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Nanogenerators - Sang Jae Kim 2020-07-01

This book provides an introduction to nanogenerators, which are the newest technological advancement in the field of energy conversion. Chapters discuss the physics behind energy conversion using detailed research results and experimental techniques for fabricating triboelectric and piezoelectric devices, as well as nanogenerators in the field of biomedicine and the construction of stretchable electrodes for wearable devices.

Science of Fullerenes and Carbon Nanotubes - M. S. Dresselhaus 1996-03-20

The discovery of fullerenes (also known as buckyballs) has generated tremendous excitement and opened up a new field of carbon chemistry. As the first book available on this topic, this volume will be a landmark reference in the field. Because buckyballs are essentially closed hollow cages made up of carbon atoms, they can be manipulated in a variety of ways to yield never-before-seen materials. The balls can, for instance, be doped with atoms or pulled out into tubules and filled with lead to provide properties of high-temperature superconductivity. Researchers can now create their own buckyballs in a process that is almost as simple as making soot, making this research as inexpensive as it is exotic (which has doubtless contributed to its popularity). Researchers anticipate that fullerenes will offer boundless opportunities in the development of new products, drugs and materials. *Science of Fullerenes and Carbon Nanotubes* introduces materials scientists, chemists, and solid state physicists to the field of fullerenes, and discusses the unique properties and applications. both current and future, of all classes of fullerenes. Key Features * First comprehensive resource on fullerenes and their applications * Provides an introduction to the topic * Presents an extensive discussion of current and future applications of Fullerenes * Covers all classes of fullerenes

Thermal Methods of Oil R... - Burger J. 1985

Too Loud a Solitude - Bohumil Hrabal 1992-04-27

A fable about the power of books and knowledge, "finely balanced between pathos and comedy," from one of Czechoslovakia's most popular authors (Los Angeles Times). A New York Times Notable Book Haňtá has been compacting trash for thirty-five years. Every evening, he rescues books from the jaws of his hydraulic press, carries them home, and fills his house with them. Haňtá may be an idiot, as his boss calls him, but he is an idiot with a difference—the ability to quote the Talmud, Hegel, and Lao-Tzu. In this "irresistibly eccentric romp," the author Milan Kundera has called "our very best writer today" celebrates the power and the indestructibility of the written word (The New York Times Book Review).

Proceedings of [the] First International Workshop on Optical Power Limiting - Francois Kajzar 1999

Primary Photoexcitations in Conjugated Polymers: Molecular Exciton Versus Semiconductor Band Model - Niyasi Serdar Sariciftci 1998-01-02

This volume concentrates on the controversy within the scientific community over how to explain, understand and describe the photophysics/photochemistry of this class of materials. This controversy is of such a fundamental nature that the solution of the problem might be in a unification of the semiconductor and metal physics with the molecular quantum chemistry. Thus, a wide-ranging and comprehensive discussion of this very crucial issue has not been written down yet. This volume brings together the most prominent scientists specializing in this controversial topic. Each contributor addresses the opponents' arguments. After short introductory chapters, the contributors discuss their own speciality area and compare the results with both models and explain their position on why one of the models is more appropriate. Special emphasis is given to comparative discussions with other conjugated molecular systems as well as inorganic semiconductors.

