving Force in Determining Irrigation Demand.
- Soil - A Media of Irrigation.
- Plant - A Machinery of Water Absorption.
- Water - An Element of Irrigation.
- Field Water Balance and Water Measurement.
- Soil-Water-Plant-Atmosphere Relationship.
- Crop Water Requirement and Irrigation Scheduling.
- Water Harvesting and Conservation.
- Economics in Irrigation and Water Management Decision Making.

Fields of interest
Environmental Management; Agriculture; Environmental Engineering/Biotechnology

Target groups
Professional/practitioner

Discount group
P

Eutrophication: causes, consequences and control

Eutrophication continues to be a major global challenge to water quality scientists. The global demand on water resources due to population increases, economic development, and emerging energy development schemes has created new environmental challenges to global sustainability. Eutrophication, causes, consequences, and control provides a current account of many important aspects of the processes of natural and accelerated eutrophication in major aquatic ecosystems around the world. The connections between accelerated eutrophication and climate change, chemical contamination of surface waters, and major environmental and ecological impacts on aquatic ecosystems are discussed. Water quality changes typical of eutrophication events in major climate zones including temperate, tropical, subtropical, and arid regions are included along with current approaches to treat and control increased eutrophication around the world. The book provides many useful new insights to address the challenges of global increases in eutrophication and the increasing threats to biodiversity and water quality.

Features
- Updates our current knowledge on global eutrophication and water pollution
- Provides useful case histories of global eutrophication events in different climate zones
- Provides important connections between climate, eutrophication, and threats to biodiversity

Fields of interest
Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution; Freshwater & Marine Ecology; Plant Ecology

Target groups
Research

Discount group
P

Regulating Chemical Risks
European and Global Challenges

This important contribution to the scientific understanding of chemical risk regulation offers a coherent, comprehensive and updated multidisciplinary analysis, written by leading experts in toxicology, ecotoxicology, risk analysis, media and communication, law, and political science.

Features
- Analyses international initiatives and cooperation
- Offers comprehensive coverage of chemical risk assessment and risk management
- Up to date on developments in key research fields and policy domains
- Multidisciplinary perspectives, drawing on both life sciences and social sciences

From the contents

Fields of interest
Environmental Law/Policy/Ecojustice; European Law/Public International Law; Ecotoxicology

Target groups
Research

Discount group
P
Community Adaptation and Vulnerability in Arctic Regions

Under the auspices of International Polar Year (IPY), the CAVIAR consortium was formed with partners from all eight Arctic countries. The aim of the interdisciplinary CAVIAR project is to increase understanding of the vulnerability of Arctic communities to changing environmental conditions, including climate change, and to contribute to the development of adaptive strategies and policies. In partnership with local collaborators in over two dozen communities, researchers have documented the conditions and forces that contribute to vulnerabilities, identified adaptive strategies and attempted to assess the prospects for adaptation in the future.

Features
► Documents and assesses the nature of vulnerability in communities across the entire Arctic
► Interdisciplinary research approach
► Demonstrates the importance of a shared analytical framework for comparing results across case studies
► Empirical examples of vulnerabilities and adaptive strategies from a region of the world commonly viewed as having high susceptibility to climate change

From the contents

Fields of interest
Climate Change; Anthropology; Social Sciences, general

Target groups
Research

Discount group
P

Climate Change and Food Security in South Asia

This book addresses an important topic of food security in South Asia with specific reference to climate change. Of the 1 billion food insecure people in the world, more than 30% are in South Asia. The problem of food insecurity may be exacerbated by the projected climate change especially because of the water scarcity caused by rapid melting of the glaciers in the Himalayas and increase in variability in monsoonal rains and frequency of extreme events. Furthermore, large populations of Bangladesh and other coastal regions may be displaced by sea level rise. Thus, this volume addresses recommended land use and soil/water/crop/vegetation management practices which would enable land managers to adapt to climate disruption by enhancing soil/vegetation/social resilience. In addition to biophysical factors, this book also addresses the issues related to human dimensions including social, ethical and political considerations.

Features
► Recommended management practices in soil/water/crop/vegetation management
► Climate change and Food Security in South Asia
► Melting of Himalayan Glaciers

From the contents
Foreword; M. Jarraud, J. Diouf, Foreword; President Grimsson, Iceland, Preface.
Part I. CLIMATE CHANGE IN SOUTH ASIA.

Fields of interest
Climate Change; Anthropology; Social Sciences, general

Target groups
Graduate

Discount group
P

Use of Satellite and In-Situ Data to Improve Sustainability

More than 30-year operational satellite data have already been used for monitoring land, ocean and atmosphere. These applications have contributed to improve sustainable economy, produce healthy environment and enhance human life. The Advanced Research Workshop sponsored by NATO and organized by the USAs National Oceanic and Atmospheric Administration and Ukrainian’s Space Agency bring the scientists with the most mature research designed for practical use. The goals were to select those which is used for services today and identify the areas to expand research and services. Scientific and application results of the Workshop presented in this book can be used today in agriculture, forestry, water resources, healthy coastal life and fisheries, climate and land cover change, anthropogenic activities and others. The presented papers provide information on how to use operational satellites and in situ measurements for early detection of large-scale droughts, floods and fires, diagnose crop and pasture annual losses, predict periods with health/unhealthy vegetation based on such climate forcing events as ENSO, monitor air quality and geomagnetic activities, assess land cover trends in response to global warming etc. The available satellite/ground information and method is currently warn with a lead time sufficient to respond, recover and protect.

Fields of interest
Sustainable Development; Climate Change; Monitoring/Environmental Analysis

Target groups
Graduate

Discount group
P

Due September 2010

► approx $179.00

► approx $209.00

Use of Satellite and In-Situ Data to Improve Sustainability

► $189.00

Also available as Softcover
► $99.00
Peri-urban Water and Sanitation Services

Policy, Planning and Method

More than 2.6 billion people in the developing world lack access to safe water and sanitation service. The Millennium Development Goal’s (MDG) target is to halve the number of people without access to a sustainable source of water supply and connection to a sewer network by 2015. That target is unlikely to be met. If there is anything that can be learnt from European experience it is that institutional reform occurs incrementally when politically enfranchised urban populations perceive a threat to their material well-being due to contamination of water sources.

Features
- Includes case studies of developing countries and contrasted with experience from Europe
- Written by experts in the field with experiences drawn from institutions in Europe, North America, Asia, Africa and South America
- Discusses practical tools for decision makers that include concepts of benchmarking, methods of economic and environmental valuation and planning clinics
- Preface by Prof. Elinor Ostrom, 2009 Nobel Laureate in Economic Sciences

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5. Wastewater Management under the Wastewater Reuse.
6. Climate-based Risks in Options that Work for the Peri-urban Poor.
9. Fugitive Dust and Human Exposure to Heavy Metals around the Red Dog Mine by Elisabeth J. Kerin and Hsing K. Lin.
10. Physiology and Toxicology.

Target groups
Professional/practitioner

Discount group
P

Reviews of Environmental Contamination and Toxicology

Continuation of Residue Reviews

Editor-in-chief: D. M. Whitacre

Volume 206

D. M. Whitacre, Summerfield, NC, USA (Ed.)

Reviews of Environmental Contamination and Toxicology

Continuation of Residue Reviews

Reviews of Environmental Contamination and Toxicology attempts to provide concise, critical reviews of timely advances, philosophy and significant areas of accomplished or needed endeavor in the total field of xenobiotics, in any segment of the environment, as well as toxicological implications.

Fields of interest
Environmental Management; Ecotoxicology

Target groups
Research

Discount group
P
Reviews of Environmental Contamination and Toxicology
Continuation of Residue Reviews

Editor-in-chief: D. M. Whitacre

Volume 209

D. M. Whitacre, Summerfield, NC, USA (Ed.)

Reviews of Environmental Contamination and Toxicology
Continuation of Residue Reviews

Reviews of Environmental Contamination and Toxicology attempts to provide concise, critical reviews of timely advances, philosophy and significant areas of accomplished or needed endeavor in the total field of xenobiotics, in any segment of the environment, as well as toxicological implications.

Features
- A look at the research from The University of California-Davis Methodology for Deriving Aquatic Life Pesticide Water Quality Criteria
- A new methodology is introduced to look at water quality criteria
- In this review, the prospective procedures that may be used to achieve each step are presented, evaluated and those most suitable selected for use in the University of California-Davis Methodology

Contents
Foreword.- The University of California-Davis Methodology for Deriving Aquatic Life Pesticide Water Quality Criteria by Patti L. Tenbrook, Amanda J. Palumbo, Tessa L. Fojut, Paul Hann, Joseph Karkoski, and Ronald S. Tjeerdema.- Index.

Fields of interest
Environmental Management; Ecotoxicology

Target groups
Research

Discount group
P

M. Scholz, The University of Edinburgh, Edinburgh, UK

Wetland Systems
Storm Water Management Control

Wetland Systems covers broad water and environmental engineering aspects relevant for the drainage and treatment of storm water and wastewater. It provides a descriptive overview of complex ‘black box’ treatment systems and the general design issues involved. Standard and novel design recommendations for predominantly constructed wetlands and related sustainable drainage systems are given to take into account the interests of professional engineers and environmental scientists. Wetland Systems deals comprehensively with not only the design, operation, maintenance and water quality monitoring of traditional and novel wetland systems.

Features
- Provides a comprehensive review of wetlands integrated into systems to control runoff
- Gives readers direct access to a critical review of recent research
- Includes relevant international case studies

Contents

Fields of interest
Environmental Engineering/Biotechnology; Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution ; Structural Foundations, Hydraulic Engineering

Target groups
Professional/practitioner

Discount group
P

M. Shama, Alexandria University, Alexandria, Egypt

Torsion and Shear Stresses in Ships

In the last few decades, much research work was conducted to improve ship structure analysis and design. Most of the efforts were directed to improve the strength of hull girder and to use the method of finite element analysis more efficiently and effectively. Because of the high degree of complexity of ship structures the interaction between hull girder strength and local strength require special attention. The complex system of stresses could produce unacceptable deformations and high values of equivalent stresses. This book covers an area of ship structure analysis and design that has not been exhaustively covered by other books on ship structures in a simple form. It presents the basic concepts of the methods and procedures required to calculate torsion and shear stresses in ship structures. Moreover, it is enhanced with a set of some solved and unsolved problems, very useful for students of naval and marine engineering.

Features
- Addresses a very complex subject in a simple and suitable form for students
- Covers a non-explored area of ship structure analysis and design
- Mastery of principles Is enhanced with a set of some solved and unsolved problems

Contents
Torsion stresses in ships.- Shear loading and stresses in ships.- Modelling.

Fields of interest
Mechanical Engineering; Continuum Mechanics and Mechanics of Materials; Design, general

Discount group
P

Due October 2010
2010. X, 258 p. 64 illus. (Green Energy and Technology) Hardcover
- approx. $129.00

Discount group
P

Due September 2010
2010. 350 p. Hardcover
- approx. $179.00
ISBN 978-3-642-14632-9
Protected Land
Disturbance, Stress, and American Ecosystem Management

This is a book about ecosystems: the ways in which we perceive them, conceptualize them, protect them, and manipulate them. Ecosystems have been given considerable attention in recent literature, and with good reason. Our growing comprehension of irreplaceable under imperative ecosystem services has made it clear that we are in the midst of an ecological crisis. In response, various organizations, agencies, and individuals have dedicated themselves to the preservation, restoration, and maintenance of ecological systems. The United States is a world leader in this regard, building upon the legacy of giants like Thoreau, Muir, and Leopold. And yet, even as we scramble to rehabilitate and sustain ecosystems, the debate continues on their nature continues. In one corner are proponents of holism — those that see ecosystems as definable units with recognizable and regenerative stable states.

Features
► Translation of concept into management practice ► Different perspectives and views are used to evaluate the debate of ecosystems' nature ► Very relevant to the current environmental agenda

From the contents
Preface. Four Ecosystems, Four Questions; Oak Openings, Ohio; Kissimmee River, Florida; Tallgrass Prairie, Kansas; Six Rivers National Forest, California; Four Questions. Part I: Ecosystems in Theory. The Ecosystem Idea and Ideal; Preservation, Conservation, and Ecology; Gleason and Individualism; Leopoldian Preservation and Conservation; Hutchinson, Holism, and Individualism; The New Ecology; Preservation of the Ideal; Toward an Ecosystem Approach to Management. A Thing is Right; The Adaptive Cycle; Diversity, Stability, Health and Integrity.

Fields of interest
Environmental Management; Conservation Biology/Ecology

Target groups
Graduate

Discount group
P

Dealing with Contaminated Sites
From Theory towards Practical Application

This standard work on contaminated site management covers the whole chain of steps involved in contaminated site management, from sampling to remediation. An important focus throughout the book has been on Risk Assessment. In addition, the book will include in-depth theories on soil contamination, along with offering possibilities for practical applications. More than sixty of the world’s top experts from Europe, the USA, Australia and Canada have contributed to this book. The twenty-five chapters in this book offer relevant information for experienced scientists, students, consultants and regulators, as well as for ‘new players’ in contaminated site management.

Features
► Covering the whole chain of steps involved in contaminated site management, from sampling to remediation ► Includes in-depth theories on soil contamination ► Offering practical applications for risk assessment

Contents

Fields of interest
Ecotoxicology; Environmental Health; Soil Science & Conservation

Target groups
Professional/practitioner

Discount group
P

Water and Nutrient Management in Natural and Constructed Wetlands

Natural and constructed wetlands play a very important role within the landscape and their ecological services are highly valuable. Water management, including flood water retention, biomass production, carbon sequestration, wastewater treatment and as a biodiversity source are among the most important ecological services of wetlands. In order to provide these services, wetlands need to be properly evaluated, protected and maintained. This book provides results of the latest research in wetland science around the world. Chapters deal with such topics as the use of constructed wetlands for treatment of various types of wastewater, use of constructed wetlands in agroforestry, wetland hydrology and evapotranspiration, the effect of wetlands on landscape temperature, and chemical properties of wetland soils.

Features
► Brings together state-of-the-art knowledge on the uses of wetlands ► Written by international authors ► Covers both constructed and natural wetlands ► Includes case studies

From the contents

Fields of interest
Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution; Applied Ecology; Landscape Ecology

Target groups
Graduate

Discount group
P

Due September 2010
2010. 140 p. 16 illus., 8 in color. (Springer Series on Environmental Management) Hardcover
► approx. $129.00
ISBN 978-1-4419-6812-8

Due October 2010
► $179.00

Due September 2010
► $179.00
Energy Economics: CO₂ Emissions in China

"Energy Economics: CO₂ Emissions in China" presents a collection of the researches on China’s CO₂ emissions as studied by the Center for Energy & Environmental Policy Research (CEEP). Based on the analysis of factors related to global climate change and CO₂ emissions, it discusses China’s CO₂ emissions originating from various sectors, diverse impact factors, as well as proposed policies for reducing carbon emissions. Featuring empirical research and policy analysis on focused and critical issues involving different stages of CO₂ emissions in China, the book provides scientific supports for researchers and policy makers in dealing with global climate change.

Features
► First-hand empirical survey on China’s CO₂ emissions
► Provide support for decision-makers
► Discusses impacts from different sectors

From the contents
Energy use and carbon dioxide emissions.- Analysis of energy consumption and CO₂ emissions in China.- Study on impact factors of CO₂ emissions under different economic development levels.- Evolution characteristics of CO₂ emissions in carbon-intensive sectors in China.- Impacts of household consumption and export trade on CO₂ emissions.- Study on regional CO₂ emissions change in China.

Fields of interest
Atmospheric Protection/Air Quality Control/Air Pollution; Climate Change; Meteorology/Climatology

Target groups
Research

Discount group
P

Due July 2010


Based on a translation from the Chinese edition:
Yi-Ming Wei, Lan-Cui Liu, Ying Fan, Gang Wu; Zhongguo Nengyuan Baogao (2008): Tan Paifang Yanjiu; May, 2008; Science Press.

2010, 360 p. 134 illus. in color. Hardcover
► $179.00
ISBN 978-3-642-13846-1

Pathways for Getting to Better Water Quality: The Citizens Effect

This book is about accomplishing change in how land is managed in agricultural watersheds. Wide-ranging case studies repeatedly document that plans, policies, and regulations are not adequate substitutes for the empowerment of people. Ultimately change on the land is managed and accomplished by the people that live on land within each watershed.

Features
► This book is about understanding and solving local problems of non-point source water pollution
► Readers are provided with a framework and empirical evidence to document the many ways people engage each other to make sense of and solve shared watershed concerns
► Examines the idea that citizens are an untapped resource when it comes to solving water quality problems

From the contents

Field of interest
Environmental Management

Target groups
Professional/practitioner

Discount group
P

Due November 2010

2011, X, 165 p. 17 illus. Hardcover
► approx. $189.00
ISBN 978-1-4419-7281-1
Stem Cells & Regenerative Medicine
From Molecular Embryology to Tissue Engineering

Defined as, “The science about the development of an embryo from the fertilization of the ovum to the fetus stage,” embryology has been a mainstay at universities throughout the world for many years. Throughout the last century, embryology became overshadowed by experimental-based genetics and cell biology, transforming the field into developmental biology, which replaced embryology in Biology departments in many universities. Major contributions in this young century in the fields of molecular biology, biochemistry and genomics were integrated with both embryology and developmental biology to provide an understanding of the molecular portrait of a “development cell.” That new integrated approach is known as stem-cell biology; it is an understanding of the embryology and development together at the molecular level using engineering, imaging and cell culture principles, and it is at the heart of this seminal book.

Features
► Offers a comprehensive review of the subject matter
► Chapters are written by leading scientists and researchers in the field
► Foreword written by renowned scholar, Professor John Gurdon

Fields of interest
Cell Biology; Developmental Biology; Biophysics and Biological Physics

Target groups
Research

Discount group
P

Due September 2010
2010. 600 p. 130 illus., 65 in color. (Stem Cell Biology and Regenerative Medicine) Hardcover
► approx. $209.00
ISBN 978-1-60761-859-1

The Physical Basis of Biochemistry

Biological chemistry has changed since the completion of the human genome project. There is a renewed interest and market for individuals trained in biophysical chemistry and molecular biophysics. The Physical Basis of Biochemistry, Second Edition, emphasizes the interdisciplinary nature of biophysical chemistry by incorporating the quantitative perspective of the physical sciences without sacrificing the complexity and diversity of the biological systems, applies physical and chemical principles to the understanding of the biology of cells and explores the explosive developments in the area of genomics, and in turn, proteomics, bioinformatics, and computational and visualization technologies that have occurred in the past seven years. The book features problem sets and examples, clear illustrations, and extensive appendices that provide additional information on related topics in mathematics, physics and chemistry.

Features
► Grounds students in the basic principles of biochemistry and molecular biophysics
► Delves into the explosive developments in the area of genomics, and in turn, proteomics, bioinformatics, and computational and visualization technologies
► Emphasizes the interdisciplinary nature of biophysical chemistry
► Contains numerous problem sets and examples, and clear illustrations

Fields of interest
Biochemistry; Biophysics and Biological Physics

Target groups
Graduate

Discount group
P

Due August 2010
2011. 610 p. 274 illus., 137 in color. (Methods in Molecular Biology, Volume 672) Hardcover
► approx. $159.00
Aging and Age-Related Disorders

Features that characterize the aging process include the gradual accumulation of cell damage after prolonged exposure to oxidative and inflammatory events over a lifetime. In addition to the accretion of lesions, the intrinsic levels of pro-oxidant and aberrant immune responses are elevated with age. These adverse events are often further enhanced by the chronic and slow progressing diseases that characterize the senescent brain and cardiovascular system. The incidence of some disorders such as Alzheimer’s disease and vascular diseases are sufficiently prevalent in the extreme elderly that these disorders can arguably be considered “normal”.

Features
► This monograph relies on the knowledge of internationally recognized experts and provides chapters that examine the interactive relationship between systems in the body, such as the nervous system and vascular system, that can enhance or sometimes even limit cellular longevity ► Extensive breadth of collaborators that have worked with us to highlight emerging knowledge and therapy for the understanding of the basis and development of aging – related disorders.

From the contents
Protein Redox Regulation Mechanisms in Aging; Nitrosative Stress in Aging – Its Importance and Biological Implications on NF-κB signaling; Intervention with Multiple Micronutrients Including Dietary and Endogenous Antioxidants for Healthy Aging; Advanced Glycation End Products, Rage and Aging; Sirtuins and Mammalian Aging; Estrogenic Modulation of Longevity by Induction of Antioxidant Enzymes.

Fields of interest
Oxidative Stress; Geriatrics/Gerontology; Cell Biology

Target groups
Professional/practitioner

Discount group
P

Biophysical Chemistry of Proteins
An Introduction to Laboratory Methods

The book is structured in nine sections, each containing several chapters. The volume starts with an overview of analytical techniques and progresses through purification of proteins; protein modification and inactivation; protein size, shape, and structure; enzyme kinetics; protein-ligand interactions; industrial enzymology; and laboratory quality control. The book is targeted at all scientists interested in protein research.

Features
► Focuses on the biophysical chemistry of proteins ► Presents an overview of the methods used in protein research ► Examines the possible applications and limitations of protein research

From the contents

Fields of interest
Biochemistry, general; Cell Biology; Chemistry/Food Science, general

Target groups
Research

Discount group
P

Due August 2010
2010. 500 p. 46 illus., 23 in color. (Oxidative Stress in Applied Basic Research and Clinical Practice, Volume 3) Hardcover
► approx $149.00 ISBN 978-1-60761-601-6

Due September 2010
2010. XIV, 476 p. Hardcover
► approx $209.00 ISBN 978-0-411-95417-7

Due November 2010
2011. XX, 550 p. 40 illus., 20 in color. Hardcover
► approx $209.00 ISBN 978-1-4419-7275-7
R. Carpentier, Université du Québec à Trois-Rivières, QC, Canada (Ed.)

**Photosynthesis Research Protocols**

The capture of sunlight by photosynthetic organisms supplies an enormous amount of the energy required to develop and sustain life on the planet, making photosynthesis one of the most important biological phenomena on Earth. Updating the popular first edition, Photosynthesis Research Protocols, Second Edition presents detailed descriptions of a broad range of general and fundamental methods that are commonly used by plant biochemists, physiologists, and molecular biologists, all of which are contributed by leading researchers in the field.

**Features**
- Describes vital techniques in simple terms, requiring no previous knowledge of the method
- Provides further hints and tips from the expert contributors which are not provided in regular research papers
- Features methods involving Ribulose-1,5-Bisphosphate Carboxylase/Oxygenase

**From the contents**
- Isolation of Photosystem II-Enriched Membranes and the Oxygen-Evolving Complex (OEC) Subunit Proteins from Higher Plants
- Isolation of Photosystem I Submembrane Fractions
- Isolation of Photosystem II Reaction Center Complexes from Plants
- Methods for the Isolation of Functional Photosystem II Core Particles from the Cyanobacterium Synechocystis sp. PCC 6803
- Purification and Crystallization of Oxygen-Evolving Photosystem II Core Complex from Thermophilic Cyanobacteria
- Isolation of Cytochrome b6f Complex from Grana and Stroma Membranes from Spinach Chloroplasts
- Purification and Crystallization of the Cytochrome b6f Complex
- Purification of Plastocyanin and Cytochrome c6 from Plants, Green Algae, and Cyanobacteria
- Isolation and Identification of Chloroplast Lipids

**Fields of interest**
- Plant Sciences
- Plant Biochemistry

**Target groups**
- Professional/practitioner

**Discount group**
- P


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J. Chen, Zhejiang Sci-Tech University, Hangzhou, Zhejiang, China

**Experimental Plant Virology**

“Experimental Plant Virology” provides the updated methodology for studying the genomic characterization and mechanisms of infection, the quantitative determination as well as the diagnosis of plant pathogenic viruses. With illustrations showing viral symptoms and ultra-structures, clear and concise descriptions, the book presents the latest developments in experimental plant virology. This book is intended for researchers, university teaching staff, graduate students and undergraduates in plant science.

