

Engineering Physics 1 By G Senthil Kumar

Eventually, you will no question discover a new experience and triumph by spending more cash. yet when? complete you endure that you require to acquire those all needs gone having significantly cash? Why dont you try to acquire something basic in the beginning? Thats something that will lead you to understand even more all but the globe, experience, some places, later than history, amusement, and a lot more?

It is your extremely own period to con reviewing habit. in the midst of guides you could enjoy now is **Engineering Physics 1 By G Senthil Kumar** below.

Green Chemistry for Dyes Removal from Waste Water - Sanjay K. Sharma 2015-02-25

The use of synthetic chemical dyes in various industrial processes, including paper and pulp manufacturing, plastics, dyeing of cloth, leather treatment and printing, has increased considerably over the last few years, resulting in the release of dye-containing industrial effluents into the soil and aquatic ecosystems. The textile industry generates high-polluting wastewaters and their treatment is a very serious problem due to high total dissolved solids (TDS), presence of toxic heavy metals, and the non-biodegradable nature of the dyestuffs in the effluent. The chapters in this book provide an overview of the problem and its solution from different angles. These problems and solutions are presented in a genuinely holistic way by world-renowned researchers. Discussed are various promising techniques to remove dyes, including the use of nanotechnology, ultrasound, microwave, catalysts, biosorption, enzymatic treatments, advanced oxidation processes, etc., all of which are "green." Green Chemistry for Dyes Removal from Wastewater comprehensively discusses: Different types of dyes, their working and methodologies and various physical, chemical and biological treatment methods employed. Application of advanced oxidation processes (AOPs) in dye removal whereby highly reactive hydroxyl radicals are generated chemically, photochemically and/or by radiolytic/sonolytic means. The potential of ultrasound as an AOP is discussed as well.

Nanotechnology in the treatment of dye removal types of adsorbents for removal of toxic pollutants from aquatic systems. Photocatalytic oxidation process for dye degradation under both UV and visible light, application of solar light and solar photoreactor in dye degradation.

Advances in Design, Simulation and Manufacturing V - Vitalii Ivanov 2022-05-24

This book reports on topics at the interface between mechanical and chemical engineering, emphasizing aspects related to design, simulation, and manufacturing. It covers recent findings concerning the mechanics of fluids, solids, and structures, and numerical and computational methods for solving coupled problems in manufacturing. Further, it reports on recent developments in chemical process technology, heat and mass transfer research, and energy-efficient technologies, describing applications in the food and energy production sector. Based on the 5th International Conference on Design, Simulation, Manufacturing: The Innovation Exchange (DSMIE-2022), held on June 7-10, 2022, in Poznan, Poland, this second volume of a 2-volume set provides academics and professionals with extensive information on trends and technologies, and challenges and practice-oriented experience in all the above-mentioned areas.

Nanoarmoring of Enzymes with Carbon Nanotubes and Magnetic Nanoparticles - 2020-01-30

Nanoarchitectures Built with Carbon Nanotubes and Magnetic Nanoparticles, Volume 630, the latest volume in the Methods in Enzymology series, continues the legacy of this premier serial with quality chapters authored by leaders in the field. New chapters in this volume include updates from well-known, established leaders. Contains the authority of authors who are leaders in their field. Provides a comprehensive source on new methods and research in enzymology.

Handbook of Research on Predictive Modeling and Optimization Methods in Science and Engineering - Kim, Dookie 2018-06-15

The disciplines of science and engineering rely heavily on the forecasting of prospective constraints for concepts that have not yet been proven to exist, especially in areas such as artificial intelligence. Obtaining quality solutions to the problems presented becomes increasingly difficult due to the number of steps required to sift through the possible solutions, and the ability to solve such problems relies on the recognition of patterns and the categorization of data into specific sets. Predictive modeling and optimization methods allow unknown events to be categorized based on statistics and classifiers input by researchers. The Handbook of Research

on Predictive Modeling and Optimization Methods in Science and Engineering is a critical reference source that provides comprehensive information on the use of optimization techniques and predictive models to solve real-life engineering and science problems. Through discussions on techniques such as robust design optimization, water level prediction, and the prediction of human actions, this publication identifies solutions to developing problems and new solutions for existing problems, making this publication a valuable resource for engineers, researchers, graduate students, and other professionals.

