Just Released New Books January 2011

English Titles

"Sorted by author and title within the main subject"
The volume will consist of a series of interpretative studies of Locke's philosophical and religious thought in historical context and consider his contributions to the Enlightenment and modern liberal thought.

Features
It is commonly accepted that John Locke was the father of the English Enlightenment and the founder of modern political liberalism. These are at best half-truths that, when uncritically employed, have the effect of casting him as the precursor secular modernism, as a thinker with little interest in the themes explored in the several chapters of this book. Here a different Locke [...]

Contents

Fields of interest
History; History of Philosophy; Philosophy of Religion; Religious Studies

Target groups
Research

Type of publication
Monograph

Available

99,95 €
ISBN 978-94-007-0271-8

Behavioral Neurobiology of Eating Disorders

The intention of this book was to have investigators describe an expert opinion on their field of research and cutting-edge work in their laboratory on the neurobiology and treatment of eating disorders.

Features
This book describes the current state of the art of the neurobiology of eating disorders and provides the latest insights and ideas in the eating disorders field. Important breakthroughs improved our understanding of the etiology of eating disorders. Due to neuropsychological studies we understand better which alterations underlie disturbed cognitive processing in anorexia nervosa and combined with imaging [...]
Disease Gene Identification
Methods and Protocols

Recent efforts to characterize genetic variation in the human genome, coupled with the rapidly developing field of genomics, have lead directly to the development of new and innovative approaches to the identification of genes contributing to complex human diseases. In Disease Gene Identification: Methods and Protocols, expert researchers in the field provide up-to-date molecular methodologies used in the process of identifying a disease gene, from the initial stage of study design to the next stage of preliminary locus identification, and ending with stages involved in target characterization and validation. As a volume 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 laboratory protocols, and detailed tips on troubleshooting and avoiding known pitfalls. Authoritative and essential, Disease Gene Identification: Methods and Protocols[…]

Contents

Fields of interest
Human Genetics; Gene Expression

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
309,00 €
ISBN 978-3-642-14540-7

Drugs for HER-2-positive Breast Cancer

Growth factor receptors have long been known to drive malignant transformation and cancer progression. The epidermal growth factor receptor (EGFR, ErbB, HER) system is likely the best described membrane receptor tyrosine kinase family in malignant tumors. With implementation of the growth-inhibitory anti-HER-2 antibody trastuzumab (Herceptin) for the treatment of HER-2-positive advanced metastatic breast cancer, a new era has dawned in the therapy of this malignant disease. Unfortunately, trastuzumab-sensitive cancers invariably develop resistance to the antibody after some time. Recent clinical studies have revealed that these refractory tumors are still responsive to inhibition of the HER receptor family using dual HER-1/-2 inhibitors such as lapatinib (Tykerb/ Tiverb). Moreover, a multiplicity of novel, improved irreversibly acting small molecular HER tyrosine kinase inhibitors are in the pipeline of many drug developing companies and are being evaluated in the clinical setting.

Contents
Drugs for HER-2-positive Breast Cancer: A Major Approval for Translational Cancer Research (Maria Sibilia, Christoph C. Zeilinski, Rupert Bartsch, Thomas Grunt).- The EGFR/ErbB family in breast cancer: from signaling to therapy (Wolfgang J. Köstler and Yosef Yarden).- Trastuzumab as Adjuvant treatment for early stage HER-2 positive breast cancer (Rupert Bartsch and Guenther G. Steger).- Trastuzumab Resistance in breast cancer (Floriana Morgillo, Michele Orditura, Teresa Troiani, Erika Martinelli, Ferdinando De Vita, Fortunato Cialedi).- Treatment with Trastuzumab beyond Progression[…]

Fields of interest
Pharmacology / Toxicology; Oncology; Cancer Research; Antibodies; Immunology; Internal Medicine

Target groups
Research

Type of publication
Contributed volume

Available
2011. IX, 110 p. (Milestones in Drug Therapy) Hardcover
99,95 €
ISBN 978-3-0346-0093-4
Essentials of Clinical Mycology

Clinical Mycology offers a comprehensive review of this discipline. Organized by types of fungi, this volume covers microbiologic, epidemiologic and demographic aspects of fungal infections as well as diagnostic, clinical, therapeutic, and preventive approaches. Special patient populations are also detailed.

Features
Essentials of Clinical Mycology gives a comprehensive overview of the field of clinical mycology. It is written for clinicians who care for patients who have fungal infections. Each of the major systemic fungal infections is discussed in regard to mycology, pathogenesis, epidemiology, clinical manifestations, diagnosis, and treatment. The increasing antifungal armamentarium is described in depth, and separate chapters provide valuable information for disease control as well as therapy and the diagnostic improvements necessary for early treatment, subclinical detection and drug-resistant cases. The presented methods allow for points-of-care testing in the endemic area, enabling rapid diagnosis.

Contents

Fields of interest
Immunology; Medical Microbiology; Molecular Medicine; Infectious Diseases

Target groups
Professional/practitioner

Type of publication
Graduate/advanced undergraduate textbook

Available
2011. XV, 554 p. 100 illus., 59 in color. Hardcover
99,95 €
ISBN 978-1-4419-6639-1

Kala Azar in South Asia

Current Status and Challenges Ahead

Therapeutic regimens for visceral leishmaniasis (also known as Kala-azar, Dum-dum fever or black fever), caused by parasitic protozoa of the Leishmania genus, evolve at a pace never seen before. Spread by tiny and abundant sand flies, the parasite infects internal organs and bone marrow and if left untreated will almost always result in the death of the host. In developing countries successful diagnosis and treatment are complicated by asymptomatic cases, undernutrition and Kala-azar/HIV co-infections. This book brings together world-renown experts writing state-of-arts review on the progress in diagnosis and treatment of visceral leishmaniasis, ultimately leading to the complete elimination of this fatal disease from South Asia. The chapters provide valuable information for disease control as well as therapy and the diagnostic improvements necessary for early treatment, subclinical detection and drug-resistant cases. The presented methods allow for points-of-care testing in the endemic area, enabling rapid diagnosis.

Contents

Fields of interest
Parasitology; Drug Resistance; Veterinary Medicine; Laboratory Medicine; Nephrology

Target groups
Research

Type of publication
Contributed volume

Available
139,95 €
ISBN 978-94-007-0276-9

MicroRNAs in Cancer Translational Research

MicroRNA (miRNA) is a cutting-edge topic in the scientific and medical fields. This is a timely and specialized book focusing on the current understanding of miRNAs and the potential for their application in cancer diagnosis, prognosis, and therapeutic targets. It also provides discussion of the lessons learned from translational miRNA studies and exploration of the next steps required to advance this field. The unique book comprises 22 in-depth chapters by gathering unparalleled topics of interest in miRNAs by international team of world-renown experts in the field. The first fifteen chapters provide comprehensive and expert perspectives on the most common cancers from bench to bedside applications, there is no current book structured in this cancer-oriented way. The next seven chapters providing thorough overviews of miRNAs and cancer stem cells; miRNAs in cancer invasion and metastasis; miRNAs in predicting radiotherapy and chemotherapy response; as well as expounding the role of miRNA in[...]

Contents

Fields of interest
Biomedicine (general); Cancer Research; Human Genetics

Target groups
Research

Type of publication
Contributed volume

Available
2011. XII, 557 p. Hardcover
139,95 €
ISBN 978-94-007-0297-4
Gene therapy offers many conceptual advantages to treat muscle diseases, especially various forms of muscular dystrophies; however, it faces a number of unique challenges, including the need to deliver a therapeutic vector to all muscles throughout the body. In Muscle Gene Therapy: Methods and Protocols, expert researchers in the field present a collection of techniques aimed at bridging the translational gap in muscle gene therapy between the prevalent rodent models and vitally important larger animal models. Divided into three sections, this volume examines basic protocols for optimizing the muscle gene expression cassette and for evaluating the therapeutic outcomes, new developments in muscle gene therapy technology such as adeno-associated viral vector (AAV), oligonucleotide-mediated exon skipping, and novel RNA-based strategies, and step-by-step guidance on muscle gene delivery in swine, ovine, canine, and non-human primates. Written in the highly successful Methods in Molecular Biology™ style, expert researchers in the field present a collection of techniques aimed at bridging the translational gap.

**Contents**

- Design and Testing of Regulatory Cassettes for Optimal Activity in Skeletal and Cardiac Muscle
- Codon Optimization of the Micro-Dystrophin Gene for Duchenne Muscular Dystrophy Gene Therapy
- Monitoring Duchenne Muscular Dystrophy Gene Therapy with Epitope-Specific Monoclonal Antibodies
- Methods for Non-Invasive Monitoring of Muscle Fiber Survival with an AAV Vector Encoding the mSEAP Reporter Gene
- Monitoring Murine Skeletal Muscle Function for Muscle Gene Therapy
- Phenotyping Cardiac Gene Therapy in Mice
- Golden Retriever Muscular Dystrophy (GRMD): Developing and Maintaining a...

**Fields of interest**

- Human Genetics
- Animal Genetics and Genomics
- Gene Therapy

**Target groups**

- Professional/practitioner

**Type of publication**

- Contributed volume

**Available**

2011. XIII, 382 p. 75 illus., 13 in color. (Methods in Molecular Biology, Vol. 709) Hardcover

109,95 €


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Every day many people suffer from intestinal diseases. These disorders can result from pathogens like bacteria, fungi, parasites and viruses, but the causes of non-infectious intestinal disorders and colorectal cancers remain to be elucidated. Disturbances to the normal gut flora (the microbiota) are central to the development of many, if not all, of these disorders. Disturbed gut microbiota is a prelude to public health issues like traveller’s-, antibiotic- and Clostridium difficile-associated diarrhoea, irritable bowel syndrome, inflammatory bowel disease, and colorectal cancers. This book discusses the way intestinal disorders affect the microbiota, how the disturbed microbiotal balance leads to enteric disorders and the ways to prevent these disorders. Further his book explores the potential of probiotics (live microorganisms that when ingested bring a health benefit) in treating enteric disorders by analysing the probiotic genome through proteomics, metabolomics and functional assays.

**Contents**

- Section I: Introduction and History of Probiotics
- 1. Probiotics: From the ancient wisdom to the actual therapeutical and nutraceutical perspective
- Section II: The Gut Microorganisms and Probiotics
- 2. The Intestinal Microbiota and Probiotics
- 3. Ecology of Probiotics and Enteric Protections
- Section III: Pathophysiology of Enteric Disorders Due to Disturbed Microbiota
- 4. Factors Causing Disturbances of the Gut Microbiota
- 5. The gut microbiota, probiotics and infectious disease
- Section IV: Application of Molecular Biology and -omics of Probiotics in Enteric Protections

**Fields of interest**

- Immunology
- Nutrition
- Bacteriology
- Health Promotion and Disease Prevention
- Food Science

**Target groups**

- Research

**Type of publication**

- Monograph

**Available**

2011. X, 174 p. 63 illus., 20 in color. (Current Topics in Microbiology and Immunology, Vol. 348) Hardcover

139,95 €

ISBN 978-3-642-17082-9
Tissue Engineering
From Lab to Clinic

Tissue engineering is a multidisciplinary field incorporating the principles of biology, chemistry, engineering, and medicine to create biological substitutes of native tissues for scientific research or clinical use. Specific applications of this technology include studies of tissue development and function, investigating drug response, and tissue repair and replacement. This area is rapidly becoming one of the most promising treatment options for patients suffering from tissue failure. This abundantly illustrated and well-structured guide serves as a reference for all clinicians and researchers dealing with tissue engineering issues in their daily practice.

Features
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Contents

Fields of interest
Human Genetics; Plastic Surgery; Medical Biochemistry; Laboratory Medicine; Biomaterials; Microbiology

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. IX, 634 p. 658 illus., 600 in color. Hardcover
179.95 €
ISBN 978-3-642-02823-6

Business & Economics

Customer Knowledge Management
Improving Customer Relationship through Knowledge Application

Managing and transferring knowledge - at the right time, in the right place and with the right quality for customers - enables companies to survive in times of fierce competition. The focus of this work is therefore on Knowledge Management and Customer Relationship Management. The theoretical part comprises several approaches to knowledge, its transfer and the barriers to be overcome when sharing knowledge. This is followed by a description of CRM and CKM (Customer Knowledge Management), outlining how crucial their successful use is. The practical part explores on the one hand the dependence on knowledge and on the other hand its availability for a good customer relationship. It includes a case study that investigates both the administrative and the operational area of a concrete company. The survey results are then discussed in detail, key success factors identified and mistakes pointed out. After this critical analysis, final recommendations are given that every company can benefit from.

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Contents

Fields of interest
Management/Business for Professionals; Business & Management Science; Business & Economics (general)

Target groups
Professional/practitioner

Type of publication
Professional book

Available
2011. VI, 330 p. Hardcover
99.95 €
ISBN 978-3-642-16198-8

Improving Customer Relationship through Knowledge Application

Managing and transferring knowledge - at the right time, in the right place and with the right quality for customers - enables companies to survive in times of fierce competition. The focus of this work is therefore on Knowledge Management and Customer Relationship Management. The theoretical part comprises several approaches to knowledge, its transfer and the barriers to be overcome when sharing knowledge. This is followed by a description of CRM and CKM (Customer Knowledge Management), outlining how crucial their successful use is. The practical part explores on the one hand the dependence on knowledge and on the other hand its availability for a good customer relationship. It includes a case study that investigates both the administrative and the operational area of a concrete company. The survey results are then discussed in detail, key success factors identified and mistakes pointed out. After this critical analysis, final recommendations are given that every company can benefit from.

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Contents

Fields of interest
Management/Business for Professionals; Business & Management Science; Business & Economics (general)

Target groups
Professional/practitioner

Type of publication
Professional book

Available
2011. VI, 330 p. Hardcover
99.95 €
ISBN 978-3-642-16198-8
Economic Growth in the Regions of Europe
Theory and Empirical Evidence from a Spatial Growth Model

Although interest in spatial growth regressions has been growing in recent years, formal theoretical approaches that acknowledge the role of space in economic growth have been sparse. In particular in a regional context, the assumption of independent, non-interacting closed economies can lead to misinterpretations. This book fills the void by discussing neoclassical growth theory in a spatial context, in order to examine growth both theoretically and empirically in a system of N regional economies. A formal model is presented that allows for inter-regional fixed capital relocations, which are in turn determined by the economies’ relative locations in space. It is shown how initial endowments with human capital play a decisive role regarding the evolution of output, and how both convergence and divergence processes may occur. Using a spatial econometric model specification, the theoretical model is tested empirically for 255 European regions.

Features
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Financial Market Regulation

Legislation and Implications

What role should regulation 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-Bliley 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. The importance of this review is reinforced by a variety of proposals in the last several years to reform the regulation of financial institutions that have attracted considerable attention among[...]

Features

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Contents


Fields of interest

Finance / Banking; Economic Policy; Public Finance & Economics

Target groups

Research

Type of publication

Contributed volume

Available

2011. XVIII, 240 p. 6 illus. Hardcover

99,95 €
ISBN 978-1-4419-6636-0

Foundations of Location Analysis

Location analysis has matured from an area of theoretical inquiry that was designed to explain observed phenomena to a vibrant field which can be and has been used to locate items as diverse as landfills, fast food outlets, gas stations, as well as politicians and products in issue and feature spaces. Modern location science is dealt with by a diverse group of researchers and practitioners in geography, economics, operations research, industrial engineering, and computer science. Given the tremendous advances location science has seen from its humble beginnings, it is time to look back. The contributions in this volume were written by eminent experts in the field, each surveying the original contributions that created the field, and then providing an up-to-date review of the latest contributions. Specific areas that are covered in this volume include: The three main fields of inquiry: minimax and mininum problems and covering models Nonstandard location models, including those with[...]

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Contents

Introducing Developments in Location Analysis.- Uncapacitated and Capacitated Facility Location Problems.- Median Problems in Networks.- Continuous Center Problems.- Discrete Center Problems.- Covering Problems.- Equilibria in Competitive Loca-tion Models.- Sequential Location Models.- Conditional Locational Problems on Networks and in the Plane.- The Location of Undesirable Facilities.- Stochastic Analysis in Location Research.- Hub Location Problems: The Location of Interacting Facilities.- Exact Solution of Two Location Problems via Branch-and-Branch.- Exploiting Structure: Location[...]

Fields of interest

Game Theory / Mathematical Methods; Game The-ory, Economics, Social and Behav. Sciences

Target groups

Upper undergraduate

Type of publication

Graduate/advanced undergraduate textbook

Available

2011. XVI, 390 p. Hardcover

139,95 €
ISBN 978-3-642-13747-1

Foundations of Mathematical and 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

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Contents


Fields of interest

Game Theory / Mathematical Methods; Game The-ory, Economics, Social and Behav. Sciences

Target groups

Upper undergraduate

Type of publication

Graduate/advanced undergraduate textbook

Available

2011. XVI, 590 p. Hardcover

169,95 €
Housing Finance in Emerging Markets
Connecting Low-Income Groups to Markets

The growth of urban areas and population in middle and low income countries is a continuing trend. Urbanization expands as rural to urban migration offers better income opportunities in cities. This trend is both a source of development opportunities and challenges for the housing sector. On the one hand, housing is a large and growing market, and on the other, massive slums confirm the poor housing conditions in many developing countries. These adverse conditions mirror inadequate housing policies, inefficient or absent property registration, as well as limits to access to housing finance. Provision of affordable housing is therefore an important topic in the fight against poverty. This book focuses on solutions that improve the enabling environment for the poor in accessing housing finance. It explores how to develop and integrate housing finance into a sustainable financial system for developing countries and offers ways in which low-income families can obtain better access to housing finance.[...]

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Contents

Fields of interest
Development Economics; Finance / Banking; Financial Economics

Target groups
Research

Type of publication
Monograph

Available
2011. X, 244 p. Hardcover

99,95 €
ISBN 978-3-540-77856-1

Information Systems Evolution
CAiSE Forum 2010, Hammamet, Tunisia, June 7-9, 2010, Selected Extended Papers

This book constitutes the post-conference proceedings of the CAiSE Forum from the 22nd International Conference on Advanced Information Systems Engineering (CAiSE 2010), held in Hammamet, Tunisia, June 7-9, 2010. While the CAiSE conference itself focuses on papers that report on matured research, the CAiSE forum was created specifically as a platform to present fresh ideas, new concepts, and new and innovative systems, tools, and applications. The 22 papers presented in this volume were carefully reviewed and selected from 32 submissions. The reworked and extended versions of the original presentations cover topics such as business process management, enterprise architecture and modeling, service-oriented architectures, and requirements engineering.

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Fields of interest
Business Information Systems; Computer Appl. in Administrative Data Processing; Information Systems Applications (incl.Internet); Software Engineering

Target groups
Research

Type of publication
Proceedings

Available

46,00 €
ISBN 978-3-642-17721-7

Information and Communication Technologies in Tourism 2011
Proceedings of the International Conference in Innsbruck, Austria, January 26-28, 2011

The papers in this volume address advances in mobile tourism services, Online destination marketing, GPS-based tracking of tourist behaviors, decision support tools, website design and evaluation, online travel distribution, ICT adoption in tourism and hospitality businesses, virtual experiences, online information search, Web 2.0, social media marketing, and the role of ICTs in [...]

Contents

Fields of interest
Business Information Systems

Target groups
Research

Type of publication
Proceedings

Available
2011. XVI, 610 p. 129 illus. Softcover

149,95 €
ISBN 978-3-7091-0502-3

P. Soifer, University of Haifa, Israel; E. Proper, Public Research Centre - Henri Tudor, Luxembourg-Kirchberg, Luxembourg (Eds.)

R. Law, The Hong Kong Polytechnic University, Hong Kong, Peoples Republic of China; M. Fuchs, European Tourism Research Institute, Mid Sweden University, Sweden; F. Ricci, Faculty of Computer Science, Free University of Bozen Bolzano, Italy (Eds.)
Infrastructure Productivity Evaluation

Infrastructure construction and use is at the heart of the current political debate. Not only are European member state governments investing large amounts of money to alleviate the harmful effects of the economic downturn due to the credit crisis, EU accession countries receive large amounts of cohesion funds for infrastructure purposes. Infrastructure is widely believed to contribute largely to economic performance, but to what extent is this the case? How does the productivity of roads, railways and ports relate to the invested money, and what determines their effectiveness? In this Brief, which focuses to a large extent on Dutch and European practice, numerous distinguished economists describe policy practice and analytical tools for infrastructure appraisal. Moreover, harmonisation of European approaches for evaluation of infrastructure are discussed. The study focuses both on scientific productivity measurement as on case studies of infrastructure policy.

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Fields of interest
Economic Policy; Public Finance & Economics; Regional Science

Target groups
Research

Type of publication
Brief

Available
2011. VII. 96 p. 15 illus., 6 in color. (SpringerBriefs in Economics) Softcover
49,95 €
ISBN 978-1-4419-8100-4

New Developments in the Theory of Networks
Franchising, Alliances and Cooperatives

The theory of networks aims at developing theoretical views on the design and management of alliances, franchise chains, licensing, joint ventures, cooperatives, and venture capital relations. The current trend in economics and management of networks is twofold: First there is a strong tendency toward application of theoretical approaches developed both in organizational economics, strategic management and organization theory. The second trend refers to the development of more integrative views on networks. Especially, combining organizational economics, strategic management and relational views on networks are very promising research directions. Starting from this status of research, the current book emphasizes network research as a theory-driven field by offering new perspectives on contract design, decision and ownership rights, value creation, knowledge management and the role of social capital in franchising networks, alliances and cooperatives.

Features
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Social Banking and Social Finance
Answers to the Economic Crisis

For over 2,000 years, banks have served to facilitate the exchange of money and to provide a variety of economic and financial services. During the most recent financial collapse and subsequent recession, beginning in 2008, banks have been vilified as perpetrators of the crisis, the public distrust compounded by massive public bailouts. Nevertheless, another form of banking has also emerged, with a focus on promoting economic sustainability, investing in community, providing opportunity for the disadvantaged, and supporting social, environmental, and ethical agendas. Social Banking and Social Finance traces the emergence of the “bank with a conscience” and proposes a new approach to banking in the wake of the economic crisis. Featuring innovations and initiatives in banking from Europe, Canada, and the United States, Roland Benedikter presents an alternative to traditional banking practices that are focused exclusively on profit maximization. He argues that social banking is not about changing the […]

Features
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Success Factors of Regional Strategies for Multinational Corporations
Appropriate Degrees of Management Autonomy and Product Adaptation

This work examines the factors that drive the success of Multinational Corporations (MNCs) in their pursuit of regional strategies. The author develops a comprehensive regional success factor model, by which the effects of regional management autonomy and regional product and service adaptation on the regional success of MNCs as well as the interaction effects of regional orientation and inter-regional distance are investigated. The model is evaluated by means of the partial least-squares (PLS) method on the basis of a survey-based inquiry of the Fortune Global 500 firms with success indicator data for a period of nine years. The findings highlight the importance of considering the different degrees of contextual influence in the design of regional strategies, where low degrees of regional management autonomy and high levels of regional product/service adaptation are found to be appropriate for MNCs to be regionally successful.

Features
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Contents

Fields of interest
Finance / Banking; Economic Policy; Macroeconomics / Monetary Economics

Target groups
Research

Type of publication
Brief

Available
2011. XIII, 133 p. 3 illus. in color. (SpringerBriefs in Business) Softcover
49.95 €
ISBN 978-1-4419-7773-1

The Political Economy of Regulation in Turkey

The Political Economy of Regulation in Turkey brings together leading international scholars and experts on Turkey and regulatory reform to provide essential information on the recent Turkish experience and its relation to competition policy. After the 1980 liberalization reform, Turkey tried to introduce competition in many industries, but network industries have remained as monopolies. At the end of the 1990s, regulatory reform was initiated and independent regulatory agencies have been established by the government. Comprehensive discussions of these network industries, in particular airlines, electricity, natural gas, telecommunications and environmental regulations, are offered. The contributors inquire how economic theory and historical analyses can enlighten the character of market processes and the role for government action in these industries, and the contributions shed light on the very recent changes in the regulatory structure and important legal cases that shape the future of regulated[…]

Features
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Contents

Fields of interest
Economic Policy; Industrial Organization; Development Economics

Target groups
Professional/practitioner

Type of publication
Monograph

Available
99.95 €
Modern businesses and organizations understand that corporate social responsibility (CSR) has become an important factor for sustainable success. At the same time CSR has established itself as a widely accepted element of courses in managerial training and education. This book, designed to support CSR teaching, collects 14 essays that clearly illustrate and explain the benefits and challenges of socially responsible corporate policies. Aligning theory and practice, the book focuses on four central themes: management, environment and sustainability, corporate social responsibility, and accounting and financial reporting. Business students and experienced managers alike will find this book a valuable resource that helps them to discover the strong forces that link successful management with corporate social responsibility.

**Features**
Modern businesses and organizations understand that corporate social responsibility (CSR) has become an important factor for sustainable success. At the same time CSR has established itself as a widely accepted element of courses in managerial training and education. This book, designed to support CSR teaching, collects 14 [...] 

**Contents**

**Fields of interest**
Business & Economics (general); Migration; Environment (general) 

**Target groups**
Graduate 

**Type of publication**
Graduate/advanced undergraduate textbook 

**Available**

59,95 € 
ISBN 978-3-642-16460-6 

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Modern economics have undergone a dramatic change. There has been a shift from large scale material manufacturing to the design and application of new technology with R&D and human capital. The new information age has introduced significant productivity gains through increasing returns and learning by doing, which has challenged the traditional growth models based on competitive market structures. Institutions outside the traditional markets and the genetic principle of survival of the fittest have dominated the current theory of industry growth. This book coordinates and integrates the two strands of economic growth and development: the endogenous theory of growth and the extra-market models of evolutionary economics dominated by innovation efficiency. It presents this new paradigm in terms of both theory and historical experiences. The book addresses the role of innovations and human capital, the impact of information technology, the role of institutions as mechanisms of evolutionary [...] 

**Features**
Modern economics have undergone a dramatic change. There has been a shift from large scale material manufacturing to the design and application of new technology with R&D and human capital. The new information age has introduced significant productivity gains through increasing returns and learning by doing, which has challenged the traditional growth models based on [...] 

**Contents**

**Fields of interest**
Economic Growth; Economic Theory; Political Science 

**Target groups**
Professional/practitioner 

**Type of publication**
Monograph 

**Available**

89,95 € 
ISBN 978-1-4419-8025-0 

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This book provides insights into important trends and future scenarios in the global tourism and travel industry. It analyses today’s challenges in the aviation and hospitality industry, in destination management, and in marketing and distribution management. New empirical data on general travel behaviour and the latest consumer trends are also presented. The contributors to this book are well-known individuals from important tourism, travel and consulting firms (e.g. BCD Travel, Oger Tours, Booz and Company, GfK, IPK International) and researchers from universities in Switzerland, United Kingdom, the Netherlands, and Germany. In addition institutes specializing in future research highlight important travel trends. Corporate social responsibility is one of the top themes to-be and therefore a focus of this book, offering insights into the concept of CSR, empirical data on consumer requests, corporate strategy issues and financial investment implications.

**Features**
This book provides insights into important trends and future scenarios in the global tourism and travel industry. It analyses today’s challenges in the aviation and hospitality industry, in destination management, and in marketing and distribution management. New empirical data on general travel behaviour and the latest consumer trends are also presented. The contributors to this book are well-known [...] 

**Contents**

**Fields of interest**
Management/Business for Professionals; Regional Science; Economic Geography; Human Geography 

**Target groups**
Professional/practitioner 

**Type of publication**
Contributed volume 

**Available**
2011. XXIV, 342 p. (Trends and Issues in Global Tourism, Preliminary entry @ Hardcover 

59,95 € 
ISBN 978-3-642-17766-8
Aromatic Hydroxyketones: Preparation and Physical Properties


"Aromatic Hydroxyketones: Preparation and Physical Properties" is a revised, new edition 4-volume handbook set which provides detailed information on physical properties and syntheses on a wide range of hydroxyketones. Each entry includes characterization data such as the Chemical Abstracts Service Registry Number (CAS RN), molecule name, molecular formula, and molecular weight. The handbooks are presented in dictionary style, with a logical classification of the ketones, making the information easily available for consultation. This handbook set provides 6000 hydroxyketone entries and includes approximately 6000 references. Volume 1: Hydroxybenzophenones Hydroxybenzophenones are most useful synthetic intermediates in the chemical industry, for example in pharmaceuticals, dyes, fragrances, agrochemicals, explosives and plastics. The first volume of this set is particularly intended for engineers in chemical synthesis and academics as well as industrial researchers from various branches.

Features

- Aromatic Hydroxyketones: Preparation and Physical Properties is a revised, new edition 4-volume handbook set which provides detailed information on physical properties and syntheses on a wide range of hydroxyketones. Each entry includes characterization data such as the Chemical Abstracts Service Registry Number (CAS RN), molecule name, molecular formula, and molecular weight. The handbooks are presented in dictionary style, with a logical classification of the ketones, making the information easily available for consultation. This handbook set provides 6000 hydroxyketone entries and includes approximately 6000 references. Volume 1: Hydroxybenzophenones Hydroxybenzophenones are most useful synthetic intermediates in the chemical industry, for example in pharmaceuticals, dyes, fragrances, agrochemicals, explosives and plastics. The first volume of this set is particularly intended for engineers in chemical synthesis and academics as well as industrial researchers from various branches.

Contents


Fields of interest

- Organic Chemistry; Medicinal Chemistry; Pharmacy
- Target groups: Research
- Type of publication: Handbook
- Available

2011. Approx. 2800 p. in 4 volumes, not available separately. Hardcover

99,95 €
ISBN 978-3-642-15360-0

Chemical Identification and its Quality Assurance

This is the first book to show how to apply the principles of quality assurance to the identification of analytes (qualitative chemical analysis). After presenting the principles of identification and metrological basics, the author focuses on the reliability and the errors of chemical identification. This is then applied to practical examples such as EPA methods, EU, FDA, or WADA regulations. Two whole chapters are devoted to the analysis of unknowns and identification of samples such as foodstuffs or oil pollutions. Essential reading for researchers and professionals dealing with the identification of chemical compounds and the reliability of chemical analysis.

Features


Fields of interest

- Analytical Chemistry; Measurement Science, Instrumentation
- Target groups: Research
- Type of publication: Monograph
- Available

2011. X, 281 p. 56 illus., 1 in color. Hardcover

139,95 €
Chemistry of Opioids


Features
Recent Advances in the Synthesis of Morphine and Related Alkaloids; by N. Chida * Opioids in Preclinical and Clinical Trials; by H. Nagase and H. Fujii * Synthesis of 14-Aklyoxymorphinan Derivatives and Their Pharmacological Actions; by H. Schmidhammer and M. Spetea * 14-Amino-4,5-Epoxy-morphinan Derivatives and Their Pharmacological Actions; by J. W. Lewis and S. M. Husbands * Non-peptidic Delta (κ) Opioid N. Chida

Fields of interest
Bioorganic Chemistry; Animal Biochemistry; Molecular Medicine

Type of publication
Research

Available

249.00 €
ISBN 978-3-642-18103-0

Copper-Catalyzed Multi-Component Reactions
Synthesis of Nitrogen-Containing Polycyclic Compounds

A copper-catalyzed direct synthesis of 2-(aminomethyl)indoles by catalytic domino reaction including multi-component coupling was developed, and is the first example of a three-component indole formation without producing salts as a byproduct. Based on this reaction, a copper-catalyzed synthesis of 3-(aminomethyl)isoquinoline was accomplished which represents an unprecedented isoquinoline synthesis through a four-component coupling reaction. Following these results, extensive application studies using one-pot palladium-, acid-, or base-promoted cyclization revealed that indole- or isoquinoline-fused polycyclic compounds can be readily synthesized through multi-component reactions. As the concept of Green Chemistry becomes ever more important, these findings may provide efficient and atom-economical approaches to the diversity-oriented synthesis of bioactive compounds containing a complex structure. This could lead to development of promising drug leads with structural complexity. The work of this[

Features
A copper-catalyzed direct synthesis of 2-(aminomethyl)indoles by catalytic domino reaction including multi-component coupling was developed, and is the first example of a three-component indole formation without producing salts as a byproduct. Based on this reaction, a copper-catalyzed synthesis of 3-(aminomethyl)isoquinoline was accomplished which represents an unprecedented isoquinoline synthesis through a [...]

Contents
Synthesis of Indole Derivatives Construction of 2-(Aminomethyl)indoles through Copper-Catalyzed Domino Three-Component Coupling and Cyclization Facile Synthesis of 1,2,3,4-Tetrahydro-fl-carboline by One-Pot Domino Three-Component Indole Formation and Nucleophilic Cyclization Concise Synthesis of Indole-Fused 1,4-Diazepines through Copper(I)-Catalyzed Domino Three-Component Coupling-Cyclization-N-Arylation under Microwave Irradiation Synthesis of Indole Derivatives Facile Synthesis of 3-(Aminomethyl)isoquinolines by Copper-Catalyzed Domino Four-Component Coupling and [...]

Fields of interest
Organic Chemistry; Medicinal Chemistry

Target groups
Research

Type of publication
Monograph

Available
2011. XV, 102 p. 4 illus. (Springer Theses) Hardcover

79.95 €
ISBN 978-3-642-15472-0

Electronic and Magnetic Properties of Chiral Molecules and Supramolecular Architectures

Time-dependent density functional response theory for electronic chiroptical properties of chiral molecules; by Jochen Autschbach, Lucia Nitsch-Velasquez, and Mark Rudolph * Chiroptical Properties of Charge-Transfer Compounds; by Yoshi-hisa Inoue, Tadashi Mori * G-C content independent long-range charge transfer through DNA; by Tetsuro Majima * Induced chirality in porphyrin aggregates: the role of weak and strong interactions; by Roberto Purrello * Vibrational circular dichroism spectroscopy of chiral molecules in solution; by Yun-jie Xu * Magneto-electric properties of self-assembled monolayers of chiral molecules; by Zeer Vager and Ron Naaman * Theory of adsorption induced chirality and electron transfer through chiral systems; by Spiros Skourtis and David Beratan * Chiral-selective surface chemistry induced by spin-polarized secondary electrons; by Richard Rosenberg

Features
Time-Dependent Density Functional Response Theory for Electronic Chiroptical Properties of Chiral Molecules, by Jochen Autschbach, Lucia Nitsch-Velasquez, and Mark Rudolph; Recent Theoretical and Experimental Advances in the Electronic Circular Dichroisms of Planar Chiral Cyclophanes, by Yoshihisa Inoue and Tadashi Mori; G-C Content Independent Long-Range Charge Transfer Through DNA, by Kyohikoh Kawai and [...]

Contents
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Fields of interest
Theoretical and Computational Chemistry; Organic Chemistry; Physical Chemistry

Target groups
Research

Type of publication
Reviews

Available

249.00 €
ISBN 978-3-642-18103-0
Entropies of Condensed Phases and Complex Systems
A First Principles Approach

Predicting thermodynamic quantities for chemically realistic systems on the basis of atomistic calculations is still, even today, a nontrivial task. Nonetheless, accurate treatment of inter-particle interactions, in terms of quantum chemical first principles methods, is a prerequisite for many applications, because of the complexity of both reactants and solvents in modern molecular sciences. Currently, a straightforward calculation of thermodynamic properties from these methods is only possible for high-temperature and low-density systems. Although the enthalpy of a system can often be predicted to a good level of precision with this ideal gas approach, calculating the entropy contribution to the free energy is problematic, especially as the density of the system increases. This thesis contains a compact and coherent introduction of basic theoretical features. The foundations are then laid for the development of approaches suitable for calculation of condensed phase entropies on the basis of...[4]

Features
Predicting thermodynamic quantities for chemically realistic systems on the basis of atomistic calculations is still, even today, a nontrivial task. Nonetheless, accurate treatment of inter-particle interactions, in terms of quantum chemical first principles methods, is a prerequisite for many applications, because of the complexity of both reactants and solvents in modern molecular sciences. Currently, a...[4]

Contents
Introduction...[4]

Fields of interest
Theoretical and Computational Chemistry; Statistical Physics, Dynamical Systems and Complexity; Thermodynamics; Math. Applications in Chemistry

Target groups
Research

Type of publication
Monograph

Available
2011. XVI, 225 p. illus., 7 in color. (Springer Theses) Hardcover
99.95 €
ISBN 978-3-642-15735-6

Iridium Catalysis

From the contents: Robert H Crabtree: Introduction and History...[4]

Features
From the contents: Robert H Crabtree: Introduction and History...[4]

Contents
Robert H Crabtree: Introduction and History...[4]

Fields of interest
Organometallic Chemistry; Catalysis; Organic Chemistry

Target groups
Research

Type of publication
Reviews

Available
189.95 €
ISBN 978-3-642-15333-4

Iron Catalysis

Fundamentals and Applications


Features

Contents

Fields of interest
Catalysis; Organometallic Chemistry; Organic Chemistry

Target groups
Research

Type of publication
Reviews

Available
189.95 €
ISBN 978-3-642-14669-5
Multicomponent Interfacial Transport

Described by the Square Gradient Model during Evaporation and Condensation

A thermodynamically consistent description of the transport across interfaces in mixtures has for a long time been an open issue. This research clarifies that the interface between a liquid and a vapor in a mixture is in local equilibrium during evaporation and condensation. It implies that the thermodynamics developed for interfaces by Gibbs can be applied also away from equilibrium, which is typically the case in reality. A description of phase transitions is of great importance for the understanding of both natural and industrial processes. For example, it is relevant for the understanding of the increase of CO₂ concentration in the atmosphere, or improvements of efficiency in distillation columns. This excellent work of luminescent scientific novelty has brought this area a significant step forward. The systematic documentation of the approach will facilitate further applications of the theoretical framework to important problems.