**Features**
- Gives the characteristics of plant viruses in a clear and concise manner with the up-to-date methods for studying plant viruses
- A systematic description concerning the activity of a laboratory, and the experience of some important discoveries of RNA viruses with newly developed techniques
- Brings together some seemingly separate results to form a network for understanding the complex phenomena of life

**Contents**
- Gene Cloning of Cucumber Mosaic Virus and Some Related Viral Agents
- Molecular Detection of Cucumber Mosaic Virus and Other RNA Viruses Based on New Techniques
- Infectious Clones and Chimerical Recombination of Cucumber Mosaic Virus and its Satellite RNAs
- Gene Function of Cucumber Mosaic Virus and its Satellite RNA Regarding Viral-host Interactions
- Plant MicroRNAs and Their Response to Infection of Plant Viruses
- Genomic Characterization of New Viruses with Double Stranded RNA Genomes

**Fields of interest**
- Plant Pathology
- Plant Genetics & Genomics
- Agriculture

**Target groups**
- Research

**Discount group**
- P

**Due August 2010**

Distribution rights in China: Zhejiang University Press
Jointly published with Zhejiang University Press
2010. XIII, 267 p. 126 illus. (Advanced Topics in Science and Technology in China) Hardcover
- $219.00
  ISBN 978-3-642-14118-8

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H. Chiarini-Garcia, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil; R. C. Melo, Federal University of Juiz de Fora, MG, Brazil (Eds.)

**Light Microscopy**

**Methods and Protocols**

Of all scientific instruments, probably none has had more applications in the life sciences than the light microscope. In Light Microscopy: Methods and Protocols, expert researchers explore the basics and the latest advances in microscope instrumentation, sample preparation, and imaging techniques, all of which have been producing fundamental insights into the functions of cells and tissues. Chapters cover a variety of bright field and fluorescence microscopy-based approaches that are central to the study of a range of biological questions, providing information on how to prepare cells and tissues for microscopic investigations, covering detailed staining procedures, and exploring methods to analyze images and interpret the results accurately. Composed in the highly successful Methods in Molecular Biology® series format, each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a Notes section which shares tips on troubleshooting and avoiding known pitfalls.

**Features**
- Readily reproducible protocols for optimal histological observations under bright-field microscopy
- Provides full description of plastic resin embedding methods for plant and animal research
- Presents advanced methods to study leukocyte biology and inflammatory responses
- Imaging techniques applied to cytogenetic, cancer, neurobiology, ion mobilization, and aquatic ecology studies
- Includes immunocytochemistry methods and a comprehensive overview of fluorescence microscopy

**Fields of interest**
- Cell Biology

**Target groups**
- Professional/practitioner

**Discount group**
- P

**Due October 2010**

2nd ed. 2011. 370 p. 142 illus., 71 in color. (Methods in Molecular Biology, Volume 684) Hardcover
- approx. $139.00
  ISBN 978-1-60761-924-6

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2011. 204 p. 68 illus., 34 in color. (Methods in Molecular Biology, Volume 689) Hardcover
- approx. $119.00
**Methods in Biobanking**

International biobank collaborations allow for studies with large number of subjects where generalizability of findings across populations can be investigated, which means establishing quality criteria concerning the nature of the sample, conditions of sample storage, and the adequacy of available information is of vital importance. Methods in Biobanking brings together contributions from experts in the field in order to aid in the establishment of this much needed consistency. The volume discusses how to use existing collections of biological material to answer significant questions concerning the cause of disease without violating the personal integrity of participating sample donors, the ethical issues surrounding biobanks, guidelines for the use of coding systems and the use of biocomputing and registry linkages in research projects, as well as many other key subjects. As a volume in the highly successful Methods in Molecular Biology® series, this collection provides the kind of detailed description and implementation advice that is crucial for getting optimal results.

**Features**
- Provides key insights into successful biobanking practices
- Includes contributions focused on perfecting and standardizing worldwide techniques as written by current experts in the field
- Features chapters on ethical considerations and specific clinical topics using biobanks and registries

**Fields of interest**
Cell Biology; Biomaterials

**Target groups**
Professional/practitioner

**Discount group**
P

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**Soil Microbiology and Sustainable Crop Production**

Soils into which crop plants root and from which they obtain essential minerals and water contain huge arrays of microbes. Many have highly beneficial effects on crop growth and productivity, others are pathogens causing diseases and losses to yield and quality, a few microbes offer protection from these pathogenic forms and others have little or no effect. These intimate and often complex interrelationships are being explored with increasing success providing exciting opportunities for increasing crop yields and quality in sustainable harmony with the populations of beneficial soil microbes and to the detriment of pathogens. This book explores current knowledge for each of these aspects of soil microbiology and indicates where future progress is most likely to aid in increasing crop productivity by means which are environmentally benign and beneficial.

**Features**
- Topics brought together in one book
- Science, economics and practice are considered in a coherent form
- Provides a format by which soil microbes may be used for the alleviation of malnutrition and hunger

**From the contents**

**Fields of interest**
Microbiology; Soil Science & Conservation; Agriculture

**Target groups**
Graduate

**Discount group**
P

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**The Future of the World’s Forests**

Ideas vs Ideologies

At the landmark 1992 United Nations Conference on Environment and Development (Earth Summit), solemn resolutions were made both to protect the world’s biodiversity and to co-operate on managing natural forests in a sustainable and ecologically responsible way. If anything, given recent developments in issues such as climate change and poverty, the problem of protecting and sustaining forests should logically have become more important globally. Yet public interest in, and development support for, forest activities have declined and rates of forest loss remain stubbornly high. Why has this happened? This book seeks answers to this question. It examines the often dysfunctional relationships between various members of the international forest constituency, which have so often prevented the formation of consensus. It also explores the tendency to pursue technical and politically convenient ‘fixes’ focused on the internal workings of the forest sector, while ignoring the overwhelming influence of external forces on the fate of forests. The result, all too often, has been programs which benefit a few powerful players and fail to provide real solutions.

**Features**
- Good expertise, high ranking authors well-known throughout the forest and forest policy sectors
- Timeliness, particularly given the re-emergence of forests in the climate debate
- Detailed analysis of political and socio-economic decisions and their evolution in practice to develop a new strategy for sustainable forest development
- Written in an accessible and engaging style
- Political, social and economic dimensions of international forestry

**Fields of interest**
Forestry Management; Development Economics; Environmental Management

**Target groups**
Research

**Discount group**
P

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**Humana Press**

**Due October 2010**

2011. 370 p. 102 illus., 51 in color. (Methods in Molecular Biology, Volume 675) Hardcover

- **approx. $139.00**

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**Due August 2010**


- **approx. $209.00**
  - ISBN 978-0-8153-7478-0

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**Due September 2010**


- **approx. $179.00**
  - ISBN 978-0-8153-7478-0
Biologically-Inspired Systems

Series editor: S. N. Gorb

Biologically-Inspired Systems (BISY)

Motto: Structure and function of biological systems as inspiration for technical developments

Throughout evolution, nature has constantly been called upon to act as an engineer in solving technical problems. Organisms have evolved an immense variety of shapes and structures from macro down to the nanoscale. Zoologists and botanists have collected a huge amount of information about the structure and functions of biological materials and systems. This information can be also utilized to mimic biological solutions in further technical developments.

The most important feature of the evolution of biological systems is multiple origins of similar solutions in different lineages of living organisms. These examples should be the best candidates for biomimetics. This book series will deal with topics related to structure and function in biological systems and show how knowledge from biology can be used for technical developments in engineering and materials science. It is intended to accelerate interdisciplinary research on biological functional systems and to promote technical developments. Documenting the advances in the field will be important for fellow scientists, students, public officials, and for the public in general. Each of the books in this series is expected to provide a comprehensive, authoritative synthesis of the topic.

Biological Materials of Marine Origin

Invertebrates

This text is the first ever to offer a coherent analysis of the nature, origin and evolution of biocomposites and biomaterials found within the broad variety of marine invertebrate organisms and their unusual structural formations. It is an interdisciplinary look at the biomineralization, biomimetics and materials science unique to marine invertebrates. In this seminal work, Hermann Ehrlich, for the first time, proposes the classification, “biological materials of marine origin”. He uses numerous unique examples of marine origin to critically analyze many current relevant concepts from both the biological and materials science perspectives, including hierarchical organization of biocomposites and skeletal structures, structural bioscaffolds, biosculpturing, and biomimeticism. In addition, he covers many modern topics never before available in textbook format, such as phenomenon of multiphase biomineralization, biomineralization-demineralization-remineralization phenomena, and silica-collagen and silica-chitin biocomposites.

And he reviews the most relevant advances in the marine biomaterials research field, detailing the applications of biomaterials science in modern technology and medicine.

Features

- For the 1st time marine biology and biotechnology intersects with materials science
- Of interest of biologists, chemists, materials scientists & engineers
- Scientific findings & hypothesis discussed from a historical viewpoint, starting with events published in XVI th century
- Images of unique marine creatures & structures from nano- to microscale
- Only monograph that deals with marine biomaterials, suitable for courses

Fields of interest

Invertebrates; Biomaterials; Biotechnology

Target groups

Research

Discount group

P

Computational Biology

Computational biology is an interdisciplinary field that applies mathematical, statistical, and computer science methods to answer biological questions, and its importance has only increased with the introduction of high-throughput techniques such as automatic DNA sequencing, comprehensive expression analysis with microarrays, and proteome analysis with modern mass spectrometry. In Computational Biology, expert practitioners present a broad survey of computational biology methods by focusing on their applications, including primary sequence analysis, protein structure elucidation, transcriptomics and proteomics data analysis, and exploration of protein interaction networks. As a volume in the highly successful Methods in Molecular Biology™ series, this work provides the kind of detailed description and implementation advice that is crucial for getting optimal results.

Features

- Presents a broad survey of computational biology methods by focusing on their applications
- Aids scientists in building the foundation to the eventual goal of modeling complex systems like an entire cell
- Includes detailed descriptions of techniques provided by key experts from around the world

From the contents


Fields of interest

Bioinformatics; Systems Biology; Computer Appl. in Life Sciences

Target groups

Professional/practitioner

Discount group

P
Loudness

Loudness is the primary psychological correlate of intensity. When the intensity of a sound increases, loudness increases. However, there exists no simple one-to-one correspondence between loudness and intensity; loudness can be changed by modifying the frequency or the duration of the sound, or by adding background sounds. Loudness also changes with the listener’s cognitive state. Loudness provides a basic reference for graduate students, consultants, clinicians, and researchers with a focus on recent discoveries. The book begins with an overview of the conceptual thinking related to the study of loudness, addresses issues related to ts measurement, and later discusses thephysiological effects of loud sounds, reaction times and electrophysiological measures that correlate with loudness. Loudness in the laboratory, loudness of steady-state sounds and the loudness of time-varying sounds are also covered, as are hearing loss and models.

Features
► First basic reference on loudness ► An excellent resource for graduate students, consultants, clinicians, and researchers ► Chapters written by leaders in the field

Contents

Fields of interest
Neurobiology; Otorhinolaryngology; Neurosciences

Target groups
Research

Discount group
P

Due October 2010

► approx. $139.00
ISBN 978-1-4419-6711-4

Due November 2010

2011. 225 p. 144 illus., 72 in color. (Recent Advances in Phytochemistry, Volume 41) Hardcover
► approx. $199.00

Due September 2010

2010. 320 p. 96 illus., 48 in color. (Microbiology Monographs, Volume 19) Hardcover
► approx. $209.00
ISBN 978-3-642-13614-6

The Biological Activity of Phytochemicals

This is the first volume to be published under a new series agreement for Recent Advances in Phytochemistry, co-published with the Phytochemical Society of North America.

Features
► This 41st volume of RAP includes a total of twelve articles, all based on talks presented at the 49th annual meeting of the PSNA ► These eight Perspectives and four Communications give a very good picture of the state of plant (bio)chemistry research in North America, which is also indicative of the state of the field worldwide ► Serves as an authoritative, up-to-date resource that helps to set the gold standard for thought and research in fields related to plant biochemistry

From the contents

Field of interest
Plant Ecology

Target groups
Professional/practitioner

Discount group
P

(Endo)symbiotic Methanogenic Archaea

Methanogens are prokaryotic microorganisms that produce methane as an end-product of a complex biochemical pathway. They are strictly anaerobic archaea and occupy a wide variety of anoxic environments. Methanogens also thrive in the cytoplasm of anaerobic unicellular eukaryotes and in the gastrointestinal tracts of animals and humans. The symbiotic methanogens in the gastrointestinal tracts of ruminants and other “methanogenic” mammals contribute significantly to the global methane budget. This monograph deals with methanogenic endosymbionts of anaerobic protists, in particular ciliates and termite flagellates, and with methanogens in the gastrointestinal tracts of vertebrates and arthropods. Further reviews discuss the genomic consequences of living together in symbiotic associations, the role of methanogens in syntrophic degradation, and the function and evolution of hydrogenosomes, hydrogen-producing organelles of certain anaerobic protists.

Features
► A valuable source of information for scientists in microbiology and biochemistry ► Presents the latest results in the field of methanogenic archaea ► Written by renowned scientists

From the contents

Fields of interest
Microbiology; Biochemistry, general; Cell Physiology

Target groups
Research

Discount group
P
Quantitative Genetics in Maize Breeding

Maize is used in an endless list of products that are directly or indirectly related to human nutrition and food security. Maize is grown in producer farms, farmers depend on genetically improved cultivars, and maize breeders develop improved maize cultivars for farmers. Nikolai I. Vavilov defined plant breeding as plant evolution directed by man. Among crops, maize is one of the most successful examples for breeder-directed evolution. Maize is a cross-pollinated species with unique and separate male and female organs allowing techniques from both self and cross-pollinated crops to be utilized. As a consequence, a diverse set of breeding methods can be utilized for the development of various maize cultivar types for all economic conditions (e.g., improved populations, inbred lines, and their hybrids for different types of markets).

Features
- This updated version of, the what is considered to be, the “Maize Breeding Bible”
- A unique and permanent contribution to breeders, geneticists, students, and policy makers
- Integrative text which promotes collaborative work on sustainable crop improvement and production

Contents

Fields of interest
Plant Breeding/Biotechnology; Plant Genetics & Genomics; Plant Sciences

Target groups
Research

Discount group
P

Due July 2010

Biology of Earthworms

Earthworms, which belong to the order Oligochaeta, comprise roughly 3,000 species grouped into five families. Earthworms have been called ‘ecosystem engineers’; much like human engineers, they change the structure of their environments. Earthworms are very versatile and are found in nearly all terrestrial ecosystems. They play an important role in forest and agricultural ecosystems.

This Soil Biology volume describes the various facets of earthworms, such as their role in soil improvement, soil structure, and the biocontrol of soil-borne plant fungal diseases. Reviews discuss earthworms’ innate immune system, molecular markers to address various issues of earthworm ecology, earthworm population dynamics, and the influences of organic farming systems and tillage. Further topics include the characteristics of vermicompost, relationships between soil earthworms and enzymes, the role of spermathecae, copulatory behavior, and adjustment of the donated sperm volume.

Features
- Each chapter provides a general review and statement of current understanding, recent developments and advances, priorities for future research and applications
- With contributions written by leading international authorities working with earthworms
- A valuable source of information for scientists in biology, soil ecology and agriculture

Fields of interest
Terrestrial Ecology; Agriculture; Invertebrates

Target groups
Research

Discount group
P

Due October 2010

Aphid Biodiversity under Environmental Change

Patterns and Processes

This book presents completely novel, yet unpublished findings on aphid population dynamics and ecology in the context of recent environmental changes and closely related issues. It can be used as complementary text in any course on population dynamics and ecology of crop pests at undergraduate or graduate levels. The book is intended mainly for graduate students, researchers in crop science, crop protection, agricultural advisors and managers, but it will surely attract attention of many other people interested in insect pests, their biological control and ecology.

Features
- Presents completely novel, yet unpublished findings
- Unlike the other book concentrates mainly on the effect of environmental change on aphid population dynamics
- No similar book exist in the market

From the contents

Fields of interest
Entomology

Target groups
Research

Discount group
P

Due July 2010
Wild Crop Relatives – Genomics and Breeding Resources
Millets and Grasses

Wild crop plants are now playing a significant part in the elucidation and improvement of the genomes of their cultivated counterparts. This work includes comprehensive examinations of the status, origin, distribution, morphology, cytology, genetic diversity and available genetic and genomie resources of numerous wild crop relatives, as well as of their evolution and phylogenetic relationship. Further topics include their role as model plants, genetic erosion and conservation efforts, and their domestication for the purposes of bioenergy, phytomedicines, nutraceuticals and phytoremediation.


Features
- This 10-volume-work is the first comprehensive depiction of wild crops as a gold mine for breeding
- With chapters authored by internationally reputed leading scientists, many of whom contributed to the development of novel concepts, strategies and tools of genetics, genomics and breeding
- Richly illustrated work

From the contents

Fields of interest
Plant Breeding/Biotechnology; Plant Genetics & Genomics; Agriculture

Target groups
Research

Discount group
P

Wild Crop Relatives: Genomics and Breeding Resources
Cereals

Wild crop plants are now playing a significant part in the elucidation and improvement of the genomes of their cultivated counterparts. This work includes comprehensive examinations of the status, origin, distribution, morphology, cytology, genetic diversity and available genetic and genomic resources of numerous wild crop relatives, as well as of their evolution and phylogenetic relationship. Further topics include their role as model plants, genetic erosion and conservation efforts, and their domestication for the purposes of bioenergy, phytomedicines, nutraceuticals and phytoremediation.


Features
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- Richly illustrated work

From the contents

Fields of interest
Plant Breeding/Biotechnology; Plant Genetics & Genomics; Agriculture

Target groups
Research

Discount group
P

Multiscale Approaches to Protein Modeling
Structure Prediction, Dynamics, Thermodynamics and Macromolecular Assemblies

The book gives a comprehensive review of the most advanced multiscale methods for protein structure prediction, computational studies of protein dynamics, folding mechanisms and macromolecular interactions. It approaches span a wide range of the levels of coarse-grained representations, various sampling techniques and variety of applications to biomedical and biophysical problems. This book is intended to be used as a reference book for those who are just beginning their adventure with biomacromolecular modeling but also as a valuable source of detailed information for those who are already experts in the field of biomacromolecular modeling and in related areas of computational biology or biophysics.

Features
- Contains comprehensive reviews of the most advanced multiscale modeling methods in protein structure prediction
- The presented approaches span a wide range of the levels of coarse-grained representations
- This can be used as both a reference book for those just beginning with biomacromolecular modeling, and also as a source of more detailed information for those who are already experts in the field

Contents
Preface.- Lattice polymers and protein models.- Multiscale approach to protein and peptide docking.- Coarse-grained models of proteins: theory and applications.- Coarse-grained modeling of biomolecules with transferable force field.- Effective all-atom potentials for protein studies.- Statistical contact potentials in protein coarse-grained modeling: From pair to multi-body potentials.- Bridging the atomic and coarse-grained descriptions of collective motions in proteins.

Fields of interest
Protein Science; Protein Structure; Computational Biology/Bioinformatics

Target groups
Research

Discount group
P
Membrane Protein Structure Determination

Methods and Protocols

Membrane proteins, representing nearly 40% of all proteins, are key components of cells involved in many cellular processes, yet only a small number of their structures have been determined. Membrane Protein Structure Determination: Methods and Protocols presents many detailed techniques for membrane protein structure determination used today by bringing together contributions from top experts in the field. Divided into five convenient sections, the book covers various strategies to purify membrane proteins, approaches to get three dimensional crystals and solve the structure by x-ray diffraction, possibilities to gain structural information for a membrane protein using electron microscopy observations, recent advances in nuclear magnetic resonance (NMR), and molecular modelling strategies that can be used either to get membrane protein structures or to move from atomic structure to a dynamic understanding of a molecular functioning mechanism. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Features
► Addresses significant hurdles to membrane protein purification ► Describes techniques that permit the capture of atomic scale pictures of membrane proteins ► Includes tips for avoiding protocol pitfalls

Fields of interest
Proteomics; Membrane Biology

Target groups
Professional/practitioner

Discount group
P

Computational Biology of Transcription Factor Binding

Through great experimental difficulty, we’ve witnessed rapid, crucial developments at the intersection of computational biology, experimental technology, and statistics through which the vital process of transcriptional regulation can be further examined. In Computational Biology of Transcription Factor Binding, experts in the field examine the basic principles and provide detailed guidance for the computational analyses and biological interpretations of transcription factor binding, while disclosing critical practical information and caveats that are missing from many research publications. The volume serves not only computational biologists but experimentalists as well, who may want to better understand how to design and execute experiments and to communicate more effectively with computational biologists, computer scientists, and statisticians. Written for the highly successful Methods in Molecular Biology™ series, this work provides the kind of detailed description and implementation advice that is crucial for getting optimal results in the lab.

Features
► Guides scientists of all disciplines through the jungle of regulatory regions, ChIP-seq, about 200 motif discovery tools and others ► Includes vital tricks-of-the-trade from experts well-versed in the technology whenever available ► Provides cutting-edge protocols for computer biologists and for researchers who wish to better communicate with them

Fields of interest
Protein Science; Computer Appl. in Life Sciences

Target groups
Professional/practitioner

Discount group
P

Cell-Penetrating Peptides

Methods and Protocols

In recent years, a new understanding of cell-penetrating peptides has emerged, helping researchers to expand beyond a number of long-held dogmas. In Cell-Penetrating Peptides: Methods and Protocols, expert researchers explore the latest information on cell-penetrating peptides (CPPs), providing insight into the most important and contemporary areas of CPP research. Chapters address the historical background of CPP studies, provide an overview of the growing field of research, investigate methods for testing CPP mechanisms, present a summary of methods that attempt to use properties of CPPs to study biochemical intracellular mechanisms of interaction and signal transduction, and include new ideas for turning CPP-based strategies into drugs. Composed in the highly successful Methods in Molecular Biology™ series format, each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a Notes section which shares tips on troubleshooting and avoiding known pitfalls.

Features
► Fully updated cutting-edge methods for studies of mechanisms and applications of cell-penetrating peptides ► Includes methods for preparation and analysis of cellular uptake of cell-penetrating peptides and cargos ► Provides description of studies for cellular uptake, toxicity and bioeffects of cell-penetratin peptide-assisted delivery ► Provides description of in vivo studies of CPP-assisted delivery ► Provides description of design synthesis methods of oligonucleotides

Field of interest
Cell Biology

Target groups
Professional/practitioner

Discount group
P
Stem Cells for Myocardial Regeneration

Methods and Protocols

There is currently a great deal of enthusiasm surrounding organ regeneration, which mainly comes from the potential pluripotency of stem cells to differentiate into various tissue types. In Stem Cells for Myocardial Regeneration: Methods and Protocols, expert researchers explore exciting new developments in the field of regenerative medicine, focusing both on the benefits of using stem cells in myocardial repair and regeneration and on the challenges associated with making this a mainstream therapy. Chapters consider the optimal cell type for myocardial repair, examine the developmental processes of the human heart in order to develop strategies for regeneration, consider ex-vivo optical mapping and in vivo electrophysiology studies, and investigate the effects of the extracellular matrix on stem cell renewal and differentiation. Composed in the highly successful Methods in Molecular Biology series format, each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a Notes section which shares tips on troubleshooting and avoiding known pitfalls.