Plant Fibers, their Composites, and Applications - Sanjay Mavinkere Rangappa 2022-05-20

Plant Fibers, their Composites, and Applications provides a systematic and comprehensive account of recent research into plant fibers, including the synthesis of plant fiber reinforced polymer composites, characterization techniques, and a broad spectrum of applications. Plant fibers have generated great interest among material scientists due to their characteristics, which include availability, low cost, biodegradability, easy processability, excellent thermo-mechanical properties, low acoustic properties. They have been proven to be excellent replacements for synthetic fibers and have found applications in advanced polymer composites. Coverage includes every stage of working with plant fibers, including synthesis, processing, characterization, applications, recycling, and life cycle assessment of plant fibers and their composites. Drawing on work from leading researchers in industry, academia, government and private research institutions across the globe, this is a definitive one-stop reference for anyone working with plant fibers. Addresses emerging applications of plant fiber reinforced polymer composites in automotive, aerospace and construction and building applications. Provides detailed coverage of the modern processing technologies and synthesis for plant fibers and their composites. Includes valuable technical information relating to a range of new and nonconventional plant fibers.

Advances in Cryogenic Engineering - Joseph Waynert 2004-07-22

All papers have been peer-reviewed. The Cryogenic Engineering Conference covers applications and systems at temperatures where ordinary gases are liquids or solids, generally less than 150 K (-120°C or 185°F). It covers the newest approaches to producing low temperatures and to the use of systems at low temperatures, such as new superconducting magnets, high temperature superconducting electrical power applications, space applications and the properties of fluids and materials at these temperatures. Design, construction, testing, and characterization of cryogenic systems are presented. Topics include: Hydrogen: Past, Present, and Future; Liquefied Natural Gas; Liquid Helium: Refrigeration and Supply; Large Scale Cryogenic Systems; Large Scale Cryogenic Test Facilities; Expanders, Pumps, and Compressors; Large Cryosystem Components and Issues; Cryogenic Instrumentation, Controls, and Measurements; Cryostats: Design and Performance; Cryostates and Cryogenics for Herschel-Planck Mission; Superconducting RF Systems; Thermal Insulation; Material, Property Measurements; Low Temperature Superconducting Magnet Systems; High Temperature Superconducting Magnet Systems; High Temperature Superconducting Cables; High Current Leads; Helium II Phenomena; Fluid Dynamics, Heat Transfer, and Thermodynamics; Cryogenics at Zero G; Cryocooler Programs Overviews; Cryocooler Reliability; Stirling Cryocoolers; Pulse Tube - G-M Type; Pulse Tube JT and Heat Exchanger Modeling and Performance Issues; Brayton, Collins, Sorption Cryocoolers; JT and Thermoacoustic Cryocoolers; Magnetic Refrigeration; Hybrid Cycle Cryocoolers; Terrestrial Applications of Cryocoolers; and Novel Concepts or Devices.

Annual Report - National Aeronautical Laboratory (India) 2006

Real-Time Data Analytics for Large Scale Sensor Data - Himansu Das 2019-08-31

Real-Time Data Analytics for Large-Scale Sensor Data covers the theory and applications of hardware platforms and architectures, the development of software methods, techniques and tools, applications, governance and adoption strategies for the use of massive sensor data in real-time data analytics. It presents the leading-edge research in the field and identifies future challenges in this fledging research area. The book captures the essence of real-time IoT based solutions that require a multidisciplinary approach for catering to on-the-fly processing, including methods for high performance stream processing, adaptively streaming adjustment, uncertainty handling, latency handling, and more. Examines IoT applications, the design of real-time intelligent systems, and how to manage the rapid growth of the large volume of sensor data. Discusses intelligent management systems for applications such as healthcare, robotics and environment modeling. Provides a focused approach towards the design and implementation of real-time intelligent systems for the management of sensor data in large-scale environments.

