Encyclopedia of Global Justice

D. K. Chatterjee, University of Utah, Salt Lake City, UT, USA (Ed.)

Features

► Edited and advised by leading scholars from around the world
► Draws upon terms and concepts from across the spectrum of international law, economics, ethics and public policy
► Combines empirical research with theoretical arguments to illuminate current controversies
► Organized in A to Z format with cross-referencing of entries to a series of broad themes

The Encyclopedia of Global Justice is a broadly conceived, complete reference that combines empirical research with theoretical arguments, drawing terms and concepts from political philosophy and theory, ethics, international law and legal theory, development economics, public policy, and applied ethics, including legal, business, medical, military, religious, environmental, and feminist ethics as related to all aspects of global justice. An important part of the project is to clarify such definitional issues as "global justice" and "international justice," with entries that address the related methodological concerns. The A-to-Z format is cross-referenced around a series of broad themes, making it convenient for students, scholars, and general readers to access relevant entries. This timely and comprehensive encyclopedia provides a premier reference guide for those interested in assessing the moral consequences of global interdependence and understanding the concepts and arguments that shed light on the myriad aspects of global justice, including students, scholars, policy makers.

Contents


Print

2011. Approx. 1000 p. (In 2 volumes, not available separately) Hardcover


► € 499,00 | £449.50
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€ (A) 548,90 | sFr 715,50

Print + eReference

2011. Approx. 1000 p. (In 2 volumes, not available separately) Hardcover


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eReference


► € 499,00 | £449.50
► ** € (D) 593,81 |
€ (A) 548,90 | sFr 715,50
Encyclopedia of Natural Hazards

P. Bobrowsky, International Union of Geological Sciences (IUGS), Ottawa, ON, Canada (Ed.)

Advisory board: P. Basabe, UN/ISDR, Geneva, Switzerland; T. Beer, CSIRO, Aspendale, Australia; N. Catto, Memorial University, St. John’s, NF, Canada; V. Gusliakov, Russian Academy of Sciences, Novosibirsk, Russia; B. McGuire, University College London, UK; H. J. Melosh, University of Arizona, Tucson, AZ, USA; F. Nadim, Norwegian Geotechnical Institute, Oslo, Norway; P. Schmidt-Thomé, Geological Survey of Finland, Espoo, Finland; P. Slovic, Decision Research, Eugene, OR, USA

Features
☐ Provides a state-of-the-art reference volume on natural hazards
☐ Authored by a wide range of sub-disciplinary specialists from around the globe
☐ Includes illustrations, colour images and detailed syntheses
☐ Integrates classic case study examples effectively
☐ Discusses a timely and socially relevant topic

Few subjects have caught the attention of the entire world as much as those dealing with natural hazards. The human losses (some 225,000 people) associated with the 2004 Indian Ocean earthquake and tsunami, the economic costs (exceeding 100 billion USD) of Hurricane Katrina in 2005, the collective social impacts of tragedies experienced during the 2008 Sichuan, China earthquake and landslides, all provide repetitive reminders that we are all but temporary guests occupying a very dynamic planet.

Few subjects share the true interdisciplinary dependency that characterizes the field of natural hazards. From geology and geophysics, to engineering and emergency response, to social psychology and economics, the study of natural hazards draws input from an impressive suite of unique and previously independent specializations. Natural hazards provide a common platform to reduce disciplinary boundaries and facilitate a beneficial synergy in the provision of timely and useful information on the critical subject matter.

As social norms change regarding the concept of acceptable risk and human migration leads to an explosion in the number of megacities, coastal over-crowding and unmanaged habitation in precarious environments such as mountainous slopes, the vulnerability of people to natural hazards increases dramatically. Coupled with the concerns of changing climates, the subject of natural hazards remains on the forefront of issues that affect all people, nations and environments. In the first two months of 2010 alone a magnitude 7 earthquake near Port au Prince, Haiti killed an estimated 230,000 people, exposed the inadequacies of their infrastructure and emergency response capacity and virtually crippled an entire nation; whereas in contrast a month later a significantly larger magnitude 8.8 earthquake off the coast of Chile provided a sober lesson that those areas with a long history of exposure to natural hazards are indeed much more capable to cope with the consequences of unexpected events.
Regenerative Medicine

G. Steinhoff, University of Rostock, Germany (Ed.)

Features

- First comprehensive textbook on regenerative medicine
- Integrated basic research, clinical application and technology knowledge overview
- World leading research and clinical experts

Regenerative Medicine is a fastly emerging interdisciplinary field of research and clinical therapies on the repair, replacement or regeneration of cells, tissues or organs in congenital or acquired disease. This new field of research and clinical development focusing on stem cell science and regenerative biology is just starting to be the most fascinating and controversial medical development at the dawn of the 21st century. Viewing the great expectations to restructure and regenerate tissue, organs or organisms the current attempts of scientist and physicians are still in an early phase of development. This new textbook on “Regenerative Medicine – from protocol to patient” is aiming to explain the scientific knowledge and emerging technology as well as the clinical application in different organ systems and diseases. The international leading experts from four continents describe the latest scientific and clinical knowledge of the field of “Regenerative Medicine”. The process of translating science of laboratory protocols into therapies is explained in sections on basic science, clinical translation, regulatory, ethical and industrial issues. The textbook is aiming to give the student, the researcher, the health care professional, the physician, and the patient a complete survey on the current scientific basis, therapeutical protocols, clinical translation and practised therapies in Regenerative Medicine.