Contents:Correlations in Conjugated Polymers (Z G Soos et al.)Nature of the Primary Photo-Excitations in Poly(Arylene-Vinylene)s: Bound Neutral Excitons or Charged Polaron Pairs (A J Heeger)Excitons in Conjugated Polymers (H Bässler)Intramolecular Excitons and Intermolecular Polaron Pairs as Primary Photoexcitations in Conjugated Polymers (E Conwell)Excitonic Effects in the Linear and Nonlinear Optical Properties of Conjugated Polymers (S Abe)Bound Polaron Pair Formation in Poly(Phenylenevinylene)s (L Rothberg)Luminescence Efficiency and Time-Dependence: Insights into the Nature of the Emitting Species in Conjugated Polymers (I D W Samuel et al.)Mechanism of Carrier Generation in the Class of Low Mobility Materials: Transient Photoconductivity and Photoluminescence at High Electric Fields (D Moses)Photoluminescence Spectroscopy as a Probe for Disorder and Excitonic Effects in Organic and Inorganic Semiconductors (U Lemmer & O Göbel)Spectroscopy on Conjugated Polymer Devices (V Dyakonov)Spin-Dependent Recombination Processes in π -Conjugated Polymers (P A Lane et al.)Electroabsorption Spectroscopy on π -Conjugated Polymers (G Weiser & Á Horváth)The Role of Excitons in Charge Carrier Production in Polysilanes (R G Kepler & Z G Soos)Theory of Excitons and Biexcitons in π -Conjugated Polymers (S Mazumdar & M Chandross)Ultrafast Relaxation in Conjugated Polymers (T Kobayashi)Are Bipolarons Photogenerated in PPV? (E Conwell)Do Bipolarons Exist in Doped or Photoirradiated Conjugated Polymers? — An Analysis Based on Studies of Model Compounds (Y Furukawa)Photoexcitations in Conjugated Oligomers (R A J Janssen)Excited States in Poly(Paraphenylenevinylene) and Related Oligomers: Theoretical Investigation of Their Relation to Electrical and Optical Properties (D Beljonne et al.)Ultrafast Photoinduced Absorption in Nondegenerate Ground-State Conjugated Polymers: Signatures of Excited States (D W McBranch & M B Sinclair) Readership: Researchers and graduate students in the field of physics and chemistry of conjugated, conducting polymers and physical chemistry. keywords:

Methods in Chemical Ecology Volume 1 - Jocelyn Millar 1998-06-30

A working definition of the discipline of chemical ecology might be "the study of the structure, function, origin, and significance of naturally occurring compounds that mediate inter- and intraspecific interactions between organisms." In particular, chemical ecology focuses on determining the role of semiochemicals and related compounds in their natural contexts. Thus, chemical ecology is distinct from disciplines such as pharmacology, in which compounds are screened for uses outside their natural context, for example in the screening of natural products for use as drugs. Superficially, many of the methods used in the various branches of natural products chemistry, such as pharmacology and chemical ecology, are very similar, but each branch has developed its own set of specialized methods for dealing with the problems characteristic of that discipline. For example, in chemical ecology, many semiochemicals are isolated and identified using only a few micrograms or less of material. Although the same general chromatographic and spectroscopic techniques are used as would be used with the identification of most organic compounds, specialized techniques have been developed for handling these very small quantities, allowing the maximum amount of information to be recovered from the minimum amount of sample. These micro scale techniques, and the problems unique to working with very small amounts of sample, are rarely covered in detail in reference books on the isolation and identification of biologically active natural chemicals. *Organic Photoreceptors for Xerography* - Paul M. Borsenberger 1998-04-29

Presents fundamental, as well as state-of-the-art, information on the physics, chemistry, materials, fabrication, preparation, application and performance of organic photoreceptors in xerography. The book offers on-the-job situations to problems related to xerographic photoreceptors and related technologies, including electroluminescent, photorefractive, photovoltaic and transistor devices.

Modern Molecular Photochemistry - Nicholas J. Turro 1991

During the last two decades the photochemistry of organic molecules has grown into an important and pervasive branch of organic chemistry. In *Modern Molecular Photochemistry*, the author brings students up to date with the advances in this field - the development of the theory of photoreactions, the utilization of photoreactions in synthetic sequences, and the advancement of powerful laser techniques to study the mechanisms of photoreactions.

Optical MEMS - Huikai Xie 2019-08-06

This book is a printed edition of the Special Issue Optical MEMS that was published in *Micromachines*

The Pink Glass Swan - Lucy R. Lippard 1995

Lucy Lippard is one of the most provocative and groundbreaking art critics of the last two decades. A catalyst for social and artistic change, Lippard's writings show the impact of feminism on art, and art on feminism. *The Pink Glass Swan* brings together Lippard's essays and articles from various magazines, catalogs, and newspapers from the last ten years. Through the eyes of this influential and important critic, *The Pink Glass Swan* chronicles the sweeping changes in women's art over the last thirty years.