Vibration and Damping Behavior of Biocomposites - Senthil Muthu Kumar Thiagamani 2022-04-19

Fiber-reinforced polymer composites exhibit better damping characteristics than conventional metals due to the viscoelastic nature of the polymers. There has been a growing interest among research communities and industries in the use of natural fibers as reinforcements in structural and semi-structural applications, given their environmental advantages. Knowledge of the vibration and damping behavior of biocomposites is essential for engineers and scientists who work in the field of composite materials. *Vibration and Damping Behavior of Biocomposites* brings together the latest research developments in vibration and viscoelastic behavior of composites filled with different natural fibers. Features: Reviews the effect of various types of reinforcements on free vibration behavior. Emphasizes aging effects, influence of compatibilizers, and hybrid fiber reinforcement. Explores the influence of resin type on viscoelastic properties. Covers the use of computational modeling to analyze dynamic behavior and viscoelastic properties. Discusses viscoelastic damping characterization through dynamic mechanical analysis. This compilation will greatly benefit academics, researchers, advanced students, and practicing engineers in materials and mechanical engineering and related fields who work with biocomposites. Editors Dr. Senthil Muthu Kumar Thiagamani, Kalasalinagam Academy of Research and Education (KARE), India. Dr. Md Enamul Hoque, Military Institute of Science and Technology (MIST), Bangladesh. Dr. Senthilkumar Krishnasamy, King Mongkut's University of Technology North Bangkok KMUTNB, Thailand. Dr. Chandrasekar Muthukumar, Hindustan Institute of Technology & Science (HITS), India. Dr. Suchart Siengchin, King Mongkut's University of Technology North Bangkok KMUTNB, Thailand.

Sandwich Composites - Senthilkumar Krishnasamy 2022-01-25

A composite sandwich panel is a hybrid material made up of constituents such as a face sheet, a core, and adhesive film for bonding the face sheet and core together. Advances in materials have provided designers with several choices for developing sandwich structures with advanced functionalities. The selection of a material in the sandwich construction is based on the cost, availability, strength requirements, ease of manufacturing, machinability, and post-manufacturing process requirements. *Sandwich Composites: Fabrication and Characterization* provides insights into composite sandwich panels based on the material aspects, mechanical properties, defect characterization, and secondary processes after the fabrication, such as drilling and repair. FEATURES: Outlines existing fabrication methods and various materials aspects. Examines composite sandwich panels made of different face sheets and core materials. Covers the response of composite sandwich panels to static and dynamic loads. Describes parameters governing the drilling process and repair procedures. Discusses the applications of composite sandwich panels in various fields. Explores the role of 3D printing in the fabrication of composite sandwich panels. Due to the wide scope of the topics covered, this book is suitable for researchers and scholars in the research and development of composite sandwich panels. This book can also be used as a reference by professionals and engineers interested in understanding the factors governing the material properties, material response, and the failure behavior under various mechanical loads.

Essentials of Oral & Maxillofacial Radiology - Freny R Karjodkar 2019-03-31

Sodium Alginate-Based Nanomaterials for Wastewater Treatment - Awais Ahmad 2022-10-11

Sodium Alginate-based Nanomaterials for Wastewater Treatment offers

detailed coverage of fundamentals and recent advances in sodium alginate-based nanomaterials for wastewater treatment. The book provides a detailed overview of the development and application of nanomaterials-based sodium alginate so that new methods can be put in place for efficient wastewater treatment. This includes illustrating how nanomaterials have enabled the formation of nanocomposites or blends of sodium alginate with other compounds like chitosan for the effective removal of heavy metals from wastewater. This important reference source for materials scientists and environmental engineers comprehensively covers nanotechnology applications in efficient wastewater treatment solutions. Shows how sodium alginate is being used for the removal of organic and inorganic pollutants from wastewater. Explains the formation and application of sodium alginate-based beads, electro-spun fibers, nanofibers, blends and zerovalent sodium alginate. Discusses the future potential of nanomaterial-based sodium alginate and its blends.