Contents

Bone Quantitative Ultrasound

P. Laugier, University Pierre et Marie Curie, Paris, France; G. Haïat, CNRS, Créteil, France (Eds.)

Features

► Provides a comprehensive account of the latest scientific techniques in the quantitative ultrasound of bone
► Presents a thorough, up-to-date review of the quantitative ultrasound of bone
► Describes all of the latest theories and models on the quantitative ultrasound of bone to the rapidly growing research community

Quantitative ultrasound (QUS) of bone is a relatively recent research field. The research community is steadily growing, with interdisciplinary branches in acoustics, medical imaging, biomechanics, biomedical engineering, applied mathematics, bone biology and clinical sciences, resulting in significant achievements in new ultrasound technologies to measure bone, as well as models to elucidate the interaction and the propagation of ultrasonic wave in complex bone structures. Hundreds of articles published in specialists journals are accessible from the Web and from electronic libraries. However, no compilation and synthesis of the most recent and significant research exist. The only book on QUS of bone has been published in 1999 at a time when the propagation mechanisms of ultrasound in bone were still largely unknown and the technology was immature. The research community has now reached a critical size, special sessions are organized in major international meetings (e.g., at the World Congress of Biomechanics, the annual meetings of the Acoustical Society of America, International Bone Densitometry Workshop, etc...). Consequently, the time has come for a completely up to date, comprehensive review of the topic. The book will offer the most recent experimental results and theoretical concepts developed so far and is intended for researchers, graduate or undergraduate students, engineers, and clinicians who are involved in the field. The central part of the book covers the physics of ultrasound propagation in bone. Our goal is to give the reader an extensive view of the mathematical and numerical models as an aid to understand the QUS potential and the types of variables that can be determined by QUS in order to characterize bone strength. The propagation of sound in bone is still subject of intensive research. Different models have been proposed (for example, the Biot theory of poroelasticty and the theory of scattering have been used to describe wave propagation in cancellous bone, whereas propagation in cortical bone falls in the scope of guided waves theories). An extensive review of the models has not been published so far.

Contents

Epigenetics and Disease
Pharmaceutical Opportunities

S. M. Gasser, Friedrich-Miescher-Institut, Basel, Switzerland; E. Li, NIBR Shanghai, China (Eds.)

Features
► Discusses new approaches to pharmaceutical intervention
► Includes new findings from stem cell research
► With numerous illustrations

Epigenetics has emerged recently as an important area of molecular biological studies. Epigenetic modifications lead to potentially heritable but reversible alterations in the expression of genes that determine cell fate. Epigenetic misregulation is thus often linked to degenerative diseases, cancer and neuronal disorders. Recent biomedical interest in this regulatory system stems from the fact that epigenetic, in contrast to genetic, alterations are in principle amenable to pharmacological intervention. A few epigenetically active drugs, for example histone deacetylase inhibitors (HDACi) and DNA methyltransferase (DNMT) inhibitors, have been approved by FDA for treatment of cancers such as CTCL, MDS, and AML.

This volume explores the scientific background for clinical applications of epigenetically active drugs. Included are descriptions of epigenetic controls over gene expression, the post-transcriptional silencing of genes by RNA interference (RNAi) and microRNAs, as well as new findings from stem cell research which are relevant to pharmacological applications.

Contents
DNA Methylation and Cancer.- Genome-wide Epigenetic Modifications in Cancer.- DNA Repair and the Control of DNA Methylation.- Errors in Erasure: Links Between Histone lysine Methylation Removal and Disease.- Histone Modifications in Cancer Biology and Prognosis.- Dynamics of Histone lysine Methylation: Structures of Methyl Writers and Eraser.- Epigenetic Mechanisms of Mental Retardation.- Histone and DNA Modifications in Mental Retardation.- HDAC Inhibitors and Cancer Therapy.- Epigenetic Mechanisms in Acute Myeloid Leukemia.- The Liver-Specific MicroRNA miR-122: Biology and Therapeutic Potential.- Witold Filipowicz and Helge Großhans.- Transcriptional Regulatory Networks in Embryonic Stem Cells.- Small Molecules in Cellular Reprogramming and Differentiation.
Selected Works of Donald L. Burkholder

B. Davis, Purdue University, West Lafayette, IN, USA; R. Song, University of Illinois, Urbana-Champaign, IL, USA (Eds.)

Features

► Brings together the central research and expository papers of Donald Burkholder
► Burkholder's research is important for its breadth, importance, and unity
► Commentaries explain the development of Burkholder's ideas over time

