Atmospheric Circulation Dynamics and General Circulation Models

M. Satoh, University of Tokyo, Japan

Features

► Uniquely combines the theoretical concepts, simple models and numerical methods used for modeling the general circulation of the atmosphere, in a single text

► Includes the recent progress of high resolution global modeling

► Contains, for the first time, aspects of high-resolution global non-hydrostatic models studied by the author

General circulation models (GCMs), which define the fundamental dynamics of atmospheric circulation, are nowadays used in various fields of atmospheric science such as weather forecasting, climate predictions and environmental estimations. The Second Edition of this renowned work has been updated to include recent progress of high resolution global modeling. It also contains for the first time aspects of high-resolution global non-hydrostatic models that the author has been studying since the publication of the first edition. Some highlighted results from the Non-hydrostatic ICosahedral Atmospheric Model (NICAM) are also included.

The author outlines the theoretical concepts, simple models and numerical methods for modeling the general circulation of the atmosphere. Concentrating on the physical mechanisms responsible for the development of large-scale circulation of the atmosphere, the book offers comprehensive coverage of an important and rapidly developing technique used in the atmospheric science. Dynamic interpretations of the atmospheric structure and their aspects in the general circulation model are described step by step.
Contemporary Ideas on Ship Stability and Capsizing in Waves

M. Almeida Santos Neves, Federal University of Rio de Janeiro (COPPE), Rio de Janeiro, Brazil; V. L. Belenky, Naval Surface Warfare Center Carderock Division (NSWCCD), West Bethesda, Maryland, USA; J. O. Kat, A.P. Moeller – Maersk A/S, Copenhagen, Denmark; K. Spyrou, National Technical University of Athens, Athens, Greece; N. Umeda, Osaka University, Osaka, Japan (Eds.)

Features

▶ Brings together material in one resource
▶ Contributions by world experts
▶ Points the way forward for future research

During the last decade significant progress has been made in the field of ship stability. Yet in spite of the progress made, numerous scientific and practical challenges still exist with regard to the accurate prediction of extreme motion and capsize dynamics for intact and damaged vessels, the probabilistic nature of extreme events, criteria that properly reflect the physics and operational safety of an intact or damaged vessel, and ways to provide relevant information on safe ship handling to ship operators. This book provides a comprehensive review of the above issues through the selection of representative papers presented at the unique series of international workshops and conferences on ship stability held between 2000 and 2009. The editorial committee has selected papers for this book from the following events: STAB 2000 Conference (Launceston, Tasmania), 5th Stability Workshop (Trieste, 2001), 6th Stability Workshop (Long Island, 2002), STAB 2003 Conference (Madrid), 7th Stability Workshop (Shanghai, 2004), 8th Stability Workshop (Istanbul, 2005), STAB 2006 Conference (Rio de Janeiro), 9th Stability Workshop (Hamburg, 2007), 10th Stability Workshop (Daejeon, 2008), and STAB 2009 Conference (St. Petersburg). The papers have been clustered around the following themes: Stability Criteria, Stability of the Intact Ship, Parametric Rolling, Broaching, Nonlinear Dynamics, Roll Damping, Probabilistic Assessment of Ship Capsize, Environmental Modelling, Damaged Ship Stability, CFD Applications, Design for Safety, Naval Vessels, and Accident Investigations.

From the contents

Next Generation Data Technologies for Collective Computational Intelligence

N. Bessis, University of Derby, Luton, GB; F. Xhafa, Universitat Politècnica de Catalunya, Barcelona, Spain (Eds.)

Features

► First edited book presenting next generation distributed and other emergent collaborative data technologies
► For collective and computational intelligence in a unified manner
► Describe the incorporation of various next generation data technologies such as data grids and Web 2.0 to collective computational intelligence
► Written by experts in the field

This book focuses on next generation data technologies in support of collective and computational intelligence. The book brings various next generation data technologies together to capture, integrate, analyze, mine, annotate and visualize distributed data – made available from various community users – in a meaningful and collaborative for the organization manner. A unique perspective on collective computational intelligence is offered by embracing both theory and strategies fundamentals such as data clustering, graph partitioning, collaborative decision making, self-adaptive ant colony, swarm and evolutionary agents. It also covers emerging and next generation technologies in support of collective computational intelligence such as Web 2.0 social networks, semantic web for data annotation, knowledge representation and inference, data privacy and security, and enabling distributed and collaborative paradigms such as P2P, Grid and Cloud Computing due to the geographically dispersed and distributed nature of the data.

The book aims to cover in a comprehensive manner the combinatorial effort of utilizing and integrating various next generations collaborative and distributed data technologies for computational intelligence in various scenarios. The book also distinguishes itself by assessing whether utilization and integration of next generation data technologies can assist in the identification of new opportunities, which may also be strategically fit for purpose.

Part II: Advanced Models and Practices.
Part III: Advanced Applications
Section IV: Future Trends and Concepts.
Chaos-based Cryptography

Theory, Algorithms and Applications

L. Kocarev, Macedonain Academy of Sciences and Arts, Skopje, Republic of Macedonia;
S. Lian, France Telecom R&D Beijing, Beijing, China (Eds.)

Features

► Thorough description and recent research of chaos-based cryptography
► Covers the basic theories, algorithms and applications of chaos-based cryptography
► Written by leading experts in the field

Chaos-based cryptography, attracting many researchers in the past decade, is a research field across two fields, i.e., chaos (nonlinear dynamic system) and cryptography (computer and data security). It Chaos' properties, such as randomness and ergodicity, have been proved to be suitable for designing the means for data protection. The book gives a thorough description of chaos-based cryptography, which consists of chaos basic theory, chaos properties suitable for cryptography, chaos-based cryptographic techniques, and various secure applications based on chaos. Additionally, it covers both the latest research results and some open issues or hot topics. The book creates a collection of high-quality chapters contributed by leading experts in the related fields. It embraces a wide variety of aspects of the related subject areas and provide a scientifically and scholarly sound treatment of state-of-the-art techniques to students, researchers, academics, personnel of law enforcement and IT practitioners who are interested or involved in the study, research, use, design and development of techniques related to chaos-based cryptography.

From the contents

1. Introduction to Chaos.
2. Chaos-based Cryptography
5. Chaos based hash function.
7. Cryptanalysis of chaotic ciphers.
8. Lessons learnt from the cryptanalysis of chaos-based ciphers.
10. Hardware implementation of chaos-secured optical communication systems.
Springer Handbook of Medical Technology

R. Kramme, Titisee-Neustadt, Germany; K. Hoffmann, Fraunhofer Institute for Biomedical Engineering, St. Ingbert, Germany; R. S. Pozos, San Diego State University, San Diego, CA, USA (Eds.)

Features

- Concise, clear and coherent handbook of medical technology
- Research and application-oriented handbook on medical science and technology
- Includes all the relevant developments and applications of medical technology
- Clustered know-how for medical practice, medical engineers and hospitals

This up-to-date, user-oriented reference offers a broad, yet sophisticated introduction to the expanding world of medical technology. In a present where medicine and technology seem always to have been entwined, it offers a comprehensive account of decades of progress up to today, and a detailed consideration of developments yet to come in all relevant fields. Research and application-oriented, the Springer Handbook of Medical Technology is a systematic and well-structured guide which distinguishes itself by simplifying and condensing a myriad of complex facts. This book is an indispensable everyday resource for all professionals working with medical systems and appliances.

Complex Engineering Service Systems
Concepts and Research
I. Ng, University of Exeter Business School, Exeter, UK; G. Parry, University of the West of England, Bristol, UK; P. Wild, University of Northumbria, Newcastle upon Tyne, UK; D. McFarlane, P. Tasker, University of Cambridge, Cambridge, UK (Eds.)

Features
► Provides advanced-level academic information, but with minimal jargon, making the book suitable for both academics and practitioners
► Presents recent research from the recent S4T (Service Support Solutions: Strategy and Transition) Programme
► Addresses the conceptual and practical aspects of contracting, managing, designing, leading and delivering services associated with complex engineering systems

For manufacturers of complex engineering equipment, the focus on service and achieving outcomes for customers is the key to growth. Yet, the capability to provide service for complex engineered products is less understood. Taking a trans-disciplinary approach, Complex Engineering Service Systems covers various aspects of service in complex engineering systems, with perspectives from engineering, management, design, operations research, strategy, marketing and operations management that are relevant to different disciplines, organisation functions, and geographic locations. The focus is on the many facets of complex engineering service systems around a core integrative framework of three value transformations – that of material/equipment, information and people. Complex Engineering Service Systems is the outcome of the EPSRC/BAE Systems S4T (Service Support Solutions: Strategy and Transition) research programme of 10 universities and 27 researchers, which examined how high-value manufacturers of complex engineering products adapt to a multi-partnered environment to design and deliver value in a service system. Complex Engineering Service Systems aims to be the main source of knowledge for academics and professionals in the research and practice of contracting, managing, designing, leading, and delivering complex engineering service systems. The book takes a value-based approach to integrating equipment and human factors into a total service provision. In doing so, it aims to advance the field of service systems and engineering.