Health Informatics: A Computational Perspective in Healthcare - Ripon Patgiri 2021-01-30

This book presents innovative research works to demonstrate the potential and the advancements of computing approaches to utilize healthcare centric and medical datasets in solving complex healthcare problems. Computing technique is one of the key technologies that are being currently used to perform medical diagnostics in the healthcare domain, thanks to the abundance of medical data being generated and collected. Nowadays, medical data is available in many different forms like MRI images, CT scan images, EHR data, test reports, histopathological data and doctor patient conversation data. This opens up huge opportunities for the application of computing techniques, to derive data-driven models that can be of very high utility, in terms of providing effective treatment to patients. Moreover, machine learning algorithms can uncover hidden patterns and relationships present in medical datasets, which are too complex to uncover, if a data-driven approach is not taken. With the help of computing systems, today, it is possible for researchers to predict an accurate medical diagnosis for new patients, using models built from previous patient data. Apart from automatic diagnostic tasks, computing techniques have also been applied in the process of drug discovery, by which a lot of time and money can be saved. Utilization of genomic data using various computing techniques is another emerging area, which may in fact be the key to fulfilling the dream of personalized medications. Medical prognostics is another area in which machine learning has shown great promise recently, where automatic prognostic models are being built that can predict the progress of the disease, as well as can suggest the potential treatment paths to get ahead of the disease progression.

Physics for Engineers - M. R. Srinivasan 2009

Inorganic Anticorrosive Materials - Chandrabhan Verma 2021-11-24

Inorganic Anticorrosive Materials (IAMs): Past, Present, and Future Perspectives covers the anticorrosive effects of inorganic materials and metal oxides in particular. The book presents the latest developments in corrosion inhibition and discusses future opportunities. It also addresses the fundamental characteristics, synthesis, inhibition mechanisms, and applications of metal oxides as corrosion inhibitors in industry and provides a chronological overview of the growth of the field. The book concludes with discussions about commercialization and economics. This book is an indispensable reference for scholars, chemical engineers, chemists, and materials scientists working in research and development and in academia who require comprehensive knowledge of corrosion-inhibition mechanisms. Utilizes metal oxides as corrosion inhibitors for usage in modern industrial platforms. Evaluates corrosion inhibitors as prime options for sustainable and transformational opportunities. Provides up-to-date reference materials, including websites of interest and information about ongoing research.

Brydson's Plastics Materials - Marianne Gilbert 2016-09-27

Brydson's Plastics Materials, Eighth Edition, provides a comprehensive overview of the commercially available plastics materials that bridge the gap between theory and practice. The book enables scientists to understand the commercial implications of their work and provides engineers with essential theory. Since the previous edition, many developments have taken place in plastics materials, such as the growth in the commercial use of sustainable bioplastics, so this book brings the user fully up-to-date with the latest materials, references, units, and figures that have all been thoroughly updated. The book remains the authoritative resource for engineers, suppliers, researchers, materials

scientists, and academics in the field of polymers, including current best practice, processing, and material selection information and health and safety guidance, along with discussions of sustainability and the commercial importance of various plastics and additives, including nanofillers and graphene as property modifiers. With a 50 year history as the principal reference in the field of plastics material, and fully updated by an expert team of polymer scientists and engineers, this book is essential reading for researchers and practitioners in this field. Presents a one-stop-shop for easily accessible information on plastics materials, now updated to include the latest biopolymers, high temperature engineering plastics, thermoplastic elastomers, and more Includes thoroughly revised and reorganised material as contributed by an expert team who make the book relevant to all plastics engineers, materials scientists, and students of polymers Includes the latest guidance on health, safety, and sustainability, including materials safety data sheets, local regulations, and a discussion of recycling issues

Ambient Communications and Computer Systems - Yu-Chen Hu
2020-03-13

This book features high-quality, peer-reviewed papers from the International Conference on Recent Advancement in Computer, Communication and Computational Sciences (RACCCS 2019), held at Aryabhata College of Engineering & Research Center, Ajmer, India, on August 16-17, 2019. Presenting the latest developments and technical solutions in computational sciences, it covers a variety of topics, such as intelligent hardware and software design, advanced communications, intelligent computing technologies, advanced software engineering, the web and informatics, and intelligent image processing. As such it helps those in the computer industry and academia to use the advances in next-generation communication and computational technology to shape real-world applications.