This book chronicles Donald Burkholder’s thirty-five year study of martingales and its consequences. Here are some of the highlights. Pioneering work by Burkholder and Donald Austin on the discrete time martingale square function led to Burkholder and Richard Gundy’s proof of inequalities comparing the quadratic variations and maximal functions of continuous martingales, inequalities which are now indispensable tools for stochastic analysis. Part of their proof showed how novel distributional inequalities between the maximal function and quadratic variation lead to inequalities for certain integrals of functions of these operators. The argument used in their proof applies widely and is now called the the Burkholder-Gundy good lambda method. This uncomplicated and yet extremely elegant technique, which does not involve randomness, has become important in many parts of mathematics. The continuous martingale inequalities were then used by Burkholder, Gundy, and Silverstein to prove the converse of an old and celebrated theorem of Hardy and Littlewood. This paper transformed the theory of Hardy spaces of analytic functions in the unit disc and extended and completed classical results of Marcinkiewicz concerning norms of conjugate functions and Hilbert transforms. While some connections between probability and analytic and harmonic functions had previously been known, this single paper persuaded many analysts to learn probability. These papers together with Burkholder’s study of martingale transforms led to major advances in Banach spaces. A simple geometric condition given by Burkholder was shown by Burkholder, Terry McConnell, and Jean Bourgain to characterize those Banach spaces for which the analog of the Hilbert transform retains important properties of the classical Hilbert transform. Techniques involved in Burkholder's usually successful pursuit of best constants in martingale inequalities have become central to extensive recent research into two well-known open problems, one involving the two dimensional Hilbert transform and its connection to quasiconformal mappings and the other a conjecture in the calculus of variations concerning rank-one convex and quasiconvex functions. This book includes reprints of many of Burkholder’s papers, together with two commentaries on his work and its continuing impact.
2nd Edition

Matrices

Theory and Applications

D. Serre, Unité de Mathématiques Pures et Appliquées, Lyon, France

Features

- Updated edition with 40% new Contents with a new and more logical structure
- Features important material that was not in the first edition, including but not limited to the Dunford decomposition, tensor calculus, stable and unstable subspaces, Weyl inequalities, and Neumann’s Inequality
- Includes an abundance of new exercises

In this book, Denis Serre begins by providing a clean and concise introduction to the basic theory of matrices. He then goes on to give many interesting applications of matrices to different aspects of mathematics and also other areas of science and engineering. With forty percent new material, this second edition is significantly different from the first edition.

Newly added topics include:
- Dunford decomposition,
- tensor and exterior calculus, polynomial identities,
- regularity of eigenvalues for complex matrices,
- functional calculus and the Dunford–Taylor formula,
- numerical range,
- Weyl’s and von Neumann’s inequalities, and
- Jacobi method with random choice.

The book mixes together algebra, analysis, complexity theory and numerical analysis. As such, this book will provide many scientists, not just mathematicians, with a useful and reliable reference. It is intended for advanced undergraduate and graduate students with either applied or theoretical goals. This book is based on a course given by the author at the Ecole Normale Supérieure de Lyon.

Contents

Dual Tableaux: Foundations, Methodology, Case Studies
E. Orlowska, J. Golińska-Pilarek, National Institute of Telecommunications, Warsaw, Poland

Features
► The first book on the topic that provides a self-contained presentation of the field
► Presents an up-to-date, unifying treatment of the research in dual tableaux theory
► Explores applications of dual tableaux and contemporary applied theories such as temporal reasoning, spatial reasoning, order-of-magnitude reasoning, fuzzy logic, rough set logics
► Serves as a reference work for researchers and graduate students

This book presents logical foundations of dual tableaux together with a number of their applications both to logics traditionally dealt with in mathematics and philosophy (such as modal, intuitionistic, relevant, and many-valued logics) and to various applied theories of computational logic (such as temporal reasoning, spatial reasoning, fuzzy-set-based reasoning, rough-set-based reasoning, order-of-magnitude reasoning, reasoning about programs, threshold logics, logics of conditional decisions). The distinguishing feature of most of these applications is that the corresponding dual tableaux are built in a relational language which provides useful means of presentation of the theories. In this way modularity of dual tableaux is ensured. We do not need to develop and implement each dual tableau from scratch, we should only extend the relational core common to many theories with the rules specific for a particular theory.

Contents
Foundations of Location Analysis

H. A. Eiselt, University of New Brunswick, Fredericton, NB, Canada; V. Marianov, Pointific Universidad, Santiago, Chile (Eds.)

Features

➤ The handbook provides access to critical original sources, allowing students and researchers to understand the significance of the original work and be able to better apply this highly functional methodology to a wide array of today’s models and problems
➤ The editors have excellent research backgrounds in location analysis and related areas
➤ The chapters are by leading contributors in the subfields of location analysis to round out the coverage

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: minisum and minimax problems and covering models
• Nonstandard location models, including those with competitive components, models that locate undesirable facilities, models with probabilistic features, and problems that allow interactions between facilities
• Descriptions and detailed examinations of exact techniques including the famed Weiszfeld method, and heuristic methods ranging from Lagrangean techniques to Greedy algorithms
• A look at the spheres of influence that the facilities generate and that attract customers to them, a topic crucial in planning retail facilities
• The theory of central places, which, other than in mathematical games, where location science was born

Contents

An Irregular Mind

Szemerédi is 70

I. Bárány, Alfred Rényi Institute, Budapest, Hungary; J. Solymosi, University of British Columbia, Vancouver, BC, Canada (Eds.)

