Blueshift

Lithium-Ion Batteries and Solar Cells

Lithium-Ion Batteries and Solar Cells: Physical, Chemical, and Materials Properties presents a thorough investigation of diverse physical, chemical, and materials properties and special functionalities of lithium-ion batteries and solar cells. It covers theoretical simulations and high-resolution experimental measurements that promote a full understanding of the basic science to develop excellent device performance. Employs first-principles and the machine learning method to fully explore the rich and unique phenomena of cathode, anode, and electrolyte (solid and liquid states) in lithium-ion batteries Develops distinct experimental methods and techniques to enhance the performance of lithium-ion batteries and solar cells Reviews syntheses, fabrication, and measurements Discusses open issues, challenges, and potential commercial applications This book is aimed at materials scientists, chemical engineers, and electrical engineers developing enhanced batteries and solar cells for peak performance.

Dilute III-V Nitride Semiconductors and Material Systems

A major current challenge for semiconductor devices is to develop materials for the next generation of optical communication systems and solar power conversion applications. Recently, extensive research has revealed that an introduction of only a few percentages of nitrogen into III-V semiconductor lattice leads to a dramatic reduction of the band gap. This discovery has opened the possibility of using these material systems for applications ranging from lasers to solar cells. \"Physics and Technology of Dilute III-V Nitride Semiconductors and Novel Dilute Nitride Material Systems\" reviews the current status of research and development in dilute III-V nitrides, with 24 chapters from prominent research groups covering recent progress in growth techniques, experimental characterization of band structure, defects carrier transport, transport properties, dynamic behavior of N atoms, device applications, modeling of device design, novel optoelectronic integrated circuits, and novel nitrogen containing III-V materials.

Graphene Oxide

This book focuses on a group of new materials labeled \"graphene oxides.\" It provides a comprehensive overview of graphene oxide-based nanomaterials in terms of their synthesis, structures, properties, and extensive applications in catalysis, separation, filtration, energy storage and conversion. The book also covers emerging research on graphite oxides and the impact of the research on fundamental and applied sciences.

Quantum Photonics

Quantum Photonics aims to serve as a comprehensive and systematic reference source for entrants to the field of quantum photonics, including updated topics on quantum photonics for researchers working in this field. The book reviews the fundamental knowledge of modern photonics related quantum technologies, key concepts of quantum photonic devices, and quantum photonics applications. The book is suitable for graduate students, researchers, and engineers who want to learn quantum photonics fundamentals.The editors, who are leaders in this field, have formulated this book as an introduction to the cutting-edge research in quantum photonics. Researchers and students involved in the development of semiconductor optoelectronics and optical communication systems should also find this book helpful. - Covers the whole quantum photonics field, including nanostructured materials, physics, modelling, and quantum technology applications ranging from applications of q-bit emitters to quantum dot lasers - Comprehensively and systematically reviews fundamentals and applications of quantum photonics for beginners in the field -

Provides foundational knowledge for modern photonics-related quantum technologies

Lasers, Clocks and Drag-Free Control

Written by international experts, this book explores the possibilities for the next 20 years in conducting gravitational experiments in space that would make the most of the new and much-improved existing capabilities. They start from the premise that over the next decade the gravitational physics community will benefit from dramatic improvements in many technologies critical to the tests of gravity. This volume contains a comprehensive presentation of the theory, technology, missions and projects on relativistic gravity in space.

Focus on Nanotechnology Research

Nanotechnology is a 'catch-all' description of activities at the level of atoms and molecules that have applications in the real world. A nanometer is a billionth of a meter, about 1/80,000 of the diameter of a human hair, or 10 times the diameter of a hydrogen atom. Nanotechnology is now used in precision engineering, new materials development as well as in electronics; electromechanical systems as well as mainstream biomedical applications in areas such as gene therapy, drug delivery and novel drug discovery techniques. This book presents the latest research in this frontier field. Contents: Preface; Electrospinning: A Novel Method for Metal Oxide Fibres; Nanofocusing Probe Optimisation in a Near-Field Head for an Ultra-High Density Optical Memory; Molecular Dynamics Simulation of Metallic Nanocluster Interfaces; Pre- and Post-Breakdown Conduction of Thin SiO2 Gate Oxides of MOS Devices: A Conductive Atomic Force Microscope Study; Topographic and Electrical Characterisation of Afm-Grown SiO2 on Si; Solvothermal Route used to Synthesize BN Nanocrystals and the Catalytic Effect of BN Nanocrystals; Covalently Attached Multilayer Self-Assembly Films and Micropatterns Comprising Metal