Electrets - Gerhard M. Sessler 2006-01-21

Structural Health Monitoring For Advanced Composite Structures -

Aliabadi M H Ferri 2017-12-18

Structural health monitoring (SHM) is a relatively new and alternative way of non-destructive inspection (NDI). It is the process of implementing a damage detection and characterization strategy for composite structures.

The basis of SHM is the application of permanent fixed sensors on a structure, combined with minimum manual intervention to monitor its structural integrity. These sensors detect changes to the material and/or geometric properties of a structural system, including changes to the boundary conditions and system connectivity, which adversely affect the system's performance. This book's primary focus is on the diagnostics element of SHM, namely damage detection in composite structures. The techniques covered include the use of Piezoelectric transducers for active and passive Ultrasonics guided waves and electromechanical impedance measurements, and fiber optic sensors for strain sensing. It also includes numerical modeling of wave propagation in composite structures.

Contributed chapters written by leading researchers in the field describe each of these techniques, making it a key text for researchers and NDI practitioners as well as postgraduate students in a number of specialties including materials, aerospace, mechanical and computational engineering. Contents: Damage Detection and Characterization with Piezoelectric Transducers — Active Sensing (Z Sharif Khodaei and M H Aliabadi) Modeling Guided Wave Propagation in Composite Structures Using Local Interaction Simulation Approach (Yanfeng Shen and Carlos E S Cesnik) Design and Development of a Phased Array System for Damage Detection in Structures (Bruno Rocha, Mehmet Yildiz & Afzal Suleman) Degradation Detection in Composite Structures with PZT Transducers (Wiesław M Ostachowicz, Paweł H Malinowski & Tomasz Wandowski) Numerical Modelling of Wave Propagation in Composite Structures (Sourav Banerjee) SHM of Composite Structures by Fibre Optic Sensors (Alfredo Guemes) Impact Detection and Identification with Piezoceramic Sensors — Passive Sensing (Z Sharif Khodaei and M H Aliabadi) Readership: Researchers and NDI practitioners as well as postgraduate students in a number of specialties including materials, aerospace, mechanical and computational engineering. Keywords: Structural Health Modelling; Non-Destructive Inspection; Diagnostic SHM; Aerospace Engineering; Microelectromechanical Systems; Acoustic Emission Monitoring; Accelerometers Review: 0

Hybrid Organic-Inorganic Perovskites - Li Wei 2020-06-24

Hybrid organic-inorganic perovskites (HOIPs) have attracted substantial interest due to their chemical variability, structural diversity and favorable physical properties the past decade. This materials class encompasses other important families such as formates, azides, dicyanamides, cyanides and dicyanometallates. The book summarizes the chemical variability and structural diversity of all known hybrid organic-inorganic perovskites subclasses including halides, azides, formates, dicyanamides, cyanides and dicyanometallates. It also presents a comprehensive account of their intriguing physical properties, including photovoltaic, optoelectronic, dielectric, magnetic, ferroelectric, ferroelastic and multiferroic properties. Moreover, the current challenges and future opportunities in this exciting field are also been discussed. This timely book shows the readers a complete landscape of hybrid organic-inorganic perovskites and associated multifunctionalities.

Molecular Physical Chemistry for Engineers - John T. Yates 2007-08-31

This text emphasizes the behaviour of material from the molecular point of view. It is for engineering students who have a background in chemistry and physics and in thermodynamics. A background in calculus and differential equations is assumed. Each chapter includes a vast array of exercises, for which a Student Solutions Manual is also available.

Biotransformations - K. Faber 2003-06-30

Whereas the hydrolases such as proteases, esterases and lipases are sufficiently well researched to be applied in every standard laboratory, other types of enzymes are still waiting to be discovered with respect to their applicability in organic-chemistry transformations on a preparative scale. This latter point is stressed here, with the focus on the newcomer-enzymes which show great synthetic potential.