Features

► Special volume on the occasion of Endre Szemeredi’s 70th birthday
► A collection of exceptional papers by world-leading mathematicians, among them several Fields-Medalists
► For the first time a polymath project will be published in this volume

Szemeredi’s influence on today’s mathematics, especially in combinatorics, additive number theory, and theoretical computer science, is enormous. This volume is a celebration of Szemeredi’s achievements and personality, on the occasion of his seventieth birthday. It exemplifies his extraordinary vision and unique way of thinking. A number of colleagues and friends, all top authorities in their fields, have contributed their latest research papers to this volume. The topics include extension and applications of the regularity lemma, the existence of k-term arithmetic progressions in various subsets of the integers, extremal problems in hypergraphs theory, and random graphs, all of them beautiful, Szemeredi type mathematics. It also contains published accounts of the first two, very original and highly successful Polymath projects, one led by Tim Gowers and the other by Terry Tao.

Contents

Handbook of Natural Language Processing and Machine Translation

DARPA Global Autonomous Language Exploitation

J. Olive, Defense Advanced Research Projects, Arlington, VA, USA; C. Christianson, Reston, VA, USA; J. McCary, Bethesda, MD, USA (Eds.)

Features
- Written by leading experts in machine translation
- Provides intricate machine translation discussions ranging from text, speech, distillation, evaluation, operational engines, data acquisition and linguistic resources
- Comprises of the largest comprehensive effort in the field
- Equips researchers with the latest technologies in natural language, speech and signal processing, and machine translation

This comprehensive handbook, written by leading experts in the field, details the groundbreaking research conducted under the breakthrough GALE program—The Global Autonomous Language Exploitation within the Defense Advanced Research Projects Agency (DARPA), while placing it in the context of previous research in the fields of natural language and signal processing, artificial intelligence and machine translation.

The most fundamental contrast between GALE and its predecessor programs was its holistic integration of previously separate or sequential processes. In earlier language research programs, each of the individual processes was performed separately and sequentially: speech recognition, language recognition, transcription, translation, and summarization. The GALE program employed a distinctly new approach by executing these processes simultaneously. Speech and language recognition algorithms now aid translation and transcription processes and vice versa. This combination of previously distinct processes has produced significant research and performance breakthroughs and has fundamentally changed the natural language processing and machine translation fields.

This comprehensive handbook provides an exhaustive exploration into these latest technologies in natural language, speech and signal processing, and machine translation, providing researchers, practitioners and students with an authoritative reference on the topic.

Contents
The Structure of the Real Line

L. Bukovský, University P. J. Šafárik, Košice, Slovakia

Features
► Study of the real line taking into account recent results of set theory
► Self-contained, all necessary results being revisited
► Includes appendix with concise explanation of the metamathematics behind set theory
► Exercises with additional results at the end of each section

The rapid development of set theory in the last fifty years, mainly by obtaining plenty of independence results, strongly influenced an understanding of the structure of the real line. This book is devoted to the study of the real line and its subsets taking into account the recent results of set theory. Whenever possible the presentation is done without the full axiom of choice. Since the book is intended to be self-contained, all necessary results of set theory, topology, measure theory, and descriptive set theory are revisited with the purpose of eliminating superfluous use of an axiom of choice. The duality of measure and category is studied in a detailed manner. Several statements pertaining to properties of the real line are shown to be undecidable in set theory. The metamathematics behind set theory is shortly explained in the appendix. Each section contains a series of exercises with additional results.

Contents
Preface.- 1 Introduction.- 2 The Real Line.- 3 Topology of Euclidean Spaces.- 4 Measure Theory.- 5 Useful Tools and Technologies.- 6 Descriptive Set Theory.- 7 Decline and Fall of the Duality.- 8 Special Sets of Reals.- 9 Additional Axioms.- 10 Undecidable Statements.- 11 Appendix.- Bibliography.- Index of Notation.- Index.
Partial Differential Equations and Spectral Theory

M. Demuth, TU Clausthal, Germany; B. Schulze, Universität Potsdam, Germany; I. Witt, Universität Göttingen, Germany (Eds.)

Features
- Includes selected contributions by leading specialists
- Covers the borderline between two currently rapidly developing fields
- Offers a clear-cut perspective on future developments in both fields and their interplay

This volume collects six articles on selected topics at the frontier between partial differential equations and spectral theory, written by leading specialists in their respective field. The articles focus on topics that are in the center of attention of current research, with original contributions from the authors. They are written in a clear expository style that makes them accessible to a broader audience. The articles contain a detailed introduction and discuss recent progress, provide additional motivation, and develop the necessary tools. Moreover, the authors share their views on future developments, hypotheses, and unsolved problems.

Contents
2nd Edition

Stochastic Linear Programming
Models, Theory, and Computation

P. Kall, J. Mayer, University of Zurich, Switzerland

Features

► Authors are two of the most prominent researchers in the field
► End-of-chapter exercises added to facilitate use as textbook
► Brings field completely up to date, with new models, citations, and references

This new edition of Stochastic Linear Programming: Models, Theory and Computation has been brought completely up to date, either dealing with or at least referring to new material on models and methods, including DEA with stochastic outputs modeled via constraints on special risk functions (generalizing chance constraints, ICC's and CVaR constraints), material on Sharpe-ratio, and Asset Liability Management models involving CVaR in a multi-stage setup. To facilitate use as a text, exercises are included throughout the book, and web access is provided to a student version of the authors’ SLP-IOR software. Additionally, the authors have updated the Guide to Available Software, and they have included newer algorithms and modeling systems for SLP. The book is thus suitable as a text for advanced courses in stochastic optimization, and as a reference to the field.