Spectroscopy and Characterization of Nanomaterials and Novel Materials

Spectroscopy and Characterization of Nanomaterials and Novel Materials Comprehensive overview of nanomaterial characterization methods and applications from leading researchers in the field In Spectroscopy and Characterization of Nanomaterials and Novel Materials: Experiments, Modeling, Simulations, and Applications, the editor Prabhakar Misra and a team of renowned contributors deliver a practical and up-to-date exploration of the characterization and applications of nanomaterials and other novel materials, including quantum materials and metal clusters. The contributions cover spectroscopic characterization methods for obtaining accurate information on optical, electronic, magnetic, and transport properties of nanomaterials. The book reviews nanomaterial characterization methods with proven relevance to academic and industry research and development teams, and modern methods for the computation of nanomaterials' structure and properties - including machine-learning approaches - are also explored. Readers will also find descriptions of nanomaterial applications in energy research, optoelectronics, and space science, as well as: A thorough introduction to spectroscopy and characterization of graphitic nanomaterials and metal oxides Comprehensive explorations of simulations of gas separation by adsorption and recent advances in Weyl semimetals and axion insulators Practical discussions of the chemical functionalization of carbon nanotubes and applications to sensors In-depth examinations of micro-Raman imaging of planetary analogs Perfect for physicists, materials scientists, analytical chemists, organic and polymer chemists, and electrical engineers, Spectroscopy and Characterization of Nanomaterials and Novel Materials: Experiments, Modeling, Simulations, and Applications will also earn a place in the libraries of sensor developers and computational physicists and modelers.

Billboard

In its 114th year, Billboard remains the world's premier weekly music publication and a diverse digital, events, brand, content and data licensing platform. Billboard publishes the most trusted charts and offers

unrivaled reporting about the latest music, video, gaming, media, digital and mobile entertainment issues and trends.

Infrared Applications of Semiconductors

The title of this book, Advances in Optical and Photonic Devices, encompasses a broad range of theory and applications which are of interest for diverse classes of optical and photonic devices. Unquestionably, recent successful achievements in modern optical communications and multifunctional systems have been accomplished based on composing “building blocks” of a variety of optical and photonic devices. Thus, the grasp of current trends and needs in device technology would be useful for further development of such a range of relative applications. The book is going to be a collection of contemporary researches and developments of various devices and structures in the area of optics and photonics. It is composed of 17 excellent chapters covering fundamental theory, physical operation mechanisms, fabrication and measurement techniques, and application examples. Besides, it contains comprehensive reviews of recent trends and advancements in the field. First six chapters are especially focused on diverse aspects of recent developments of lasers and related technologies, while the later chapters deal with various optical and photonic devices including waveguides, filters, oscillators, isolators, photodiodes, photomultipliers, microcavities, and so on. Although the book is a collected edition of specific technological issues, I strongly believe that the readers can obtain generous and overall ideas and knowledge of the state-of-the-art technologies in optical and photonic devices. Lastly, special words of thanks should go to all the scientists and engineers who have devoted a great deal of time to writing excellent chapters in this book.