Features

► Provides comprehensive methods and reviews to help investigators assess the potential of stem cells for myocardial repair and regeneration
► Presents guidelines for the reliable isolation of commonly assessed stem cells for myocardial repair
► Includes cutting-edge methods to determine engraftment, efficacy, lectrical integration, and safety

Fields of interest

Cell Biology; Stem Cells; Gene Therapy

Target groups

Professional/practitioner

Discount group

P

Biodiversity, Biofuels, Agroforestry and Conservation Agriculture

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for our children. This discipline addresses current issues such as climate change, increasing food and fuel prices, starvation, obesity, water pollution, soil erosion, fertility loss, pest control and biodiversity depletion. Novel solutions are proposed based on integrated knowledge from agronomy, soil science, molecular biology, chemistry, toxicology, ecology, economy, philosophy and social sciences. As actual society issues are now intertwined, sustainable agriculture will bring solutions to build a safer world. This book series analyzes current agricultural issues, and proposes alternative solutions, consequently helping all scientists, decision-makers, professors, farmers and politicians wishing to build safe agriculture, energy and food systems for future generations.

Features

► Presents a list of advanced biofuels to counter climate change
► Gives a list of farming practices that favour carbon sequestration
► Describes several methods of conservation tillage to improve dryland soils

From the contents

1. Agroecology as a transdisciplinary science for a sustainable agriculture; Fabio Caporali. 2. Measuring agricultural sustainability; Daruish Hayati. 3. Sustainable bioenergy production, land and nitrogen use; Enrico Ceotto. 4. Biofuels, the role of biotechnology to improve their sustainability and profitability; Meenu Saraf. 5. Challenges and opportunities of soil organic carbon sequestration in croplands; Ilan Stavi. 6. Conservation agriculture under mediterranean conditions in Spain; Felix Moreno.

Fields of interest

Agriculture; Sustainable Development; Plant Sciences

Target groups

Graduate

Discount group

P

Geomicrobiology: Molecular and Environmental Perspective

This book is an interdisciplinary review of recent developments in topics including origin of life, microbial-mineral interactions, and microbial processes functioning in marine and terrestrial environments. A major component of this book addresses molecular techniques to evaluate microbial evolution and assess relationships of microbes in complex, natural communities. The function of microbial community members and their possible geological impact are evaluated from a perspective of (meta)genomics, (meta)proteomics, and isotope labeling. As well as summarizing current knowledge in various areas, it also reveals unresolved questions that require future investigations. These chapters enhance our fundamental knowledge of geomicrobiology that contributes to the exploitation of microbial functions in mineral and environmental biotechnology applications. Authors have provided skillful reviews and outlined unique perspectives on environmental microorganisms and their related processes.

Features

► Covers the interaction of microorganisms with geological activities resulting in processes influencing development of the Earth’s geo- and biospheres
► Addresses environmental proteomics, functional gene arrays, isotope labelling, bioinformatics & related techniques to analyze relationships & functions of microbes in complex, natural communities
► Review of the origin of life & evolution of metabolic pathways

Fields of interest

Microbial Ecology; Biogeosciences; Applied Microbiology

Target groups

Graduate

Discount group

P
Demographic Change in Australia’s Rural Landscapes
Implications for Society and the Environment

Throughout history, humans have lived primarily in rural landscapes. In 2008, for the first time, the global population became predominantly urban. While much research has focussed on the impacts of increasing urbanisation, we have very little knowledge of the implications of these changes for rural landscapes. Global trends suggest populations in rural landscapes are, relatively speaking, in decline. Yet this broad trend is too simplistic and can be very misleading for researchers, land managers and policy makers. This generalisation often masks a more complex pattern of demographic change, with some rural areas increasing in popularity and experiencing new environmental pressures. The patterns of change can be broadly categorised in two ways: population decline and dissolving rural communities; and amenity-led in-migration (or counter-urbanisation) – a trend identified in developed regions such as North America and Australia. Both of these patterns have substantial implications for the management and sustainability of rural landscapes and communities.

Features
 ► Integrated interdisciplinary approach
 ► Focus on rural landscapes
 ► Implications for planning policy

Fields of interest
Landscape Ecology; Landscape/Regional and Urban Planning; Sustainable Development

Target groups
Research

Discount group
P

Engineered Zinc Finger Proteins
Methods and Protocols

Among the many types of DNA binding domains, C2H2 zinc finger proteins (ZFPs) have proven to be the most malleable for creating custom DNA-binding proteins. In Engineered Zinc Finger Proteins: Methods and Protocols, expert researchers from some of the most active laboratories in this field present detailed methods, guidance, and perspectives. The volume contains sections covering the engineering of ZFPs, methods for the creation, evaluation, and delivery of artificial transcription factors (ATFs), methods for the creation and evaluation of zinc finger nucleases (ZFNs), and a collection of the several applications and assays beyond ATFs and ZFNs, including zinc finger transposases and ChIP-seq methodology amongst other subjects. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls.

Features
 ► Chapters from nearly all of the top research groups in the field
 ► Sections on zinc finger nucleases, one of the most exciting tools for gene therapy and genome engineering in the past decade

Fields of interest
Protein Science; Genetic Engineering

Target groups
Professional/practitioner

Discount group
P

Plant Growth and Health Promoting Bacteria

To cope with the increasing problems created by agrochemicals such as plant fertilizers, pesticides and other plant protection agents, biological alternatives have been developed over the past years. These include biopesticides, such as bacteria for the control of plant diseases, and biofertilizer to improve crop productivity and quality. Especially plant growth promoting rhizobacteria (PGPR) are as effective as pure chemicals in terms of plant growth enhancement and disease control, in addition to their ability to manage abiotic and other stresses in plants. The various facets of these groups of bacteria are treated in this Microbiology Monograph, with emphasis on their emergence in agriculture. Further topics are Bacillus species that excrete peptides and lipopeptides with antifungal, antibacterial and surfactant activity, plant-bacteria-environment interactions, mineral-nutrient exchange, nitrogen assimilation, biofilm formation and cold-tolerant microorganisms.

Features
 ► A valuable source of information for scientists in basic microbiological research as well as in applied fields of agriculture, plant pathology and environmental sciences
 ► Presents current developments in the use of bacteria as biofertilizers and biopesticides
 ► Written by renowned scientists

Fields of interest
Bacteriology; Agriculture; Plant Breeding/Biotechnology

Target groups
Research

Discount group
P
**Plant Biotechnology for Sustainable Production of Energy and Co-products**

The successful use of plant biomass for the sustainable production of energy and co-products such as chemicals is critically important for the future of humanity. Large scale exploitation of biomass is needed to decrease the production of greenhouse gases and help mitigate global warming, to provide energy security in the face of declining petroleum reserves, to improve balance of payment imbalances, and to spur local economic development. This volume discusses such uses of plant biomass as well as ways to improve the productivity and composition of plant species, including trees, perennial and annual grasses, oil-producing plants and algae, that have the potential to produce substrates such as sugar, starch, oil and cell walls, as well as energy and co-product substrates. The problems of invasiveness and gene dispersal are discussed, as are ways to mitigate these. Among the topics covered are models for integrated biorefineries to produce many co-product chemicals, the use of corn stover to power ethanol plants, life cycle analysis of biofuels, and criteria for biomass sustainability and certification. This is indeed an exciting and fast-moving time for advocates of plant biomass-based technology.

**Features**
- Discusses the possible uses of plant biomass
- Covers cutting-edge research and development
- Written by top scientists

**Contents**

**Fields of interest**
- Agriculture; Forestry; Plant Breeding/Biotechnology

**Target groups**
- Research

**Discount group**
- P

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**The Cell Biology of Stem Cells**

The Cell Biology of Stem Cells discusses multiple aspects of stem cell biology, ranging from their basic molecular characteristics to the in vivo stem cell trafficking of adult stem cells and the adult stem-cell niche, and ends with a visit to regeneration and cell fate reprogramming. It provides much of the current understanding of the cell biology of stem cells and discusses many of the open questions that remain to be answered.

**Features**
- Describes the mechanisms that support early developmental decisions in the mouse pre-implantation embryo
- Addresses the structure and function of the three-dimensional space of the nucleus in ES cells
- Illustrates the dynamics and regulation of DNA replication in ES cells
- Addresses novel genome-wide approaches to analyze splicing and alternative splicing patterns at a global scale

**Contents**
- Early Embryonic Cell Fate Decisions In The Mouse
- Nuclear Architecture In Stem Cells
- Epigenetic Regulation Of Pluripotency
- Autosomal Lyonization Of Replication Domains During Early Mammalian Development
- Preservation Of Genomic Integrity In Mouse Embryonic Stem Cells
- Transcriptional Regulation In Embryonic Stem Cells
- Alternative Splicing In Stem Cell Self-Renewal And Differentiation
- MicroRNA Regulation Of Embryonic Stem Cell Self-Renewal And Differentiation
- Telomeres And Telomerase In Adult Stem Cells And Pluripotent Embryonic Stem Cells
- X Chromosome Inactivation And Embryonic Stem Cells
- Adult Stem Cells And Their Niches
- Adult Stem Cell Differentiation And Trafficking And Their Implications In Disease
- Vertebrates That Regenerate As Models For Guiding Stem Cells
- Reprogramming Of Somatic Cells To Pluripotency

**Fields of interest**
- Stem Cells; Cell Biology

**Target groups**
- Research

**Discount group**
- P

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**Enzyme Stabilization and Immobilization**

In the past decade, researchers have made tremendous progress in the field of enzyme stabilization, opening up new opportunities for enzymes in molecular biology and for industrial applications. In Enzyme Stabilization and Immobilization: Methods and Protocols, expert researchers explore the latest developments through detailed laboratory protocols, which address many different theories and techniques in enzyme stabilization. Chapters outline protocols for enzyme stabilization in solutions, including: liposome formation, micelle introduction, crosslinking, and additives. Secondly, the book contain protocols for enzyme stabilization via enzyme immobilization, such as sol-gel encapsulation, polymer encapsulation, and single enzyme nanoparticle formation. Composed in the highly successful Methods in Molecular Biology™ series format, each chapter contains a brief introduction, step-by-step methods, a list of necessary materials, and a Notes section which shares tips on troubleshooting and avoiding known pitfalls.

**Features**
- Provides protocols for enzyme stabilization that can be used for any enzyme of interest to the reader
- Includes up-to-date protocols on the latest enzyme immobilization techniques
- Provides a thorough review of methods for accurately determining enzyme activity and stability
- Procedures are scalable from microscale molecular biology assays to industrial bioprocessing.

**Field of interest**
- Biochemistry, general

**Target groups**
- Professional/practitioner

**Discount group**
- P
Studies on Renal Disorders

Conditions such as oxidative stress and hypoxia, which have a generalized impact on the oxygen metabolism, have been implicated in the genesis of kidney disease. This means that deepening our understanding of the pathobiology of oxygen metabolism in such diseases could be a fruitful path towards tangible clinical benefits. Studies in Renal Disorder collects reviews from leading researchers and clinical scientists working in this exact field, providing an overview of the latest advances. The causal role of impaired oxygen metabolism in kidney disease has numerous clinical implications. It affects our understanding of the therapeutic benefits accruing from anti-hypertensive agents; the way we control hyperglycemia/hyperinsulinemia and hyperlipidemia; and our use of dietary approaches to the correction of obesity. The defensive mechanisms against oxidative stress, such as the Nrf2-Keap1 system, and hypoxia, such as the PHD-HIF system, have recently been explored in various cells, including kidney cells. These mechanisms include intracellular sensors for oxidative stress and hypoxia. This means that novel approaches targeting these sensors may offer clinical benefits in kidney disease in which oxidative stress and/or hypoxia is a final, common pathway.

Features
► Covers broad derangements of oxygen metabolism, such as oxidative stress and hypoxia
► Covers the defensive mechanisms against oxidative stress (e.g. the Nrf2-Keap1 system) and hypoxia (e.g. the PHD-HIF system)
► Leading basic researchers and clinical scientists provide up-to-date, cutting-edge reviews on recent advances in the pathobiology of oxygen metabolism in kidney disease, especially oxidative stress and hypoxia

Fields of interest
Oxidative Stress; Cell Biology; Nephrology

Target groups
Professional/practitioner

Discount group
P

The Plant Plasma Membrane

In plant cells, the plasma membrane is a highly elaborated structure that functions as the point of exchange with adjoining cells, cell walls and the external environment. Transactions at the plasma membrane include uptake of water and essential mineral nutrients, gas exchange, movement of metabolites, transport and perception of signaling molecules, and initial responses to external biota. Selective transporters control the rates and direction of small molecule movement across the membrane barrier and manipulate the turgor that maintains plant form and drives plant cell expansion. The plasma membrane provides an environment in which molecular and macromolecular interactions are enhanced by the clustering of proteins in oligomeric complexes for more efficient retention of biosynthetic intermediates, and by the anchoring of protein complexes to promote regulatory interactions. The coupling of signal perception at the membrane surface with intracellular second messengers also involves transduction across the plasma membrane. Finally, the generation and ordering of the external cell walls involves processes mediated at the plant cell surface by the plasma membrane.

Features
► The only book focused on the plant plasma membrane only.
► State-of-the-art contents
► Provides a clear overview of the basics

From the contents

Fields of interest
Plant Physiology; Cell Biology; Plant Biochemistry

Target groups
Research

Discount group
P

The Japanese Macaques

Japanese macaques (Macaca fuscata) have been studied by primatologists since 1948, and considerable knowledge of the primate has been accumulated to elucidate the adaptation of the species over time and to distinct environments in Japan. The Japanese macaque is especially suited to intragenera and interpopulation comparative studies of behavior, physiology, and morphology, and to socioecology studies in general. This book, the most comprehensive ever published in English on Japanese macaques, is replete with contributions by leading researchers in field primatology. Highlighted are topics of intraspecific variations in the ecology and behaviors of the macaque. Such variations provide evidence of the ecological determinants on this species’ mating and social behaviors, along with evidence of cultural behavior. The book also addresses morphology, population genetics, recent habitat change, and conflicts with humans, and attests to the plasticity and complex adaptive system of macaque societies. The valuable information in this volume is recommended reading for researchers in primatology, anthropology, zoology, animal behavior, and conservation biology.

Features
► Most comprehensive source of information on Japanese macaques ever published
► Emphasizes understanding of intraspecific variations in morphology, genetic structure, physiology, ecology, and behaviors
► Includes many beautiful color photos of Japanese macaques

From the contents

Fields of interest
Zoology

Target groups
Research

Discount group
P
Morphological, biological, biochemical and physiological characteristics have been used for the detection, identification and differentiation of fungal pathogens up to species level. Tests based on biological characteristics are less consistent. Immunoassays have been shown to be effective in detecting fungal pathogens present in plants and environmental samples. Development of monoclonal antibody technology has greatly enhanced the sensitivity and specificity of detection, identification and differentiation of fungal species and varieties/strains. Nucleic acid-based techniques involving hybridization with or amplification of unique DNA have provided results rapidly and reliably. Presentation of a large number of protocols is a unique feature of this volume.

From the contents
Chapter 1 Introduction.- 1.1 Microbial plant pathogens as a major limiting factor of crop production.- 1.2 Discovery of fungi as plant pathogens.- 1.3 Detection of fungal plant pathogens and disease diagnosis. - References.- Chapter 2 Detection of Fungal Pathogens in Plants.- 2.1 Detection of fungal pathogens in seeds and planting materials. - Appendix.- References.- Chapter 3 Detection of Fungal Pathogens in the Environment.- 3.1 Detection of fungal pathogens in soil.

Features
- Presentation of essential and latest information on detection of fungal plant pathogens and diagnosis of the diseases caused by them.
- Discussion on all aspects of pathogen detection based on extensive literature search.
- Inclusion of a wide range of protocols for detection of fungal pathogens in plants and environmental samples.

Designation
Plant Pathology; Microbiology; Plant Breeding/Biotechnology

Target groups
Research

Discount group
P

Due October 2010
2011.200 p. 20 illus., 10 in color. Hardcover
$189.00 ISBN 978-90-481-9734-7
Sabkha Ecosystems

Volume III: Africa and Southern Europe

This book is part of the Sabkha Ecosystems series. The series is designed to provide information on sabkha ecosystems of different regions. It will add to the collective knowledge available about saline ecosystems and also focuses on the African region where only limited information is currently available.

Features
- Contains important information about the type of plants that are distributed in highly saline areas
- Provides information about ecology and particularly edaphology of the sabkha system
- Unique in covering a broad regional area
- Unique in having been written by selected experts of the specific scientific fields
- Up to date with ongoing developments

From the contents

Fields of interest
Plant Ecology; Agriculture; Biodiversity

Target groups
Graduate

Discount group
P

Due September 2010
2010. 270 p. 81 illus. (Tasks for Vegetation Science, Volume 46) Hardcover
approx. $179.00

On the Origins and Dynamics of Biodiversity: the Role of Chance

Chance is necessary for living systems – from the cell to organisms, populations, communities and ecosystems. It is at the heart of their evolution and diversity. Long considered contingent on other factors, chance both produces random events in the environment, and is the product of endogenous mechanisms - molecular as well as cellular, demographic and ecological. This is how living things have been able to diversify themselves and survive on the planet. Chance is not something to which life has been subjected; it is quite simply necessary for life. The endogenous mechanisms that bring it about are at once the products and engines of evolution, and they also produce biodiversity. These internal mechanisms - veritable "biological roulettes" - are analogous to the mechanical devices that bring about "physical chance". They can be modeled by analogous mathematical equations. This opens the way of a global modeling of biodiversity dynamics, but we need also to gather quantitative data in both the laboratory setting as well as in the field. By examining biodiversity at all scales and all levels, this book seeks to evaluate the breadth of our knowledge on this topical subject, to propose an integrated look at living things, to assess the role of chance in its dynamics, in the evolutionary processes and also to imagine practical consequences on the management of living systems.

Features
- This book takes stock of the biological and ecological aspects - from the gene to the ecosystem - to outline a "biological" theory of biodiversity
- It shows us how these internal mechanisms are analogous to the mechanical devices that bring about "physical chance"
- This book seeks to evaluate the breadth of our knowledge on biodiversity, our possible responses, and the limits of this tome, metabolome, and ultra high-throughput sequencing data

Fields of interest
Biodiversity; Philosophy of Biology; Theoretical Ecology/Statistics

Target groups
Research

Discount group
P

Due August 2010
2010. 150 p. 90 illus., 45 in color. Hardcover
approx. $129.00
ISBN 978-1-4419-6243-0

Plant Reverse Genetics

Methods and Protocols

After the generation of genome sequence data from a wide variety of plants, databases are filled with sequence information of genes with no known biological function, and while bioinformatics tools can help analyze genome sequences and predict gene structures, experimental approaches to discover gene functions need to be widely implemented. In Plant Reverse Genetics: Methods and Protocols, leading researchers in the field describe cutting-edge methods, both high-throughput and genome-wide, involving the models Arabidopsis and rice as well as several other plants to provide comparative functional genomics information. With chapters on the analysis of high-throughput genome sequence data, the identification of non-coding RNA from sequence information, the comprehensive analysis of gene expression by microarrays, and metabolomic analysis, the thorough methods of the book are fully supported by scripts to aid their computational use. Written in the highly successful Methods in Molecular Biology™ series format, the chapters contain introductions to their respective topics, lists of the necessary materials, step-by-step, readily reproducible laboratory protocols, and notes on troubleshooting and avoiding known pitfalls.

Features
- Presents an experimental framework to ascribe functions to plant genes in model and crop plants
- Describes methods for generating mutants in model and specific target plants
- Includes detailed protocols for the analysis of transcriptome, metabolome, and ultra high-throughput sequencing data

Fields of interest
Plant Sciences; Plant Genetics & Genomics; Gene Function

Target groups
Professional/practitioner

Discount group
P

Due October 2010
2010. 290 p. 122 illus., 61 in color. (Methods in Molecular Biology, Volume 678) Hardcover
approx. $139.00
ISBN 978-1-60761-681-8
BetaSys

Systems Biology of Regulated Exocytosis in Pancreatic β-Cells

BetaSys uses the example of regulated exocytosis in pancreatic β-cells, and its relevance to diabetes, to illustrate the major concepts of systems biology, its methods and applications.

Features
• This book uses the example of regulated exocytosis in pancreatic β-cells, and it’s relevance to diabetes, to illustrate the major concepts of systems biology, its methods and applications
• In using a focused approach here by picking one outlook, the topic of Systems Biology is more accessible
• Systems Biology is a fast moving field, but the work presented here emphasizes the principal aspects of the field, making this a tool for on-going research

From the contents

Fields of interest
Systems Biology; Human Genetics; Bioinformatics

Target groups
Research

Discount group
P

Due October 2010

2010. 440 p. 325 illus., 75 in color. (Systems Biology, Volume 2) Hardcover

$189.00

Progress in Botany

Evolutionary Biology – Concepts, Molecular and Morphological Evolution

The annual Evolutionary Biology Meetings in Marseille aim to bring together leading scientists, promoting an exchange of state-of-the-art knowledge and the formation of inter-group collaborations. This book includes the most representative contributions to the 13th meeting, which was held in September 2009.

From the contents
Extinct and extant reptiles: a model system for the study of sex chromosome evolution.- Constraints, plasticity and universal patterns in genome and phenotype evolution.- Starvation-induced reproductive isolation in yeast.- Populations of RNA molecules as computational model for evolution.- Pseudaptations and the emergence of beneficial traits.- Transferomics: seeing the evolutionary forest using phylogenetic trees.- Comparative genomics and transcriptomics of lactation.- Evolutionary dynamics in the aphid genome: Search for genes under positive selection and detection of gene family expansions.- Mammalian chromosomal evolution: from ancestral states to evolutionary regions.- Mechanisms and evolution of dorsal-ventral patterning.- Evolutionary genomics for eye diversification.- Do long and highly conserved noncoding sequences in vertebrates have biological functions? Male-killing Wolbachia in the butterfly Hypolimnas bolina.

Fields of interest
Evolutionary Biology; Developmental Biology; Animal Genetics and Genomics

Target groups
Research

Discount group
P

Due August 2010

2010. 360 p. Hardcover

$209.00
ISBN 978-3-642-12339-9

Due November 2010


$209.00
ISBN 978-3-642-13144-8
**Muscle Biophysics**

From Molecules to Cells

The field of muscle biophysics has changed dramatically over the past years and new studies are reshaping the way we think muscles contract. Rapidly evolving techniques and advances are allowing us to understand the mechanics of individual molecules and cells as we could never do so before. This book, a contributed volume of the work of several current opinion leaders and well-known scientists in the field, will be unique for its rich list of authors as well as its updated, comprehensive inclusion of techniques in both cell and molecular biophysics.

