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Projected Costs of Generating Electricity Nea 1998 This is the fifth study in a series on the future costs of generating electricity. It reviews cost estimates for power plants using nuclear, coal, gas and renewable energy sources.

**Sustainable Ammonia Production** Inamuddin 2020-01-09 This book presents sustainable synthetic pathways and modern applications of ammonia. It focuses on the production of ammonia using various catalytic systems and its use in fuel cells, membrane, agriculture, and renewable energy sectors. The book highlights the history, investigation, and development of sustainable pathways for ammonia production, current challenges, and state-of-the-art reviews. While discussing industrial applications, it fills the gap between laboratory research and viable applications in large-scale production.

Surface Tension in Microsystems Pierre Lambert 2013-08-31 This book describes how surface tension effects can be used by engineers to provide mechanical functions in miniaturized products (1 mm). Even if precursors of this field such as Jurin or Laplace already date back to the 18th century, describing surface tension effects from a mechanical perspective is very recent.brThe originality of this book is to consider the effects

of capillary bridges on solids, including forces and torques exerted both statically and dynamically by the liquid along the 6 degrees-of-freedom.brIt provides a comprehensive approach to various applications, such as capillary adhesion (axial force), centering force in packaging and micro-assembly (lateral force) and recent developments such as a capillary motor (torque).

**Chemical Looping Systems for Fossil Energy Conversions** Liang-Shih Fan 2011-02-14 This book presents the current carbonaceous fuel conversion technologies based on chemical looping concepts in the context of traditional or conventional technologies. The key features of the chemical looping processes, their ability to generate a sequestration-ready CO2 stream, are thoroughly discussed. Chapter 2 is devoted entirely to the performance of particles in chemical looping technology and covers the subjects of solid particle design, synthesis, properties, and reactive characteristics. The looping processes can be applied for combustion and/or gasification of carbon-based material such as coal, natural gas, petroleum coke, and biomass directly or indirectly for steam, syngas, hydrogen, chemicals, electricity, and liquid fuels production. Details of the energy conversion efficiency and the

economics of these looping processes for combustion and gasification applications in contrast to those of the conventional processes are given in Chapters 3, 4, and 5. Finally, Chapter 6 presents additional chemical looping applications that are potentially beneficial, including those for H<sub>2</sub> storage and onboard H<sub>2</sub> production, CO<sub>2</sub> capture in combustion flue gas, power generation using fuel cell, steam-methane reforming, tar sand digestion, and chemicals and liquid fuel production. A CD is appended to this book that contains the chemical looping simulation files and the simulation results based on the ASPEN Plus software for such reactors as gasifier, reducer, oxidizer and combustor, and for such processes as conventional gasification processes, Syngas Chemical Looping Process, Calcium Looping Process, and Carbonation-Calcination Reaction (CCR) Process. Note: CD-ROM/DVD and other supplementary materials are not included as part of eBook file.

#### **Physics and Technology of Silicon Carbide Devices**

George Gibbs  
2016-10-01 Silicon (Si) is by far the most widely used semiconductor material for power devices. On the other hand, Si-based power devices are approaching their material limits, which has provoked a lot of efforts to find alternatives to Si-based power devices for better performance. With the rapid innovations and developments in the semiconductor industry, Silicon Carbide (SiC) power devices have progressed from immature prototypes in laboratories to a viable alternative to Si-based power devices in high-efficiency and high-power density applications. SiC devices have numerous persuasive advantages--high-breakdown voltage, high-operating electric field, high-operating temperature, high-switching frequency and low losses. Silicon Carbide (SiC) devices belong to the so-called wide band gap semiconductor group, which offers a number of attractive characteristics for high voltage power semiconductors when compared to commonly used silicon (Si). Recently, some SiC power

devices, for example, Schottky-barrier diodes (SBDs), metal-oxide-semiconductor field-effect transistors (MOSFETs), junction FETs (JFETs), and their integrated modules have come onto the market. Physics and Technology of Silicon Carbide Devices abundantly describes recent technologies on manufacturing, processing, characterization, modeling, etc. for SiC devices.