Advances in Optical and Photonic Devices

Relativity theory has become one of the icons of Twentieth Century science. It's reckoned to be a difficult subject, taught as a layered series of increasingly difficult mathematics and increasingly abstract concepts. We're told that relativity theory is supposed to be this complicated and counter-intuitive. But how much of this historical complexity is really necessary? Can we bypass the interpretations and paradoxes and pseudoparadoxes of Einstein's special theory and jump directly to a deeper and more intuitive description of reality? What if curvature is a fundamental part of physics, and a final theory of relativity shouldn't reduce to Einstein's \"flat\" 1905 theory //on principle//? \"Relativity...\" takes us on a whistlestop tour of Twentieth Century physics - from black holes, quantum mechanics, wormholes and the Big Bang to the workings of the human mind, and asks: what would physics look like without special relativity? 394 printed pages, 234156 mm, 200 figures and illustrations, includes bibliography and index www.relativitybook.com

Relativity in Curved Spacetime

This handbook addresses the development of energy-efficient, environmentally friendly solid-state light sources, in particular semiconductor light emitting diodes (LEDs) and other solid-state lighting devices. It reflects the vast growth of this field and impacts in diverse industries, from lighting to communications, biotechnology, imaging, and medicine. The chapters include coverage of nanoscale processing, fabrication of LEDs, light diodes, photodetectors and nanodevices, characterization techniques, application, and recent advances. Readers will obtain an understanding of the key properties of solid-state lighting and LED devices, an overview of current technologies, and appreciation for the challenges remaining. The handbook will be useful to material growers and evaluators, device design and processing engineers, newcomers, students, and professionals in the field.

Handbook of Solid-State Lighting and LEDs

The three volumes of this handbook treat the fundamentals, technology and nanotechnology of nitride semiconductors with an extraordinary clarity and depth. They present all the necessary basics of semiconductor and device physics and engineering together with an extensive reference section. Volume 3

deals with nitride semiconductor devices and device technology. Among the application areas that feature prominently here are LEDs, lasers, FETs and HBTs, detectors and unique issues surrounding solar blind detection.

Handbook of Nitride Semiconductors and Devices, GaN-based Optical and Electronic Devices

There is beginning for anything; we used to hear that phrase.The same wisdom word applies to us too. What began in 2005 asa short email on some ideas related to interpretation of the WaveMechanics results in a number of papers and books up to now.Some of these papers can be found in Progress in Physics orelsewhere.Our purpose here is to present a selection of those papers in acompilation which enable the readers to find some coherentideas which appeared in those articles. For this reason, theordering of the papers here is based on categories of ideas.

Neutrosophic Logic, Wave Mechanics, and Other Stories (Selected Works 2005-2008)

This Festschrift is a tribute to the eminent scholar, Professor Richard Kounai Chang, on his retirement from Yale University on June 12, 2008. During his over four decades of scientific exploration, Professor Chang has made a lasting contribution to the development of linear and nonlinear optics and devices in confined geometries, of surface second-harmonic generation and surface-enhanced Raman scattering, and of novel methods for detecting airborne aerosol pathogens. This volume assembles a collection of articles contributed by former students, collaborators, and colleagues of Professor Chang all over the world. The topics span a diverse scope in applied optics frontiers, many of which are rooted in Professor Chang's pioneering research.

Optical Processes in Microparticles and Nanostructures

Experts Pleba?ski and Krasi?ski provide a thorough introduction to the tools of general relativity and relativistic cosmology. Assuming familiarity with advanced calculus, classical mechanics, electrodynamics and special relativity, the text begins with a short course on differential geometry, taking a unique top-down approach. Starting with general manifolds on which only tensors are defined, the covariant derivative and affine connection are introduced before moving on to geodesics and curvature. Only then is the metric tensor and the (pseudo)-Riemannian geometry introduced, specialising the general results to this case. The main text describes relativity as a physical theory, with applications to astrophysics and cosmology. It takes the reader beyond traditional courses on relativity through in-depth descriptions of inhomogeneous cosmological models and the Kerr metric. Emphasis is given to complete and clear derivations of the results, enabling readers to access research articles published in relativity journals.

