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Chromic Phenomena Oxford University Press, USA  
A comprehensive and unified introduction to the science of energy sources, uses, and systems for students, scientists, engineers, and professionals.  
An Introduction Springer Nature  
This book presents selected, high-quality research papers from the International Conference on Electronic Systems and Intelligent Computing (ESIC 2020), held at NIT Yupia, Arunachal Pradesh, India, on 2 – 4 March 2020. Discussing the latest challenges and solutions in the field of smart computing, cyber-physical systems and intelligent technologies, it includes papers based on original theoretical, practical and experimental simulations, developments, applications,

measurements, and testing. The applications and solutions featured provide valuable reference material for future product development.

*Laser Physics and Technology* Springer  
Clay–Polymer Nanocomposites is a complete summary of the existing knowledge on this topic, from the basic concepts of synthesis and design to their applications in timely topics such as high-performance composites, environment, and energy issues. This book covers many aspects of synthesis such as in- situ polymerization within the interlamellar spacing of the clays or by reaction of pristine or pre-modified clays with reactive polymers and prepolymers. Indeed, nanocomposites can be prepared at industrial scale by melt mixing. Regardless the synthesis method, much is said in this book about the importance of the clay pre-modification step, which is demonstrated to be effective, on many occasions, in obtaining exfoliated nanocomposites. Clay–Polymer Nanocomposites reports the background to numerous characterization methods

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including solid state NMR, neutron scattering, diffraction and vibrational techniques as well as surface analytical methods, namely XPS, inverse gas chromatography and nitrogen adsorption to probe surface composition, wetting and textural/structural properties. Although not described in dedicated chapters, numerous X-ray diffraction patterns of clay-polymer nanocomposites and reference materials are displayed to account for the effects of intercalation and exfoliations of layered aluminosilicates. Finally, multiscale molecular simulation protocols are presenting for predicting morphologies and properties of nanostructured polymer systems with industrial relevance. As far as applications are concerned, Clay-Polymer Nanocomposites examines structural composites such as clay-epoxy and clay-biopolymers, the use of clay-polymer nanocomposites as reactive nanocomposite fillers, catalytic clay-(conductive) polymers and similar nanocomposites for the uptake of hazardous compounds or for controlled drug release, antibacterial applications, energy storage, and more. The most comprehensive coverage of the state of the art in clay-polymer nanocomposites, from synthesis and design to opportunities and applications Covers the various methods of characterization of clay-polymer nanocomposites - including spectroscopy, thermal analyses, and X-ray diffraction Includes a discussion of a range of application areas, including biomedicine, energy storage, biofouling resistance, and more

Proceedings of First International Conference on

Computational Electronics for Wireless Communications  
Elsevier

Tiny pieces of space rock called micrometeorites are everywhere on Earth. In Search of Stardust shows you how to find them! The solar system is a dusty place. Every day approximately 100 metric tons of cosmic dust collides with Earth, mainly in the form of micrometeorites. Most of these mineral particles (iron, nickel, etc.) are smaller than grains of sand, and they are falling down on us all the time and all over the globe. Still, little is known about these exotic extraterrestrials. In Search of Stardust is the first comprehensive popular science book about micrometeorites. It's also a photo documentary comprising more than 1,500 previously unpublished images: the first atlas of micrometeorites, hundreds of which are depicted here in high-resolution color microscopic photography and in scanning electron microscope imagery. Author Jon Larsen shows readers how and where to look for micrometeorites, explains the history of micrometeoritics, and offers chapters about micrometeorite formation, classification, and analysis. Thanks to Larsen's work, for the first time it is now possible for anyone to find these amazing tiny stones from space. For more than a century it was believed these incredible space objects could be found only in pristine, unsullied environs like Antarctica and ocean floors. Larsen became the first to break the code and find micrometeorites in populated areas -- in fact, they can be found in the nearest rain gutter. In the book Larsen explains how anyone with a bit of inexpensive equipment

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can find their own micrometeorites. It was recently discovered that King Tut's dagger was forged from a chunk of a meteorite. What else is made of extraterrestrial rock? Join the hunt!

**A Biweekly Cryogenics Current Awareness Service** Springer Nature

"While technology is developing at a fast pace, urban planners and cities are still behind in finding effective ways to use technology to address citizen's needs. Multiple aspects of sustainable urbanism are brought together in this book along with advanced technologies and their connections to urban planning and management. It integrates urban studies, smart cities, AI, IoT, remote sensing and GIS.

Highlights also land use planning, spatial planning, and ecosystem-based information to improve economic opportunities. Urban planners and engineers will understand the use of AI in disaster management and the use of GIS in finding suitable landfill sites for sustainable waste management"--

**For High Schools and Academies** John Wiley & Sons

This book gathers a collection of high-quality peer-reviewed research papers presented at International Conference on Cyber Intelligence and Information Retrieval (CIIR 2021), held at Institute of Engineering & Management, Kolkata, India during 20–21 May 2021. The book covers research papers in the field of privacy and security in the cloud, data loss prevention and recovery, high-performance networks, network security and cryptography, image and signal processing, artificial immune systems, information and network security, data science techniques and applications, data warehousing and data mining, data mining in dynamic environment, higher-order neural computing, rough set and fuzzy set theory, and nature-inspired computing techniques.

*Amazing Micrometeorites and Their Terrestrial Imposters* PHI Learning Pvt. Ltd.