Hybrid Organic-inorganic Perovskites - Z. V. Vardeny 2022

Global Volcanic Hazards and Risk - Susan C. Loughlin 2015-07-24

The first comprehensive assessment of global volcanic hazards and risk, with detailed regional profiles, for the disaster risk reduction community. Also available as Open Access.

Spinal Disorders - Norbert Boos 2008-09-24

Spinal disorders are among the most common medical conditions with significant impact on health related quality of life, use of health care resources and socio-economic costs. This is an easily readable teaching tool focusing on fundamentals and basic principles and provides a homogeneous syllabus with a consistent didactic strategy. The chosen didactic concept highlights and repeats core messages throughout the chapters. This textbook, with its appealing layout, will inspire and stimulate the reader for the study of spinal disorders.

Piezotronics and Piezo-Phototronics - Zhong Lin Wang 2013-01-11

The fundamental principle of piezotronics and piezo-phototronics were introduced by Wang in 2007 and 2010, respectively. Due to the polarization of ions in a crystal that has non-central symmetry in materials, such as the wurtzite structured ZnO, GaN and InN, a piezoelectric potential (piezopotential) is created in the crystal by applying a stress. Owing to the simultaneous possession of piezoelectricity and semiconductor properties, the piezopotential created in the crystal has a strong effect on the carrier transport at the interface/junction. Piezotronics is for devices fabricated using the piezopotential as a "gate" voltage to control charge carrier transport at a contact or junction. The piezo-phototronic effect uses the piezopotential to control the carrier generation, transport, separation and/or recombination for improving the performance of optoelectronic devices, such as photon detector, solar cell and LED. The functionality offered by piezotronics and piezo-phototronics are complimentary to CMOS technology. There is an effective integration of piezotronic and piezo-phototronic devices with silicon based CMOS technology. Unique applications can be found in areas such as human-computer interfacing, sensing and actuating in nanorobotics, smart and personalized electronic signatures, smart MEMS/NEMS, nanorobotics and energy sciences. This book introduces the fundamentals of piezotronics and piezo-phototronics and advanced applications. It gives guidance to researchers, engineers and graduate students.

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. The 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. It 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).

Solar Energy Conversion Systems in the Built Environment - Ion Visa 2021-01-09

This book focuses on solar energy conversion systems that can be implemented in the built environment, at building or at community level. The quest for developing a sustainable built environment asks for specific solutions to provide clean energy based on renewable sources, and solar energy is considered one of the cleanest available energy on Earth. The specific issues raised by the implementation location are discussed, including the climatic profile distorted by the buildings, the available surface on the buildings for implementation, etc. This book also discusses the seasonal and diurnal variability of the solar energy resource in parallel

with the variability of the electrical and thermal energy demand in the built environment (particularly focusing on the residential buildings). Solutions are proposed to match these variabilities, including the development of energy mixes with other renewables (e.g. geothermal or biomass, for thermal energy production). Specific solutions, including case studies of systems implemented on buildings all over the world, are presented and analyzed for electrical and for thermal energy production and the main differences in the systems design are outlined. The conversion efficiency (thus the output) and the main causes of energy losses are considered in both cases. The architectural constraints are additionally considered and novel solar energy converters with different shapes and colors are presented and discussed. The durability of the solar energy conversion systems is analyzed considering the specific issues that occur when these systems are implemented in the built environment; based on practical examples, general conclusions are formulated and specific aspects are discussed in relation to experimental results and literature data. With renewables implemented in the built environment likely to expand in the near future, this book represents welcome and timely material for all professionals and researchers that are aiming to provide efficient and feasible solutions for the sustainable built environment.