An Introduction to General Relativity and Cosmology

Why would two talented and employable young graphic designers start up their own practice without any clients, in the midst of a recession, and in a city brimming with world-renowned designers? Karlssonwilker inc.'s tellmewhy is the improbable story of such a venture -- or act of bravura or insanity -- on the part of Hjalti Karlsson and Jan Wilker, and offers a telling, humorous, and always human insight into the workings of a young startup design studio, showcasing every single project they did in their first two years. A book as iconoclastic as their designs, tellmewhy features fresh stories of karlssonwilker's ordinary office live and its less-than-romantic tales about rooftop parties, battles with immigration, language obstacles, missed meetings, and money problems. Despite these stories -- and because of others -- karlssonwilker has produced an impressive body of work in two short years. Tellmewhy shows the happy endings, including signage for a Philadelphia restaurant, logo designs for a New York fashion house, and CD packaging for both independent and major music labels. And it presents the few unrealized designs, like an ad campaign for a TV network. All share the designers' creative and humorous take on design. Karlssonwilker intersperses these examples

with its singular illustrated diagrams, faux flow charts linking the partners' biographies, work, social lives, and whatever comes to their unique minds. Tellmewhy offers both inspiration and caution for designers everywhere. A foreword by former employer Stefan Sagmeister recalls karlssonwilker's start in his design office.

Karlssonwilker Inc.'s Tellmewhy

Tribology of Graphene: Simulation Methods, Preparation Methods, and Their Applications provides an exhaustive reference guide on the tribology of graphene-based materials. The book begins with a discussion on the selection of the proper graphene-based material and then segues into how to choose a deposition method, how to control of its structure and properties, and the most effective working conditions and applications. The latest developments in theoretical simulations of graphene friction, preparation methods, and effective applications are all reviewed, as are the ways various graphene coatings can be successfully employed to decrease friction and wear in nano-, micro- and macro-mechanical applications. - Synthesizes the broad current research in tribological applications of graphene all in one place - Covers theoretical simulations and preparation methods, including insights on how to put them into practice, allowing for quicker and more effective selection of graphene-based material - Provides a broader perspective by discussing both graphene-based composites and additives

Tribology of Graphene

This book introduces readers to fundamental information on phosphor and quantum dots. It comprehensively reviews the latest research advances in and applications of fluoride phosphors, oxide phosphors, nitridosilicate phosphors and various quantum dot materials. Phosphors and phosphor-based quantum dot materials have recently gained considerable scientific interest due to their wide range of applications in lighting, displays, medical and telecommunication technologies. This work will be of great interest to researchers and graduate students in materials sciences and chemistry who wish to learn more about the principles, synthesis and analysis of phosphors and quantum dot materials.

Phosphors, Up Conversion Nano Particles, Quantum Dots and Their Applications

Comprehensive in scope, this book covers the latest progresses of theories, technologies and applications of LEDs based on III-V semiconductor materials, such as basic material physics, key device issues (homoepitaxy and heteroepitaxy of the materials on different substrates, quantum efficiency and novel structures, and more), packaging, and system integration. The authors describe the latest developments of LEDs with spectra coverage from ultra-violet (UV) to the entire visible light wavelength. The major aspects of LEDs, such as material growth, chip structure, packaging, and reliability are covered, as well as emerging and novel applications beyond the general and conventional lightings. This book, written by leading authorities in the field, is indispensable reading for researchers and students working with semiconductors, optoelectronics, and optics. Addresses novel LED applications such as LEDs for healthcare and wellbeing, horticulture, and animal breeding; Editor and chapter authors are global leading experts from the scientific and industry communities, and their latest research findings and achievements are included; Foreword by Hiroshi Amano, one of the 2014 winners of the Nobel Prize in Physics for his work on light-emitting diodes.

Light-Emitting Diodes

This volume of important papers by one the world's leading astrophysicists provides a sweeping survey of the incisive and exciting applications of nuclear and particle physics to a wide range of problems in astrophysics and cosmology.The prime focus of the book is on Big Bang cosmology and the role of primordial nucleosynthesis in establishing the modern consensus on the Big Bang. This leads into the connection of cosmology to particle physics and the constraints put on various elementary particles by astrophysical arguments. Big Bang Nucleosynthesis has also led to the argument for nonbaryonic dark matter and is thus

related to the major problem in physical cosmology today, namely, structure formation. The nuclear-particle interface with astrophysics also extends to the other topics of major interest such as the age of the universe, cosmic rays, supernovae, and solar neutrinos, each of which will be discussed in some detail. Each section contains historical papers, current papers, and frequently a popular article on the subject which provides an overview of the topic.This volume is testimony to the success of the integration of nuclear and particle physics with astrophysics and cosmology, and to the ingenuity of the work in this area which has earned the author numerous prestigious awards. The book, which is accessible to beginning graduate students, should be of particular interest to researchers and students in astronomy, astrophysics, cosmology and gravitation, and also in high energy and nuclear physics.