Features

A thermodynamically consistent description of the transport across interfaces in mixtures has for a long time been an open issue. This research clarifies that the interface between a liquid and a vapor in a mixture is in local equilibrium during evaporation and condensation. It implies that the thermodynamics developed for interfaces by Gibbs can be applied also away from equilibrium, which is typically the [...]
Principles and Applications of ESR Spectroscopy

Principles and Applications of ESR Spectroscopy fills the gap between the detailed monographs in ESR spectroscopy and the general textbooks in molecular physics, physical chemistry, biochemistry or spectrosopy. The latter only briefly explain the underlying theory and do not provide details about applications, while the currently available ESR textbooks are primarily focused on the technique as such. This text is based upon the authors’ long experience of teaching the subject to a mixed audience, in the extreme case ranging from physics to biology. The potential of the method is illustrated with applications in fields such as molecular science, catalysis and environmental sciences, polymer and materials sciences, biochemistry and radiation chemistry/physics. Theoretical derivations have in general been omitted, as they have been presented repeatedly in previous works. The necessary theory is instead illustrated by practical examples from the literature.

Features
“Principles and Applications of ESR Spectroscopy” fills the gap between the detailed monographs in ESR spectroscopy and the general textbooks in molecular physics, physical chemistry, biochemistry or spectroscopy. The latter only briefly explain the underlying theory and do not provide details about applications, while the currently available ESR textbooks are primarily focused on the technique as such. [...]
Adaptive Multimedia Retrieval. Understanding Media and Adapting to the User

7th International Workshop, AMR 2009, Madrid, Spain, September 24-25, 2009, Revised Selected Papers

This book constitutes the refereed proceedings of the 7th International Conference on Adaptive Multimedia Retrieval, AMR 2009, held in Madrid, Spain, in September 2009. The 12 revised full papers and the invited contribution presented were carefully reviewed. The papers are organized in topical sections on grasping multimedia streams; pinpointing music; adapting distances; understanding images; and around the user.

Fields of interest
Information Systems Applications (incl.Internet); Information Storage and Retrieval; Artificial Intelligence (incl. Robotics); Image Processing and Computer Vision; Database Management; Multimedia Information Systems

Type of publication
Proceedings

Available

46,00 €
ISBN 978-3-642-18448-2

Advances in Computing, Communication and Control


This book constitutes the refereed proceedings of the International Conference on Advances in Computing Communications and Control, ICAC3 2011, held in Mumbai, India, in January 2011. The 84 revised full papers presented were carefully reviewed and selected from 309 submissions. The papers address issues such as AI, artificial neural networks, computer graphics, data warehousing and mining, distributed computing, geo information and statistical computing, learning algorithms, system security, virtual reality, cloud computing, service oriented architecture, semantic web, coding techniques, modeling and simulation of communication systems, network architecture, network protocols, optical fiber/microwave communication, satellite communication, speech/image processing, wired and wireless communication, cooperative control, and nonlinear control, process control and instrumentation, industrial automation, controls in aerospace, robotics, and power systems.

Features
This book constitutes the refereed proceedings of the International Conference on Advances in Computing Communications and Control, ICAC3 2011, held in Mumbai, India, in January 2011. The 84 revised full papers presented were carefully reviewed and selected from 309 submissions. The papers address issues such as AI, artificial neural networks, computer graphics, data warehousing and mining, distributed [...]

Fields of interest
Computer Communication Networks; Information Systems Applications (incl.Internet); Artificial Intelligence (incl. Robotics); Algorithm Analysis and Problem Complexity; Information Storage and Retrieval; Database Management

Target groups
Research

Type of publication
Proceedings

Available
2011. XVII, 538 p. (Lecture Notes in Artificial Intelligence, Vol. 6525) Softcover

80,00 €
ISBN 978-3-642-18439-0

Agents for Games and Simulations II

Trends in Techniques, Concepts and Design

While today’s game engines and multi-agent platforms cross-fertilize each other to some extent, the technologies used in these areas are not readily compatible due to some differences in their primary concerns. Where game engines prioritize efficiency and central control, multi-agent platforms focus on agent autonomy and sophisticated communication capabilities. This volume gives an overview of the current state of the art for people wishing to combine agent technology with (serious) games. This state-of-the-art survey contains a collection of papers presented at AGS 2010; the Second International Workshop on Agents for Games and Simulations, held on May 10, 2010, in Toronto, as well as extended versions of papers from other workshops and from the AAMAS conference. The 14 papers are organized in three topical sections focusing on architectures combining agents and game engines, on the training aspects of the games, on social and organizational aspects of games and agents, respectively.

Features
While today’s game engines and multi-agent platforms cross-fertilize each other to some extent, the technologies used in these areas are not readily compatible due to some differences in their primary concerns. Where game engines prioritize efficiency and central control, multi-agent platforms focus on agent autonomy and sophisticated communication capabilities. [...]}

Contents

Fields of interest
Artificial Intelligence (incl. Robotics); Computer Communication Networks; Software Engineering; Computation by Abstract Devices; Simulation and Modeling; Special Purpose and Application-Based Systems

Target groups
Research

Type of publication
Graduate/advanced undergraduate textbook

Available

46,00 €
ISBN 978-3-642-18180-1

F. Dignum, Utrecht University, The Netherlands (Ed.)
Algebraic Methodology and Software Technology
13th International Conference, AMAST 2010, Lac-Beauport, QC, Canada, June 23-25, 2010, Revised Selected Papers

This book constitutes the refereed proceedings of the 13th International Conference on Algebraic Methodology and Software Technology, AMAST 2010, held in Lac-Beauport, Australia, in June 2010. The 14 revised full papers presented were carefully reviewed and selected from 33 submissions. The papers are organized in 1 invited paper, 10 contributed research papers, and 4 system demonstrations.

Features
This book constitutes the refereed proceedings of the 13th International Conference on Algebraic Methodology and Software Technology, AMAST 2010, held in Lac-Beauport, Australia, in June 2010. The 14 revised full papers presented were carefully reviewed and selected from 33 submissions. The papers are organized in 1 invited paper, 10 contributed research papers, and 4 system demonstrations.

Fields of interest
Software Engineering; Logics and Meanings of Programs; Programming Languages, Compilers, Interpreters; Mathematical Logic and Formal Languages; Artificial Intelligence (incl. Robotics); Programming Techniques

Target groups
Research

Type of publication
Proceedings

Available
46,00 €
ISBN 978-3-642-17795-8

Algorithms and Models for the Web-Graph
7th International Workshop, WAW 2010, Stanford, CA, USA, December 13-14, 2010, Proceedings

This book constitutes the refereed proceedings of the 7th International Workshop on Algorithms and Models for the Web-Graph, WAW 2010, held in Stanford, CA, USA, in December 2010, which was co-located with the 6th International Workshop on Internet and Network Economics (WINE 2010). The 13 revised full papers and the invited paper presented were carefully reviewed and selected from 19 submissions.

Features
This book constitutes the refereed proceedings of the 7th International Workshop on Algorithms and Models for the Web-Graph, WAW 2010, held in Stanford, CA, USA, in December 2010, which was co-located with the 6th International Workshop on Internet and Network Economics (WINE 2010). The 13 revised full papers and the invited paper presented were carefully reviewed and selected from 19 submissions.

Fields of interest
Artificial Intelligence (incl. Robotics); Information Systems Applications (incl. Internet); Information Storage and Retrieval; Algorithm Analysis and Problem Complexity; Database Management; Data Mining and Knowledge Discovery

Target groups
Research

Type of publication
Proceedings

Available
46,00 €
ISBN 978-3-642-18008-8

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. Prof. Yide Ma conducts research on intelligent information processing, biomedical image processing, and embedded system development at the School of Information Science and Engineering, Lanzhou University, China.

Features
"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 [...]
Approximation and Online Algorithms

8th International Workshop, WAOA 2010, Liverpool, UK, September 9-10, 2010, Revised Papers

This book constitutes the thoroughly refereed post workshop proceedings of the 8th International Workshop on Approximation and Online Algorithms, WAOA 2010, held in Liverpool, UK, in September 2010 as part of the ALGO 2010 conference event. The 23 revised full papers presented were carefully reviewed and selected from 58 submissions. The workshop covered areas such as algorithmic game theory, approximation classes, coloring and partitioning, competitive analysis, computational finance, cuts and connectivity, geometric problems, inapproximability results, echanisms design, network design, packing and covering, paradigms for design and analysis of approximation and online algorithms, parameterized complexity, randomization techniques, real-world applications, and scheduling problems.

Features
This book constitutes the thoroughly refereed post workshop proceedings of the 8th International Workshop on Approximation and Online Algorithms, WAOA 2010, held in Liverpool, UK, in September 2010 as part of the ALGO 2010 conference event. The 23 revised full papers presented were carefully reviewed and selected from 58 submissions. The workshop covered areas such as algorithmic game theory, approximation classes, coloring and partitioning, competitive analysis, computational finance, cuts and connectivity, geometric problems, inapproximability results, echanisms design, network design, packing and covering, paradigms for design and analysis of approximation and online algorithms, parameterized complexity, randomization techniques, real-world applications, and scheduling problems.

Fields of interest
Algorithm Analysis and Problem Complexity; Discrete Mathematics in Computer Science; Numeric Computing; Computer Graphics; Information Systems Applications (incl.Internet); Algorithms

Target groups
Professional/practitioner

Type of publication
Proceedings

Available

46,00 €
ISBN 978-3-642-18317-1

Automatic Digital Document Processing and Management

Problems, Algorithms and Techniques

This text reviews the issues involved in handling and processing digital documents. Examining the full range of a document’s lifetime, the book covers acquisition, representation, security, pre-processing, layout analysis, understanding, analysis of single components, information extraction, filing, indexing and retrieval. Features: provides a list of acronyms and a glossary of technical terms; contains appendices covering key concepts in machine learning, and providing a case study on building an intelligent system for digital document and library management; discusses issues of security, and legal aspects of digital documents; examines core issues of document image analysis, and image processing techniques of particular relevance to digitized documents; reviews the resources available for natural language processing, in addition to techniques of linguistic analysis for content handling; investigates methods for extracting and retrieving data/information from a document.

Features
Computer-readable documents have become ubiquitous in everyday life - from legacy documents that have been digitized, to new documents that have been created electronically. As the number of electronic documents continues to grow, so does the importance of digital methods for processing and managing these documents. This comprehensive text/reference provides a broad review of the issues involved in [...]
Collaborative Design in Virtual Environments

Collaborative virtual environments (CVEs) are multi-user virtual realities which actively support communication and co-operation. This book offers a comprehensive reference volume to the state-of-the-art in the area of design studies in CVEs. It is an excellent mix of contributions from over 25 leading researcher/experts in multiple disciplines from academia and industry, providing up-to-date insight into the current research topics in this field as well as the latest technological advancements and the best working examples. Many of these results and ideas are also applicable to other areas such as CVE for design education. Overall, this book serves as an excellent reference for postgraduate students, researchers and practitioners who need a comprehensive approach to study the design behaviours in CVEs. It is also a useful and informative source of materials for those interested in learning more on using/developing CVEs to support design and design collaboration.

Features
Collaborative virtual environments (CVEs) are multi-user virtual realities which actively support communication and co-operation. This book offers a comprehensive reference volume to the state-of-the-art in the area of design studies in CVEs. It is an excellent mix of contributions from over 25 leading researcher/experts in multiple disciplines from academia and industry, providing up-to-date insight [...] 

Contents

Fields of interest
Information Systems Applications (incl.Internet); Building Construction, HVAC, Refrigeration; Interaction Design; Computer-Aided Engineering (CAD, CAE) and Design; Computers and Education 

Target groups
Professional/practitioner 

Type of publication
Contributed volume 

Available
46,00 € ISBN 978-3-642-17927-3

DNA Computing and Molecular Programming

This book constitutes the thoroughly refereed post-conference proceedings of the 16th International Conference on DNA Computing and Molecular Programming, DNA16, held in Hong Kong, China, in June 2010. The 16 revised full papers presented were carefully selected during two rounds of reviewing and improvement from 59 submissions. The papers are well balanced between theoretical and experimental work and address all areas that relate to biomolecular computing, including demonstrations of biomolecular computing, theoretical models of biomolecular computing, biomolecular algorithms, computational processes in vitro and in vivo, analysis and theoretical models of laboratory techniques, biotechnological and other applications of DNA computing, DNA nanostructures, DNA devices such as DNA motors, DNA error evaluation and correction, in vitro evolution, molecular design, self-assembled systems, nucleic acid chemistry, and simulation tools.

Features
This book constitutes the thoroughly refereed post-conference proceedings of the 16th International Conference on DNA Computing and Molecular Programming, DNA16, held in Hong Kong, China, in June 2010. The 16 revised full papers presented were carefully selected during two rounds of reviewing and improvement from 59 submissions. The papers are well balanced between theoretical and experimental work [...] 

Fields of interest
Computation by Abstract Devices; Algorithm Analysis and Problem Complexity; Artificial Intelligence (incl. Robotics); Computer Communication Networks; Computation by Abstract Devices; Discrete Mathematics in Computer Science; Mathematical Logic and Formal Languages 

Target groups
Professional/practitioner 

Type of publication
Proceedings 

Available
46,00 € ISBN 978-3-642-18304-1
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, including: • supply chain design, • product development, • manufacturing system design, • product quality control, and • preservation of privacy. Incorporating recent developments of data mining that have made it possible to deal with management and engineering design problems with greater efficiency and efficacy, Data Mining presents a number of state-of-the-art topics. It will be an informative source of information for researchers, but will also be a useful reference work for industrial and managerial practitioners.

Features
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, including: • supply chain design, • product development, • manufacturing system design, • product quality control, and • preservation of privacy. Incorporating recent developments of data mining that have made it possible to deal with management and engineering design problems with greater efficiency and efficacy, Data Mining presents a number of state-of-the-art topics. It will be an informative source of information for researchers, but will also be a useful reference work for industrial and managerial practitioners.

Interaction with computers is becoming an increasingly ubiquitous and public affair. With more and more interactive digital systems being deployed in places such as museums, city streets and performance venues, understanding how to design for them is becoming ever more pertinent. Crafting interactions for these public settings raises a host of new challenges for human-computer interaction, widening the focus of design from concern about an individual’s dialogue with an interface to also consider the ways in which interaction affects and is affected by spectators and bystanders. Designing Interfaces in Public Settings takes a performative perspective on interaction, exploring a series of empirical studies of technology at work in public performance environments. From interactive storytelling to mobile devices on city streets, from digital telemetry systems on fairground rides to augmented reality installation interactive, the book documents the design issues emerging from the changing role of human-computer interaction.

Features
Interaction with computers is becoming an increasingly ubiquitous and public affair. With more and more interactive digital systems being deployed in places such as museums, city streets and performance venues, understanding how to design for them is becoming ever more pertinent. Crafting interactions for these public settings raises a host of new challenges for human-computer interaction.

Fields of interest
- Design and Knowledge Discovery
- Engineering Economics
- Organization, Logistics, Marketing
- Operation Research / Decision Theory
- Engineering Design

Target groups
- Research

Type of publication
- Monograph

Available
- 2011. XIV, 312 p. 68 illus. (Decision Engineering) Hardcover

129.95 €
ISBN 978-1-84996-337-4

Digital Watermarking
9th International Workshop, IWDW 2010, Seoul, Korea, October 1-3, 2010. Revised Selected Papers

This book constitutes the thoroughly refereed post-conference proceedings of the 9th International Workshop on Digital Watermarking, IWDW 2010, held in Seoul, Korea, in October 2010. The 26 revised full papers presented were carefully reviewed and selected from 48 submissions. The papers are organized in topical sections on forensics, visual cryptography, robust watermarking, steganography, fingerprinting, and steganalysis.

Features
This book constitutes the thoroughly refereed post-conference proceedings of the 9th International Workshop on Digital Watermarking, IWDW 2010, held in Seoul, Korea, in October 2010. The 26 revised full papers presented were carefully reviewed and selected from 48 submissions. The papers are organized in topical sections on forensics, visual cryptography, robust watermarking, steganography, fingerprinting, and steganalysis.

Fields of interest
- Data Encryption
- Data Structures, Cryptography and Information Theory
- Coding and Information Theory
- Information Storage and Retrieval
- Computer Graphics
- Image Processing and Computer Vision

Target groups
- Professional/practitioner

Type of publication
- Proceedings

Available

54.00 €
ISBN 978-3-642-18406-8
Distributed Computing and Internet Technology

7th International Conference, ICDCIT 2011, Bhubaneswar, India, February 9-12, 2011, Proceedings

This book constitutes the proceedings of the 7th International Conference on Distributed Computing and Internet Technology, ICDCIT 2011, held in Bhubaneswar, India, in February 2011. The 18 papers presented in this volume were carefully reviewed and selected from 138 submissions. In addition the book contains the full versions of 6 invited talks. The papers are grouped in topical sections on distributed computing, sensor networks, internet technologies and applications, security, and bio-inspired computing.

Features

This book constitutes the proceedings of the 7th International Conference on Distributed Computing and Internet Technology, ICDCIT 2011, held in Bhubaneswar, India, in February 2011. The 18 papers presented in this volume were carefully reviewed and selected from 138 submissions. In addition the book contains the full versions of 6 invited talks. The papers are grouped in topical sections on [...] fields of interest: Computer Communication Networks; Information Systems Applications (incl. Internet); Multimedia Information Systems; Software Engineering; Information Storage and Retrieval; Logics and Meanings of Programs

Target groups
Research

Type of publication
Proceedings

Available

54,00 € ISBN 978-3-642-19055-1

Distributed Video Sensor Networks

Large-scale video networks are of increasing importance in a wide range of applications. However, the development of automated techniques for aggregating and interpreting information from multiple video streams in real-life scenarios is a challenging area of research. Collecting the work of leading researchers from a broad range of disciplines, this timely text/reference offers an in-depth survey of the state of the art in distributed camera networks. The book addresses a broad spectrum of critical issues in this highly interdisciplinary field: current challenges and future directions; video processing and video understanding; simulation, graphics, cognition and video networks; wireless video sensor networks; communications and control; embedded cameras and real-time video analysis; applications of distributed video networks; and educational opportunities and curriculum development. Topics and features: presents an overview of research in areas of motion analysis, invariants, multiple cameras for [...] fields of interest: Computer Communication Networks; Information Systems and Society; Management of Computing and Information Storage; Computer Communication Networks; Information Systems Applications (incl. Internet); Multimedia Information Systems; Software Engineering; Information Storage and Retrieval; Logics and Meanings of Programs

Target groups
Research

Type of publication
Proceededings

Available


Electronic Value Exchange

Electronic Value Exchange examines in detail the transformation of the VISA electronic payment system from a collection of non-integrated, localized, paper-based bank credit card programs into the cooperative, global, electronic value exchange network it is today. Topics and features: provides a history of the VISA system from the mid-1960s to the early 1980s; presents a historical narrative based on research gathered from personal documents and interviews with key actors; investigates, for the first time, both the technological and social infrastructures necessary for the VISA system to operate; supplies a detailed case study, highlighting the mutual shaping of technology and social relations, and the influence that earlier information processing practices have on the way firms adopt computers and telecommunications; examines how “gateways” in transactional networks can reinforce or undermine established social boundaries, and reviews the establishment of trust in new payment devices.

Features

Although those born after the 1990s might never have known a time without them, payment cards and the electronic and computing networks they activated went through an explicit process of creation and adoption—a process which actively shaped these ubiquitous systems into what they are today. To understand why these systems ended up the way they did, one first needs to understand their origins, and why [...] contents: Setting the Stage: Money, Credit, and Payments in America. Assessing: Dee Hock and the Creation of the VISA System. Crafting the Social Dynamics of the Organization. Associating: Dee Hock and the Creation of the VISA System. Automating Authorization: BASE.- Automating Clearing and Settlement: BASE II and III.- Expanding the System: Organizational and Technical Growth. Automating the Point of Sale: Encoding Standards and Merchant Dial Terminals.- Challenging Conceptual Barriers: EFT and The Debit Card.- Negotiating Roles: Controversies and the End of an Era.- Conclusions: Towards a General Socio-technical... fields of interest: History of Computing; Computer Appl. in Administrative Data Processing; Computer Communication Networks; Performance and Reliability; Computers and Society; Management of Computing and Information Systems

Target groups
Research

Type of publication
Monograph

Available
2011. XXII, 244 p. (History of Computing) Hardcover

**Emotion-Oriented Systems**

The Humaine Handbook

Emotion pervades human life in general, and human communication in particular, and this sets information technology a challenge. Traditionally, IT has focused on allowing people to accomplish practical tasks efficiently, setting emotion to one side. That was acceptable when technology was a small part of life, but as technology and life become increasingly interwoven we can no longer ask people to suspend their emotional nature and habits when they interact with technology. The European Commission funded a series of related research projects on emotion and computing, culminating in the HUMAINe project which brought together leading academic researchers from the many related disciplines. This book grew out of that project, and its chapters are arranged according to its working areas: theories and models; signals to signs; data and databases; emotion in interaction; emotion in cognition and action; persuasion and communication; usability; and ethics and good practice. The fundamental aim of the book [...] 

**Features**

Emotion pervades human life in general, and human communication in particular, and this sets information technology a challenge. Traditionally, IT has focused on allowing people to accomplish practical tasks efficiently, setting emotion to one side. That was acceptable when technology was a small part of life, but as technology and life become increasingly interwoven we can no longer ask people to [...] 

**Contents**


**Fields of interest**

Artificial Intelligence (incl. Robotics); User Interfaces and Human Computer Interaction; Computer Applications in Social and Behavioral Sciences; Computational Intelligence; Behavioural Sciences

**Target groups**

Research

**Type of publication**

Monograph

**Available**


**Engineering Secure Software and Systems**


This book constitutes the refereed proceedings of the Third International Symposium on Engineering Secure Software and Systems, ESSoS 2011, held in Madrid, Italy, in February 2011. The 18 revised full papers presented together with 3 idea papers were carefully reviewed and selected from 63 submissions. The papers are organized in topical sections on model-based security, tools and mechanisms, Web security, security requirements engineering, and authorization.

**Features**

This book constitutes the refereed proceedings of the Third International Symposium on Engineering Secure Software and Systems, ESSoS 2011, held in Madrid, Italy, in February 2011. The 18 revised full papers presented together with 3 idea papers were carefully reviewed and selected from 63 submissions. The papers are organized in topical sections on model-based security, tools and mechanisms, Web security, [...] 

**Fields of interest**

Computer Communication Networks; Data Encryption; Software Engineering / Programming and Operating Systems; Data Structures, Cryptology and Information Theory; Mathematical Applications in Computer Science; Models and Principles

**Target groups**

Research

**Type of publication**

Proceedings

**Available**


**Formal Methods for Components and Objects**

8th International Symposium, FMCO 2009, Eindhoven, The Netherlands, November 4-6, 2009. Revised Selected Papers

All modern industries rely on large and complex software systems. In order to construct such large systems in a systematic manner, the focus of the development methodologies has switched in the last two decades from functional to structural issues. Formal methods have been applied successfully to the verification of medium-sized programs in protocol and hardware design. However, their application to the development of large systems requires a greater emphasis on specification, modeling, and validation techniques supporting the concepts of reusability and modifiability, and their implementation in new extensions of existing programming languages like Java. This state-of-the-art survey presents the outcome of the 8th Symposium on Formal Methods for Components and Objects, held in Eindhoven, The Netherlands, in November 2009. The volume contains 17 revised contributions submitted after the symposium by speakers from each of the following European IST projects: the IST- FP6 project BIONETS on [...] 

**Features**

All modern industries rely on large and complex software systems. In order to construct such large systems in a systematic manner, the focus of the development methodologies has switched in the last two decades from functional to structural issues. Formal methods have been applied successfully to the verification of medium-sized programs in protocol and hardware design. However, their application to the [...] 

**Fields of interest**

Software Engineering; Programming Languages; Compilers, Interpreters; Operating Systems; Logics and Meanings of Programs; Software Engineering / Programming and Operating Systems; Programming Techniques

**Target groups**

Research

**Type of publication**

Proceedings

**Available**

This book presents the thoroughly refereed postconference proceedings of the International Conference on Formal Verification of Object-Oriented Software, FoVeOOS 2010, held in Paris, France, in June 2010 - organised by COST Action IC0701. The 11 revised full papers presented together with 2 invited talks were carefully reviewed and selected from 21 submissions. Formal software verification has outgrown the area of academic case studies, and industry is showing serious interest. The logical next goal is the verification of industrial software products. Most programming languages used in industrial practice are object-oriented, e.g. Java, C++, or C#. FoVeOOS 2010 aimed to foster collaboration and interactions among researchers in this area.

Features
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Human Computer Interaction, Tourism and Cultural Heritage

First International Workshop, HCITOCH 2010, Brescello, Italy, September 7-8, 2010 Revised Selected Papers

This book constitutes the refereed proceedings of the First International Workshop on Human-Computer Interaction, Tourism and Cultural Heritage. HCITOCH 2010, held in Brescello, Italy, in September 2010. The 17 revised papers presented were carefully reviewed and selected from numerous submissions. Providing strategies for a creative future with computer science, quality design and communicability, the papers discuss the latest advances in the areas of augmented realities, computer art, computer graphics, e-commerce, eco-design, emerging technologies, dynamic and static media (2D & 3D), HCI, interactive systems, mixed reality, networking, simulation languages, tourism, usability, video games, virtual classroom and virtual museum.

Features
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Fields of interest
Information Systems Applications (incl. Internet); User Interfaces and Human Computer Interaction; Computer Communication Networks; Artificial Intelligence (incl. Robotics); Information Storage and Retrieval; Computers and Society

Target groups
Research

Type of publication
Proceedings

Available

54,00 €
ISBN 978-3-642-17954-9

Information Security Applications

11th International Workshop, WISA 2010, Jeju Island, Korea, August 24-26, 2010, Revised Selected Papers

This book constitutes the refereed proceedings of the 11th International Workshop on Information Security Applications, WISA 2010, held in Jeju Island, Korea, in August 2010. The 25 revised full papers presented were carefully reviewed and selected from 107 submissions. The papers are organized in topical sections on cryptosystem, implementation, mobile security/secure coding, attack, biometrics, and secure protocol.

Features
This book constitutes the refereed proceedings of the 11th International Workshop on Information Security Applications, WISA 2010, held in Jeju Island, Korea, in August 2010. The 25 revised full papers presented were carefully reviewed and selected from 107 submissions. The papers are organized in topical sections on cryptosystem, implementation, mobile security/secure coding, attack, [...] Features

Fields of interest
Computer Communication Networks; Data Encryption; Management of Computing and Information Systems; Algorithm Analysis and Problem Complexity; Computers and Society; Systems and Data Security

Target groups
Research

Type of publication
Proceedings

Available

54,00 €
ISBN 978-3-642-17954-9

Information Security

13th International Conference, ISC 2010, Boca Raton, FL, USA, October 25-28, 2010, Revised Selected Papers

This book constitutes the refereed proceedings of the 13th International Conference on Information Security, ISC 2010, held in Boca Raton, FL, USA, in October 2010. The 25 revised full papers and the 11 short papers presented were carefully reviewed and selected from 117 submissions. The papers are organized in topical sections on attacks and analysis; analysis; authentication, PIR and content identification; privacy; malware, crimeware and code injection; intrusion detection; side channels; cryptography; smartphones; biometrics; cryptography; application; buffer overflow; and cryptography, theory.

Features
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Fields of interest
Systems and Data Security; Data Encryption; Algorithm Analysis and Problem Complexity; Mathematical Applications in Computer Science; Special Purpose and Application-Based Systems; Information Systems Applications (incl. Internet)

Target groups
Research

Type of publication
Proceedings

Available

62,00 €
ISBN 978-3-642-18177-1
Logic for Programming, Artificial Intelligence, and Reasoning
16th International Conference, LPAR 16, Dakar, Senegal, April 25–May 1, 2010, Revised Selected Papers

This book constitutes the thoroughly refereed post-conference proceedings of the 16th International Conference on Logic for Programming, Artificial Intelligence, and Reasoning, LPAR 2010, which took place in Dakar, Senegal, in April/May 2010. The 27 revised full papers and 9 revised short papers presented together with 1 invited talk were carefully revised and selected from 47 submissions. The papers address all current issues in automated reasoning, computational logic, programming languages and deal with logic programming, logic-based program manipulation, formal methods, and various kinds of AI logics. Subjects covered range from theoretical aspects to various applications such as automata, linear arithmetic, verification, knowledge representation, proof theory, quantified constraints, as well as modal and temporal logics.

Features
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Fields of interest
Artificial Intelligence (incl. Robotics); Programming Techniques; Software Engineering; Logics and Meanings of Programs; Mathematical Logic and Formal Languages; Programming Languages, Compilers, Interpreters

Target groups
Research

Type of publication
Proceedings

Available

Medical Computer Vision
Recognition Techniques and Applications in Medical Imaging

This book constitutes the thoroughly refereed post-workshop proceedings of the International Workshop on Medical Computer Vision, MCV 2010, held in Beijing, China, in September 2010 as a satellite event of the 13th International Conference on Medical Image Computing and Computer Assisted Intervention, MICCAI 2010. The 10 revised full papers and 11 revised poster papers presented were carefully reviewed and selected from 38 initial submissions. The papers explore the use of modern image recognition technology in tasks such as semantic anatomy parsing, automatic segmentation and quantification, anomaly detection and categorization, data harvesting, semantic navigation and visualization, data organization and clustering, and general-purpose automatic understanding of medical images.

Features
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Fields of interest
Image Processing and Computer Vision; Artificial Intelligence (incl. Robotics)

Target groups
Professional/practitioner

Type of publication
Proceedings

Available


46,00 €
ISBN 978-3-642-18420-8

Membrane Computing
11th International Conference, CMC 2010, Jena, Germany, August 24-27, 2010, Revised Selected Papers

This book constitutes the thoroughly refereed post-conference proceedings of the 11th International Conference on Membrane Computing, CMC11, held in Jena, Germany, in August 2010 - continuing the fruitful tradition of 10 previous editions of the International Workshop on Membrane Computing (WMC). The 23 revised full papers presented together with 4 invited papers and the abstracts of 2 keynote lectures were carefully reviewed and selected from numerous submissions. The papers address in this volume cover all the main directions of research in membrane computing, ranging from theoretical topics in the mathematics and computer science to application issues. A special attention was paid to the interaction of membrane computing with biology and computer science, focusing both on the biological roots of membrane computing, on applications of membrane computing in biology and medicine, and on possible electronically based and bioinspired implementations.

Features
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Fields of interest
Computation by Abstract Devices; Mathematical Logic and Formal Languages; Simulation and Modeling; Computational Biology / Bioinformatics; Computer Communication Networks; Computer Science (general)

Target groups
Research

Type of publication
Proceedings

Available


62,00 €
ISBN 978-3-642-18122-1
Model-Driven Development of Advanced User Interfaces

Model-Driven Development (MDD) has become an important paradigm in software development. It uses models as primary artifacts in the development process. This book provides an outstanding overview as well as deep insights into the area of model-driven development of user interfaces, which is an emerging topic in the intersection of Human-Computer-Interaction and Software-Engineering. The idea of this book is based on the very successful workshop series of “Model-Driven Development of Advanced User Interfaces (MDDAU)”. It has been written by the leading researchers and practitioners in the field of model-driven development of user interfaces and offer a variety of solutions and examples for • Architectures and environments for the generation of user interfaces • User interface development for specific domains and purposes • Model-driven development in the context of ambient intelligence • Concepts supporting model-driven development of user interfaces

Features
Model-Driven Development (MDD) has become an important paradigm in software development. It uses models as primary artifacts in the development process. This book provides an outstanding overview as well as deep insights into the area of model-driven development of user interfaces, which is an emerging topic in the intersection of Human-Computer-Interaction and Software-Engineering. The idea of this book [...]
The two volume set LNCS 6443 and LNCS 6444 constitutes the proceedings of the 17th International Conference on Neural Information Processing, ICONIP 2010, held in Sydney, Australia, in November 2010. The 146 regular session papers presented were carefully reviewed and selected from 470 submissions. The papers of part I are organized in topical sections on neurodynamics, computational neuroscience and cognitive science, data and text processing, adaptive algorithms, bio-inspired algorithms, and hierarchical methods. The second volume is structured in topical sections on brain computer interface, kernel methods, computational advance in bioinformatics, self-organizing maps and their applications, machine learning applications to image analysis, and applications.

Features
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Object-Oriented Analysis and Design

Object-oriented analysis and design (OOAD) has over the years, become a vast field, encompassing such diverse topics as design process and principles, documentation tools, refactoring, and design and architectural patterns. For most students the learning experience is incomplete without implementation. This new textbook provides a comprehensive introduction to OOAD. The salient points of its coverage are:  
- A sound footing on object-oriented concepts such as classes, objects, interfaces, inheritance, polymorphism, dynamic linking, etc.  
- A good introduction to the stage of requirements analysis.  
- Use of UML to document user requirements and design.  
- An extensive treatment of the design process.  
- Coverage of implementation issues.  
- Appropriate use of design and architectural patterns.  
- Introduction to the art and craft of refactoring.  
- Pointers to resources that further the reader’s knowledge.  
All the main case-studies used for this book have been implemented by the authors using Java. The

Features
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- A [...]  

Contents
tion. - Part II Introduction to Object-Oriented Analy-

Type of publication
Graduate/advanced undergraduate textbook

Available
2011. X, 440 p. 150 Illus. (Undergraduate Topics in Computer Science)

34,95 €

Performance Evaluation and Benchmarking

This book constitutes the proceedings of the Second Technology Conference on Performance Evaluation and Benchmarking, TPCTC 2010, held in conjunction with the 36th International Conference on Very Large Data Bases, VLDB 2010, in Singapore, September 13-17, 2010. The 14 full papers and two keynote papers were carefully selected and reviewed from numerous submissions. This book considers issues such as: appliance; business intelligence; cloud computing; complex event processing; database optimizations; data compression; energy and space efficiency; green computing; hardware innovations; high speed data generation; hybrid workloads; very large memory systems; and virtualization.

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Fields of interest
System Performance and Evaluation; Computer Communication Networks; Information Systems Applications (incl. Internet); Software Engineering; Algorithm Analysis and Problem Complexity; Information Storage and Retrieval

Target groups
Research

Type of publication
Proceedings

Available

46,00 €
ISBN 978-3-642-18205-1

Practical Aspects of Declarative Languages

This book constitutes the refereed proceedings of the 13th International Symposium on Practical Aspects of Declarative Languages, PADL 2011, held in Austin, TX, USA, in January 2011, co-located with POPL 2011, the Symposium on Principles of Programming Languages. The 17 revised full papers presented together with one application paper were carefully reviewed and selected from 40 submissions. The volume features a variety of contributions ranging from message-passing and mobile networks, concurrent and parallel programming, event processing and reactive programming, profiling and portability in Prolog, constraint programming, grammar combinators, belief set merging and work on new language extensions and tools.

Features
This book constitutes the refereed proceedings of the 13th International Symposium on Practical Aspects of Declarative Languages, PADL 2011, held in Austin, TX, USA, in January 2011, co-located with POPL 2011, the Symposium on Principles of Programming Languages. The 17 revised full papers presented together with one application paper were carefully reviewed and selected from 40 submissions. The volume [...]  

Fields of interest
Programming Languages, Compilers, Interpreters; Programming Techniques; Logics and Meanings of Programs; Software Engineering; Mathematical Logic and Formal Languages; Artificial Intelligence (incl. Robotics)

Target groups
Research

Type of publication
Proceedings

Available

46,00 €
ISBN 978-3-642-18377-5
Proofs and Algorithms

An Introduction to Logic and Computability

Logic is a branch of philosophy, mathematics and computer science. It studies the required methods to determine whether a statement is true, such as reasoning and computation. Proofs and Algorithms: Introduction to Logic and Computability is an introduction to the fundamental concepts of contemporary logic - those of a proof, a computable function, a model and a set. It presents a series of results, both positive and negative, - Church’s undecidability theorem, Godel’s incompleteness theorem, the theorem asserting the semi-decidability of provability - that have profoundly changed our vision of reasoning, computation, and finally truth itself. Designed for undergraduate students, this book presents all that philosophers, mathematicians and computer scientists should know about logic.