**Features**

- Chapters contributed by world leaders in their field
- Material covers an updated, comprehensive inclusion of techniques in both cell and molecular biophysics
- Represents an excellent source of information for readers intending to understand the mechanics of muscle contraction

**From the contents**

Striated Muscles: From Molecules To Cells.
- Contractile Performance Of Striated Muscle.
- A Strain-Dependancy Of Myosin Off-Rate Must Be Sensitive To Frequency To Predict The B-Process Of Sinusoidal Analysis.
- Electron Microscopic Visualization Of The Cross-Bridge Movement Coupled With Atp Hydrolysis In Muscle Thick Filaments In Aqueous Solution, Reminisences And Future Prospects.
- Role Of Titin In Skeletal Muscle Function And Disease.
- Contractile Characteristics Of Sarcomeres Arranged In Series Or Mechanically Isolated From Myofibrils.
- The Force-Length Relationship Of Mechanically Isolated Sarcomeres.
- Extraction And Replacement Of The Tropomyosin-Tropinin Complex In Isolated Myofibrils.

**Fields of interest**

Biochemistry; general; Biophysics and Biological Physics; Animal Biochemistry

**Target groups**

Professional/practitioner

**Discount group**

P

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**Stem Cells in the Respiratory System**

In this state-of-the-art exploration of a hugely dynamic and fast-evolving field of research, leading researchers share their collective wisdom on the role that stem cells could play in the context of physiological stress and lung injury. The text focuses on reviewing the most relevant – and recent – ideas on using local, endogenous, and exogenous progenitor/stem cells in preventing and treating injury to the lung. The lungs are one of the most complex organs in the human body, with a mature adult lung boasting at least 40 morphologically differentiated cell lineages. Our entire blood supply passes through the lung's alveolar units during oxygenation. This interaction with the outside world, along with the intricacies of its structure, makes the lung a highly susceptible organ that is vulnerable to numerous types of injury and infection. This means that the mechanisms of lung repair are in themselves correspondingly complex.

**Features**

- Aply discusses the potential role of the different types of stem cell in lung repair
- Describes animal models in which stem cells have been used and the implications for their use as future therapy in lung diseases
- The authors, presenting here their work, are undisputable leaders in their field making this book an exciting collection of reviews by an outstanding group of investigators

**From the contents**


**Fields of interest**

Stem Cells; Pneumology/Respiratory System; Cell Biology

**Target groups**

Professional/practitioner

**Discount group**

P

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**Managing Coastal and Inland Waters**

Pre-existing Aquatic Management Systems in Southeast Asia

Besides the erroneous assumption that tropical fisheries are 'open access', the cases demonstrate that pre-existing systems (1) are concerned with the community of fishers and ensuring community harmony and continuity; (2) involve flexible, multiple and overlapping rights adapted to changing needs and circumstances; (3) that fisheries are just one component of a community resource assemblage and depend on both the good management of linked upstream ecosystems and risk management to ensure balanced nutritional resources of the community; and (4) pre-existing systems are greatly affected by a constellation of interacting external pressures.

**Features**

- Unique in topic examined; no other book on this subject published for Southeast Asia or any other region
- Brings new insights to the modern role of pre-existing aquatic resource management systems
- Adds a new dimension to the literature on tropical fisheries and management of fishing communities
- Offers comparative analysis based on 5 Southeast Asian countries: Indonesia, Laos, Philippines, Thailand and Vietnam

**From the contents**


**Fields of interest**

Fish & Wildlife Biology & Management; Human Geography; Anthropology

**Target groups**

Professional/practitioner

**Discount group**

P
Mangrove ecosystems are being increasingly threatened by human activities. Their biotic productivity supplies food and other resources to the human populations that inhabit or make use of them. This volume highlights the results of a ten-year German / Brazilian research project, called MADAM, in one of the largest continuous mangrove areas of the world, located in northern Brazil. Based on the analysis of the ecosystem dynamics, management strategies for the conservation and sustainable use of mangroves are presented and discussed. Beyond the scientific results, this book also provides guidelines for the development of international cooperation projects.

**Features**
- Of interest to academics of all areas of natural and social sciences as well as environmental managers
- Written by experts
- Richly illustrated

**Contents**

**Fields of interest**
Plant Ecology; Tree Biology; Ecosystems

**Target groups**
Research

**Discount group**
P

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**M. Schuller, Profitable Business Development; T. P. Sloots, Queensland Children’s Medical Research Institute, Brisbane, QLD, Australia; G. S. James, CIDMILS, ICMR, Westmead, NSW, Australia; C. L. Halliday, CIDM, Westmead Hospital, Westmead, NSW, Australia; I. W. Carter, SEALS Microbiology Department, Prince of Wales Hospital, Randwick, NSW, Australia (Eds.)**

**PCR for Clinical Microbiology**
An Australian and International Perspective

Not another textbook, but a valuable tool for doctors and microbiologists wanting to know how to set up a PCR diagnostic microbiology laboratory according to current regulatory standards and perform assays supplied with patient clinical diagnostic criteria and easy to follow protocols. Whether laboratories are using commercial kits or in-house methods developed in their own laboratories or adopted from published methods, all clinical microbiology laboratories need to be able to understand, critically evaluate, perform and interpret these tests according to rigorous and clinically appropriate standards and international guidelines. The cost and effort of development and evaluation of in-house tests is considerable and many laboratories do not have the resources to do so.

**Features**
- Provides detailed and easy step by step protocols for diagnostic assays in the field of molecular microbiology
- Provides a valuable overview of molecular diagnostics in infectious diseases
- Medical criteria for choice of molecular test
- Guide to set up a clinical molecular diagnostic laboratory

**From the contents**

**Fields of interest**
Microbiology; Applied Microbiology; Infectious Diseases

**Target groups**
Research

**Discount group**
P
Symbioses and Stress
Joint Ventures in Biology

This book centers on the question of how organisms in tight symbiotic associations cope with various types of abiotic and biotic stress. In its original sense, symbioses cover all kinds of interactions among unrelated organisms, whereas in a narrower concept, the term is often referred to as mutualism. Evolutionary biology recognizes symbiosis as an integrative process, and most fundamental evolutionary innovations arose from cooperative symbioses. Mutualisms contribute to stress tolerance, ecosystem stability, and evolutionary radiation of cooperating organisms. Modern eukaryotic cells are the result of the endosymbiotic union of prokaryotic ancestors as well as diverse exosymbiotic associations. This cooperative aggregation appears more successful than its independent parts.

Features
- Symbioses are vital processes in biology, involving several organisms (Prokaryotes and Eukaryotes)
- This book brings new information on symbioses by experts and leading scholars in this field
- This information of the volume complements courses and lectures in General biology and genetics

From the contents

Fields of interest
Eukaryotic Microbiology; Microbiology; Evolutionary Biology

Target groups
Graduate

Discount group
P

Due September 2010
≈ approx. $209.00

Oral Biology
Molecular Techniques and Applications

With so many major advances over the past two decades coming through the application of molecular biology and nanotechnology, it is essential that dental research, education, and practice keep pace with the rapid progress of science. In Oral Biology: Molecular Techniques and Applications, expert researchers in the field have provided a selection of in depth methods and techniques optimized for particular applications, which can be readily adapted to particular organisms or areas of interest. Divided into three convenient sections, the book covers the study of saliva, as it is a rich source of biomolecules for study at the molecular level, which may lead to the identification of susceptibility to particular diseases, the study of microbial inhabitants that share the oral cavity with us, as well as a range of protocols that facilitate assessment of the molecular behavior of oral cells and tissues in health and during disease progression. Written in the highly successful Methods in Molecular Biology™ series format, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls.

Features
- Contains thorough protocols, easily adapted to particular organisms or areas of interest
- Includes key chapters with sections on bioinformatics for the analysis and interpretation of data
- Delves into saliva studies, microbial inhabitants in the oral cavity, and oral cells and tissues in health and during disease progression, with expert tips on avoiding protocol pitfalls

Fields of interest
Microbiology; Pathology

Target groups
Professional/practitioner

Discount group
P

Due August 2010
2010. 360 p. 100 Illus., 50 in color. (Methods in Molecular Biology, Volume 666) Hardcover
≈ approx. $139.00

Soil Enzymology

Soil enzymes are one of the vital key mediators involved in nutrient recycling and the decomposition of organic matter and thereby in maintaining soil quality and fertility. This Soil Biology volume covers the various facets of soil enzymes, such as their functions, biochemical and microbiological properties and the factors affecting their activities. Enzymes in the rhizosphere, in forest soils, and in volcanic ash-derived soils are described. Soil enzymes covered include phosphohydrolases, lignocellulose-degrading enzymes, phenol oxidases, fungal oxidoreductases, keratinases, pectinases, xylanases, lipases and pectinases.

Several chapters treat the soil enzymatic activities in the bioremediation of soils contaminated with pesticides and pollutants such as oil, chlorinated compounds, synthetic dyes and aromatic hydrocarbons. The role of soil enzymes as bioindicators is a further important topic addressed.

Features
- A valuable source of information for scientists in microbiology, biochemistry and environmental sciences
- Written by renowned scientists
- Presents the latest results in the field of soil enzymes

From the contents

Fields of interest
Enzymology; Agriculture; Soil Science & Conservation

Target groups
Research

Discount group
P

Due October 2010
2011. 320 p. (Soil Biology, Volume 22) Hardcover
≈ approx. $209.00
ISBN 978-1-60761-954-7
Biosurfactants: From Genes to Applications

Gloria Soberón-Chávez, Universidad Nacional Autónoma de México, Alvaro Obregón, México (Ed.)

Biosurfactants, tensio-active compounds produced by living cells, are now gaining increasing interest due to their potential applications in many different industrial areas in which to date almost exclusively synthetic surfactants have been used. Their unique structures and characteristics are just starting to be appreciated. In addition, biosurfactants are considered to be environmentally "friendly," relatively non-toxic and biodegradable. This Microbiology Monographs volume deals with the most recent advances in the field of microbial biosurfactants, such as rhamnolipids, serratellins, trehalolipids, mannosylerythritol lipids, sophorolipids, surfactin and other lipopeptides. Each chapter reviews the characteristics of an individual biosurfactant including the physicochemical properties, the chemical structures, the role in the physiology of the producing microbes, the biosynthetic pathways, the genetic regulation, and the potential biotechnological applications.

Features
► A valuable source of information for scientists
in microbiology, biochemistry and biotechnology
► Covers the current knowledge and the most
recent advances in the field of microbial biosurfac-
tants
► Each chapter is written by one or more
expert scientist working on a particular class of
biosurfactants

From the contents
Ahmad Mohammad Abdel-Mawgoud, Rudolf Hausmann, Francois Lépine, Markus M. Müller and Eric Déziel: Rhamnolipids: Detection, Analysis, Biosynthesis, Genetic Regulation and Bioengineering of Production.
Philippe Jacques: Surfactin and other lipopeptides from Bacillus spp.

Field of interest
Microbiology

Research

Discount group
P

Photoprotection in Plants: Optical Screening-based Mechanisms

A. Solovchenko, M.V. Lomonosov Moscow State University, Russia

Optical screening of excessive and potentially harmful solar radiation is an important photoprotective mechanism, though it has received much less attention in comparison with other systems preventing photooxidative damage to photoautotrophic organisms. This photoprotection in the form of screening appears to be especially important for juvenile and senescing plants as well as under environmental stresses—i.e. in situations where the efficiency of enzymatic ROS elimination, DNA repair and other ‘classical’ photoprotective systems could be impaired.

Features
► Summarises the current knowledge on
photoprotection of plants via optical screening
of solar radiation in the UV and visible parts of
the spectrum by extrathylakoid pigments
► Special attention is paid to the effects of screening pigment
accumulation on plant optical properties
► The readers find the summary of key screening
pigments, their spectral properties in planta and
numerous illustrated cases

Contents
Optical screening as a Photoprotective Mechan-
ism.- Screening Pigments: General Questions.-
Stress-induced Build-up of Screening Pigments.-
Localization of Screening Pigments within Plant
Cells and Tissues.- Manifestations of Screening
Pigments Build-up in Optical Properties of Plants.-
Quantification of Screening Pigments and Their
Efficiency in situ.- Build-up of Screening Pigments
and Resistance of Plants to Photodamages.

Fields of interest
Plant Biochemistry; Biophysics and Biological
Physiology; Plant Physiology

Research

Discount group
P

Current Ornithology
Volume 17

C. Thompson, Illinois State University, Normal, IL, USA (Ed.)

Current Ornithology publishes authoritative,
up-to-date, scholarly reviews of topics selected
from the full range of current research in avian
biology. Topics cover the spectrum from the
molecular level of organization to population
biology and community ecology. The series seeks
especially to review (1) fields in which an abun-
dant recent literature will benefit from synthesis
and organization, or (2) newly emerging fields
that are gaining recognition as the result of recent
discoveries or shifts in perspective, or (3) fields
in which students of vertebrates may benefit from
comparisons of birds with other classes. All chap-
ters are invited, and authors are chosen for their
leadership in the subjects under review.

Features
► Topics cover the spectrum from the molecular
level of organization to population biology and
community ecology
► Scholarly reviews of topics selected from the full range of current research in avian
biology

Fields of interest
Zoology; Animal Systematics/Taxonomy/
Biogeography; Animal Physiology

Research

Discount group
P
Biofuels
Global Impact on renewable energy, production agriculture, and technological advancements

This comprehensive volume developed under the guidance of guest editors Prakash Lakshmanan and David Songstad features broad coverage of the topic of biofuels and its significance to the economy and to agriculture. These chapters were first published by In Vitro Cellular and Developmental Biology In Vitro Plant in 2009 and consists of 15 chapters from experts who are recognized both for their scientific accomplishments and global perspective in their assigned topics.

Features
► Excellent resource of diverse biofuels knowledge LONG
► Organized by major areas and specific topics
► Application in the lab and classroom for the latest technological advances and also for the entrepreneur for the economic analysis and international scope of biofuels

From the contents
Chapter 1: Historical Perspective of Biofuels: Learning from the Past to Re-Discover the Future.
Chapter 3: Drivers Leading to Higher Food Prices: Biofuels Are Not the Main Factor.
Chapter 4: The Economics of Current and Future Biofuels.
Chapter 5: A multiple species approach to biomass production from native herbaceous perennial feedstocks.
Chapter 6: Development and status of dedicated energy crops in the United States.
Chapter 7: Genetic improvement of C4 grasses as cellulosic biofuel feedstocks.
Chapter 8: Short-rotation woody crops for bioenergy and biofuels applications.
Chapter 9: The Brazilian experience on sugarcane ethanol.
Chapter 10: Biofuels opportunities and challenges in India.

Fields of interest
Plant Sciences; Plant Genetics & Genomics; Plant Anatomy/Development

Target groups
Graduate

Discount group
P

E. A. Ueckermann (Ed.)

Eriophyoid Mites: Progress and Prognoses

Fourteen informative papers dealing with their DNA, species interactions, adventiveness, host specificity, potential as bio-control agents of weeds, chemical control, behaviour, their role in fungal pathogen epidemiology, influence in forests and on ornamentals, collecting and mounting techniques and their interaction with crops are presented here. This is an extensive and valuable contribution to eriophyoid science and a must for present and future researchers in this field.

Features
► Benefits, pest status and control of eriophyoids are discussed
► A special chapter on their quarantine importance of value to quarantine officers
► Eriophyoid knowledge since 1996 is updated and gaps for future research identified

From the contents

Fields of interest
Agriculture; Behavioural Sciences; Applied Ecology

Target groups
Graduate

Discount group
P

M. Uttamchandani, S. Q. Yao, National University of Singapore (Eds.)

Small Molecule Microarrays
Methods and Protocols

Small molecule microarrays (SMM) were introduced just a decade ago in 1999 and, within a short space of time, have already established themselves as a vibrant, next generation platform for high-throughput screening. Small Molecule Microarrays: Methods and Protocols showcases a collection of contributions guiding researchers toward ways in which small molecule microarray technology may be deployed for multiplexed screening and profiling. Organized by the categories of small molecules presented on the microarrays, this detailed volume describes in-depth techniques for chemical libraries, peptide libraries, and carbohydrate microarrays. Written in the highly successful Methods in Molecular Biology™ series, chapters contain brief introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible protocols, vital tips on troubleshooting this often difficult technology, and advice on avoiding known pitfalls.

Features
► Covers chemical libraries, peptide libraries, and carbohydrates with contributions from experts in the microarray field
► Provides essential methods and skills learned through hands-on experience and feedback at the bench
► Includes detailed notes highlighting tips on troubleshooting and avoiding known experimental pitfalls

Fields of interest
Biochemistry, general; Biomaterials; Microarrays

Target groups
Professional/practitioner

Discount group
P

Due October 2010
Due July 2010
Due September 2010

2010. XII, 400 p. Hardcover
$189.00

2010. VI, 310 p. 40 illus. Hardcover
$209.00

2010. 215 p. 116 illus., 58 in color. (Methods in Molecular Biology, Volume 669) Hardcover
$119.00
ISBN 978-1-60761-844-7
Post-Translational Modifications in Health and Disease

Post-translational modifications serve many different purposes in several cellular processes such as gene expression, protein folding and transport to appropriate cell compartment, protein-lipid and protein-protein interactions, enzyme regulation, signal transduction, cell proliferation and differentiation, protein stability, recycling and degradation. Although several-hundred different modifications are known, the significance of many of them remains unknown. The enormous versatility of the modifications which frequently alter the physico-chemical properties of the respective proteins represents an extraordinary challenge in understanding their physiological role. Since essential cellular functions are regulated by protein modifications, an improvement of current understanding of their meaning might allow new avenues to prevent and/or alleviate human and animal diseases.

Features
- Over 40 color figures
- Contains 19 updated reviews that stimulate further investigations in the proteomic field
- Improves current understanding of protein modifications, allowing new avenues to prevent and/or alleviate human and animal diseases

From the contents

Fields of interest
Biochemistry, general; Animal Biochemistry; Medical Biochemistry

Target groups
Research

Discount group
P

Due July 2010
2010. 500 p., 112 illus., 56 in color. (Protein Reviews, Volume 13) Hardcover
► approx. $199.00

Insect Biotechnology

The book provides a fascinating overview about current and sophisticated developments in applied entomology that are powered by molecular biology and that can be summarized under a novel term: insect biotechnology.

By analogy with the application of powerful molecular biological tools in medicine (red biotechnology), plant protection (green biotechnology) and industrial processing (white biotechnology), insect biotechnology (yellow biotechnology) provides novel tools and strategies for human welfare and nutrition. Insect Biotechnology has emerged as a prospering discipline with considerable economic potential, and encompasses the use of insect model organisms and insect-derived molecules in medical research as well as in modern plant protection measures.

Features
- First book about a novel and rapidly developing research field
- Provides an comprehensive overview about emerging applications of insects or derivatives thereof in medicine, plant protection and industrial biotechnology
- Written by leading scientists in developing cutting edge technologies

From the contents
Part 1: Insect Biotechnology in Medicine 1: The greater wax moth Galleria mellonella as an alternative model host for human pathogens; Krishnendu Mukherjee, Eugen, Domann, Torsten Hain. 2: Fruit flies as models in biomedical research – a Drosophila asthma model; Thomas, Roeder, Kerstin Isermann, Christina Wagner, Christine Warnbold. 3: Therapeutic potential of antimicrobial peptides from insects; Jochen Wiesner, Andreas Vilcinskas. 4: From traditional maggot therapy to modern biosurgery; Andreas Vilcinskas.

Fields of interest
Entomology; Biotechnology; Biomedicine general

Target groups
Research

Discount group
P

Due October 2010
► approx. $139.00

Capillary Electrophoresis of Carbohydrates

CHAPTER 1.- Analysis of simple carbohydrates by CE and CE-MS.- Christian W. Klampfl, Markus Himmelsbach, Wolfgang Buchberger. - - CHAPTER 2.- Fluorophores and chromophores for the separation of carbohydrates by Capillary electrophoresis.- Michael Breadmore, Emily Hilder, Artechts Kazarian.

Fields of interest
Cell Biology; Biochemistry, general; Carbohydrate Chemistry

Target groups
Professional/practitioner

Discount group
P

Due October 2010
2011. 400 p. 122 illus., 61 in color. Hardcover
► approx. $149.00
ISBN 978-1-60761-874-4
Protein Chromatography
Methods and Protocols

A prerequisite for elucidating the structure and function of any protein is the prior purification of that protein. This necessity has led to the development of many purification schemes and chromatographic methods for the isolation of native proteins from complex sources. In Protein Chromatography: Methods and Protocols, leading researchers present clear protocol-style chapters that are suitable for newcomers and experts alike. The book opens with vital topics in protein biochemistry, addressing such areas as protein stability and storage, avoiding proteolysis during chromatography, protein quantitation methods including immuno-qPCR, and the contrasting challenges that microfluidics and scale-up production pose to the investigator, and then it segues into key methods involving the generation and purification of recombinant proteins through recombinant antibody production and the tagging of proteins, amongst other means, as well as many variations on classic techniques such as ion-exchange and immunoaffinity chromatography.

Features
- Features contributions from experienced scientists with hands-on expertise in the field presenting step-by-step methodologies, tips, and associated explanatory notes
- Includes a large section on the generation and purification of recombinant proteins
- Addresses protein biochemistry with clear, step-by-step techniques

Fields of interest
Protein Science; Chromatography

Target groups
Professional/practitioner

Discount group
P

Membrane and Desalination Technologies

In this essential new volume, Volume 13: Membrane and Desalination Technologies, a panel of expert researchers provide a wealth of information on membrane and desalination technologies. An advanced chemical and environmental engineering textbook as well as a comprehensive reference book, this volume is of high value to advanced graduate and undergraduate students, researchers, scientists, and designers of water and wastewater treatment systems. This is an essential part of the Handbook of Environmental Engineering series, an incredible collection of methodologies that study the effects of pollution and waste in their three basic forms: gas, solid, and liquid. Chapters adopt the series format, employing methods of practical design and calculation illustrated by numerical examples, including pertinent cost data whenever possible, and exploring in great detail the fundamental principles of the field.

Features
- Coverage of the principles of membrane and desalination technologies and the fundamentals of water and wastewater treatment
- Emphasis on industry standards, trends in the field, municipal & industrial full-scale operations, POU and POE applications
- Examples of actual operating water and wastewater treatment plants based on membrane technology
- Examples of actual desalination plants based on both membrane and non-membrane technologies

Fields of interest
Biochemistry, general; Environmental Engineering/Biotechnology; Marine & Freshwater Sciences

Target groups
Research

Discount group
P

Biocommunication in Soil Microorganisms

Communication is defined as an interaction between at least two living agents which share a repertoire of signs. These are combined according to syntactic, semantic and context-dependent, pragmatic rules in order to coordinate behavior. This volume deals with the important roles of soil bacteria in parasitic and symbiotic interactions with viruses, plants, animals and fungi. Starting with a general overview of the key levels of communication between bacteria, further reviews examine the various aspects of intracellular as well as intercellular biocommunication between soil microorganisms. This includes the various levels of biocommunication between phages and bacteria, between soil algae and bacteria, and between bacteria, fungi and plants in the rhizosphere, the role of plasmids and transposons, horizontal gene transfer, quorum sensing and quorum quenching, bacterial-host cohabitation, phage-mediated genetic exchange and soil viral ecology.