Get the Message? - Lucy R. Lippard 1984

Photovoltaic Solar Energy Conference - Willeke Palz 2012-03-22

Proceedings of the International Conference, held at Cannes, France, October 27-31, 1980

Chalcogenide Photovoltaics - Roland Scheer 2011-03-31

This first comprehensive description of the most important material properties and device aspects closes the gap between general books on solar cells and journal articles on chalcogenide-based photovoltaics. Written by two very renowned authors with years of practical experience in the field, the book covers II-VI and I-III-VI₂ materials as well as energy conversion at heterojunctions. It also discusses the latest semiconductor heterojunction models and presents modern analysis concepts. Thin film technology is explained with an emphasis on current and future techniques for mass production, and the book closes with a compendium of failure analysis in photovoltaic thin film modules. With its overview of the semiconductor physics and technology needed, this practical book is ideal for students, researchers, and manufacturers, as well as for the growing number of engineers and researchers working in companies and institutes on chalcogenide photovoltaics.

Biocidal Polymers - Narendra Pal Singh Chauhan 2019-10-21

Biocidal polymers are designed to inhibit or kill microorganisms such as bacteria, fungi and protozoans. This book summarizes recent findings in the synthesis, modification and characterization of various antimicrobial polymers ranging from plastics and elastomers to biomimetic and biodegradable polymers. Modifications with different antimicrobial agents as well as antimicrobial testing methods are described in a comprehensive manner.

Heavy and Extra-heavy Oil Upgrading Technologies - James G. Speight 2013-04-12

Unconventional reservoirs of oil and gas represent a huge additional global source of fossil fuels. However, there is much still to be done to improve techniques for their processing to make recovery and refining of these particular energy sources more cost-effective. Brief but readable, *Heavy and Extra-heavy Oil Upgrading Technologies* provide readers with a strategy for future production (the up-stream) and upgrading (the down-stream). The book provides the reader with an understandable overview of the chemistry and engineering behind the latest developments and technologies in the industry as well as the various environmental regulations. Clear and rigorous, *Heavy and Extra-heavy Oil Upgrading Technologies* will prove tool for those scientists and engineers already engaged in fossil fuel science and technology as well as scientists, non-scientists, engineers, and non-engineers who wish to gain a general overview or update of the science and technology of unconventional fossil fuels in general and upgrading technologies in particular. The use of microorganisms and a number of physical methods, such as ultrasound, median microwave, cold plasma, electrokinetic and monocrystalline intermetallics, etc., will be discussed for the first time. Overview of the chemistry, engineering, and technology of oil sands Microorganisms and a number of physical methods such as ultrasound, median microwave, cold plasma, electrokinetic and monocrystalline intermetallics Evolving and new environmental regulations regarding oil sands production processes

MEMS Mirrors - Huikai Xie 2018-05-04

This book is a printed edition of the Special Issue "MEMS Mirrors" that was

published in *Micromachines*

Petroleum Engineering - 2012-12-06

The need for this book has arisen from demand for a current text from our students in Petroleum Engineering at Imperial College and from post-experience Short Course students. It is, however, hoped that the material will also be of more general use to practising petroleum engineers and those wishing for an introduction into the specialist literature. The book is arranged to provide both background and overview into many facets of petroleum engineering, particularly as practised in the offshore environments of North West Europe. The material is largely based on the authors' experience as teachers and consultants and is supplemented by worked problems where they are believed to enhance understanding. The authors would like to express their sincere thanks and appreciation to all the people who have helped in the preparation of this book by technical comment and discussion and by giving permission to reproduce material. In particular we would like to thank our present colleagues and students at Imperial College and at ERC Energy Resource Consultants Ltd. for their stimulating company, Jill and Janel for typing seemingly endless manuscripts; Dan Smith at Graham and Trotman Ltd. for his perseverance and optimism; and Lesley and Joan for believing that one day things would return to normality. John S. Archer and Colin G. Wall 1986 ix Foreword Petroleum engineering has developed as an area of study only over the present century. It now provides the technical basis for the exploitation of petroleum fluids in subsurface sedimentary rock reservoirs.