Features
Proofs and Algorithms: An Introduction to Logic and Computability
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Contents
Proofs, Predictive Logic, Models, Algorithms, Computable Functions, Computation as a Sequence of Small Steps, Proofs and Algorithms, Church’s Theorem, Automated Theorem Proving, Decidable Theories, Constructivity, Epilogue, Index, Bibliography

Fields of interest
Theory of Computation, Mathematical Logic and Formal Languages

Target groups
Graduate

Type of publication
Undergraduate textbook

Available
2011. VIII, 195 p. (Undergraduate Topics in Computer Science) Softcover
34.95 €

Provenance and Annotation of Data and Process

Third International Provenance and Annotation Workshop, Troy, NY, June 15-16, 2010, Revised Selected Papers

The 7 revised full papers, 11 revised medium-length papers, 6 revised short, and 7 demo papers presented together with 10 poster/abstract papers describing late-breaking work were carefully reviewed and selected from numerous submissions. Provenance has been recognized to be important in a wide range of areas including databases, workflows, knowledge representation and reasoning, and digital libraries. Thus, many disciplines have proposed a wide range of provenance models, techniques, and infrastructures for encoding and using provenance. The papers investigate many facets of data provenance, process documentation, data derivation, and data annotation.

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Fields of interest
Information Storage and Retrieval, Information Systems Applications (incl. Internet); Operating Systems; Computers and Society; Management of Computing and Information Systems; Computer Communication Networks

Target groups
Professional/practitioner

Type of publication
Proceedings

Available
54.00 €
ISBN 978-3-642-17818-4

Recognizing Patterns in Signals, Speech, Images, and Videos

ICPR 2010 Contents, Istanbul, Turkey, August 23-26, 2010, Contest Reports

This book constitutes the refereed contest reports of the 20th International Conference on Pattern Recognition, ICPR 2010, held in Istanbul, Turkey, in August 2010. The 31 revised full papers presented were carefully reviewed and selected. The papers are organized in topical sessions on BiHTR - Bimodal handwritten Text Recognition, CAMCOM 2010 - Verification of Video Source Camera Competition, CDC - Classifier Domains of Competence, GEPR - Graph Embedding for Pattern Recognition, ImageCLEF@ICPR - Information Fusion Task, ImageCLEF@ICPR - Visual Concept Detection Task, ImageCLEF@ICPR - Robot Vision Task, MOBIO - Mobile Biometry Face and Speaker Verification Evaluation, PR in HIMA - Pattern Recognition in Histopathological Images, SDHA 2010 - Semantic Description of Human Activities.

Features
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Fields of interest
Pattern Recognition; Computer Imaging, Vision, Pattern Recognition and Graphics; Artificial Intelligence (incl. Robotics); Information Storage and Retrieval; Data Mining and Knowledge Discovery; Image Processing and Computer Vision

Target groups
Research

Type of publication
Proceedings

Available
54.00 €
ISBN 978-3-642-17710-1
Rotation Transforms for Computer Graphics

Rotation transforms are everywhere in computer graphics. From rotating pictures in editing software, to providing an arbitrary view of a 3D virtual environment. Although the former is a trivial operation, the latter can be a challenging task.

Contents


Features

Rotation transforms are everywhere in computer graphics. From rotating pictures in editing software, to providing an arbitrary view of a 3D virtual environment. Although the former is a trivial operation, the latter can be a challenging task.

Fields of interest

Software Engineering; Logics and Meanings of Programs; Symbolic and Algebraic Manipulation

Target groups

Graduate

Type of publication

Graduate/advanced undergraduate textbook

Available

2011. XVI, 258 p. 106 illus. Softcover

54,95 €
ISBN 978-0-85729-153-0

SOFSEM 2011: Theory and Practice of Computer Science


This book constitutes the refereed proceedings of the 37th Conference on Current Trends in Theory and Practice of Computer Science, SOFSEM 2011, held in Nový Smokovec, Slovakia in January 2011. The 41 revised full papers, presented together with 5 invited contributions, were carefully reviewed and selected from 122 submissions. SOFSEM 2011 was organized around the following four tracks: foundations of computer science; software, systems, and services; processing large datasets; and cryptography, security, and trust.

Features

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Fields of interest

Algorithm Analysis and Problem Complexity; Software Engineering; Data Storage Representation; Discrete Mathematics in Computer Science; Computer Communication Networks; Database Management

Target groups

Research

Type of publication

Proceedings

Available


70,00 €
ISBN 978-3-642-18380-5
Security Protocols

15th International Workshop, Brno, Czech Republic, April 18-20, 2007. Revised Selected Papers

This book constitutes the thoroughly refereed post-proceedings of the 15th International Workshop on Security Protocols, held in Brno, Czech Republic, in April 2007. The 15 revised full papers presented together with edited transcriptions of some of the discussions following the presentations have passed through multiple rounds of reviewing, revision, and selection. The topics addressed reflect the question "When is a Protocol Broken?" and how can it degrade gracefully in the face of partially broken assumptions, or how can it work under un(der)specified assumptions.

Features
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Fields of interest
Computer Communication Networks; Data Encryption; Management of Computing and Information Systems; Algorithm Analysis and Problem Complexity; Information Systems Applications (incl.Internet); Computers and Society

Target groups
Research

Type of publication
Proceedings

Available
46,00 €
ISBN 978-3-642-17772-9

The Semantic Web - ISWC 2010

9th International Semantic Web Conference, ISWC 2010, Shanghai, China, November 7-11, 2010, Revised Selected Papers, Part I

The two-volume set LNCS 6496 and 6497 constitutes the refereed proceedings of the 9th International Semantic Web Conference, ISWC 2010, held in Shanghai, China, during November 7-11, 2010. Part I contains 51 papers out of 578 submissions to the research track. Part II contains 18 papers out of 66 submissions to the semantic Web in-use track, 6 papers out of 26 submissions to the doctoral consortium track, and also 4 invited talks. Each submitted paper were carefully reviewed. The International Semantic Web Conferences (ISWC) constitute the major international venue where the latest research results and technical innovations on all aspects of the Semantic Web are presented. ISWC brings together researchers, practitioners, and users from the areas of artificial intelligence, databases, social networks, distributed computing, Web engineering, information systems, natural language processing, soft computing, and human computer interaction to discuss the major challenges and proposed solutions, the

Features
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Fields of interest
Computer Communication Networks; Information Systems Applications (incl.Internet); Data Mining and Knowledge Discovery; Information Storage and Retrieval; Database Management; Computers and Society

Target groups
Research

Type of publication
Proceedings

Available
87,00 €
ISBN 978-3-642-17745-3

The Semantic Web - ISWC 2010

9th International Semantic Web Conference, ISWC 2010, Shanghai, China, November 7-11, 2010, Revised Selected Papers, Part II

The two-volume set LNCS 6496 and 6497 constitutes the refereed proceedings of the 9th International Semantic Web Conference, ISWC 2010, held in Shanghai, China, during November 7-11, 2010. Part I contains 51 papers out of 578 submissions to the research track. Part II contains 18 papers out of 66 submissions to the semantic Web in-use track, 6 papers out of 26 submissions to the doctoral consortium track, and also 4 invited talks. Each submitted paper were carefully reviewed. The International Semantic Web Conferences (ISWC) constitute the major international venue where the latest research results and technical innovations on all aspects of the Semantic Web are presented. ISWC brings together researchers, practitioners, and users from the areas of artificial intelligence, databases, social networks, distributed computing, Web engineering, information systems, natural language processing, soft computing, and human computer interaction to discuss the major challenges and proposed solutions, the

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Fields of interest
Computer Communication Networks; Information Systems Applications (incl.Internet); Software Engineering; Information Storage and Retrieval; Database Management; Data Mining and Knowledge Discovery

Target groups
Research

Type of publication
Proceedings

Available
54,00 €
ISBN 978-3-642-17748-4
Theoretical Aspects of Distributed Computing in Sensor Networks

Wireless ad hoc sensor networks have recently become a very active research subject. Achieving efficient, fault-tolerant realizations of very large, highly dynamic, complex, unconventional networks is a real challenge for abstract modelling, algorithmic design and analysis, but a solid foundational and theoretical background seems to be lacking. This book presents high-quality contributions by leading experts worldwide on the key algorithmic and complexity-theoretic aspects of wireless sensor networks. The intended audience includes researchers and graduate students working on sensor networks, and the broader areas of wireless networking and distributed computing, as well as practitioners in the relevant application areas. The book can also serve as a text for advanced courses and seminars.

Contents

1. Challenges for Wireless Sensor Networks
   - Models, Topology, Connectivity
   - Scheduling and Power Assignments in the Physical Model
   - Maintaining Connectivity in Sensor Networks Using Directional Antennae
   - Optimal Placement of Ad Hoc Devices Under a VCG-Style Routing Protocol
   - Population Protocols and Related Models

2. Theoretical Aspects of Graph Models for MANETs
   - Localization, Time Synchronization

3. Fields of interest
   - Theory of Computation; Computer Systems Organization and Communication Networks; Communications Engineering, Networks

4. Target groups
   - Research

Type of publication: Graduate/advanced undergraduate textbook

Available

2011. XXVI, 928 p. 94 illus. in color. (Monographs in Theoretical Computer Science. An EATCS Series) Hardcover

149.95 €
ISBN 978-3-642-14848-4

Theory of Quantum Computation, Communication and Cryptography


This book constitutes the thoroughly refereed post-conference proceedings of the 5th Conference on Theory of Quantum Computation, Communication, and Cryptography, TQC 2010, held in Leeds, UK, in April 2010. The 15 revised papers presented were carefully selected during two rounds of reviewing and improvement. Focussing on theoretical aspects of quantum computation, quantum communication, and quantum cryptography - part of a larger interdisciplinary field embedding information science in a quantum mechanical framework - the papers present current original research. Topics addressed include quantum algorithms, models of quantum computation, quantum complexity theory, simulation of quantum systems, quantum cryptography, quantum communication, quantum estimation and measurement, quantum noise, quantum coding theory, fault-tolerant quantum computing, and entanglement theory.

Features

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Features

1. Theory of Computation; Algorithm Analysis and Problem Complexity: Computation by Abstract Devices; Coding and Information Theory; Discrete Mathematics in Computer Science; Quantum Information Technology, Spintronics

2. Target groups
   - Research

Type of publication

Proceedings

Available


62.00 €
ISBN 978-3-642-19073-5

Topics in Cryptology -- CT-RSA 2011

The Cryptographers’ Track at the RSA Conference 2011, San Francisco, CA, USA, February 14-18, 2011, Proceedings

This book constitutes the refereed proceedings of the Cryptographers’ Track at the RSA Conference 2011, CT-RSA 2011, held in San Francisco, CA, USA, in February 2011. The 24 revised full papers presented together with 1 invited lecture were carefully reviewed and selected from 79 submissions. The papers are organized in topical sections on secure two-party computation, cryptographic primitives, side channel attacks, authenticated key agreement, proofs of security, block ciphers, security notions, public-key encryption, crypto tools and parameters, and digital signatures.

Features

1. Fields of interest
   - Data Encryption; Discrete Mathematics in Computer Science; Systems and Data Security; Computer Communication Networks; Algorithm Analysis and Problem Complexity

2. Target groups
   - Professional/practitioner

Type of publication

Proceedings

Available


62.00 €
ISBN 978-3-642-19073-5

62.00 €
ISBN 978-3-642-18072-9
Towards Autonomous, Adaptive,
and Context-Aware Multimodal Interfaces: Theoretical and Practical Issues

Third COST 2102 International Training School, Caserta, Italy, March 15-19, 2010, Revised Selected Papers

This volume brings together the advanced research results obtained by the European COST Action 2102: "Cross Modal Analysis of Verbal and Nonverbal Communication". The research published in this book was discussed at the 3rd jointly EUCOGII-COST 2102 International Training School entitled: "Toward Autonomous, Adaptive, and Context-Aware Multimodal Interfaces: Theoretical and Practical Issues", held in Caserta, Italy, on March 15-19, 2010. The book is arranged into two scientific sections. The 18 revised papers of the first section, "Human-Computer Interaction: Cognitive and Computational Issues", deal with conjectural and practical solutions to the modelling of timing synchronization between linguistic and paralinguistic expressions, actions, body movements, [...] Features

The LNCS journal Transactions on Computational Science reflects recent developments in the field of Computational Science, conceiving the field not as a mere ancillary science but rather as an innovative approach supporting many other scientific disciplines. The journal focuses on original high-quality research in the realm of computational science in parallel and distributed environments, encompassing the facilitating theoretical foundations and the applications of large-scale computations and massive data processing. It addresses researchers and practitioners in areas ranging from aerospace to biochemistry, from electronics to geosciences, from mathematics to software architecture, presenting verifiable computational methods, findings, and solutions and enabling industrial users to apply techniques of leading-edge, large-scale, high performance computational methods. The 11th issue of the Transactions on Computational Science journal, edited by Edward David Moreno, is the second of two [...] Features

The LNCS journal Transactions on Computational Science reflects recent developments in the field of Computational Science, conceiving the field not as a mere ancillary science but rather as an innovative approach supporting many other scientific disciplines. The journal focuses on original high-quality research in the realm of computational science in parallel and distributed environments, encompassing the [...] Contents


Computer Communication Networks; Data Encryption; Algorithm Analysis and Problem Complexity; Discrete Mathematics in Computer Science; Coding and Information Theory; Mathematics of Computing...
Transactions on Petri Nets and Other Models of Concurrency IV

These Transactions publish archival papers in the broad area of Petri nets and other models of concurrency, ranging from theoretical work to tool support and industrial applications. ToPNoC issues are published as LNCS volumes, and hence are widely distributed and indexed. This Journal has its own Editorial Board which selects papers based on a rigorous two-stage refereeing process. ToPNoC contains: Revised versions of a selection of the best papers from workshops and tutorials at the annual Petri net conferences; Special sections/issues within particular subareas (similar to those published in the Advances in Petri Nets series); Other papers invited for publication in ToPNoC; Papers submitted directly to ToPNoC by their authors. The fourth volume of ToPNoC contains revised and extended versions of a selection of the best papers from the workshops held at the 30th International Conference on Application and Theory of Petri Nets and Other Models of Concurrency and from the 10th Workshop and Tutorial.[...]

Contents

- Vicinity Respecting Homomorphisms for Abstracting System Requirements.
- Search-Order Independent State Caching.
- Bounded Parametric Model Checking for Elementary Net Systems.
- SAT-Based (Parametric) Reachability for a Class of Distributed Time Petri Nets.
- Parametric Model Checking with VerICS.
- Schedule-Aware Workflow Management Systems.
- On-the-Fly Auditing of Business Processes.
- Modeling Organizational Units as Modular Components of Systems.
- A Multi-Agent Organizational Framework for Coevolutionary Optimization.

Fields of interest

Models and Principles; Theory of Computation; Simulation and Modeling; Software Engineering; Computer Communication Networks; Algorithm Analysis and Problem Complexity

Target groups

Research

Type of publication

Contributed volume

Available


63,00 €
ISBN 978-3-642-18221-1

Transactions on Rough Sets XIII

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. Volume XIII contains 14 papers which introduce a number of new advances in both the foundations and the applications of rough sets. These are mathematical structures of generalized rough sets in infinite universes, approximations of arbitrary binary relations, and attribute reduction in decision-theoretic rough sets. Methodological advances introduce rough set-based and hybrid methodologies for learning theory, attribution reduction, decision analysis, risk assessment, and data mining tasks such as classification and clustering. In addition, this volume contains[...]

Features

While today's game engines and multi-agent platforms cross-fertilize each other to some extent, the technologies used in these areas are not readily compatible due to some differences in their primary concerns. Where game engines prioritize efficiency and central control, multi-agent platforms focus on agent autonomy and sophisticated communication capabilities. This volume gives an overview of the current[...]

Fields of interest

Artificial Intelligence (incl. Robotics); Database Management; Information Storage and Retrieval; Data Mining and Knowledge Discovery; Image Processing and Computer Vision; Discrete Mathematics in Computer Science

Target groups

Research

Type of publication

Proceedings

Available


63,00 €
ISBN 978-3-642-18301-0

63,00 €
ISBN 978-3-642-18301-0
Verification, Model Checking, and Abstract Interpretation

12th International Conference, VMCAI 2011, Austin, TX, USA, January 23-25, 2011 Proceedings

This book constitutes the refereed proceedings of the 12th International Conference on Verification, Model Checking, and Abstract Interpretation, VMCAI 2011, held in Austin, TX, USA, in January 2011, co-located with the Symposium on Principles of Programming Languages, POPL 2011. The 24 revised full papers presented together with 4 invited talks were carefully reviewed and selected from 71 initial submissions. The papers showcase state-of-the-art research in areas such as verification, model checking, abstract interpretation and address any programming paradigm, including concurrent, constraint, functional, imperative, logic and object-oriented programming. Further topics covered are static analysis, deductive methods, program certification, debugging techniques, abstract domains, type systems, and optimization.

Features
This book constitutes the refereed proceedings of the International Conference on Vagueness in Communication, VIC 2009, held as part of ESSLLI 2009, in Bordeaux, France, July 20-24, 2009. The 11 contributions presented shed a light on new aspects in the area of vagueness in natural language communication. In contrast to the classical instruments of dealing with vagueness - like multi-valued logics, truth value gaps or gluts, or supervaluations - this volume presents new approaches like context-sensitivity of vagueness, the sharpening of vague predicates in context, and the modeling of precision levels.

Fields of interest
Mathematical Logic and Formal Languages; Artificial Intelligence (incl. Robotics); Information Storage and Retrieval; Information Systems Applications (incl.Internet); Database Management; Computation by Abstract Devices

Target groups
Research

Type of publication
Proceedings

Available
46,00 €
ISBN 978-3-642-18445-1

Dentistry

Topics in Dental Biochemistry

Over the last 20 years, biochemistry and molecular biology have undergone a revolution that has affected our understanding of the oral cavity. Topics in Dental Biochemistry is primarily designed for students of dentistry who need to relate biochemistry and molecular biology to dentally related topics in physiology, nutrition, anatomy, histology, microbiology, and immunology. The book will also be of value for dental professionals, scientists, and practitioners of medicine who are interested in hard and soft tissue structure and disease. It provides the necessary scientific background for a clearer understanding of bone, tooth, saliva, and surrounding soft tissue research and also for an appreciation of how dental caries and periodontal disease might be better diagnosed and controlled in the future. Dentistry was developed to treat dental caries, but since the early 20th century it has increasingly been treating periodontal, traumatic and genetic diseases affecting tooth structure and [...]
Earthquake Data in Engineering Seismology

Predictive Models, Data Management and Networks

This book addresses current activities in strong-motion networks around the globe, covering issues related to designing, maintaining and disseminating information from these arrays. The book is divided into three principal sections. The first section includes recent developments in regional and global ground-motion predictive models. It presents discussions on the similarities and differences of ground motion estimations from these models and their application to design spectra as well as other novel procedures for predicting engineering parameters in seismic regions with sparse data. The second section introduces topics about the particular methodologies being implemented in the recently established global and regional strong-motion data-banks in Europe to maintain and disseminate the archived accelerometric data. The final section describes major strong-motion arrays around the world and their historical developments. The last three chapters of this section introduce projects carried out within [...] for possible regional dependence in strong ground motions.

Features
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Contents
Preface and Acknowledgements. - Contributors. - Part 1: Ground-Motion Predictive Models.- Ground-Motion Prediction Equations (GMPEs) from a Global Dataset: The PEER NGA Equations; D.M. Boore. - Ground-Motion Models for Defining Seismic Actions in Eurocode 8; J.I. Bommer. - Investigating Possible Regional Dependence in Strong Ground Motions; J. Douglas. - A Predictive Ground-Motion Model for Turkey and its Comparison with Recent Local and Global GMPEs; Z. Çatınan, S. Akkar, P. Gülkan. - Strong-Motion Networks in Italy and Their Efficient Use in the Derivation of Regional and Global Predictive [...] for possible regional dependence in strong ground motions.

Fields of interest
Natural Hazards; Geoengineering, Foundations, Hydraulics; Statistics for Engineering, Physics, Computer Science; Chemistry and Earth Sciences; Geophysics / Geodesy; Nuclear Engineering

Target groups
Research

Type of publication
Monograph

Available
99,95 €
ISBN 978-94-007-0151-9

Flood Risk Assessment and Management

How to Specify Hydrological Loads, Their Consequences and Uncertainties

Flood catastrophes which happened world-wide have shown that it is not sufficient to characterize the hazard caused by the natural phenomenon “flood” with the well-known 3M-approach (measuring, mapping and modelling). Due to the recent shift in paradigms from a safety oriented approach to risk based planning it became necessary to consider the harmful impacts of hazards. The planning tasks changed from attempts to minimise hazards towards interventions to reduce exposure or susceptibility and nowadays to enhance the capacities to increase resilience. Scientific interest shifts more and more towards interdisciplinary approaches, which are needed to avoid disaster. This book deals with many aspects of flood risk management in a comprehensive way. As risks depend on hazard and vulnerabilities, not only geophysical tools for flood forecasting and planning are presented, but also socio-economic problems of flood management are discussed. Starting with precipitation and meteorological tools to its [...]

Features
This book examines many aspects of flood risk management in a comprehensive way. As risks depend on hazard and vulnerabilities, not only geophysical tools for flood forecasting and planning are presented, but also socio-economic problems of flood management are discussed. Starting with precipitation and meteorological tools to its forecasting, hydrological models are described in their [...] for flood risk management.

Contents

Fields of interest
Hydrogeology; Environmental Management; Physical Geography

Target groups
Research

Type of publication
Contributed volume

Available
2011. X, 470 p. 80 illus., 5 in color. Hardcover
129,95 €
Geomagnetism

Solid Earth and Upper Atmosphere Perspectives

With the awareness that the Earth has a magnetic field, its mathematical description, discovery of remanent magnetisation in rocks and discovery of the periodic reverals of the geomagnetic field polarity, geomagnetism within geophysics became an interesting field of study. This is primarily due to advances in measurement technology and improved understanding of the magnetic field and its fluctuations in the geospace. Several important aspects of solid Earth geomagnetism are elaborated in the book. The first six chapters cover the basics of magnetism, magnetic minerals, biomagnetics, instrumentation and the behavior of geomagnetic field, while the rest of the book is devoted to practical applications with carefully selected examples and illustrations. Well-written and easy to read, the book vividly describes modern techniques in the subject matter covered, adequately supported by graphical explanations for complex mathematical concepts.

Features

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This book, as the outcome of the COST-728/Net-FAM workshop, focuses on the following main topics: 1) on-line coupled meteorology-chemistry modelling with two-way feedbacks, 2) off-line coupled modelling and interfaces, 3) validation and case studies including air quality related episodes, and 4) integration of atmospheric chemical transport (ACT) models with numerical weather prediction (NWP). This book is one of the first attempts to give an overall look on such integrated meso-meteorology and chemistry modelling approach. It reviews the current situation with the on-line and off-line coupling of mesoscale meteorological and ACT models worldwide as well as discusses advantages and shortcomings, best practices, and gives recommendations for on-line and off-line coupling of NWP and ACT models, implementation strategy for different feedback mechanisms, direct and indirect effects of aerosols and advanced interfaces between both types of models. The book is oriented towards numerical weather prediction.[...]

**Features**

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**Physics of Space Storms**

*From the Solar Surface 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 pyhsics 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 geomagnetic field on the ground. The most up-to-date information available is presented in a clear, analytical and quantitative way. The book is divided into three parts. Part 1 is a phenomenological introduction to space weather from the Sun to the Earth. Part 2 comprehensively presents the fundamental concepts of space plasma physics. It consists of discussions of fundamental concepts of plasma physics, starting from underlying electrodynamics and...

**Features**

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**Contents**

Preface - Stormy Tour from the Sun to the Earth - Physical Foundations - Single particle motion - Waves in Cold Plasma - Approximation of plasma physics - phenomena with a rigorous theoretical basis. The topics...

**Fields of interest**

Meteorology / Climatology; Astronomy, Astrophysics and Cosmology; Astrophysics and Astroparticles

**Target groups**

Research

**Type of publication**

Monograph

**Available**

2011. XVIII, 500 p. (Environmental Sciences) Hardcover

169,95 €

ISBN 978-3-642-03010-3

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**Sustainable Development in Mountain Regions**

*Southeastern Europe*

The mountain regions in Southeastern Europe are unique natural regions of great beauty and ecological value, and home of the head waters of major rivers. They constitute a major ecological, economic, cultural, recreational and living environment in Europe. A great number of protected areas – national parks, nature parks, reserves and nature monuments are located in these regions. From a socio-economic point of view the mountain regions are among the poorest areas in the Southeastern European countries, but they have potential for the implementation of successful economic activities. There are opportunities for development of these regions and, in particular, for cross-border integration and cooperation. This book brings together research results from experts from all Balkan countries working on the problems of the mountain regions in Southeastern Europe.

**Features**

The mountain regions in Southeastern Europe are unique natural regions of great beauty and ecological value, and home of the head waters of major rivers. They constitute a major ecological, economic, cultural, recreational and living environment in Europe, shared by numerous cultures and countries. The Southeastern European Mountain Regions are an...

**Contents**


**Fields of interest**

Geophysics / Geodesy; Astronomy, Astrophysics and Cosmology; Extraterrestrial Physics, Space Sciences

**Target groups**

Research

**Type of publication**

Monograph

**Available**

2011. XIV, 291 p. 50 illus., 20 in color. Hardcover

99,95 €

ISBN 978-94-007-0130-4

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**The Sun, the Solar Wind, and the Heliosphere**

This volume represents the state of the art of the science covered by the International Association of Geomagnetism and Aeronomy (IAGA) Division IV: Solar Wind and Interplanetary Field. It contains a collection of contributions by top experts addressing and reviewing a variety of topics included under the umbrella of the division. It covers subjects that extend from the interior of the Sun to the heliopause, and from the study of physical processes in the Sun and the solar wind plasma to space weather forecasts. The book is organized in 6 parts: the solar interior, the solar atmosphere, the heliosphere, heliophysical processes, radio emissions, and coordinated science in the Sun-Earth system. In addition, we highlight some of the results presented during the IAGA Division IV symposia in the 11th Scientific Assembly of IAGA in Sopron, Hungary, on 23-30 August 2009, which was planned simultaneously with this book.

**Features**

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**Contents**


**Fields of interest**

Geophysics / Geodesy; Astronomy, Astrophysics and Cosmology; Extraterrestrial Physics, Space Sciences

**Target groups**

Research

**Type of publication**

Monograph

**Available**


99,95 €

Education

G. Wan, Ohio University, Athens, OH, USA; D.M. Gut, Ohio University, Athens, OH, USA (Eds.)

**Bringing Schools into the 21st Century**

Shift happens: Emerging technologies and globalization have resulted in political, social and cultural changes. These changes have a profound impact on all aspects of human life, including education. Yet while society has changed and continues to change, schools are slow to keep up. This book explores issues related to transforming and modernizing our educational systems, including the impact of societal shifts on education, the efforts at various levels to bring schools into the 21st century, the identification of 21st century skills, the reformation of the curriculum, the creation of alternative models of schooling, the innovative use of technology in education, and many others. It addresses questions like the following: Should schools systems adapt to better meet the needs of tomorrow’s world and how should this be accomplished? How can society better prepare students for a changing and challenging modern world? What skills do students need to lead successful lives and become productive? [...]

**Features**

Shift happens: Emerging technologies and globalization have resulted in political, social and cultural changes. These changes have a profound impact on all aspects of human life, including education. Yet while society has changed and continues to change, schools are slow to keep up. This book explores issues related to transforming and modernizing our educational systems, including the impact of societal changes. [...]

**Contents**


**Fields of interest**

Learning and instruction; Teaching and Teacher Education; Curriculum Studies

**Target groups**

Research

**Type of publication**

Contributed volume

Available

2011. XVI, 200 p. (Explorations of Educational Purpose, Vol. 13) Hardcover

99.95 €
Collaboration and Networking in Education

Collaboration and networking have recently come to the fore as major school improvement strategies in a number of countries. A variety of initiatives, from government and other agencies, have encouraged collaboration and led to a lot of practical activity in this area. However, at present there are no texts in education that explore collaboration and networking from both a theoretical and practical perspective. In this book, we aim to provide a theoretical background to educational collaboration, drawing on research and theory in policy studies, psychology and sociology, leading ultimately to a typology of networks. This theoretical base will be tested in the discussion of a number of case studies referring to specific initiatives such as the Federations programme, multi-agency collaboration and Networked Learning Communities. Lessons for practice will be drawn and presented in terms of factors internal and external to the school. The key issue of network leadership will be addressed here as well.

Contents

Fields of interest
Administration, Organization and Leadership; Educational Policy and Politics

Target groups
Research

Type of publication
Monograph

Available
2011. VIII, 140 p. Hardcover
99,95 €
ISBN 978-94-007-0282-0

Combinatorics and Reasoning

Combinatorics and Reasoning: Representing, Justifying and Building Isomorphisms

Combinatorics and Reasoning: Representing, Justifying and Building Isomorphisms is based on the accomplishments of a cohort group of learners from first grade through high school and beyond, concentrating on their work on a set of combinatorics tasks. By studying these students, the editors gain insight into the foundations of proof building, the tools and environments necessary to make connections, activities to extend and generalize combinatoric learning, and even explore implications of this learning on the undergraduate level. This volume underscores the power of attending to basic ideas in building arguments; it shows the importance of providing opportunities for the co-construction of knowledge by groups of learners; and it demonstrates the value of careful construction of appropriate tasks. Moreover, it documents how reasoning that takes the form of proof evolves with young children and discusses the conditions for supporting student reasoning.

Features
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Extraordinary Learning in the Workplace

The contributing authors of this multidisciplinary text agree that workplace learning truly is extraordinary when it is marked by structural congruence and a positive synergy among the intended and formal preparation of professionals, that tacit learning occurs within the hidden curriculum, and that the subsequent demands, both formal and tacit, are embedded in subsequent workplace settings. Thus, for this text, these authors explore research and practice literature related to curriculum, instruction and assessment of professionals’ learning in the workplace and the implications for best practices. But what makes this book truly unique is that the authors examine that literature in the context of four professions—education, nursing, medicine and clergy—at the point of those professions wherein students are learning during the degree program stages of their education. Extraordinary Learning in the Workplace is broken into four main sections. Part I explores curriculum, both formal and hidden. Part[...]

Features
The contributing authors of this multidisciplinary text agree that workplace learning truly is extraordinary when it is marked by structural congruence and a positive synergy among the intended and formal preparation of professionals, that tacit learning occurs within the hidden curriculum, and that the subsequent demands, both formal and tacit, are embedded in subsequent workplace settings. Thus, for this[...]

Contents

Fields of interest
Professional and Vocational Education; Learning and Instruction; Curriculum Studies

Target groups
Research

Type of publication
Contributed volume

Available
2011, XIX, 200 p. (Innovation and Change in Professional Education, Vol. 6) Hardcover

99,95 €
ISBN 978-94-007-0270-7

From Expert Student to Novice Professional

Students entering higher education expect their studies to lead them towards some specific form of professional career. But in this age, complex internationalized professions are the main source of work for graduates, so students need to prepare themselves for a future that can be volatile, changeable and challenging. This book shows how students navigate their way through learning and become effective students; it details how to shift the focus of their learning away from the formalism associated with the university situation towards the exigencies of working life. It is in this sense that the book explores how people move from being expert students to novice professionals. This book presents a model of professional learning fashioned out of a decade of research undertaken in countries half a world away from each other—Sweden and Australia. It uses empirical research gathered from students and teachers to show how students negotiate the forms of professional knowledge they encounter as part of[...]

Features
Students entering higher education expect their studies to lead them towards some specific form of professional career. But in this age, complex internationalized professions are the main source of work for graduates, so students need to prepare themselves for a future that can be volatile, changeable and challenging. This book shows how students navigate their way through learning and become effective[...]

Contents
From expert student to novice professional chapter one what’s happening in higher education? - Chapter two professional learning; how can we understand learning for the professions? - Chapter three professional discourse: how do novice professionals see themselves? - Professional knowledge: what does knowledge mean to novice professionals? - Chapter five professional dispositions: how are professional dispositions developed in higher education? - Chapter six professional identity: how is professional identity developed? - Chapter seven professional pedagogies: what pedagogic[...]

Fields of interest
Higher Education; Professional and Vocational Education

Target groups
Research

Type of publication
Monograph

Available
2011, VII, 140 p. 8 illus. (Professional Learning and Development in Schools and Higher Education, Vol. 5) Hardcover

99,95 €
ISBN 978-94-007-0249-3

Labour-Market Flexibility and Individual Careers

A Comparative Study

With labour markets across the world and even in social democratic Europe in a state of unprecedented flux, the problem of how to balance job-market demands, personal career interests and private life becomes a central issue for millions of employees. So how do modern work and employment arrangements restructure individual careers and what is required of individuals in order to manage career transitions successfully over time? This is one of very few in-depth empirical studies to analyze how labour market trends, organizational change and the subjective work orientations of individuals interact. The author’s detailed assessment is based on a comparison of the structural contexts, work orientations and employment histories of nurses and ICT technicians in Germany and the UK. These two core service occupations, as well as the national contexts of the two European nations, have quite different working environments and vocational traditions. Nursing is an[...]

Features
With labour markets across the world and even in social democratic Europe in a state of unprecedented flux, the problem of how to balance job-market demands, personal career interests and private life becomes a central issue for millions of employees. So how do modern work and employment arrangements restructure individual careers and what is required of individuals in order to manage career transitions[...]

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Fields of interest
Professional and Vocational Education; Labor Economics

Target groups
Research

Type of publication
Monograph

Available

99,95 €
Lesson Study Research and Practice in Mathematics Education

Lesson study is a professional development process that teachers engage in to systematically examine their practice, with the goal of becoming more effective. Originating in Japan, lesson study has gained significant momentum in the mathematics education community in recent years. As a process for professional development, lesson study became highly visible when it was proposed as a means of supporting the common practice of promoting better teaching by disseminating documents like standards, benchmarks and nationally validated curricula. While the body of knowledge about lesson study is growing, it remains somewhat elusive and composed of discrete research endeavors. As a new research area there is no coherent knowledge base yet. This book will contribute to the field bringing the work of researchers and practitioners together to create a resource for extant work. This book describes several aspects of Lesson Study, amongst others: it gives an historical overview of the concept, it addresses issues [...] Contents Overview and History of Lesson Study. - Section I: Providing the necessary environment for Lesson Study. - Second II: Lesson Study as a Tool. - Section III - School-based Lesson Study. - Section IV - Preservation Lesson Study. - Section V - Walking the walk - University Faculty Engaged in Lesson Study. - Section VI - overall RESPONSE. Fields of interest Mathematics Education; Teaching and Teacher Education Target groups Research Type of publication Research Available 2011. XXXV, 480 p. Hardcover 139.95 € ISBN 978-90-481-9802-3

Mapping Equity and Quality in Mathematics Education

Concerns about quality mathematics education are often posed in terms of the types of mathematics that are worthwhile and valuable for both the student and society in general, and about how to best support students so that they can develop this mathematics. Contents About equity are about who is excluded from the opportunity to develop quality mathematics within our current practices and systems, and about how to remove social barriers that systematically disadvantage those students. This collection of chapters summarises our learning about the achievement of both equity and quality agendas in mathematics education and to move forward the debate on their importance for the field. Features The issues of equity and quality have been central to international debates on mathematics in research, policy, curriculum and teaching. This book covers a wide variety of topics in the research and practice of mathematics education, demonstrating how equity and quality are inherently political terms whose political bedrock is obscured by them being taken for granted. [...] Contents Contributors. - Dedication. - Preface. - Part I: The Theoretical Landscape. - Part II: Mapping Social Construction and Complexities. - Part III: Landmarks of Concern. - Part IV: No Highway and No Destination? Fields of interest Mathematics Education; Educational Policy and Politics; Sociology of Education Target groups Research Type of publication Contributed volume Available 2011. XXXV, 480 p. Hardcover 139.95 € ISBN 978-90-481-9802-3

Statistical Methods for the Evaluation of University Systems

Supporting Workplace Learning

Towards Evidence-based Practice

During the 1990s, the workplace was rediscovered as a rich source of learning. The issue of workplace learning has since received increasing attention from academics and practitioners alike but is still under-researched empirically. This book brings together a range of state-of-the-art research papers addressing interventions to support learning in the workplace. The authors are experienced international scholars who have an interest in making HRD and workplace learning practices more evidence-based through practical relevant research. Although workplace learning is largely an autonomous process, many organizations want to manage it as part of their broader HRD strategy. There are limits, however, to the extent to which the complex dynamics of learning in the workplace can be guided in pre-determined desirable directions. This tension between the possible strengths of workplace learning and the limits of managing it is at the heart of this volume. The book is broken into three sections. The first[...]

Features

During the 1990s, the workplace was rediscovered as a rich source of learning. The issue of workplace learning has since received increasing attention from academics and practitioners alike but is still under-researched empirically. This book brings together a range of state-of-the-art research papers addressing interventions to support learning in the workplace. The authors are experienced international[...]