Features
- A milestone edition that for the first time comprehensively presents the exciting topic of soil biocommunication
- A valuable source of information for scientists in microbiology, biochemistry, genetics and soil ecology
- With contributions of renowned scientists

Fields of interest
Microbial Ecology; Cell Physiology; Soil Science & Conservation

Target groups
Research

Discount group
P
Integrated Greenhouse Systems for Mild Climates

Crop production in greenhouses is a growing industry, especially in mild climates, and is very important for the population as a source of income and clean, fresh food. Greenhouses create optimal climate conditions for crop growth and protect crops from outside pests. At the same time greenhouse production increases water use efficiency and makes integrated production and protection (IPP) possible. This book provides technical instructions for practice (what to do and what not to do) and gives answers to the question: How to produce more clean crops and better quality with less water, less land and less pesticide.

Contents

Fields of interest
Agriculture; Plant Breeding/Biotechnology; Plant Sciences

Target groups
Research

Discount group
P

Due July 2010

Original Hungarian edition published by Universitas, Oktalási Minisztérium publisher

2010. 296 p. 390 illus., 180 in color. Hardcover

$329.00
ISBN 978-3-211-99762-8
Prepublication price, valid until October 01, 2010
$249.00

Due November 2010


$329.00

Chemical Library Design

Chemical library technologies have brought about dramatic changes in the drug discovery process, and, though still evolving, they have become an integral part of ongoing drug discovery research. In Chemical Library Design, experts in the field provide methods and detailed protocols delving into this key process of selecting useful, biologically relevant compounds from large pools of synthesizable candidates. This compendium includes chapters on historical overviews, state-of-the-art methodologies, including structure-based and fragment-based library design, practical software tools, and successful and important applications of chemical library design. As a volume in the popular Methods in Molecular Biology™ series, the thorough contributions provide the kind of meticulous description and implementation advice that is crucial for getting optimal results.

Fields of interest
Biochemistry, general; Combinatorial Libraries

Target groups
Research

Discount group
P
Perspectives on Keynesian Economics

This book combines historical and policy-oriented perspectives on the relevance of the Keynesian approach for economic theory, policy, and crisis analysis. The first part focuses on historical, theoretical, and methodological issues, and puts them in context with current developments. The second part focuses on the application of the Keynesian approach to modeling the economy, policy-making, and analyzing the ongoing crisis of the early 21st century.

Bringing together contributions by leading macroeconomists such as Laidler, Cukierman, Colander and Boyer, and leading historians of economics such as Holland, Boyanovsky, Maruzzo, Dimand, Witzum, Young, de Vroey and Arnon, the book offers a comprehensive overview of Keynesian economics today.

Features
► Comprehensive overview of the relevance of Keynesian Economics
► Addresses modern policy issues and the current economic crisis
► Brings together macroeconomists and historians of economic thought

From the contents

Fields of interest
Methodology and the History of Economic Thought; Economic Policy

Target groups
Research

Discount group
P

Risk Management and Governance

Concepts, Guidelines and Applications

Risk is a popular topic in many sciences - in natural, medical, statistical, engineering, social, economic and legal disciplines. Yet, no single discipline can grasp the full meaning of risk. Investigating risk requires a multidisciplinary approach. The authors, coming from two very different disciplinary traditions, meet this challenge by building bridges between the engineering, the statistical and the social science perspectives. The book provides a comprehensive, accessible and concise guide to risk assessment, management and governance. A basic pillar for the book is the risk governance framework proposed by the International Risk Governance Council (IRGC). This framework offers a comprehensive means of integrating risk identification, assessment, management and communication. The authors develop and explain new insights and add substance to the various elements of the framework. The theoretical analysis is illustrated by several examples from different areas of applications.

Features
► Important and popular topic
► Comprehensive, accessible and concise
► Unique combination of formal risk analysis and broader social science-related risk governance and management approaches
► Truly interdisciplinary
► With several examples and case studies

From the contents

Fields of interest
R & D/Technology Policy; Quality Control, Reliability, Safety and Risk; Methodology of the Social Sciences

Target groups
Research

Discount group
P

Energy, Natural Resources and Environmental Economics

The book consists of a collection of articles (survey and research) describing the area of energy, natural resources and environmental economics. The contents of the book is divided into four sections. The first part considers petroleum and natural gas applications, taking up topics ranging from the management of incomes and reserves to market modeling and value chain optimization. The second and most extensive part studies applications from electricity markets, including analyses of marked prices, risk management, various optimization problems, electricity market design and regulation. The third part describes different applications in logistics and management of natural resources. Finally, the fourth part covers more general problems and methods arising within the area. The volume contains many examples from Nordic countries where there is knowledge and experience in managing natural resources.

Features
► Provides an overview of applications, models and methods in the integrated area of energy, natural resources and environmental economics.
► Articles are closely related to real applications.
► Provides both students (Master and PhD) with a good introduction to this field because many universities starts programmes or courses in this area.

Contents
Petroleum and Natural Gas. - Electricity Markets and Regulation. - Natural Resources and Logistics. - General Problems and Methods.

Fields of interest
Economics/Management Science, general; Energy Economics; Environmental Economics

Target groups
Research

Discount group
P
International Economics of Resource Efficiency

Eco-Innovation Policies for a Green Economy

Human societies face a threatening future of resource scarcity and environmental damages. This book addresses the challenge of turning these risks into opportunities and policies. It is a collection of high level contributions from experts of sustainable growth and sustainable resource management. Focussing on economics, sustainability, technology and policy, the book highlights system innovation, leapfrogging strategies of emerging economies, possible rebound effects and international market development. It puts natural resources centre stage and will make an important contribution to achieving the goal of a 21st century Green Economy.

Features
- Comprehensive and well-structured scope helps the reader to get the full picture
- Special chapters on barriers and drivers prepares readers for the future
- Includes policy-insights from OECD and other insiders

Contents

Fields of interest
International Economics; Sustainable Development; Economic Policy

Target groups
Research

Discount group
P

Sustainable Supply Chain Management

Practical Ideas for Moving Towards Best Practice

This book focuses on the need to develop sustainable supply chains - economically, environmentally and socially. This book is not about a wish list of impractical choices, but the reality of decisions faced by all those involved in supply chain management today. Our definition of sustainable supply chains is not restricted to so-called “green” supply chains, but recognises that in order to be truly sustainable, supply chains must operate within a realistic financial structure, as well as contribute value to our society. Supply chains are not sustainable unless they are realistically funded and valued. Thus, a real definition of sustainable supply chain management must take account of all relevant economic, social and environmental issues.

Features
- Endorsed by the European Logistics Association
- Adds sustainability to the conventional canon
- Makes broad use of real world case studies

Contents

Fields of interest
Production/Logistics; Engineering Economics, Organization, Logistics, Marketing; Technology Management

Target groups
Graduate

Discount group
P

Foundations of Mathematical & Computational Economics

This is a book on the basics of mathematics and computation and their uses in economics for modern day students and practitioners. The reader is introduced to the basics of numerical analysis as well as the use of computer programs such as Matlab and Excel in carrying out involved computations. Sections are devoted to the use of Maple in mathematical analysis. Examples drawn from recent contributions to economic theory and econometrics as well as a variety of end of chapter exercises help to illustrate and apply the presented concepts.

Features
- Plenty of examples from all areas of economics and econometrics
- Emphasizes computation and programming in Matlab, Maple and Excel
- Numerous exercises and solutions to selected exercises

Contents

Fields of interest
Game Theory/Mathematical Methods; Game Theory, Economics, Social and Behav. Sciences

Target groups
Upper undergraduate

Discount group
P
Cooperative Lot Sizing Games in Supply Chains

The presented work combines two areas of research: cooperative game theory and lot size optimization. One of the most essential problems in cooperations is to allocate cooperative profits or costs among the partners. The core is a well-known method from cooperative game theory that describes efficient and stable profit/cost allocations. A general algorithm based on the idea of constraint generation to compute core elements for cooperative optimization problems is provided. Beside its application for the classical core, an extensive discussion of core variants is presented and how they can be handled with the proposed algorithm. The second part of the thesis contains several cooperative lot sizing problems of different complexity that are analyzed regarding theoretical properties like monotonicity or concavity and solved with the proposed row generation algorithm to compute core elements; i.e. determining stable and fair cost allocations.

Features
- Provides a general solution method to compute cost allocations which is applicable to non-concave and non-monotone operations research games, too
- Includes a broad discussion of the core, its numerous known variants, extensions of the known variants, and new variants
- Discussion and solution of complex cooperative lot size optimization problems arising in supply networks

From the contents

Fields of interest
Game Theory/Mathematical Methods; Operations Research/Decision Theory; Production/Logistics

Target groups
Research

Discount group
P

Behavioral Operations in Planning and Scheduling

Human and organizational factors have a substantial impact on the performance of planning and scheduling processes. Despite widespread and advanced decision support systems, human decision makers are still crucial to improve the operational performance in manufacturing industries. In this text, the state of the art in this area is discussed by experts from a wide variety of engineering and social science disciplines. Moreover, recent results from collaborative studies and a number of field cases are presented. The text is targeted at researchers and graduate students, but is also particularly useful for managers, consultants, and system developers to better understand how human performance can be advanced.

Features
- Includes full list of relevant terms with definitions and references
- Includes extensively documented industrial cases to show application of theory
- Provides extensive expository description of the relevant literature in each chapter

From the contents
Introduction - Decision Making in Planning and Scheduling - The Interconnectivity of Planning and Shop Floor: Case Description and Relocation Analysis - The Unsung Contribution of Production Planners and Schedulers at Production and Sales Interfaces - Collaborative Planning in Supply Chains - Measuring Supply Chain Performance - Planning Information Processing Along the Supply-Chain - The Planning Bullwhip - Product Centric Organization of After-Sales Supply Chain Planning and Control - Building Decision Support Systems for Acceptance.

Fields of interest
Operations Research/Decision Theory; Industrial and Production Engineering; Industrial and Organisational Psychology

Target groups
Graduate

Discount group
P

Due October 2010

2010. 150 p. 20 illus., 10 in color. (Lecture Notes in Economics and Mathematical Systems, Volume 644)
Softcover

$89.95
ISBN 978-3-642-13724-2

Due September 2010

2010. 530 p. 200 illus., 100 in color. Hardcover

$239.00
ISBN 978-3-642-13381-7

The European Central Bank at Ten

Coming at a critical juncture for the euro, the book takes stock of the ECB’s experience during its first ten years and discusses the way ahead. The articles are written by well-known experts in the field and provide the reader with a comprehensive overview of relevant policy issues, including the ECB’s communication and its monetary strategy and instruments.

Features
- Comprehensive overview of key policy issues relevant for the European Central Bank
- Written by experts in the field
- Combines academic insights and policy issues

Contents

Fields of interest
Macroeconomics; European Integration; Political Science

Target groups
Research

Discount group
P

Due September 2010

2010. 250 p. Hardcover

approx. $139.00
ISBN 978-3-642-14236-9
Risk Management in Credit Portfolios
Concentration Risk and Basel II

Risk concentrations play a crucial role for the survival of individual banks and for the stability of the whole banking system. Thus, it is important from an economical and a regulatory perspective to properly measure and manage these concentrations. In this book, the impact of concentration risks on portfolio risk is analyzed for different portfolio types and it is determined, in which cases the influence of concentration risk has to be taken into account. Furthermore, some models for the measurement of concentration risk are modified to be consistent with Basel II and their performance is compared. Beyond that, this book integrates economical and regulatory aspects of concentration risk and seeks to provide a systematic way to get familiar with the topic of concentration risk from the basics of credit risk modeling to present research in the measurement and management of credit risk concentrations.

Features
- Presents the current state of research to concentration risk in credit portfolios
- Covers all required fundamentals of credit risk modeling
- Contains new research results concerning name and sector concentration risk
- Integrates economical and regulatory aspects of concentration risk

From the contents
1 Introduction -- 2 Credit Risk Measurement in the Context of Basel II -- 3 Concentration Risk in Credit Portfolios and its Treatment under Basel II -- 4 Model-Based Measurement of Name Concentration Risk in Credit Portfolios.

Fields of interest
- Finance / Banking; Financial Economics; Quantitative Finance

Target groups
- Research

Discount group
- P

Price Regulation and Risk
The Impact of Regulation System Shifts on Risk Components

Natural monopolies are not subject to the market-based principle of competition. Consequently, it is necessary to control companies in such monopoly positions with regard to their pricing. In the future, it will become more and more important to consider a possible change in the regulation regime when the future-oriented costs of equity - both in terms of price regulation and for conducting capital market-oriented business valuations - are to be determined. Based on the principal-agent problem, the book explains this topic. The effect of a change in the regulation regime is presented in the form of two studies: an international secondary analysis of the effects on cost of equity based on event studies of the Anglo-Saxon area and a primary analysis based on the Austrian regulation policy for electricity and gas supply systems. The two studies arrive at similar results: The change from a rate-of-return regulation to incentive regulation systems leads to a significant increase in systematic risk.

Features
- Important and up-to-date topic
- International secondary analysis
- Detailed Primary Study

Fields of interest
- Public Finance & Economics; Accounting/Auditing; Economic Systems

Target groups
- Research

Discount group
- P

Oil and Gas Resources in China: A Roadmap to 2050

As one of the eighteen field-specific reports comprising the comprehensive scope of the strategic general report of the Chinese Academy of Sciences, this sub-report addresses long-range planning for developing science and technology in the field of oil and gas resources. They each craft a roadmap for their sphere of development to 2050. In their entirety, the general and sub-group reports analyze the evolution and laws governing the development of science and technology, describe the decisive impact of science and technology on the modernization process, predict that the world is on the eve of a S&T revolution, and call for China to be fully prepared for this new round of S&T advancement. Based on the detailed study of the demands on S&T innovation in China's modernization, the reports draw a framework for eight basic and strategic systems of socio-economic development with the support of science and technology, work out China's S&T roadmaps for the relevant eight basic and strategic systems in line with China's reality, further detail S&T initiatives of strategic importance to China's modernization, and provide S&T decision-makers with comprehensive consultations for the development of S&T innovation consistent with China's reality.

Features
- First book-length comprehensive report on China's oil and gas technology strategy to 2050
- Explains systematically the main areas and existing challenges of China's current oil and gas exploration and exploitation

Fields of interest
- R & D/Technology Policy; Mineral Resources; Energy Economics

Target groups
- Research

Discount group
- P
Design Thinking
Understand – Improve – Apply

“Everybody loves an innovation, an idea that sells.” But how do we arrive at such ideas that sell? And is it possible to learn how to become an innovator? Over the years Design Thinking – a program originally developed in the engineering department of Stanford University and offered by the two D-schools at the Hasso Plattner Institutes in Stanford and in Potsdam – has proved to be really successful in educating innovators. It blends an end-user focus with multidisciplinary collaboration and iterative improvement to produce innovative products, systems, and services. Design Thinking creates a vibrant interactive environment that promotes learning through rapid conceptual prototyping. In 2008, the HPI-Stanford Design Thinking Research Program was initiated, a venture that encourages multidisciplinary teams to investigate various phenomena of innovation in its technical, business, and human aspects.

Features
- Based on scientific evidence from the HPI Stanford Design Thinking Research Program
- Going beyond best practise in Design Thinking and Innovation.
- Points out how Design Thinking can be used to innovate IT-Development

From the contents

Fields of interest
Technology Management; Information Systems

Target groups
Research

Discount group
P

Strategic Social Choice
Stable Representations of Constitutions

This monograph studies representations of effectiveness functions by game forms that are at least Nash consistent, which means that they have a Nash equilibrium for any profile of preferences. In the second part the focus is on social choice functions that admit a strong Nash equilibrium resulting in the sincere outcome. A central interpretation of an effectiveness function is that it models a constitution.

Features
- This is the first monograph on the subject of constitutions modeled by effectiveness functions
- It reviews and extends the literature on this issue from the beginning, around 30 years ago
- It is especially relevant for researchers, including PhD students, in the area of game theory and social choice theory

Contents
Preview of this book. - Representations of constitutions: Introduction to Part I; Constitutions, effectiveness functions, and game forms; Nash consistent representations; Acceptable representations; Strongly consistent representations; Nash consistent representation through lottery models; On the continuity of representations of constitutions. - Consistent voting: Introduction to Part II; Feasible elimination procedures; Exactly and strongly consistent representations of effectiveness functions; Consistent voting systems with a continuum of voters.

Fields of interest
Game Theory/Mathematical Methods; Game Theory, Economics, Social and Behavior Sciences; Economic Theory

Target groups
Research

Discount group
P

Production Theory
The Basic Theory of Production Optimisation

This book covers the basic theory of how, what and when firms should produce to maximise profits. Based on the neoclassical theory of the firm presented in most general microeconomic textbooks, it extends the general treatment and focuses on the application of the theory to specific problems that the firm faces when making production decisions to maximise profits. Increasing level of government regulation and the use of specialised and often very expensive equipment in modern production motivates the following focus areas:
1) How to optimise production under restrictions,
2) Treatment of fixed inputs and the process of input fixation,
3) Optimisation of production over time,
4) Linear and Mixed Integer Programming as tools for optimisation in practice.

Features
- Uses a great combination of graphical illustration and mathematical analysis
- Includes theory of timing of production and timing of replacement of assets
- Shows how to build and apply linear programming for production planning
- Numerous illustrative examples

Contents

Fields of interest
Production/Logistics; Agricultural Economics

Target groups
Upper undergraduate

Discount group
P
Measurement for the Social Sciences

The C-OAR-SE Method and Why It Must Replace Psychometrics

This book proposes a revolutionary new theory of construct measurement – called C-OAR-SE – for the social sciences. The acronym is derived from the following key elements: construct definition; object representation; attribute classification; rater entity identification; selection of item type; enumeration and scoring. C-OAR-SE is a rationally rather than empirically-based theory and procedure. It can be used for designing measures of the most complex and also the most basic constructs that we use in social science research. C-OAR-SE is a radical alternative to the traditional empirically-based psychometric approach, and a considerable amount of the book’s content is devoted to demonstrating why the psychometric approach does not produce valid measures. The book argues that the psychometric approach has resulted in many misleading findings in the social sciences and has led to erroneous acceptance – or rejection – of many of our main theories and hypotheses, and that the C-OAR-SE approach to measurement would correct this massive problem.

Features
► Powerful critique of conventional methods of data analysis in the social sciences
► Expands on author’s seminal article and presents numerous examples and illustrations of the C-OAR-SE method
► Includes end-of-chapter questions/exercises to engage readers and includes appendices with additional material and resources for students and professionals

From the contents
Ch 1. Rationale of C-OAR-SE
Ch 2. Validity and reliability
Ch 3. Object classification and measures
Ch 4. Attribute classification and measures
Ch 5. Rater entity classification
Ch 6. Selection of item-type and answer scale

Fields of interest
Marketing; Methodology of the Social Sciences; Psychometrics

Target groups
Research

Discount group
P

The Selten School of Behavioral Economics

A Collection of Essays in Honor of Reinhard Selten

Reinhard Selten, to date the only German Nobel Prize laureate in economics, celebrates his 80th birthday in 2010. While his contributions to game theory are well-known, the behavioral side of his scientific work has received less public exposure, even though he has been committed to experimental research during his entire career, publishing more experimental than theoretical papers in top-tier journals. This Festschrift is dedicated to Reinhard Selten’s exceptional influence on behavioral and experimental economics. In this collection of academic highlight papers, a number of his students are joined by leading scholars in experimental research to document the historical role of the “Meister” in the development of the research methodology and of several sub-fields of behavioral economics. Next to the academic insight in these highly active fields of experimental research, the papers also provide a glance at Reinhard Selten’s academic and personal interaction with his students and peers.

Features
► Provides an overview of Reinhard Selten’s behavior-based micro-economic theory
► Besides his contributions in game theory, Selten’s research in behavioral and experimental economics is of great importance to these areas
► Reinhard Selten won the Nobel prize economics in the field of game theory in 1994

Contents
Exceptional Academic Behavior.
Strategic Behavior.
Pro-Social Behavior.
Organizational Behavior.
Risky-Choice Behavior.

Fields of interest
Game Theory/Mathematical Methods; Methodology of the Social Sciences

Target groups
Research

Discount group
P

The Culture Factory

Creativity and the Production of Culture

“Where are your factories that produce culture? Where are your painters, your composers, your architects, your writers, your filmmakers?” The book opens with Leonardo da Vinci and Qin Shi Huang asking embarrassed contemporary policy makers these questions. The first part of the book is therefore devoted to elaborating a model for producing culture. The model takes into account both the role played by creativity in the production of culture in a technologically advanced knowledge society. The second part of the book examines a selection of strategic sectors: fashion, material culture districts, gastronomy, creative industries, entertainment, contemporary art, museums. Special attention is paid to the role collective intellectual property rights play in increasing the quality of culture-based goods and services.

Features
► Outlines the main policies for producing culture today
► Contains practical suggestions and recommendations for producing a creative culture
► Illustrates how culture and creativity can generate income and create new jobs

From the contents
Introduction. Questions that Came from Afar.
Part I: A Model of Production of Culture: Producing Culture, Conserving Culture; The Supply Chain of Cultural Production; Creativity as a Resource, Emotions as a Prerequisite; Two Models of Creativity: Technological Innovation and Social Quality.
Part II: Policies that Stimulate the Production of Culture and Make It Possible to Take the Lead in Strategic Sectors: The Effects of Creativity on International Markets: the French Genius for Fashion; Potential Cultural Districts and the Production of Material Culture; Intellectual Property Rights Take Command; The Cultural and Creative Industries; The Market in Contemporary Art.

Fields of interest
Economic Policy; Regional and Cultural Studies; Development Economics

Target groups
Research

Discount group
P
Accounting and Causal Effects
Econometric Challenges

While there is a substantial literature in labor economics and microeconomics directed toward endogenous causal effects, causal effects have received relatively limited attention in accounting. This volume builds on econometric foundations, including linear, discrete choice, and nonparametric regression models, to address challenging accounting issues characterized by microeconomic fundamentals and equilibrium reporting choices. Both classical and Bayesian strategies for identifying and estimating accounting treatment effects are discussed extensively. This distinctive resource for researchers and students explores interactions among theory, data, and model specification considerations, and complements contemporary econometrics and statistics, as well as accounting.

Features
► Presents a three-legged econometric strategy of theory, data, and model specification, as applied to accounting research and analysis  
► Synthesizes linear, nonlinear, and Bayesian models and their implications for causal effects  
► Can also be adapted for graduate/doctoral courses in accounting research and methodology, econometrics, and statistics

Contents

Fields of interest
Accounting/Auditing; Econometrics; Statistics for Business/Economics/Mathematical Finance/Insurance

Target groups
Research

Discount group
P

Due August 2010
2010. X, 472 p. 40 illus., 20 in color. (Springer Series in Accounting Scholarship, Volume 5) Hardcover
► approx. $189.00
ISBN 978-1-4419-7224-8

Ethics in Small and Medium Sized Enterprises
A Global Commentary

This book is the first of its kind – a global overview of extant research on ethics in small and medium sized enterprises. While vast amounts of corporate money, government policy and media time are directed at the social and ethical activities of large corporations, small businesses don’t generally attract the spotlight. This is wildly inappropriate, however, since upward of 90% of private businesses are small or medium sized. This book goes some way to helping us understand the social and ethical contribution of this majority organizational form.

The first section of the book is a global round-up of research on ethics in small and medium sized enterprises from major regions of the world. In the second section smaller scale research projects from a variety of countries present both empirical and theoretical advances in the area. Anyone with an interest in ethics and small and medium sized enterprises should find this an inspiring book which paves the way for future research.