**Lasso Peptides** Yanyan Li 2014-10-21 Lasso peptides form a growing family of fascinating ribosomally-synthesized and post-translationally modified peptides produced by bacteria. They contain 15 to 24 residues and share a unique interlocked topology that involves an N-terminal 7 to 9-residue macrolactam ring where the C-terminal tail is threaded and irreversibly trapped. The ring results from the condensation of the N-terminal amino group with a side-chain carboxylate of a glutamate at position 8 or 9, or an aspartate at position 7, 8 or 9. The trapping of the tail involves bulky amino acids located in the tail below and above the ring and/or disulfide bridges connecting the ring and the tail. Lasso peptides are subdivided into three subtypes depending on the absence (class II) or presence of one (class III) or two (class I) disulfide bridges. The lasso topology results in highly compact structures that give to lasso peptides an extraordinary stability towards both protease degradation and denaturing conditions. Lasso peptides are generally receptor antagonists, enzyme inhibitors and/or antibacterial or antiviral (anti-HIV) agents. The lasso scaffold and the associated biological activities shown by lasso peptides on different key targets make them promising molecules with high therapeutic potential. Their application in drug design has been exemplified by the development of an integrin antagonist based on a lasso peptide scaffold. The biosynthesis machinery of lasso peptides is therefore of high biotechnological interest, especially since such highly compact and stable structures have to date revealed inaccessible by peptide synthesis.

Lasso peptides are produced from a linear precursor LasA, which undergoes a maturation process involving several steps, in particular cleavage of the leader peptide and cyclization. The post-translational modifications are ensured by a dedicated enzymatic machinery, which is composed of an ATP-dependent cysteine protease (LasB) and a lactam synthetase (LasC) that form an enzymatic complex called lasso synthetase. Microcin J25, produced by *Escherichia coli* AY25, is the archetype of lasso peptides and the most extensively studied. To date only around forty lasso peptides have been isolated, but genome mining approaches have revealed that they are widely distributed among Proteobacteria and Actinobacteria, particularly in *Streptomyces*, making available a rich resource of novel lasso peptides and enzyme machineries towards lasso topologies.

Acute Heart Failure Alexandre Mebazaa 2009-12-24 For many years, there has been a great deal of work done on chronic congestive heart failure while acute heart failure has been considered a difficult to handle and hopeless syndrome. However, in recent years acute heart failure has become a growing area of study and this is the first book to cover extensively the diagnosis and management of this complex condition. The book reflects the considerable amounts of new data reported and many new concepts which have been proposed in the last 3-4 years looking at the epidemiology, diagnostic and treatment of acute heart failure.

Primitive Meteorites and Asteroids Neyda M. Abreu 2018-07-27 Primitive Meteorites and Asteroids: Physical, Chemical, and Spectroscopic Observations Paving the Way to Exploration covers the physical, chemical and spectroscopic aspects of asteroids, providing important data and research on carbonaceous chondrites and primitive meteorites. This information is crucial to the success of missions to parent bodies, thus contributing to an understanding of the early solar system. The book offers an interdisciplinary perspective relevant to many fields

of planetary science, as well as cosmochemistry, planetary astronomy, astrobiology, geology and space engineering. Including contributions from planetary and missions scientists worldwide, the book collects the fundamental knowledge and cutting-edge research on carbonaceous chondrites and their parent bodies into one accessible resource, thus contributing to the future of space exploration. Presents the most current data and information on the mission-relevant characteristics of primitive asteroids Addresses the physical, chemical and spectral characteristics of carbonaceous chondritic meteorites and the bearings on successful exploration of their parent asteroids Includes chapters on geotechnical properties and resource extraction Carbon Capture and Storage Mai Bui 2019-11-29 This book will provide the latest global perspective on the role and value of carbon capture and storage (CCS) in delivering temperature targets and reducing the impact of global warming. As well as providing a comprehensive, up-to-date overview of the major sources of carbon dioxide emission and negative emissions technologies, the book also discusses technical, economic and political issues associated with CCS along with strategies to enable commercialisation.