Contents


Fields of interest

Professional and Vocational Education; Business & Management Science; Lifelong Learning / Adult Education; Personnel Management; Learning and Instruction

Target groups

Research

Type of publication

Contributed volume

Available


99,95 €

Towards an Understanding of Language Learner Self-Concept

This book contributes to our growing understanding of the nature and development of language learner self-concept. It assesses the relevant literature in the disciplines of psychology and applied linguistics and describes in-depth, qualitative research examining the self-concepts of tertiary-level EFL learners. Although researchers in applied linguistics and SLA have recognized the importance of self-construicts, there remains little empirical work in the context of foreign language learning that focuses exclusively and at length on this central psychological construct. The content of this monograph draws on interdisciplinary sources, with input from psychology and applied linguistics. It will appeal to students and researchers interested in language-learner psychology as well as self-related constructs in general. The text provides insights into how learners view themselves, and how these self-beliefs can develop and affect the progress of an individual’s language learning.

Features

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Contents

List of Appendices. - List of Figures. - Glossary. - Chapter 1 Introduction. - Chapter 2 What is self-concept?. - Chapter 3 Understanding self-concept in the FL context. - Chapter 4 How do learners form their self-concepts?. - Chapter 5 Internal frames of reference in FL self-concept formation. - Chapter 6 External frames of reference in FL self-concept formation. - Chapter 7 Implications for educators and researchers. - References. - Appendices.

Fields of interest

Language Education; Applied Linguistics; Pedagogic Psychology

Target groups

Research

Type of publication

Monograph

Available


99,95 €

Advances in Intelligent Web Mastering - 3

Proceedings of the 7th Atlantic Web Intelligence Conference, AWIC 2011, Fribourg, Switzerland, January, 2011

The Atlantic Web Intelligence Conference brings together scientists, engineers, computer users, and students to exchange and share their experiences, new ideas, and research results about all aspects (theory, applications and tools) of intelligent methods applied to Web based systems, and to discuss the practical challenges encountered and the solutions adopted. Previous AWIC events were held in Spain – 2003, Mexico – 2004, Poland – 2005, Israel – 2006, France – 2007 and Czech Rep. – 2009. The present 7th Atlantic Web Intelligence Conference (AWIC2011) was held during January 26-28, 2011, at the University of Applied Sciences of Fribourg, Switzerland. AWIC2011 is organized by the Multimedia Information System Group (MISG), Institute of the Technologies of Information and Communication (ITIC) of the University of Applied Sciences of Fribourg.

Features

The Atlantic Web Intelligence Conference brings together scientists, engineers, computer users, and students to exchange and share their experiences, new ideas, and research results about all aspects (theory, applications and tools) of intelligent methods applied to Web based systems, and to discuss the practical challenges encountered and the[...]

Fields of interest

Computational Intelligence; Artificial Intelligence (incl. Robotics); Information Systems Applications (incl.Internet)

Target groups

Research

Type of publication

Proceedings

Available

2011, X, 238 p. 70 illus., 17 in color. (Advances in Intelligent and Soft Computing, Vol. 86) Softcover

139.95 €
ISBN 978-3-642-18028-6
 Ambient Assisted Living

In this book, 22 authors discuss development of Ambient Assisted Living. It presents new technological developments which support the autonomy and independence of individuals with special needs. As the technological innovation raises also social issues, the book addresses micro and macro economical aspects of assistive systems and puts an additional emphasis on the ethical and legal discussion. The presentation is supported by real world examples and applications.

Features
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Contents

Ambulatory Impedance Cardiography
The Systems and their Applications

The book is divided in 4 parts. In the first one, the importance of the analysis of the cardiac dynamics using the ambulatory monitoring technique is presented. The second part contains the description of foundations of impedance cardiography (ICG), the models used to describe the ICG technique and the description of available systems for ambulatory monitoring of cardiac hemodynamics. The third part is devoted to the validation of the ambulatory ICG method, the verification of the quality of long term ICG recordings and the discussion of the limitations of this technique. In the last part, some clinical and research applications of the ICG ambulatory monitoring are presented. The simultaneous recordings of electrocardiogram (ECG) and ICG in the transient cardiac arrhythmia events illustrate the potential applications of that method for quantitative analysis of hemodynamics when the implementation of the stationary methods would be either difficult or not possible to do. The book is followed by […]

Features
"Ambulatory Impedance Cardiography" gives the reader the necessary physical background of impedance cardiography (ICG) and currently available systems for hemodynamics holter monitoring. It compares ambulatory ICG and other clinically accepted methods through an updated state-of-the-art. The book is divided in 4 parts. In the first one, the importance of the analysis of the cardiac dynamics using the […]

Contents
Introduction.- Impedance Cardiography.- Ambulatory Impedance Cardiography.- Validation of the method.- Clinical and physiological applications of Ambulatory Impedance Cardiography.- Final conclusions and future directions.

Fields of interest
Biomedical Engineering; Cardiology; Biophysics and Biological Physics

Architecture and Design for the Future Internet
4WARD Project

Architecture and Design for the Future Internet addresses the Networks of the Future and the Future Internet, focusing on networks aspects, offering both technical and non-technical perspectives. It presents the main findings of 4WARD (Architecture and Design for the Future Internet), a European Integrated Project within Framework Programme 7, which addressed this area from an innovative approach. Today’s network architectures are stifling innovation, restricting it mostly to the application level, while the need for structural change is increasingly evident. The absence of adequate facilities to design, optimise and interoperate new networks currently forces a convergence to an architecture that is suboptimal for many applications and that cannot support innovations within itself, the Internet. 4WARD overcomes this impasse through a set of radical architectural approaches, built on a strong mobile and wireless background. The main topics addressed by the book are: the improved ability to [...]
Behavior of Pipe Piles in Sand
Plugging & Pore-Water Pressure Generation During Installation and Loading

One of the major difficulties in predicting the capacity of pipe piles in sand has resulted from a lack of understanding of the physical processes that control the behavior of piles during installation and loading. This monograph presents a detailed blue print for developing experimental facilities necessary to identify these processes. These facilities include a unique instrumented double-walled pipe-pile that is used to delineate the frictional stresses acting against the external and internal surfaces of the pile. The pile is fitted with miniature pore-pressure transducers to monitor the generation of pore water pressure during installation and loading. A fast automatic laboratory pile hammer capable of representing the phenomena that occur during pile driving was also developed and used.

Features
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Contents

Fields of interest
Geoengineering, Foundations, Hydraulics; Geographical Information Systems / Cartography; Theoretical and Applied Mechanics; Machinery and Machine Elements

Target groups
Research

Type of publication
Monograph

Available
2011, XXVI, 272 p. 131 illus. (Springer Series in Geoengineering) Hardcover
99.95 €
ISBN 978-3-642-13107-3

Biological Functions for Information and Communication Technologies
Theory and Inspiration

By incorporating biologically-inspired functions into ICT, various types of new-generation information and communication systems can be created. Just some example of areas already benefiting from such design inspiration are network architectures, information processing, molecular communication, and complex network modeling for solving real world-problems. This book provides the theoretical basis for understanding these developments and explains their practical applications. Highlighted inserts appear throughout to help readers to understand the very latest topics in these emerging research fields. The book ends with a more philosophical discussion on how new ICT solutions can be found by looking at analogous systems in biology. This new way of thinking may help researchers and practitioners to apply innovative ideas in developing next-generation technologies.

Features
By incorporating biologically-inspired functions into ICT, various types of new-generation information and communication systems can be created. Just some example of areas already benefiting from such design inspiration are network architectures, information processing, molecular communication, and complex network modeling for solving real world-problems. This book provides the theoretical basis for...

Contents
Prologue.- Reconsidering Information and Communication Technologies From Life.- Molecular Communication as a Biological ICT.- Artificial Chemistry and Molecular Networks.- Signal Transmission in Biological Systems and Its Possible Uses in Communication Systems.- For Deeper Understanding.

Fields of interest
Information and Communication Technologies; Artificial Intelligence (incl. Robotics); Complexity; Computational Biology / Bioinformatics; Theoretical and Computational Chemistry

Target groups
Research

Type of publication
Monograph

Available
2011, XI, 280 p. 140 illus. (Studies in Computational Intelligence, Vol. 320) Hardcover
99.95 €
ISBN 978-3-642-15101-9

Computational Science and High Performance Computing IV
The 4th Russian-German Advanced Research Workshop, Freiburg, Germany, October 12 to 16, 2009

This volume contains 27 contributions to the Forth Russian-German Advanced Research Workshop on Computational Science and High Performance Computing presented in October 2009 in Freiburg, Germany. The workshop was organized jointly by the High Performance Computing Center Stuttgart (HLRS), the Institute of Computational Technologies of the Siberian Branch of the Russian Academy of Sciences (ICT SB RAS) and the Section of Applied Mathematics of the University of Freiburg (IAM Freiburg) The contributions range from computer science, mathematics and high performance computing to applications in mechanical and aerospace engineering. They show a wealth of theoretical work and simulation experience with a potential of bringing together theoretical mathematical modelling and usage of high performance computing systems presenting the state of the art of computational technologies.

Features
This volume contains 27 contributions to the Forth Russian-German Advanced Research Workshop on Computational Science and High Performance Computing presented in October 2009 in Freiburg, Germany. The workshop was organized jointly by...

Contents

Fields of interest
Engineering Fluid Dynamics; Appl. Mathematics / Computational Methods of Engineering; Numeric Computing; Fluid- and Aerodynamics

Target groups
Research

Type of publication
Monograph

Available
Condition Monitoring and Assessment of Power Transformers Using Computational Intelligence

In recent years, rapid changes and improvements have been witnessed in the field of transformer condition monitoring and assessment, especially with the advances in computational intelligence techniques. Condition Monitoring and Assessment of Power Transformers Using Computational Intelligence applies a broad range of computational intelligence techniques to deal with practical transformer operation problems. The approaches introduced are presented in a concise and flowing manner, tackling complex transformer modelling problems and uncertainties occurring in transformer fault diagnosis. Condition Monitoring and Assessment of Power Transformers Using Computational Intelligence covers both the fundamental theories and the most up-to-date research in this rapidly changing field. Many examples have been included that use real-world measurements and realistic operating scenarios of power transformers to fully illustrate the use of computational intelligence techniques for a variety of transformer...[...]

Contents


Fields of interest

Power Electronics, Electrical Machines and Networks; Computational Intelligence; Quality Control; Reliability, Safety and Risk; Simulation and Modelling

Target groups

Research

Type of publication

Monograph

Available

2011. XVIII, 200 p. 75 illus. (Power Systems) Hardcover

Design of Digital Systems and Devices

Logic design of digital devices is a very important part of the Computer Science. It deals with design and testing of logic circuits for both data-path and control unit of a digital system. Design methods depend strongly on logic elements using for implementation of logic circuits. Different programmable logic devices are wide used for implementation of logic circuits. Nowadays, we witness the rapid growth of new and new chips, but there is a strong lack of new design methods. This book includes a variety of design and test methods targeted on different digital devices. It covers methods of digital system design, the development of theoretical base for construction and designing of the PLD-based devices, application of UML for digital design. A considerable part of the book is devoted to design methods oriented on implementing control units using FPGA and CPLD chips. Such important issues as design of reliable FSMs, automatic design of concurrent logic controllers, the models and methods for[...]...

Contents


Fields of interest

Circuits and Systems; Signal, Image and Speech Processing; Computer System Implementation

Target groups

Research

Type of publication

Monograph

Available


99,95 €

ISBN 978-3-642-17544-2
Dynamic Management of Sustainable Development
Methods for Large Technical Systems

Dynamic management of systems development is a precondition for the realization of sustainable system development. This approach allows for the usage of systems theory methods that take into consideration the interaction of decisions made over time and space. A characteristic feature of this kind of method is that the process of sophisticated object development over time is examined for optimal decision selection. This requires the application of modelling methods that represent properties of the developing objects, high speed calculation methods for the estimation of technical and economic characteristics, as well as effective optimization methods. Dynamic Management of Sustainable Development presents a concise summary of the authors’ research in the area of dynamic methods analysis of technical systems development. Along with systematic illustration of mathematical methods, considerable attention is drawn to practical realization and applications. Dynamic Management of Sustainable Development...

Features
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Contents

Fields of interest
Renewable and Green Energy; Mathematical Modelling and Industrial Mathematics; Special Purpose and Application-Based Systems; Sustainable Development; Renewable and Green Energy; Technology Management

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 190 p. 117 illus. Hardcover
99,95 €

Dynamics in Logistics
Second International Conference, LDIC 2009, Bremen, Germany, August 2009, Proceedings

The volume comprises the proceedings of the second International Conference on Dynamics in Logistics LDIC 2009. The scope of the conference was concerned with the identification, analysis, and description of the dynamics of logistic processes and networks. The spectrum reached from the planning and modelling of processes over innovative methods like autonomous control and knowledge management to the new technologies provided by radio frequency identification, mobile communication, and networking. The growing dynamics confronts the area of logistics with completely new challenges: It must become possible to rapidly and flexibly adapt logistic processes and networks to continuously changing conditions. LDIC 2009 provided a forum for the discussion of advances in that matter. The volume consists of one invited paper and of 47 contributed papers divided into various subjects including mathematical modelling in transport and production logistics, routing in dynamic logistic networks, sustainable...

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Contents

Fields of interest
Engineering Economics, Organization, Logistics, Marketing, Production / Logistics

Target groups
Research

Type of publication
Proceedings

Available
2011. XII, 500 p. 150 illus. Hardcover
189,95 €
ISBN 978-3-642-11995-8

Evolving Fuzzy Systems - Methodologies, Advanced Concepts and Applications

In today’s real-world applications, there is an increasing demand of integrating new information and knowledge on-demand into model building processes to account for changing system dynamics, new operating conditions, varying human behaviors or environmental influences. Evolving fuzzy systems (EFS) are a powerful tool to cope with this requirement, as they are able to automatically adapt parameters, expand their structure and extend their memory on-the-fly, allowing on-line/real-time modeling. This book comprises several evolving fuzzy systems approaches which have emerged during the last decade and highlights the most important incremental learning methods used. The second part is dedicated to advanced concepts for increasing performance, robustness, process-safety and reliability, for enhancing user-friendliness and enlarging the field of applicability of EFS and for improving the interpretability and understandability of the evolved models. The third part underlines the usefulness and necessity of...

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Contents

Fields of interest
Appl. Mathematics / Computational Methods of Engineering; Artificial Intelligence (incl. Robotics)

Target groups
Research

Type of publication
Monograph

Available
129,95 €
ISBN 978-3-642-18086-6
**Exoskeletons in Rehabilitation Robotics**

**Tremor Suppression**

The new technological advances opened widely the application field of robots. Robots are moving from the classical application scenario with structured industrial environments and tedious repetitive tasks to new application environments that require more interaction with the humans. It is in this context that the concept of Wearable Robots (WRs) has emerged. One of the most exciting and challenging aspects in the design of biomechatronics wearable robots is that the human takes a place in the design, this fact imposes several restrictions and requirements in the design of this sort of devices. The key distinctive aspect in wearable robots is their intrinsic dual cognitivo-physical and physical interaction with humans. The key role of a robot in a physical human–robot interaction (pHRI) is the generation of supplementary forces to empower and overcome human physical limits. The crucial role of a cognitive human–robot interaction (cHRI) is to make the human aware of the possibilities of the robot while [...]  

**Features**  
The new technological advances opened widely the application field of robots. Robots are moving from the classical application scenario with structured industrial environments and tedious repetitive tasks to new application environments that require more interaction with the humans. It is in this context that the concept of Wearable Robots [...]  

**Contents**  

**Fields of interest**  
Robotics and Automation; Artificial Intelligence (incl. Robotics); Rehabilitation  

**Target groups**  
Research  

**Type of publication**  
Monograph  

**Available**  

79.95 €  
ISBN 978-3-642-17658-6

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**Fatigue and Fracture Reliability Engineering**

Fatigue and Fracture Reliability Engineering is an attempt to present an integrated and unified approach to reliability determination of fatigue and fracture behaviour, incorporating probability, statistics and other related areas. A series of original and practical approaches, are suggested in Fatigue and Fracture Reliability Engineering, including new techniques in determining [...]  

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**Contents**  

**Fields of interest**  
Quality Control, Reliability, Safety and Risk; Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences; Metallic Materials; Machinery and Machine Elements; Engineering Design  

**Target groups**  
Research  

**Type of publication**  
Monograph  

**Available**  
2011. XIX, 166 p. 40 illus. Hardcover  

99.95 €  

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**Fault Detection and Isolation**

Multi-Vehicle Unmanned Systems  

“Fault Detection and Isolation: Multi-Vehicle Unmanned System” deals with the design and development of fault detection and isolation algorithms for unmanned vehicles such as spacecraft, aerial drones and other related vehicles. Addressing fault detection and isolation is a key step towards designing autonomous, fault-tolerant cooperative control of networks of unmanned systems. This book proposes a solution based on a geometric approach, and presents new theoretical findings for fault detection and isolation in Markovian jump systems. Also discussed are the effects of large environmental disturbances, as well as communication channel anomalies. “Fault Detection and Isolation: Multi-Vehicle Unmanned System” is an ideal book for researchers and engineers working in the fields of fault detection, as well as networks of unmanned vehicles.  

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Fault Detection and Isolation: Multi-Vehicle Unmanned Systems deals with the design and development of fault detection and isolation algorithms for unmanned vehicles such as spacecraft, aerial drones and other related vehicles. Addressing fault detection and isolation is a key step towards designing autonomous, fault-tolerant cooperative control of networks of unmanned systems. This book proposes novel solutions to difficult issues like robustness issues, as well as communication channel anomalies. “Fault Detection and Isolation: Multi-Vehicle Unmanned System” is an ideal book for researchers and engineers working in the fields of fault detection, as well as networks of unmanned vehicles.  

**Contents**  

**Fields of interest**  
Control, Robotics, Mechatronics; Systems Theory, Control; Aerospace Technology and Astronautics  

**Target groups**  
Research  

**Type of publication**  
Monograph  

**Available**  
2011. XIX, 166 p. 40 illus. Hardcover  

99.95 €  
Fuzzy-Like Multiple Objective Decision Making

Decision makers usually face multiple, conflicting objectives and the complicated fuzzy-like environments in the real world. What are the fuzzy-like environments? How do we model the multiple objective decision making problems under fuzzy-like environments? How do we deal with these models? In order to answer these questions, this book provides an up-to-date methodology system for fuzzy-like multiple objective decision making, which includes modelling system, model analysis system, algorithm system and application system in structure optimization problem, selection problem, purchasing problem, inventory problem, logistics problem and so on. Researchers, practitioners and students in management science, operations research, information science, system science and engineering science will find this work a useful reference.

Features
Decision makers usually face multiple, conflicting objectives and the complicated fuzzy-like environments in the real world. What are the fuzzy-like environments? How do we model the multiple objective decision making problems under fuzzy-like environments? How do we deal with these models? In order to answer these questions, this book provides an up-to-date methodology system for [...]
Intelligent Video Event Analysis and Understanding

With the vast development of Internet and media technologies, intelligent video event analysis is a gradually growing field of research in recent decades. Significant challenges include how to handle background clutter, occlusions, as well as interactions. Another difficulty is the lacking of widely accepted definition of event in the literature. Though the research achievement is still far from its promise, steady progress has been made in past years. This book collects a set of selected contributions in this area from international experts including leading academic researchers, and industrial practitioners. It presents the latest advances of intelligent video event analysis in both theoretical and application viewpoints.

Features

With the vast development of Internet and media technologies, intelligent video event analysis is a gradually growing field of research in recent decades. Significant challenges include how to handle background clutter, occlusions, as well as interactions. Another difficulty is the lacking of widely accepted definition of event in the literature. Though the [...]
Introduction to Discrete Event Simulation and Agent-based Modeling

T.T. Allen, The Ohio State University, Columbus, OH, USA

Discrete event simulation and agent-based modeling are increasingly recognized as critical for diagnosing and solving process issues in complex systems. Introduction to Discrete Event Simulation and Agent-based Modeling covers the techniques needed for success in all phases of simulation projects. These include: • Definition – The reader will learn how to plan a project and communicate using a chart. • Input analysis – The reader will discover how to determine defensible sample sizes for all needed data collections. They will also learn how to fit distributions to that data. • Simulation – The reader will understand how simulation controllers work, the Monte Carlo (MC) theory behind them, modern verification and validation, and ways to speed up simulation using variation reduction techniques and other methods. • Output analysis – The reader will be able to establish simultaneous intervals on key responses and apply selection and ranking, design of experiments (DOE), and black box optimization. [...] Features

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Knowledge Seeker - Ontology Modelling for Information Search and Management

A Compendium

E.H.Y. Lim, Hong Kong, China; J.N.K. Liu, The Hong Kong Polytechnic University, China; R.S.T. Lee, The Hong Kong Polytechnic University, Kowloon, Hong Kong, China

The Knowledge Seeker is a useful system to develop various intelligent applications such as ontology-based search engine, ontology-based text classification system, ontological agent system, and semantic web system etc. The Knowledge Seeker contains four different ontological components. First, it defines the knowledge representation model \( \mathcal{V} \) Ontology Graph. Second, an ontology learning process that based on chi-square statistics is proposed for automatic learning an Ontology Graph from texts for different domains. Third, it defines an ontology generation method that transforms the learning outcome to the Ontology Graph format for machine processing and also can be visualized for human validation. Fourth, it defines different ontological operations (such as similarity measurement and text classification) that can be carried out with the use of generated Ontology Graphs. The final goal of the KnowledgeSeeker system framework is that it can improve the traditional information system with higher efficiency. [...] Features

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Machining of Hard Materials

J.P. Davim, University of Aveiro, Portugal (Ed.)

Machining is a relatively recent technology that can be defined as a machining operation, using tools with geometrically defined cutting edges, of a work piece that has hardness values typically in the 45-70HRc range. This operation always presents the challenge of selecting a cutting tool insert that facilitates high-precision machining of the component, but it presents several advantages when compared with the traditional methodology based on finish grinding operations after heat treatment of work pieces. Machining of Hard Materials aims to provide the reader with the fundamentals and recent advances in the field of hard machining of materials. All the chapters are written by international experts in this important field of research. They cover topics such as: • advanced cutting tools for the machining of hard materials; • the mechanics of cutting and chip formation; • surface integrity; • modelling and simulation; and • computational methods and optimization. Machining of Hard Materials [...] Features

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Contents


Fields of interest

Manufacturing, Machines, Tools; Machinery and Machine Elements; Tribology, Corrosion and Coatings; Operating Procedures, Materials Treatment; Continuum Mechanics and Mechanics of Materials

Target groups

Research

Type of publication

Monograph

Available

2011. XII, 211 p. 181 illus., 8 in color. Hardcover

99,95 €
ISBN 978-3-642-17915-0

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Monograph

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2011. XII, 211 p. 181 illus., 8 in color. Hardcover

99,95 €
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<tr>
<td>Maximum Dissipation Non-Equilibrium Thermodynamics and its Geometric Structure</td>
<td>H.W. Haslach Jr., University of Maryland, College Park, MD, USA</td>
<td>978-1-4419-7764-9</td>
<td>€129.95</td>
<td>312 p. 50 illus. Hardcover</td>
<td>Available</td>
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<tr>
<td>Metallic Micro and Nano Materials Fabrication with Atomic Diffusion</td>
<td>M. Saka, Tohoku University, Sendai, Japan (Ed.)</td>
<td>978-3-642-15410-2</td>
<td>€99.95</td>
<td>250 p. Hardcover</td>
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Mining of Data with Complex Structures

Mining of Data with Complex Structures - Clarifies the type and nature of data with complex structure including sequences, trees and graphs.

Provides a detailed background of the state-of-the-art of sequence mining, tree mining and graph mining. Defines the essential aspects of the tree mining problem: subtree types, support definitions, constraints. Outlines the implementation issues one needs to consider when developing tree mining algorithms (enumeration strategies, data structures, etc.).

Details the Tree Model Guided (TMG) approach for tree mining and provides the mathematical model for the worst case estimate of complexity of mining ordered induced and embedded subtrees. Explains the mechanism of the TMG framework for mining ordered/unordered induced/embedded and distance-constrained embedded subtrees. Provides a detailed comparison of the different tree mining approaches highlighting the characteristics and benefits of each approach. - Provides a detailed background of the state-of-the-art of sequence mining, tree mining and graph mining. Defines the essential aspects of the tree mining problem: subtree types, support definitions, constraints. -

Features

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Contents


Fields of interest

Applied Mathematics / Computational Methods of Engineering: Artificial Intelligence (incl. Robotics)

Target groups

Research

Type of publication

Monograph

Available

129,95 €
ISBN 978-3-642-17556-5

Mixed Reality and Human-Robot Interaction

MR technologies play an increasing role in different aspects of human-robot interactions. The visual combination of digital contents with real working spaces creates a simulated environment that is set out to enhance these aspects. This book presents and discusses fundamental scientific issues, technical implementations, lab testing, and industrial applications and case studies of Mixed Reality in Human-Robot Interaction. It is a reference book that not only acts as meta-book in the field that defines and frames Mixed Reality use in Human-Robot Interaction, but also addresses up-coming trends and emerging directions of the field. This volume offers a comprehensive reference volume to the state-of-the-art in the area of MR in Human-Robot Interaction, an excellent mix of contributions from leading researcher/experts in multiple disciplines from academia and industry. All authors are experts and/or top researchers in their respective areas and each of the chapters has been rigorously reviewed for details.

Features

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Contents


Fields of interest

Computational Intelligence; Artificial Intelligence (incl. Robotics)

Target groups

Research

Type of publication

Monograph

Available

2010, XX, 328 p. 136 illus. (Studies in Computational Intelligence, Vol. 33) Hardcover

Mobile Hybrid Intrusion Detection

The MOVICAB-IDS System

This monograph comprises work on network-based Intrusion Detection (ID) that is grounded in visualization and hybrid Artificial Intelligence (AI). It has led to the design of MOVICAB-IDS (Mobile Visualization Connectionist Agent-Based IDS), a novel Intrusion Detection System (IDS), which is comprehensively described in this book. This novel IDS combines different AI paradigms to visualise network traffic for ID at packet level. It is based on a dynamic Multiagent System (MAS), which integrates an unsupervised neural projection model and the Case-Based Reasoning (CBR) paradigm through the use of deliberative agents that are capable of learning and evolving with the environment. The proposed novel hybrid IDS provides security personnel with a synthetic, intuitive snapshot of network traffic and protocol interactions. This visualisation interface supports the straightforward detection of anomalous situations and their subsequent identification. The performance of MOVICAB-IDS was tested through a novel.

Features

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Contents


Fields of interest

Computational Intelligence; Artificial Intelligence (incl. Robotics)

Available

2011, X, 146 p. 33 illus., 29 in color. (Studies in Computational Intelligence, Vol. 33) Hardcover

99,95 €
ISBN 978-3-642-18298-3
Modelling and Control for Intelligent Industrial Systems
Adaptive Algorithms in Robotics and Industrial Engineering

Incorporating intelligence in industrial systems can help to increase productivity, cut-off production costs, and to improve working conditions and safety in industrial environments. This need has resulted in the rapid development of modeling and control methods for industrial systems and robots, of fault detection and isolation methods for the prevention of critical situations in industrial work-cells and production plants, of optimization methods aiming at a more profitable functioning of industrial installations and robotic devices and of machine intelligence methods aiming at reducing human intervention in industrial systems operation. To this end, the book analyzes and extends some main directions of research in modeling and control for industrial systems. These are: (i) industrial robots, (ii) mobile robots and autonomous vehicles, (iii) adaptive and robust control of electromechanical systems, (iv) filtering and stochastic estimation for multisensor fusion and sensorless control of industrial...]

Features
Incorporating intelligence in industrial systems can help to increase productivity, cut-off production costs, and to improve working conditions and safety in industrial environments. This need has resulted in the rapid development of modeling and control methods for industrial systems and robots, of fault detection and isolation [...] Contents
Computational Intelligence; Robotics and Automation; Artificial Intelligence (incl. Robotics) Target groups
Research Type of publication
Monograph Available
129,95 € ISBN 978-3-642-17874-0

Mono- and Multivariable Control and Estimation
Linear, Quadratic and LMI Methods

This book presents the various design methods of a state-feedback control law and of an observer. The considered systems are of continuous-time and of discrete-time nature, monovariable or multivariable, the last ones being of main consideration. Three different approaches are described: • Linear design methods, with an emphasis on decoupling strategies, and a general formula for multivariable controller or observer design; • Quadratic optimization methods: Linear Quadratic Control (LQC), optimal Kalman filtering, Linear Quadratic Gaussian (LQG) control; • Linear matrix inequalities (LMIs) to solve linear and quadratic problems. The duality between control and observation is taken to advantage and extended up to the mathematical domain. A large number of exercises, all given with their detailed solutions, mostly obtained with MATLAB, reinforce and exemplify the practical orientation of this book. The programs, cre- ated by the author for their solving, are available on the Internet sites of Springer...]

Contents

Fields of interest
Control; Systems Theory, Control; Appl. Mathemat- ics / Computational Methods of Engineering Target groups
Graduate Type of publication
Graduate/advanced undergraduate textbook Available
69,95 € ISBN 978-3-642-13733-4

Nanoscale Memory Repair

Yield and reliability of memories have degraded with device and voltage scaling in the nano-scale era, due to ever-increasing hard/soft errors and device parameter variations. This book systematically describes these yield and reliability issues in terms of mathematics and engineering, as well as an array of repair techniques, based on the authors’ long careers in developing memories and low-volt- age CMOS circuits. Nanoscale Memory Repair gives a detailed explanation of the various yield models and calculations, as well as various, practical logic and circuits that are critical for higher yield and reli- ability.

Features
Yield and reliability of memories have degraded with device and voltage scaling in the nano-scale era, due to ever-increasing hard/soft errors and device parameter variations. As a result, repair techniques have been indispensable for nano-scale memories. Without these techniques, even modern MPUs/SoCs, in which memories have dominated the area and performance, could not have been designed...]

Contents
Circuits and Systems; Computer-Aided Engineering (CAD, CAE) and Design Target groups
Research Type of publication
Monograph Available
New Developments and Applications in Sensing Technology

This book has focussed on different aspects of smart sensors and sensing technology, i.e. intelligent measurement, information processing, adaptability, recalibration, data fusion, validation, high reliability and integration of novel and high performance sensors in the areas of magnetic, ultrasonic, vision and image sensing, wireless sensors and network, microfluidic, tactile, gyro, flow, surface acoustic wave, humidity and ultra-wide band. While future interest in this field is ensured by the constant supply of emerging modalities, techniques and engineering solutions, as well as an increasing need from aging structures, many of the basic concepts and strategies have already matured and now offer opportunities to build upon. The book has primarily been focussed for postgraduate and research students working on different aspects of design and developments of smart sensors and sensing technology.

Features
This book has focussed on different aspects of smart sensors and sensing technology, i.e. intelligent measurement, information processing, adaptability, recalibration, data fusion, validation, high reliability and integration of novel and high performance sensors in the areas of magnetic, ultrasonic, vision and image sensing, wireless [...] 

Contents

Fields of interest
Electrical Engineering; Signal, Image and Speech Processing; Computer Systems Organization and Communication Networks

Target groups
Research

Type of publication
Monograph

Available

129.95 €
ISBN 978-3-642-17550-3

New Directions in Web Data Management 1

This book addresses the major issues in the Web data management related to technologies and infrastructures, methodologies and techniques as well as applications and implementations. Emphasis is placed on Web engineering and technologies, Web graph managing, searching and querying and the importance of social Web.

Features
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Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics)

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 130 p. 69 illus., 15 in color. (Green Energy and Technology) Hardcover

99.95 €
ISBN 978-3-642-16300-5

Photovoltaic Industrial Systems

An Environmental Approach

This book investigates the existing situation of photovoltaic systems regarding environmental questions and energy efficiency in the European Industry, particularly the industrial units at the Greek area. A model of energy management based on economical, technical and administrative aspects is proposed in order to combine industrial uses of photovoltaics with environment protection.

Features
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Contents

Fields of interest
Renewable and Green Energy; Industrial Pollution Prevention; Technology Management

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 344 p. 85 illus., 14 in color. (Studies in Computational Intelligence, Vol. 83) Hardcover

129.95 €
ISBN 978-3-642-17942-6
**Physical Soil Mechanics**

Soil is matter in its own right. Its nature can be captured by means of monotonous, cyclic and strange attractors. Thus material properties are defined by the asymptotic response of sand- and clay-like samples to imposed deformations and stresses. This serves to validate and calibrate elastoplastic and hypoplastic relations with comparative plots. Extensions capture thermal and seismic activations, limitations occur due to localizations and skeleton decay. Attractors in the large characterize boundary value problems from model tests via geotechnical processes up to tectonic evolutions. Validations of hypoplastic calculations are shown with many examples, possible further applications are indicated in detail. This approach is energetically justified and limited by critical points where the otherwise legitimate continuity gets lost by localization and decay. You will be fascinated by the fourth element although or just as it is so manifold.

**Features**

Soil is matter in its own right. Its nature can be captured by means of monotonous, cyclic and strange attractors. Thus material properties are defined by the asymptotic response of sand- and clay-like samples to imposed deformations and stresses. This serves to validate and calibrate elastoplastic and hypoplastic relations with comparative plots. Extensions capture thermal and seismic activations, limitations [-]

**Contents**

Prologue; introduction; simple psammoids; simple peloids; psammoids with reversals; peloids with reversals; pore fluid; bridging gaps; localization; fabric; boundary conditions; one-dimensional evolutions; plane-parallel evolutions without ssi; plane-parallel evolutions with ssi; axi-symmetric evolutions; less symmetric evolutions; critical phenomena; epilogue; references; symbols and acronyms.

**Fields of interest**

Geotechnical Engineering; Foundations; Hydraulics; Engineering (general); Geotechnical Engineering; Geophysics / Geodesy; Soft and Granular Matter; Complex Fluids and Microfluidics

**Target groups**

Professional/practitioner

**Type of publication**

Monograph

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**Project Management for the Creation of Organisational Value**

Projects and programmes are approved and funded to generate benefits. Project Management for the Creation of Organisational Value proposes a complete framework that seeks to support such an objective — from project selection and definition, through execution, and beyond implementation of deliverables until benefits are secured. Because it is preoccupied with deliverables, accepted project management practice is flawed. Project Management for the Creation of Organisational Value proposes an alternative approach, which seeks a flow of target outcomes for the organisation investing in the project. Project Management for the Creation of Organisational Value provides support for all those who play a role of leadership in projects at different levels. Senior executives, practitioners and academics will find in this book a comprehensive guide to the conduct of projects and programmes, which includes robust models, a set of consistent principles, an integrated glossary, enabling tools, illustrative examples.

**Features**

Projects and programmes are approved and funded to generate benefits. Project Management for the Creation of Organisational Value proposes a complete framework that seeks to support such an objective – from project selection and definition, through execution, and beyond implementation of deliverables until benefits are secured. Because it is preoccupied with deliverables, accepted project [...]
Reconfigurable Control of Nonlinear Dynamical Systems
A fault-hiding Approach

This research monograph summarizes solutions to reconfigurable fault-tolerant control problems for nonlinear dynamical systems that are based on the fault-hiding principle. It emphasizes but is not limited to complete actuator and sensor failures. In the first part, the monograph starts with a broad introduction of the control reconfiguration problems and objectives as well as summaries and explanations of solutions for linear dynamical systems. The solution is always a reconfiguration block, which consists of linear virtual actuators in the case of actuator faults and linear virtual sensors in the case of sensor faults. The main advantage of the fault-hiding concept is the reusability of the nominal controller, which remains in the loop as an active system while the virtual actuator and sensor adapt the control input and the measured output to the fault scenario. The second and third parts extend virtual actuators and virtual sensors towards the classes of Hammerstein-Wiener systems and nonlinear systems, respectively.

Contents


Fields of interest

Control; Complexity; Systems Theory, Control

Target groups

Research

Type of publication

Monograph

Available

2011. XVI, 296 p. 84 illus. (Lecture Notes in Control and Information Sciences, Vol. 408) Hardcover

119,95 €
ISBN 978-3-642-17627-2

Reconfigurable RF Power Amplifiers on Silicon for Wireless Handsets

In Reusable Space Transportation Systems the authors review the past 20 years in which concepts for reusable space transportation systems have been evaluated in Europe and elsewhere, including technological studies and assessments, and developments of the essential technologies needed for the design and construction of such transportation systems. For example, within the European Space Agency’s FESTIP programme, of which one of the authors, Dr Kuczera, was the Programme Director, many different types of reusable launch vehicles (RLVs) were designed, investigated and technologically assessed. Although the authors focus on European efforts in the development of reusable space transportation systems, they describe briefly what has been done elsewhere and reference all major international programmes and projects in this field.