Silicate Glasses and Melts - Bjorn O. Mysen 2018-11-27

Silicate Glasses and Melts, Second Edition describes the structure-property-composition relationships for silicate glasses and melts from a geological and industrial perspective. Updated sections include (i) characterization of silicate melt and COHN fluid structure (with and without dissolved silicate components) with pressure, temperature, and redox conditions and responses of structural variables to chemical composition, (ii) determination of solubility and solution mechanisms of COHN volatiles in silicate melts and minerals and of solubility and solution mechanisms of silicate components in COHN fluids, and (iii) effects of very high pressure on structure and properties of melts and glasses. This new book is an essential resource for researchers in a number of fields, including geology, geophysics, geoscience, volcanology, material science, glass science, petrology and mineralogy. Brings together multidisciplinary research scattered across the scientific literature into one reference, with a focus on silicate melts and their application to natural systems Emphasizes linking melt properties to melt structure Includes a discussion of the pros and cons of the use of glass as a proxy for melt structure and properties Written by highly regarded experts in the field who, among other honors, were the 2006 recipients of the prestigious G.W. Morey award of the American Ceramic Society

Fundamentals of Formation Evaluation - Donald P. Helander 1983

This book will provide a basis for an introductory course in the formation evaluation. It is designed to be supplemented by problems to point out the important concepts.

FlowMap - Jens Ducreé 2004

Also issued in print format.

Shock Wave-Boundary-Layer Interactions - Holger Babinsky 2011-09-12

Shock wave-boundary-layer interaction (SBLI) is a fundamental phenomenon in gas dynamics that is observed in many practical situations, ranging from transonic aircraft wings to hypersonic vehicles and engines. SBLIs have the potential to pose serious problems in a flowfield; hence they often prove to be a critical - or even design limiting - issue for many aerospace applications. This is the first book devoted solely to a comprehensive, state-of-the-art explanation of this phenomenon. It includes a description of the basic fluid mechanics of SBLIs plus contributions from leading international experts who share their insight into their physics and the impact they have in practical flow situations. This book is for practitioners and graduate students in aerodynamics who wish to familiarize themselves with all aspects of SBLI flows. It is a valuable resource for specialists because it compiles experimental, computational and theoretical knowledge in one place.

Lasers in the Conservation of Artworks - Klaus Dickmann 2006-04-05

Since 1995, when Costas Fotakis first brought together restorers and scientists to discuss the potential of lasers in art conservation, the field has grown enormously in importance, and today restorers and laser scientists work together to develop new applications. This book presents the more than six dozen research papers prepared for LACONA V (Lasers in Art Conservation), held in Osnabrueck/Germany in September 2003. The fifth congress once again gathered restorers, art historians, museum

staff, laser scientists and laser manufacturers. The topics include, among others: laser cleaning of artworks (case studies and side effects), removal of former conservation layers, fundamentals of laser-artwork interaction, online monitoring and process control, laser diagnostics, spectroscopy for monitoring and identification, networks and cooperation projects.

Handbook of Photochemistry, Second Edition - Steven L. Murov
1993-08-11

This volume compiles unimolecular and bimolecular photochemical data for a wide range of commonly used organic molecules. This edition contains information on bimolecular quenching of both singlet and triplet states, transient absorbance of excited triplet states, and computer-generated molecular formula and name indexes.;Handbook of Photochemistry is intended for physical and organic chemists, biochemists, photobiologists, physicists, laser engineers and graduates in these disciplines.

