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KEY=ENGINEERING - TOWNSEND GRACE

ISSUES IN APPLIED PHYSICS: 2011 EDITION

ScholarlyEditions Issues in Applied Physics / 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Applied Physics. The editors have built Issues in Applied Physics: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Applied Physics in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Applied Physics: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

SMART AND FLEXIBLE ENERGY DEVICES

CRC Press The scientific community and industry have seen tremendous progress in efficient energy production and storage in the last few years. With the advancement in technology, new devices require high-performance, stretchable, bendable, and twistable energy sources, which can be integrated into next-generation wearable, compact, and portable electronics for medical, military, and civilian applications. Smart and Flexible Energy Devices examines the materials, basic working principles, and state-of-the-art progress of flexible devices, like fuel cells, solar cells, batteries, and supercapacitors. Covering the synthesis approaches for advanced energy materials in flexible devices and fabrications and fundamental design concepts of flexible energy devices, such as fuel cells, solar cells, batteries, and supercapacitors, top author teams explore how newer materials with advanced properties are used to fabricate the energy devices to meet the future demand for flexible electronics. Additional features include: Addressing the materials, technologies, and challenges of various flexible energy devices under one cover Emphasizing future demand and challenges of the field Considering all flexible energy types, like fuel cells, solar cells, batteries, and supercapacitors Suitability for undergraduate and postgraduate students of material science and energy programs This is a valuable resource for academics and industry professionals working in the field of energy materials, nanotechnology, and energy devices.

S.CHAND'S PROBLEMS IN ENGINEERING PHYSICS

S. Chand Publishing For the first year students of B.E./B.Tech/B.Arch. and also useful for competitive Examinations. A number of problems are solved. New problems are included in order to expedite the learning process of students of all hues and to improve their academic performance. Each chapter divided into smaller parts and subheading are provided to make the reading a pleasant journey

NANOMATERIALS FOR SOLAR CELL APPLICATIONS

Elsevier Nanomaterials for Solar Cell Applications provides a review of recent developments in the field of nanomaterials based solar cells. It begins with a discussion of the fundamentals of nanomaterials for solar calls, including a discussion of lifecycle assessments and characterization techniques. Next, it reviews various types of solar cells, i.e., Thin film, Metal-oxide, Nanowire, Nanorod and Nanoporous materials, and more. Other topics covered include a review of quantum dot sensitized and perovskite and polymer

nanocomposites-based solar cells. This book is an ideal resource for those working in this evolving field of nanomaterials and renewable energy. Provides a well-organized approach to the use of nanomaterials for solar cell applications Discusses the synthesis, characterization and applications of traditional and new material Includes coverage of emerging nanomaterials, such as graphene, graphene-derivatives and perovskites Springer Nature

CHEMICALLY DEPOSITED NANOCRYSTALLINE METAL OXIDE THIN FILMS

SYNTHESIS, CHARACTERIZATIONS, AND APPLICATIONS

Springer Nature This book guides beginners in the areas of thin film preparation, characterization, and device making, while providing insight into these areas for experts. As chemically deposited metal oxides are currently gaining attention in development of devices such as solar cells, supercapacitors, batteries, sensors, etc., the book illustrates how the chemical deposition route is emerging as a relatively inexpensive, simple, and convenient solution for large area deposition. The advancement in the nanostructured materials for the development of devices is fully discussed.

A TEXTBOOK OF ENGINEERING PHYSICS

S. Chand Publishing A Txtbook of Engineering Physics is written with two distinct objectives:to provied a single source of information for engineering undergraduates of different specializations and provied them a solid base in physics.Successivs editions of the book incorporated topic as required by students pursuing their studies in various universities.In this new edition the contents are fine-tuned,modeinized and updated at various stages.