Fundamentals of Environmental and Toxicological Chemistry - Stanley E. Manahan 2013-02-25

Fundamentals of Environmental and Toxicological Chemistry: Sustainable Science, Fourth Edition covers university-level environmental chemistry, with toxicological chemistry integrated throughout the book. This new edition of a bestseller provides an updated text with an increased emphasis on sustainability and green chemistry. It is organized based on the five spheres of Earth's environment: (1) the hydrosphere (water), (2) the atmosphere (air), (3) the geosphere (solid Earth), (4) the biosphere (life), and (5) the anthrosphere (the part of the environment made and used by humans). The first chapter defines environmental chemistry and each of the five environmental spheres. The second chapter presents the basics of toxicological chemistry and its relationship to environmental chemistry. Subsequent chapters are grouped by sphere, beginning with the hydrosphere and its environmental chemistry, water pollution, sustainability, and water as nature's most renewable resource. Chapters then describe the atmosphere, its structure and importance for protecting life on Earth, air pollutants, and the sustainability of atmospheric quality. The author explains the nature of the geosphere and discusses soil for growing food as well as geosphere sustainability. He also describes the biosphere and its sustainability. The final sphere described is the anthrosphere. The text explains human influence on the environment, including climate, pollution in and by the anthrosphere, and means of sustaining this sphere. It also discusses renewable, nonpolluting energy and introduces workplace monitoring. For readers needing additional basic chemistry background, the book includes two chapters on general chemistry and organic chemistry. This updated edition includes three new chapters, new examples and figures, and many new homework problems.

Engineering Principles - Kavian Cooke 2022-06-23

Over the last decade, there has been substantial development of welding technologies for joining advanced alloys and composites demanded by the evolving global manufacturing sector. The evolution of these welding technologies has been substantial and finds numerous applications in engineering industries. It is driven by our desire to reverse the impact of climate change and fuel consumption in several vital sectors. This book reviews the most recent developments in welding. It is organized into three sections: "Principles of Welding and Joining Technology," "Microstructural Evolution and Residual Stress," and "Applications of Welding and Joining." Chapters address such topics as stresses in welding, tribology, thin-film metallurgical manufacturing processes, and mechanical manufacturing processes, as well as recent advances in welding and novel applications of these technologies for joining different materials such as titanium, aluminum, and magnesium alloys, ceramics,

and plastics.

Graphene, Nanotubes and Quantum Dots-Based Nanotechnology - Yarub Al-Douri 2022-07-28

A comprehensive look combining experimental and theoretical approaches to graphene, nanotubes, and quantum dots-based nanotechnology evaluation and development are including a review of key applications. Graphene, nanotubes, and quantum dots-based nanotechnology review the fundamentals, processing methods, and applications of this key materials system. The topics addressed are comprehensive including synthesis, preparation, both physical and chemical properties, both accepted and novel processing methods, modeling, and simulation. The book provides fundamental information on key properties that impact performance, such as crystal structure and particle size, followed by different methods to analyze, measure, and evaluate graphene, nanotubes, and quantum dots-based nanotechnology and particles. Finally, important applications are covered, including different applications of biomedical, energy, electronics, etc. Graphene, nanotubes, and quantum dots-based nanotechnology is appropriate for those working in the disciplines of nanotechnology, materials science, chemistry, physics, biology, and medicine. Provides a comprehensive overview of key topics both on the experimental side and the theoretical Discusses important properties that impact graphene, nanotubes, and quantum dots performance, processing methods both novel and accepted and important applications Reviews the most relevant applications, such as biomedical, energy, electronics, and materials ones

Hybrid Composites - Kaushik Kumar 2022-10-24

Hybrid composites have exceptional features that are used to meet materials design needs that non-hybrid composites cannot achieve. These materials have superior stiffness, strength, bending and mechanical properties, fatigue/impact resistance, and balanced thermal distortion stability. This book covers the latest developments in the hybrid composite materials, processing, characterization, and modeling of materials behavior.