Cellular Automata Giancarlo Mauri 2018-09-03 This book constitutes the proceedings of the 13th International Conference on Cellular Automata for Research and Industry, ACRI 2018, held in Como, Italy, in September 2018. The 47 full papers presented in this volume were carefully reviewed and selected from 64 submissions. This volume contains invited contributions and accepted papers from the main track and from the three organized workshops. The volume is organized in the following topics: biological systems modeling; simulation and other applications of CA; multi-agent systems; pedestrian and traffic dynamics; synchronization and control; theory and cryptography; asynchronous cellular automata; and crowds, traffic and cellular automata.

**Confocal Raman Microscopy** Jan Toporski 2018-03-01 This second edition provides a cutting-edge overview of physical, technical and scientific aspects related to the widely used analytical method of confocal Raman microscopy. The book includes expanded background information and adds insights into how confocal Raman microscopy, especially 3D Raman imaging, can be integrated with other methods to produce a variety of correlative microscopy combinations. The benefits are then demonstrated and supported by numerous examples from the fields of materials science, 2D materials, the life sciences, pharmaceutical research and development, as well as the geosciences.

**Foot and Ankle Sports Orthopaedics** Victor Valderrabano 2017-02-08 This book provides a comprehensive review of the diagnosis, management and treatment of sports injuries to the foot and ankle. The editors have assembled a list of contributors at the top of their field to define the medical management, treatment and surgery for the most common and highly debilitating sports injuries. Currently, foot and ankle injuries are the most common musculoskeletal injuries, thus this book fills the clear need for a state-of-the art resource that focuses upon this growing area of orthopaedic practice. Foot and Ankle Sports Orthopaedics is highly relevant to orthopaedic surgeons, sports orthopaedic surgeons and medical professionals dealing with sports injuries around the F&A. With clear and didactic information and superb illustrations, this book will prove to be an indispensable learning tool for readers seeking expert guidance to further their surgical skills in this area.

Vibration-based Condition Monitoring

Robert Bond Randall 2011-03-25 "Without doubt the best modern and up-to-date text on the topic, written by one of the world leading experts in the field. Should be on the desk of any practitioner or researcher involved in the field of Machine Condition Monitoring" Simon Braun, Israel Institute of Technology Explaining complex ideas in an easy

to understand way, Vibration-based Condition Monitoring provides a comprehensive survey of the application of vibration analysis to the condition monitoring of machines. Reflecting the natural progression of these systems by presenting the fundamental material and then moving onto detection, diagnosis and prognosis, Randall presents classic and state-of-the-art research results that cover vibration signals from rotating and reciprocating machines; basic signal processing techniques; fault detection; diagnostic techniques, and prognostics.

Developed out of notes for a course in machine condition monitoring given by Robert Bond Randall over ten years at the University of New South Wales, Vibration-based Condition Monitoring: Industrial, Aerospace and Automotive Applications is essential reading for graduate and postgraduate students/researchers in machine condition monitoring and diagnostics as well as condition monitoring practitioners and machine manufacturers who want to include a machine monitoring service with their product. Includes a number of exercises for each chapter, many based on Matlab, to illustrate basic points as well as to facilitate the use of the book as a textbook for courses in the topic. Accompanied by a website [www.wiley.com/go/randall](http://www.wiley.com/go/randall) housing exercises along with data sets and implementation code in Matlab for some of the methods as well as other pedagogical aids. Authored by an internationally recognised authority in the area of condition monitoring.

Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation

Christopher B. Field 2012-05-28 This Intergovernmental Panel on Climate Change Special Report (IPCC-SREX) explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation. Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Changes in the frequency and severity of the physical events affect disaster risk,

but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability. Some types of extreme weather and climate events have increased in frequency or magnitude, but populations and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and climate-related disasters exist or can be developed at any scale, local to international. Prepared following strict IPCC procedures, SREX is an invaluable assessment for anyone interested in climate extremes, environmental disasters and adaptation to climate change, including policymakers, the private sector and academic researchers.

Technological Developments in Education and Automation Magued Iskander 2010-01-30 Technological Developments in Education and Automation includes set of rigorously reviewed world-class manuscripts dealing with the increasing role of technology in daily lives including education and industrial automation Technological Developments in Education and Automation contains papers presented at the International Conference on Industrial Electronics, Technology & Automation and the International Conference on Engineering Education, Instructional Technology, Assessment, and E-learning which were part of the International Joint Conferences on Computer, Information and Systems Sciences and Engineering

**Oxygen-Enhanced Combustion, Second Edition** Charles E. Baukal Jr. 2013-03-15 Combustion technology has traditionally been dominated by air/fuel combustion. However, two developments have increased the significance of oxygen-enhanced combustion—new technologies that produce oxygen less expensively and the increased importance of environmental regulations. Advantages of oxygen-enhanced combustion include less pollutant emissions as well as increased energy efficiency and productivity. Oxygen-Enhanced Combustion, Second Edition compiles information about using oxygen to enhance industrial heating and

melting processes. It integrates fundamental principles, applications, and equipment design in one volume, making it a unique resource for specialists implementing the use of oxygen in combustion systems. This second edition of the bestselling book has more than doubled in size. Extensively updated and expanded, it covers significant advances in the technology that have occurred since the publication of the first edition. What's New in This Edition Expanded from 11 chapters to 30, with most of the existing chapters revised A broader view of oxygen-enhanced combustion, with more than 50 contributors from over 20 organizations around the world More coverage of fundamentals, including fluid flow, heat transfer, noise, flame impingement, CFD modeling, soot formation, burner design, and burner testing New chapters on applications such as flameless combustion, steel reheating, iron production, cement production, power generation, fluidized bed combustion, chemicals and petrochemicals, and diesel engines This book offers a unified, up-to-date look at important commercialized uses of oxygen-enhanced combustion in a wide range of industries. It brings together the latest knowledge to assist those researching, engineering, and implementing combustion in power plants, engines, and other applications.

**Cooperative Information Agents III** Matthias Klusch 1999-07-21 This book constitutes the refereed proceedings of the Third International Workshop on Cooperative Information Systems, CIA'99, held in Uppsala, Sweden in July/August 1999. The 16 revised full papers presented were carefully reviewed and selected from a total of 46 submissions. Also included are ten invited contributions by leading experts. The volume is divided in sections on information discovery and management on the Internet; information agents on the Internet-prototypes systems and applications; communication and collaboration, mobile information agents; rational information agents for electronic business; service mediation and

negotiation; and adaptive personal assistance.

*7th International Conference on Practical Applications of Agents and Multi-Agent Systems (PAAMS'09)* Yves Demazeau 2009-03-08 PAAMS, the International Conference on Practical Applications of Agents and Multi-Agent Systems is an evolution of the International Workshop on Practical Applications of Agents and Multi-Agent Systems. PAAMS is an international yearly tribune to present, to discuss, and to disseminate the latest developments and the most important outcomes related to real-world applications. It provides a unique opportunity to bring multi-disciplinary experts, academics and practitioners together to exchange their experience in the development of Agents and Multi-Agent Systems. This volume presents the papers that have been accepted for the 2009 edition. These articles capture the most innovative results and this year's trends: Assisted Cognition, E-Commerce, Grid Computing, Human Modelling, Information Systems, Knowledge Management, Agent-Based Simulation, Software Development, Transports, Trust and Security. Each paper has been reviewed by three different reviewers, from an international committee composed of 64 members from 20 different countries. From the 92 submissions received, 35 were selected for full presentation at the conference, and 26 were accepted as posters.