SYNTHESIS, CHARECTERISATION, ELECTRICAL AND MICROWAVE PROPERTIES OF POLYANILINE RARE-EARTH OXIDE COMPOSITES

Horizon Books (A Division of Ignited Minds Edutech P Ltd) Polymers by virtue of their light weight and ease of fabrication have replaced metals in several areas of application; as often remarked "from buckets to rockets". Until about 30 years ago all carbon based polymers were rigidly regarded as insulators. The idea that plastics could be made to conduct electricity would have been considered to be absurd. Indeed, plastics have been extensively used by electronic industry because of this very good insulating property. They were utilized as inactive packaging and insulating materials. This narrow perspective is rapidly changing as new class of polymers known as conductive polymers or electro active polymers are being discovered. Although this class is in its infancy much like the plastic industry was in the 30"s and 50"s, the potential uses of these are quite significant.

SHAPE MEMORY COMPOSITES BASED ON POLYMERS AND METALS FOR 4D PRINTING

PROCESSES, APPLICATIONS AND CHALLENGES

Springer Nature Shape Memory Composites Based on Polymers and Metals for 4D Printing is a thorough discussion of the physics and chemistry behind this developing area of materials science. It provides readers with a clear exposition of shape-memory-composite (SMC) preparation techniques for 3D and 4D printing processes and explains how intelligent manufacturing technology may be applied in fields such as robotics, construction, medical science, and smart sensors. The book covers fundamental background knowledge on the synthesis of shape memory polymers (SMPs) and shape memory alloys (SMAs), and additive manufacturing techniques. Polymers and metals and their roles in 4D printing are dealt with separately, and applications of 4D printing are treated in their own chapter. The different alloy compositions and nanoparticle fillers in polymer composites are examined in detail, along with the key mechanisms involved in their processing. Hybrid nanofillers and synergistic composite mixtures, which are either in extensive current use or have shown promising outcomes in the field of 4D printing, are thoroughly discussed. Differences between these novel SMCs and traditional metal alloys, organic and inorganic composites are presented, and means by which they can improve mechanical properties that are triggered by external sources like magnetic field, temperature, and pH of solvent, are set out. This book provides practitioners, industrial researchers, and scholars with a state-of-the-art overview of SMP/SMA synthesis, additive manufacturing, modification in synthesis of SMCs for 4D printing, and their likely future applications.

FUNCTIONALIZED ENGINEERING MATERIALS AND THEIR APPLICATIONS

CRC Press Scientists and researchers are looking for new smart materials to replace old or conventional materials for better performance and for new applications. The use of

polymeric materials and nanomaterials is increasing due to their wide-spectrum tunability and many properties. It is now easier to formulate materials for special purposes using these materials than using conventional materials and methods. Many commercial products made from polymeric materials and nanomaterials are now in use and on the market. This book presents a diverse selection of cutting-edge research on the development of polymeric materials and nanomaterials for new and different applications. These include electrical applications, biomedical applications, sensing applications, coating applications, and others. A few chapters dedicated to materials for construction applications are also included. Discussions include the properties, behavior, preparation, processing, and characterization of various polymeric materials, nanomaterials, and their composites. Some of the chapter authors present theoretical studies of these systems, which can help readers to develop a better understanding in this area.

ADVANCES IN RENEWABLE ENERGY TECHNOLOGIES

Alpha Science Int'l Ltd. With reference to India; contributed papers presented at the National Symposium on Recent Advances in Renewable Energy Technologies, held during August 13-15, 2002, at Kolhapur, India.

CONDUCTING POLYMERS FOR ADVANCED ENERGY APPLICATIONS

CRC Press This book details the use of conducting polymers and their composites in supercapacitors, batteries, photovoltaics, and fuel cells, nearly covering the entire spectrum of energy area under one title. Conducting Polymers for Advanced Energy Applications covers a range of advanced materials based on conducting polymers, the fundamentals, and the chemistry behind these materials for energy applications. **FEATURES** Covers materials, chemistry, various synthesis approaches, and the properties of conducting polymers and their composites Discusses commercialization and markets and elaborates on advanced applications Presents an overview and the advantages of using conducting polymers and their composites for advanced energy applications Describes a variety of nanocomposites, including metal oxides, chalcogenides, graphene, and materials beyond graphene Offers the fundamentals of electrochemical behavior This book provides a new direction for scientists, researchers, and students in materials science and polymer chemistry who seek to better understand the chemistry behind conducting polymers and improve their performance for use in advanced energy applications.