From the contents
2. Enterprise Imaging: Visualising the Scope and Dependencies of Complex Service Enterprises.
3. Complexity Management.
14. Modelling Techniques to Support the Adoption of Predictive Maintenance.
16. Scheduling Asset Maintenance and Technology Insertions.
Syngas from Waste
Emerging Technologies
L. Puigjaner, Universitat Politècnica de Catalunya, Barcelona, Spain (Ed.)

Features
► Includes numerous illustrations and tables to facilitate the reader’s understanding
► Contains industrial applications in areas such as clean power generation
► Enables professionals to evaluate and improve existing installations, as well as to design new ones

Syngas from Waste presents the most recent concepts, methods and techniques for the preliminary design of a promising emerging technology: production of clean syngas from waste materials. An in-depth account is given of the steps necessary to achieve the optimum design and up-to-date tools are presented to support the designer’s decision-making tasks: modelling, simulation and optimization. Numerous illustrations and tables are included to facilitate the reader’s understanding, as well as suggestions for further reading. The text is complemented with practical examples and industrial applications ranging from clean power generation to complex combined heat and power systems and high purity hydrogen for use in fuel cells. Syngas from Waste contains high-quality contributions from leading experts in the field. It is intended for academics at MSc or PhD level, researchers and industry practitioners in syngas production and applications, who are involved in the design, retrofit design and evaluation activities of alternative scenarios. It contains valuable teaching material for lecturers and provides industry professionals with the know-how to evaluate and improve existing installations or even to design a new one.

Handbook of Purified Gases
H. Schoen, Pfaffenhofen, Germany

Features
► The only existing book about ultrapure/purest gases
► Of interest to practitioners and theorists
► Presents physical foundations as well as all details about production, purification, analysis, storage and transport of ultrapure gases
► Written by an author with industry experience with Linde
► Includes valuable data sheets of the most important ultrapure gases

Technical gases are used in almost every field of industry, science and medicine and also as a means of control by government authorities and institutions and are regarded as indispensable means of assistance. In this complete handbook of purified gases the physical foundations of purified gases and mixtures as well as their manufacturing, purification, analysis, storage, handling and transport are presented in a comprehensive way. This important reference work is accompanied with a large number of Data Sheets dedicated to the most important purified gases.

Handbook of Force Transducers
Principles and Components
D. M. Stefanescu, University of Bucharest, Bucharest, HU

Features
- First specialized monograph in the inter- and multidisciplinary field of force transducers
- Comprehensive book in handbook style
- Useful for experts and newcomers alike

Part I introduces the basic "Principles and Methods of Force Measurement" according to a classification into a dozen of force transducers types: resistive, inductive, capacitive, piezoelectric, electromagnetic, electrodynamical, magnetoelastic, galvanomagnetic (Hall-effect), vibrating wires, (micro)resonators, acoustic and gyroscopic. Two special chapters refer to force balance techniques and to combined methods in force measurement. Part II discusses the "(Strain Gauge) Force Transducers Components", evolving from the classical force transducer to the digital / intelligent one, with the incorporation of three subsystems (sensors, electromechanics and informatics). The elastic element (EE) is the "heart" of the force transducer and basically determines its performance. A 12-type elastic element classification is proposed (stretched / compressed column or tube, bending beam, bending and/or torsion shaft, middle bent bar with fixed ends, shear beam, bending ring, yoke or frame, diaphragm, axial-stressed torus, axisymmetrical and voluminous EE), with emphasis on the optimum location of the strain gauges. The main properties of the associated Wheatstone bridge, best suited for the parametrical transducers, are examined, together with the appropriate electronic circuits for SGFTs. The handbook fills a gap in the field of Force Measurement, both experts and newcomers, no matter of their particular interest, finding a lot of useful and valuable subjects in the area of Force Transducers; in fact, it is the first specialized monograph in this inter- and multidisciplinary field.

Multi-objective Evolutionary Optimisation for Product Design and Manufacturing

L. Wang, A. H. Ng, University of Skövde, Skövde, Sweden; K. Deb, Indian Institute of Technology, Kanpur, India (Eds.)

Features

- Presents state-of-the-art research in the area of multi-objective evolutionary optimisation for integrated product design and manufacturing
- Provides a comprehensive review of the literature
- Gives in-depth descriptions of recently developed innovative and novel methodologies, algorithms and systems in the area of modelling, simulation and optimisation

With the increasing complexity and dynamism in today's product design and manufacturing, more optimal, robust and practical approaches and systems are needed to support product design and manufacturing activities. Multi-objective Evolutionary Optimisation for Product Design and Manufacturing presents a focused collection of quality chapters on state-of-the-art research efforts in multi-objective evolutionary optimisation, as well as their practical applications to integrated product design and manufacturing. #Multi-objective Evolutionary Optimisation for Product Design and Manufacturing consists of two major sections. The first presents a broad-based review of the key areas of research in multi-objective evolutionary optimisation. The second gives in-depth treatments of selected methodologies and systems in intelligent design and integrated manufacturing. Recent developments and innovations in multi-objective evolutionary optimisation make Multi-objective Evolutionary Optimisation for Product Design and Manufacturing a useful text for a broad readership, from academic researchers to practicing engineers.

Future Intelligent Information Systems
Volume 1
D. Zeng, Shenzhen University, Shenzhen, P.R. China (Ed.)

Features
► Recent research on the Future of Intelligent Information Systems
Revised and selected papers of 2010
► First International Conference on Electrical and Electronics Engineering, held in Wuhan, China, December 4-5, 2010
► Written by leading experts in the field

2010 First International Conference on Electrical and Electronics Engineering was held in Wuhan, China, December 4-5. Future Intelligent Information Systems book contains eighty-five revised and extended research articles written by prominent researchers participating in the conference. Topics covered include Tools and Methods of AI, Knowledge Discovery, Information Management and knowledge sharing, intelligent e-Technology, Information systems governance, and Informatics in Control. Intelligent Information System will offer the state of art of tremendous advances in Intelligent Information System and also serve as an excellent reference work for researchers and graduate students working with/on Intelligent Information System.

From the contents
Information Technologies in Environmental Engineering
Proceedings of the 5th International ICSC Symposium on Information Technologies in Environmental Engineering (ITEE 2011)
P. Golinska, M. Fertsch, Poznan University of Technology, Poznan, Poland; J. Marx-Gómez, Universität Oldenburg, Oldenburg, Germany (Eds.)

Features
► Holistic Approach
► Presents concepts and applications in the field of environmental engineering
► State-of-the-Art Content

Information technologies have evolved to an enabling science for natural resource management and conservation, environmental engineering, scientific simulation and integrated assessment studies. Computing plays a significant role in every day practices of environmental engineers, natural scientists, economists, and social scientists. The complexity of natural phenomena require interdisciplinary approaches, where computing science offers the infrastructure for environmental data collection and management, scientific simulations, decision support, documentation and reporting. Ecology, environmental engineering and natural resource management comprise an excellent real-world testbed for IT system demonstration, while bring up new challenges for computer science. Complexity, uncertainty and scaling issues of natural systems set up a demanding application domain for modelling, simulation and scientific workflows; data management and reporting; decision support and intelligent systems; distributed computing environments; geographical information systems; heterogeneous systems integration; software engineering; accounting systems; control systems, as well as sustainable manufacturing and reverse logistics. This books offers a collection of papers presented at the 5th International Symposium on Environmental Engineering, held in July 2011, in Poznan, Poland. Recent success stories in ecoinformatics, promising ideas and new challenges are discussed among computer scientists, environmental engineers, industrial engineers, economists and social scientists, demonstrating new paradigms for problem solving and decision making.

Information Technologies in Environmental Engineering.- Formal Methods and Data Processing Techniques.- Environmental Policy and Management.- Modelling and Stimulation.- Tools and Measurement Techniques.- Practical Applications and Experiences.
Fighting Poverty in Sub-Saharan Africa: The Multiple Roles of Legumes in Integrated Soil Fertility Management

A. Bationo, Alliance for a Green Revolution in Africa (AGRA), Accra, Ghana; B. Waswa, J. M. Okeyo, Tropical Soil Biology and Fertility Inst. of CIAT, Nairobi, Kenya; F. Maina, Kenya Agricultural research Institute, Nairobi, Kenya; J. Kihara, Tropical Soil Biology and Fertility Inst. of CIAT, Nairobi, Kenya; U. Mokwunye, Mokwunye Consulting, Accra, Ghana (Eds.)