Advanced Topological Insulators - Huixia Luo 2019-03-12

This book is the first pedagogical synthesis of the field of topological insulators and superconductors, one of the most exciting areas of research in condensed matter physics. Presenting the latest developments, while providing all the calculations necessary for a self-contained and complete description of the discipline, it is ideal for researchers and graduate students preparing to work in this area, and it will be an essential reference both within and outside the classroom. The book begins with the fundamental description on the topological phases of matter such as one, two- and three-dimensional topological insulators, and methods and tools for topological material's investigations, topological insulators for advanced optoelectronic devices, topological superconductors, saturable absorber and in plasmonic devices. Advanced Topological Insulators provides researchers and graduate students with the physical understanding and mathematical tools needed to embark on research in this rapidly evolving field.

Applications of Artificial Neural Networks for Nonlinear Data - Hiral Ashil Patel 2020

"This book is a collection of research on the contemporary nature of artificial neural networks and their specific implementations within data analysis"--

Eleventh International Symposium on High-voltage Engineering: Topic G. Dielectric diagnostics, expert systems. Topic H. Industrial applications - 1999

World Congress on Medical Physics and Biomedical Engineering May 26-31, 2012, Beijing, China - Mian Long 2013-02-11

The congress's unique structure represents the two dimensions of technology and medicine: 13 themes on science and medical technologies intersect with five challenging main topics of medicine to create a maximum of synergy and integration of aspects on research, development and application. Each of the congress themes was chaired by two leading experts. The themes address specific topics of medicine and technology that provide multiple and excellent opportunities for exchanges.

Handbook of Research on Advances and Applications of Fuzzy Sets and Logic - Broumi, Said 2022-03-04

Fuzzy logic, which is based on the concept of fuzzy set, has enabled scientists to create models under conditions of imprecision, vagueness, or both at once. As a result, it has now found many important applications in almost all sectors of human activity, becoming a complementary feature and supporter of probability theory, which is

suitable for modelling situations of uncertainty derived from randomness. Fuzzy mathematics has also significantly developed at the theoretical level, providing important insights into branches of traditional mathematics like algebra, analysis, geometry, topology, and more. With such widespread applications, fuzzy sets and logic are an important area of focus in mathematics. The Handbook of Research on Advances and Applications of Fuzzy Sets and Logic studies recent theoretical advances of fuzzy sets and numbers, fuzzy systems, fuzzy logic and their generalizations, extensions, and more. This book also explores the applications of fuzzy sets and logic applied to science, technology, and everyday life to further provide research on the subject. This book is ideal for mathematicians, physicists, computer specialists, engineers, practitioners, researchers, academicians, and students who are looking to learn more about fuzzy sets, fuzzy logic, and their applications.

Machinability of Advanced Materials - J. Paulo Davim 2014-02-19
Machinability of Advanced Materials addresses the level of difficulty involved in machining a material, or multiple materials, with the appropriate tooling and cutting parameters. A variety of factors determine a material's machinability, including tool life rate, cutting forces and power consumption, surface integrity, limiting rate of metal removal, and chip shape. These topics, among others, and multiple examples comprise this research resource for engineering students, academics, and practitioners.

Computation and Communication Technologies - Senthil T. Kumar 2016-04-11

This conference proceedings summarizes invited publications from the two IDES (Institute of Doctors Engineers and Scientists) International conferences, both held in Bangalore/ India.

Multiphase Flow and Heat Transfer in Pebble Bed Reactor Core - Shengyao Jiang 2020-11-19

This book introduces readers to gas flows and heat transfer in pebble bed reactor cores. It addresses fundamental issues regarding experimental and modeling methods for complex multiphase systems, as well as relevant applications and recent research advances. The numerical methods and experimental measurements/techniques used to solve pebble flows, as well as the content on radiation modeling for high-temperature pebble beds, will be of particular interest. This book is intended for a broad readership, including researchers and practitioners, and is sure to become a key reference resource for students and professionals alike.

Coatings - Kaushik Kumar 2021-02-01

This book presents recent developments in the coating processes, sub processes and emphasizes on processes with the potential to improve performance quality and reproducibility. The book demonstrates how application methods, environmental factors, and chemical interactions affect each surface coating's performance. In addition, it provides analysis of latest polymers, carbon resins, high-temperature materials used for coatings and describes the development, chemical and physical properties, synthesis, polymerization, commercial uses and characteristics for each raw material and coating. Characterization techniques to solve the coating problems are also presented, as well as optimization studies to identify the critical coating parameters to ensure a robust process.