ADVANCED POLYMERIC MATERIALS

FROM MACRO- TO NANO-LENGTH SCALES

CRC Press The aim of this new compendium is to provide a solid understanding of the recent developments in advanced polymeric materials from macro- to nano-length scales. Composites are becoming more important because they can help to improve our quality of life, such as being put into service in flight vehicles, automobiles, boats, pipelines, buildings, roads, bridges, and dozens of other products, including medical products. The chapters cover a multitude of important advances, including explanations of the significance of the new fillers, like graphene and carbon nanotubes, in different matrix systems. Coverage of the application of these materials in biological and others fields also makes this book unique. Topics include advances on the processing, properties, recyclability, and reparability, and applications for polymer matrix composites, ceramic matrix composites, carbon matrix composites, wood-based composites, biocomposites, eco-composites, nanocomposites, and more.

AEROGELS HANDBOOK

Springer Science & Business Media Aerogels are the lightest solids known. Up to 1000 times lighter than glass and with a density as low as only four times that of air, they show very high thermal, electrical and acoustic insulation values and hold many entries in Guinness World Records. Originally based on silica, R&D efforts have extended this class of materials to non-silicate inorganic oxides, natural and synthetic organic polymers, carbon, metal and ceramic materials, etc. Composite systems involving polymer-crosslinked aerogels and interpenetrating hybrid networks have been developed and exhibit remarkable mechanical strength and flexibility. Even more exotic aerogels based on clays, chalcogenides, phosphides, quantum dots, and biopolymers such as chitosan are opening new applications for the construction, transportation, energy, defense and healthcare industries. Applications in electronics, chemistry, mechanics, engineering, energy production and storage, sensors, medicine, nanotechnology, military and aerospace, oil and gas recovery, thermal insulation and household uses are being developed with an estimated annual market growth rate of around 70% until 2015. The Aerogels Handbook summarizes state-of-the-art developments and processing of inorganic, organic, and composite aerogels, including the most important methods of synthesis, characterization as well as their typical applications and their possible market impact. Readers will find an exhaustive overview of all aerogel materials known today, their fabrication, upscaling aspects, physical

and chemical properties, and most recent advances towards applications and commercial products, some of which are commercially available today. Key Features: •Edited and written by recognized worldwide leaders in the field •Appeals to a broad audience of materials scientists, chemists, and engineers in academic research and industrial R&D •Covers inorganic, organic, and composite aerogels •Describes military, aerospace, building industry, household, environmental, energy, and biomedical applications among others

INDIAN JOURNAL OF PURE & APPLIED PHYSICS

EMERGING TRENDS IN ENVIRONMENTAL BIOTECHNOLOGY

CRC Press The environment is an all-encompassing component of the ecosystem of "Blue planet - the earth", made up of the hydrosphere, atmosphere and lithosphere. These three spheres have biotic and abiotic components which exhibit ecological homeostasis that provides the most appropriate survival chances for the members of biotic component and geochemical balance with abiotic components. This ecosystem is subjected to relatively harsh conditions, mostly created by the disastrous activities due to natural calamities and intentional and/or accidental anthropogenic activities. Biotechnology has become a potential tool to dissipate such environmental impacts because of the advancement it has undergone recently. Emerging Trends in Environmental Biotechnology is an outstanding collection of current research that integrates basic and advanced concepts of biotechnology such as genomics, proteomics, bioinformatics, sequencing, and imaging processes to improvise and protect the environment. This book is particularly attractive for scientists, researchers, students, educators and professionals in environmental science, agriculture, veterinary and biotechnology science. The book will enable them to solve the problems about sustainable development with the help of current innovative biotechnologies such as recombinant DNA technology and genetic engineering which have tremendous potential for impacting global food security, environmental health, human and animal health and overall livelihood of mankind. Features Presents easy-to-read chapters Information is presented in a very accessible and logical format Identifies and explores biotechnological approaches for environmental protection Encompasses biodegradation of hazardous contaminants, biotechnology in waste management, nanotechnology, and issues in environmental biotechnology research