Features

Reconfigurable RF Power Amplifiers on Silicon for Wireless Handsets is intended to designers and researchers who have to tackle the efficiency/linearity trade-off in modern RF transmitters so as to extend their battery lifetime. High data rate 3G/4G standards feature broad channel bandwidths, high dynamic range and critical envelope variations which generally forces the power amplifier (PA) to operate in a low efficiency “backed-off” regime. Classic efficiency enhancement techniques such as Envelope Elimination and Restoration reveal to be little compliant with handset-dedicated PA implementation due to their channel-bandwidth-limited behavior and their increased die area consumption and bill-of-material. The architectural advances that are proposed in this book circumvent these issues since they put the stress on low die area/lower power consumption control circuitry. The advantages of silicon over III/V technologies are highlighted by several analogue signal processing techniques that can be...

Contents

Preface.-Acknowledgments.-Abbreviations.-Chapter 1 Mobile Phone Transmitters for Wireless Standards: systems, architectures and technologies.- Chapter 2 Discretized Reconfiguration Techniques for Radiofrequency Power Amplifiers.- Chapter 3 Continuous Adaptive Bias Technique for Radiofrequency Power Amplifiers.-General Conclusion.-Appendices.-Index.

Fields of interest

Microwaves, RF and Optical Engineering; Electronics and Microelectronics, Instrumentation; Circuits and Systems; Special Purpose and Application-Based Systems

Target groups

Research

Type of publication

Monograph

Available

2011. XVI, 166 p. 165 illus., 34 in color. (Analog Circuits and Signal Processing) Hardcover

99,95 €

Reusable Space Transportation Systems
Safety of VVER-440 Reactors

Safety of VVER-440 Reactors endeavours to promote an increase in the safety of VVER-440 nuclear reactors via the improvement of fission products limitation systems and the implementation of special non-destructive spectroscopic methods for materials testing. All theoretical and experimental studies performed by the author over the last 25 years have been undertaken with the aim of improving VVER-440 defence in depth, which is one of the most important principles for ensuring safety in nuclear power plants. Safety of VVER-440 Reactors is focused on the barrier system through which safety is achieved: • nuclear fuel matrix; • fuel cladding; • integrity of primary circuit; and • confinement system. All these barriers are described in detail and are compared to European standards. Industrial engineers will find Safety of VVER-440 Reactors a useful guide to the safe operation of nuclear power plants and it is an informative source of information for researchers in both industry and ...[1].

Features

Safety of VVER-440 Reactors endeavours to promote an increase in the safety of VVER-440 nuclear reactors via the improvement of fission products limitation systems and the implementation of special non-destructive spectroscopic methods for materials testing. All theoretical and experimental studies performed by the author over the last 25 years have been undertaken with the aim of improving VVER-440 ...[1].

Contents

Nuclear Safety: - Defence in Depth of VVER-440 Reactors - Barriers Preventing Fission Products Release.

Fields of interest

Nuclear Engineering: Quality Control, Reliability, Safety and Risk; Engineering Design; Operating Procedures, Materials Treatment; Characterization and Evaluation of Materials

Target groups

Professional/practitioner

Type of publication

Monograph

Available

2011. XI, 180 p. 80 illus. Hardcover

129,95 €

ISBN 978-1-84996-419-7

Semantic Agent Systems

Foundations and Applications

Semantic agent systems are about the integration of the semantic Web, software agents, and multi-agent systems technologies. Like in the past (e.g. biology and informatics yielding bioinformatics) a whole new perspective is emerging with semantic agent systems. In this context, the semantic Web is a Web of semantically linked data which aims to enable man and machine to execute tasks in tandem. Here, software agents in a multi-agent system as delegates of humans are endowed with power to use semantically linked data. This edited book “Semantic Agent Systems: Foundations and Applications” proposes contributions on a wide range of topics on foundations and applications written by a selection of international experts. It first introduces in an accessible style of the nature of semantic agent systems. Then it explores a number of illustrated case studies. Software agent technology, “Semantic Agent Systems: Foundations and Applications” is recommended for scientists, experts, researchers, and ...[1].

Features

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Contents

Part I Introduction to Agents and Semantics
Part II Engineering Semantic Agent Systems - Part III Applications of Semantic Agent Systems

Fields of interest

Computational Intelligence; Artificial Intelligence (incl. Robotics); Language Translation and Linguistics

Target groups

Research

Type of publication

Monograph

Available

2011: XVI, 316 p. 104 illus. (Studies in Computational Intelligence, Vol. 344) Hardcover

129,95 €

ISBN 978-3-642-18307-2

Semiconductor Power Devices

Physics, Characteristics, Reliability

Semiconductor power devices are the heart of power electronics. They determine the performance of power converters and allow topologies with high efficiency. Semiconductor properties, pn-junctions and the physical phenomena for understanding power devices are discussed in depth. Working principles of state-of-the-art power diodes, thyristors, MOS-FETs and IGBTs are explained in detail, as well as key aspects of semiconductor device production technology. In practice, not only the semiconductor, but also the thermal and mechanical properties of packaging and interconnection technologies are essential to predict device behavior in circuits. Wear and aging mechanisms are identified and reliability analyses principles are developed. Unique information on destructive mechanisms, including typical failure pictures, allows assessment of the ruggedness of power devices. Also parasitic effects, such as device induced electromagnetic interference problems, are addressed. The book concludes with modern power ...[1].

Features

Semiconductor power devices are the heart of power electronics. They determine the performance of power converters and allow topologies with high efficiency. Semiconductor properties, pn-junctions and the physical phenomena for understanding power devices are discussed in depth. Working principles of state-of-the-art power diodes, thyristors, MOS-FETs and IGBTs are explained in detail, as well as key aspects of ...[1].

Contents


Fields of interest

Electronics and Microelectronics, Instrumentation; Power Electronics, Electrical Machines and Networks; Condensed Matter Physics

Target groups

Research

Type of publication

Professional book

Available


169,95 €

ISBN 978-3-642-11124-2
simulation and Verification of Electronic and Biological Systems

Simulation and Verification of Electronic and Biological Systems provides a showcase for the Circuit and Multi-Domain Simulation Workshop held in San Jose, California, USA, on November 5, 2009. The nine chapters are contributed by experts in the field and provide a broad discussion of recent developments on simulation, modeling and verification of integrated circuits and biological systems. Specific topics include large scale parallel circuit simulation, industrial practice of fast SPICE simulation, structure-preserving model order reduction of interconnects, advanced simulation techniques for oscillator networks, dynamic stability of static memories and biological systems as well as verification of analog integrated circuits. Simulation and verification are fundamental enablers for understanding, analyzing and designing an extremely broad range of engineering and biological circuits and systems. The design of nanometer integrated electronic systems and emerging biomedical applications have...[1]

Fields of interest
- Circuits and Systems; Simulation and Modeling; Nanotechnology and Microengineering
- Target groups
- Research
- Type of publication
- Monograph

Available
2011. XVII, 200 p. 50 illus. Hardcover
99,95 €
ISBN 978-94-007-0148-9

Smart and Flexible Digital-to-Analog Converters

Smart and Flexible Digital-to-Analog Converters proposes new concepts and implementations for flexibility and self-correction of current-steering digital-to-analog converters (DACs) which allow the attainment of a wide range of functional and performance specifications, with a much reduced dependence on the fabrication process. DAC linearity is analysed with respect to the accuracy of the DAC unit elements. A classification is proposed of the many different current-steering DAC correction methods. The classification reveals methods that do not yet exist in the open literature. Further, this book systematically analyses self-calibration correction methods for the various DAC mismatch errors. For instance, efficient calibration of DAC binary currents is identified as an important missing method. This book goes on to propose a new methodology for correcting mismatch errors of both nominally identical units as well as scaled binary DAC currents. A new concept for DAC flexibility is presented. The...[2]

Features
- Simulation and Verification of Electronic and Biological Systems
- Provides a showcase for the Circuit and Multi-Domain Simulation Workshop held in San Jose, California, USA, on November 5, 2009.
- Nine chapters are contributed by experts in the field.
- Discusses recent developments on simulation, modeling, and verification of integrated circuits and biological systems.

Contents
- A Perspective on Fast-SPICE Simulation Technology; Michał Rewiecki, Recent Advances in Structure-Preserving Model Order Reduction; Roland W. Freund, Injection Locking Analysis and Simulation of Weakly-Coupled Oscillator Networks; Prateek Bhanasi and Jaajet Roiuh:classif, Dynamic Stability of Static Memories: Concepts and Advanced Numerical Analysis Techniques; Peng Li, et al.

Fields of interest
- Circuits and Systems; Electronics and Microelectronics, Instrumentation
- Target groups
- Research
- Type of publication
- Monograph

Available
99,95 €
ISBN 978-94-007-0346-9

Soft Computing in Economics and Finance

Currently the methods of Soft Computing are successfully used for risk analysis in: budgeting, e-commerce development, portfolio selection, Black-Scholes option pricing models, corporate acquisition systems, evaluating investments in advanced manufacturing technology, interactive fuzzy interval reasoning for smart web shopping, fuzzy scheduling and logistic. An essential feature of economic and financial problems it that there are always at least two criteria to be taken into account: profit maximization and risk minimization. Therefore, the economic and financial problems are multiple criteria ones. In this book, a new systematization of the problems of multiple criteria decision making is proposed which allows the author to reveal unsolved problems. The solutions of them are presented as well and implemented to deal with some important real-world problems such as investment project's evaluation, tool steel material selection problem, stock screening and fuzzy logistic. It is well known that the...[3]

Features
- Currently the methods of Soft Computing are successfully used for risk analysis in budgeting, e-commerce development, portfolio selection, Black-Scholes option pricing models, corporate acquisition systems, evaluating investments in advanced manufacturing technology, interactive fuzzy interval reasoning for smart web shopping, fuzzy scheduling and logistic.

Contents
- Introduction
- Convex Probabilistic Wavelet like Approximation
- Bidimensional Constrained Wavelet like Approximation
- Multidimensional Probabilistic Scale Approximation
- Multidimensional probabilistic approximation in wavelet like structure
- About L-Positive Approximations
- About Shape Preserving Weighted Uniform Approximation
- Jackson-Type Nonpositive Approximations for Definite Integrals
- Discrete Best L1 Approximation using the Gauges Way
- Quantitative Uniform Convergence of Smooth Picard Singular Integral Operators
- Global Smoothness and Simultaneous Approximation by Smooth

Fields of interest
- Computational Intelligence; Artificial Intelligence (incl. Robotics); Operation Research / Decision Theory
- Target groups
- Research
- Type of publication
- Monograph

Available
2011. XII, 296 p. 92 illus. (Intelligent Systems Reference Library, Vol. 6) Hardcover
99,95 €
ISBN 978-3-642-17718-7
in this book, the state-of-the-art fuzzy-model-based (fmb) control approaches are covered. a comprehensive review about the stability analysis of type-1 and type-2 fmb control systems using the lyapunov-based approach is given, presenting a clear picture to researchers who would like to work on this field. a wide variety of continuous-time nonlinear control systems such as state-feedback, switching, time-delay and sampled-data fmb control systems, are covered. in short, this book summarizes recent contributions of the authors on the stability analysis of the fmb control systems. it discusses advanced stability analysis techniques for various fmb control systems, and finds a concrete theoretical basis to support the investigation of fmb control systems at the research level. the analysis results of this book offer various mathematical approaches to designing stable and well-performed fmb control systems. furthermore, the results widen the applicability of the fmb control approach and help[...]

features

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Swarm Stability and Optimization

Swarming species such as flocks of birds or schools of fish exhibit fascinating collective behaviors during migration and predator avoidance. Similarly, engineered multi-agent dynamic systems such as groups of autonomous ground, underwater, or air vehicles (“vehicle swarms”) exhibit sophisticated collective behaviors while maneuvering. In this book we show how to model and control a wide range of such multi-agent dynamic systems and analyze their collective behaviors using both stability theoretical and simulation-based approaches. In particular, we investigate problems such as group aggregation, social foraging, formation control, swarm tracking, distributed agreement, and engineering optimization inspired by swarm behavior.

Features
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Contents

Fields of interest
Computational Intelligence; Artificial Intelligence (incl. Robotics); Control; Robotics; Mechatronics; Image Processing and Computer Vision

Target groups
Research

Type of publication
Monograph

Available
2011. XVII, 302 p. 74 illus., 60 in color. Hardcover
99.95 €
ISBN 978-3-642-18040-8

The Emerging Domain of Cooperating Objects

There are a number of different system concepts that have gained much relevance in the area of embedded systems over the past couple of years. First, there is the classic concept of embedded systems where the focus is on control systems for physical processes. Secondly, the notion of pervasive computing has evolved, where the vision foresees everyday objects having some form of computation capacity and, in most cases, sensing and communication facilities. Thirdly, the notion of wireless sensor networks has arisen, where small computing devices are able to sense their environment and cooperate in order to achieve a well-defined goal. These three types of quite diverse systems share a lot of commonalities on the one hand and, on the other hand, have some complementary aspects in common that make a combination of these systems into a coherent system vision promising. In particular, the important notions of control, heterogeneity, wireless communication, dynamic and ad-hoc nature and cost are prevalent.[...]

Features
There are a number of different system concepts that have gained much relevance in the area of embedded systems over the past couple of years. First, there is the classic concept of embedded systems where the focus is on control systems for physical processes. Secondly, the notion of pervasive computing has evolved, where the vision foresees everyday objects having some [...]

Contents

Fields of interest
Communications Engineering, Networks; Computer Communication Networks; Control; Robotics; Mechatronics; Circuits and Systems

Target groups
Research

Type of publication
Monograph

Available
2011. XVII, 271 p. 5 illus. in color. Hardcover
99.95 €
ISBN 978-3-642-16945-8

The Entropy Principle

Thermodynamics for the Unsatisfied

Entropy – the key concept of thermodynamics, clearly explained and carefully illustrated. This book presents an accurate definition of entropy in classical thermodynamics which does not “put the cart before the horse” and is suitable for basic and advanced university courses in thermodynamics. Entropy is the most important and at the same time the most difficult term of thermodynamics to understand. Many students are discontent with its classical definition since it is either based on “temperature” and “heat” which both cannot be accurately defined without 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 formulation of thermodynamics which is free of these problems. The Lieb-Yngvason formulation of classical thermodynamics is based on the concept of adiabatic accessibility and culminates in the entropy principle. The entropy principle represents the accurate[...]

Features
Entropy – the key concept of thermodynamics, clearly explained and carefully illustrated. This book presents an accurate definition of entropy in classical thermodynamics which does not “put the cart before the horse” and is suitable for basic and advanced university courses in thermodynamics. Entropy is the most important and at the same time the most difficult term of thermodynamics to understand. Many [...]

Contents

Fields of interest
Engineering Thermodynamics, Heat and Mass Transfer; Thermodynamics; Engineering Fluid Dynamics

Target groups
Research

Type of publication
Monograph

Available
2011. 150 p. Hardcover
59.95 €
ISBN 978-3-642-13348-0
In the recent decades, computational procedures have been applied to an increasing extent in engineering and the physical sciences. Mostly, two separate fields have been considered, namely, the analysis of solids and structures and the analysis of fluid flows. These continuous advances in analyses are of much interest to physicists, mathematicians and in particular, engineers. Also, computational fluid and solid mechanics are no longer treated as entirely separate fields of applications, but instead, coupled fluid and solid analysis is being pursued. The objective of the Book Series is to publish monographs, textbooks, and proceedings of conferences of archival value, on any subject of computational fluid dynamics, computational solid and structural mechanics, and computational multi-physics dynamics. The publications are written by and for physicists, mathematicians and engineers and are to emphasize the modeling, analysis and solution of problems in engineering.

Features
This book presents in one treatise – both – the basic mathematical models of solid / structural mechanics and effective finite element procedures for the solution of these models. The book can be used for teaching, in a modern way, solid and structural mechanics, finite element methods, and for self-study – from elementary to quite advanced material. In ...

Contents

Fields of interest
Theoretical and Applied Mechanics

Type of publication
Monograph

Available

169.95 €
ISBN 978-3-540-26331-9

The Mechanics of Solids and Structures
Hierarchical Modeling and the Finite Element Solution

This book describes significant tractable models used in solid mechanics - classical models used in modern mechanics as well as new ones. The models are selected to illustrate the main ideas which allow scientists to describe complicated effects in a simple manner and to clarify basic notations of solid mechanics. A model is considered to be tractable if it is based on clear physical assumptions which allow the selection of significant effects and relatively simple mathematical formulations. The first part of the book briefly reviews classical tractable models for a simple description of complex effects developed from the 18th to the 20th century and widely used in modern mechanics. The second part describes systematically the new tractable models used today for the treatment of increasingly complex mechanical objects – from systems with two degrees of freedom to three-dimensional continuous objects.

Features
This book describes significant tractable models used in solid mechanics - classical models used in modern mechanics as well as new ones. The models are selected to illustrate the main ideas which allow scientists to describe complicated effects in a simple manner and to clarify basic notations of solid mechanics. A model is considered to be tractable if it is based on clear physical assumptions which allow ...

Fields of interest
Mechanical Engineering; Computational Intelligence; Mechanics; Statistical Physics, Dynamical Systems and Complexity; Applied Mathematics / Computational Methods of Engineering

Type of publication
Research

Available

129.95 €
ISBN 978-3-642-15371-6

Tractable Models of Solid Mechanics
Formulation, Analysis and Interpretation

Voice over IP Networks
Quality of Service, Pricing and Security

This book addresses three important issues in VoIP networks: Quality of Service, pricing and security. In addressing Quality of Service (QoS), it introduces the notion of delay not exceeding an upper limit, termed the bounded delay, to measure the Quality of Service in VoIP networks. Queueing models are introduced to measure performance in terms of bounded delays. Closed form solutions relating the impact of bounding delays on throughput of VoIP traffic are provided. Traffic that exceeds the delay threshold is treated as lost throughput. The results addressed can be used in scaling resources in a VoIP network for different thresholds of acceptable delays. Both single and multiple switching points are addressed. The same notion and analysis are also applied on jitter, another important indicator of the VoIP QoS.

Features
This book addresses three important issues in VoIP networks: Quality of Service, pricing and security. In addressing Quality of Service (QoS), it introduces the notion of delay not exceeding an upper limit, termed the bounded delay, to measure the Quality of Service in VoIP networks. Queueing models are introduced to measure performance in terms of bounded delays. Closed form solutions relating the impact of ...

Contents

Fields of interest
Communications Engineering, Networks

Type of publication
Research

Available

99.95 €
ISBN 978-3-642-14329-8
X-Ray Computed Tomography in Biomedical Engineering

Computed Tomography gives a detailed overview of various aspects of computed tomography. It discusses X-ray CT tomography from a historical point of view, the design and physical operating principles of computed tomography apparatus, the algorithms of image reconstruction and the quality assessment criteria of tomography scanners. Algorithms of image reconstruction from projections, a crucial problem in medical imaging, are considered in depth. The author gives descriptions of the reconstruction methods related to tomography scanners with a parallel X-ray beam, trough solutions with fan-shaped beam and successive modifications of spiral scanners. Computed Tomography contains a dedicated chapter for those readers who are interested in computer simulations based on studies of reconstruction algorithms. The information included in this chapter will enable readers to create a simulation environment in which virtual tomography projections can be obtained in all basic projection systems. This[...]

Features
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Contents

Fields of interest
Biomedical Engineering; Imaging / Radiology; Signal, Image and Speech Processing; Image Processing and Computer Vision

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 319 p. 204 illus. Hardcover
129.95 €
Advanced Water Supply and Wastewater Treatment: A Road to Safer Society and Environment

Stable, safe, secure and readily available water supply is one of the key factors in ensuring a good level of the public health and a stable society. Scientific assessments show that about 80% of diseases and one-third of the total death toll in the developing countries are caused by the low quality of the drinking water. Other countries are also suffering from water shortages and insufficient quality of the drinking water. Many rivers in Europe and in other parts of the world are significantly polluted by insufficiently treated or untreated wastewater discharge. This book is based on the discussions and papers prepared for the NATO Advanced Research Workshop that took place in Lviv, Ukraine, and addressed recent advances in water supply and wastewater treatment as a prerequisite for a safer society and environment. The contributions critically assess the existing knowledge on urban water management and provide an overview of the current water management issues, especially in the countries in [..]

Contents

Fields of interest
Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution; Monitoring / Environmental Analysis; Civil Engineering

Target groups
Graduate

Type of publication
Proceedings

Available

89,95 €
ISBN 978-94-007-0309-4

Environmental Security

Coping with Global Environmental Change, Disasters and Security

Threats, Challenges, Vulnerabilities and Risks

Coping with Global Environmental Change, Disasters and Security - Threats, Challenges, Vulnerabilities and Risks reviews conceptual debates and case studies focusing on disasters and security threats, challenges, vulnerabilities and risks in Europe, the Mediterranean and other regions. It discusses social science concepts of vulnerability and risks, global, regional and national security challenges, global warming, floods, desertification and drought as environmental security challenges, water and food security challenges and vulnerabilities, vulnerability mapping of environmental security challenges and risks, contributions of remote sensing to the recognition of security risks, mainstreaming early warning of conflicts and hazards and provides conceptual and policy conclusions.

Features
This policy-focused Global Environmental and Human Security Handbook for the Anthropo-cene (GEHSHA) addresses new security threats, challenges, vulnerabilities and risks posed by global environmental change and disasters. In 6 forewords, 5 preface essays 95 peer reviewed chapcountries analyse in 10 parts concepts of military and political hard security and economic, social, [..]

Contents

Fields of interest
Ecotoxicology; Geography (general); Environmental Economics; Political Science; Biogeosciences

Available
2011. XXVIII, 1114 p. 109 illus. Hardcover

199,95 €

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
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 [..]

Contents

Fields of interest
Environmental Health; Soil Science & Conservation; Environmental Management

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. XXVIII, 1114 p. 109 illus. Hardcover

199,95 €
Practices of Irrigation & On-farm Water Management: Volume 2

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
In the present industrialization stage of the world, the importance of agricultural (food, fodder & bio-fuel) production to feed the ever-increasing population, and to save the water resources & the environment from degradation, is increasing. The climate change paradigm and water pollution have added additional focus on water resources. The book “Practices of Irrigation and On-farm Water Management” (Volume 2) [...]"
Waste Water Treatment and Reuse in the Mediterranean Region

Water scarcity and the need for ecological sustainability have led to the introduction of treated waste water as an additional water resource in the national water resource management plans of Mediterranean countries. Summarizing the results generated within the European Union-funded project INNOVA-MED, this volume highlights the following topics: Application of innovative technologies and practices for waste water treatment and reuse adapted to the Mediterranean region; Constraints on the application of advanced treatments and reuse of reclaimed water and sludge; Problems and requirements of sustainable water management in the Mediterranean area. The book includes several examples of Mediterranean countries, such as Tunisia, Morocco, Egypt, Palestine and Spain, and presents their practical experiences in the application of innovative processes and practices for waste water treatment and reuse.

Features
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Contents
Technologies for advanced wastewater treatment in the Mediterranean Region; Innovative Wastewater Treatments and Reuse Technologies Adapted to Southern Mediterranean Countries; Overview of new practices in the re-use of reclaimed water; Treatment and re-use of sludge; Constraints of application of advanced treatments and re-use of reclaimed water and sludge; Risk Assessment and Integrated management of wastewaters in the Mediterranean area; Reuse of wastewater in the Mediterranean region; Egyptian experience; Evaluation of four decades of treated water; [...]
Environmental Security in South-Eastern Europe

International Agreements and Their Implementation

Authored by international experts from academia, international organizations, governments and NGOs, this book highlights the main environmental security issues in the South-East European (SEE) countries, with a particular focus on climate change and water management. The common goal of the authors was to provide a reliable evaluation of whether existing legal regimes and correct implementation of applicable international treaties may contribute to reducing environmental security risks in the region. In-depth analyses and assessment of major challenges in compliance, serve as a firm ground which such evaluation is based on. This volume is recommended for public officials, legal practitioners and consultants. Its interest may also extend beyond the SEE countries, serving as a case-study of a broader and paradigmatic relevance of the analysis and management of environmental and security issues in a trans-boundary context.

Features

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Contents

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
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Space Security Law

Against the variegated background of bewilderment and cautious optimism that space transportation offers, this book begins with an exposé on international politics, the principles of which, bear upon space transportation, as well as the closeness of air space and outer space, and activities that straddle both frontiers at the same time. It discusses current issues and possibilities of communications and transportation in outer space, as well as the liabilities and accountability of the key players of space exploration.

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Fields of interest
Law (general); Literacy; Environment (general); Business & Economics (general); Philosophy (general); Social Sciences (general)

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 166 p. Hardcover
89,95 €
ISBN 978-3-642-16701-0

The Human Right to a Viable Environment

Human rights tribunals are regularly confronted with complaints regarding human rights violations caused by environmental degradation. This book deals with the effectiveness of incorporating environmental dimensions into existing human rights and analyses the feasibility of a separate enforceable human right relating to the environment. Including chapters on the relevant case law of several regional human rights systems, such as the European Convention on Human Rights, the American Convention on Human Rights and global human rights systems, such as the UN International Convention on Civil and Political Rights, it demonstrates that incorporating environmental aspects within existing human rights is problematic and recommends the insertion of a right to a viable environment in all human rights systems.

Features
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Contents

Fields of interest
Public Law

Target groups
Research

Type of publication
Monograph

Available
2011. 550 p. Hardcover
169,95 €

Yearbook of International Humanitarian Law - 2009

The world’s only annual publication devoted to the study of the laws of armed conflict, the Yearbook of International Humanitarian Law provides a truly international forum for high-quality, peer-reviewed academic articles focusing on this highly topical branch of international law. Ease of use of the Yearbook is guaranteed by the inclusion of a detailed index. Distinguished by its topicality and contemporary relevance, the Yearbook of International Humanitarian Law bridges the gap between theory and practice and serves as a useful reference tool for scholars, practitioners, military personnel, civil servants, diplomats, human rights workers and students.

Features
The world’s only annual publication devoted to the study of the laws of armed conflict, the Yearbook of International Humanitarian Law provides a truly international forum for high-quality, peer-reviewed academic articles focusing on this highly topical branch of international law. Ease of use of the Yearbook is guaranteed by the inclusion of a detailed index. Distinguished by its topicality and contemporary relevance [...]?

Contents
Part I. Articles. The International Criminal Court: a reflection, L. Moreno-Ocampo; The civilian in modern war, A. Roberts; Controlling the recourse to war by modifying jus in bello, R. Goodman; Blurring the lines: the interpretation, discourse and application of the Law of Armed Conflict, Dale Stephens; The redolent ‘Rule’: military necessity, commander’s knowledge, and methods of warfare, B.J. Bill; Territory, boundaries and the Law of Armed Conflict, L. Arimatsu; Part II Current developments. The year in review, S.C. Breau; International criminal courts round-up, D. Turns, E. Carnero; [...]?

Fields of interest
European Law / Public International Law

Target groups
Research

Type of publication
Contributed volume

Available
2011. 778 p. (Yearbook of International Humanitarian Law, 12) Hardcover
169,95 €
Atlas of Woody Plants in China

Distribution and Climate

"Atlas of Woody Plants in China: Distribution and Climate" documents the spatially-explicit county-level distribution of all 11,405 woody plants in China, together with life form information for most species. It also provides climate information for each species, with the county-level average and range of 12 climatic indices and of vegetation net primary productivity. It is the first and largest comprehensive atlas in the world for the distribution of China's plants and was compiled on the basis of almost all related literature published throughout China. The atlas should serve as an indispensable handbook for all those who are interested in the plants, ecology, geography, environment, horticulture, and silviculture of China and East Asia. Dr. Jingyun Fang is a Cheung Kong Professor at the Department of Ecology, Peking University, China. Dr. Zhuheng Wang and Dr. Zhiyao Tang are both ecologists working at the same institute.

Features
"Atlas of Woody Plants in China: Distribution and Climate" documents the spatially-explicit county-level distribution of all 11,405 woody plants in China, together with life form information for most species. It also provides climate information for each species, with the county-level average and range of 12 climatic indices and of vegetation net primary productivity. It is the first and largest [...]
Culture and Neural Frames of Cognition and Communication

Cultural neuroscience combines brain imaging techniques such as functional magnetic resonance imaging and event-related brain potentials with methods of social and cultural psychology to investigate whether and how cultures influence the neural mechanisms of perception, attention, emotion, social cognition, and other human cognitive processes. The findings of cultural neuroscience studies improve our understanding of the relation between human brain function and sociocultural contexts and help to reframe the “big question” of nature versus nurture. This book is organized so that two chapters provide general views of the relation between biological evolution, cultural evolution and recent cultural neuroscience studies, while other chapters focus on several aspects of human cognition that have been shown to be strongly influenced by sociocultural factors such as self-concept representation, language processes, emotion, time perception, and decision-making. The main goal of this work is to address how.[…]

Features
Cultural neuroscience combines brain imaging techniques such as functional magnetic resonance imaging and event-related brain potentials with methods of social and cultural psychology to investigate whether and how cultures influence the neural mechanisms of perception, attention, emotion, social cognition, and other human cognitive processes. The findings of cultural neuroscience studies improve our […]

Contents

Fields of interest
Neurobiology; Cross Cultural Psychology; Neurosciences; Anthropology; Cognitive Psychology

Target groups
Research

Type of publication
Contributed volume

Available

2011. XII, 314 p. (On Thinking, Vol. 3) Hardcover
149.95 €
ISBN 978-3-642-15422-5

Education for Animal Welfare

This book deals with the role of education in improving animal welfare and reducing animal suffering inflicted by humans. It embraces situations in which humans have direct control over animals or interfere directly with them, but it considers also indirect animal suffering resulting from human activities. Education is regarded in the broad sense of creating awareness and facilitating change. First,[…]

Contents

Fields of interest
Fish & Wildlife Biology & Management; Animal Ecology; Zoology

Target groups
Research

Type of publication
Monograph

Available

99.95 €
ISBN 978-3-642-16813-0

Flowering Plants. Eudicots

Sapindales, Cucurbitales, Myrtaceae

This volume, the tenth in the series, comprises modern treatments for the families and genera of the eudicot orders Sapindales and Cucurbitales. The circumscription of the orders, families and genera conforms to the most recent systematic studies. The family treatments include descriptions of the families and genera, genera classification keys, discussions of relationships and data on their morphology, reproductive biology, distribution, ecology and economic importance. Sapindales and Cucurbitales, as understood in this volume, comprise 16 families with 637 genera and roughly 9,240 species. Sapindales include large tropical and southern temperate tree families such as the Anacardiaceae, Sapindaceae and Rutaceae, which have long been considered to be closely related. Cucurbitales represent a relatively new ordinal concept; apart from some small woody groups, the order contains two large families.[…]

Contents

Fields of interest
Plant Systematics / Taxonomy / Biogeography; Plant Anatomy / Development; Biodiversity; Plant Genetics and Genomics; Evolutionary Biology

Target groups
Research

Type of publication
Handbook

Available

199.95 €
ISBN 978-3-642-14396-0
Honeybees of Asia

A multi-authored work on the basic biology of Asian honeybees, written by expert specialists in the field, this book highlights phylogeny, classification, mitochondrial and nuclear DNA, biogeography, genetics, physiology, pheromones, nesting, self-assembly processes, swarming, migration and abscinding, reproduction, ecology, foraging and flight, dance languages, pollination, diseases/pests, colony defensiveness and natural enemies, honeybee mites, and interspecific interactions. Comprehensively covering the widely dispersed literature published in European as well as Asian-language journals and books, 'Honeybees of Asia' provides an essential foundation for future research.

Features
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Contents
Mango Malformation

Malformation disease of mango (Mangifera indica) initially noted in patches in India has now turned into a global menace wherever mango is grown. The challenge posed by the problem attracted interest of Scientists from various disciplines, continue to do so, and will attract their attention until the problem is understood threadbare, and resolved. For a long time, due to complex nature of the disease, the cause and causal agent was both hotly debated. Only in recent years, the issue of the etiology of the disease has been resolved, epidemiology has been worked out to a large extent and silver bullet control measures have been replaced by IPM strategy based on the information generated on the physiology of pathogenesis and epidemiology of the disease.

Features
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Contents

Fields of interest
Plant Pathology; Plant Physiology; Entomology; Agriculture; Biochemistry; Applied Ecology

Target groups
Upper undergraduate

Type of publication
Monograph

Available
2011. XXII. 148 p. 20 illus. in color. Hardcover
139,95 €
ISBN 978-94-007-0362-9

Metabolic Profiling
Methods and Protocols

At the intersection of metabolite analysis, metabolic fingerprinting, and metabolomics, the study of metabolic profiling has evolved steadily over the course of time as have the methods and technologies involved in its study. In Metabolic Profiling: Methods and Protocols, expert researchers in the field present protocols that are illustrative of the evolution of metabolic profiling from single molecule analysis to global metabolome profiling. Comprised of the most essential techniques, this volume covers topics from inborn errors of metabolism and drug metabo-lite analysis to nuclear magnetic resonance metabolic profiles. Written in the highly successful Methods in Molecular Biology® series format, chapters include introductions to their respective subjects, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and practical, Metabolic Profiling: Methods and Protocols serves as [...] 

Features
At the intersection of metabolite analysis, metabolic fingerprinting, and metabolomics, the study of metabolic profiling has evolved steadily over the course of time as have the methods and technologies involved in its study. In Metabolic Profiling: Methods and Protocols, expert researchers in the field present protocols that are illustrative of the evolution of metabolic profiling from single molecule [...] 

Contents

Fields of interest
Biochemistry; Metabolomics

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. X. 391 p. 87 illus. (Methods in Molecular Biology, Vol. 708) Hardcover
109,95 €
ISBN 978-1-61737-984-0

Microalgae as a Feedstock for Biofuels

This Brief provides a concise review of the potential use of microalgae for biofuel production. The following topics are highlighted: the advantages of microalgae over conventional biofuel-producing crops; technological processes for energy production using microalgae; microalgal biomass production systems, production rates and costs; algae cultivation strategies and main culture parameters; biomass harvesting technologies and cell disruption; CO2 sequestration; life cycle analysis; and algal biofinery strategies. The conclusions section discusses the contribution of the technologies described to environmental sustainability and future prospects.

Features
This Brief provides a concise review of the potential use of microalgae for biofuel production. The following topics are highlighted: the advantages of microalgae over conventional biofuel-producing crops; technological processes for energy production using microalgae; microalgal biomass production systems, production rates and costs; algae cultivation strategies and main culture parameters; biomass harvesting [...] 

Contents

Fields of interest
Microbiology; Renewable and Green Energy; Environmental Engineering / Biotechnology; Cell Culture; Renewable and Green Energy

Target groups
Research

Type of publication
Brief

Available
2011. V. 68 p. (SpringerBriefs in Microbiology) Softcover
49,95 €
ISBN 978-3-642-17996-9
Heavy metals always pose serious ecological risks when released into the environment due to their elemental non-degradable nature, regardless of their chemical form. This calls for the development of efficient and low-cost effluent treatment and metal recuperation technologies for contaminated waste water, not only because regulatory limits need to be met but also because the waste itself can be a resource for certain precious metals. Biosorption is a general property of living and dead biomass to rapidly bind and abiotically concentrate inorganic or organic compounds from even very diluted aqueous solutions. As a specific term, biosorption is a method that utilizes materials of biological origin – biosorbents formulated from non-living biomass – for the removal of target substances from aqueous solutions. Recent research on biosorption provides a solid understanding of the mechanism underlying microbial biosorption of heavy metals and related elements. This book gathers review articles analyzing […]

### Features

Heavy metals always pose serious ecological risks when released into the environment due to their elemental non-degradable nature, regardless of their chemical form. This calls for the development of efficient and low-cost effluent treatment and metal recuperation technologies for contaminated waste water, not only because regulatory limits need to be met but also because the waste itself can be a resource for certain precious metals.