Japanese Journal of Applied Physics - 2007

Fuzzy Machine Learning Algorithms for Remote Sensing Image Classification - Anil Kumar 2020-07-19

This book covers the state-of-art image classification methods for discrimination of earth objects from remote sensing satellite data with an emphasis on fuzzy machine learning and deep learning algorithms. Both types of algorithms are described in such details that these can be implemented directly for thematic mapping of multiple-class or specific-class landcover from multispectral optical remote sensing data. These algorithms along with multi-date, multi-sensor remote sensing are capable to monitor specific stage (for e.g., phenology of growing crop) of a particular class also included. With these capabilities fuzzy machine learning algorithms have strong applications in areas like crop insurance, forest fire mapping, stubble burning, post disaster damage mapping etc. It also provides details about the temporal indices database using proposed Class Based Sensor Independent (CBSI) approach supported by practical examples. As well, this book addresses other related algorithms based on distance, kernel based as well as spatial information through Markov Random Field (MRF)/Local convolution methods to handle mixed pixels, non-linearity and noisy pixels. Further,

this book covers about techniques for quantitative assessment of soft classified fraction outputs from soft classification and supported by in-house developed tool called sub-pixel multi-spectral image classifier (SMIC). It is aimed at graduate, postgraduate, research scholars and working professionals of different branches such as Geoinformation sciences, Geography, Electrical, Electronics and Computer Sciences etc., working in the fields of earth observation and satellite image processing. Learning algorithms discussed in this book may also be useful in other related fields, for example, in medical imaging. Overall, this book aims to: exclusive focus on using large range of fuzzy classification algorithms for remote sensing images; discuss ANN, CNN, RNN, and hybrid learning classifiers application on remote sensing images; describe sub-pixel multi-spectral image classifier tool (SMIC) to support discussed fuzzy and learning algorithms; explain how to assess soft classified outputs as fraction images using fuzzy error matrix (FERM) and its advance versions with FERM tool, Entropy, Correlation Coefficient, Root Mean Square Error and Receiver Operating Characteristic (ROC) methods and; combines explanation of the algorithms with case studies and practical applications.

Handbook of Research on Advancements in the Processing, Characterization, and Application of Lightweight Materials - Kumar, Kaushik 2021-11-19

In the automotive industry, the need to reduce vehicle weight has given rise to extensive research efforts to develop aluminum and magnesium alloys for structural car body parts. In aerospace, the move toward composite airframe structures urged an increased use of formable titanium alloys. In steel research, there are ongoing efforts to design novel damage-controlled forming processes for a new generation of efficient and reliable lightweight steel components. All these materials, and more, constitute today's research mission for lightweight structures. They provide a fertile materials science research field aiming to achieve a better understanding of the interplay between industrial processing, microstructure development, and the resulting material properties. The Handbook of Research on Advancements in the Processing, Characterization, and Application of Lightweight Materials provides the recent advancements in the lightweight materials processing, manufacturing, and characterization. This book identifies the need for modern tools and techniques for designing lightweight materials and addresses multidisciplinary approaches for applying their use. Covering topics such as numerical optimization, fatigue characterization, and process evaluation, this text is an essential resource for materials engineers, manufacturers, practitioners, engineers, academicians, chief research officers, researchers, students, and vice presidents of research in government, industry, and academia.

Incremental Sheet Forming Technologies - Ajay 2020-09-25

Incremental Sheet Forming (ISF) exempts use of dies and reduces cost for manufacturing complex parts. Sheet metal forming is used for producing high-quality components in automotive, aerospace, and medical industries. This book covers the benefits of this new technology, including the process parameters along with various techniques. Each variant of this novel process is discussed along with the requirements of machinery and hardware. In addition, appropriate guidelines are also suggested regarding the relationship between process parameters and aspects of ISF process in order to ensure the applicability of the process on the industrial scale. This book will be a useful asset for researchers, engineers in manufacturing industries, and postgraduate level courses.