ADVANCES IN METAL OXIDES AND THEIR COMPOSITES FOR EMERGING APPLICATIONS

Elsevier Advances in Metal Oxides and their Composites for Emerging Applications reviews key properties of metal-oxide based composites, including their structural, physicochemical, optical, electrical components and resulting performance in a wide range of diverse applications. Synthetic protocols used to create metal oxides with desirable morphologies, properties and performance for applications in solar energy harvesting, energy storage and environmental remediation are emphasized. Emerging technologies that address important global challenges such as energy shortage, the hazardous effects of non-renewable energy sources, unaffordable energy technologies, and the contaminants present in air and water are also covered. This book is an ideal resource for materials scientists and engineers working in academia and R&D. In addition, it's appropriate for those who either need an introduction to potential research directions or for experienced researchers and practitioners looking for a key reference on the latest advances. Introduces the fundamental properties of metal oxide-based composites, paying special attention to physicochemical, optical, electrical and structural characteristics Provides an overview of the synthetic protocols used to design and tune the properties of metal oxide-based composites for key emerging applications Discusses metal oxide-based composites and their use in energy applications such as energy storage, energy harvesting and environmental remediation

FUNCTIONALIZED NANOMATERIALS

CRC Press Nanomaterials contain some unique properties due to their nanometric size and surface functionalization. Nanomaterial functionalization also affects their compatibility to biocompatibility and toxicity behaviors. environment and living organism. This makes functionalized nanomaterials a material with huge scope and few challenges. This book provides detailed information about the nanomaterial functionalization and their application. Recent advancements, challenges and opportunities in the preparation and applications of functionalized nanomaterials are also highlighted. This book can serve as a reference book for scientific investigators, doctoral and post-doctoral scholars; undergrad and grad. This book is very useful for multidisciplinary researchers, industry personnel's, journalists, and policy makers. Features: Covers all aspects of Nanomaterial functionalization and its applications Describes and methods of functionalized nanomaterials synthesis for different applications Discusses the challenges, recent findings, and cutting-edge global research trends on functionalization of nanomaterials and its applications It discusses the regulatory frameworks for the safe use of functionalized nanomaterials. It contains contributions from international experts from multiple disciplines.

ISSUES IN MATERIALS AND MANUFACTURING RESEARCH: 2011 EDITION

ScholarlyEditions Issues in Materials and Manufacturing Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Materials and Manufacturing Research. The editors have built Issues in Materials and Manufacturing Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Materials and Manufacturing Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Materials and Manufacturing Research: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

ENGINEERING PHYSICS-I (BASIC PHYSICS)

This book aims at providing a complete coverage of the needs of First Year students as per S.B.T.E's. revised syllabus. The entire revised syllabus has been covered keeping in view the non-availability of the complete subject matter through a single source. The difficult articles have been explained in a simple language providing, wherever necessary, neat and well explained diagrams so that even an average student may be able to follow it independently. A sufficient number of solved examples and problems with answers and SBTE questions are given at the end of each topic. Formulae specifying symbol meaning are enlisted before solving the examples.