Metagenomics: Methods and Protocols

Wolfgang R. Streit 2018-12-14  
*Studying Brain Activity in Sports Performance* Stéphane Perrey 2021-03-30 The improvement of exercise performance in sports not only involves the enhancement of physical strength, but also includes the development of psychological and cognitive functions. There is an increasing body of evidence to show that physical exercise is a powerful way to improve a number of aspects of cognition and brain function at the systemic and behavioral levels. Yet, several questions remain: What type of exercise program is optimal for improving cognitive functions? What

are the real effects of certain innovative exercise protocols on the relationship between behavior and the brain? To what extent do ergogenic aids boost cognitive function? How efficient are neuromodulation techniques in relation to behavioral performance? The answers to these questions likely require multidisciplinary insights not only from physiologists and sports scientists, but also from neuroscientists and psychologists. The manuscripts published (16 research papers and one perspective article from various academic fields) in this Special Issue Book "Exercise: A Gate That Primes the Brain to Perform" bring together current knowledge and novel directions in human exercise-cognition research dealing with performance. This book showcases the various relationships between cognitive function, brain activity, and behavioral performance with applications in sports and exercise science.

**Ferroelectrics** Mickaël Lallart 2011-08-23 Ferroelectric materials have been and still are widely used in many applications, that have moved from sonar towards breakthrough technologies such as memories or optical devices. This book is a part of a four volume collection (covering material aspects, physical effects, characterization and modeling, and applications) and focuses on the application of ferroelectric devices to innovative systems. In particular, the use of these materials as varying capacitors, gyroscope, acoustics sensors and actuators, microgenerators and memory devices will be exposed, providing an up-to-date review of recent scientific findings and recent advances in the field of ferroelectric devices.  
Carbon Dioxide Capture and Storage Intergovernmental Panel on Climate Change. Working Group III. 2005-12-19 IPCC Report on sources, capture, transport, and storage of CO<sub>2</sub>, for researchers, policy-makers and engineers.

**Emissions Scenarios** 2000 Why new Intergovernmental panel on climate change scenarios? What are scenarios and what is their purpose? What are

the main characteristics of the new scenarios? What are the main driving forces of the GHG emissions in the scenarios? What is the range of GHG emissions in the SRES scenarios and how do they related to driving forces? How can the SRES scenarios be used; What future work on emissions scenarios would be useful? List of IPCC outputs.

Guide to Vulnerability Analysis for Computer Networks and Systems Simon Parkinson 2018-09-04 This professional guide and reference examines the challenges of assessing security vulnerabilities in computing infrastructure. Various aspects of vulnerability assessment are covered in detail, including recent advancements in reducing the requirement for expert knowledge through novel applications of artificial intelligence. The work also offers a series of case studies on how to develop and perform vulnerability assessment techniques using start-of-the-art intelligent mechanisms. Topics and features: provides tutorial activities and thought-provoking questions in each chapter, together with numerous case studies; introduces the fundamentals of vulnerability assessment, and reviews the state of the art of research in this area; discusses vulnerability assessment frameworks, including frameworks for industrial control and cloud systems; examines a range of applications that make use of artificial intelligence to enhance the vulnerability assessment processes; presents visualisation techniques that can be used to assist the vulnerability assessment process. In addition to serving the needs of security practitioners and researchers, this accessible volume is also ideal for students and instructors seeking a primer on artificial intelligence for vulnerability assessment, or a supplementary text for courses on computer security, networking, and artificial intelligence.