From Reviews of the First Edition

► “The book presents a comprehensive study of stochastic linear optimization problems and their applications. … The presentation includes geometric interpretation, linear programming duality, and the simplex method in its primal and dual forms. … The authors have made an effort to collect … the most useful recent ideas and algorithms in this area. … A guide to the existing software is included as well.”  ► Darinka Dentcheva,
Mathematical Reviews, Issue 2006 c

► “This is a graduate text in optimisation whose main emphasis is in stochastic programming. The book is clearly written. … This is a good book for providing mathematicians, economists and engineers with an almost complete start up information for working in the field. I heartily welcome its publication. … It is evident that this book will constitute an obligatory reference source for the specialists of the field.”  ► Carlos Narciso Bouza Herrera,
Zentralblatt MATH, Vol. 1104 (6), 2007

Contents

Handbook of Open Source Tools

S. Koranne, Wilsonville, OR, USA

Features

► Presents a comprehensive discussion of more than 200 advanced tools
► Includes a special focus on mathematical open source software not available in most open source software books
► Introduces several tools, which are not known outside of select groups but are very powerful: ACL2, CLIPS, CUDA, and COIN

Handbook of Open Source Tools introduces a comprehensive collection of advanced open source tools useful in developing software applications. The book contains information on more than 200 open-source tools which include software construction utilities for compilers, virtual-machines, database, graphics, high-performance computing, OpenGL, geometry, algebra, graph theory, GUIs and more. Special highlights for software construction utilities and application libraries are included. Each tool is covered in the context of a real like application development setting. This unique handbook presents a comprehensive discussion of advanced tools, a valuable asset used by most application developers and programmers; includes a special focus on Mathematical Open Source Software not available in most Open Source Software books, and introduces several tools (eg ACL2, CLIPS, CUDA, and COIN) which are not known outside of select groups, but are very powerful.

Contents


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► * € (D) 128,35 | € (A) 131,95 |
sFr 172,00

Bookstore location
Computer Science

Fields of Interest
Software Engineering/Programming and Operating Systems; Appl.
Mathematics/Computational Methods of Engineering; Programming Techniques

Target Group
Professional/practitioner

Type of Publication
Professional book
Elliptic Partial Differential Equations
Volume 1: Fredholm Theory of Elliptic Problems in Unbounded Domains
V. Volpert, Université de Lyon, France

Features
- Offers a systematic investigation of general elliptic problems applicable both for bounded and unbounded domains
- Includes a focus on unbounded domains, which has not been sufficiently presented in the existing literature
- Gives a mostly self-contained presentation of the results

The theory of elliptic partial differential equations has developed during about two centuries together with electrostatics, heat and mass diffusion, hydrodynamics and many other applications. It remains one of the most rapidly developing fields of mathematics. The theory of general elliptic problems is presented in the present first volume of the book. A priori estimates, normal solvability and Fredholm property, index, operators with a parameter, nonlinear Fredholm operators are discussed. Particular attention is paid to elliptic problems in unbounded domains which are not yet sufficiently well presented in the existing literature and which require some special approaches.

The second volume will be devoted to reaction-diffusion equations. Existence and bifurcations of solutions, travelling waves, spectral properties and other questions are studied in relation with numerous applications in chemical physics, biology and medicine.

Contents
1000 Solved Problems in Classical Physics
An Exercise Book
A. A. Kamal, Murphy/Texas, USA

Features
► Presents a collection of well-chosen and didactically presented problems for physics courses
► Each chapter opens with a basic description of the physics to follow
► Includes fully worked-out solutions to exercises/questions

This book basically caters to the needs of undergraduates and graduates physics students in the area of modern physics, especially Classical Mechanics and Electricity and Electromagnetism. Lecturers/Tutors may use it as a resource book. The contents of the book are based on the syllabi currently used in the undergraduate courses in USA, U.K., and other countries. The book is divided into 13 chapters, each chapter beginning with a brief but adequate summary and necessary formulas and Line diagrams followed by a variety of typical problems useful for assignments and exams. Detailed solutions are provided at the end of each chapter.

Contents
Carbohydrates in Sustainable Development II

A. P. Rauter, Universidade de Lisboa, Portugal; P. Vogel, Swiss Federal Institute of Technology, Lausanne, Switzerland; Y. Queneau, Institut National des Sciences, Villeurbanne, France (Eds.)

Features

➤ This series presents critical reviews of modern chemical research, its present position and future trends
➤ Offers short, concise reports on chemistry, each written by a world renowned expert
➤ Designed to be valid and useful after 5 or 10 years

Contents

Knoevenagel Reaction of Unprotected Sugars, By M.-C. Scherrmann; Carbohydrate-Based Lactones: Synthesis and Applications, By N. M. Xavier, A. P. Rauter, and Y. Queneau; Heterogeneously-Catalyzed Conversion of Carbohydrates, By K. De Oliveira Vigier and F. Jérôme; Palladium-Catalyzed Telomerization of Butadiene with Polyols: From Mono to Polysaccharides, By S. Bouquillon, J. Muzart, C. Pinel, and F. Rataboul; Monosaccharides, By J.A. Galbis and M.G. García-Martín; Natural Sources, By L. Weignerová and V. Křen; Synthesis and Applications of Ionic Liquids Derived from Natural Sugars; By C. Chiappe, A. Marra, and A. Mele