Features

► A comprehensive review of research experiences on legumes in sub-Saharan Africa
► Presents a regional perspective of legume production systems for sub-Saharan Africa
► Contribution from a multi-disciplinary team of experts

Legumes play an important role in the cropping systems of sub-Saharan Africa (SSA). Legumes are an important source of nutrition to both humans and livestock by providing the much needed protein, minerals, fibre and vitamins. The sale of legumes seed, leaves and fibre generates income for the marginalized communities especially women. Cultivation of legumes is essential for the regeneration of nutrient-deficient soils. By biologically fixing nitrogen (BNF) in the soil, legumes provide a relatively low-cost method of replacing otherwise expensive inorganic nitrogen in the soil. This enhances soil fertility and boosts subsequent cereal crop yields. Production of legumes in SSA is however; hampered by a number of constraints among them low and declining soil fertility, low soil pH, high salinity, drought and flooding, poor access to improved germplasm, diseases, pests and weeds. Farmers need to learn how to overcome these constraints if the full benefits of legumes are to be gained. This book presents a synthesis of research work on legumes and draws attention to the importance of legumes in integrated soil fertility management (ISFM) and poverty alleviation in SSA.

From the contents

New possibilities have been brought about by the stunning number of genomic sequences becoming available for photosynthetic organisms. This new world of whole genome sequence data spans the phyla from photosynthetic microbes to algae to higher plants. These whole genome projects are intrinsically interesting, but also inform the variety of other molecular sequence databases including the recent ‘meta-genomic’ sequencing efforts that analyze entire communities of organisms. As impressive as they are, are obviously only the beginning of the effort to decipher the biological meaning encoded within them. This book aims to highlight progress in this direction. This book aims toward a genome-level understanding of the structure, function, and evolution of photosynthetic systems and the advantages accrued from the availability of phyletically diverse sets of gene sequences for the major components of the photosynthetic apparatus. While not meant to be fully comprehensive in terms of the topics covered, it does provide detailed views of specific cases and thereby illustrates important new directions that are being taken in this fast-moving field—a field that involves the integration of bioinformatics, molecular biology, physiology, and ecology.

**Photosynthesis**

**Plastid Biology, Energy Conversion and Carbon Assimilation**

J. J. Eaton-Rye, University of Otago, Dunedin, New Zealand; B. C. Tripathy, Jawaharlal Nehru University, New Delhi, India; T. D. Sharkey, Michigan State University, East Lansing, MI, USA (Eds.)

**Features**

- A comprehensive treatment of current research and knowledge in the field of photosynthesis
- Authored by 76 active research scientists from 20 countries
- Incorporates photosynthesis research from the perspectives of biochemistry, biophysics, cell biology, climate change, genetics, molecular biology, proteomics, and whole plant physiology
- Includes a special chapter dedicated to the history of photosynthesis research

"Photosynthesis: Plastid Biology, Energy Conversion and Carbon Assimilation" was conceived as a comprehensive treatment touching on most of the processes important for photosynthesis. Most of the chapters provide a broad coverage that, it is hoped, will be accessible to advanced undergraduates, graduate students, and researchers looking to broaden their knowledge of photosynthesis. For biologists, biochemists, and biophysicists, this volume will provide quick background understanding for the breadth of issues in photosynthesis that are important in research and instructional settings. This volume will be of interest to advanced undergraduates in plant biology, and plant biochemistry and to graduate students and instructors wanting a single reference volume on the latest understanding of the critical components of photosynthesis.

**From the contents**

Silviculture in the Tropics

S. Günter, M. Weber, B. Stimm, R. Mosandl, Institute of Silviculture, Technical University of Munich, Germany (Eds.)

Features

► Provides the latest global developments in forestry science and practice and their relevance for sustainable management of tropical forests.
► With numerous illustrative and quantitative case studies by experts from all over the world.
► Review chapters which guide through the complex subject and integrate numerous illustrative and quantitative case studies from experts of all over the world.

This book integrates the latest global developments in forestry science and practice and their relevance for the sustainable management of tropical forests. The influence of social dimensions on the development of silvicultural concepts is another spotlight. Ecology and silvicultural options form all tropical continents, and forest formations from dry to moist forests and from lowland to mountain forests are covered. Review chapters which guide readers through this complex subject integrate numerous illustrative and quantitative case studies by experts from all over the world. On the basis of a cross-sectional economic evaluation of the case studies presented, the authors put forward possible silvicultural contributions towards sustainability in a changing world. The book is addressed to a broad readership from forestry and environmental disciplines.

Genetics, Biofuels and Local Farming System

E. Lichtfouse, French National Institute for Agricultural Research (INRA), Dijon, France (Ed.)

Features

- Reports advanced genetic tools to improve both crops and ecosystems
- Reports new ideas for energy crop production worldwide
- Unexpectedly shows that local farming systems from poor-countries are more sustainable

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for our children. This discipline addresses current issues such as climate change, increasing food and fuel prices, starvation, obesity, water pollution, soil erosion, fertility loss, pest control and biodiversity depletion. Novel solutions are proposed based on integrated knowledge from agronomy, soil science, molecular biology, chemistry, toxicology, ecology, economy, philosophy and social sciences. As actual society issues are now intertwined, sustainable agriculture will bring solutions to build a safer world. This book series analyzes current agricultural issues and proposes alternative solutions, consequently helping all scientists, decision-makers, professors, farmers and politicians wishing to build safer agriculture, energy and food systems for future generations.

1. Addicted to Growth; Mr. Rudy M. Baum.
2. Grass biomethane for agriculture and energy; Dr. Nicholas E. Korres.
3. Genetic mechanisms enhancing plant biodiversity; Dr. Ioannis S. Tokatlidis.
4. Integrated agri-aquaculture systems; Dr. Ariel D. Zajdband.
5. Small RNA-mediated defensive and adaptive responses in plants; Dr. Qazi Mohd. Rizwanul Haq.
6. Beneficial Soil Microorganisms, an Ecological Alternative for Soil Fertility Management; Dr. Claudio Altomare.
7. Human Labour and Green Manure, Two Overlooked Factors for Energy Analysis in Agriculture; Dr. Vito Sardo.
8. Sustaining Indian Agriculture in the era of climate change; Dr. Bijaya Kumar Padhi.
9. Ecological threats and agricultural opportunities of the aquatic cane-like grass Phragmites australis in wetlands; Dr. Andreas P. Mamolos.
10. Effects of genotype, environment and management on yields and quality of black tea; Prof. P. Okinda Owuor.
11. Biotechnology and agroforestry in Indian arid regions; Prof. K.G. Ramawat.
12. Mutual legume intercropping for forage production in temperate regions; Dr. Branko Ćupina.
13. Alternative Farming Techniques for Sustainable Food Production; Dr. G. Poyya Moli.
Endospore-forming Soil Bacteria

N. A. Logan, Glasgow Caledonien University, UK; P. D. Vos, Gent University, Belgium (Eds.)

Features

➤ A valuable source of information for scientists in microbiology, agronomy, and soil sciences.
➤ Written by renowned scientists.
➤ Presents the latest results in the field of endospore-forming soil bacteria.

Aerobic endospore-forming bacteria are found in soils of all kinds, ranging from acid to alkaline, hot to cold, and fertile to desert. It is well known that endospores confer special properties upon their owners and play dominant parts in their life cycles and dispersal, and much has been written about the spores, genetics, and economic importance of these organisms. Much has also been written about soil ecology, but there is a relative dearth of literature that brings together different aspects of the behaviour and characters of endospore-formers with their contributions to soil ecosystems. This Soil Biology volume fills that gap. Following chapters that describe the current classification of these organisms, that review methods for their detection and for studying their life cycles in soils, and that examine their dispersal, other chapters show that they are active and dynamic members of soil floras that interact widely with other soil inhabitants, with roles in nitrogen fixation, denitrification, and soil remediation.

Evolution of Fungi and Fungal-Like Organisms

S. Pöggeler, University of Göttingen, Göttingen, Germany; J. Wöstemeyer, University of Jena, Jena, Germany (Eds.)

Features

- Written by experts
- Richly illustrated
- Addresses questions concerning the origin of the fungal kingdom and fungal evolution at a level of analytical refinement that has never been possible before

Based on sequence analyses of many different genes, the past decade has provided us with a profound knowledge of fungal systematics and phylogeny. In addition, a number of sequences of complete fungal genomes have been identified and several others will soon follow. In this volume, leading experts address questions concerning the origin of the fungal kingdom and fungal evolution at a level of analytical refinement that has never been possible before. The following major aspects are highlighted: evolutionary roots of fungi; evolution of signaling in fungi and fungal-like organisms; evolution of mutualistic systems and metabolism in fungi; and evolutionary mechanisms and trends.