ENGINEERING PHYSICS PRACTICAL

Krishna Prakashan Media

ENGINEERING PHYSICS

Krishna Prakashan Media

ENGINEERING PHYSICS: VOL. 1

Krishna Prakashan Media

KRISHAN'S ENGINEERING PHYSICS VOL-2

Krishna Prakashan Media

KRISHINA'S ENGINEERING PHYSICS; VOLUME III; OPTICS; 2001

Krishna Prakashan Media

ENGINEERING PHYSICS; VOLUME IV; WAVE MOTION AND SOUND

Krishna Prakashan Media

MEM-ELEMENTS FOR NEUROMORPHIC CIRCUITS WITH ARTIFICIAL INTELLIGENCE APPLICATIONS

Academic Press Mem-elements for Neuromorphic Circuits with Artificial Intelligence Applications illustrates recent advances in the field of mem-elements (memristor, memcapacitor, meminductor) and their applications in nonlinear dynamical systems, computer science, analog and digital systems, and in neuromorphic circuits and artificial intelligence. The book is mainly devoted to recent results, critical aspects and perspectives of ongoing research on relevant topics, all involving networks of mem-elements devices in diverse applications. Sections contribute to the discussion of memristive materials and transport mechanisms, presenting various types of physical structures that can be fabricated to realize mem-elements in integrated circuits and device modeling. As the last decade has seen an increasing interest in recent advances in mem-elements and their applications in neuromorphic

circuits and artificial intelligence, this book will attract researchers in various fields. Covers a broad range of interdisciplinary topics between mathematics, circuits, realizations, and practical applications related to nonlinear dynamical systems, nanotechnology, analog and digital systems, computer science and artificial intelligence Presents recent advances in the field of mem-elements (memristor, memcapacitor, meminductor) Includes interesting applications of mem-elements in nonlinear dynamical systems, analog and digital systems, neuromorphic circuits, computer science and artificial intelligence

PROCEEDINGS OF THE INDIAN SCIENCE CONGRESS

APPLICATIONS OF SOLAR ENERGY

Springer This book focuses on solar-energy-based renewable energy systems and discusses the generation of electric power using solar photovoltaics, as well as some new techniques, such as solar towers, for both residential and commercial needs. Such systems have played an important role in the move towards low-emission and sustainable energy sources. The book covers a variety of applications, such as solar water heaters, solar air heaters, solar drying, nanoparticle-based direct absorption solar systems, solar volumetric receivers, solar-based cooling systems, solar-based food processing and cooking, efficient buildings using solar energy, and energy storage for solar thermal systems. Given its breadth of coverage, the book offers a valuable resource for researchers, students, and professionals alike.

MACHINE DRAWING

Pearson Education India Machine Drawing is divided into three parts. Part I deals with the basic principles of technical drawing, dimensioning, limits, fits and tolerances. Part II provides details of how to draw and put machine components together for an assembly drawing. Part III contains problems on assembly drawings taken from the diverse fields of mechanical, production, automobile and marine engineering.

ENERGY DATA BASE

SERIAL TITLES WITH ISSN LISTING

21ST CENTURY NANOSCIENCE - A HANDBOOK

BIOINSPIRED SYSTEMS AND METHODS (VOLUME SEVEN)

CRC Press This 21st Century Nanoscience Handbook will be the most comprehensive, up-to-date large reference work for the field of nanoscience. Handbook of Nanophysics by the same editor published in the fall of 2010 and was embraced as the first comprehensive reference to consider both fundamental and applied aspects of nanophysics. This follow-up project has been conceived as a necessary expansion and full update that considers the significant advances made in the field since 2010. It goes well beyond the physics as warranted by recent developments in the field. This seventh volume in a ten-volume set covers bioinspired systems and methods. Key Features: Provides the most comprehensive, up-to-date large reference work for the field. Chapters written by international experts in the field. Emphasises presentation and real results and applications. This handbook distinguishes itself from other works by its breadth of coverage, readability and timely topics. The intended readership is very broad, from students and instructors to engineers, physicists, chemists, biologists, biomedical researchers, industry professionals, governmental scientists, and others whose work is impacted by nanotechnology. It will be an indispensable resource in academic, government, and industry libraries worldwide. The fields impacted by nanophysics extend from materials science and engineering to biotechnology, biomedical engineering, medicine, electrical engineering, pharmaceutical science, computer technology, aerospace engineering, mechanical engineering, food science, and beyond.