### Contents


### Fields of interest

Microbiology; Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution; Biotechnology; Environmental Engineering / Biotechnology; Applied Microbiology; Math. Applications in Chemistry

### Target groups

Research

### Type of publication

 Contributed volume

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**Monograph of the Gonostomatidae and Kahlilidiidae (Ciliophora, Hypotricha)**

The present monograph is the fourth of six volumes which review the Hypotricha, a major group of the spirotrichs. The book is about the Gonostomatidae, the Kahlilidiidae, and some taxa of unknown position in the hypotrichs. Gonostomum was previously misclassified in the Oxytrichidae because its type species Gonostomum affine has basically an 18-cirri pattern, which is dominant in the oxytrichids. A new hypothesis, considering also molecular data, postulates that this 18-cirri pattern evolved in the last common ancestor of the hypotrichs and therefore it appears throughout the Hypotricha tree. The simple dorsal kinety pattern, composed of only three bipolar dorsal kineties, and gene sequence analyses strongly suggest that Gonostomum branches off rather early in the phylogenetic tree. Thus, the Gonostomatidae, previously synonymised with the oxytrichids, are reactivated to include the name-bearing type genus and other genera (e.g., Paragonostomum, Wallackia, Cladotricha) which have the characteristic […]

### Features

The present monograph is the fourth of six volumes which review the Hypotricha, a major group of the spirotrichs. The book is about the Gonostomatidae, the Kahlilidiidae, and some taxa of unknown position in the hypotrichs. Gonostomum was previously misclassified in the Oxytrichidae […]

### Contents

A General Section - B Systematic Section - Gonostomatidae (33 species) - Kahlilidiidae (15 species) - Taxa of Unknown Position in the Non-dorso-marginalian Hypotricha (14 species) - Supplement to Apurosomonada (5 species) - References - Systematic Index - Table Index

### Index

- Animal Systematics / Taxonomy / Biogeography
- Biodiversity; Developmental Biology; Animal Ecology; Evolutionary Biology

### Target groups

Research

### Type of publication

 Monograph

Available


199,95 €
ISBN 978-94-007-0454-1

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**National Forest Inventories: Contributions to Forest Biodiversity Assessments**

Forest biodiversity is crucial to the ecological, economic, and social well-being of earth’s civilizations. Unfortunately, however, forest biodiversity is threatened to a serious degree in nearly all countries. Therefore, many countries have agreed to be parties to international agreements focused on maintaining, restoring, and monitoring biodiversity; further, these countries have agreed to report to international bodies on forest biodiversity status and trends. NFIs are the primary source of large-scale information available for this purpose, but the large variety of definitions, protocols, sampling designs, and plot configurations used by NFIs makes comparable international reporting extremely difficult. This book presents the results of Working Group 3 of COST Action E43 in the development of harmonization techniques for common reporting of estimates of forest biodiversity indicators using NFI data. Harmonization tests were carried out on a large common data base containing raw NFI data from […]

### Features

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### Contents


### Fields of interest

Forestry, Biodiversity; Monitoring / Environmental Analysis

### Target groups

Research

### Type of publication

Contributed volume

Available


139,95 €
ISBN 978-94-007-0481-7
Plant Embryo Culture
Methods and Protocols

A great fascination for biologists, the study of embryo development provides indispensable information concerning the origins of the various forms and structures that make up an organism, and our ever-increasing knowledge gained through the study of plant embryology promises to lead to the development of numerous useful applications. In Plant Embryo Culture: Methods and Protocols, expert researchers from the field provide a ready source of information for culturing zygotic embryos for different types of studies, both theoretical and practical. The book’s main sections examine a wide range of related topics, including the culture of zygotic embryos for developmental studies, the application of embryo culture techniques focusing on embryo rescue methods, cryopreservation of zygotic embryos, the use of zygotic embryos as explants for somatic embryogenesis and organogenesis, as well as transformation protocols using zygotic embryos as starting material. Written in the highly successful Methods in...[

Features
A great fascination for biologists, the study of embryo development provides indispensable information concerning the origins of the various forms and structures that make up an organism, and our ever-increasing knowledge gained through the study of plant embryology promises to lead to the development of numerous useful applications. In Plant Embryo Culture: Methods and Protocols, expert researchers from the field provide a ready source of information for culturing zygotic embryos for different types of studies, both theoretical and practical. The book’s main sections examine a wide range of related topics, including the culture of zygotic embryos for developmental studies, the application of embryo culture techniques focusing on embryo rescue methods, cryopreservation of zygotic embryos, the use of zygotic embryos as explants for somatic embryogenesis and organogenesis, as well as transformation protocols using zygotic embryos as starting material. Written in the highly successful Methods in...[

Contents
Zygotic Embryo Culture: An Overview.- In vitro Fertilization with Rice Gametes: Production of Zygotes and Zygote and Embryo Culture.- Canola Zygotic Embryo Culture.- Immature Seeds and Embryos of Medicago truncatula Cultured In vitro.- In vitro Culture and Germination of Terrestrial Asian Orchid Seeds.- In vitro Culture of Coconut (Cocos nucifera L.) Zygotic Embryos.- Immature Embryo Rescue and Culture.- Chickpea Hybridization Using In vitro Techniques.- Muskmelon Embryo Rescue Techniques using In vitro Embryo Culture.- Phaseolus Immature Embryo Rescue Technology.- Wide Crossing in...[

Fields of interest
Plant Sciences; Cell Culture

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011, XII, 380 p. 30 illus. (Methods in Molecular Biology, Vol. 710) Hardcover
109,95 €
ISBN 978-1-61737-987-1

Plant Geography of Chile

The first and so far only Plant Geography of Chile was written about 100 years ago, since when many things have changed: plants have been renamed and reclassified; taxonomy and systematics have experienced deep changes as have biology, geography, and biogeography. The time is therefore ripe for a new look at Chile’s plants and their distribution. Focusing on three key issues – botany/systematics, geography and biogeographical analysis – this book presents a thoroughly updated synthesis both of Chilean plant geography and of the different approaches to studying it. Because of its range – from the neotropics to the temperate sub-Antarctic – Chile’s flora provides a critical insight into evolutionary patterns, particularly in relation to the distribution along the latitudinal profiles and the global geographical relationships of the country’s genera. The consequences of these relations for the evolution of the Chilean Flora are discussed. This book will provide a valuable resource for both graduate...[

Features
The first and so far only Plant Geography of Chile was written about 100 years ago, since when many things have changed: plants have been renamed and reclassified; taxonomy and systematics have experienced deep changes as have biology, geography, and biogeography. The time is therefore ripe for a new look at Chile’s plants and their distribution. Focusing on three key issues –...[

Contents
Part I: Geobotanical scenario.- The extravagant physical geography of Chile.- Getting geobotanical knowledge.- Part II: Chorology of Chilean Plants.- Geographical relations of the Chilean flora.- Biogeographical regionalization.- Part III: Islands biogeography.- Pacific offshore islands.- Islands on the continent.- Part IV: Case studies on selected families.- Cactaceae, a weird family and postmodern evolution.- The richest family: Chilean Asteraceae.- Nothofagus, key genus in plant geography.- Part V: Where to from here? Projections of Chilean plant geography.- All the possible worlds of...[

Fields of interest
Plant Systematics; Taxonomy; Biogeography; Biosciences; Biodiversity; Evolutionary Biology; Nature Conservation

Target groups
Research

Type of publication
Monograph

Available
2011, XII, 120 p. (Plant and Vegetation, Vol. 5) Hardcover
149,95 €
ISBN 978-3-642-16250-3

Pocket Guide to Biomolecular NMR

Steering clear of quantum mechanics and product operators, “Pocket Guide to Biomolecular NMR” uses intuitive, concrete analogies to explain the theory required to understand NMR studies on the structure and dynamics of biological macromolecules. For example, instead of explaining nuclear spin with angular momentum equations or Hamiltonians, the books describes nuclei as “bells” in a choir, ringing at specific frequencies depending on the atom type and their surrounding electromagnetic environment. This simple bell analogy, which is employed throughout the book, has never been used to explain NMR and makes it surprisingly easy to learn complex, bewildering NMR concepts, such as dipole-dipole coupling and CPMG pulse sequences. Other topics covered include the basics of multi-dimensional NMR, relaxation theory, and Model Free analysis. The small size and fast pace of “Pocket Guide to Biomolecular NMR” makes the book a perfect companion to traditional biophysics and biochemistry textbooks, but the book’s...[

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Contents
Atomic Bells and Frequency Finders Bonded Bells and Two-Dimensional Spectra Neighboring Bells Atomic Bells and Frequency Finders Bonded Bells and Two-Dimensional Spectra Neighboring Bells...[

Fields of interest
Biochemistry; Spectroscopy / Spectrometry; Bio-physics and Biological Physics; Molecular Medicine

Target groups
Upper undergraduate

Type of publication
Graduate/advanced undergraduate textbook

Available
2011, XI, 159 p. 82 illus. Softcover
39,95 €
ISBN 978-3-642-16250-3
The Landscape Ecology of Fire

Global warming is expected to change fire regimes, likely increasing the severity and extent of wildfires in many ecosystems around the world. What will be the landscape-scale effects of these altered fire regimes? Within what theoretical contexts can we accurately assess these effects? We explore the possible effects of altered fire regimes on landscape patch dynamics, dominant species (tree, shrub, or herbaceous) and successional, sensitive and invasive plant and animal species and communities, and ecosystem function. Ultimately, we must consider the human dimension: what are the policy and management implications of increased fire disturbance, and what are the implications for human communities?

Features
Global warming is expected to change fire regimes, likely increasing the severity and extent of wildfires in many ecosystems around the world. What will be the landscape-scale effects of these altered fire regimes? Within what theoretical contexts can we accurately assess these effects? We explore the possible effects of altered fire regimes on landscape patch [...]
Linguistics

S. Manova, University of Vienna, Austria

Understanding Morphological Rules

With Special Emphasis on Conversion and Subtraction in Bulgarian, Russian and Serbo-Croatian

This volume analyzes morphological and morphonological phenomena from a number of distinct Slavic languages. It does so in an innovative manner, yet also positions the analysis in the context of current morphological debates. It is thus a valuable contribution both to comparative Slavic morphology and general morphological theory. Moreover, the book is the first attempt at a theory of conversion and subtraction relevant to languages with rich inflectional morphology. It contributes to our structural understanding of the nature of word. As the first illustration of subtraction with examples from southern Slavic languages, it is an excellent source of specialist data. The book’s theoretical framework is easily accessible and applicable to other languages, which makes it attractive to researchers on Slavic languages and general linguists alike. The volume will also appeal to general morphologists, typologists, and advanced students in linguistics.

Features

Located at the intersection of phonology, psycholinguistics and phonetics, this volume offers the latest research findings in key areas of prosodic theory, including: • The relationship between intonation and pragmatics in speech production • Sentence modality prosody characterization • The role of pitch in quantity-based sound systems • Consonant-conditioned tone depression phonology across languages • The encoding of intonational contrasts in both intonational and tonal languages

Contents

Introduction • Phonological grouping in language planning and language change • Order effects in diction and comprehension • Prosodic boundaries • Semantically-independent but contextually-dependent interpretation of contrastive accent • The developmental path of logical focus-marking in Dutch • A phonetic study of intonation and focus in Thompson River Salish • The alignment of accentual peaks in the expression of focus

Fields of interest

Phonology; Language Education; Psycholinguistics

Target groups

Research

Type of publication

Monograph

Available

2011, XV, 239 p. (Studies in Morphology, Vol. 1) Hardcover

99,95 €


Materials Science

N. Yahya, Technical University Penang, Penang, Malaysia

Carbon and Oxide Nanostructures

Synthesis, Characterisation and Applications

This volume covers all aspects of carbon and oxide based nanostructured materials. The topics include synthesis, characterization and application of carbon-based namely carbon nanotubes, carbon nanofibres, fullerences, carbon filled composites etc. In addition, metal oxides namely, ZnO, TiO2, Fe2O3, ferrites, garnets etc., for various applications like sensors, solar cells, transformers, antennas, catalysts, batteries, lubricants, are presented. The book also includes the modeling of oxide and carbon based nanomaterials. The book covers the topics: Synthesis, characterization and application of carbon nanotubes, carbon nanofibres, fullerences Synthesis, characterization and application of oxide based nanomaterials. Nanostructured magnetic and electronic materials and their applications. Nanostructured materials for petro-chemical industry. Oxide and carbon based thin films for electronics and sustainable energy. Theory, calculations and modeling of nanostructured materials.

Features

This volume covers all aspects of carbon and oxide based nanostructured materials. The topics include synthesis, characterization and application of carbon-based namely carbon nanotubes, carbon nanofibres, fullerences, carbon filled composites etc. In addition, metal oxides namely, ZnO, TiO2, Fe2O3, ferrites, garnets etc., for various applications like sensors, solar cells, transformers, antennas, catalysts. [...]

Contents


Fields of interest

Nanotechnology; Nanotechnology and Microengineering; Nanoscale Science and Technology; Nanochemistry

Target groups

Research

Type of publication

Monograph

Available


129,95 €

ISBN 978-3-642-14672-5
Recent Advances in Elastomeric Nanocomposites

Recent Advances in Elastomeric Nanocomposites reviews the recent progresses in the synthesis, processing as well as applications of elastomeric nanocomposites. Elastomers are a very important class of polymer materials and the generation of their nanocomposites by the incorporation of nano-filler has led to significant enhancement of their properties and, hence, expansion of their application potential. Most of the studies related with these materials are present in the form of research papers. Here, the authors present a comprehensive text covering the whole of the subject. The book is tailored more from the applications point of view, but also provide enough introductory material for research scholars new to this field.

Features
Recent Advances in Elastomeric Nanocomposites reviews the recent progresses in the synthesis, processing as well as applications of elastomeric nanocomposites. Elastomers are a very important class of polymer materials and the generation of their nanocomposites by the incorporation of nano-filler has led to significant enhancement of their properties and, hence, expansion of their application potential. [...] 

Contents

Fields of interest
Nanotechnology; Nanotechnology and Microengineering; Condensed Matter Physics; Biophysics and Biological Physics

Target groups
Research

Type of publication
Monograph

Available
99,95 €
ISBN 978-3-642-15786-8

Scanning Probe Microscopy in Nanoscience and Nanotechnology 2

This book presents the physical and technical foundation of the state of the art in applied scanning probe techniques. It constitutes a timely and comprehensive overview of SPM applications. The chapters in this volume relate to scanning probe microscopy techniques, characterization of various materials and structures and typical industrial applications, including topographic and dynamical surface studies of thin-film semiconductors, polymers, paper, ceramics, and magnetic and biological materials. The chapters are written by leading researchers and application scientists from all over the world and from various industries to provide a broader perspective.

Features
This book presents the physical and technical foundation of the state of the art in applied scanning probe techniques. It constitutes a timely and comprehensive overview of SPM applications. The chapters in this volume relate to scanning probe microscopy techniques, characterization of various materials and structures and typical industrial applications, including topographic and dynamical surface [...] 

Fields of interest
Nanotechnology; Characterization and Evaluation of Materials; Surfaces and Interfaces, Thin Films; Nanotechnology and Microengineering; Condensed Matter Physics; Biophysics and Biological Physics

Target groups
Research

Type of publication
Monograph

Available
2011. XVI, 710 p. 200 illus. (NanoScience and Technology) Hardcover
159,95 €
ISBN 978-3-642-10496-1

Single-Sided NMR

This book describes the design of the first functioning single-sided tomograph, the related measurement methods, and a number of applications in medicine, materials science, and chemical engineering. It will be the first comprehensive account of this new device and its applications. Among the key advances of this method is that images can be obtained in much shorter times than originally anticipated, and that even vector maps of flow fields can be measured although the magnetic fields are highly inhomogeneous. Furthermore, the equipment is small, mobile and affordable to small and medium enterprises and can be located in doctors’ offices.

Features
The use of conventional nuclear magnetic resonance is limited by the fact that the object needs to be carried to the NMR equipment and needs to fit inside large superconducting magnets. Both limitations are removed by single-sided NMR probes based on open magnets specially adapted to the object under study. These can be inexpensive and portable sensors that give access to a large number of applications [...] 

Contents
- Single sided NMR: NMR in inhomogeneous fields
- Ex-situ measurement of one- and two-dimensional distribution functions
- Hardware: Single-sided tomography
- High Resolution NMR in Inhomogeneous Fields
- NMR in inhomogeneous fields
- Biological Tissue Application: Applications in medical science and cultural heritage
- Spectrometer Hardware

Fields of interest
Characterization and Evaluation of Materials; Polymer Sciences; Geochemistry; Diagnostic Radiology; Soil Science & Conservation; Analytical Chemistry

Target groups
Research

Type of publication
Monograph

Available
2011. XIII, 250 p. 7 illus. in color. Hardcover
99,95 €
ISBN 978-3-642-16306-7
This work constitutes a detailed study of electrical and magnetic properties in nanometric materials with a range of scales: atomic-sized nanomembranes, micro- and nanowires and thin films. Firstly, a novel method of fabricating atomic-sized constrictions in metals is presented; it relies on measuring the conduction of the device while a focused-ion-beam etching process is in progress. Secondly, it describes wires created by a very promising nanolithography technique: Focused electron/ion-beam-induced deposition. Three different gas precursors were used: (CH)$_2$Pt(CpCH)$_2$, W(CO)$_6$ and Co(CO)$_6$. The thesis reports the results obtained for various physical phenomena: the metal-insulator transition, superconducting and magnetic properties, respectively. Finally, the detailed magneto-transport properties in epitaxial FeO thin films grown on MgO (001) are presented. Overall, the new approaches developed in this thesis have great potential for supporting novel technologies.

**Features**
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**Contents**
Introduction. - Experimental Techniques. - Magnetotransport Properties of Epitaxial FeO thin Films. - Conduction in in Atomic-Sized Magnetic Metallic Constructions created by FIB. - Pt-C Nanowires created by FIBID and FEBID. - Superconductor W-Based Nanowires created by FIBID. - Magnetic Cobalt Nanowires created by FEBID. - Conclusions and Outlook. - CV.

**Fields of interest**
Nanotechnology, Nanoscale Science and Technology, Surface and Interface Science, Thin Films

**Target groups**
Research

**Type of publication**
Monograph

**Available**
2011, XV, 188 p. 123 illus., 20 in color. (Springer Theses) Hardcover

99,95 €
ISBN 978-3-642-15800-1

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**Terahertz Technology**
Fundamentals and Applications

The book presents information about Terahertz science, Terahertz photodetectors and Terahertz Lasers. A special emphasis is given to room temperature operation of long wavelength photodetectors based on novel quantum dots (Centered Defect Spherical Quantum Dots). Moreover, a complete analysis of systems based on Quantum Cascade structures to detect far infrared wavelengths is provided. Finally, the book presents Terahertz laser principles considering multi-color lasers in this range of wavelengths. Written as a background for graduate students in the Optics field.

**Features**
"Terahertz Technology" presents information about Terahertz science, Terahertz photodetectors and Terahertz Lasers. A special emphasis is given to room temperature operation of long wavelength photodetectors based on novel quantum dots (Centered Defect Spherical Quantum Dots). Moreover, a complete analysis of systems based on Quantum Cascade structures to detect far infrared wavelengths is provided. Finally, [...] Content.

**Contents**
An overview of the technological and scientific achievements of the te-rahertz. - Terahertz and Infrared Quantum Photodetectors. - Terahertz and Infrared Quantum Cascade Lasers.

**Fields of interest**
Optical and Electronic Materials; Microwaves, RF and Optical Engineering; Applied Optics, Optoelectronics, Optical Devices

**Target groups**
Research

**Type of publication**
Monograph

**Available**
2011, XIII, 300 p. 113 illus., 13 in color. (Lecture Notes in Electrical Engineering, Vol. 77) Hardcover

129,95 €
ISBN 978-3-642-15792-9

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**Theory of Semiconductor Quantum Devices**
Microscopic Modeling and Simulation Strategies

Primary goal of this book is to provide a cohesive description of the vast field of semiconductor quantum devices, with special emphasis on basic quantum-mechanical phenomena governing the electro-optical response of new-generation nanomaterials. The book will cover within a common language different types of optoelectronic nanodevices, including quantum-cascade laser sources and detectors, few-electron/exciton quantum devices, and semiconductor-based quantum logic gates. The distinguishing feature of the present volume is a unified microscopic treatment of quantum-transport and coherent-optics phenomena on ultrasmall space- and time-scales, as well as of their semiclassical counterparts.

**Features**
Primary goal of this book is to provide a cohesive description of the vast field of semiconductor quantum devices, with special emphasis on basic quantum-mechanical phenomena governing the electro-optical response of new-generation nanomaterials. The book will cover within a common language different types of optoelectronic nanodevices, including quantum-cascade laser sources and detectors, [...] Content.

**Contents**

**Fields of interest**
Nanotechnology; Applied Optics, Optoelectronics, Optical Devices; Solid State Physics; Spectroscopy and Microscopy; Electrical Engineering; Engineering (general)

**Target groups**
Research

**Type of publication**
Monograph

**Available**
2011, XIV, 380 p. 90 illus. (NanoScience and Technology) Hardcover

119,95 €
ISBN 978-3-642-10555-5
Transport in Metal-Oxide-Semiconductor Structures

Mobile Ions Effects on the Oxide Properties

This book focuses on the importance of mobile ions presented in oxide structures, what significantly affects the metal-oxide-semiconductor (MOS) properties. The reading starts with the definition of the MOS structure, its various aspects and different types of charges presented in their structure. A review on ionic transport mechanisms and techniques for measuring the mobile ions concentration in the oxides is given, special attention being attributed to the Charge Pumping (CP) technique associated with the Bias Thermal Stress (BTS) method. Theoretical approaches to determine the density of mobile ions as well as their distribution along the oxide thickness are also discussed. The content varies from general to very specific examples, helping the reader to learn more about transport in MOS structures.

Contents

Fields of interest
Optical and Electronic Materials; Semiconductors; Characterization and Evaluation of Materials; Solid State Physics

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 104 p. 25 illus., 5 in color. (Engineering Materials) Hardcover
99.95 €
ISBN 978-3-642-16303-6

Mathematics

H.-D. Gonon, University of Rostock; H.-H. Langmann, Bundeswettbewerb Mathematik, Bonn; D. Scheicher, Jacobs University, Bremen (Eds.)

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 high school students.

Features
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 [...]
Approximation Algorithms for Complex Systems

This book collects up-to-date papers from world experts in a broad variety of relevant applications of approximation theory, including dynamical systems, multiscale modelling of fluid flow, metrology, and geometric modelling to mention a few. The 14 papers in this volume document modern trends in approximation through recent theoretical developments, important computational aspects and multidisciplinary applications. The book is arranged in seven invited surveys, followed by seven contributed research papers. The surveys of the first seven chapters are addressing the following relevant topics: emergent behaviour in large electrical networks, algorithms for multivariate piecewise constant approximation, anisotropic triangulation methods in adaptive image approximation, form assessment in coordinate metrology, discontinuous Galerkin methods for linear problems, a numerical analyst’s view of the lattice Boltzmann method, approximation of probability measures on manifolds. Moreover, the diverse[...]

Features
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Contents

Fields of interest
Approximations and Expansions; Algorithms; Computational Mathematics and Numerical Analysis; Computational Science and Engineering; Applications of Mathematics; Numerical Analysis

Target groups
Research

Type of publication
Proceedings

Available
109,95 €
ISBN 978-3-642-16875-8

Dimensional Analysis

For experiments, dimensional analysis enables the design, checks the validity, orders the procedure and synthesises the data. Additionally it can provide relationships between variables where standard analysis is not available. This widely valuable analysis for engineers and scientists is here presented to the student, the teacher and the researcher. It is the first complete modern text that covers developments over the last three decades while closing all outstanding logical gaps. Dimensional Analysis also lists the logical stages of the analysis, so showing clearly the care to be taken in its use while revealing the very few limitations of application. As the conclusion of that logic, it gives the author’s original proof of the fundamental and only theorem. Unlike past texts, Dimensional Analysis includes examples for which the answer does not already exist from standard analysis. It also corrects the many errors present in the existing literature by including accurate solutions. Dimensional[...]

Features
For experiments, dimensional analysis enables the design, checks the validity, orders the procedure and synthesises the data. Additionally it can provide relationships between variables where standard analysis is not available. This widely valuable analysis for engineers and scientists is here presented to the student, the teacher and the researcher. It is the first complete modern text that covers[...]

Contents

Fields of interest
Analysis; Appl. Mathematics / Computational Methods of Engineering; Mechanical Engineering

Target groups
Research

Type of publication
Monograph

Available
2011. XIV, 297 p. 84 illus. Hardcover
169,95 €
Discrete Mathematics

This book gives an introduction to discrete mathematics for beginning undergraduates. One of original features of this book is that it begins with a presentation of the rules of logic as used in mathematics. Many examples of formal and informal proofs are given. With this logical framework firmly in place, the book describes the major axioms of set theory and introduces the natural numbers. The rest of the book is more standard. It deals with functions and relations, directed and undirected graphs, and an introduction to combinatorics. There is a section on public key cryptography and RSA, with complete proofs of Fermat’s little theorem and the correctness of the RSA scheme, as well as explicit algorithms to perform modular arithmetic. The last chapter provides more graph theory. Eulerian and Hamiltonian cycles are discussed. Then, we study flows and tensions and state and prove the max flow min cut theorem. We also discuss matchings, covering, bipartite graphs.

Features
This book gives an introduction to discrete mathematics for beginning undergraduates and starts with a chapter on the rules of mathematical reasoning. This book begins with a presentation of the rules of logic as used in mathematics where many examples of formal and [...]  

Contents

Fields of interest
Number Theory; Computer Imaging, Vision, Pattern Recognition and Graphics; Engineering Design; Applications of Mathematics

Target groups
Lower undergraduate

Type of publication
Undergraduate textbook

Available
2011. XII, 465 p. 220 illus., 20 in color. (Universitext) Softcover
59.95 €

Fatou, Julia, Montel

The Great Prize of Mathematical Sciences of 1918, and Beyond

How did Pierre Fatou and Gaston Julia create what we now call Complex Dynamics, in the context of the early twentieth century and especially of the First World War? The book is based partly on new, unpublished sources. Who were Pierre Fatou, Gaston Julia, Paul Montel? New biographical information is given on the little known mathematician that was Pierre Fatou. How did the injury of Julia during WWI influence mathematical life in France? From the reviews of the French version: “Audin’s book is ... filled with marvelous biographical information and analysis, dealing not just with the men mentioned in the book’s title but a large number of other players, too ... [It] addresses itself to scholars for whom the history of mathematics has a particular resonance and especially to mathematicians active, or even with merely an interest, in complex dynamics. ... presents it all to the reader in a very appealing form.” (Michael Berg, The Mathematical Association of America, October, 2009)

Features
How did Pierre Fatou and Gaston Julia create what we now call Complex Dynamics, in the context of the early twentieth century and especially of the First World War? The book is based partly on new, unpublished sources. Who were Pierre Fatou, Gaston Julia, Paul Montel? New biographical information is given on the little known mathematician that was Pierre Fatou. How did the serious injury of Julia during WWI affect them?

Contents
I The Great Prize of Mathematical Sciences of 1918, and Beyond.- I.1 The iteration problem in 1915.- I.2 The protagonists around 1917–1918.- I.3 The war.- I.4 Iteration, a few definitions and notation.- I.5 Normal families.- I.6 Relation to functional equations.- II The Great Prize of Mathematical Sciences of 1918.- II.1 Year 1917.- II.2 Year 1918.- III The memoirs.- III.1 Julia’s memoir.- III.2 The (three) memoirs of Fatou.- III.3 Comments in the first person.- III.4 To summarise.- IV After Fatou and Julia.- IV.1 Stop.- IV.2 Hausdorff distance (1914) and dimension (1919).- IV.3 Irregular points, J-points, O-points (1925–1927).-

Fields of interest
History of Mathematics; Dynamical Systems and Ergodic Theory

Target groups
Research

Type of publication
Monograph

Available
69.95 €
ISBN 978-3-642-17853-5

Fourier Analysis and Nonlinear Partial Differential Equations

In recent years, the Fourier analysis methods have experienced a growing interest in the study of partial differential equations. In particular, those techniques based on the Littlewood-Paley decomposition have proved to be very efficient for the study of evolution equations. The present book aims at presenting self-contained, state-of-the-art models of those techniques with applications to different classes of partial differential equations: transport, heat, wave and Schrödinger equations. It also offers more sophisticated models originating from fluid mechanics (in particular the incompressible and compressible Navier-Stokes equations) or general relativity. It is either directed to anyone with a good undergraduate level of knowledge in analysis or useful for experts who are eager to know the benefit that one might gain from Fourier analysis when dealing with non-linear partial differential equations.

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Contents

Fields of interest
Analysis; Partial Differential Equations

Target groups
Research

Type of publication
Monograph

Available
99.95 €
ISBN 978-3-642-16829-1
From Past to Future: Graßmann’s Work in Context

Graßmann Bicentennial Conference, September 2009

On the occasion of the 200th anniversary of the birth of Hermann Graßmann (1809-1877), an interdisciplinary conference was held in Potsdam, Germany, and in Graßmann’s hometown Szczecin, Poland. The idea of the conference was to present a multi-faceted picture of Graßmann, and to uncover the complexity of the factors that were responsible for his creativity. The conference demonstrated not only the very influential reception of his work at the turn of the 20th century, but also the unexpected modernity of his ideas, and their continuing development in the 21st century. This book contains 37 papers presented at the conference. They investigate the significance of Graßmann’s work for philosophy as well as for scientific and methodological questions, for comparative philology in general and for Indology in particular, for psychology, physiology, religious studies, musicology, didactics, and, last but not least, mathematics. In addition, the book contains numerous illustrations and English translations.

Features
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Fields of interest
History of Mathematics

Target groups
Research

Type of publication
Proceedings

Available
2011. XX, 580 p. 73 illus., 10 in color. Hardcover
109.95 €
ISBN 978-3-0346-0404-8

A. Olivieri, Università di Parma, Italy; E. Pitacco, Università di Trieste, Italy

Introduction to Insurance Mathematics

Technical and Financial Features of Risk Transfers

The book aims at presenting technical and financial features of life insurance, non-life insurance, pension plans. The book has been planned assuming non-actuarial readers as its “natural” target, namely advanced undergraduate and graduate students in Economics, Business and Finance; professionals and technicians operating in Insurance and pension areas, whose job may regard investments, risk analysis, financial reporting, etc. and hence implies a communication with actuarial professionals and managers. Given the assumed target, the book focuses on technical and financial aspects of insurance, however avoiding the use of complex mathematical tools. In this sense, the book can be placed at some “midpoint” of the existing literature, part of which adopts more formal approaches to insurance problems implying the use of non-elementary mathematics, whereas another part addresses practical questions totally avoiding even simple mathematical tools (which, in our opinion, can conversely provide [...] [..]

Features
The book aims at presenting technical and financial features of life insurance, non-life insurance, pension plans. The book has been planned assuming non-actuarial readers as its “natural” target, namely advanced undergraduate and graduate students in Economics, Business and Finance; professionals and technicians operating in Insurance and pension areas, whose job may regard investments, risk analysis, [...] [..]

Contents

Fields of interest
Mathematical Logic and Foundations; Mathematical Logic and Formal Languages

Target groups
Research

Type of publication
Monograph

Available
99.95 €
ISBN 978-94-007-0319-3
Modular Invariant Theory

This book covers the modular invariant theory of finite groups, when the characteristic of the field divides the order of the group. It is more complicated than the study of the classical non-modular case. Largely self-contained, the book develops the theory from its origins up to modern results. It explores many examples, illustrating the theory and its contrast with the better understood non-modular setting. It details techniques for the computation of invariants for many modular representations of finite groups, especially the case of the cyclic group of prime order. It includes detailed examples of many topics as well as a quick survey of the elements of algebraic geometry and commutative algebra as they apply to invariant theory. The book is aimed at both graduate students and researchers—an introduction to many important topics in modern algebra within a concrete setting for the former, an exploration of a fascinating subfield of algebraic geometry for the latter.

Features
This book covers the modular invariant theory of finite groups, the case when the characteristic of the field divides the order of the group. It explains a theory that is more complicated than the study of the classical non-modular case, and it describes many open questions. Largely self-contained, the book develops the theory [...] 

Contents

Fields of interest
Commutative Rings and Algebras; Algebra; Algebraic Geometry

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 233 p. (Encyclopaedia of Mathematical Sciences, Vol. 139) Hardcover

89,95 €
ISBN 978-3-642-17403-2

Optimization and Regularization for Computational Inverse Problems and Applications

"Optimization and Regularization for Computational Inverse Problems and Applications" focuses on advances in inversion theory and recent developments with practical applications, particularly emphasizing the combination of optimization and regularization for solving inverse problems. This book covers both the methods, including standard regularization theory, Fejer processes for linear and nonlinear problems, the balancing principle, extrapolated regularization, nonstandard regularization, nonlinear gradient method, the nonmonotone gradient method, subspace method and Lie group method; and the practical applications, such as the reconstruction problem for inverse scattering, molecular spectra data processing, quantitative remote sensing inversion, seismic inversion using the Lie group method, and the gravitational lensing problem. Scientists, researchers and engineers, as well as graduate students engaged in applied mathematics, engineering, geophysics, medical science, image processing, remote[...]

Features
"Optimization and Regularization for Computational Inverse Problems and Applications" focuses on advances in inversion theory and recent developments with practical applications, particularly emphasizing the combination of optimization and regularization for solving inverse problems. This book covers both the methods, including standard regularization theory, Fejer processes for linear and nonlinear problems, [...] 

Contents

Fields of interest
Computational Mathematics and Numerical Analysis; Appl. Mathematics / Computational Methods of Engineering; Remote Sensing / Photogrammetry

Target groups
Research

Type of publication
Monograph

Available
2011. VIII, 119 p. (École d’Été de Probabilités de Saint-Flour XXXIX-2009)

34,95 €
ISBN 978-3-642-16631-0

Some Mathematical Models from Population Genetics

This work reflects sixteen hours of lectures delivered by the author at the 2009 St Flour summer school in probability. It provides a rapid introduction to a range of mathematical models that have their origins in theoretical population genetics. The models fall into two classes: forwards in time for the evolution of frequencies of different genetic types in a population; and backwards in time (coalescent) models that trace out the genealogical relationships between individuals in a sample from the population. Some, like the classical Wright-Fisher model, date right back to the origins of the subject. Others, like the multiple merger coalescents or the spatial Lambda-Fleming-Viot process are much more recent. All share a rich mathematical structure. Biological terms are explained, the models are carefully motivated and tools for their study are presented systematically.

Features
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Fields of interest
Genetics and Population Dynamics; Mathematical Biology in General; Mathematical Modeling and Industrial Mathematics; Partial Differential Equations; Statistics for Life Sciences, Medicine, Health Sciences

Type of publication
Research

Available

34,95 €
ISBN 978-3-642-16631-0

88 Mathematics
Spatio-Temporal Modeling of Nonlinear Distributed Parameter Systems
A Time/Space Separation Based Approach

The purpose of this volume is to provide a brief review of the previous work on model reduction and identification of distributed parameter systems (DPS), and develop new spatio-temporal models and their relevant identification approaches. In this book, a systematic overview and classification on the modeling of DPS is presented first, which includes model reduction, parameter estimation and system identification. Next, a class of block-oriented nonlinear systems in traditional lumped parameter systems (LPS) is extended to DPS, which results in the spatio-temporal Volterra model and its identification algorithm. All these methods are based on linear time/space separation. Sometimes, the nonlinear time/space separation can play a better role in modeling of very complex processes. Thus, a nonlinear time/space separation based neural modeling is used.

Features
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Contents
Preface; List of Figures; List of Tables; Abbreviations; 1 Introduction; 1.1 Background; 1.1.1 Examples of distributed parameter processes; 1.1.2 Motivation; 1.2 Contributions and organization of the book; 1.3 References; 2 Modeling of Distributed Parameter Systems: Overview and Classification; 2.1 Introduction; 2.2 White-box modeling; model reduction for known DPS; 2.3 Eigenfunction method; 2.3.1 Green’s function method; 2.3.2 Finite difference method; 2.2.4 Weighted residual method; 2.2.4.1 Classification based on weighting functions; 2.2.4.2 Classification based on basis functions;...

Fields of interest
Mathematical Modeling and Industrial Mathematics; Control; Industrial Chemistry / Chemical Engineering; Simulation and Modeling

Target groups
Research

Type of publication
Monograph

Available
2011. XVIII, 178 p. 107 illus. (Intelligent Systems, Control and Automation; Science and Engineering, Vol. 50) Hardcover

99.95 €

R. Martí, University of Valencia, Spain; G. Renelt, University of Heidelberg, Germany

The Linear Ordering Problem
Exact and Heuristic Methods in Combinatorial Optimization

Faced with the challenge of solving the hard optimization problems that abound in the real world, existing methods often encounter great difficulties. Important applications in business, engineering or economics cannot be tackled by the techniques that have formed the predominant focus of academic research throughout the past three decades. Exact and heuristic approaches are dramatically changing our ability to solve problems of practical significance and are extending the frontier of problems that can be handled effectively. This monograph details state-of-the-art optimization methods, both exact and heuristic, for the LOP. The authors employ the LOP to illustrate contemporary optimization technologies as well as how to design successful implementations of exact and heuristic procedures. Therefore, they do not limit the scope of this book to the LOP, but on the contrary, provide the reader with the background and practical strategies in optimization to tackle different combinatorial problems.

Features
Complex optimization problems abound in the real world. In the face of these challenges, established methods often fall short of providing solutions. However, ‘exact’ and ‘heuristic’ techniques are dramatically enhancing our ability to solve significant practical problems in the world of optimization. They are changing the landscape in the field, broadening the frontiers of the possible, and allowing us...

Contents

Fields of interest
Algorithms; Optimization; Discrete Mathematics in Computer Science; Computer Applications

Target groups
Research

Type of publication
Monograph

Available

79.95 €
ISBN 978-3-642-16728-7

P.J. Mease, University of Washington, Seattle, WA, USA; P.S. Helliwell, University of Leeds, UK (Eds.)

Atlas of Psoriatic Arthritis

This comprehensive visual reference contains over 150 images from a wide gamut of variations of the disease, as well as charts and tables detailing the most up-to-date information on patient susceptibility, incidence, and symptoms, providing the clinical presentation of the disease, as well as radiographic, ultrasound, and MRI images to highlight the role of imaging in psoriatic arthritis. Although several proposed methods for classifying PsA have been published, none has been widely accepted or validated. This book proposes the use of an amended version of the Moll and Wright method, and functions mostly as a visual reference and data source of the most up-to-date findings and comprehensive images of PsA. The book includes sections on juvenile psoriatic arthritis which aid practitioners in distinguishing the characteristics and features of the disease in children, as well as discussions of clinical drug trials. The book will be of particular interest to rheumatologists, dermatologists, and family...