Halophiles and Hypersaline Environments
Current Research and Future Trends

A. Ventosa, University of Sevilla, Sevilla, Spain; A. Oren, The Hebrew University of Jerusalem, Jerusalem, Israel; Y. Ma, Chinese Academy of Sciences, Beijing, People's Republic of China (Eds.)

Features
► Written by leading experts
► Richly illustrated
► Covers basic aspects as well as possible applications

This book presents the latest results in the exploration of halophilic bacteria, archaea, fungi and viruses. Basic and molecular aspects as well as possible biotechnological applications of halophiles are highlighted by leading scientists. Topics include: the family Halomonomonadaceae; the hypersaline lakes of Inner Mongolia; Salinibacter ruber - from genomics to microevolution and ecology; the impact of lipidomics on the microbial world of hypersaline environments; molecular mechanisms of adaptation to high salt concentration in the black yeast Hortaea werneckii; viruses in hypersaline environments; initiation and regulation of translation in halophilic Archaea; protein transport into and across haloarchaeal cytoplasmic membranes; protein glycosylation in Haloferax volcanii; the effect of anoxic conditions and temperature on gas vesicle formation in Halobacterium salinarum; halophiles exposed to multiple stressors; cellular adjustments of Bacillus subtilis to fluctuating salinities; the nature and function of carotenoids in Halobacillus halophilus; xanthorhodopsin; enzymatic biomass degradation by halophilic microorganisms; and enzymes from halophilic Archaea.

Helge Larsen (1922-2005) and his contributions to the study of halophilic microorganisms.- The halophilic world of Lourens Baas Becking.- Taxonomy, phylogeny and biotechnological interest of the family Halomonadaceae.- The hypersaline lakes of Inner Mongolia – the MGAtech project.- From genomics to microevolution and ecology: the case of Salinibacter ruber.- Impact of lipidomics on the microbial world of hypersaline environments.- Molecular mechanisms of adaptations to high salt concentration in the extremely halotolerant black yeast Hortaea werneckii.- Viruses from the hypersaline environment.- Haloviruses of Great Salt Lake: a model for understanding viral diversity.- Initiation and regulation of translation in halophilic Archaea.- Protein transport into and across haloarchaeal cytoplasmic membranes.- Salty and sweet – Protein glycosylation in Haloferax volcanii.- Effect of anoxic conditions and temperature on gas vesicle formation in Halobacterium salinarum.- Halophiles exposed concomitantly to multiple stressors: adaptive mechanisms of halophilic alkalithermophiles.- Cellular adjustments of Bacillus subtilis and other Bacilli to fluctuating salinities.- The nature and function of carotenoids in the moderately halophilic bacterium Halobacillus halophilus.- Xanthorhodopsin.- Enzymatic biomass degradation by halophilic microorganisms.- Enzymes from halophilic Archaea: open questions.- A short history of the symposia on halophilic microorganisms: from Rehovot 1978 to Beijing 2010.
Mechanical Integration in Plant Cells and Plants

P. Wojtaszek, University of Poznan, Department of Molecular and Cellular Biology, Poland (Ed.)

Features

► Up-to-date knowledge on mechanical aspects of plant life functioning
► Gives an overview of the role played by mechanical forces and signals in plant cells and whole plant growth
► Covers all levels of plant hierarchical organisation, providing direct or indirect evidence for the organismal nature of those organisms

Chemical reactions and interactions between molecules are commonly considered the basis of life, and thus the biochemical nature of cells and organisms is relatively well recognized. Research conducted in recent years, however, increasingly indicates that physical forces profoundly affect the functioning of life at all levels of its organization. To detect and to respond to such forces, plant cells and plants need to be structured mechanically.

This volume focuses on mechanical aspects of plant life. It starts with a consideration of the mechanical integration of supracellular structures and mechanical properties of cellular building blocks to show how the structural integrity of plant cells is achieved and maintained during growth and development. The following chapters reveal how the functioning of integrated plant cells contributes to the mechanical integration of plants, and how the latter are able to detect physical stimuli and to reorganize their own cells in response to them. The mechanical aspects of plant responses to stresses are also presented. Finally, all these aspects are placed in an evolutionary context.

Nanoethics and Nanotoxicology

P. Houdy, Université d’Evry, Evry, France; M. Lahmani, Club NanoMicroTechnologie, Villebon sur Yvette, France; F. Marano, Université Paris Diderot Paris, France (Eds.)

Features

► Provides an up-to-date overview of experimental toxicology on nanoparticles and their impact on both humans and the environment
► Covers all topics related to nanotoxicology, including genotoxicity, epidemiology, exposure limits, environmental aspects, health protection, risk assessment
► Presents specific policies on nanotechnologies Discusses important aspects of nanoethics

Nanobiotechnology is a fast developing field of research and application in many domains such as in medicine, pharmacy, cosmetics and agro-industry. The book addresses the latest fundamental results on nanotoxicology and nanoethics, and the enormous range of potential applications in the fields of medical diagnostics, nanomedicine, and food and water administration.

Nanoscale objects have properties leading to specific kinds of behaviour, sometimes exacerbating their chemical reactivity, physical behaviour, or potential to penetrate deeply within living organisms. Hence it is important to ensure the responsible and safe development of nanomaterials and nanotechnologies.

This fourth volume in the Nanoscience series should make its mark, by presenting the state of the art in the fields of nanotoxicology and nanoethics. This is the first book to combine both scientific knowledge and ethical and social recommendations. It also presents specific policies on nanotechnologies set up by national and international authorities. This book is of interest to engineers, researchers, and graduate students.

Management in the workplace.- Health protection.- Part B: Experimental toxicology of nanoparticles and their impact on the environment.- surface reactivity of manufactured nanoparticles.- nanoparticle transfer.- ecotoxicology: reactivity in living systems.- toxicological models.- life cycle models.- nanoethics.- nano-ethics: challenges and opportunities.- philosophical guidelines for the responsible use of nanotechnology.- ethics and regulation.- the situation in france.- the situation in europe and the rest of the world.- nanotechnology and the law.- social issues.- labour relations.- risk perception.- robotics, ethics, and nanotechnology.- ethics and industrial production.
2nd Edition
Computational Ocean Acoustics

F. B. Jensen, NATO Undersea Research Centre, La Spezia, Italy; W. A. Kuperman, University of California, San Diego, La Jolla, CA, USA; M. B. Porter, Heat, Light, and Sound Research, Inc., La Jolla, CA, USA; H. Schmidt, Massachusetts Institute of Technology, Cambridge, MA, USA

Features
► Presents a thoroughly revised and updated edition of a classic in the field of ocean acoustics
► Reinforces concepts via problems at the end of each chapter
► Uses color illustrations extensively throughout the text
► The only book to cover numerical methods in ocean acoustics

The first edition of Computational Ocean Acoustics was a comprehensive introduction to the state-of-the-art numerical techniques which have become standard research tools in ocean acoustic science. This revision, with 100 additional pages updating the material in the first edition and including problems and solutions in every chapter, will make this senior level/graduate level/reference text even more useful in both the educational and professional areas of computational ocean acoustics.


Fields of Interest
Acoustics; Oceanography; Simulation and Modeling

Target Group
Graduate

Type of Publication
Graduate/Advanced undergraduate textbook
Circulatory and Ventilatory Systems: Biomathematical and Biomechanical Modeling

Volume 1: Signaling in Cell Organization, Fate, and Activity,
Part A: Cell Structure and Environment

M. Thiriet, Université Pierre et Marie Curie, Paris, France

Features

- Describes cell types, functions, and fate in the regulated activities of the circulatory and respiratory systems
- Presents applications of mechanics and mathematics for an understanding and prediction of function in health and disease
- Integrates biology, chemistry, and physics for a multidisciplinary understanding of physiological flows

The volumes in this authoritative series present a multidisciplinary approach to modeling and simulation of flows in the cardiovascular and ventilatory systems, especially multiscale modeling and coupled simulations. The cardiovascular and respiratory systems are tightly coupled, as their primary function is to supply oxygen to and remove carbon dioxide from the body’s cells. Because physiological conduits have deformable and reactive walls, macroscopic flow behavior and prediction must be coupled to nano- and microscopic events in a corrector scheme of regulated mechanism. Therefore, investigation of flows of blood and air in physiological conduits requires an understanding of the biology, chemistry, and physics of these systems together with the mathematical tools to describe their functioning. Volume I is devoted to cellular events that allow adaptation to environmental conditions, particularly mechanotransduction. Part A begins with cell organization and a survey of cell types in the vasculature and respiratory tract. It then addresses the cell structure and functions, especially in interactions with adjoining cells and matrix.