Multiphoton Processes - Proceedings Of The Sixth International Conference

A benchmark publication, the first edition of the Phosphor Handbook, published in 1998, set the standard for references in the field. The second edition, updated and published in 2007, began exploring new and emerging fields. However, in the last 14 years, since the second edition was published, many notable advances and broader phosphor applications have occurred. Completely revised, updated, and expanded into three separate volumes, this third edition of the Handbook covers the most recent developments in phosphor research, characterization, and applications. This volume on ‘Fundamentals of Luminescence’ elucidates the theoretical background and fundamental properties of luminescence as applied to solid-state phosphor materials. The book includes the chapters that cover: Basic principles of luminescence, the principal phosphor materials, and their optical properties New developments in principal phosphors in nitrides, perovskite, and silicon carbide Revised lanthanide level locations and its impact on phosphor performance Detailed descriptions of energy transfer and upconversion processes in bulk and nanoscaled particles and core-shell structures Rapid developing organic and polymer luminescent materials and devices

Phosphor Handbook

Metamaterials represent a new emerging innovative field of research which has shown rapid acceleration over the last couple of years. In this handbook, we present the richness of the field of metamaterials in its widest sense, describing artificial media with sub-wavelength structure for control over wave propagation in four volumes.Volume 1 focuses on the fundamentals of electromagnetic metamaterials in all their richness, including metasurfaces and hyperbolic metamaterials. Volume 2 widens the picture to include elastic, acoustic, and seismic systems, whereas Volume 3 presents nonlinear and active photonic metamaterials. Finally, Volume 4 includes recent progress in the field of nanoplasmonics, used extensively for the tailoring of the unit cell response of photonic metamaterials.In its totality, we hope that this handbook will be useful for a wide spectrum of readers, from students to active researchers in industry, as well as teachers of advanced courses on wave propagation.

World Scientific Handbook Of Metamaterials And Plasmonics (In 4 Volumes)

This book gives a comprehensive overview of recent advancements in both theory and practical implementation of plasmonic probes. Encompassing multiple disciplines, the field of plasmonics provides a versatile and flexible platform for nanoscale sensing and imaging. Despite being a relatively young field, plasmonic probes have come a long way, with applications in chemical, biological, civil, and architectural fields as well as enabling many analytical schemes such as immunoassay, biomarkers, environmental indexing, and water quality sensing, to name but a few. The objective of the book is to present in-depth analysis of the theory and applications of novel probes based on plasmonics, with a broad selection of specially-invited chapters on the development, fabrication, functionalization, and implementation of plasmonic probes as well as their integration with current technologies and future outlook. This book is designed to cater to the needs of novice, seasoned researchers and practitioners in academia and industry, as well as medical and environmental fields.

Recent Advances in Plasmonic Probes

Wide bandgap light emitters include laser diodes and light-emitting diodes (LED), the most modern diodes widely used in current technologies as microelectronics and optoelectronics. Rapid advances have been made during the last few years, with the result that more research is devoted to applications in line with the expanding market for optoelectronics. This volume deals with recent research results on wide bandgap light emitting materials, introducing new concepts for devices based on these materials. The editors, scientists with the best reputations, have invited authors from different institutions who are acknowledged researchers in the field as well as being involved in industrial applications. They represent several lines of research: III-nitride compounds, ZnO and ZnSe, the most promising materials for device applications.

Wide Bandgap Light Emitting Materials And Devices

Will and Yunes chronicle the latest scientific discoveries as they put Einstein's theory to the test in astonishing ways. They document the struggles to reconcile gravity with quantum mechanics, dark matter, and the scientific process to seek a new understanding of the cosmos. Describes cutting-edge theoretical physics without equations.

Is Einstein Still Right?