Features
Atlas of Psoriatic Arthritis Eds. Mease and HelliwellA visual guide to the complex and inter-related diseases of psoriatic arthritis and psoriasis, this volume contains more than 150 images spanning a wide spectrum of variations of the disease. Each chapter comprises an introductory overview, along with a series of relevant images and tables in which the key information on each...

Contents

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

Target groups
Professional/practitioner

Type of publication
Atlas

Available
2011. X, 108 p. 239 illus., 80 in color. Softcover

39.95 €
Atlas of Skin Cancers
Practical Guide to Diagnosis and Treatment

The incidence of skin cancer has risen rapidly in recent decades, and patients often present initially to practitioners in many different specialties. Because skin cancer can vary in clinical appearance, even dermatologists may experience difficulty in reaching a clinical diagnosis. For primary care physicians and physician extenders (physician assistants, nurses, and nurse practitioners), who have had very little or no formal training in dermatology, the task can be still more daunting. In this atlas, the authors set out to provide a practical resource that will help improve the ‘visual vocabulary’ of physicians and physician extenders, helping them identify lesions that should be biopsied. Hundreds of high-quality color images are included to assist the reader in the task of recognition and identification. All of the common cutaneous malignancies are illustrated, with a number of examples of each entity and of common mimickers. In addition, biopsy techniques and treatment options are presented in [...]

Features
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Contents
Introduction. - Actinic Keratosis. - Non-Melanoma Skin Cancer. - Melanoma. - Miscellaneous Cutaneous Neoplasms. - Biopsy Techniques. - Complications of Skin Cancer Treatment. - Index

Fields of interest
Dermatology; General Practice / Family Medicine; Oncology; Internal Medicine; Geriatrics / Gerontology

Type of publication
Atlas

Available
2011. XII, 124 p. 269 illus. in color. Hardcover
69.95 €
ISBN 978-3-642-13398-5

Biodefence
Advanced Materials and Methods for Health Protection

This book focuses on defence against biological warfare with an emphasis on applications of modern technologies and advanced materials in detection, health protection and medical treatment of the population. Specific topics include high-throughput sensitive detection methods, advanced nanostructured materials and techniques for external and internal protection of human health, as well as extracorporeal methods, adsorptive materials and bacteriophages decontaminating the human organism, and neutralising incorporated CBRN agents. The contributions describe recent developments in the field of biodefence aimed at protecting population against terrorism and terror related events. Broader approaches to reducing the impact of environmental pollution on human health and improving efficiency of medical treatment of patients with viral infections, poisoning and organ failure are also discussed.

Features
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Contents
Brain Protection in Cardiac 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 brain injury and the methods used to avoid or limit its effects on patient morbidity and mortality.

Features
Brain injury remains one of the most dreaded complications of cardiac surgery. The range of injury is broad; while a stroke may be easily defined and diagnosed, more subtle injuries most definitely occur. There remains debate as to how these are diagnosed and there is a lack of standard definitions allowing inter-study comparison. If we are to have confidence in strategies that may reduce brain injury, we need [...] Contents
Cardiac Surgery; Cardiology; Neurology; Neuroradiology; Imaging / Radiology; Internal Medicine
Target groups
Professional/practitioner
Type of publication
Professional book
Available
2011. XII. 273 p. 135 illus., 90 in color. Softcover
69.95 €
ISBN 978-1-84882-793-6

Cardiac Rehabilitation Manual

Cardiac rehabilitation is of key importance to ameliorate long-term morbidity and mortality resulting from cardiac intervention. However, much of the current literature is dense, unwelcoming and academic in style and format. For those physicians understanding the scope of cardiac rehabilitation there is a need to distill the guidelines and various management options available to them into a concise practical manual. Up until now, all references have looked at the general options, but there is definite need to investigate the practicalities of individual patient groups. This book fulfills the need for practical guidance among all professionals involved in the management of these patients, from residents and fellows of cardiology and internal medicine, surgical teams, physiotherapy professionals, critical care physicians and family medicine practitioners.

Features
Cardiac diseases are still the leading causes of death in industrialized countries. They induce considerable harm to survivors and often lead to severe and irreversible physical and neurological disabilities. However, a considerable amount can be done to prevent coronary artery disease or to slow the progression of the disease. Both can be achieved by tackling the panoply of modifiable risk factors, which have [...] Fields of interest
Cardiology; Rehabilitation; Cardiac Surgery; Internal Medicine
Target groups
Professional/practitioner
Type of publication
Reference work
Available
2011. XII. 273 p. 135 illus., 90 in color. Softcover
69.95 €
ISBN 978-1-84882-793-6

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 [...] Features
Clinics for cardiogenetic disorders have been established in many academic teaching hospitals in Europe. In these clinics, cardiologists, clinical and molecular geneticists, genetic nurses, and social workers closely cooperate to provide optimal care for individuals with cardiac disease of probable genetic origin and their family members. However, the prevalence of genetic cardiomyopathies and primary [...] 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.- Section III: PRIMARY ELECTRICAL HEART DISEASES - Congenital long QT-syndrome, Brugada syndrome, Short QT-syndrome, Catecholamine induced polymorphic ventricular tachycardia, Familial atrial fibrillation, Hereditary conduction diseases, Connective tissue disorders and smooth muscle [...] Fields of interest
Cardiology; Human Genetics; Internal Medicine
Target groups
Professional/practitioner
Type of publication
Reference work
Available
2011. XIV. 455 p. 200 illus., 30 in color. Hardcover
159.95 €
ISBN 978-1-84996-470-8
Clinical Trials in Rheumatology

A huge number of therapeutic studies have been published in rheumatology and clinical immunology. 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. The book "Clinical Trials in Rheumatology" provides a summary of the important studies in the field. 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 acronym), study set up, results and summary. An acronym finder is supplied at the beginning of the book. This book is a valuable reference tool for rheumatologists involved in clinical trials, as well as research scientists interested in immunosuppressant drugs.

Features

A huge number of therapeutic studies have been published in rheumatology and clinical immunology. 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. The book "Clinical Trials in Rheumatology" provides a summary of the important studies in the field. 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 acronym), study set up, results and summary. An acronym finder is supplied at the beginning of the book. This book is a valuable reference tool for rheumatologists involved in clinical trials, as well as research scientists interested in immunosuppressant drugs.

Features

The second edition of Difficult Decisions in Thoracic Surgery: An Evidence-Based Approach addresses the growing complexity of decision making in thoracic surgery. More than half of the clinical questions posed in this book are new, and of the questions that remain as holdovers from the previous edition, virtually all have been revised and updated. As new technology is introduced, physicians from nonsurgical specialties offer alternative and competing therapies for what was once the exclusive province of the thoracic surgeon. In addition, there is increasing knowledge regarding the efficacy of traditional thoracic surgical therapies. How to select among these varied and complex approaches is becoming increasingly difficult. Concise chapters are devoted to one or two specific questions, or decisions, in general thoracic surgery that are difficult or controversial. The authors identify relevant publications in their selected topics, grade the quality of the evidence offered by those reports, apply [...]
Essential Medical Facts presents selected literature-based information clinicians need to know to provide informed patient care and avoid medical misadventures. Facts that can help make us better and safer clinicians include knowing the usefulness of palmar crease pallor in detecting anemia (not reliable), antibiotics that can cause a false positive opiate urine drug screen (fluoroquinolones), and an occasional early clue to testicular cancer (gynecomastia). Of course, keeping up to date on current medical knowledge and being curious about the implications of published research conclusions not only help assure superior clinical performance; they also bolster the preparation for board examinations. Robert B. Taylor, MD is the author and editor of more than two dozen medical books and several hundred published articles, as well as a veteran of both rural primary practice and chairmanship of a medical school clinical department. Essential Medical Facts is written for clinicians in all specialties, at[...]

Features
Essential Medical Facts presents selected literature-based information clinicians need to know to provide informed patient care and avoid medical misadventures. Facts that can help make us better and safer clinicians include knowing the usefulness of palmar crease pallor in detecting anemia (not reliable), antibiotics that can cause a false positive opiate urine drug screen (fluoroquinolones), and [...] 

Contents
Medical facts, errors and this book.- Challenging current medical misconceptions.- Epidemiologic realities and gee-whiz facts.- Disease prevention and screening.- Risk factors and disease correlates.- Practical clinical pearls.- Laboratory testing, electrocardiography and imaging.- Alarming symptoms and red flag findings.- Therapeutic insights.- Idiosyncratic and uncommon drug effects.- Drug interactions and adventures in polypharmacy.- Alcohol, nicotine and caffeine.- Unforseen, counterintuitive and possibly prophetic findings.- Some timeless truths about medical practice.

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

Target groups
Professional/practitioner

Type of publication
Monograph

Available
2011. XLVI, 324 p. Softcover
29.95 €
ISBN 978-1-4419-7873-8

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
An appreciation of atrophicventricular valve surgical anatomy reveals that they are much more than simple valves, opening and closing in response to pressure changes. The structural interrelationship of the valves of the heart and the dynamic mechanisms involved in their function are fundamental in optimizing valve performance, and are dependent upon an intricate multifaceted central cardiac complex. Mitral Valve [...] 

Contents

Fields of interest
Cardiac Surgery; Cardiology; Infectious Diseases; Imaging / Radiology; Internal Medicine; Intensive / Critical Care Medicine

Target groups
Professional/practitioner

Type of publication
Professional book

Available
2011. X, 150 p. 140 illus., 80 in color. Hardcover
99.95 €

Non-Vascular Interventional Radiology of the Abdomen

This book is designed to provide a foundation for physicians-in-training and a quick guide to further enhance the skills set of practicing interventionalists. It is a concise reference manual covering the major aspects of clinical scenarios, procedures, and techniques. Non-Vascular Interventional Radiology of the Abdomen expertly addresses the planning and execution of commonly encountered procedures, including organ specific biopsies, abscess drainage, urinary interventions, gastrostomy, gastrojejunostomy, and biliary interventions.

Features
This book is designed to provide a foundation for physicians-in-training and a quick guide to further enhance the skills set of practicing interventionalists. It is a concise reference manual covering the major aspects of clinical scenarios, procedures, and techniques. Non-Vascular Interventional Radiology of the Abdomen expertly addresses the planning and execution of commonly encountered [...] 

Contents
Patient Evaluation and Preparation.- Image-Guided Percutaneous Biopsy.- Percutaneous Abcess Drainage.- Percutaneous Gastrostomy and Gastrojejunostomy.- Biliary Interventions

Fields of interest
Interventional Radiology; Imaging / Radiology

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. XV, 107 p. 21 illus. Softcover
39.95 €
ISBN 978-1-4419-7731-1
Pancreatic Disease
Protocols and Clinical Research

This book will contain the conclusions of a meeting from March 2007, of about 25 experts in pancreatology working together in small groups and plenary sessions to define the current state of knowledge in specific areas, and to develop ideal protocols and research questions for future investigation.

Features
Pancreatic Disease – Protocols and Clinical Research provides a clear and up-to-date review of the advancing areas in clinical pancreatology and clinical research related to the pancreas, and identifies current research areas, suggesting most appropriate studies that need to be performed to advance knowledge in this field. Written by leading international collaborators and contributors.

Contents
Acute pancreatitis in intensive care. - Antibiotic prophylaxis in acute severe pancreatitis: Should we have a further study?. - Designing an optimal study for the management of infected pancreatic necrosis. - Nutrition in acute pancreatitis. - An optimal randomized study for pain control in acute pancreatitis. - Endoscopic versus surgical drainage for chronic pancreatitis. - Douodenal preserving pancreatic resection with pancreatic duct drainage: What is the role of supraduodenal biliary drainage?. - Pain management and nutritional support in non-resectable pancreatic cancer. - Endoscopic therapy.[..]

Fields of interest
Gastroenterology; Pain Medicine; Oncology; Surgery; Nursing Management / Nursing Research

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. X, 115 p. 6 illus., 2 in color. Softcover

49,95 €
ISBN 978-0-85729-238-4

Pediatricians and Pharmacologically Trained Psychologists
Practitioner’s Guide to Collaborative Treatment

Many factors affect treatment options for children and adolescents with mental health problems, including age, severity of symptoms, financial and time constraints, and access to qualified professionals. With the limitations of managed care plans and the shrinking pool of pediatric psychiatrists, the trend is toward pediatricians prescrib- ing psychotropic medicines. Pharmacologically trained psychologists can offer valuable assistance to pediatricians caught in this predicament. Tackling fundamental questions of when to treat as well as when and why to refer young patients, Pediatricians and Pharmacologically Trained Psychologists examines commonly occurring pediatric condi-
tions requiring joint treatment; reviews theoretical models of consultation and collaboration; and spotlights professional issues typically arising from these team efforts. With pertinent clarity and detail, this volume offers in-depth discussion in these key areas: Collaborative treatment of mental health conditions, including mood,[..]

Features
Many factors affect treatment options for children and adolescents with mental health problems, including age, severity of symptoms, financial and time constraints, and access to qualified professionals. With the limitations of managed care plans and the shrinking pool of pediatric psychiatrists, the trend is toward pediatricians prescribing psychotropic medicines. Pharmacologically trained psychologists can offer valuable assistance to pediatricians caught in this predicament. Tackling fundamental questions of when to treat as well as when and why to refer young patients, Pediatricians and Pharmacologically Trained Psychologists examines commonly occurring pediatric conditions requiring joint treatment; reviews theoretical models of consultation and collaboration; and spotlights professional issues typically arising from these team efforts. With pertinent clarity and detail, this volume offers in-depth discussion in these key areas: Collaborative treatment of mental health conditions, including mood,[..]

Contents

Fields of interest
Psychopharmacology; Child and School Psychology; Pediatrics; Public Health

Target groups
Research

Type of publication
Contributed volume

Available
2011. XXIV. 303 p. Hardcover

119,95 €

Preparing and Delivering Scientific Presentations
A Complete Guide for International Medical Scientists

This book is intended to be the last in Ramón Ribes’ “Medical English” series, which is aimed at health care professionals who need English for their work but do not speak English on a day-to-day basis.

Contents
To Speak or Not to Speak? Ten Questions to Ask Yourself before Agreeing to Give a Presentation. - Preparing a Talk. - The Dreaded Questions and Answers. - Common Mistakes in English. - To Speak or Not to Speak? Ten Questions to Ask Yourself before Agreeing to Give a Presentation. - Preparing a Talk. - The Dreaded Questions and Answers. - Common Mistakes in English. - The latest in Springer’s “Medical English” series aimed at healthcare professionals who need English for their work but do not speak English on a day-to-day basis, this book features clear advice on a variety of topics relevant to the successful preparation and delivery of scientific presentations. Alongside guidance on the actual preparation and delivery of talks, helpful information is provided on such potential difficulties as dealing with questions, chairing sessions, and use of appropriate English. The book will offer encouragement for those embarking on a career in international science as well as practical advice on how to deal with a wide range of situations that may develop in the context of an international congress.

Features
The latest in Springer’s “Medical English” series aimed at healthcare professionals who need English for their work but do not speak English on a day-to-day basis, this book features clear advice on a variety of topics relevant to the successful preparation and delivery of scientific presentations. Alongside guidance on the actual preparation and delivery of talks, helpful information is provided on such potential difficulties as dealing with questions, chairing sessions, and use of appropriate English. The book will offer encouragement for those embarking on a career in international science as well as practical advice on how to deal with a wide range of situations that may develop in the context of an international congress.

Fields of interest
Medicine (general); Biomedicine (general); Life Sciences (general); Language Education; Grammar; Science

Target groups
Professional/practitioner

Type of publication
Manual

Available
2011. XIII, 140 p. 14 illus., 9 in color. Softcover

24,95 €
ISBN 978-3-642-15888-9
Skin Cancer - A World-Wide Perspective

Over the last decades the incidence of skin cancers is dramatically increasing world-wide. This is not only confined to the incidence of melanoma but includes also other skin cancers such as basal cell carcinomas. Based on the recent WHO classification of skin cancers, this lavishly illustrated reference book covers comprehensively the epidemiology, histology and pathology, as well as diagnostic signs and treatment options of skin cancers. Homogeneously and reader-friendly structured, it links the diagnostic and genetic features of each disease in order to guide the reader to the most appropriate therapeutic strategies for the best possible treatment outcome. In order to demonstrate the world wide activities in the field, all chapters cover the variations of the individual experiences and expertise in different nations.

Features
The dramatic increase in the incidence of skin cancers is a major concern worldwide and relates not only to melanoma but also to other cancers, including Merkel cell and basal cell carcinomas. Recently, the WHO has summarized the genetic and pathologic features of skin cancers in its book series. However, the WHO’s proposed classification of certain disease entities, such as basal cell carcinomas, is still under discussion.

Contents
EPIDEMIOLOGY- PATHOGENESIS.- DISEASE ENTITIES.- Non-Melanocytic Skin Cancer. - Melanocytic Tumors. - Cutaneous Lymphomas. - Others.- THERAPIES.

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

Target groups
Professional/practitioner

Type of publication
Contributed volume

Available
2011. XI, 398 p. 204 illus., 200 in color. Hardcover
159.95 €  ISBN 978-3-642-05071-8
Herpes zoster ophthalmicus (HZO) is a common disease in the elderly and the immunosuppressed. Diagnosis of HZO is clinical but almost all its manifestations are non-specific. The exception is varicella-zoster virus epithelial keratitis, which is frequently the only indicator of the true nature of the disease. This book is unique in presenting high-magnification images, obtained by non-contact in vivo photomicrography, that capture the distinctive features of varicella-zoster virus epithelial keratitis in HZO. Both the morphology and the dynamics of the corneal epithelial lesions are splendidly documented, including in patients with HZO sine herpete and recurrent disease. Three rare cases of ocular surface involvement in acute HZO are included, and the final chapter carefully compares varicella-zoster virus epithelial keratitis in HZO and the lesions of herpes simplex virus.

Features
Herpes zoster ophthalmicus (HZO) is a common disease in the elderly and the immunosuppressed, with potentially devastating sequelae. Diagnosis of HZO is clinical but almost all its manifestations are non-specific and often indistinguishable from those due to other causes in general and herpes simplex virus in particular. The exception is varicella-zoster virus epithelial keratitis, which is frequently the only [...]
Dynamic Formal Epistemology

This volume is a collation of original contributions from the key actors of a new trend in the contemporary theory of knowledge and belief, that we call "dynamic epistemology". It brings the works of these researchers under a single umbrella by highlighting the coherence of their current themes, and by establishing connections between topics that, up until now, have been investigated independently. It also illustrates how the new analytical toolbox unveils questions about the theory of knowledge, belief, preference, action, and rationality, in a number of central axes in dynamic epistemology: temporal, social, probabilistic and even deontic dynamics.

Contents

Fields of interest
Epistemology; Models and Principles; Game Theory; Mathematical Methods; Logic; Philosophy of Science; Political Science

Type of publication
Contributed volume

Available
99,95 €
ISBN 978-94-007-0073-4

European Business Ethics Casebook

The Morality of Corporate Decision Making

Business cases are at the heart of business ethics as a discipline. Analysis and reflection on the morality of business often is triggered by concrete cases. After four introductory chapters into recent developments within business ethics and the value of case analysis, the present volume offers extensive description of eight recent European cases, mainly stemming from The Netherlands and Belgium and all of them with a clear moral impact. Among them are the Lernout and Haupsi speech technology disaster, Heineken struggle with the promotion girls selling beer in Cambodia, cartels in the Dutch construction industry, the pharmaceutical industry and the Aids crisis, and Unilever allegedly making use of child labour in the cotton industry in India. The book will be of interest to researchers as well as teachers of undergraduate and graduate courses in Business Ethics, Business in Society, Management and Organisation Theory and Strategic Management. It will also be useful for business practitioners.

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Contents
Preface. - Acknowledgements. - Table of Contents. - Part I: Theory. - Chapter 1 Business Ethics: Cases, Codes and Institutions; Henk van Luijk. - Chapter 2 Moral Competence; Henk van Luijk and Wim Dubbink. - Chapter 3 Institutions and The Institutional Turn in Business Ethics; Wim Dubbink. - Part II: Cases. - Chapter 4 The Pharmaceutical Industry and the AIDS Crisis; Marcel Verweij. - Chapter 5 Heineken and Promotion Girls in Cambodia; Rosalie Feiler and Frans Paul van der Putten. - Chapter 6 Heineken and Promotion Girls in Cambodia, Part 2; Frans Paul van der Putten. - Chapter 7 A Disputed.

Fields of interest
Ethics; Law and Economics; Philosophy (general); Interdisciplinary Studies

Target groups
Research

Type of publication
Contributed volume

Available
30,00 €

Infectious Disease Ethics

Limiting Liberty in Contexts of Contagion

Infectious disease ethics is one of the fastest growing—and increasingly being recognised as one of the most important—topics in bioethics and public health ethics. Paramount among ethical issues associated with infectious disease are those that arise with conflict between the goal to promote individual liberty, on the one hand, and the goal to promote other legitimate social goals such as (equality or) utility in the way of public health, on the other. Authored by world leading figures in philosophy, bioethics, law, public health and medicine, the papers in this volume focus on such conflicts and, inter alia, illustrate the diversity of ways in which such conflicts can arise and offer carefully argued, creative solutions for addressing them. They cover a broad range of topics including ethical issues associated with pandemic planning, health workers’ rights and duties, vaccination policy, coercion and compensation, opt-out HIV testing, public health surveillance, and bioterrorism.

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Contents
Preface. - Introduction. - Part I: Pandemic Planning. - Chapter 1: Moral Principles for Allocating Scarce Medical Resources in an Influenza Pandemic; Marcel Verweij. - Chapter 2: Effective use of a Limited Antiviral Stockpile for Pandemic Influenza; Nimalan Arinaminpathy. - Chapter 3: Rights and Duties of HIV Infected Health Care Professionals; Lawrence O. Gostin. - Chapter 4: Do Physicians’ Legal Duties to Patients Conflict with Public Health Values? The Case of Antibiotic Overprescription; Carl H.

Fields of interest
Ethics; Medicine (general); Medical Law; Infectious Diseases; Humanities; Science

Type of publication
Research

Target groups
Research

Type of publication
Contributed volume

Available
2011. VIII, 156 p. Hardcover
69,95 €
ISBN 978-94-007-0563-0
Interactive Wittgenstein
Essays in Memory of Georg Henrik von Wright

The philosophical thought of Ludwig Wittgenstein continues to have a profound influence that transcends barriers between philosophical disciplines and reaches beyond philosophy itself. Less than one hundred years after their publication, his early masterpieces ‘Tractatus Logico-Philosophicus’ and the posthumously published ‘Philosophical Investigations’ have emerged as two classic philosophical texts, each of which has elicited widely divergent readings and spawned contesting schools of interpretation. This collection of original essays by leading experts offers deep insights into the forces that shaped and influenced Wittgenstein’s thought on a broad variety of topics. It also contains the text - in both the original German and an English translation - by Juliet Floyd and Burton Dreben - of letters and cards sent to Wittgenstein by the philosopher and logician Gottlob Frege, which shed light on their interaction during the crucial period when Wittgenstein completed work on the ‘Tractatus’. This [...]

Features
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Contents
Editor’s Preface. - Acknowledgements. - Prefatory Note; Juliet Floyd. - Frege-Wittgenstein Correspondence; Juliet Floyd, Burt Dreben. - Interpretive Themes; Juliet Floyd. - ‘A Surrogate for the Soul’; Wittgenstein and Schoenberg; Eran Gutman. - The Crash of the Philosophy of the Tractatus: The Testimony of Wittgenstein’s Notebooks in October 1928; Jaakko Hintikka. - Linguistic Regularity; David Pears. - On a Remark by Jukundus; Joachim Schulte. -

Fields of interest
History of Philosophy; History of Science; Philosophy of Mind; Aesthetics; Philosophy of Religion; Logic

Target groups
Research

Type of publication
Contributed volume

Available
99.95 €

Machines of Nature and Corporeal Substances in Leibniz

In recent decades, there has been much scholarly controversy as to the basic ontological commitments of the philosopher Gottfried Wilhelm Leibniz (1646-1716). The old picture of his thought as strictly idealistic, or committed to the ultimate reduction of bodies to the activity of mind, has come under attack, but Leibniz’s precise conceptualization of bodies, and the role they play in his system as a whole, is still the subject of much controversy. One thing that has become clear is that in order to understand the nature of body in Leibniz, and the role body plays in his philosophy, it is crucial to pay attention to the related concepts of organism and of corporeal substance, the former being Leibniz’s account of the structure of living bodies (which turn out, for him, to be the only sort of bodies there are), and the latter being an inheritance from the Aristotelian hylomorphic tradition which Leibniz appropriates for his own ends. This volume brings together papers from many of the leading [...]

Features
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Contents
Preface; Dan Garber. - Introduction; Justin E. H. Smith and Ohad Nachtomy. - 1. Leibniz vs. Stahl on the Way Machines of Nature Operate; François Duchesneau. - 2. Leibniz’s Animals: Where Teleology Meets Mechanism; Glenn Hartz. - 3. Monads and Machines; Pauline Pirmester. - 4. Leibniz on Artificial and Natural Machines: or What it Means to Remain a Machine to the Least of its Parts; Ohad Nachtomy. - 5. The Organic vs. the Living in the Light of Leibniz’s Aristotelianism; Enrico Pasini. - 6. The Machine Analog in Medicine: A Comparative Approach to Leibniz and His Contemporaries; Raphael [...] [..]

Fields of interest
Metaphysics; Ontology; History of Science; History of Philosophy

Target groups
Research

Type of publication
Contributed volume

Available
99.95 €
ISBN 978-94-007-0040-6

Advanced Materials for Thermal Management of Electronic Packaging

The need for advanced thermal management materials in electronic packaging has been widely recognized as thermal challenges become barriers to the electronic industry’s ability to provide continuous improvements in device and system performance. With increased performance requirements for smaller, more capable, and more efficient electronic power devices, systems ranging from active electronically scanned radar arrays to web servers all require components that can dissipate heat efficiently. This requires that the materials have high capability of dissipating heat and maintaining compatibility with the die and electronic packaging. In response to critical needs, there have been revolutionary advances in thermal management materials and technologies for active and passive cooling that promise integrable and cost-effective thermal management solutions. This book meets the need for a comprehensive approach to advanced thermal management in electronic packaging, with coverage of the fundamentals of heat [...]

Features
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Contents
CH. 1. Thermal managing fundamentals and design guide in electronic packaging. - 1.1 Introduction. - 1.2 Thermal management challenges and common concerns. - 1.3 Fundamentals of heat transfer. - 1.4 Thermal management solutions. - 1.5 Design for advanced thermal management of electronic packaging. - 1.6 Materials selection for advanced thermal management. - 1.7 Environmental compliance of thermal managing materials. - CH. 2. Characterization methodology of thermal managing materials. - 2.1 Thermal properties and measurement techniques. - 2.2 Electrical properties and measurement techniques. - 2.3 [...] [..]

Fields of interest
Electronic Circuits and Devices; Optical and Electronic Materials; Engineering Thermodynamics; Heat and Mass Transfer; Electronics and Microelectronics, Instrumentation

Target groups
Professional/practitioner

Type of publication
Monograph

X.C. Tong, Laird Technologies, Schaumburg, IL, USA
An Introduction to the Confinement Problem

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.

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Contents

Fields of interest
Nuclear Physics, Heavy Ions, Hadrons; Mathematical Methods in Physics; Elementary Particles, Quantum Field Theory; Quantum Field Theories, String Theory

Target groups
Research

Type of publication
Monograph

Available

44,95 €
ISBN 978-3-642-14381-6
Biophysical Regulation of Vascular Differentiation and Assembly

Because of their ability to differentiate and develop into functional vasculature, stem cells hold tremendous promise for therapeutic applications. However, the scientific understanding and the ability to engineer these cellular systems is still in its early stages, and must advance significantly for the therapeutic potential of stem cells to be realized. Stem cell differentiation and function are exquisitely tuned by their microenvironment. This book will provide a unique perspective of how different aspects of the vasculature microenvironment regulates differentiation and assembly. Recent efforts to exploit modern engineering techniques to study and manipulate various biophysical cues will be described including: oxygen tension during adult and embryonic vasculogenesis (Semenza and Zandstra), extracellular matrix during tube morphogenesis and angiogenesis (Wirtz, Davis, Ingber), surface topography and modification (Chen and Gerecht), shear stress and cyclic strain effect on vascular assembly and […]

Features
The ability to grow stem cells in the laboratory and to guide their maturation to functional cells allows us to study the underlying mechanisms that govern vasculature differentiation and assembly in health and disease. Accumulating evidence suggests that early stages of vascular growth are exquisitely tuned by biophysical cues from the microenvironment. […]

Contents

Fields of interest
Biophysics and Biological Physics; Biomedical Engineering; Stem Cells

Target groups
Research

Type of publication
Monograph

Available
2011. XIII, 232 pp. III, 30 illus. (Biological and Medical Physics, Biomedical Engineering) Hardcover
99.95 €

Confocal Raman Microscopy

Confocal Raman Microscopy is a relatively new technique that allows chemical imaging without specific sample preparation. By integrating a sensitive Raman spectrometer within a state-of-the-art microscope, Raman microscopy with a spatial resolution down to 200 nm laterally and 500 nm vertically can be achieved using visible light excitation. Recent developments in detector and computer technology as well as optimized instrument design have reduced integration times of Raman spectra by orders of magnitude, so that complete images consisting of tens of thousands of Raman spectra can be acquired in seconds or minutes rather than hours, which used to be standard just one decade ago. The purpose of this book is to provide the reader a comprehensive overview of the rapidly developing field of Confocal Raman Microscopy and its applications.

Features
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Contents

Fields of interest
Applied Optics, Optoelectronics, Optical Devices; Engineering (general)

Target groups
Research

Type of publication
Monograph

Available
119.95 €
ISBN 978-3-642-12521-8

Detectors for Particles and Radiation

Competent experts provide a summary of the enormous progress achieved in the development of new detection methods of charged and neutral particles, and photons. These achievements were initiated by the advent of new particle colliders, e.g. the LHC at CERN but also by non-accelerator experiments. The present 2nd part of the handbook is devoted to the integration of detectors in large experiments, detectors for special applications, as well as the application of detectors in other fields like e.g. medicine, biology, applied physics and industry.

Features
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Fields of interest
Particle Acceleration and Detection, Beam Physics; Engineering Design; Applied and Technical Physics
Dynamics of Nonlinear Time-Delay Systems

Synchronization of chaotic systems, a patently nonlinear phenomenon, has emerged as a highly active interdisciplinary research topic at the interface of physics, biology, applied mathematics and engineering sciences. In this connection, time-delay systems described by delay differential equations have developed as particularly suitable tools for modeling specific dynamical systems. Indeed, time-delay is ubiquitous in many physical systems, for example due to finiteswitching speeds of amplifiers in electronic circuits, finite lengths of vehicles in traffic flows, finite signal propagation times in biological networks and circuits, and quite generally whenever memory effects are relevant. This monograph presents the basics of chaotic time-delay systems and their synchronization with an emphasis on the effects of time-delay feedback which give rise to new collective dynamics. Special attention is devoted to scalar chaotic/hyperchaotic time-delay systems, and some higher order models, occurring in different [...] Features

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Nonlinear Dynamics; Vibration, Dynamical Systems, Control; Systems Theory; Control; Appl. Mathematics; Computational Methods of Engineering; Complex Networks; Circuits and Systems

Target groups

Research

Type of publication

Monograph

Available

Electron-Phonon Interaction in Conventional and Unconventional Superconductors

The problem of conventional, low-temperature superconductivity has been regarded as solved since the seminal work of Bardeen, Cooper, and Schrieffer (BCS) more than 50 years ago. However, the theory does not allow accurate predictions of some of the most fundamental properties of a superconductor, including the superconducting energy gap on the Fermi surface. This thesis describes the development and scientific implementation of a new experimental method that puts this old problem into an entirely new light. The nominee has made major contributions to the development and implementation of a new experimental method that enhances the resolution of spectroscopic experiments on dispersive lattice-vibrational excitations (the "glue" responsible for Cooper pairing of electrons in conventional superconductors) by more than two orders of magnitude. Using this method, he has discovered an unexpected relationship between the superconducting energy gap and the geometry of the Fermi surface in the normal [...]

Features

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Fields of interest

Strongly Correlated Systems, Superconductivity; Low Temperature Physics; Spectroscopy and Microscopy

Target groups

Research

Type of publication

Monograph

Available

European Perspectives on Security Research

Europe's networked societies of today are shaped by a growing interconnection in almost all areas of life. The complexity of our infrastructures and the concurrent accessibility to means of destruction by terrorist groups and individual perpetrators call for innovative security solutions. However, such evolving innovations inevitably raise fundamental questions of concern in our societies. How do we balance the imperatives of securing our citizens and infrastructures on the one hand, and of protecting of our 'sacredly held civil liberties on the other? The topical network 'Safety and Security' of acatech - the German Academy of Science and Engineering - invited experts from the science academies of various European countries to share their perspectives on security research and the aspect of safety during a two-day workshop hosted by the Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut in March 2010. This publication is a compilation of contributions made during the workshop.

Features

Europe's networked societies of today are shaped by a growing interconnection in almost all areas of life. The complexity of our infrastructures and the concurrent accessibility to means of destruction by terrorist groups and individual perpetrators call for innovative security solutions. However, such evolving innovations inevitably raise fundamental questions of concern in our societies. How do we [...] Fields of interest

Security Science and Technology; Quality Control, Reliability, Safety and Risk; Science

Target groups

Professional/practitioner

Type of publication

Proceedings

Available

2011. 119 p. 29 illus., 23 in color. (acatech DISKUTIERT, Preliminary entry 1) Softcover

19,95 €

ISBN 978-3-642-18218-1

European Perspectives on Security Research

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Target groups

Professional/practitioner

Type of publication

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Security Science and Technology; Quality Control, Reliability, Safety and Risk; Science

Target groups

Professional/practitioner

Type of publication

Proceedings

Available

2011. 119 p. 29 illus., 23 in color. (acatech DISKUTIERT, Preliminary entry 1) Softcover

19,95 €

ISBN 978-3-642-18218-1
Extreme States of Matter
on Earth and in the Cosmos

With its many beautiful colour pictures, this book gives fascinating insights into the unusual forms and behaviour of matter under extremely high pressures and temperatures. These extreme states are generated, among other things, by strong shock, detonation and electric explosion waves, dense laser beams, electron and ion beams, hypersonic entry of spacecraft into dense atmospheres of planets, and in many other situations characterized by extremely high pressures and temperatures. Written by one of the world's foremost experts on the topic, this book will inform and fascinate all scientists dealing with materials properties and physics, and also serve as an excellent introduction to plasma-, shock-wave and high-energy-density physics for students and newcomers seeking an overview.

Features
With its many beautiful colour pictures, this book gives fascinating insights into the unusual forms and behaviour of matter under extremely high pressures and temperatures. These extreme states are generated, among other things, by strong shock, detonation and electric explosion waves, dense laser beams, electron and ion beams, hypersonic entry of spacecraft into dense atmospheres of planets. [...] 

Contents

Fields of interest
Astrophysics and Astroparticles; Atoms and Molecules in Strong Fields; Laser Matter Interaction; Plasma Physics; Materials Science (general); Laser Technology and Physics; Photonics; Phase Transitions and Multiphase Systems

Target groups
Research

Type of publication
Monograph

Available
2011. XII, 333 p. 156 illus., 131 in color. (The Frontiers Collection) Hardcover

79,95 €
ISBN 978-3-642-14002-0

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 mathematics 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. Dr. Vasily E. Tarasov is a Senior Research Associate at the Nuclear Physics Institute of Moscow State [...] 

Features
"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 [...] 

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; Appl. Mathematics / Computational Methods of Engineering; Applications of Mathematics

Target groups
Research

Type of publication
Monograph

Available
2011. 450 p. (Nonlinear Physical Science) Hardcover

119,95 €
ISBN 978-3-642-14002-0

Fundamentals of the Physics of Solids
Volume 3 - Normal, Broken-Symmetry, and Correlated Systems

This book is the third of a three-volume series written by the same author. It aims to deliver a comprehensive and self-contained account of the fundamentals of the physics of solids. In the presentation of the properties and experimentally observed phenomena together with the basic concepts and theoretical methods, it goes far beyond most classic texts. The essential features of various experimental techniques are also explained. This volume is devoted mostly to the discussion of the effects of electron-electron interaction beyond the one-electron approximation. The density-functional theory is introduced to account for correlation effects. The response to external perturbations is discussed in the framework of linear response theory. Landau's Fermi-liquid theory is followed by the theory of Luttinger liquids. The subsequent chapters are devoted to electronic phases with broken symmetry: to itinerant magnetism, to spin- and charge-density waves and their realizations in quasi-one-dimensional [...] 