References.- Notations: Aliases and Symbols.- Notations: Prefixes and Suffixes.- Biochemical, Medical and Physical Aliases.- Mathematical Symbols, Molecules, and Physical Quantities.- Index.
Forthcoming
Due July 2011

2nd Edition
Springer Handbook of Lasers and Optics
F. Träger, Universität Kassel, Kassel, Germany (Ed.)

Features
► Presents a most practical and complete office/laboratory companion for the daily work with optical instruments and lasers
► New edition of appraised all-in-one desk reference
► Comprehensive supplementary material on extras.springer.com

This new edition features numerous updates and additions. Especially 4 new chapters on Fiber optics, Integrated Optics, Frequency Combs and Interferometry. In addition major complete updates for the chapters Optical Materials and Their Properties, Optical Detectors, Nanooptics, Optics Far Beyond the Diffraction Limit. #Features: Contains over 980 two-color illustrations. Includes over 120 comprehensive tables with properties of optical materials and light sources. Emphasizes physical concepts over extensive mathematical derivations. Chapters with summaries, detailed index and comprehensive supplementary material online at extras.springer.com guarantee quick access to data. Delivers a wealth of up-to-date references.

Foreword by T.W. Hänsch.

- Geometrical Optics.
- Wave Optics.
- Nonlinear Optics.
- Optical Materials and Their Properties.
- Thin Films.

- Advanced Optical Components.
- Optical Detectors.

Part C: Coherent and Incoherent Light Sources: Incoherent Light Sources.
- Lasers and Coherent Light Sources.
- Short and Ultrashort Laser Pulses.

Part D: Selected Applications and Special Fields: Optical and Spectroscopic Techniques.
- Fiber optics.
- Integrated Optics.
- Interferometry.
- Frequency Combs.
- Quantum Optics.
- Nanooptics.
- Optics Far Beyond the Diffraction Limit.
- Terahertz Photonics.
- X-Ray Optics.
- Atmospheric Optics.
- Holography and Optical Data Storage.
- Laser Safety.

Bookstore location
Physics

Fields of Interest
Laser Technology, Photonics; Optical and Electronic Materials; Microwaves, RF and Optical Engineering

Target Group
Professional/practitioner

Type of Publication
Handbook
Forthcoming
Due April 2011

2011. XIV, 511 p. Hardcover
ISBN 978-3-642-19661-4
► approx. € 4190,00 | £3771.00
► approx. *€ (D) 4483,30 |
€ (A) 4609,00 | sFr 6007,00

Bookstore location
Physics

Fields of Interest
Physics, general; Condensed Matter
Physics; Crystallography

Target Group
Research

Type of Publication
Reference work

Space groups (140) I4/mcm – (136) P42/mnm
Structure Types
P. Villars, MPDS, Vitznau, Switzerland; K. Cenzual, Geneva University, Geneva, Switzerland (Eds.)

Features
► Standard reference book with selected and easily retrievable data from the fields of physics and chemistry collected by acknowledged international scientists.

Volume 43 of Group III deals with crystallographic data of both intermetallic and classical inorganic compounds, thus forming an update of the former Landolt-Börnstein volumes III/6 (Structure Data of Elements and Intermetallic Phases) and III/7 (Crystal Structure Data of Inorganic Compounds). It does not include compounds that contain C-H bonds. Moreover, in contrast to the earlier edition the present volume presents the data in a different, more modern arrangement - known crystal structures are combined in groups according to their type of structure; each structure type is therefore represented by a complete set of crystallographic data holding for all isotypic structures, with the data comprising space group, cell parameters and atom coordinates. Remarks, descriptions and figures are provided where necessary. The present subvolume A10, which utilizes the databases TYPIX and Pauling file, forms the tenth contribution to volume 43, which is going to be published in a series of subvolumes. Subvolumes A1 - A9 are already available.Also available on: Springermaterials.com#
Handbook of International Feminisms
Perspectives on Psychology, Women, Culture, and Rights
A. Rutherford, York University, Toronto, Ontario, Canada; R. Capdevila, Open University, Milton Keynes, UK; V. Undurti, Andhra University, Visakhapatnam, India; I. Palmary, University of the Witwatersrand, Johannesburg, Africa (Eds.)

Features

- Collects and presents feminist work as it is being developed and practiced in diverse contexts around the world
- Comprehensive coverage of feminist issues
- Contributors are primary researchers in the field

The goal of Handbook of International Perspectives on Feminism is to present the histories, status, and contours of feminist research and practice in their respective regional and/or national contexts. The editors have invited researchers who are doing this work to present their perspectives on women, culture, and rights with the objective to illuminate the diverse forms that feminist psychological work takes around the world, and connect these forms with the unique positions and concerns of women in these regions.

What does "feminist psychology" look like in Japan? In South Africa? In Sri Lanka? In Canada? In Brazil? How did it come to look this way? How do psychologists in these countries or regions, each with unique political, economic, and cultural histories, engage in feminist work in the societies in which they live? How do they employ the tools of "psychology" – broadly defined – to do this work, and what tensions and challenges have they faced?

Selected Works of Oded Schramm

I. Benjamini, The Weismann Institute, Rehovot, Israel; O. Häggström, Chalmers University of Technology, GÖTEBORG, SWEDEN (Eds.)

Features

► Provides convenient access to significant papers from a highly regarded author working at a time when many of the foundational building blocks of probability and statistics were being put in place
► Includes commentaries by important statisticians
► Includes a complete bibliography

This volume is dedicated to the memory of the late Oded Schramm (1961-2008), distinguished statistician. Throughout his life, Oded made profound and beautiful contributions to mathematics that will have a lasting influence. In these two volumes, Editors Itai Benjamini and Olle Häggström have collected some of his papers, supplemented with three survey papers by Steffen Rohde, Häggström and Cristophe Garban that further elucidate his work. The papers within are a representative collection that shows the breadth, depth, enthusiasm and clarity of his work, with sections on Geometry, Noise Sensitivity, Random Walks and Graph Limits, Percolation, and finally Schramm-Loewner Evolution. An introduction by the Editors and a comprehensive bibliography of Oded’s publications complete the volume. The book will be of especial interest to researchers in probability and statistics, and in the history of these subjects.

From the contents
Modern Issues and Methods in Biostatistics

M. Chang, AMAG Pharmaceuticals, Inc., Lexington, USA

Features

► Displays broad coverage and can be used as a textbook or as a reference text
► Details novel ingredients or developments in methodology, computation algorithms, and applications
► Includes an introduction to the concepts, discussions of methodology, and examples of applications for a diverse range of topics including Multivariate and Multistage Survival Data Modeling, Meta-analysis, Data Mining and Signal Detection, and Bayesian Methods and Applications

Classic biostatistics, a branch of statistical science, has as its main focus the applications of statistics in public health, the life sciences, and the pharmaceutical industry. Modern biostatistics, beyond just a simple application of statistics, is a confluence of statistics and knowledge of multiple intertwined fields. The application demands, the advancements in computer technology, and the rapid growth of life science data (e.g., genomics data) have promoted the formation of modern biostatistics. There are at least three characteristics of modern biostatistics: (1) in-depth engagement in the application fields that require penetration of knowledge across several fields, (2) high-level complexity of data because they are longitudinal, incomplete, or latent because they are heterogeneous due to a mixture of data or experiment types, because of high-dimensionality, which may make meaningful reduction impossible, or because of extremely small or large size; and (3) dynamics, the speed of development in methodology and analyses, has to match the fast growth of data with a constantly changing face. This book is written for researchers, biostatisticians/statisticians, and scientists who are interested in quantitative analyses. The goal is to introduce modern methods in biostatistics and help researchers and students quickly grasp key concepts and methods. Many methods can solve the same problem and many problems can be solved by the same method, which becomes apparent when those topics are discussed in this single volume.

Advanced Surgical Facial Rejuvenation
Art and Clinical Practice
A. Erian, Cambridge, UK; M. A. Shiffman, Tustin, CA, USA (Eds.)

Features
- Covers all aspects of aesthetic facial surgery, from anatomy to the variety of current procedures, including ancillary techniques such as chemical peel, laser, and facial fillers
- Includes discussion of preoperative care, anesthesia, problems related to HIV infection, complications, and psychological aspects
- Richly illustrated
- Written by internationally acclaimed experts

This richly illustrated book covers all aspects of aesthetic facial surgery, from anatomy to the variety of procedures employed in facial surgery, including ancillary techniques such as chemical peel, laser, and facial fillers. Both newer techniques and variations on older approaches are carefully presented and discussed. In addition, preoperative care is analyzed, and detailed attention is devoted to problems related to HIV infection, anesthesia, complications, and psychological aspects. The contributors are all internationally acclaimed experts in the field. The book will be an invaluable source of information for residents and fellows, practicing aesthetic surgeons, and surgeons in a variety of related fields.