Perovskite Materials and Devices, 2 Volumes - Liming Ding 2022-06-21

Perovskite Materials and Devices A comprehensive overview of the important scientific and technological advances in commercialization of this important mineral Perovskite has held much interest for scientists and industrialists, as the mineral is abundantly available in nature. Due to the intriguing and unusual physical properties of perovskite materials—the high-absorption coefficient, low exciton-binding energy, and high dielectric constant, for example—there has been substantial focus on perovskite's potential in applications. In particular, they have been of great use in sensors and catalyst electrodes, certain types of fuel cells, solar cells, lasers, memory devices, and spintronics, and as a result hold exciting opportunities for physicists, chemists, and material scientists alike. Perovskite Materials and Devices comprehensively covers all the milestone work in perovskites research, systematically introducing the properties, methods, and technologies associated with the mineral from fundamentals to promising applications to commercialization issues. The book focuses on traditional and novel electronic operations, such as solar cells, LEDs, lasing, photodetectors, X-ray detectors, transistors, and more. It also investigates ways to make the use of such materials more environmentally friendly, which in turn can make perovskite minerals more commercially viable. Perovskite Materials and Devices readers will also find Summaries of the latest state-of-the-art developments and technologies, such as perovskite nanocrystals and novel electronic devices Detailed discussion of organic/inorganic hybrid perovskites, all-inorganic perovskite CsPbX₃, and lead-free halide perovskites Investigation of the photovoltaic applications, namely single-crystal devices, tandem cells, integrated devices, semi-transparent devices, and flexible devices Description of large-area module fabrication and stability investigating Perovskite Materials and Devices is a useful reference for materials scientists, solid state physicists and chemists, surface physicists and chemists, and electronic engineers. It is also an ideal resource for libraries that supply these fields.

Functional Polymers - Mohammad Abu Jafar Mazumder 2019-06-27

This reference work provides a comprehensive and authoritative overview of functional polymers and polymeric materials, ranging from their synthesis and characterization, to properties, actual applications and an outlook on future perspectives. Including over 30 comprehensive review chapters, all written by leading international experts, this reference is also

a sound introduction to this exciting field. The book is carefully edited by an international team of experts in the field, ensuring complete coverage of the relevant topics and concise representation. Functional polymers and smart polymeric materials play a decisive role for new innovations in all areas where new materials are needed. Optoelectronics, catalysis, biomaterials, medicine, building materials, water treatment, coatings, and many more applications rely on functional polymers. This work is a major reference for researchers, scientists, and practitioners working in any of these fields, or entering this vibrant research area. Key topics of this reference work include: Polymerization methods and polymer synthesis Characterization and properties of new functional polymers and smart materials Functional polymer composites and blends Applications of functional polymers and smart materials: for electro-optics and optoelectronics, in biology and in medical research, as coatings and adhesives, for gas sensing, in functional membranes for separation or proton conduction and many more

Germline Development - Joan Marsh 2008-04-30

Connects classical cellular descriptive studies with more recent work on the molecular and genetic aspects regarding germline development. Prominent scientists discuss research on a range of organisms including insects, worms, birds, fish, amphibia, mammals and green algae. Specification of germ cells, their migration to the gonads and subsequent interactions with the soma and evolutionary factors of their segregation are among the topics covered.

ELECTRIMACS 2019 - Walter Zamboni 2021-12-10

This book collects a selection of papers presented at ELECTRIMACS 2019 - The 13th international conference of the IMACS TC1 Committee, held in Salerno, Italy, on 21st-23rd May 2019. The conference papers deal with modelling, simulation, analysis, control, power management, design optimization, identification and diagnostics in electrical power engineering. The main application fields include electric machines and electromagnetic devices, power electronics, transportation systems, smart grids, electric and hybrid vehicles, renewable energy systems, energy storage, batteries, supercapacitors and fuel cells, wireless power transfer. The contributions included in Volume 2 are particularly focussed on methodological aspects, modelling and applied mathematics in the field of electrical engineering.

Cell Biology of Plant Nematode Parasitism - R. Howard Berg
2008-12-18

Plant-parasitic nematodes are among the most destructive plant pathogens, causing enormous losses to agronomic crops worldwide. This book provides an up-to-date review of research related to two of the most important nematode pests, root-knot and cyst nematodes. Chapters cover early plant-nematode interactions, identification of nematode proteins important in the establishment of nematode feeding sites, and classification of biochemical and signaling pathways significant in the development of specialized feeding sites in the host. The cellular and subcellular structures essential for the parasitic interaction are examined by light and electron microscopy. Modern techniques of gene expression analyses and genomic sequencing are poised to provide an even greater wealth of information to researchers, enabling them to develop and examine natural and manmade mechanisms of resistance to this important plant pest.