Features
► Provides regional overviews of Ethics in SMEs for Europe, Africa, Latin America, India, China and North America  
► A unique illumination of ethics and CSR in small firms, contrasting significantly to the dominant large firm perspective  
► Research-based chapters on specific regions and industrial contexts

Fields of interest
Entrepreneurship; Management/Business for Professionals; Ethics

Target groups
Research

Discount group
P

Due September 2010
► approx. $139.00
ISBN 978-1-4419-6636-0

Financial Market Regulation
Legislation and Implications

What role should legislative bodies play in financial markets? What have been the ramifications of financial regulation? To answer these and other questions regarding the efficacy of legislation on financial markets, this book examines the impact of the Gramm Leach Billey Act (GLBA), also called the Financial Modernization Act of 1999, which fundamentally changed the financial landscape in the United States. The GLBA allows the formation of financial holding companies that can offer an integrated set of commercial banking, securities and insurance products. The tenth anniversary of the most sweeping financial legislation reform in the industry’s structure is a natural benchmark for assessing the effects of the law and for questioning whether changes are necessary in the working of this historic legislation.

Features
► Contributions from academics and policymakers  
► First book to directly treat the Gramm Leach Billey Act, the most important financial legislation in the last 75 years  
► Includes contributions from Congressman James Leach and former Senator Phil Gramm

From the contents

Fields of interest
Finance/Banking; Economic Policy; Public Finance & Economics

Target groups
Research

Discount group
P

Due October 2010
2011. 250 p. Hardcover
► approx. $139.00
ISBN 978-1-4419-6636-0
Advanced Manufacturing Technology in China: A Roadmap to 2050

As one of the eighteen field-specific reports comprising the comprehensive scope of the strategic general report of the Chinese Academy of Sciences, this sub-report addresses long-range planning for developing science and technology in the field of advanced manufacturing technology. They each craft a roadmap for their sphere of development to 2050. In their entirety, the general and sub-group reports analyze the evolution and laws governing the development of science and technology, describe the decisive impact of science and technology on the modernization process, predict that the world is on the eve of an impending S&T revolution, and call for China to be fully prepared for this new round of S&T advancement. Based on the detailed study of the demands on S&T innovation in China's modernization, the reports draw a framework for eight basic and strategic systems of socio-economic development with the support of science and technology, work out China's S&T roadmaps for the relevant eight basic and strategic systems in line with China's reality, further detail S&T initiatives of strategic importance to China's modernization, and provide S&T decision-makers with comprehensive consultations for the development of S&T innovation consistent with China's reality.

Fields of interest
R & D/Technology Policy; Electrical Engineering; Environmental Management

Target groups
Research

Discount group
P

Due August 2010

Distribution rights in China: Science Press

Jointly published with Science Press.


2010. XXII, 146 p. 13 illus. in color. Softcover

$99.00
ISBN 978-3-642-13854-6

The Decision to Patent

This book provides a thorough analysis of the decision to patent. Unlike many other theoretical approaches, the negative effect a patent may have due to the disclosure requirement linked to every patent application is taken into account. By this the effects driving the propensity to patent can be identified as the opposing forces of a protective and a disclosure effect. The theoretical investigation includes an analysis of the propensity to patent in a setting with vertically and horizontally differentiated products. Due imperfect patent protection competitors of the patentee may enter the market for the innovative product despite of a patent. An empirical investigation of the theoretical results with data from the Mannheim Innovation Panel of the year 2005 in combination with patent information from the European Patent Office confirms some of the main conclusions.

Features
- Disentangles the counter effects underlying the decision to patent
- The widely ignored effect of the disclosure requirement on the patenting decision is taken into account
- Introduces the patenting decision into commonly known models of horizontal and vertical product differentiation
- All theoretical analyzes are accompanied by an empirical investigation of the results

Fields of interest
Industrial Organization; Economic Theory; Microeconomics

Target groups
Research

Discount group
P

Due September 2010

2010. 185 p. 92 illus., 46 in color. (Lecture Notes in Economics and Mathematical Systems, Volume 643) Softcover

$89.95
ISBN 978-3-642-13392-3

Due October 2010

2010. XIV, 164 p. 34 illus., 17 in color. (Contributions to Economics) Hardcover

$119.00
ISBN 978-3-7908-7611-7
Health and Animal Agriculture in Developing Countries

This book provides an overview of the state of animal agriculture and present methodologies and proposals to develop policies that result in sustainable and profitable animal production that will protect human and environmental health, enhance livelihood of smallholders and meet consumer needs. The book combines lessons of the past, factual foundation to understand the present, analytical tools to design and improve policies, case studies that provide both empirical grounding and applications of some of the strategies suggested in this book, and finally, a proposal for the way forward.

Features

- Uses case studies from Southeast Asia and Africa to address the economic and epidemiological principles associated with the control of livestock disease
- Proposes policies to create sustainable and profitable animal production, protect human and environmental health, enhance livelihood of smallholders and meet consumer needs
- Provides an overview of the current state of animal agriculture

From the contents


Fields of interest

Agricultural Economics; Development Economics; Environmental Economics

Target groups

Research

Discount group

P

Due September 2010

2010. 250 p. 100 illus. (Natural Resource Management and Policy, Volume 36) Hardcover

approx. $139.00

The Quintessence of Strategic Management

What You Really Need to Know to Survive in Business

Having read this book: You will have a basic understanding of strategy and the process of strategic management. You will know the most important strategy tools (incl. the respective original literature) and how they interact. You will be aware of the focal areas and considerations of strategy in practice. You will be able to analyze and interpret business information with regard to the underlying strategic notions.

Features
- The book is written by leading experts in strategic management
- Provides a basic yet complete understanding of strategy and the process of strategic management
- Maintains the right balance between state-of-the-art research and practical hints from insiders

Contents

Fields of interest
Management/Business for Professionals; Business/Management Science, general; Entrepreneurship

Target groups
Professional/practitioner

Discount group
P

Collaboration and Co-creation
New Platforms for Marketing and Innovation

Today’s consumers are more knowledgeable, networked, and vocal. For them consumption is not merely an act of buying products and services, but an expression of their creative potential. Consequently, they are demanding a say and a voice in how companies conceive, develop, and deliver value to them. It is not surprising, therefore, to hear that a large number of companies are transforming how they innovate—not only in terms of developing new products and services, but in how they are created, delivered, and supported to customers. Open Innovation thinking, where companies collaborate with suppliers, distributors, and customers to co-create unique value, is fast replacing traditional thinking that viewed innovation as a proprietary activity and marketing as a static, one-way broadcast.

Features
- Shows companies how to turn “market research” and “customer relationship management” inside out to develop dynamic relationships with customers that lead to innovation and sustained growth
- Draws from the authors’ combined 50 years of experience in consulting to major companies, including Coca-Cola, IBM, Procter & Gamble, AstraZeneca, Bank of America, and many others
- Offers practical tools and techniques, including shared networks, viral marketing, and blogs

Fields of interest
Marketing; Management/Business for Professionals; Organization/Planning

Target groups
Professional/practitioner

Discount group
P

Process Management
Why Project Management Fails in Complex Decision Making Processes

What is it that makes a manager or a politician a successful decision maker? Our first inclination would be to say decisiveness and substance. Many managers who met those criteria, however, had to abandon the field in the past several years. The authors of Process Management regard a manager as successful if he pays much attention to the process aspects of change. Successful management depends on the extent to which the

Features
- A guide to processes that result in successful changes
- Provides concrete examples for the management of complexity
- Gives recommendations on how to accelerate processes of change

Contents

Fields of interest
Management/Business for Professionals; Organization/Planning; Engineering Economics, Organization, Logistics, Marketing

Target groups
Professional/practitioner

Discount group
P
Linear Programming and Generalizations

A Problem-based Introduction with Spreadsheets

Features
► The book discusses a trilogy of keys to economic reasoning: shadow prices, opportunity costs and marginal analysis ► Discusses selective treatment of other MP topics that are used today, including integer programming, networks, convex analysis, game theory, and Equilibria in game theory ► Eric Denardo is a leading international academic researcher and teacher in Mathematical Programming methods

Contents

Fields of interest
Operations Research/Decision Theory; Operations Research, Management Science; Mathematical Modeling and Mathematics in Industry

Target groups
Research

Discount group
P

The Right Sensory Mix
Targeting Consumer Product Development Scientifically

Why do some people drink black coffee and others stick to tea? Why do some people prefer competitors’ products? Why do we sell less in this country? Many companies fail to acknowledge and analyze disparities observed among customers and simply put it down to culture or emotion. New neuro-endocrinological research proves that consumers are rational: They just have a different biological perception of the same stimulus! Their preferences, behavior, and decisions are strongly influenced by the millions of sensors monitoring their body and brain. People with more taste buds are for instance sensitive to bitterness and more likely to drink their coffee with sugar or milk, or to drink tea. After reading the book, managers will be able to: Understand and predict customers’ behavior and preferences, Design the right sensory mix (color, shape, taste, smell, texture, and sound) for each product, Fine tune their positioning and offering for every local market, Systematically increase their innovation hit rate.

Features
► Ground-breaking techniques for product developers and marketing managers ► Scientifically founded, yet hands-on ► Various business cases, including Red Bull, Coca-Cola, Sofitel, Blacksocks.com, Shazam, Häagen-Dasz, Carl Zeiss Vision, Velib’, Bjorn Borg, Nintendo

Contents
1 Coming to our Senses. - 2 Detecting Profitable Markets. - 3 Predicting Consumers’ Behavior. - 4 The Right Sensory Mix. - 5 Increasing the Innovation Hit Rate.

Fields of interest
Management/Business for Professionals; Marketing

Target groups
Professional/practitioner

Discount group
P

Aviation Networks
Structures and Strategies

Aviation networks play a critical role in the success of today’s airlines and airports. This book provides insight on all aspects of modern network strategies and structures, ranging from market research to hub design, operations, organization, alliances, benchmarking, and antitrust issues. Considering both the airline and the airport perspectives, the book explains the economics of connectivity or productivity-driven hub structures through basic mathematics, which helps the reader to comprehend the structural strengths and weaknesses of aviation networks. More than 100 charts help clarify the topics at hand.

Features
► First book dedicated to the subject of aviation network structures and strategies ► Numerous real world examples and case studies emphasize the “hands on” character of the book ► More than 100 charts make a complex matter understandable and easy to read

Contents

Fields of interest
Management/Business for Professionals; Operations Research/Decision Theory; Aerospace Technology and Astronautics

Target groups
Professional/practitioner

Discount group
P

Due October 2010
► approx. $59.00
ISBN 978-1-4419-6490-8

Due September 2010
2010. 220 p. Hardcover
► $49.95
ISBN 978-3-642-12092-3

Due December 2010
2011. 185 p. Hardcover
► approx. $109.00
ISBN 978-3-642-13763-7
Planning Production and Inventories in the Extended Enterprise
A State of the Art Handbook, Volume 1

In two volumes, Planning Production and Inventories in the Extended Enterprise: A State of the Art Handbook examines production planning across the extended enterprise against a backdrop of important gaps between theory and practice. The early chapters describe the multifaceted nature of production planning problems and reveal many of the core complexities. The middle chapters describe recent research on theoretical techniques to manage these complexities. Accounts of production planning system currently in use in various industries are included in the later chapters. Throughout the two volumes there are suggestions on promising directions for future work focused on closing the gaps.

Features
- A systematic and comprehensive examination of the state-of-the-art of production planning problems and the methods and formulations for solving these problems
- The focus of the handbook is on the entire range of "real world" production planning problems: their bases and the various approaches to their solutions
- Editors are respected in their fields

Fields of interest
- Production/Logistics

Target groups
- Professional/practitioner

Discount group
- P

The Silver Market Phenomenon
Marketing and Innovation in the Aging Society

The current shift in demographics – aging and shrinking populations – in many countries around the world presents a major challenge to companies and societies alike. One particularly essential implication is the emergence and constant growth of the so-called "graying market" or "silver market," the market segment more or less broadly defined as those people aged 50 and older. Increasing in number and share of the total population while at the same time being relatively well-off, this market segment can be seen as very attractive and promising, although still very underdeveloped in terms of product and service offerings.

This book offers a thorough and up-to-date analysis of the challenges and opportunities in leveraging innovation, technology, product development and marketing for older consumers and employees. Key lessons are drawn from a variety of industries and countries, including the lead market Japan.

Features
- State-of-the-art innovation, product development, and marketing for aging customers
- With real-life examples from countries with a large "silver market" such as Japan and from leading companies
- Second edition: 9 chapters replaced by new ones, complete update of the remaining content, with a stronger focus on marketing and innovation issues

Fields of interest
- Management/Business for Professionals; Labor Economics; Demography

Target groups
- Professional/practitioner

Discount group
- P
A Long View of Research and Practice in Operations Research and Management Science

The Past and the Future

This book contains a collection of chapters written by leading scholars/practitioners who have continued their efforts in developing and/or implementing innovative OR/MS tools for solving real world problems. In this book, the contributors share their perspectives about the past, present and future of OR/MS theoretical development, solution tools, modeling approaches, and applications.

Features
- The handbook is useful and timely and of considerable interest
- Important modern topics are covered in the book and of interest to an audience of students, academics, and practitioners in the fields of OR/MS, Computer Science, Engineering, and Management
- Professor Sodhi is well-known and he writes a regular column for OR/MS Today on “Evolving Research Directions in OR/MS”

From the contents
- Economic Planning Models for India in the 1960s.
- The Persistence and Effectiveness of Large-Scale Mathematical Programming Strategies: Projection, Outer Linearization, and Inner Linearization.
- Multicommodity Distribution System Design by Benders Decomposition.
- Structured Modeling and Model Management.
- Retrospective: 25 Years Applying Management Science to Logistics.

Fields of interest
Operations Research/Decision Theory; Operations Research, Management Science; Mathematical Modeling and Mathematics in Industry

Performance Measurement
Linking Balanced Scorecard to Business Intelligence

This book describes – in a precise but practical way – the most recent developments in performance measurement and the relative Performance Measurement Systems (PMS), whose most famous one is the Balanced Scorecard model.

It is unique because it combines PMS theory (types of performances, key performance indicators, architecture and integration with ERP, organization and strategy) with Business Intelligence technologies, which characterize the most advanced effective solutions.

Features
- A unique book matching Balanced Scorecard models and Business Intelligence technologies
- Rigorous and complete methodology for developing state-of-the-art PMS
- Illustrative case studies included

Contents
1. Performance Measurement and Indicators.
2. Cost & Productivity Performances.
5. Design and Integration of the PMS.
6. Performance Management: From decision support to performance governance.
7. Luxottica, a new “Vision” for the Supply Chain.
8. The Monte dei Paschi di Siena “Controlling Data Farm”, the CPM of the oldest bank in the world.

Fields of interest
Management/Business for Professionals; Information Systems

Target groups
Professional/practitioner

Discount group
P
On the Limits of Constitutional Adjudication
Deconstructing Balancing and Judicial Activism

Juliano Z. Benvindo investigates the current movement of constitutional courts towards political activism and the consequent deployment of balancing as a “rational” method that could justify this process. From the critical perception of the serious risks of this movement to the separation of powers, the book takes as examples two constitutional realities, Germany and Brazil, in order to discuss the rationality, correctness and legitimacy of constitutional decisions within this context. Through a dialogue between Jacques Derrida’s deconstructionism and Jürgen Habermas’s proceduralism, the author confronts Robert Alexy’s defense of balancing and those constitutional realities. This confrontation leads to the introduction of the concept of limited rationality applied to constitutional democracy and constitutional adjudication, which affirms the double bind of history and justice as a condition for a practice of decision-making committed to the principle of separation of powers.

Features
► Empirical and historical analysis of the increasing development of activist constitutional courts in political matters  ► Debate on the rationality of balancing  ► Introduction of a concept of limited rationality in a constitutional adjudication

From the contents
German and Brazilian Constitutional Cultures: Constitutional Adjudication and Activism: An Approach to Decision-making. Balancing Within the Context of German Constitutionalism: The Bundesverfassungsgericht’s Shift to Activism. Balancing Within the Context of Brazilian Constitutionalism: The Supremo Tribunal Federal’s Shift to Activism.

Fields of interest
Law Theory/Law Philosophy; Constitutional Law; Philosophy of Law

Target groups
Research

Pictorial Law
Modern Law and the Power of Pictures

We live in a digital Media Society, in which pictures are becoming more and more important. So, human communication is increasingly becoming a visual communication. That is not a new finding. But the new question is: What does this development mean for the law? Up to now the law is the part of the society which is most sceptical towards images. Law has still resisted the visual temptation. This will not last for ever. The rush of pictures in everyday life and in every part of the society is much too strong - and it is even getting stronger. The invasion of images will change the character of modern law deeply. Modern law will become a Pictorial Law: What are the chances and the risks of Pictorial Law and visual law communication? This is the topic of the book.

Features
► Research on how images will dominate the future of law and will change it  ► Helps to deal with visual legal communication  ► Provides a fundamental legal contribution on the visual turn

Contents

Field of interest
Media Law

Target groups
Research

Discount group
P

European Yearbook of International Economic Law 2011

Part one of Vol. 2 (2011) of the European Yearbook of International Economic Law addresses two major topics of current academic debate and public interest: firstly, it focuses on the State and the Global Economy, secondly, on Climate Change and International Economic Law. Part two contains treaties of recent regional integration developments taking place in the major regions of the world. Part three covers the legal and political developments in the major international organizations and fora dealing with international economic policy making. Part four contains book reviews of recent works in the field of International Economic Law.

Features
► International source of reference  ► Special focus at the state and the global economy  ► Special focus at the climate change and International Economic Law

Contents

Fields of interest
European Law/Public International Law; Political Science

Target groups
Research

Discount group
P

Due August 2010
2010. 500 p. Hardcover
► $189.00  ISBN 978-3-642-11433-5

Due October 2010
2010. 250 p. Hardcover
► approx. $129.00  ISBN 978-3-642-11888-9

Due October 2010
2011. 600 p. (European Yearbook of International Economic Law, Volume 2) Hardcover
► $239.00  ISBN 978-3-642-14431-8
**Approaches to Legal Rationality**

Legal theory, political sciences, sociology, philosophy, logic, artificial intelligence: there are many approaches to legal argumentation. Each of them provides specific insights into highly complex phenomena. Different disciplines, but also different traditions in disciplines (e.g. analytical and continental traditions in philosophy) find here a rare occasion to meet. The present book contains contributions, both historical and thematic, from leading researchers in several of the most important approaches to legal rationality. One of the main issues is the relation between logic and law: the way logic is actually used in law, but also the way logic can make law explicit. An outstanding group of philosophers, logicians and jurists try to meet this issue. The book is more than a collection of papers. However different their respective conceptual tools may be, the authors share a common conception: legal argumentation is a specific argumentation context.

**Features**

► Our book is a unique collection of new papers written by leading specialists in several scientific areas (law, logic, philosophy, politics) who try to analyze from the inside the ways and means of legal reasoning  ► Our book includes papers from both the analytical and the continental philosophical perspectives  ► Our book provides a state of the art in both fields “logic and law” and “theory of legal reasoning”

**Contents**


**Fields of interest**

Law Theory/Law Philosophy; Logic; History of Philosophy

**Target groups**

Research

**Discount group**

P

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**Cybercrimes: A Multidisciplinary Analysis**

Designed to serve as a reference work for practitioners, academicians, and scholars worldwide, this book is the first of its kind to explain complex cybercrimes from the perspectives of multiple disciplines (computer science, law, economics, psychology, etc.) and scientifically analyze their impact on individuals, society, and nations holistically and comprehensively. In particular, the book shows: How multiple disciplines concurrently bring out the complex, subtle, and elusive nature of cybercrimes How cybercrimes will affect every human endeavor, at the level of individuals, societies, and nations How to legislate proactive cyberlaws, building on a fundamental grasp of computers and networking, and stop reacting to every new cyberattack How conventional laws and traditional thinking fail short in protecting us from cybercrimes How we may be able to transform the destructive potential of cybercrimes into amazing innovations in cyberspace that can lead to explosive technological growth and prosperity

**Features**

► First book to explain complex cybercrimes from multiple perspectives and to analyze their impact on individuals, society, and nations in a holistically and comprehensively  ► Provides a well-founded understanding of its constituent dimensions, allowing the orientation of cyberspace activities towards a constructive and prosperous future  ► Shows how to legislate proactive cyberlaws, based on a fundamental grasp of computers and networking, and stop reacting to every new cyberattack

**Fields of interest**

Criminal Law; International & Foreign Law/Comparative Law; Legal Aspects of Computing

**Target groups**

Research

**Discount group**

P

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**A Modern Treatise on the Principle of Legality in Criminal Law**

This book discusses legality, one of the four main principles of criminal law, and is divided into six parts, according to the scientific understanding of this key concept. Chapter 1 explores the relation between legality and the general theory of criminal law in the context of the structure and development of legality in human society. This chapter also outlines the four secondary principles of legality and describes them in general terms. Chapters 2-5 discuss in detail each of the four secondary principles (Legitimate Sources of the Criminal Norm; Applicability of the Criminal Norm in Time; Applicability of the Criminal Norm in Place; and Interpretation of the Criminal Norm). Finally, Chapter 6 rounds out the discussion by addressing the problem of the conflict of laws.

**Features**

► There is no other book on that topic in criminal law  ► The book is written in a practical style with detailed references along the text  ► The book contains definite rules emphasized for practitioners (attorneys, judges, lawyers) as well as for students, lecturers and researchers  ► The book includes comparative criminal law

**Contents**


**Fields of interest**

Criminal Law; Law Theory/Law Philosophy; International & Foreign Law/Comparative Law

**Target groups**

Upper undergraduate

**Discount group**

P

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**D. M. Gabbay**, King’s College, London, UK; **P. Canivez, S. Rahman, A. Thiercelin**, Université Lille 3, Lille, France (Eds.)

**S. Ghosh**, The University of Texas, Tyler, TX, USA; **E. Turrini**, Mendham, NJ, USA (Eds.)

**G. Hallevy**, Ono Academic College, Kiryat Ono, Israel
Prospects of Legal Semiotics

This book examines the progress to date in the many facets – conceptual, epistemological and methodological - of the field of legal semiotics. It reflects the fulfilment of the promise of legal semiotics when used to explore the law, its processes and interpretation. This study in Legal Semiotics brings together the theory, structure and practice of legal semiotics in an accessible style. The book introduces the concepts of legal semiotics and offers an insight in contemporary and future directions which the semiotics of law is going to take. A theoretical and practical oriented synthesis of the historical, contemporary and most recent ideas pertaining to legal semiotics, the book will be of interest to scholars and researchers in law and social sciences, as well as those who are interested in the interdisciplinary dynamics of law and semiotics.

Features
- Updates the current state of legal semiotics
- Highlights the interdisciplinary nature of legal semiotics
- Brings together the theory, structure and practise of legal semiotics in an accessible style
- Provides a theoretical and practical oriented synthesis of the historical and contemporary ideas on legal semiotics

From the contents
Part I – Deconstructing Legal Semiotics.
- Chapter 1 – Legal Semiotics and Semiotic Aspects of Jurisprudence; Bernard Jackson.
- Chapter 2 – Firstness and phenomenology – Peirce and Husserl on Attitude Change; Jan M. Broekman.
- Chapter 3 – The gift and the meaning-giving subject: a reading of Given Time; Jacques de Ville.
- Chapter 4 – Resources for a Dialectical Legal Semiotics? Michael Salter.
- Part II – Legal Semiotics as Communication.
- Chapter 5 – The problems of the subjects; Louis Wolcher.