From the contents:
- PART I: ANATOMY.
- PART II: ANESTHESIA.
- PART III: PREOPERATIVE AND POSTOPERATIVE.
- PART IV: PSYCHOLOGICAL ASPECTS.
- PART V: TECHNIQUES.
  - Hair Transplantation.
  - Ablative Laser Facial Resurfacing.
  - Photorejuvenation.
  - Superficial And Medium Peel.
  - Deep Phenol Peel.
  - Facial Implants.
  - Injectable Facial Fillers.
  - Submentoplasty And Facial Liposuction.
  - Bio-Lifting And Bio-Resurfacing.
  - Personal Technique Of Doing Office Facial Surgery.
  - Design And Management Of The Anterior Hairline.
  - Temporal Incision And Skin Take Out In The Vertical Facelift And Lateral Brow Lift Procedures.
  - Short Scar Facelift With Extended SMAS/Platysma Dissection And Limited Skin Undermining High SMAS Facelift Combined Single Flap Lift Of Jawline, Cheek, And Mid Face.
  - Extent Of SMAS Advancement In Facelift With Or Without Zygomaticus Major Muscle Release.
  - A Safe Facelift Using Bony Anatomic Landmarks To Elevate The SMAS.
  - Deep Plane Facelift.
  - Endoscopic Forehead Lift.
  - Minimally Invasive Ciliary-Frontoplasty. Index
Handbook of Burns Volume 2
Reconstruction and Rehabilitation

L. Kamolz, Medizinische Universität Wien, Austria; M. G. Jeschke, D. N. Herndon, Shriners Hospital for Children, Galveston, TX, USA; R. E. Horch, Universitätsklinikum Erlangen, Germany (Eds.)

Features
- Reference book on complex management of reconstruction and long-term rehabilitation of burn patients
- Advances in research and treatment
- Edited and written by world leading authorities on burn-care

This volume compiles the perspectives of a multi-author team examining the entire spectrum of burn reconstruction and long-term treatment. Individual chapters cover basic aspects of wound healing and scarring, and those of plastic surgery relating to tissue rearrangement and the use of flaps, as well as the long-term use of skin and skin substitutes. Furthermore, topics such as rehabilitation and scar management are addressed in detail. This part provides detailed reconstruction guidelines divided by anatomic region (e.g. face, hands, …), as well as aspects of future trends and prospects in burn reconstruction, among which are e.g. allotransplantation and bionics.

- Long-term pathophysiology and consequences of a burn
- Care of outpatients
- Itch and pain guidelines
- Wound healing
- Pathophysiology
- Scarring, HTS, Keloids
- Pathophysiology
- Local Therapy
- Rehabilitation
- Exercise
- ASD/PTSD
- Burn reconstruction
- Reconstruction principles
- Head and Neck
- Breast reconstruction
- Upper extremity
- Hand reconstruction
- Lower extremity
- Genital region
- Post Amputation
- Psychosocial aspects
- Quality management.
Lymphedema: A Concise Compendium of Theory and Practice

B. Lee, George Washington University, Washington, DC, USA; J. Bergan, University of California, La Jolla, CA, USA; S. G. Rockson, Stanford University School of Medicine, Stanford, CA, USA (Eds.)

Features

- 30 authors selected upon internationally known clinicians in this field.
- The grading of the recommendations depending on the evidence base provides users with a thorough grounding in the diagnostic tests and treatments.
- Recognises the synergies between lymphologists and phlebologists in treating this particular disease.
- Exclusively reports on the findings of the IUP Consensus panel 2009

Lymphedema: A Concise Compendium of Theory and Practice brings into one volume the most important sources of information to guide the evaluation and treatment of patients with lymphedema. The management of chronic lymphedema continues to challenge both patients and treating physicians worldwide. In the past decades, however, substantial progress has been achieved for both diagnosis and therapy of these disabling conditions. With increasing attention to the quality of life, this debilitating life-long disease is receiving more attention not only by lymphedema specialists, but also by clinicians across the spectrum of health care delivery. Lymphedema: A Concise Compendium of Theory and Practice provides clear, concise background and recommendations in an easy-to-use format. It is a valuable reference tool for clinical practitioners (physicians/nurse practitioners/technicians) who wish to deliver state-of-the-art health care to their patients with lymphatic and venous disorders.

From the contents

Venous Embolization of the Liver
Radiologic and Surgical Practice
D. C. Madoff, New York-Presbyterian Hospital/Weill Cornell Medical Center, New York, NY, USA; M. Makuuchi, University of Tokyo, Tokyo, Japan; M. Nagino, Nagoya University Graduate School of Medicine, Nagoya, Japan; J. Vauthey, The University of Texas M. D. Anderson Cancer Center, Houston, TX, USA (Eds.)

Features
- Many detailed illustrations of liver segmental and vascular anatomy and embolization techniques
- State-of-the-art imaging and intraoperative photography will be used to highlight these innovative techniques
- Graphs and tables will be used to provide detailed outcome data for comparisons of various embolic agents and techniques as well as survival outcomes for various hepatobiliary diseases for which venous embolization will be utilized.

Venous Embolization of the Liver: Radiologic and Surgical Practice explores the theoretical advantages and clinical implications for utilizing Venous Embolization techniques, including portal vein and hepatic vein embolization. The practice of venous embolization of the liver was originally developed in Japan by Dr. Makuuchi (one of the co-editors of this book) in 1990 and since then, the techniques reviewed in this book are practiced throughout the world and are now considered the “standard of care” at many hepatobiliary centres worldwide. Venous Embolization of the Liver: Radiologic and Surgical Practice covers a multitude of topics, including: pertinent vascular (microscopic and macroscopic) and surgical anatomy, liver regeneration (including the atrophy-hypertrophy complex), historical perspectives of major hepatic resection, various hepatobiliary surgical procedures, factors affecting hypertrophy, pathophysiology of embolization and resection, embolization techniques (including approaches and embolic agents), the indications for embolization and resection (including pre-operative volumetric and functional assessment and post-embolization followup), potential complications, outcomes data for different diseases, recently advocated strategies (including “definitive” treatment of hepatocellular carcinoma using portal vein embolization after transcatheter arterial chemoembolization) and future perspectives. This book is a valuable resource for interventional radiologists and hepatobiliary surgeons who perform the embolization procedures and liver resections. Venous Embolization of the Liver: Radiologic and Surgical Practice can also be used secondarily by diagnostic radiologists, medical oncologists specializing in gastrointestinal malignancies, hepatologists, gastroenterologists, liver transplant surgeons and basic scientists interested in liver regeneration physiology research.

From the contents
Handbook of Headache
Practical Management

P. Martelletti, Sapienza University of Rome, Italy; T. J. Steiner, Imperial College London, UK (Eds.)

Features
- Headache disorders are one of the most common disorders of the nervous system
- Headaches are in the top ten causes of disability worldwide, for this reason, Headache Medicine has been incorporated in the priority strategies of international scientific societies, as well as of health care providers
- This book will provide a useful tool and could also represent for medical students a compendium focused on a topic to which they are usually introduced through multidisciplinary university programs

Headache disorders are among the most common disorders of the nervous system. They are pandemic and, in many cases, they are recurrent and can accompany the patient for the whole life. These disorders impose a substantial burden on headache sufferers, on their families and on society: the individual impact is measured by the frequency and severity of attacks, while the societal burden is measured in terms of loss of activity at work and school as well as of costs for the health system. As a matter of facts, headaches are ranked in the top ten, and maybe the top five, causes of disability worldwide: they are therefore extraordinarily common.

Population-based studies have mostly focused on migraine, which, even if it is the most frequently studied headache disorder, is not the most common. Other types of headache, such as the more prevalent TTH and sub-types of the more disabling chronic daily headache, have so far received less attention and need to be better investigated.

This book will provide a useful tool to a wide medical population, who is required specific skills to diagnose and manage these frequent and often disabling disorders. Furthermore, it could also represent a compendium for medical students who are usually introduced to this topic through multidisciplinary university programmes.


Hardcover
➤ € 199,95 | £180.00
➤ * € (D) 213,95 | € (A) 219,94 |
sFr 287,00

Print + eReference. Hardcover
➤ € 249,00 | £224.50
➤ * € (D) 266,43 | € (A) 273,90 |
sFr 357,00

eReference.
➤ approx. € 249,95 | £180.00
➤ approx. ** € (D) 297,44 |
€ (A) 299,94 | sFr 301,50
3rd Edition

Drug Interactions in Infectious Diseases

S. C. Piscitelli, GlaxoSmithKline, Research Triangle Park, NC, USA; K. A. Rodvold, University of Illinois at Chicago, Chicago, IL, USA; M. P. Pai, Albany College of Pharmacy, Albany, NY, USA (Eds.)