*Informatics for Health: Connected Citizen-Led Wellness and Population Health* R. Randell 2017-05-30 Over recent years there has been major investment in research infrastructure

to harness the potential of routinely collected health data. In 2013, The Farr Institute for Health Informatics Research was established in the UK, undertaking health informatics research to enhance patient and public health by the analysis of data from multiple sources and unleashing the value of vast sources of clinical, biological, population and environmental data for public benefit. The Medical Informatics Europe (MIE) conference is already established as a key event in the calendar of the European Federation of Medical Informatics (EFMI); The Farr Institute has been establishing a conference series. For 2017, the decision was made to combine the power and established reputational excellence of EFMI with the emerging and innovative research of The Farr Institute community to create 'Informatics for Health 2017', a joint conference that creates a scientific forum allowing these two communities to share knowledge, insights and experience, advance cross-disciplinary thinking, and stimulate creativity. This book presents the 116 full papers presented at that conference, held in Manchester, UK in April 2017. The papers are grouped under five headings: connected and digital health; health data science; human, organisational, and social aspects; knowledge management; and quality, safety, and patient outcomes, and the book will be of interest to all those whose work involves the analysis and use of data to support more effective delivery of healthcare.

#### **Mineral Nutrition of Higher Plants**

Horst Marschner 1995 This text presents the principles of mineral nutrition in the light of current advances. For this second edition more emphasis has been placed on root water relations and functions of micronutrients as well as external and internal factors on root growth and the root-soil interface.

The Noble Gases as Geochemical Tracers Pete Burnard 2012-12-15 The twelve chapters of this volume aim to provide a complete manual for using noble gases in terrestrial geochemistry, covering applications

which range from high temperature processes deep in the Earth's interior to tracing climatic variations using noble gases trapped in ice cores, groundwaters and modern sediments. Other chapters cover noble gases in crustal (aqueous, CO<sub>2</sub> and hydrocarbon) fluids and laboratory techniques for determining noble gas solubilities and diffusivities under geologically relevant conditions. Each chapter deals with the fundamentals of the analysis and interpretation of the data, detailing sampling and sampling strategies, techniques for analysis, sources of error and their estimation, including data treatment and data interpretation using recent case studies.

Shotcreting in Australia 2008

**Innovative Production Strategies for High-Quality, Traditional Pig Products**

Giovanna Martelli 2021-09-10

In a number of European countries (e.g., Spain, Italy, France, Portugal, Slovenia, Croatia, Poland), a portion of the pig sector is aimed at the production of traditional and certified products (e.g., PDO-Protected Designation of Origin, PGI-Protected Geographical Indication). Dry-cured ham is probably the most famous traditional pork product; however, typical pork products are produced in (and exported to) many countries worldwide. The meat used for producing these high-quality delicacies needs to be suitable for seasoning and dry-curing, and these characteristics are the result of complex interactions between the animal (breed, genotype, rearing condition, feeding regime, age and weight at slaughter, etc.) and the environment, without disregarding the importance of ethical attributes such as animal welfare and the environmental impact. This Special Issue focuses on all the innovative production strategies for pigs intended for high-quality, typical productions (in term of higher sustainability of the whole production chain, improvement of animal welfare, innovative feeding and farming techniques, reduction in environmental impact, improvement in

meat and fat quality, etc.), with emphasis on PDOs, PGIs, and other recognized production schemes, and it is aimed at providing new insights for a wide range of stakeholders from different countries.

**Handbook on Metalloproteins** Ivano Bertini 2001-06-29 This Handbook on Metalloproteins focuses on the available structural information of proteins and their metal ion coordination spheres. It centers on the metal ions indispensable for life but also considers metal ions used as substitution probes in studies of metalloproteins. Emphasizing the structure-function relationship, the book covers the common and distinct characteristics of metallo-enzymes, proteins, and amino acids bonded to copper, zinc, iron, and more.

**Socio-Life Science and the COVID-19 Outbreak**

Makoto Yano

*Differential Ion Mobility*

*Spectrometry* Alexandre A. Shvartsburg

2008-12-24 Over the last decade, scientific and engineering interests have been shifting from conventional ion mobility spectrometry (IMS) to field asymmetric waveform ion mobility spectrometry (FAIMS).