Fields of interest
Law Theory/Law Philosophy; Philosophy of Law; Linguistics (General)

Target groups
Research

Discount group
P

Internet of Things
Legal Perspectives

The Internet of Things as an emerging global Internet-based information architecture facilitating the exchange of goods and services is gradually developing. While the technology of the Internet of Things is still being dis-cussed and created, the legal framework should be established before the Internet of Things is fully operable, in order to allow for an effective introduction of the new information architecture. The regulatory framework must provide for provisions ensuring the security of the structure as well as the privacy of its users. Furthermore, legal barriers that may stand in the way of the coming into operation of the Internet of Things are to be considered. The Internet of Things has positive effects in different fields, such as the inclusion of developing countries in global trade and the use of search engines to the benefit of civil society.

Features
- Approaches for a legal framework
- Highly topical
- Real-life relevance

From the contents
Introduction: Internet of Things: Notion.
- Technicity of the Internet of Things.
- Economics Environment of the Internet of Things.
- Self-Regulation.
- International Legal Framework.
- Security and Privacy: Definitions.
- Security and Privacy Needs.
- Privacy Enhancing Technologies (PET).
- Legal Challenges for a Privacy Framework.
- Responsibility for Violations of Privacy.
- Outlook.
- Legitimacy and Inclusion of Stakeholders.
- Accountability.
- Allocation of Critical Resources.
- Internet of Things as Tool of Global Welfare: Bridging the Digital Divide.
- Implementing Search Engines.

Fields of interest
International & Foreign Law/Comparative Law; European Law/Public International Law; Legal Aspects of Computing

Target groups
Professional/practitioner

Discount group
P
Bilingual Education
Encyclopedia of Language and Education
Volume 5

This volume addresses bilingual education, the use of two (or more) languages of instruction in education. Although bilingual education is available in some form in most countries, it is frequently the subject of political debate, especially where a bilingual program is set up to serve migrant populations.

Features
- A thorough analysis of a range of conceptual issues in bilingual education
- Discussion of research in the field since the 1920s and the conclusions that can be drawn from it
- Chapters on illustrative bilingual education programs and policies from around the globe

Contents
General Editor’s Introduction.- Introduction to Volume 5: Bilingual Education.- Contributors.- Reviewers.- Section 1: 21st Century Bilingual Education: Advances in Understanding and Emerging Issues.- Section 2: Illustrative Bilingual Education Programs and Policies.- Subject Index.- Name Index.

Fields of interest
Language Education; Linguistics (General); Literacy

Target groups
Graduate

Discount group
P

Paulo Freire: Teaching for Freedom and Transformation
The Philosophical Influences on the Work of Paulo Freire

The primary mission of this text is clarifying many of the misconceptions about Paulo Freire’s theories, concepts and his implications for education. It revisits his ideas and explains more fully the philosophical influences that shaped concepts such as problem posing, conscientization and praxis.

The fundamental thesis, then, is that the present absence of in-depth philosophical analysis leaves an unacceptable void in the literature addressing Freire’s work, while also promoting frequent misconceptions and superficial understandings about his relationship to contemporary education.

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The fundamental thesis, then, is that the present absence of in-depth philosophical analysis leaves an unacceptable void in the literature addressing Freire’s work, while also promoting frequent misconceptions and superficial understandings about his relationship to contemporary education.

Indeed, the philosophical assumptions contributing to Freire’s critical pedagogy require identification, unravelling and ultimately evaluation on the basis of their epistemic and moral tenability.

Most existing applications of Freire’s pedagogy are unfortunately superficial because they simply sloganize terms such as banking education, conscientization, praxis, and humanization. A slogan in education popularizes a concept or idea in a positive way, but offers very little in terms of critical reflection or analysis. In order to understand these terms and their origin and apply them as Freire intended, a far richer and more in depth examination of Freire is desperately needed.

This text will provide precisely that type of examination.

Features
- Provides first in-depth examination of the philosophical foundations of Freire’s contribution to education
- Evaluates the extent to which Freire successfully weaves various philosophical positions into a coherent pedagogy
- Explains how Freire’s pedagogy might be applied in contemporary education programs within a neo-liberal context

Fields of interest
Educational Philosophy; Philosophy of Education

Target groups
Research

Discount group
P

Statistical Models for Test Equating, Scaling, and Linking

The goal of this book is to emphasize the formal statistical features of the practice of equating, linking, and scaling. The book encourages the view and discusses the quality of the equating results from the statistical perspective (new models, robustness, fit, testing hypotheses, statistical monitoring) as opposed to placing the focus on the policy and the implications, which although very important, represent a different side of the equating practice.

The book contributes to establishing &ldquo;equating&rdquo; as a theoretical field, a view that has not been offered often before. The tradition in the practice of equating has been to present the knowledge and skills needed as a craft, which implies that only with years of experience under the guidance of a knowledgeable practitioner could one acquire the required skills. This book challenges this view by indicating how a good equating framework, a sound understanding of the assumptions that underlie the psychometric models, and the use of statistical tests and statistical process control tools can help the practitioner navigate the difficult decisions in choosing the final equating function.

Features
- Approaches equating as a theoretical field
- Emphasizes good equating theory and practice, and sound understanding of underlying assumptions
- Challenges the traditional view that only years of apprenticeship to a seasoned practitioner can one master equating
- Will be a good reference for students and researchers from psychometrics and statistics as well as those in educational measurement

Fields of interest
Assessment, Testing and Evaluation; Psychometrics; Statistics for Social Science, Behavioral Science, Education, Public Policy, and Law

Target groups
Research

Discount group
P
Developing Successful Leadership

Research has shown that school leadership is second only to classroom teaching in its effect on pupil learning. As the demands on management teams evolve and become ever more complex, this volume offers a fresh and expansive view on the challenges to be met in developing a leadership career. With contributions from some of the most accomplished commentators on school leadership and management from around the world, this book moves away from the simple ‘how to’ of becoming a principal, focusing instead on the wider issues of becoming a successful leader. The central aim has been to assemble powerful statements from international authorities that encapsulate leading-edge thinking on a group of interconnected themes based on the notion of developing successful leadership in, and beyond, schools. In so doing the text examines strategies for existing leaders developing their full capacity as well as enhancing the skills of those new to, or aspiring to, a leadership role. The chapters contributed by a carefully selected group of leading educationalists present insights on a number of central themes, including: developing new skill sets in leadership, the ethical and moral dimensions of leading an organisation, leadership for instructional and pedagogical success, developing leadership capacity and capability through strategic activity.

Features
► International coverage of leadership in education
► The text brings together leading scholars from around the World
► Key points on developing educational leaders drawn from international research

Fields of interest
Administration, Organization and Leadership; Educational Policy; Education (general)

Target groups
Research

Discount group
P

Content Management for E-Learning

The increasing growth in the use of e-learning environments, in which education is delivered and supported through information and communication technologies, has brought new challenges to academic institutions. From all the current definitions of e-learning, it can be seen that learning contents are one of the key issues for a successful e-learning experience. Therefore, there is a real need for academic staff, managers and librarians to re-think the whole process of delivering courses, information resources and information services. The book focuses on defining content management and its relationship with knowledge management, providing perspectives on how the semantic web could complement content management, how to deal with copyright restrictions, and how to describe information competencies and skills required and acquired by teachers and students in virtual environments. Offered is a design project for managing digital content for classical and distance education institutions, covering all the aspects related to the content lifecycle, integrating it into the learning process. Practical aspects such as standards for content e-learning management, a review of existing experiences of learning repositories, and a survey of available platforms for delivering courses and providing access to information resources is also covered.

Features
► Addresses content management in the e-learning sector from both theoretic and pragmatic approaches
► Provides case studies and practical solutions for designing a project for managing content
► Provides standards for content e-learning management
► Provides a review of existing experiences of learning repositories
► Gives a survey of available platforms for delivering courses and providing access to information resources

Fields of interest
Educational Technology; Computers and Education; Learning and Instruction

Target groups
Research

Discount group
P

Teachers as Learners

Critical Discourse on Challenges and Opportunities

In the worldwide movements of educational reform, educators are forging new roles, identities and relationships. Leadership is vital, but must be rooted in the capacity for learning. This volume responds to the tensions and paradoxes brought by educational reforms, presenting a critical discourse on teachers as learners. The contributions bring an array of cultural settings and methodological orientations, and reveal contextual burdens that teachers should not carry in isolation. Teachers’ learning demands collective engagement to turn challenges into opportunities in a sustainable quest for higher goals. The discourse concludes with a vision for a new relationship among educational workers as a joint force of learners in a cross-boundary endeavor for moral commitment to education.

Features
► Offers a cross-cultural analysis of teacher development
► Shows how educational reforms have an impact on teacher education

From the contents

Fields of interest
Teaching and Teacher Education; Learning and Instruction; Educational Policy

Target groups
Research

Discount group
P

Due October 2010

► approx. $189.00
School Dropout and Completion

International Comparative Studies in Theory and Policy

School dropout remains a persistent and critical issue in many school systems, so much so that it is sometimes referred to as a crisis. Populations across the globe have come to depend on success at school for establishing careers and gaining access to post-school qualifications. Yet large numbers of young people are excluded from the advantages that successful completion of school brings and as a result are subjected to consequences such as higher likelihood of unemployment, lower earnings, greater dependence on welfare and poorer physical health and well-being.

Features
- Gives an unique insight in the dimensions across different school systems regarding early school leaving or dropout
- Provides an up-to-date analysis by identifying initiatives that work at a national level to raise school completion and reduce dropout
- Presents estimates that more sensitively reflect on patterns of participation and completion than before by using national-level data

Fields of interest
International and Comparative Education; Educational Policy; Sociology of Education

Target groups
Research

Discount group
P

The Changing Dynamics of Higher Education Middle Management

Known as either ‘soft’ or ‘hard’ managerialism, ‘new managerialism’ or ‘new public management’, this new narrative has, irrespective of moniker, permeated the institutions of higher education almost everywhere. Taking this as its context, this volume is founded on a comprehensive international comparative analysis of the evolving role of middle-level academic managers—deans, heads of department and their equivalents. The chapters address key questions that will determine the future of academe: have the imperatives of management theory caused a realignment of the values and expectations of middle-level academic managers? In what way do the new expectations placed on this group shape the academic profession as a whole? And, whose interests do middle-level academic managers represent?

Features
- Comprehensive discussion of the most relevant trends in middle-level management in higher education
- One of few volumes that analyses the deanship and the role of middle management from an empirical research perspective, based on original data
- Timely comparative approach based on a broad geographical and theoretical coverage
- Systematic combination of theoretical issues and empirical analysis
- Rigorous but accessible approach bringing together research outcomes and empirical analysis

Fields of interest
Higher Education; Administration, Organization and Leadership

Target groups
Research

Discount group
P

Visualization in Mathematics, Reading and Science Education

Visualizations—either self-created or external visual stimuli used as an aid to learning—are probably as old as learning itself. Yet surprisingly little research has been done either into how precisely they help us learn, or how to produce ones that are effective pedagogical tools. This volume, a comprehensive review of theory and research on the use of visualization in mathematics, science and reading, contrasts the two dominant theoretical paradigms of how people construct and interpret visualizations. However, the authors never lose sight of practical applications, providing frequent, accessible synopses of research findings in addition to succinct summaries of how the research affects practice. Written by a team with decades of experience in research and practice in the three subjects, the chapters show how cognitive psychology can enhance practical pedagogy, place visualizations in their proper historical context, and analyze in detail the effectiveness of paper-, computer- and video-based visualizations, with some surprising results.

Features
- Provides a thorough review of theoretical and research literature
- Draws explicit connections between research and practice
- Links mathematics and science learning, and reading, in unique ways
- Written by experts in mathematics, science and reading education
- Applies cognitive psychology to practical pedagogy
- Places visualization in a historical context
- Analyzes paper-, computer- and video-based visualizations

Fields of interest
Science Education

Target groups
Research

Discount group
P
M. Rollnick, University of the Witwatersrand, Johannesburg, South Africa

Identifying Potential for Equitable Access to Tertiary Level Science

Digging for Gold

Higher education internationally is in a state of transition and transformation, leading to an increase in the level of participation, and a consequent increase in number of non traditional and underprepared students. The appearance of these students provides a particular challenge in the sciences where adequate grounding is crucial. One response to this challenge has been the provision of access, foundation or “second chance programmes” which operate on different models internationally. In South Africa, where the push for equity is strong in the wake of the apartheid era, programmes have generally been established at all tertiary institutions with some of the most successful of these programmes based at universities characterised by a high research output. Consequently in the last decade there has been a great deal of research into the effectiveness of these programmes both at a micro and macro level. Similar research in other countries exists, but is patchy and often based on small groups of students.

Features
► Increases understanding of the effect of disadvantage in learning science
► Provides insight in a key blockage in the educational pipeline
► Focuses particularly on science learning at the interface between secondary and tertiary level
► Draws on over 15 years of experience in access programmes
► Reviews research results in key areas of this enterprise

Fields of interest
Science Education; Higher Education; Mathematics Education

Target groups
Research

Discount group
P

A. Sfard, The University of Haifa, Israel; E. Yackel, Purdue University Calumet, Hammond, IN, USA; K. Gravemeijer, Eindhoven School of Education, The Netherlands (Eds.)

A Journey in Mathematics Education Research

Insights from the Work of Paul Cobb

Our objective is to publish a book that lays out the theoretical constructs and research methodologies within mathematics education that have been developed by Paul Cobb and explains the process of their development. We propose to do so by including papers in which Cobb introduced new theoretical perspectives and methodologies into the literature, each preceded by a substantive accompanying introductory paper that explains the motivation/rationale for developing the new perspectives and/or methodologies and the processes through which they were developed, and Cobb’s own retrospective comments. In this way the book provides the reader with heretofore unpublished material that lays out in considerable detail the issues and problems that Cobb has confronted in his work; that, from his viewpoint, required theoretical and methodological shifts/advances and provides insight into how he has achieved the shifts/advances. The result will be a volume that, in addition to explaining Cobb’s contributions to the field of mathematics education, also provides the reader with insight into what is involved in developing an aggressive and evolving research program.

Features
► Addresses a wide range of issues within mathematics education and links them into a coherent pattern
► Summarizes ideas that have significantly impacted mathematics education over the past 30 years
► Represents a broad range of mathematics education from the individual learner to the school system

Contents

Fields of interest
Mathematics Education

Target groups
Research

Discount group
P

M. Rollnick, University of the Witwatersrand, Johannesburg, South Africa

J. Summerfield, The City University of New York, NY, USA; C. C. Smith, The City University, New York, NY, USA (Eds.)

Making Teaching and Learning Matter

Transformative Spaces in Higher Education

This volume captures the spirit of collaboration and innovation that its authors bring into the classroom, as well as to groundbreaking undergraduate programs and initiatives. Coming from diverse points of view and twenty different disciplines, the contributors illuminate the often perplexing debates about what matters most in higher education today. Each chapter tells a unique story about creating vital pedagogical arenas that have the potential to transform teaching and learning for both faculty and students. These exploratory spaces include courses under construction, cross-college and interdisciplinary collaborations, general education reform initiatives, and fresh perspectives on student support services, faculty development, freshman learning communities, writing across the curriculum, on-line degree initiatives, and teaching and learning centers.

Features
► Provide unique snapshots on a shared question: how does an institution provide better experience for its students and teachers
► Inquires into large-scale institutional change as well as the transformation of individuals
► Adds the voices of the City University of New York, conversations on higher education, assessment and accountability, teaching and learning, and educational reform in the twenty-first century

Fields of interest
Higher Education; Learning and Instruction; Curriculum Studies

Target groups
Research

Discount group
P
Global Pedagogies
Schooling for the Future

Global Pedagogies: Schooling for the Future, which is the twelfth volume in the 12-volume book series Globalisation, Comparative Education and Policy Research, presents scholarly research on major discourses in comparative education research with reference to globalisation, educational policy and classroom pedagogy. It is a sourcebook of ideas for researchers, practitioners and policy makers in education, globalisation, global pedagogies and schooling for the future around the world. The aim of the book is to provide an easily accessible, practical yet scholarly source of information about the international concern in the field of globalisation, global pedagogies, and educational transformation. Readers will find here the very latest thinking on globalisation, global pedagogies and educational transformation in the context of global culture. It offers a timely overview of current issues affecting discourses pertaining to global pedagogies and policy research in the global culture. It provides directions in education, and policy research, relevant to transformational educational reforms in the 21st century.

Features
► Explores conceptual frameworks and methodological approaches applicable in the research of globalisation, access and democracy in education
► Examines central discourses surrounding the debate of democracy, access and equity in schooling globally
► Illustrates how the relationship between globalisation, democracy and education policy affects current models and trends in schooling globally
► Demonstrates ideological imperatives of globalization and its impact on democracy and equality

Fields of interest
International and Comparative Education; Curriculum Studies; Educational Policy

Target groups
Research

Discount group
P

Due July 2010
approx. $139.00

Academic Units in a Complex, Changing World
Adaptation and Resistance

This book uses case studies of academic units from Australian public universities to explore the reasons why those units respond in different ways to similar contemporary challenges. The ‘academic units’—departments, schools and faculties—in the world’s public universities may be their own administrative fiefdoms, but the wider environment within which they operate is both complex and dynamic. In fact, today’s academic landscape is barely recognizable from what it was like two decades ago. The globalization of higher education markets for students, faculty and research funding has expanded the challenges and opportunities for academic units beyond the boundaries of nation states. However, academic units must also deal with the diverse needs and expectations of national and local stakeholders, as well as operate within government regulatory and policy frameworks. In addition, they are required to adhere to policy and operational directives from institutional executives and consider the often-competing needs and expectations of other stakeholders such as faculty, students, employers, funding bodies and professional associations. As public funding slowly evaporates some university faculties have embraced the imperative to be more business-oriented. Others have shrank from congress with Mammon.

Features
► Explores the fabric of academic units efforts to deal with change with close attention to detail
► Develops new conceptual frameworks on academic units adaptation and resistance to changing environments
► Offers university executives, heads of academic units and faculty practical suggestions for dealing with environmental challenges

Fields of interest
Higher Education; Administration, Organization and Leadership

Target groups
Research

Discount group
P

Due August 2010
approx. $139.00
**Responding to a Resurgent Russia**

**Russian Policy and Responses from the European Union and the United States**

In this volume, a set of issue and country experts tackle the questions surrounding the challenges of a resurgent Russia for the world order as well as for relations between the European Union and the United States. Following a brief introduction laying out the circumstances of Russia’s rise, the book proceeds in three sections. In the first, three Russian scholars tackle the topic of how a newly resurgent Russia sees the world. The second section examines Russia's role in the contemporary global political economy in terms of trade and financial flows and nuclear energy. The third section looks at American and European responses to Russia, and the conclusion draws together the findings from each of the chapters and presents some broad propositions regarding Russia’s rise and the challenges that it presents for the US, EU and the international order in the years to come. The implications of this collection are very broad and far-reaching, with ramifications for each of the parties involved as well as for the development and refinement of general international relations theories concerning global conflict and cooperation making the book relevant for both policy-makers and scholars of international relations, Russian studies, and international political economy.

**Features**

- Features contributions from leading Russian and American experts from a variety of fields
- Brings together the viewpoints of both the rising power as well as the makers of the current world order in order to illuminate differences in perspective
- Examines the resurgence of Russia with attention to both economic and security issues

**Fields of interest**

- Political Science; European Integration

**Target groups**

- Research

**Discount group**

- P

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**Forecasting International Migration in Europe: A Bayesian View**

International migration is becoming an increasingly important element of contemporary demographic dynamics and yet, due to its high volatility, it remains the most unpredictable element of population change. In Europe, population forecasting is especially difficult because good-quality data on migration are lacking. There is a clear need for reliable methods of predicting migration since population forecasts are indispensable for rational decision making in many areas, including labour markets, social security or spatial planning and organisation.

**Features**

- A lens to look through into the future of international migration in Europe
- A migration forecaster’s toolkit, applying expert knowledge to account for uncertainty
- An honest account of the limits of predictability of international migration
- Hints for population-related decision making under uncertainty

**Contents**


**Fields of interest**

- Demography; Migration; Statistical Theory and Methods

**Target groups**

- Research

**Discount group**

- P
J. G. Fleagle, Stony Brook University, NY, USA (Ed.)

**Out of Africa I**

The First Hominin Colonization of Eurasia
Coeditors: J. J. Shea, A. L. Baden, R. E. Leakey, F. E. Grine

For the first two thirds of our evolutionary history, we hominins were restricted to Africa. Dating from about two million years ago, hominin fossils first appear in Eurasia. This volume addresses many of the issues surrounding this initial hominin intercontinental dispersal. Why did hominins first leave Africa in the early Pleistocene and not earlier? What do we know about the adaptations of the hominins that dispersed - their diet, locomotor abilities, cultural abilities? Was there a single dispersal event or several? Was the hominin dispersal part of a broader faunal expansion of African mammals northward? What route or routes did dispersing populations take?

**Features**
- Addresses the many facets of the first hominin range expansion from Africa into Eurasia
- Discusses aspects as geography, climate, faunal composition and hominin culture that enabled or led to the initial dispersal of hominins into Eurasia
- Contains individual articles by experts from all over the world in the fields of paleontology, archaeology and geology

**Contents**
Part I. The African Background; Part II. Eastern Asia; Part III. South Asia; Part III. South Asia; Part V. Summary, Synthesis and Future Directions.

**Fields of interest**
Anthropology

**Target groups**
Professional/practitioner

**Discount group**
P

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D. Giannetti, University of Bologna, Italy; B. Grofman, University of California, Irvine, CA, USA (Eds.)

**A Natural Experiment on Electoral Law Reform**

Evaluating the Long Run Consequences of 1990s Electoral Reform in Italy and Japan

In the early 1990s, major electoral reforms took place in both Italy and Japan; each replaced a form of “proportional representation” (in which voters cast a ballot for a party list) with a “mixed member” system (in which voters cast ballots for individual candidates and party lists). The reforms were enacted by political elites in the context of divisions within the dominant party, changing patterns of party support, and party splits, in efforts to retain power while responding to charges of corruption, clientelism, and lack of accountability. The experiences of both countries provide a laboratory in which to investigate the effects and implications of the reforms, and, more broadly to analyze voter behavior in the context of institutional change.

**Features**
- Treats the youth vote as an affirmative participation right guaranteed in the ICRC
- Analyses political incentives underlying the legislative bar to the youth vote
- Assesses the implications the global movement for the youth vote for democratic institutions

**From the contents**

**Fields of interest**
Political Science; Law, general; Developmental Psychology

**Target groups**
Research

**Discount group**
P

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S. C. Grover, Lakehead University, Thunder Bay, ON, Canada

**Young People’s Human Rights and The Politics of Voting Age**

Young People's Human Rights and The Politics of Voting Age explores the broader societal implications of voting age eligibility requirements and the legislative bar against youth voting in North America and in Commonwealth countries (where ‘youth’ is defined as persons 16 and over but under age 18). The issue is raised as to whether the denial of the youth vote undermines democratic principles and values and ultimately the human dignity of youth. This is the first book to address the topic of the youth vote in-depth as a fundamental human rights concern relating to the entitlement in a democracy to societal participation and inclusion in influencing policy and law which profoundly affects one’s life. Also examined are international perspectives on the issue of voting age eligibility.