Features

► Definitive reference source of up-to-date information on antimicrobial drug interaction
► Informative tables on the degree of interaction for specific antimicrobial agents
► New chapters on non-HIV antiviral, antimalarial, antiparasitic, and macrolide, azalide and ketolide agents

The revised and up-to-date third edition of Drug Interactions in Infectious Diseases delivers a text that will enhance your clinical knowledge of the complex mechanisms, risks, and consequences of drug interactions associated with antimicrobials, infection, and inflammation. The third edition features five new chapters that cover material not addressed in previous editions. These new chapters describe interactions with a number of drug classes such as non-HIV antiviral, antimalarial, antiparasitic, antihelmintic, macrolide, azalide and ketolide agents. A novel chapter on probe cocktail studies has been included to highlight an important research tool for drug development. These chapters address material that cannot be retrieved easily in the medical literature. The highly acclaimed food-drug interactions as well as the study design and analysis chapters remain definitive references. The newly written drug-cytokine interaction highlights the need for our improved understanding of the complex interrelationship of acute infection, inflammation, and the risk of drug interactions. Informative tables on specific drug-drug interactions are provided throughout the chapters as a quick clinical resource.

The Third Edition of Drug Interactions in Infectious Diseases is a distillation of relevant drug interactions associated with antimicrobials, infection, and inflammation. This concise review of the mechanisms and strategies to manage drug interactions should be valuable to all health care practitioners.

From the contents

Cushing's Disease

B. Swearingen, Massachusetts General Hospital, Boston, MA, USA;
B. M. Biller, Massachusetts General Hospital and Harvard Medical School, Boston, MA, USA
(Eds.)

Features

- Provide material that is clinically practical.
- Informed by the most recent scientific advances.
- Written by an international group of experts in the field.

In Cushing's Disease, leading authorities in the field offer a thorough review of the pathogenesis, diagnostic algorithm and treatment options for this complex disease. Beginning with a fascinating history of Cushing's disease that outlines its historical significance to both endocrinology and neurosurgery, the book goes on to cover the full range of important issues, including the molecular pathogenesis of Cushing's, anatomic pathology, the diagnosis of Cushing's syndrome, the differential of pseudo-Cushing's syndromes, hypercortisolism, surgical removal of the corticotroph adenoma, post-operative management and assessment of remission, radiotherapeutic options, and the exciting developments in medical therapy. In addition, the book also addresses Cushing's disease in the pediatric population, given that its clinical manifestations and impact on growth can be severe; silent corticotroph adenomas as a distinct clinical entity; diagnosis and management of Cushing's disease during pregnancy, bilateral adrenalectomy, and, finally, the long-term psychological manifestations of hypercortisolism. Comprehensive and an invaluable addition to the literature, Cushing's Disease is an essential reference for enhancing diagnosis and treatment of this debilitating disorder.

Neuroendocrine Tumors

J. C. Yao, Department of Gastrointestinal Medical Oncology, The University of Texas, M.D. Anderson Cancer Center, Houston, TX, USA; P. M. Hoff, Instituto do Cancer do Estado de São Paulo, Faculdade de Medicina da Universidade de São Paulo, Hospital Sirio Libanes, São Paulo, Brazil; A. O. Hoff, Instituto do Cancer do Estado de São Paulo, Faculdade de Medicina da Universidade de São Paulo, Grupo Fleury, São Paulo, Brazil (Eds.)

Features
► Emphasizes emerging therapeutic options
► Discusses the practical applications of novel molecular targeted agents
► Conveys recent advances in the understanding of molecular pathogenesis
► Covers all major types of neuroendocrine tumors

New research has shown that neuroendocrine tumors are more common than previously thought. Progress in our understanding of the molecular pathogenesis of these not-so-rare cancers has resulted in renewed interest in developing innovative therapeutic options. In particular, novel molecular targeted agents have been shown to have significant anti-tumor activity, and integration of these therapies has led to critical advances in management. In this volume, an outstanding group of the world’s leaders in the field have assembled to convey their knowledge of the epidemiology, biology, and management of all the major types of neuroendocrine tumors. The book takes a multi-modality approach to understanding disease processes and therapeutics, including chapters on medical and surgical treatment as well as a chapter devoted to imaging. Throughout, the authors emphasize recent advances in our understanding of molecular biology and the subsequent emerging therapeutic options.

Global Epidemiology of Neuroendocrine Tumors.- Pathology.- Multiple Endocrine Neoplasia.- Other Genetic Syndromes.- Imaging of Neuroendocrine Tumors.- Surgical Management of Sporadic Gastrointestinal Neuroendocrine Tumors.- Management of Neuroendocrine Tumor Hormonal Syndromes.- Management of Metastatic Carcinoid Tumors.- Medical Management of Islet Cell Carcinoma.- Poorly Differentiated Neuroendocrine Tumors.- Hereditary and Sporadic Medullary Thyroid Carcinoma.- Adrenocortical Carcinoma.- Pheochromocytoma.- Merkel cell carcinomas.
Lipid Mediators and Their Metabolism in the Brain

A. A. Farooqui, The Ohio State University, Columbus, OH, USA

Features

▶ Presents readers with cutting edge and comprehensive information on lipid mediators in a manner that is useful not only to students and teachers, but also to researchers and physicians.
▶ Provides a comprehensive description of glycerophospholipid, sphingolipid, and cholesterol-derived mediators, their interactions with each others in normal brain and in brain tissue from neurological disorders.
▶ The presentation of this monograph is based on uniformity and logical progression of subject from one topic to another with an extensive bibliography.

Lipid Mediators and Their Metabolism in the Brain presents readers with cutting edge and comprehensive information not only on the synthesis and degradation of glycerophospholipid-, sphingolipid-, and cholesterol-derived lipid mediators, but also their involvement in neurological disorders. It is hoped that this monograph will be useful not only to postgraduate student and their teachers, but also to research scientists and physicians, who are curious about the generation and roles of lipid mediators in the brain.

Drug Product Development for the Back of the Eye

U. B. Kompella, University of Colorado Denver, Aurora, CO, USA;
H. F. Edelhauser, Emory University, Atlanta, GA, USA (Eds.)

Features

- Written by top investigators in respective areas
- Addresses methods of tissue isolation and drug analysis, noninvasive approaches and nanotechnology based products
- Presents approaches to assess and model pharmacokinetics of the eye noninvasively as well as a comprehensive coverage of transscleral drug delivery

From the contents

Skeletal Atlas of Child Abuse

J. C. Love, S. M. Derrick, J. M. Wiersema, Harris County Institute of Forensic Sciences, Houston, TX, USA

Features

- High quality images
- Ideal captions to enlighten the reader
- Authored by leading scientists and researchers

This illustrated guide to the role of the forensic anthropologist in investigating child abuse is an essential resource in one of the most contentious areas of forensic pathology. Not only does it supply a review of the literature in this field, but it illustrates the material with photographs from real cases investigated by the Harris County Institute of Forensic Sciences, which serves a population of four million people. Broken down into body regions and skeletal elements for ease of reference, the atlas facilitates the vital work performed by forensic anthropologists, who bring to the autopsy table a store of specialist knowledge that can turn a case. Despite the frequency of child fatalities (in America, 2.3 per 100,000) attributed to physical abuse, merely recognizing the offense is a major forensic challenge. The tell-tale signatures of non-accidental injury can be very subtle, making it difficult to differentiate between accidental and non-accidental injury. Yet successful adjudication of a child abuse case often rests on the correct interpretation of skeletal injury. In this volume the authors guide the reader through published data regarding the mechanics and interpretation of injuries, including the agencies they indicate. The material includes discussion of the limitations faced in interpreting some injuries, where making a judgment on cause is tricky. In addition, a chapter on natural diseases affecting the bones provides a good overview of several conditions that are often invoked as ‘mimics’ of child abuse. Finally, this publication evinces the value of collaboration between the pathologist and the anthropologist.

Handbook of the Cerebellum and Cerebellar Disorders

M. Manto, ULB Erasme Neurologie, Bruxelles, Belgium; D. Gruol, The Scripps Research Institute, La Jolla, CA, USA; J. Schmahmann, Harvard Medical School, Boston, MA, USA; N. Koibuchi, Gunma University, Maebashi, Japan; F. Rossi, Rita Levi Montalcini Center for Brain Repair, Turin, Italy (Eds.)