From New York Times bestselling author Cixin Liu comes a short story collection of captivating visions of the future and incredible re-imaginings of the past. In To Hold Up the Sky, Cixin Liu takes us across time and space, from a rural mountain community where elementary students must use physicas to prevent an alien invasion; to coal mines in northern China where new technology will either save lives of unleash a fire that will burn for centuries; to a time very much like our own, when superstring computers predict our every move; to 10,000 years in the future, when humanity is finally able to begin anew; to the very collapse of the universe itself. Written between 1999 and 2017 and never before published in English, these stories came into being during decades of major change in China and will take you across time and space through the eyes of one of science fiction's most visionary writers. Experience the limitless and pure joy of Cixin Liu's writing and imagination in this stunning collection. Stories included are: Contraction Full Spectrum Barrage Jamming The Village Teacher Fire in the Earth Time Migration Ode to joy Cloud of Poems Mirror Sea of Dreams Cloud of Poems The Thinker At the Publisher's request, this title is being sold without Digital Rights Management Software (DRM) applied.

To Hold Up the Sky

The present book consists of 17 select scientific papers from ten years of work around 2003-2013. The topic covered here is quantization in Astrophysics. We also discuss other topics for instance Pioneer spacecraft anomaly. We discuss a number of sub-topics, for instance the use of Schrödinger equation to describe celestial quantization. Our basic proposition here is that the quantization of planetary systems corresponds to quantization of circulation as observed in superfluidity. And then we extend it further to the use of (complex) Ginzburg-Landau equation to describe possible nonlinearity of planetary quantization. The present book is suitable for young astronomers and astrophysicists as well as for professional astronomers who wish to update their knowledge in the vast topic of quantization in astrophysics. This book is also suitable for college students who want to know more about this subject.

A Journey into Quantization in Astrophysics

This volume contains papers on the following: CMOS devices and devices based on compound semiconductors; processing; silicon integrated technology and integrated circuit design; quantum physics; nanotechnology; nanodevices, sensors and microsystems. The latest news and future challenges in these fields are presented in invited papers.

Microelectronics, Microsystems and Nanotechnology

This volume contains papers on the following: CMOS devices and devices based on compound semiconductors; processing; silicon integrated technology and integrated circuit design; quantum physics; nanotechnology; nanodevices, sensors and microsystems. The latest news and future challenges in these fields are presented in invited papers.

Microelectronics, Microsystems And Nanotechnology: Papers Presented Of At Mmn 2000

Take a tour beneath the surface of colours! A New Groundbreaking Colour Theory This easy-to-read and versatile book finally explains colour phenomena validly and comprehensively and helps the reader to understand the world of colours surrounding us. The book is also an excellent colour information manual for demanding readers and experts. It presents a new groundbreaking colour theory that indisputably reveals, how the prevailing colour theories are not true.

Beneath the Surface of Colours

New York magazine was born in 1968 after a run as an insert of the New York Herald Tribune and quickly made a place for itself as the trusted resource for readers across the country. With award-winning writing and photography covering everything from politics and food to theater and fashion, the magazine's consistent mission has been to reflect back to its audience the energy and excitement of the city itself, while celebrating New York as both a place and an idea.

New York Magazine

Dead dinosaurs and Neanderthals have secrets. Many people don’t know that modern science, genetics, dinosaur fossils, and even Neanderthals support the validity of the Bible and the creation account. Unraveling Creation and Evolution Through Science and the Bible addresses traditional and less-known aspects of creation and evolution through the lenses of science and the Bible. Readers will discover mysteries, facts, theories, and myths beyond their current thinking.

Unraveling Creation and Evolution Through Science and the Bible

Gravity is the most enigmatic of all known basic forces in nature. Yet it controls everything from the motion of ocean tides to the expansion of the entire Universe. Many books use technical jargon and high-powered maths to explain what gravity is all about. In The Lighter Side of Gravity, the presentation is beautifully clear and completely non-technical. Familiar analogies, interesting anecdotes and numerous illustrations are used throughout to get across subtle effects and difficult points. The coverage is, however, comprehensive and makes no compromise with accuracy. This second edition has been brought completely up to date and expanded to include the discovery of gigantic gravitational lenses in space, the findings of the COBE satellite, the detection of MACHOS, the investigations of the very early Universe and other new ideas in cosmology. In short, this lucid and stimulating book presents 'the lighter side' of the intriguing phenomena of 'gravity' to the student and general reader.