*Differential Ion Mobility*

*Spectrometry: Nonlinear Ion Transport*

and *Fundamentals of FAIMS* explores

this new analytical technology that separates and characterizes ions by the difference between their mobility in gases at high and low electric fields. It also covers the novel

topics of higher-order differential

IMS and IMS with alignment of dipole

direction. The book relates the

fundamentals of FAIMS and other

nonlinear IMS methods to the physics

of gas-phase ion transport. It begins

with the basics of ion diffusion and

mobility in gases, covering the main

attributes of conventional IMS that

are relevant to all IMS approaches.

Building on this foundation, the

author reviews diverse high-field

transport phenomena that underlie

differential IMS. He discusses the

conceptual implementation and first-

principles optimization of FAIMS as a

filtering technique, emphasizing the

dependence of FAIMS performance

metrics on instrumental parameters

and properties of ion species. He

also explores ion reactions in FAIMS caused by field heating and the effects of inhomogeneous electric field in curved FAIMS gaps. Written by an accomplished scientist in the field, this state-of-the-art book supplies the foundation to understand the new technology of nonlinear IMS methods.

**Safeguarding the Ozone Layer and the Global Climate System** David de Jager

2005-10-24 Publisher Description

**Sustainable Solutions for Food**

**Security** Atanu Sarkar 2019-01-18 This volume is the first centralized source of technological and policy solutions for sustainable agriculture and food systems resilience in the face of climate change. The editors have compiled a comprehensive collection of the latest tested, replicable green technologies and approaches for food security, including smart crops and new agricultural paradigms, sustainable natural resources management, and strategies for risk assessment and governance. Studies from resource-constrained countries with vulnerable populations are emphasized, with contributions on multisector partnership from development professionals. Debates concerning access to climate-smart technologies, intellectual property rights, and international negotiations on technology transfer are also included. The editors are, respectively, a public health physician, a development professional and an environmental scientist. They bring their varied perspectives together to curate a holistic volume that will be useful for policy makers, scientists, community-based organizations, international organizations and researchers across the world.

**World Ocean Assessment** World Ocean Assessment team 2017-04-30

Plant Tissue Culture: An Introductory Text Sant Saran Bhojwani 2013-03-20

Plant tissue culture (PTC) is basic to all plant biotechnologies and is an exciting area of basic and applied sciences with considerable scope for further research. PTC is also the best approach to demonstrate the totipotency of plant cells, and to

exploit it for numerous practical applications. It offers technologies for crop improvement (Haploid and Triploid production, In Vitro Fertilization, Hybrid Embryo Rescue, Variant Selection), clonal propagation (Micropropagation), virus elimination (Shoot Tip Culture), germplasm conservation, production of industrial phytochemicals, and regeneration of plants from genetically manipulated cells by recombinant DNA technology (Genetic Engineering) or cell fusion (Somatic Hybridization and Cybridization). Considerable work is being done to understand the physiology and genetics of in vitro embryogenesis and organogenesis using model systems, especially Arabidopsis and carrot, which is likely to enhance the efficiency of in vitro regeneration protocols. All these aspects are covered extensively in the present book. Since the first book on Plant Tissue Culture by Prof. P.R. White in 1943, several volumes describing different aspects of PTC have been published. Most of these are compilation of invited articles by different experts or proceedings of conferences. More recently, a number of books describing the Methods and Protocols for one or more techniques of PTC have been published which should serve as useful laboratory manuals. The impetus for writing this book was to make available a complete and up-to-date text covering all basic and applied aspects of PTC for the students and early-career researchers of plant sciences and plant / agricultural biotechnology. The book comprises of nineteen chapters profusely illustrated with self-explanatory illustrations. Most of the chapters include well-tested protocols and relevant media compositions that should be helpful in conducting laboratory experiments. For those interested in further details, Suggested Further Reading is given at the end of each chapter, and a Subject and Plant Index is provided at the end of the book.