SMART POLYMER NANOCOMPOSITES

ENERGY HARVESTING, SELF-HEALING AND SHAPE MEMORY APPLICATIONS

Springer This book covers smart polymer nanocomposites with perspectives for application in energy harvesting, as self-healing materials, or shape memory materials. The book is

application-oriented and describes different types of polymer nanocomposites, such as elastomeric composites, thermoplastic composites, or conductive polymer composites. It outlines their potential for applications, which would meet some of the most important challenges nowadays: for harvesting energy, as materials with the capacity to self-heal, or as materials memorizing a given shape. The book brings together these different applications for the first time in one single platform. Chapters are ordered both by the type of composites and by the target applications. Readers will thus find a good overview, facilitating a comparison of the different smart materials and their applications. The book will appeal to scientists in the fields of chemistry, material science and engineering, but also to technologists and physicists, from graduate student level to researcher and professional.

ELECTRICAL AND OPTICAL BEHAVIOUR OF SOLIDS

PROCEEDINGS OF NATIONAL CONFERENCE ON ELECTRICAL AND OPTICAL PROPERTIES OF SOLIDS, HELD DURING MARCH 26, 27, 28, 1987, AT THE DEPARTMENT OF PHYSICS, DR. H.S. GOUR UNIVERSITY, SAGAR, INDIA

Mittal Publications

NANOSENSORS FOR SMART AGRICULTURE

Elsevier Nanosensors for Smart Agriculture covers new breakthroughs in smart agriculture, highlighting new technologies, such as the internet of things, big data and artificial intelligence. In addition, the book provides the many advantages of nanosensors over their micro counterparts, such as lower power consumption, higher sensitivity, lower concentration of analytes, and smaller interaction distances between the object and sensor. Sections provide information on fundamental design concepts and emerging applications of nanosensors in smart agriculture. The book highlights how, when cultivating soil, nanosensors and their wireless networks can be used for soil quality monitoring (moisture/herbicides/organic compound/trace metals monitoring in soil, etc. Other applications cover how smart nanosensors can be used for virus detection and hygiene/pathogen controls in livestock, their use as active transport tracking devices for smart tracking and tracing, and other various applications, such as (i) nanochips for identity (radio frequency identification), (ii) food inspection, (iii) intelligent food packaging, and (iv) smart storage. This is an important reference source for materials scientists and agricultural engineers who are looking to understand more about how nanosensor technology can be used to create more efficient and sustainable agricultural systems. Outlines the fabrication and fundamental design concepts of nanosensors for agricultural applications Explains how nanosensors are being used throughout the agricultural cycle - from crop growth to food manufacturing Assesses major challenges surrounding the application of nanosensors to agricultural applications in mass scale

BULLETIN OF THE ASTRONOMICAL SOCIETY OF INDIA

NANOMEDICINES FOR BREAST CANCER THERANOSTICS

Elsevier Nanomedicines for Breast Cancer Theranostics addresses the translational aspects and clinical perspectives of breast cancer nanomedicine from a multidisciplinary perspective. The book summarizes research efforts at the preclinical and clinical stage of nanostructures and nanomedicine for dealing with the important challenge of nanomedicine translation in breast cancer theranostics. This book is an important resource for those working in both academia and industry, focusing on hot topics in biomaterials, biomedical engineering, drug delivery and oncology. Shows how the discovery of new nanomedicines is leading directly to an increase in the early-stage diagnosis of breast cancer Includes coverage of breast cancer nanomedicine standardization and characterization, highlighting newly developed treatments, diagnostics and treatment monitoring tools Explains why the design of nanobiomaterials make them effective drug carriers when treating breast cancer