**Features**
- Treats the youth vote as an affirmative participation right guaranteed in the ICRC
- Analyses political incentives underlying the legislative bar to the youth vote
- Assesses the implications the global movement for the youth vote for democratic institutions

**From the contents**

**Fields of interest**
Political Science; Law, general; Developmental Psychology

**Target groups**
Research

**Discount group**
P

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**Due August 2010**

2010. X, 540 p. 146 illus., 73 in color. (Vertebrate Paleobiology and Paleoanthropology) Hardcover

>approx. $129.00


**Due October 2010**


>approx. $119.00


**Due October 2010**


> $139.00


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Indian Ocean Region
Maritime Regimes for Regional Cooperation

The Indian Ocean region is arguably one of the world’s least understood, yet its importance in geopolitics and international relations is greater than ever before. This book explores the concepts of regime theory, regional orders and ocean governance to critically assess the effectiveness of maritime regimes, something that had not been attempted before for the Indian Ocean Region. This study employs the theoretical framework of international regimes in the context of ocean governance by developing a new model, which is used to test the regimes’ effectiveness.

Features
► Examines regional cooperation in the Indian Ocean in the post cold war era from a maritime perspective ► Applies the theoretical framework of international regimes in the context of the regime for ocean governance by synthesizing regime theory and structuration theory to create a model to analyse regime effectiveness ► Determines the extent of regional cooperation for advancing ocean governance specifically in the Indian Ocean Region

Contents

Fields of interest
Political Science; Economic Policy; International Economics

Target groups
Research

Discount group
P

Due August 2010
2010. 300 p. 234 illus., 117 in color. (The Political Economy of the Asia Pacific) Hardcover
► approx. $139.00
ISBN 978-1-4419-5988-1

Latinos and the Economy
Integration and Impact in Schools, Labor Markets, and Beyond

At 15.4 percent of the population, Latinos are the largest minority group in the United States. They are a growing presence in all sectors of the economy, play an increasingly important role in government and politics, and are influential across a wide range of cultural domains. Despite the growing attention paid to Latinos in recent years, this population is characterized by relatively low socio-economic status, and Latinos frequently rank behind the majority white population and other minority groups when it comes to education, finances, and employment.

Features
► Provides cutting-edge analyses by economists of important questions concerning the integration and impact of U.S. Latinos ► Covers issues of key economic importance in the life of Latinos, from education through employment, rather than providing a snapshot of one economic segment, skill, or dynamic. ► Targets non-economists and policy-makers alike with accessibly written chapters

From the contents

Fields of interest
Political Science; Labor Economics; Population Economics

Target groups
Research

Discount group
P

Due August 2010
2010. 250 p. 36 illus. (Studies in Public Choice, Volume 16) Hardcover
► approx. $139.00

Due September 2010
► approx. $139.00
ISBN 978-1-4419-6681-1

T. König, M. Debus, University of Mannheim, Germany; G. Tsebelis, University of Michigan, Ann Arbor, MI, USA (Eds.)

D. L. Leal, S. J. Trejo, University of Texas at Austin, TX, USA (Eds.)
New Perspectives on Old Stones

Analytical Approaches to Paleolithic Technologies

As the study of Paleolithic Technologies particularly moves towards a more analytical, hypothesis-based approach, it is necessary to determine a consistent framework for this analysis. The contributions to this timely and comprehensive volume do just that. This volume incorporates a broad chronological and geographical range of Paleolithic material from the Lower to Upper Paleolithic. The focus of this volume is to provide an analysis of paleolithic technologies from an experimental, empirical perspective. As new techniques, particularly quantitative methods, for analyzing Paleolithic Technologies gain popularity, this work provides case studies particularly showcasing these new techniques, as well as comprehensively covering more established methods for analysis.

Features
► Comprehensive guide to the most recent developments in paleolithic analysis ► Combines case studies from diverse time periods, techniques, and geographic regions ► Provides practical applications of a range of analytical methods

From the contents

Fields of interest
Archaeology

Target groups
Research

Discount group
P

Constitutional Mythologies

New Perspectives on Controlling the State

Our societies obviously rest on common beliefs. These “myths” are tools that help us to develop and build common identities; they form the structure around which societies function. This does not imply that these beliefs are “true,” in the sense that they would be supported by empirical facts. In social matters, myths have undoubtedly important functions to play even if no empirical facts support them. On the other hand, and precisely because they are not discussed, myths may be problematic: they may create illusions, conserve structures that are inefficient and unable to improve the situation of citizens.

Features
► First book to focus on the myths about constitutions that perpetuate misconceptions and faulty analysis and policy ► Contributors are experts in public choice and constitutional political economy (including editors of several Springer journals), and representing perspectives from economics, political science, and law ► International coverage, with historical and contemporary examples from North America and Europe

From the contents

Fields of interest
Political Science; Political Philosophy; Economic Policy

Target groups
Research

Discount group
P

Theoretical Principles of Sociology

Volume 1

Macrodynamics

In a general study of Sociological Theory, social processes are usually broken down into three tiers: macrodynamics (societies and large-scale institutions), microdynamics (interpersonal encounters), and mesodynamics (corporations, communities, smaller organizations). In this seminal work, the author pulls these separate areas of research into one comprehensive general theory of social reality. More than analytical distinctions or research terminology, the author demonstrates that the social world actually unfolds along these three (macro, micro, and meso) levels of interaction. By developing a set of explanatory, testable, repeatable principles, the author creates a general empirical framework for sociological research. The three volumes of Principles of Sociology explore each level of social dynamics individually, with cross-references to bring the three together. This work will be essential for researchers in Sociological Theory and Social Psychology. Individual volumes will present new research of interest for researchers in Race and Ethnicity, Stratification, Demography, Political Sociology, Organizations and Community Movements, Motivation and Emotions.

Features
► Provides new insights in Sociological Theory from one of the primary researchers in the field. ► Creates new theoretical framework for studying Social Dynamics ► Comprehensive coverage for all three levels of research (macro, micro, and meso)

From the contents
Transition to Adulthood
Action, Projects, and Counseling

The transition to adulthood involves, for most individuals, moving from school to work, establishment of long-term relationships, possibly parenting, and a number of other psychosocial transformations. Now more than ever, there is a concern within popular and research literature about children growing up too soon or too late or failing to realize changes associated with being adult. With this in mind, the book intends to answer a series of timely questions in regard to transition to adulthood and propose a wholly new approach to counseling that enables youth to engage fully in their lives and achieve their best.

Features
- Applies the comprehensive approach of action theory to counseling and transition
- Creates clear links among the problem/issue, the theory, the methods, and the implementation of the action theory approach in counseling practice
- Topics illustrated with extensive case material
- Applications to practice with a high practice-theory compatibility

Contents

Fields of interest
Social Work; Psychotherapy and Counseling; Psychotherapy

Target groups
Professional/practitioner

Discount group
P

Due September 2010

2010. 300 p. Hardcover
approx. $129.00
Scientific Structuralism

Recently there has been a revival of interest in structuralist approaches to science. Taking their lead from scientific structuralists such as Henri Poincaré, Ernst Cassirer, and Bertrand Russell, some contemporary philosophers and scientists have argued that the most fruitful approach to solving many problems in the philosophy of science lies in focusing on the structural features of our scientific theories. Much of the work in scientific structuralism to date has been focused on the problem of scientific realism, where it has been argued that even in cases of radical theory change the most important structural features of predecessor theories are preserved. These structural realists argue that what our most successful theories get right about the world is these abstract structural features, rather than any particular ontological claims. More recently, philosophers of science have adopted structuralist approaches to many other issues in the philosophy of science, such as scientific explanation and intertheory relations. The nine articles collected in this volume, written by the leading researchers in scientific structuralism, represent some of the most important directions of research in this field. This book will be of particular interest to those philosophers, scientists, and mathematicians who are interested in the foundations of science.

Features
► Fills a glaring gap in the philosophy of science literature ► Includes articles on a variety of facets of scientific structuralism, including structural realism, structural empiricism, structural approaches to intertheoretic relations, and structuralism in physics ► The top contributors in these fields

Field of interest
Philosophy of Science

Target groups
Research

Discount group
P

Due October 2010

► $139.00

Explaining Games

The Epistemic Programme in Game Theory

Does game theory – the mathematical theory of strategic interaction – provide genuine explanations of human behaviour? Can game theory be used in economic consultancy or other normative contexts? Explaining Games: The Epistemic Programme in Game Theory – the first monograph on the philosophy of game theory – is a bold attempt to combine insights from epistemic logic and the philosophy of science to investigate the applicability of game theory in such fields as economics, philosophy and strategic consultancy. De Bruin proves new mathematical theorems about the beliefs, desires and rationality principles of individual human beings, and he explores in detail the logical form of game theory as it is used in explanatory and normative contexts. He argues that game theory reduces to rational choice theory if used as an explanatory device, and that game theory is nonsensical if used as a normative device. A provocative account of the history of game theory reveals that this is not bad news for all of game theory, though.

Features
► Draws together research in epistemic logic and the philosophy of the social sciences ► Provides the first book-length contribution to the emerging field of philosophy of game theory ► Gives a fascinating, new account of payoff-uncertainty ► Offers a new interpretation of the Nash Equilibrium Refinement Programme and the Epistemic Programme ► Examines the applicability of game theory in the social sciences and philosophy

Contents

Fields of interest
Philosophy of Science; Logic; Game Theory/Mathematical Methods

Target groups
Research

Discount group
P

Due August 2010

2010. 200 p. (Synthese Library, Volume 346) Hardcover
► approx $139.00

Scientific Structuralism

The top contributors
A. Bokulich, P. Bokulich, Boston University, Boston, MA, USA (Eds.)
B. de Bruin, University of Groningen, The Netherlands
F. Collin, University of Copenhagen, Denmark
Human Dignity Violated

Degradation, dehumanization, instrumentalization, humiliation, and nonrecognition – these concepts point to ways in which we understand human beings to be violated in their dignity. Violations of human dignity are brought about by concrete practices and conditions; some commonly acknowledged, such as torture and rape, and others more contested, such as poverty and exclusion. This volume collates reflections on such concepts and a range of practices, deepening our understanding of human dignity and its violation, bringing to the surface interrelationships and commonalities, and pointing to the values that are thereby shown to be in danger. In presenting a streamlined discussion from a negative perspective, complemented by conclusions for a positive account of human dignity, the book is at once a contribution to the body of literature on what dignity is and how it should be protected as well as constituting an alternative, fresh and focused perspective relevant to this significant recurring debate.

Features

- The first volume on violations of human dignity in English language
- The relation of specific forms of violations of human dignity, e.g. humiliation, degradation etc., as well as concrete practices are discussed
- The approach is interdisciplinary and joins philosophers and lawyers working on human dignity

Fields of interest

Ethics; Law Theory/Law Philosophy

Target groups

Research

Discount group

P

Brazilian Studies in Philosophy and History of Science

An account of recent works

This volume in the Brazilian Studies in Philosophy and History of Science is the first attempt to present to a general audience some works which have been done in Brazil on the subject. The included papers are original, reaching a remarkable number of relevant topics of philosophy of science, logic and on the history of science. The Brazilian community has increased in the last years in quantity and in quality of the works, most of them being published in respectable international journals on the subject. There is an informal but general among the philosophers and historians of science that the works must be of high quality, and we hope this volume may contribute to widespread this idea.

From the contents

Preface – D. Krause & A. A. P. Videira –
- Introduction by Michel Paty.

Features

- The only up-to-date book that addresses belief revision in the context of scientific enquiry
- Provides a number of new perspectives that are likely to steer research in new directions
- Establishes new connections between areas previously assumed unrelated, eg. belief revision and conceptual spaces

From the contents


Fields of interest

Philosophy of Science; History of Science; Logic
**Gentzen Calculi for Modal Propositional Logic**

The book is about proof theory for (the main systems of) modal logic. It is divided in three parts: the first part introduces and discusses the main philosophical ideas linked with proof theory, and defines what a good sequent calculus is. In the second part, presented in an uniform and detailed way, the attempts made from the 1950’s until today in order to provide modal logic with Gentzen calculi. In the last and final part, it analyzes new calculi, called tree-hypersequent calculi and recently introduced by the author, for modal logics. The book shows in a precise and clear way the main results and how to prove them.

**Features**
- First book which gives an uniform and exhaustive presentation of both types of sequent calculus for modal logic, the purely syntactic sequent calculi as well as the semantic ones.
- First book that gives a complete and accurate description of the tree-hypersequent method.
- One of the few books which are mainly based on logical results, but that are also accompanied by philosophical discussion.

**Contents**

**Fields of interest**
Philosophy; Mathematics, general; Computer Imaging, Vision, Pattern Recognition and Graphics

**Target groups**
Research

**Discount group**
P

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**Due October 2010**

- **approx. $139.00**

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**Due July 2010**

2010, V, 240 p. (The Western Ontario Series in Philosophy of Science, Volume 83) Hardcover
- **approx. $139.00**

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**Due October 2010**

2010, X, 610 p. (International Archives of the History of Ideas Archives internationales d’histoire des idées, Volume 204) Hardcover
- **$349.00**

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**Models of the History of Philosophy**

Volume II: From Cartesian Age to Brucker

This volume is the translation of “Dall’età cartesiana a Brucker”, the second volume of the multi-volume work “Storia delle storie generali della filosofia”. It guides the reader from the Cartesian rejection of the ‘philosophical past’ that found voice in the work of Malebranche, to the establishment of a ‘critical’ history of philosophy by 18th century thinkers A.-F Boureau-Deslandes and J.J. Brucker. The latter pair investigated philosophy from its most ancient origins up to the contemporary age, and oversaw the transformation of the history of philosophy into a genre in its own right, thus spawning dozens of works that made a major contribution to the culture of the Enlightenment. Through careful analysis of more than 36 separate works, the authors show how in the span of a single century the theoretical and methodological techniques used to assess the history of philosophy were refined and developed.

**Features**
- It is the most detailed and complete work to date concerning the history of philosophical historiography.
- A major contribution to the intellectual history of the 17th and 18th centuries.
- It lends itself to interdisciplinary study and with the history of historiography and the history of literary genres.

**From the contents**

**Fields of interest**
History of Philosophy; Modern Philosophy

**Target groups**
Research

**Discount group**
P

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S. Pollard, Truman State University, Kirksville, MO, USA (Ed.)

**Essays on the Foundations of Mathematics by Moritz Pasch**

Moritz Pasch (1843-1930) is justly celebrated as a key figure in the history of axiomatic geometry. Less well known are his contributions to other areas of foundational research. This volume features English translations of 14 papers Pasch published in the decade 1917-1926. In them, Pasch argues that geometry and, more surprisingly, number theory are branches of empirical science; he provides axioms for the combinatorial reasoning essential to Hilbert’s program of consistency proofs; he explores “implicit definition” (a generalization of definition by abstraction) and indicates how this technique yields an “empiricist” reconstruction of set theory; he argues that we cannot fully understand the logical structure of mathematics without clearly distinguishing between decidable and undecidable properties; he offers a rare glimpse into the mind of a master of axiomatics, surveying in detail the thought experiments he employed as he struggled to identify fundamental mathematical principles; and much more.

**Features**
- Gives English speaker access to an important body of work from a turbulent and pivotal period in the history of mathematics.
- Helps us look beyond the familiar triad of formalism, intuitionism and logicism.
- Explains how we can see with the help of a guide determined to present fundamental mathematical ideas in ways that match our human capacities.

**From the contents**

**Fields of interest**
Philosophy

**Target groups**
Research

**Discount group**
P

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G. Santinello, G. Piaia (Eds.)

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F. Poggiolesi, Vrije Universiteit Brussels, Belgium

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**Due July 2010**

2010, V, 240 p. (The Western Ontario Series in Philosophy of Science, Volume 83) Hardcover
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2010, X, 610 p. (International Archives of the History of Ideas Archives internationales d’histoire des idées, Volume 204) Hardcover
- **$349.00**

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**Due October 2010**

- **approx. $139.00**
Kant’s Idealism
New Interpretations of a Controversial Doctrine

This key collection of essays sheds new light on long-debated controversies surrounding Kant’s doctrine of idealism and is the first book in the English language that is exclusively dedicated to the subject. Well-known Kantians Karl Ameriks and Manfred Baum present their considered views on this most topical aspect of Kant’s thought. Several essays by acclaimed Kant scholars broach a vastly neglected problem in discussions of Kant’s idealism, namely the relation between his conception of logic and idealism: The standard view that Kant’s logic and idealism are wholly separable comes under scrutiny in these essays. A further set of articles addresses multiple facets of the notorious notion of the thing in itself, which continues to hold the attention of Kant scholars. The volume also contains an extensive discussion of the often overlooked chapter in the Critique of Pure Reason on the Transcendental Ideal. Together, the essays provide a whole new outlook on Kantian idealism. No one with a serious interest in Kant’s idealism can afford to ignore this important book.

Features
► Presents novel readings by acclaimed Kant scholars of Kant’s still controversial doctrine of idealism  ► First publication uniquely dedicated to Kant’s idealism  ► Focuses on hitherto neglected relation between Kant’s idealism and his transcendental logic

Fields of interest
History of Philosophy; Epistemology; Metaphysics

Target groups
Research

Discount group
P

Probabilities, Causes and Propensities in Physics

This volume defends a novel approach to the philosophy of physics: it is the first book devoted to a comparative study of probability, causality, and propensity, and their various interrelations, within the context of contemporary physics -- particularly quantum and statistical physics. The philosophical debates and distinctions are firmly grounded upon examples from actual physics, thus exemplifying a robustly empiricist approach. The essays, by both prominent scholars in the field and promising young researchers, constitute a pioneer effort in bringing out the connections between probabilistic, causal and dispositional aspects of the quantum domain.

Features
► The first book to systematically explore the relations between three different topics of interest in the field  ► Serves as an excellent consultation manual for any graduate course in the philosophy and foundations of physics  ► Includes an extensive and informative introduction  ► Contains cutting-edge contributions to the field

From the contents

Fields of interest
Philosophy of Science; Metaphysics; Quantum Physics

Target groups
Research

Discount group
P

Bioethics with Liberty and Justice
Themes in the Work of Joseph M. Boyle

Joseph M. Boyle Jr. has been a major contributor to the development of Catholic bioethics over the past thirty five years. Boyle’s contribution has had an impact on philosophers, theologians, and medical practitioners, and his work has in many ways come to be synonymous with analytically rigorous philosophical bioethics done in the Catholic intellectual tradition.

Features
► Details recent advances in Catholic bioethics  ► Contains clearly written and well-argued approaches to some of the most controversial topics of the day: abortion, stem cell research, euthanasia, the right to health care  ► Presents essays that engage with the work of Joseph M. Boyle, one of the most important Catholic bioethicists of the past forty years

Contents

Fields of interest
Ethics; Theory of Medicine/Bioethics; Quality of Life Research

Target groups
Research

Discount group
P
Reason, Spirit and the Sacral in the New Enlightenment

Islamic Metaphysics Revived and Recent Phenomenology of Life

Rationality in its various expressions and innumerable applications sustains understanding and our sense of reality. It is traditionally differentiated according to its sources in the soul: in consciousness, in reason, in experience, and in elevation. Such a functional approach, however, leaves us searching for the common foundation harmonizing these rationalities. The perennial quest to resolve the aporias of rationality is finding in contemporary science’s focus on origins, on the generative roots of reality, tantalizing hints as to how this may be accomplished. This project is enhanced by the wave of recent phenomenology/ontopoiesis of life, which reveals the workings of the logos at the root of beingness and all rationality, whereby we gaze upon the prospect of a New Enlightenment. In the rays of this vision the revival of the intuitions of classical Islamic metaphysics, particularly intuition of the continuity of beingness in the gradations of life, receive fresh confirmation.

Features
- Explores common themes in Islamic metaphysics and occidental phenomenology
- Common themes in eastern and western philosophy opens ways for a fruitful dialogue
- Concentrates on foundations of rationality
- Shows the importance of reason, spirit and sacral elevation as the basis of reality

Fields of interest
Philosophy; Non-Western Philosophy; Metaphysics

Target groups
Research

Discount group
P

Astronomy and Civilization in the New Enlightenment

Passions of the Skies

This volume represents the first which interfaces with astronomy as the fulcrum of the sciences. It gives full expression to the human passion for the skies. Advancing human civilization has unfolded and matured this passion into the comprehensive science of astronomy. Advancing science’s quest for the first principles of existence meets the ontopoietic generative logos of life, the focal point of the New Enlightenment. It presents numerous perspectives illustrating how the interplay between human beings and the celestial realm has informed civilizational trends. Scholars and philosophers debate in physics and biology, the findings of which are opening a more inclusive, wider picture of the universe. The different models of the universal order and of life here presented, all aiming at the first principles of existence—accord with the phenomenology/ontopoiesis of life within the logos-prompted primogenital stream of becoming and action, which points to a future of progressing culture.

Features
- Brings the sciences and metaphysics together
- Ontopoiesis of life reveals the geo-cosmic positioning of man in the universe
- Ground is laid for a 21st Century breakthrough by which the sciences and philosophy can present a more complete picture of the universe.
- Passions of the skies prompting civilization and science.
- Cosmos as natural home of the human being

Fields of interest
Phenomenology

Target groups
Research

Discount group
P

Astronomy and Civilization in the New Enlightenment

Challenges of Equity, Equality and Development

Nanotechnology is enabling applications in materials, microelectronics, health, and agriculture, which are projected to create the next big shift in production, comparable to the industrial revolution. Such major shifts always co-evolve with social relationships. This book focuses on how nanotechnologies might affect equity/equality in global society. Nanotechnologies are likely to open gaps by gender, ethnicity, race, and ability status, as well as between developed and developing countries, unless steps are taken now to create a different outcome. Organizations need to change their practices, and cultural ideas must be broadened if currently disadvantaged groups are to have a more equal position in the nano-society rather than a more disadvantaged one.

Economic structures are likely to shift in the nano-revolution, but policymakers and participatory processes can invent newly invented institutions for social welfare, better suited to the new economic order than those of the past.

Features
- Societal key issues in emerging technology
- Includes practical advice for avoiding negative social consequences
- Perspectives on gender, race/ethnicity, and ability status
- Nanotechnology in emerging economies
- International and multidisciplinary contributions

Contents
Part I: Dimensions of Nano Fairness.

Fields of interest
Social Sciences, general; Nanotechnology; Ethics

Target groups
Research

Discount group
P
Trends in Parsing Technology
Dependency Parsing, Domain Adaptation, and Deep Parsing

Computer parsing technology, which breaks down complex linguistic structures into their constituent parts, is a key research area in the automatic processing of human language. This volume is a collection of contributions from leading researchers in the field of natural language processing technology, each of whom detail their recent work which includes new techniques as well as results. The book presents an overview of the state of the art in current research into parsing technologies, focusing on three important themes: dependency parsing, domain adaptation, and deep parsing. The technology, which has a variety of practical uses, is especially concerned with the methods, tools and software that can be used to parse automatically. Applications include extracting information from free text or speech, question answering, speech recognition and comprehension, recommender systems, machine translation, and automatic summarization. New developments in the area of parsing technology are thus widely applicable, and researchers and professionals from a number of fields will find the material here required reading.

Features
- Collects contributions from many of today’s leading researchers in the area of natural language processing technology
- Describes the contributors’ most recent work and a range of new techniques and results
- Presents a state-of-the-art overview of current research in parsing technologies with a focus on three important themes in the field today: dependency parsing, domain adaptation, and deep parsing

Fields of interest
Computational Linguistics; Language Translation and Linguistics

Target groups
Research

Discount group
P

Due September 2010
2010. XIV, 284 p. (Text, Speech and Language Technology, Volume 43) Hardcover
approx. $139.00

Due July 2010
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