**Innovative Pest Management Approaches for the 21st Century** Akshay Kumar

Chakravarthy 2020-03-20 Several

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Integrated Pest Management (IPM) approaches are available for managing pests of varied kinds, including individual and integrated methods for pest suppression. Recently the focus has shifted to pest management tools that act on insect systems selectively, are compatible with the environment, and are not harmful for ecosystems. Other approaches target specific biochemical and physiological aspects of insect metabolism, and involve biotechnological and genetic manipulation. Still other approaches include the use of nanotechnology, endophytes, optical and sonic manipulation to detect and control pest insects. Unfortunately, conventional forms of pest management do not focus on technology transfer to the ground level workers and farmers. As a result, farmers are incurring huge losses of crops and revenues. This book highlights the importance of using communication tools in pest management and demonstrates some success stories of utilizing automated unmanned technologies in this context. The content is divided into three sections, the first of which, "Pest Population Monitoring: Modern Tools," covers long and short-range pest population monitoring techniques and tools such as satellites, unmanned aerial vehicles/drones, remote sensing, digital tools like GIS, GPS for mapping, lidar, mobile apps, software systems, artificial diet designs and functional diversity of info-chemicals. The second section of the book is devoted to "Emerging Areas in Pest Management" and offers a glimpse of diversified tactics that have been developed to contain and suppress pest populations such as endophytes, insect vectors of phytoplasma, Hymenoptera parasitoids, mass production and utilization of NPV etc. In turn, the third section focuses on "Integrated Pest Management" and presents farming situations that illustrate how research in diversified aspects has helped to find solutions to specific pest problems, and how some new and evolving tactics can be practically implemented. Given its scope, the

book offers a valuable asset for entomology and plant pathology researchers, students of zoology and plant protection, and readers whose work involves agriculture, horticulture, forestry and other ecosystems.

Biological and Environmental Chemistry of DMSP and Related Sulfonium Compounds

M.D. Keller  
2012-12-06 'An essential book for people working in the area of sulfur compounds in the environment and should be in all institutional libraries...Well indexed, well presented.' --- SGM Quarterly, November 1997 'Extremely useful and well-produced symposium volume that should be of interest to many environmental scientists, microbial and plant physiologists, and aquatic ecologists.' The Quarterly Review of Biology, June 1998

**Introduction to Internal Combustion Engines**

Richard Stone 2017-09-16 Now in its fourth edition, this textbook remains the indispensable text to guide readers through automotive or mechanical engineering, both at university and beyond. Thoroughly updated, clear, comprehensive and well-illustrated, with a wealth of worked examples and problems, its combination of theory and applied practice aids in the understanding of internal combustion engines, from thermodynamics and combustion to fluid mechanics and materials science. This textbook is aimed at third year undergraduate or postgraduate students on mechanical or automotive engineering degrees. New to this Edition: - Fully updated for changes in technology in this fast-moving area - New material on direct injection spark engines, supercharging and renewable fuels - Solutions manual online for lecturers  
*The Art of High Performance Computing for Computational Science, Vol. 2*  
Masaaki Geshi 2019-10-01 This book presents advanced and practical techniques for performance optimization for highly parallel processing. Featuring various parallelization techniques in material science, it is a valuable resource for anyone developing software codes for computational

sciences such as physics, chemistry, biology, earth sciences, space science, weather, disaster prevention and manufacturing, as well as for anyone using those software codes. Chapter 1 outlines supercomputers and includes a brief explanation of the history of hardware. Chapter 2 presents procedures for performance evaluation, while Chapter 3 describes the set of tuned applications in materials science, nanoscience and nanotechnology, earth science and engineering on the K computer. Introducing the order-N method, based on density functional theory (DFT)

calculation, Chapter 4 explains how to extend the applicability of DFT to large-scale systems by reducing the computational complexity. Chapter 5 discusses acceleration and parallelization in classical molecular dynamics simulations, and lastly, Chapter 6 explains techniques for large-scale quantum chemical calculations, including the order-N method. This is the second of the two volumes that grew out of a series of lectures in the K computer project in Japan. The first volume addresses more basic techniques, and this second volume focuses on advanced and concrete techniques.