SUPERHYDROPHOBIC POLYMER COATINGS

FUNDAMENTALS, DESIGN, FABRICATION, AND APPLICATIONS

Elsevier Superhydrophobic Polymer Coatings: Fundamentals, Design, Fabrication, and Applications offers a comprehensive overview of the preparation and applications of polymer coatings with superhydrophobicity, guiding the reader through advanced techniques and scientific principles. Sections present detailed information on the fundamental theories and methods behind the preparation of superhydrophobic polymer coatings and demonstrate the current and potential applications of these materials, covering a range of novel and marketable uses across industry, including coatings with properties such as foul resistance and self-cleaning, anti-icing and ice-release, corrosion inhibition, antibacterial, anti-

reflection, slip and drag reduction, oil-water separation, and advanced medical applications. This book is a highly valuable resource for academic researchers, scientists and advanced students working on polymer coatings or polymer surface modifications, as well as professionals across polymer science, polymer chemistry, plastics engineering, and materials science. The detailed information in this book will also be of great interest to scientists, R&D professionals, product designers and engineers who are looking to develop products with superhydrophobic coatings. Presents in-depth information on the advanced methods required in the preparation of superhydrophobic polymer coatings Covers the latest advances in the design of polymer coatings with superhydrophobic properties, including nanofabrication Explains cutting-edge industrial and medical applications, including self-cleaning coatings, corrosion inhibition, anti-icing and ice-release, and oil-water separation

HYBRID NANOSTRUCTURES FOR CANCER THERANOSTICS

Elsevier Hybrid nanostructures are nanoparticles which incorporate two or more structures. These structures may represent organic or inorganic material, but they synergistically improve the application of the material for end users. Hybrid Nanostructures for Cancer Theranostics explores how hybrid nanostructures are used in cancer treatment. Focusing on the properties of hybrid nanostructures, the book demonstrates how their unique characteristics can be used to create more effective treatment techniques. In the second half of the book, the chapters examine how hybrid nanostructures are currently being used in practice, assessing the pros and cons of using different types of nanostructures for different treatments. This valuable resource will allow readers to understand the core and emerging concept of functionalization, bioconjugation, hyperthermia and phototherapy of nanoparticles which allows for the greater use of hybrid nanomaterials in cancer theranostics. Shows how the use of novel hybrid nanostructures can lead to more effective cancer treatments. Explores how hybrid nanostructures are used for different treatment types, including photo thermal therapy and drug delivery. Explains how the use of hybrid nanostructures can lead to more rapid cancer diagnosis.

PROGRESS AND PROSPECTS IN NANOSCIENCE TODAY

"The book titled "Progress and Prospects in Nanoscience Today" is an extensive collection of learned materials and new results focusing on advances in nanoscience and nanomaterials for their applications by the contributing authors who are experts working in the fields of nanoscience, material science, energy, agricultural, computer science and engineering, atmospheric nanoscience, medicine, and nanobiotechnology. The book begins with a chapter on "Science of Nanomaterials". The formulation of this chapter serves as a foundation and is done in such a fashion that readers from a variety of disciplines with different background and willing to start research in interdisciplinary branch of science and make a career in nanotechnology. The second chapter presents basic concepts and methods of nanoscience, which are needed for human welfare. The first part addresses the function of imaging by scanning probe microscopy. This tool is operating with unprecedented sensitivity and resolution which promotes new views into structures and processes from the molecular to the sub-atomic level. They contribute to fabricate new nano-sized systems and to open up new fields of application that range from novel quantum materials to biosystems and living matter. The third chapter reports the synthesis and physiochemical characteristics of silver nanoparticles. The next thirteen chapters report different properties of nanomaterials for their number of applications. These include: polymer composites in aerospace applications, photoluminescence properties, atmospheric nanoscience, agriculture, supercapacitors, hyperthermia therapy, wound dressing, antimicrobial applications, anti-biofilm-applications, tuberculosis diagnosis etc. The book will be a precious piece and basic knowledge material for those looking for new opportunities in the field of progress and prospects of nanoscience for technology development in different walks of industries. Each chapter is an icon of frontier level high quality research that has been undertaken in synthesis, characterization and application of variety of nanomaterials"--