2010. XI, 201 p. Hardcover
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➤ € 189.95 | £171.00
➤ * € (D) 203,25 | € (A) 208,94 |
sFr 272.50

Bookstore location
Chemistry

Fields of Interest
Organic Chemistry; Carbohydrate Chemistry; Sustainable Development

Target Group
Research

Type of Publication
Contributed volume
Ultrasonic Motors
Technologies and Applications
C. Zhao, Nanjing University of Aeronautics and Astronautics, China

Features
► Presents a comprehensive tutorial on the subject for practicing engineers and researchers involved in developing ultrasonic motor technologies and applications

A comprehensive tutorial on ultrasonic motors for practicing engineers, researchers and graduate students. "Ultrasonic Motors: Technologies and Applications" describes the operating mechanism, electromechanical coupling models, optimization design of structural parameters, testing methods, and drive/control techniques of various ultrasonic motors and their applications.

Dr. Chunsheng Zhao is a professor at Nanjing University of Aeronautics and Astronautics (NUAA) where he is Director of the Precision Driving Laboratory at NUAA. He is a member of the Chinese Academy of Science, and holds 54 patents in China and published more than 400 papers in the field of piezoelectric ultrasonic motors.

Contents

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Bookstore location
Engineering

Fields of Interest
Machinery and Machine Elements;
Vibration, Dynamical Systems,
Control; Electronics and
Microelectronics, Instrumentation

Target Group
Research

Type of Publication
Monograph
Iridium Catalysis

P. G. Andersson, Uppsala University, Sweden (Ed.)

Features

- Each volume of Topics in Organometallic Chemistry provides the broad scientific readership with a comprehensive summary and critical overview of a specific topic in organometallic chemistry
- Research in this rapidly developing transdisciplinary field is having profound influence on other areas of scientific investigation, ranging from catalytic organic synthesis to biology, medicine and material science
- With contributions by international experts

Contents

Anion Recognition in Supramolecular Chemistry

P. A. Gale, University of Southampton, UK; W. Dehaen, University of Leuven, Belgium (Eds.)

Features

- Heterocyclic chemistry is the biggest branch of chemistry covering two-third of the chemical literature
- The series covers hot topics of frontier research summarized by reputed scientists in the field
- Our review series is topic related
- Online version available on SpringerLink.com

Contents

Advances in Intelligent Tutoring Systems

R. Nkambou, University of Quebec, Montreal, QC, Canada; R. Mizoguchi, Osaka University, Japan; J. Bourdeau, Télé-université, UQAM, Montreal, QC, Canada (Eds.)

Features
➤ Presents recent results in intelligent tutoring systems
➤ Written by leading experts in this field
➤ State-of-the-Art book

The idea for this book on Intelligent Tutoring Systems (ITS) was sparked by the success of the ITS’08 international conference. The number of presentations and their quality bore witness to the vitality and maturity of the field, and the enthusiasm of the participants held out a promise of sustainability and innovative research. Long life to ITS research!

The book is divided into five parts. The introductory chapters to these parts, which summarize foundations, developments, strengths and weaknesses in each of the areas covered, are addressed to all readers. For those who want more in-depth knowledge, we give the floor to researchers who present their work, their results, and their view of what the future holds. It is our hope that all readers will find the book informative and thought-provoking.

Contents
Synthesis of Heterocycles via Multicomponent Reactions II

R. V. Orru, E. Ruijter, VU University of Amsterdam, The Netherlands (Eds.)

Features

- Heterocyclic chemistry is the biggest branch of chemistry covering two-third of the chemical literature
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Nicola Kielland, Rodolfo Lavilla: Recent Developments in Reissert-Type Multicomponent Reactions
Jitender B. Bariwal, Jalpa C. Trivedi, Erik V. Van der Eycken: Microwave Irradiation and Multicomponent Reactions
Irini Akritopoulou-Zanze, Stevan W. Djuric: Applications of MCR-Derived Heterocycles in Drug Discovery

Bookstore location
Chemistry

Fields of Interest
Organic Chemistry; Biochemical Engineering; Medicinal Chemistry

Target Group
Research

Type of Publication
Reviews
Forthcoming
Due February 2011

2nd Edition
Interactive Quantum Mechanics
Quantum Experiments on the Computer
S. Brandt, T. Stroh, University of Siegen, Germany; H. Dahmen

Features
► Allows students to perform their own computer-based quantum physics experiments in vivid, 3D graphics
► Provides a vaster-reaching scope of physics, the addition of a movie-generating feature, and an increased quantity of examples, compared to the 1st edition
► Illustrates quantum-mechanical phenomena with an innovative, "hands-on" computer program containing over 300 exercises and solutions

Interquanta (IQ), an interactive program on quantum mechanics, which is delivered on a CD along with the book, allows students to do their own quantum physics experiments on the computer, and to study in 3D color graphics such quantities as complex probability amplitude, eigenvalues, scattering cross sections, and more. By experiencing many such computer experiments, students gain a unique, "hands-on" experience in quantum physics which is otherwise difficult to achieve. The graphic features include two-and three-dimensional graphics in the form of static frames and motion pictures.

Students do no programming, and hence need no previous detailed knowledge of this. The program has a very convenient, self-explanatory user interface based on the Java software technology. The book provides a recapitulation of the basic quantum mechanical formula, a manual to the IQ program, and a complete course with more than 300 tested problems. Fully automatic demonstration sessions are provided as introduction to interactive work.