Features
This book is the third of a three-volume series written by the same author that aims to deliver a comprehensive and self-contained account of the vast field of solid-state physics. It goes far beyond most classic texts in the presentation of the properties of solids and experimentally observed phenomena, along with the basic concepts and theoretical methods used to understand them and the essential features [...] 

Contents

Fields of interest
Condensed Matter Physics; Physical Chemistry; Materials Science (general)

Target groups
Graduate

Type of publication
Monograph

Available
2011. XXV, 747 p. 190 illus. Hardcover

139,95 €
ISBN 978-3-642-04517-2
Hamiltonian Chaos Beyond the KAM Theory

Dedicated to George M. Zaslavsky (1935—2008)

“Hamiltonian Chaos Beyond the KAM Theory: Dedicated to George M. Zaslavsky (1935—2008)” covers the recent developments and advances in the theory and application of Hamiltonian chaos in nonlinear Hamiltonian systems. The book 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. The book is intended for researchers in the field of nonlinear dynamics in mathematics, physics and engineering. Dr. Albert C.J. Luo is a Professor at Southern Illinois University Edwardsville, USA. Dr. Valentin Afraimovich is a Professor at San Luis Potosi University, Mexico.

Contents

Fields of interest
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

Target groups
Research

Type of publication
Monograph

Available
2011. 275 p. 110 illus., 10 in color. (Nonlinear Physical Science) Hardover
99.95 €
ISBN 978-3-642-12717-5

High Energy Density Laboratory Astrophysics 2008

The HEDLA-08 conference was a continuation of a series of biennial conferences first held in Pleasonton, California, in 1996, and focused on progress made during recent years in designing, conducting, and analyzing the results of laboratory experiments, theoretical work, and computer simulations relevant to high-energy density (HED) astrophysics. The astrophysics aspects of HED experiments are extremely diverse and include jets, the mechanism of their generation and interaction with the ambient medium; stellar evolution with a focus on turbulence, hydrodynamic instabilities, and mixing of nuclear species; radiative supersonic flows associated with stellar explosions and jets; radiative processes in plasma; equation of state and material properties; and last but not least magnetized and relativistic plasmas. This volume contains a small but representative subset of 35 peer-reviewed papers presented at the HEDLA-08 meeting.

Features
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Contents
Introduction to High Energy Density Laboratory Astrophysics 2008.- Launching mechanisms of astrophysical jets.- Supersonic plasma jet interaction with gases and plasmas.- Formation of episodic magnetically driven radiatively cooled plasma jets in the laboratory.- Experimental results to study astrophysical plasma jets using Intense Lasers.- A jet production experiment using the high-repetition rate Astra laser.- Colliding plasma experiments to study astrophysical jet relevant physics.- Spiral mode of standing accretion shock instability in core-collapse supernovae.- Image processing [..]

Fields of interest
Astrophysics and Astroparticles; Fluid- and Aerodynamics; Plasma Physics; Atoms and Molecules in Extreme Medium; Stellar Evolution with a Focus on Turbulence, Hydrodynamic Instabilities, and Mixing of Nuclear Species; Radiative Supersonic Flows Associated with Stellar Explosions and Jets; Radiative Processes in Plasma; Equation of State and Material Properties; and Last but Not Least Magnetized and Relativistic Plasmas.

Target groups
Research

Type of publication
Monograph

Available
2011. XIV, 169 p. 121 illus., 20 in color. (Springer Theses) Hardcover
99.95 €
ISBN 978-3-642-16569-6

High Speed VCSELs for Optical Interconnects

The transmission speed of data communication systems is forecast to increase exponentially over the next decade. Development of both Si-based high-speed drivers as well as III-V-semiconductor-based high-speed vertical cavity surface emitting lasers (VCSELs) are prerequisites for future ultrahigh data-rate systems. This thesis presents: a survey of the present state of the art of VCSELs - a systematic investigation of the various effects limiting present VCSELs - a catalogue of solutions to overcome present limits - detailed progress in modelling, fabricating and testing the currently most advanced VCSELs at the two commercially most important wavelengths.

Features
The transmission speed of data communication systems is forecast to increase exponentially over the next decade. Development of both Si-based high-speed drivers as well as III-V-semiconductor-based high-speed vertical cavity surface emitting lasers (VCSELs) are prerequisites for future ultrahigh data-rate systems. This thesis presents: a survey of the present state of the art of VCSELs - a systematic [..]

Contents

Fields of interest
Laser Technology and Physics, Photonics; Microwaves, RF and Optical Engineering; Semiconductors; Input/Output and Data Communications

Target groups
Research

Type of publication
Monograph

Available
2011. XVI, 169 p. 121 illus., 20 in color. (Springer Theses) Hardcover
99.95 €
ISBN 978-3-642-16569-6
Introduction to the Physics of Diluted Magnetic Semiconductors

The book deals with diluted magnetic semiconductors, a class of materials important to the emerging field of spintronics. In these materials semiconducting properties, both transport and optical, are influenced by the presence of magnetic ions. It concentrates on basic physical mechanisms (e.g. carrier- and ion-ion interactions) and resulting phenomena (e.g. magnetic polaron formation and- spin relaxation). Introduction to the Physics of Diluted Magnetic Semiconductors is addressed to graduate-level and doctoral students and young researchers entering the field. The authors have been actively involved in the creation of this branch of semiconductor physics.

Contents

Fields of interest
Magnetism, Magnetic Materials; Structural Materials; Engineering (general)

Target groups
Research

Type of publication
Monograph

Available

119,95 €
ISBN 978-3-642-15855-1

Investigations of Field Dynamics in Laser Plasmas with Proton Imaging

Laser-driven proton beams are still in their infancy but already have some outstanding attributes compared to those produced in conventional accelerators. One such attribute is the typically low beam emittance. This allows excellent resolution in imaging applications like proton radiography. This thesis describes a novel imaging technique - the proton streak camera - that the author developed and first used to measure both the spatial and temporal evolution of ultra-strong electrical fields in laser-driven plasmas. Such investigations are of paramount importance for the understanding of laser-plasma interactions and, thus, for optimization of laser-driven particle acceleration. In particular, the present work investigated micrometer-sized spherical targets after laser irradiation. The confined geometry of plasmas and fields was found to influence the kinetic energy and spatial distribution of accelerated ions. This could be shown both in experimental radiography images and in numerical[...]

Contents

Fields of interest
Particle Acceleration and Detection, Beam Physics; Plasma Physics; Atoms and Molecules in Strong Fields, Laser Matter Interaction

Target groups
Research

Type of publication
Monograph

Available
2011. XIII, 123 p. 71 illus., 20 in color. (Springer Theses) Hardcover

99,95 €
ISBN 978-3-642-15039-5
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. The book is intended for researchers in the field of nonlinear dynamics in mathematics, physics and engineering. Dr. Albert C.J. Luo is a Professor at Southern Illinois University Edwardsville, USA. Dr. Valentin Afraimovich is a Professor at San Luis Potosi University, Mexico.

Features
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 […]

Contents
Fractional Zaslavsky and Hénon Discrete Maps.- Self-Similarity, Stochasticity and Fractionality.- Long-Range Interactions and Diluted Networks.- Metastability and Transients in Brain Dynamics: Problems and Rigorous Results.- Dynamics of Soliton Chains: From Simple to Complex and Chaotic Motions.- What Is Control of Turbulence in Crossed Fields? - Don’t Even Think of Eliminating All Vortexes...

Fields of interest
Nonlinear Dynamics; Systems Theory, Control; Vibration, Dynamical Systems, Control

Target groups
Research

Type of publication
Monograph

Available
2011. 275 p. 110 illus., 10 in color. (Nonlinear Physical Science) Hardcover
99,95 €
ISBN 978-3-642-12342-9

Mass and Motion in General Relativity
From the infinitesimal scale of particle physics to the cosmic scale of the universe, research is concerned with the nature of mass. While there have been spectacular advances in physics during the past century, mass still remains a mysterious entity at the forefront of current research. Our current perspective on gravitation has arisen over millennia, through the contemplation of falling apples, lift thought experiments and notions of stars spiraling into black holes. In this volume, the world’s leading scientists offer a multifaceted approach to mass by giving a concise and introductory presentation based on insights from their respective fields of research on gravity. The main theme is mass and its motion within general relativity and other theories of gravity, particularly for compact bodies. Within this framework, all articles are tied together coherently, covering post-Newtonian and related methods as well as the self-force approach to the analysis of motion in curved space-time, closing with […]

Features
From the infinitesimal scale of particle physics to the cosmic scale of the universe, research is concerned with the nature of mass. While there have been spectacular advances in physics during the past century, mass still remains a mysterious entity at the forefront of current research. Our current perspective on gravitation has arisen […]

Contents

Fields of interest
Classical and Quantum Gravitation, Relativity Theory; Astrophysics and Astroparticles; Mechanics

Target groups
Research

Type of publication
Contributed volume

Available
2011. XVII, 660 p. (Fundamental Theories of Physics, Vol. 162) Hardcover
139,95 €

Mathematical Foundations of Quantum Information and Computation and Its Applications to Nano- and Bio-systems
This monograph provides a mathematical foundation to the theory of quantum information and computation, with applications to various open systems including nano and bio systems. It includes introductory material on algorithm, functional analysis, probability theory, information theory, quantum mechanics and quantum field theory. Apart from standard material on quantum information like quantum algorithm and teleportation, the authors discuss findings on the theory of entropy in C*-dynamical systems, space-time dependence of quantum entangled states, entangling operators, adaptive dynamics, relativistic quantum information, and a new paradigm for quantum computation beyond the usual quantum Turing machine. Also, some important applications of information theory to genetics and life sciences, as well as recent experimental and theoretical discoveries in quantum photosynthesis are described.

Features
This monograph provides a mathematical foundation to the theory of quantum information and computation, with applications to various open systems including nano and bio systems. It includes introductory material on algorithm, functional analysis, probability theory, information theory, quantum mechanics and quantum […]

Contents

Fields of interest
Quantum Physics; Bioinformatics; Applications of Mathematics

Target groups
Research

Type of publication
Monograph

Available
2011. X, 759 p. 20 illus. (Theoretical and Mathematical Physics, Vol. 0) Hardcover
129,95 €
ISBN 978-94-007-0170-0
Photonic Structures Inspired by Nature

Unlike most natural colours that are based on pigment absorption, the striking iridescent and intense colouration of many butterflies, birds or beetles stems from the interaction of light with periodic sub-micrometer surface or volume patterns, so called “photonic structures”. These “structural colours” are increasingly well understood, but they are difficult to create artificially and exploit technologically. In this thesis the field of natural structural colours and biomimetic photonic structures is covered in a wide scope, ranging from plant photonics to theoretical optics. It demonstrates diffractive elements on the petal surfaces of many flowering plant species; these form the basis for the study of the role of structural colours in pollinator attraction. Self-assembly techniques, combined with scale able nanofabrication methods, were used to create complex artificial photonic structures inspired by those found in nature. In particular, the colour effect of a Papilio butterfly was mimicked and [...]^

Features

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Contents


Features

Features

Competent experts provide a summary of the enormous progress achieved in the development of new detection methods of charged and neutral particles, and photons. These achievements were initiated by the advent of new particle colliders, e.g., the LHC at CERN, but also by non-accelerator experiments. Part 1 of Subvolume B reviews the interaction of particle radiation with matter, and describes particle detectors, like, e.g., scintillation, gaseous, solid state, time-of-flight, Cerenkov, transition radiation, and neutrino detectors. Calorimetry and nuclear emulsions are considered as well. Finally, signal processing for particle detectors, data treatment and analysis methods (including detector simulation, high level data selection, pattern recognition, distributed computing, and statistical issues) are addressed.

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Fields of interest

Physics (general)

Target groups

Research

Type of publication

Reference work

Available


3.690,00 € ISBN 978-3-642-03605-7

Principles and Methods


Competent experts provide a summary of the enormous progress achieved in the development of new detection methods of charged and neutral particles, and photons. These achievements were initiated by the advent of new particle colliders, e.g., the LHC at CERN, but also by non-accelerator experiments. Part 1 of Subvolume B reviews the interaction of particle radiation with matter, and describes particle detectors, like, e.g., scintillation, gaseous, solid state, time-of-flight, Cerenkov, transition radiation, and neutrino detectors. Calorimetry and nuclear emulsions are considered as well. Finally, signal processing for particle detectors, data treatment and analysis methods (including detector simulation, high level data selection, pattern recognition, distributed computing, and statistical issues) are addressed.

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Contents


Fields of interest

Astronomy, Observations and Techniques; Applied Optics, Optical Electronics, Optical Devices; Classical Electrodynamics, Wave Phenomena; Numerical and Computational Physics

Target groups

Graduate

Type of publication

Monograph

Available

2011. XV, 141 p. 92 illus., 25 in color. (Springer Theses) Hardcover

99,95 € ISBN 978-3-642-15168-2

Principles of Stellar Interferometry

Over the last decade, stellar interferometry has developed from a specialist tool to a mainstream observing technique, attracting scientists whose research benefits from milliarcsecond angular resolution. Stellar interferometry has become part of the astronomer’s toolbox, complementing single-telescope observations by providing unique capabilities that will advance astronomical research. This carefully written book is intended to provide a solid understanding of the principles of stellar interferometry to students starting an astronomical research project in this field or to develop instruments and to astronomers using interferometry but who are not interferometrists per se. Illustrated by excellent drawings and calculated graphs the imaging process in stellar interferometers is explained starting from first principles on light propagation and diffraction, wave propagation through turbulence is described in detail using Kolmogorov statistics, the impact of turbulence on the imaging process is [...]^

Features

Over the last decade, stellar interferometry has developed from a specialist tool to a mainstream observing technique, attracting scientists whose research benefits from milliarcsecond angular resolution. Stellar interferometry has become part of the astronomer’s toolbox, complementing single-telescope observations by providing unique capabilities that will advance astronomical research. This [...]^

Contents


Fields of interest

Astronomy, Observations and Techniques; Applied Optics, Optical Electronics, Optical Devices; Classical Electrodynamics, Wave Phenomena; Numerical and Computational Physics

Target groups

Graduate

Type of publication

Monograph

Available

2011. XVII, 342 p. 100 illus., 21 in color. (Astronomy and Astrophysics Library) Hardcover

89,95 € ISBN 978-3-642-15027-2
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 30 years, addressing such important topics as interstellar message construction, the risks and [...] Features

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Astronomy, Observations and Techniques; Astrobiology; Signal, Image and Speech Processing

Target groups

Popular/general

Type of publication

Popular science

Available

2011. XII, 320 p. 10 illus. (The Frontiers Collection) Hardcover
59,95 €
ISBN 978-3-642-13195-0

Self-Organized Criticality in Astrophysics

The Statistics of Nonlinear Processes in the Universe

Markus Aschwanden introduces the concept of self-organized criticality (SOC) and shows that due to its universality and ubiquity it is a law of nature for which he derives the theoretical framework and specific physical models in this book. He begins by providing an overview of the many diverse phenomena in nature which may be attributed to SOC behaviour. The author then introduces the classic lattice-based SOC models that may be explored using numerical computer simulations. These simulations require an in-depth knowledge of a wide range of mathematical techniques which the author introduces and describes in subsequent chapters. These include the statistics of random processes, time series analysis, time scale distributions, and waiting time distributions. Such mathematical techniques are needed to model and understand the power-law-like occurrence frequency distributions of SOC phenomena. Finally, the author discusses fractal geometry and scaling laws before looking at a range of physical SOC [...] Features

The concept of ‘self-organised criticality’ (SOC) has been applied to a variety of problems, ranging from population growth and traffic jams to earth- quakes, landslides and forest fires. The technique is now being applied to a wide range of phenomena in astrophysics, such as planetary magnetospheres, solar flares, cataclysmic variable stars, accretion disks, black holes and gamma-ray bursts, and also to [...] Fields of interest

Astronomy, Astrophysics and Cosmology; Statistical Physics, Dynamical Systems and Complexity; Geophysics / Geodesy; Extraterrestrial Physics, Space Sciences; Statistics for Engineering, Physics, Computer Science, Chemistry and Earth Sciences

Target groups

Research

Type of publication

Monograph

Available

119,95 €
ISBN 978-3-642-15000-5

Solid-State Physics

Introduction to the Theory

Learning Solid State Physics involves a certain degree of maturity, since it involves tying together diverse concepts from many areas of physics. The objective is to understand, in a basic way, how solid materials behave. To do this one needs both a good physical and mathematical background. One definition of Solid State Physics is it is the study of the physical (e.g. the electrical, dielectric, magnetic, elastic, and thermal) properties of solids in terms of basic physical laws. In one sense, Solid State Physics is more like chemistry than some other branches of physics because it focuses on common properties of large classes of materials. It is typical that Solid State Physics emphasizes how physics properties link to the electronic structure. We have retained the term Solid State Physics in the book since it is a scientific concept that is widely used. The term Solid State Physics is being used to indicate a knowledge of physics properties associated with the electronic structure. The concept of ‘self-organized criticality’ (SOC) has been applied to a variety of problems, ranging from population growth and traffic jams to earth- quakes, landslides and forest fires. The technique is now being applied to a wide range of phenomena in astrophysics, such as planetary magnetospheres, solar flares, cataclysmic variable stars, accretion disks, black holes and gamma-ray bursts, and also to [...] Features

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Condensed Matter Physics; Solid State Physics; Spectroscopy and Microscopy; Electronics and Microelectronics, Instrumentation; Optical and Electronic Materials

Target groups

Graduate

Type of publication

Graduate/advanced undergraduate textbook

Available

2010. XXII, 827 p. 200 illus. Hardcover
99,95 €
ISBN 978-3-642-02588-4
Stellar Physics
2: Stellar Evolution and Stability

"Stellar Physics" is an outstanding book in the growing body of literature on stellar formation and evolution. Not only does the author, a leading expert in the field, very thoroughly present the current state of knowledge on stellar physics, but he handles with equal care the many problems that this field of research still faces. A bibliography with well over 1000 entries makes this book an unparalleled reference source. "Stellar Evolution and Stability" is the second volume of two books and can be read, as can the first volume "Fundamental Concepts and Stellar Equilibrium," as a largely independent work. It traces in great detail the evolution of protostars towards the main sequence and beyond this to the last stage of stellar evolution, with the corresponding vast range from white dwarfs to supernova explosions, gamma-ray bursts and black hole formation. The book concludes with special chapters on the dynamical, thermal and pulsing stability of stars. This second edition is carefully updated in the...

Features
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Contents

Fields of interest
Astrophysics and Astroparticles

Target groups
Research

Type of publication
Monograph

Available
2011. XI, 491 p. 4 illus. in color. (Astronomy and Astrophysics Library, Vol. 2) Hardcover
89,95 €
ISBN 978-3-642-14733-3

Stellar Physics
3: Terrestrial Magnetism

Terrestrial Magnetism

The articles in this volume provide a detailed review of all aspects of the main magnetic field of the Earth produced within the Earth's core: its past history, its long and short term changes, the way it is generated. The book contains the combined knowledge of geomagnetism coming from paleomagnetic and archeomagnetic data, centuries of terrestrial observations and from the past few decades of intensive space observations. There is considerable emphasis on the phenomenology and the physical processes of the evolution of the geomagnetic field on different timescales. The book reports fully on our understanding of the present state of the magnetic field and its expected evolution in the future.

Features
The articles in this volume provide a detailed review of all aspects of the main magnetic field of the Earth produced within the Earth's core: its past history, its long and short term changes, the way it is generated. The book contains the combined knowledge of geomagnetism coming from paleomagnetic and archeomagnetic data, centuries of terrestrial observations and from the past few decades of intensive...

Contents
The Earth's magnetic field in the space age. - Introduction to terrestrial magnetism. - Terrestrial magnetism: historical perspectives and future prospects. - Geomagnetic observations for main field studies: from ground to space. - Measuring the Earth's magnetic field from space: Concepts of past, present and future missions. - The magnetic field of the Earth's lithosphere. - Geomagnetic core field secular variation models. - Geomagnetic jerks: Rapid core field variations and core dynamics. - Short timescale core dynamics: theory and observations. - Millennial variations of the geomagnetic...

Fields of interest
Extraterrestrial Physics, Space Sciences; Magnetism, Magnetic Materials

Target groups
Research

Type of publication
Monograph

Available
2011. IV, 412 p. 150 illus., 100 in color. (Space Sciences Series of ISSI, Vol. 36) Hardcover
119,95 €
ISBN 978-1-4419-7954-4

The Modelling of Radiation Damage in Metals Using Ehrenfest Dynamics

Atomistic simulations of metals under irradiation are indispensable for understanding damage processes at time- and length-scales beyond the reach of experiment. Previously, such simulations have largely ignored the effect of electronic excitations on the atomic dynamics, even though energy exchange between atoms and electrons can have significant effects on the extent and nature of radiation damage. This thesis presents the results of time-dependent tight-binding simulations of radiation damage, in which the evolution of a coupled system of energetic classical ions and quantum mechanical electrons is correctly described. The effects of electronic excitations in collision cascades and ion channeling are explored and a new model is presented, which makes possible the accurate reproduction of non-adiabatic electronic forces in large-scale classical molecular dynamics simulations of metals.

Features
Atomistic simulations of metals under irradiation are indispensable for understanding damage processes at time- and length-scales beyond the reach of experiment. Previously, such simulations have largely ignored the effect of electronic excitations on the atomic dynamics, even though energy exchange between atoms and electrons can have significant effects on the extent and nature of radiation damage. This...

Contents

Fields of interest
Solid State Physics; Theoretical, Mathematical and Computational Physics

Target groups
Research

Type of publication
Monograph

Available
2011. XVI, 330 p. 136 illus., 122 in color. (Springer Theses) Hardcover
139,95 €
ISBN 978-3-642-15438-6
### The Moon in Close-up

**A Next Generation Astronomer’s Guide**

Information collected by recent space probes sent to explore the Moon by the USA, the European Space Agency, Japan, China and India has changed our knowledge and understanding of the Moon, particularly its geology, since the Apollo missions. This book presents those findings in a way that will be welcomed by amateur astronomers, students, educators and anyone interested in the Moon. Enhanced by many colour photos, it combines newly acquired scientific understanding with detailed descriptions and labelled photographic maps of the lunar surface. Guided by observation methods explained in the book and 17 Study Areas presented and carefully explained in the last chapter, amateur astronomers can observe these features from Earth using telescopes and binoculars. Readers who consult the photographic maps will gain a better understanding about the Moon’s topography and geology. The book is rounded out by a helpful glossary.

### Contents

- Introducing the Moon
- Probing the Moon
- Geologic history of the Moon
- Occultations and eclipses
- Observing the Moon
- Studying the Moon: Study Area 1 – Mare Crisium
- Study Area 2 – South east limb
- Study Area 3 – North east limb
- Study Area 4 – Mare Tranquillitatis
- Study Area 5 – Mare Serenitatis
- Study Area 6 – Mare Nectaris west
- Study Area 7 – Mare Vaporum
- Study Area 8 – Central Highlands
- Study Area 9 – Mare Nubium
- Study Area 10 – Northern Plains
- Study Area 11 – Southern Highlands
- Study Area 12 – Mare Cognitum
- Study Area 13 – Sinus Iridum
- Study Area 14

### Fields of interest

Astronomy, Astrophysics and Cosmology; Popular Science in Astronomy; Planetology

### Target groups

Popular/general

### Type of publication

Monograph

### Available

2011. XI, 310 p. 57 illus. in color. (Patrick Moore’s Practical Astronomy Series) Softcover

### ISBN

978-3-642-14804-0

### Price

39,95 €

### Algoritms Unplugged

Algorithms specify the way computers process information and how they execute tasks. Many recent technological innovations and achievements rely on algorithmic ideas – they facilitate new applications in science, medicine, production, logistics, traffic, communications and entertainment. Efficient algorithms not only enable your personal computer to execute the newest generation of games with features unimaginable only a few years ago, they are also key to several recent scientific breakthroughs – for example, the sequencing of the human genome would not have been possible without the invention of new algorithmic ideas that speed up computations by several orders of magnitude. The greatest improvements in the area of algorithms rely on beautiful ideas for tackling computational tasks more efficiently. The problems solved are not restricted to arithmetic tasks in a narrow sense but often relate to exciting questions of nonmathematical flavor, such as: How can I find the exit out of a maze? How can I execute the newest generation of games with features [..]

### Features

Algorithms specify the way computers process information and how they execute tasks. Many recent technological innovations and achievements rely on algorithmic ideas – they facilitate new applications in science, medicine, production, logistics, traffic, communications and entertainment. Efficient algorithms not only enable your personal computer to execute the newest generation of games with features [..]

### Contents

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- 1 Binary Search
- 2 Insertion Sort
- 3 Fast Sorting Algorithms
- 4 Parallel Sorting: The Need for Speed
- 5 Topological Sorting: How Should I Begin to Complete My To Do List?
- 6 Searching Texts: But Fast!
- 7 Depth-First Search (Ariadne & Co.)
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- 11 Multiplication of Long Integers
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### Fields of interest

Popular Science in Mathematics / Natural Science / Technology; Computers and Education; Algorithm Analysis and Problem Complexity

### Target groups

Research

### Type of publication

Monograph

### Available


### ISBN

978-3-642-15327-3

### Price

39,95 €
Psychology

G.L. Macklem, Massachusetts School of Professional Psychology, Boston, MA, USA

Evidence-Based School Mental Health Services

Affect Education, Emotion Regulation Training, and Cognitive Behavioral Therapy

Features

The challenges of providing mental health services to school children are numerous and diverse, ranging from staffing shortages to insufficient funding to family resistance to administrative indifference. Yet with the U.S. Surgeon General estimating that approximately 20% of young people display signs of psychological problems, the need for such services—particularly for interventions that not only...[]

Contents


Fields of interest

Child and School Psychology; Pediatrics; Social Work; Psychotherapy and Counseling; Educational Psychology; Social Policy

Target groups

Research

Type of publication

Monograph

Available

2011. XVII, 297 p. 5 illus. Hardcover

89,95 €

Jung’s Personality Theory Quantified

Jung’s Personality Theory Quantified fills an urgent need for professionals using the Myers-Briggs Type Indicator® (MBTI) to map it on to the cognitive modes of Jung’s personality theory, avoiding potential logical errors in the traditional “type dynamics” method. It furthers Jung’s original concepts while placing them on a solid axiomatic basis not possessed by other personality theories. Bringing these quantitative findings to the millions of MBTI users—managers, consultants, counsellors, teachers, psychoanalysts and human resource professionals—will require further education of those already certified to administer the instrument according to type dynamics. For this reason numerical exercises follow most chapters to make the book a source reference for brief workbooks usable in enhanced certification programs. Backed by quantitative theory and new methods, the pioneering quantitative typology work of Myers and Briggs is thus extended to yield deeper understanding of the vital[...]

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Contents


Fields of interest

Psychometrics; Management/Business for Professionals; Personnel Management; Psychoanalysis; Engineering Economics, Organization, Logistics, Marketing

Target groups

Professional/practitioner

Type of publication

Monograph

Available


99,95 €

The Little Black Book of Neuropsychology

A Syndrome-Based Approach

From translating the patient’s medical records and test results to providing recommendations, the neuropsychological evaluation incorporates the science and practice of neuropsychology, neurology, and psychological sciences. The Black Book of Neuropsychology brings the practice and study of neuropsychology into concise step-by-step focus—without skimping on scientific quality. This one-of-a-kind assessment reference complements standard textbooks by outlining signs, symptoms, and complaints according to neuropsychological domain (such as memory, language, or executive function), with descriptions of possible deficits involved, inpatient and outpatient assessment methods, and possible etiologies. Additional chapters offer a more traditional approach to evaluation, discussing specific neurological disorders and diseases in terms of their clinical features, neuroanatomical correlates, and assessment and treatment considerations. Chapters in psychometrics provide for initial understanding of[...]

Features

The Little Black Book of Neuropsychology: A Syndrome-Based Approach by Mike R. Schoenberg, University of South Florida College of Medicine G. Scott, University of Oklahoma Health Sciences Center From translating the patient’s medical records and test results to providing recommendations, the neuropsychological evaluation incorporates the science and practice of neuropsychology, neurology, and[...]

Contents


Fields of interest

Neuropsychology

Target groups

Professional/practitioner

Type of publication

Handbook

Available

2011. XVIII, 968 p. Hardcover

59,95 €

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Fields of interest

Neuropsychology

Target groups

Professional/practitioner

Type of publication

Handbook

Available

2011. XVIII, 968 p. Hardcover

59,95 €
J. Garbarino, Loyola University, Chicago, IL, USA

The Positive Psychology of Personal Transformation
Leveraging Resilience for Life Change

Given the current climate of economic and environmental uncertainty, it is all too easy for individuals to feel hopeless about their lives and indifferent to the problems of others. But according to leading psychologist, James Garbarino, this is the peak time for people to enhance their optimism, empathy, and emotional responsiveness. In his important new book, The Positive Psychology of Personal Transformation, Dr. Garbarino reveals the social basis for moral development in adversity, and the mental and physical benefits of psychological and spiritual growth. Drawing widely on his years as a healing professional and own experience of personal crisis as well as on decades of resilience and happiness literature, the author traces the evolution of the moral sense that affects all human relationships, including the one with the Earth itself. In these compelling pages, Dr. Garbarino examines how humans’ deep bonds with dogs can model positive human relationships. Compares the risks and benefits of the...[

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Contents

Fields of interest
Positive Psychology; Quality of Life Research; Community & Environmental Psychology

Target groups
Research

Type of publication
Monograph

Available
2011. XV, 121 p. Hardcover
89,95 € ISBN 978-1-4419-7743-4

G. Garcia, University of Texas at San Antonio, USA

Mexican American and Immigrant Poverty in the United States

This book provides a comprehensive portrait of the experience of poverty among Mexican Americans and Mexican immigrants in the US. Given that these two groups experience some of the highest rates of poverty of any ethnicity and that it persists even while a majority work and reside in dual parent households, it becomes imperative that we explore a multitude of related factors. This book offers a systematic empirical analysis of these groups in relation to other ethnic groups, explores the individual and contextual factors associated with the determination of poverty via the use of logistic and multi-level models, details the historical context associated with Mexican immigrants, and discusses the major policies that have impacted them. It discusses the newest destinations of Mexican immigrants and also provides a discussion of undocumented migrants. Furthermore, it details the current measure of poverty in the United States and offers a number of alternatives for modeling and measuring it.

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Contents

Fields of interest
Migration; Demography; Quality of Life Research; Sociology

Target groups
Research

Type of publication
Monograph

Available
99,95 € ISBN 978-94-007-0538-8
Modelling Written Communication
A New Systems Approach to Modelling in the Social Sciences

This book offers an alternative view to current post-modern approaches to composition. It takes a critical realist stance to arrive at the ‘essence’ of written communication with the aim of informing a practical application: a computerised writing tutor. Following Robert Franck’s seminal work on modelling, a theoretical model of writing was first formulated, consisting of an architecture of functions which constitute the prerequisites for effective communication. Next, an applied model - a composing algorithm with an input option - was developed, showing composing to be a systemic social process with intra- and extra-systemic variation. The algorithm provided the design template for a writing tutor program which models for the learner both the systemic and the socially situated nature of writing. This book establishes composing as a communicative interaction, and shows the essential dynamism of writing, while offering an exemplar of a systems approach to modelling in the social sciences.

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Contents

Fields of interest
Methodology of the Social Sciences; Literacy; Computer Appl. in Arts and Humanities

Target groups
Research

Type of publication
Monograph

Available

Transdisciplinary Knowledge Production in Architecture and Urbanism
Towards Hybrid Modes of Inquiry

The volume addresses the hybridisation of knowledge production in space-related research. In contrast with interdisciplinary knowledge, which is primarily located in scholarly environments, transdisciplinary knowledge production entails a fusion of academic and non-academic knowledge, theory and practice, discipline and profession. Architecture (and urbanism), operating as both a discipline and a profession, seems to form a particularly receptive ground for transdisciplinary research. However, this specificity has not yet been developed into a full-fledged, unique mode of knowledge production. In order to dedicate specific attention to transdisciplinary knowledge production, this book aims to explore (new) hybrid modes of inquiry that allow many of architecture’s longstanding schisms to be overcome: such as between theory/history and practice, critical theory and projective design, the adoption of an external viewpoint and a view-from-within (often under the guise of bottom-up vs. top-down).

Features
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Contents

Available

U.S. Social Welfare Reform
Policy Transitions from 1981 to the Present

U. S. Social Welfare Reform examines pivotal changes in social welfare for low-income families in the United States between 1981, the advent of the Reagan administration, and 2008, the end of the G.W. Bush administration. It focuses on the change from the Federal-state open entitlement Aid to Families with Dependent Children (AFDC) program to the time-limited state run Temporary Assistance to Needy Families (TANF) program which Congress authorized with passage of the Personal Responsibility and Work Opportunity Act of 1996. The book also focuses on the development of the Earned Income Tax Credit (EITC) program, enacted in 1975 against the backdrop of failed efforts to nationalize AFDC which aimed at providing a basic income to all poor families, but which blossomed with continued bipartisan support in the 1990s. This book also explores alternative strategies to assist low-income families, including job training programs. It presents original research on the educational and economic well-being of...

Features
Nearly half a century after Lyndon Johnson coined the phrase, America continues to fight the war on poverty, especially as such modern realities as the global economy, job outsourcing, and the recession contribute to the numbers of the unemployed and the working poor. As social welfare and reform efforts are debated in Congress and local agencies, facts regarding past programs are often elusive.

Contents

Available
Evolutionary Statistical Procedures
An Evolutionary Computation Approach to Statistical Procedures Designs and Applications

This proposed text appears to be a good introduction to evolutionary computation for use in applied statistics research. The authors draw from a vast base of knowledge about the current literature in both the design of evolutionary algorithms and statistical techniques. Modern statistical research is on the threshold of solving increasingly complex problems in high dimensions, and the generalization of its methodology to parameters whose estimators do not follow mathematically simple distributions is underway. Many of these challenges involve optimizing functions for which analytic solutions are infeasible. Evolutionary algorithms represent a powerful and easily understood means of approximating the optimum value in a variety of settings. The proposed text seeks to guide readers through the crucial issues of optimization problems in statistical settings and the implementation of tailored methods (including both stand-alone evolutionary algorithms and hybrid cross of these procedures with standard...)

Features
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Contents

Fields of interest
Statistics and Computing / Statistics Programs; Computer Imaging, Vision, Pattern Recognition and Graphics; Algorithms; Laboratory Medicine; Methodology of the Social Sciences

Target groups
Research

Type of publication
Monograph

Available
2011. IV, 296 p. 62 illus., 2 in color. (Statistics and Computing) Hardcover
69.95 €
ISBN 978-3-642-16217-6

Modelling Operational Risk Using Bayesian Inference

The management of operational risk in the banking industry has undergone explosive changes over the last decade due to substantial changes in the operational environment. Globalization, deregulation, the use of complex financial products, and changes in information technology have resulted in exposure to new risks which are very different from market and credit risks. In response, the Basel Committee on Banking Supervision has developed a new regulatory framework for capital measurement and standards for the banking sector. This has formally defined operational risk and introduced corresponding capital requirements. Many banks are undertaking quantitative modelling of operational risk using the Loss Distribution Approach (LDA) based on statistical quantification of the frequency and severity of operational risk losses. There are a number of unresolved methodological challenges in the LDA implementation. Overall, the area of quantitative operational risk is very new and different methods are under hot...)

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Contents

Fields of interest
Statistics for Business, Economics, Mathematical Finance, Insurance; Statistical Theory and Methods; Probability Theory and Stochastic Processes; Finance / Banking

Target groups
Graduate

Type of publication
Monograph

Available
2011. XVI, 302 p. 25 illus. Hardcover
79.95 €
ISBN 978-3-642-15922-0

Numerical Ecology with R

Numerical Ecology with R provides a long-awaited bridge between a textbook in Numerical Ecology and the implementation of this discipline in the R language. After short theoretical overviews, the authors accompany the users through the exploration of the methods by means of applied and extensively commented examples. Users are invited to use this book as a teaching companion at the computer. The travel starts with exploratory approaches, proceeds with the construction of association matrices, then addresses three families of methods: clustering, unconstrained and canonical ordination, and spatial analysis. All the necessary data files, the scripts used in the chapters, as well as the extra R functions and packages written by the authors, can be downloaded from a web page accessible through the Springer web site (http://www.bio.umontreal.ca/numecolR/). This book is aimed at professional researchers, practitioners, graduate students and teachers in ecology, environmental science and engineering, and in...)

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Contents
Introduction.- Exploratory data analysis.- Association measures and matrices.- Cluster analysis.- Unconstrained ordination.- Canonical ordination.- Spatial analysis of ecological data.

Fields of interest
Statistics for Life Sciences, Medicine, Health Sciences; Monitoring / Environmental Analysis; Bioscience; Theoretical Ecology / Statistics; Forestry; Epidemiology

Target groups
Research

Type of publication
Monograph

Available
2011. X, 302 p. (Use R) Softcover
54.95 €
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