The Lighter Side of Gravity

The second, updated edition of this essential reference book provides a wealth of detail on a wide range of electronic and photonic materials, starting from fundamentals and building up to advanced topics and applications. Its extensive coverage, with clear illustrations and applications, carefully selected chapter sequencing and logical flow, makes it very different from other electronic materials handbooks. It has been

written by professionals in the field and instructors who teach the subject at a university or in corporate laboratories. The Springer Handbook of Electronic and Photonic Materials, second edition, includes practical applications used as examples, details of experimental techniques, useful tables that summarize equations, and, most importantly, properties of various materials, as well as an extensive glossary. Along with significant updates to the content and the references, the second edition includes a number of new chapters such as those covering novel materials and selected applications. This handbook is a valuable resource for graduate students, researchers and practicing professionals working in the area of electronic, optoelectronic and photonic materials.

Springer Handbook of Electronic and Photonic Materials

The development of nanostructured materials represents a new and fast evolving application of recent research in physics and chemistry. Novel experimental tools coupled with new theory have made this possible. Topics covered in this book include nanocrystals, semiconductor heterostructures, nanotubes, nanowires, and manipulation and fabrication tec

Physics and Chemistry of Nano-structured Materials

Optoelectronics - Materials and Techniques is the first part of an edited anthology on the multifaceted areas of optoelectronics by a selected group of authors including promising novices to the experts in the field. Photonics and optoelectronics are making an impact multiple times the semiconductor revolution made on the quality of our life. In telecommunication, entertainment devices, computational techniques, clean energy harvesting, medical instrumentation, materials and device characterization and scores of other areas of R

Optoelectronics

For the 2007 Edition, leading authorities in over 24 specialized areas review and comment on key issues nationwide, with detailed outlines and summaries of cases, legislation, trends, and developments. Use the Annual Review for updates in your specialty area, when you are asked to consider issues that cross over multiple areas of specialty, or to give an initial reaction to a new situation.

Annual Review of Developments in Business and Corporate Litigation,2007 Edition-2 Volume Set

Ultrafast Phenomena XVI presents the latest advances in ultrafast science, including both ultrafast optical technology and the study of ultrafast phenomena. It covers picosecond, femtosecond and attosecond processes relevant to applications in physics, chemistry, biology, and engineering. Ultrafast technology has a profound impact in a wide range of applications, amongst them biomedical imaging, chemical dynamics, frequency standards, material processing, and ultrahigh speed communications. This book summarizes the results presented at the 16th International Conference on Ultrafast Phenomena and provides an up-to-date view of this important and rapidly advancing field.

Ultrafast Phenomena XVI

Almost from its inception, Einstein's general theory of relativity was known to sanction spacetime models harboring singularities. Until the 1960s, however, spacetime singularities were thought to be artifacts of the idealizations of the models. This attitude evaporated in the face of a series of theorems, due largely to Stephen Hawking and Roger Penrose, which showed that Einstein's general theory implies that singularities can be expected to occur in a wide variety of conditions in both gravitational collapse and in cosmology. In the light of these results some physicists adopted the attitude that, since spacetime singularities are intolerable, general relativity contains within itself the seeds of its own destruction. Others hoped that

peaceful coexistence with singularities could be achieved by proving a form of Roger Penrose's cosmic censorship hypothesis, which would place singularities safely inside black holes. Whatever the attitude one adopts toward spacetime singularities, it is evident that they raise a number of foundational problems for physics and have profound implications for the philosophy of space and time. However, philosophers of science have been slow to awaken to the significance of these developments. Indeed, this is the first serious book-length study of the subject by a philosopher of science. It features an overview of the literature on singularities, as well as an analytic commentary on their significance to a number of scientific and philosophical issues.

Bangs, Crunches, Whimpers, and Shrieks