Polymer-Based Composites - V. Arumugaprabu 2021-08-23

The increasing use of composite materials over conventional materials has been a continual trend for over a decade. While the fundamental understanding of fiber reinforcement has not changed, many new material advancements have occurred, especially in manufacturing methods, and there is an ever-growing number of composite material applications across various industries. *Polymer-Based Composites: Design, Manufacturing, and Applications* presents the concepts and methods involved in the development of various fiber-reinforced composite materials. Features: Offers a comprehensive view of materials, mechanics, processing, design, and applications Bridges the gap between research, manufacturing science, and analysis and design Discusses composite materials composed of continuous synthetic fibers and matrices for use in engineering structures Presents codes and standards related to fiber-reinforced polymer composites Includes case studies and examples based on industrial, automotive, aerospace, and household applications This book is a valuable resource for advanced students, researchers, and industry personnel to understand recent advances in the field and achieve practical results in the development, manufacture,

and application of advanced composite materials.

Electrochemical Impedance Spectroscopy - Marwa El-Azazy 2020-12-16

Electrochemical Impedance Spectroscopy is a compendium of contributions from experts in the field of electrochemical impedance spectroscopy (EIS). This compilation of investigations and reviews addresses the groundbreaking applications of EIS in different fields. An array of exploitations are revealed throughout this book such as the use of EIS in monitoring and controlling of corrosion, in medicine where accurate information on fluid distribution is needed as well as environmental applications in food, water, and drug analyses. Competency of EIS as an approach compared to the traditional electrochemical techniques is assessed in almost every application. This book, therefore, is a valuable reference for students, researchers, and anyone interested in electrochemical impedance spectroscopy.

Computational Intelligence, Cyber Security and Computational Models - G. Sai Sundara Krishnan 2013-11-26

This book contains cutting-edge research material presented by researchers, engineers, developers, and practitioners from academia and industry at the International Conference on Computational Intelligence, Cyber Security and Computational Models (ICC3) organized by PSG College of Technology, Coimbatore, India during December 19-21, 2013. The materials in the book include theory and applications to provide design, analysis, and modeling of the key areas. The book will be useful material for students, researchers, professionals, as well academicians in understanding current research trends and findings and future scope of research in computational intelligence, cyber security, and computational models.

Annual Report - National Aerospace Laboratories (India) 2008

Metallic Oxynitride Thin Films by Reactive Sputtering and Related Deposition Methods: Processes, Properties and Applications - Filipe Vaz 2013-06-21

Oxynitride thin film technology is rapidly impacting a broad spectrum of

applications, ranging from decorative functions (through optoelectronics) to corrosion resistance. Developing a better understanding of the relationships between deposition processes, structure and composition of the deposited films is critical to the continued evolution of these applications. This e-book provides valuable information about the process modeling, fabrication and characterization of metallic oxynitride-based thin films produced by reactive sputtering and some related deposition processes. Its contents are spread in twelve main and concise chapters through which the book thoroughly reviews the bases of oxynitride thin film technology and deposition processes, sputtering processes and the resulting behaviors of these oxynitride thin films. More importantly, the solutions for the growth of oxynitride technology are given in detail with an emphasis on some particular compounds. This is a valuable resource for academic learners studying materials science and industrial coaters, who are concerned not only about fundamental aspects of oxynitride synthesis, but also by their innate material characteristics.

Biological Synthesis of Nanoparticles and Their Applications - L Karthik 2019-12-06

Biological Synthesis of Nanoparticles and Their Applications gives insight into the synthesis of nanoparticles utilizing the natural routes. It demonstrates various strategies for the synthesis of nanoparticles utilizing plants, microscopic organisms like bacteria, fungi, algae and so forth. It orchestrates interdisciplinary hypothesis, ideas, definitions, models and discoveries associated with complex cell of the prokaryotes and eukaryotes. Highlights: Discusses biological approach towards the nanoparticle synthesis Describes the role of nanotechnology in the field of medicine and its medical devices Covers application and usage of the chemicals at the molecular level to act as catalysts and binding products for both organic and inorganic Chemical Reactions Reviews application in physics such as solar cells, photovoltaics and other usage Microorganisms can aggregate and detoxify substantial metals because of different reductase enzymes, which can diminish metal salts to metal nanoparticles. The readers after going through this book will have detailed account of mechanism of bio-synthesis of nanoparticles.