Features

- First major reference in the area of cerebellar research
- Uniquely available in both print and enhanced electronic formats
- Produced in conjunction with the Society for Research on the Cerebellum

Our knowledge of cerebellar functions and cerebellar disorders, called ataxias, is increasing considerably. Studies of the cerebellum are now a central focus in neuroscience. During the last four decades, many laboratories worldwide have dedicated their research activities to understanding the roles of the cerebellum in motor control, cognitive processes and biology of mental processes, behavioral symptoms, and emotion. It is now accepted that the cerebellum acts as a cognitive operator in learning, perception, and attention. Moreover, major improvements in our assessment of in vivo cerebellar architecture using imaging techniques have occurred. A typical example is the accurate description of cerebellar anatomy during fetal development with MRI, a progress which has direct impacts on patient care. These advances have been associated with discoveries of new clinical disorders, in particular in the field of genetic ataxias. More than 20 new genes have been identified these last 10 years. Only for dominant ataxias, more than 30 diseases have now been unravelled. The number of ataxic disorders will increase with aging, the cerebellum being the structure of the brain with the most important loss of neurons with age. More than 300 different cerebellar disorders are encountered during daily practice, but we are missing a single source of information explaining their pathogenesis. Despite the immense amount of knowledge acquired about the cerebellar circuitry these last years, a large book covering the neuroscience of the cerebellum is missing. The goal of this endeavour is to bring up to date information relevant for basic science and also for clinical activities. To reach this goal, the most renowned authors will be gathered in a unique and in-depth book with a format of a handbook. We will emphasize the connections between molecular findings, imaging features, behavioural/neuropsychological aspects, and clinical implications.

From the contents

Handbook of Drug Interactions
A Clinical and Forensic Guide

A. Mozayani, Harris County Medical Examiner Office, Houston, TX, USA; L. Raymon, Kaplan Medical, Homestead, FL, USA (Eds.)

Features
- Includes cutting-edge research
- Provides detailed analysis of current trend
- Contains studies from leading experts in the field

Adverse drug reactions and interactions are still a major headache for healthcare professionals around the world. The US Food and Drug Administration’s database recorded almost 300,000 serious adverse events in 2009 alone, of which 45,000 instances proved fatal. This updated new edition of the indispensable guide to drug interactions incorporates fresh research completed since the book’s original publication by Humana Press in 2004. Additions include a new section on pharmacogenomics, a rapidly growing field that explores the genetic basis for the variability of responses to drugs. This new material reviews important polymorphisms in drug metabolizing enzymes and applies the findings to forensic interpretation, using case studies involving opiates as exemplars. Existing chapters from the first edition have in most cases been updated and reworked to reflect new data or incorporate better tables and diagrams, as well as to include recent drugs and formulations. Recent references have been inserted too. The handbook features extra material on illicit drug use, with a new chapter tackling the subject that covers cocaine, amphetamines and cannabis, among others. The section on the central nervous system also deals with a number of drugs that are abused illicitly, such as benzodiazepines, opiates flunitrazepam and GHB, while so-called ‘social’ drugs such as alcohol and nicotine are still discussed in the book’s section on environmental and social pharmacology. Focusing as before on detailed explanation and incorporating both pharmacokinetic and pharmacodynamic drug interactions, this book will continue to be a lodestar for health and forensic professionals as well as students.

Gene Vaccines

J. Thalhamer, R. Weiss, University of Salzburg, Austria; S. Scheibelhofer, University of Salzburg, Department of Molecular Biology, Division of Allergy & Immunology, Hellbrunnerstrasse 34, 5020 Salzburg, Austria (Eds.)

Features

► Presents the only updated volume on gene vaccines
► Focuses on the most promising approaches towards gene vaccination close to or already in clinical use
► Provides an objective comparison of different methods and protocols

The induction of antigen-specific immune responses after in vivo transfection with expression plasmids has triggered a revolution of vaccine research. After a first hype, evoked by the fascinating options of this method, clinical studies did not reach the ambitious aims and a phase of disillusion ensued. It became obvious that Gene vaccines displayed a weaker immunogenicity in humans than had been observed in the mouse models. Meanwhile these hurdles have been overcome and gene vaccines undergo a renaissance. The present book gives an update of the “world of naked gene vaccines”, namely DNA and RNA vaccines. Its content ranges from general mechanisms, inherent immunostimulatory properties and the vast potential to modulate immune responses, to recent successful clinical studies and approved veterinary gene vaccines. Beyond the state-of-the-art of genetic immunization, the reader will be stimulated with a chapter addressing “burning questions”.

Stress Responses of Lactic Acid Bacteria

E. Tsakalidou, K. Papadimitriou, Agricultural University of Athens, Greece (Eds.)

Features

► Focus on the responses of LAB towards specific environmental stresses
► Presents the stress responses of LAB in the context of species and genera
► Discusses the applications and the future challenges of LAB stress research

Lactic acid bacteria (LAB) constitute a heterogeneous group of bacteria that are renowned for the crucial role they play in the health of humans and animals. While some LAB are food-related and probiotic, remaining harmless and at times even conferring health benefits to the consumer, others are host-associated and include some of the most severe human and veterinary pathogens. Due to their economic importance for the food industry and their health-related implications as probiotics or pathogens, the genetics, physiology and metabolism of LAB have been under rigorous investigation over the past three decades. During food processing and storage, LAB reside under adverse environmental conditions designed to be bacteriostatic or bactericidal for food spoilage microorganisms and foodborne pathogens. In addition, during consumption, the key feature of probiotic strains is their aptitude to survive through the harsh environment of the gastrointestinal tract of the host so as to reach and colonize the intestine and exert their health-promoting effects. Furthermore, the pathogenic nature of certain LAB species has been clearly associated with their tolerance to environmental stresses. Organized into 3 parts, this book discusses the current knowledge of the stress physiology of LAB. Part A focuses on the responses of LAB towards specific environmental stresses. Part B presents the stress responses of LAB in the context of species and genera, and Part C discusses the applications and the future challenges of LAB stress research.

1. The importance of understanding the stress physiology of lactic acid bacteria.-
   Part A. Responses of lactic acid bacteria towards specific environmental stresses.-
Collected Papers V. Phenomenology and the Social Sciences

A. Schutz, Vienna, Austria
L. Embree, Florida Atlantic University, Boca Raton, FL, USA (Ed.)

Features

► This text draws together several, formerly scattered key texts of Alfred Schutz, the foremost phenomenologist to bring phenomenology to bear on the social sciences.

► Contains Schutz’ letters, many of them selected and translated for the first time, corresponding with other significant social scientists and philosophers.

► Reveals new sides of Schutz in the Eliot essay.

This book shows how phenomenology of the social sciences differs from positivistic approaches, and presents Schutz’s theory of relevances—a key feature of his own phenomenology of the social world. It begins with Schutz’s appraisal of how Husserl influenced him, and continues with exchanges between Schutz and Eric Voegelin, Felix Kaufmann, Aron Gurwitsch, and Talcott Parsons. This book presents, for the first time, Schutz’s incisive criticisms of T.S. Eliot’s theory of culture, and an ethnographic description of Schutz diary on visiting for the first time the United States.

Collected Papers VI. Literary Reality and Relationships

A. Schutz, Vienna, Austria
M. Barber, St. Louis University, St. Louis, MO, USA (Ed.)

Features

► A collection of previously scattered works of Alfred Schutz, the most famous phenomenologist to have related phenomenology to the cultural sciences

► All of Schutz's work presented in the volume have never appeared in English before

► Presents works from a neglected side of the Schutz corpus, namely writings on normative areas such as aesthetics and ethics

This book contains texts devoted by Alfred Schutz to the "normative" areas of literature and ethics. It includes writings dealing with the author-reader relationship, multiple realities, the literary province of meaning, and Schutz's views on equality. Never published in English commentaries on Goethe's novel and the account of personality in the social world appear in this volume.

Sub-State Governance through Territorial Autonomy
A Comparative Study of Institutions, Procedures and Powers in Constitutional Law

M. Suksi, Abo Akademi University, Abo, Finland

Features

► The first systematic review of different sub-state entities organized as territorial autonomies
► Distinguishes territorial autonomies from federal forms of organization
► Connects territorial autonomy to conflict resolution and self-determination
► Identifies the most important features of territorial autonomy
► Compares the different territorial autonomies at a general level
► Provides detailed analysis of norms and practice in territorial autonomies

This study focuses on territorial autonomy, which is often used in different conflict-resolution and minority situations. Four typical elements are identified on the basis of the historical example of the Memel Territory and the so-called Memel case of the PCIJ; distribution of powers, participation through elections and referendums, executive power of territorial autonomy, and international relations. These elements are used for a comparative analysis of the constitutional law that regulates the position of six current territorial autonomies, the Åland Islands in Finland, Scotland in the United Kingdom, Puerto Rico in the United States of America, Hong Kong in China, Aceh in Indonesia and Zanzibar in Tanzania. The current sub-state entities examined can be arranged in relation to Memel in a manner that indicates that Hong Kong and the Åland conform to the typical territorial autonomy, while Puerto Rico and Aceh should probably not be understood as territorial autonomies proper.