Physics topics covered include free particles, bound states and scattering in various potentials in one and three space dimensions, two-particle systems, properties of special functions of mathematical physics.

Contents
Introduction.- Free Particle Motion in One Dimension.- Bound States in One Dimension.- Scattering in One Dimension.- A Two-Particle System.- Free Particle Motion in Three Dimensions.- Bound States in Three Dimensions.- Scattering in Three Dimensions.- Spin and Magnetic Resonance.- Hybridization.- Special Functions of Mathematical Physics.- Additional Material and Hints for the Solution of Exercises.- A Systematic Guide to IQ.- How to Install IQ.
Biomedical Image Processing
T. M. Deserno, RWTH Aachen, Germany (Ed.)

Features
► Covers major aspects and methods of biomedical imaging
► Features contributions from authors who are internationally recognized experts from all over the world
► Integrates physics and biomedicine
► Provides a reference for researchers and practitioners
► Offers a didactic introduction and detailed explanations of the techniques that will benefit graduate students

In modern medicine, imaging is the most effective tool for diagnostics, treatment planning and therapy. Almost all modalities have went to directly digital acquisition techniques and processing of this image data have become an important option for health care in future. This book is written by a team of internationally recognized experts from all over the world. It provides a brief but complete overview on medical image processing and analysis highlighting recent advances that have been made in academics. Color figures are used extensively to illustrate the methods and help the reader to understand the complex topics.

Contents
Piezoceramic Sensors

V. Sharapov, Cherkasy State Technological University, Ukraine

Features

► Provides an overview of the state-of-the-art in piezosensor technology
► Discusses new methods of design and performance of piezosensors
► Introduces new methods for measuring physical sizes

This book presents the latest and complete information about various types of piezosensors. A sensor is a converter of the measured physical size to an electric signal. Piezoelectric transducers and sensors are based on piezoelectric effects. They have proven to be versatile tools for the measurement of various processes. They are used for quality assurance, process control and for research and development in many different industries. In each area of application specific requirements to the parameters of transducers and sensors are developed. The book presents the fundamentals, technical design and details and practical applications. Methods to design piezosensors are described, allowing to create sensors with unique properties. New methods to measure physical sizes and new constructions of sensors including large area of piezosensors are described in this book. This book is written for specialists in transforming hydroacoustics, non-destructive control, measuring technique, sensors development for automatic control and also for graduate students.

Contents


Bookstore location
Chemistry

Fields of Interest
Microengineering; Nanotechnology and Microengineering; Ceramics, Glass, Composites, Natural Materials

Target Group
Research

Type of Publication
Monograph
Sexually Transmitted Infections and Sexually Transmitted Diseases

G. E. Gross, University of Rostock, Germany; S. K. Tyring, University of Texas Health Science Center, Webster, TX, USA (Eds.)

Features

► Offers the latest research on diagnosis, treatment and management of STDs
► Structured for easy access, with “core messages” and “take-home pearls”
► Lavishly illustrated with superb color illustrations

This comprehensive, up-to-date reference book is intended to serve as the standard guide in the field. It covers the epidemiology and etiology of the various sexually transmitted infections and associated diseases, reviews novel diagnostic methods, and discusses in depth both new and established treatment methods. An important part of the book is devoted to prevention and particularly to immunoprevention by vaccination. Related issues such as sexual abuse, psychosocial aspects, and economic and political considerations are also included. The expertise of many worldwide renowned specialists and superb color illustrations make this book a valuable resource for practitioners from a variety of medical disciplines. It has a reader-friendly structure with “core messages” and “take-home pearls”.

Contents

High-Field MR Imaging

J. Hennig, Universitätsklinikum Freiburg; O. Speck, Otto-von-Guericke University Magdeburg (Eds.)

Features
► Discusses the possibilities, challenges, and limitations of high-field MR technology
► Explains the technological background in a non-technical and accessible way
► Examines the applications of high-field MR imaging in radiology, neuroscience, oncology, and other fields, with the aid of many high-quality illustrations
► Will appeal to radiologists, neuroscientists, oncologists and others with an interest in the field

This book describes the current status of the very rapidly developing field of high-field MR and examines the possibilities, challenges, and limitations of this fascinating technology. In the initial chapters, the basic technological background is explained in a non-technical way so as to promote understanding of the issues and concepts and avoid overwhelming the reader with excessive detail. Safety issues, methods, and contrast are then carefully considered. The final part of the book examines the diverse applications of high-field MR imaging in radiology, neuroscience, oncology, and other fields, with the aid of numerous high-quality illustrations. All chapters are written by leading experts who have taken great care to illustrate the potential and progress of the field in an informative and accessible manner. The book will appeal to all with a potential interest in the application of high-field MR imaging, including radiologists, neuroscientists, and oncologists.

Contents
Scrotal Pathology

M. Bertolotto, C. Trombetta, University of Trieste, Trieste, Italy (Eds.)

Features
► A comprehensive practical guide to the management of patients with scrotal disorders
Integrates clinical and imaging perspectives
► Fully describes symptoms, clinical tests, histopathology, imaging features and therapeutic strategies
► Includes many high-quality images obtained with high-end equipment
► Considers adults and children separately whenever necessary

Scrotal Pathology is a comprehensive practical guide to the management of patients who present with scrotal disorders. Introductory chapters consider imaging instrumentation, clinical evaluation, and clinical and imaging anatomy. The full range of disorders is then discussed in individual chapters organized according to clinical presentation. All clinical and imaging aspects are covered in depth, with full description of symptoms and explanation of the value of different clinical tests and imaging modalities. In addition, underlying histopathological features are presented and correlated with imaging features in order to clarify their pathological basis. For each disorder, therapeutic strategies are discussed and appraised. Adults and children are considered separately whenever necessary, bearing in mind that they often present essentially different scrotal pathology. The many images are all of high quality and were obtained using high-end equipment.

Contents
Pediatric Airway Surgery
Management of Laryngotracheal Stenosis in Infants and Children
P. Monnier, CHUV Lausanne, Switzerland (Ed.)

Features
- Practically oriented
- Describes surgical procedures in great detail with the help of high-quality illustrations
- Includes boxes that summarize procedures and list tips, tricks, and traps
- Written by vastly experienced contributors who have been directly involved in the management of children with airway disorders

This book provides detailed insight into the difficult problem of pediatric airway management. Each chapter focuses on a particular condition in a very practical manner, describing diagnostic procedures and precisely explaining surgical options with the help of high-quality illustrations. Both established treatment modalities and new management concepts are considered in depth, and controversies relating to the most difficult airway reconstructions are discussed. To help the reader, boxes are included to summarize procedures and to list tips, tricks, and traps relevant to daily practice. The contributors to the book have all been directly involved in the management of children with airway disorders and write on the basis of their vast experience. Otolaryngologists, pediatric surgeons, and thoracic surgeons involved in the management of pediatric airway problems, and in particular airway stenosis, will find this book to be a treasure trove of invaluable information and guidance.

Contents
PART I.- Evaluation Of The Compromised Paediatric Airway
- The Compromised Paediatric Airway: Challenges Facing Families And Physicians.
- Applied Surgical Anatomy Of The Larynx And Trachea.
- Clinical Evaluation Of Airway Obstruction.
- Equipment And Instrumentation For Diagnostic And Therapeutic Endoscopy.
- Endoscopic Assessment Of The Compromised Paediatric Airway

PART II.- Congenital Anomalies Of The Larynx And Trachea
- Laryngomalacia.
- Vocal Cord Paralysis.
- Congenital Subglottic Stenosis.
- Laryngeal Web And Atresia.
- Subglottic Haemangioma.
- Ductal Cysts, Saccular Cysts, And Laryngoceles.
- Laryngeal And Tracheal Clefts.
- Congenital Tracheal Anomalies

PART III.- Acquired Laryngeal And Tracheal Stenoses
- Acquired Post-Intubation Stenosis.
- External Laryngeal Trauma.
- Neoplastic Lesions Of The Larynx And Trachea

PART IV.- Surgery For Laryngotracheal Stenosis
- Preoperative Assessment, Indication For Surgery, And Parental Counseling.
- Endoscopic Techniques For Laryngotracheal Stenosis.
- Laryngotracheoplasty And Laryngotracheal Reconstruction.
- Partial Cricotraceal Resection

PART V.- Tracheal Surgery And Revision Surgery
- Tracheotomy.
- Tracheal Resection And Anastomosis.
- Revision Surgery.
Therapeutic Nuclear Medicine

R. P. Baum, Center for PET, Zentralklinik Bad Berka, Bad Berka, Germany (Ed.)

Features

► Discusses all aspects of radionuclide therapy, including basic principles, newly available treatments, regulatory requirements, and future trends
► Provides the knowledge required to administer radionuclide therapy safely and effectively in the individual patient
► Explains the role of the therapeutic nuclear physician in effectively coordinating a diverse multidisciplinary team
► Written by leading experts

The recent revolution in molecular biology offers exciting new opportunities for targeted radionuclide therapy. This up-to-date, comprehensive book, written by world-renowned experts, discusses the basic principles of radionuclide therapy, explores in detail the available treatments, explains the regulatory requirements, and examines likely future developments. The full range of clinical applications is considered, including thyroid cancer, hematological malignancies, brain tumors, liver cancer, bone and joint disease, and neuroendocrine tumors. The combination of theoretical background and practical information will provide the reader with all the knowledge required to administer radionuclide therapy safely and effectively in the individual patient. Careful attention is also paid to the role of the therapeutic nuclear physician in coordinating a diverse multidisciplinary team, which is central to the safe provision of treatment.

Contents

PART I: Basic Principles (11 chapters).- PART II: Clinical Applications: Brain and Nasopharyngeal Tumors (4 chapters).- Thyroid Cancer (11 chapters).- Benign Thyroid Diseases (2 chapters).- Primary and Metastatic Liver Cancer (5 chapters).- Bone and Joint Disease (5 chapters).- Hematological Malignancies (8 chapters).- Endocrine Tumors (2 chapters).- Radioimmunotherapy (7 chapters).- Intravascular/Intracavitary/Interstitial and Epidermal Radionuclide Therapy (5 chapters).- PART III: Radiation Biology and Dosimetry (11 chapters).- PART IV: Radiation Planning and Perspectives of Radionuclide Therapy (10 chapters).- Subject Index.