The aim of the present edited book is to furnish scientific

information about manufacturing, properties, and application of clay and carbon based polymer nanocomposites. It can be used as handbook for undergraduate and post graduate courses (for example material science and engineering, polymer science and engineering, rubber technology, manufacturing engineering, etc.) as well as as reference book for research fellows and professionals. Polymer nanocomposites have received outstanding importance in the present decade because of their broad range of high-performance applications in various areas of engineering and technology due to their special material properties. A great interest is dedicated to nanofiller based polymeric materials, which exhibit excellent enhancement in macroscopic material properties (mechanical, thermal, dynamic mechanical, electrical and many more) at very low filler contents and can therefore be used for the development of next-generation composite materials.

Technological Applications of Colour Chemistry New Age International

Chromic or colour related phenomena are produced in response to a chemical or physical stimulus. This new edition will update the information on all those areas where chemicals or materials interact with light to produce colour, a colour change, or luminescence especially in the imaging, analysis, lighting and display areas. The book has been restructured to show greater emphasis on applications where 'coloured' compounds are used to transfer energy or manipulate light in some way therefore reducing the details on classical dyes and pigments. In the past eight years, since the previous edition, there has been a remarkable increase in the number of papers and reviews being

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produced reflecting the growth of interest in this area. This ongoing research interest is matched by a large number of new technological applications gaining commercial value covering e.g. biomedical areas, energy, data storage, physical colour, bio-inspired materials and photonics. This book appeals to industrial chemists, professionals, postgraduates and as high level recommended reading for colour technology courses.

#### Clay-Polymer Nanocomposites Academic Publishers

This book features high-quality research papers presented at the 3rd International Conference on Computational Intelligence in Pattern Recognition (CIPR 2021), held at the Institute of Engineering and Management, Kolkata, West Bengal, India, on 24 – 25 April 2021. It includes practical development experiences in various areas of data analysis and pattern recognition, focusing on soft computing technologies, clustering and classification algorithms, rough set and fuzzy set theory, evolutionary computations, neural science and neural network systems, image processing, combinatorial pattern matching, social network analysis, audio and video data analysis, data mining in dynamic environments, bioinformatics, hybrid computing, big data analytics and deep learning. It also provides innovative solutions to the challenges in these areas and discusses recent developments.

#### **Recent Developments in Sustainable Infrastructure** MDPI

This book bridges the gap between sophomore and advanced / graduate level organic chemistry courses, providing students with a necessary background to begin research in either an industry or academic environment. • Covers key concepts that include retrosynthesis, conformational analysis, and functional group transformations as well as presents the latest developments in organometallic chemistry and C–C bond formation • Uses a concise and easy-to-read style, with many illustrated examples • Updates material, examples, and references from the first edition • Adds coverage of

organocatalysts and organometallic reagents

#### *Select Proceedings of ICRDSI 2019* Springer Nature

The Bhagirathi-Hooghly Basin in India is one of the most densely populated regions in the world and is undergoing rapid transformation of its natural landscape induced by human interventions, such as mushrooming of dams and barrages, deforestation, and urbanization. Human activities and interventions on basin landforms and the processes that shape those landforms have accelerated at an alarming rate. This book uses spatio-temporal analysis to understand the major anthropogenic signatures on land use and land cover changes and the impact these activities have on the landforms and processes of the Bhagirathi-Hooghly River and its sub-basins. It answers the what, where, why, and how of the anthropogenic signatures involved. Recent case studies on the impact of anthropogenic signatures on fluvial forms and processes make this book a useful resource for students and researchers in the earth sciences, local governments, urban planners, and all concerned with rural developments. Features: Explores for the first time the new concept of anthropogeomorphology for the river basin—an emerging field Analyses the impact of anthropogenic activities, especially the construction of dams and reservoirs, and urbanization on major fluvial landscapes using advanced geospatial modelling techniques Investigates human interference in river systems, their effects on the dynamics of the river, and the livelihoods of the people residing along the river Addresses issues related to geology, geomorphology, geography, planning, land use, and land management areas Fills the need for data-driven governance and policy decisions for the future of urban-industrial growth in India.

#### **Modern Organic Synthesis** Academic Publishers

This book includes high-quality papers presented at Proceedings of First International Conference on Computational Electronics for Wireless Communications (ICWC 2021), held at National Institute of Technology, Kurukshetra, Haryana, India, during June 11–12, 2021. The book presents original research work of

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academics and industry professionals to exchange their knowledge of the state-of-the-art research and development in computational electronics with an emphasis on wireless communications. The topics covered in the book are radio frequency and microwave, signal processing, microelectronics and wireless networks.

*Physics : Textbook For Class Xi* Springer

An introduction to physics for first-year physics students, designed to deliver information clearly and concisely. The authors guide the student through the foundations of university physics in this authoritative introduction. The two-colour text design and over 500 diagrams bring out the key points, and the text makes full advantage of features such as worked examples, graded problems, and an appendix on necessary mathematics in order to better explain the subject and meet the needs of the modern student. TEACHING AIDS On-line solutions for students written by the authors

### **Tissue Optical Sectioning** Springer Nature

The book highlights recent developments in the field of spectroscopy by providing the readers with an updated and high-level of overview. The focus of this book is on the introduction to concepts of modern spectroscopic techniques, recent technological innovations in this field, and current examples of applications to molecules and materials relevant for academia and industry. The book will be beneficial to researchers from various branches of science and technology, and is intended to point them to modern techniques, which might be useful for their specific problems. Spectroscopic techniques, that are discussed include, UV-Visible absorption spectroscopy, XPS, Raman spectroscopy, SERS, TERS, CARS, IR absorption spectroscopy, SFG, LIBS, Quantum cascade laser (QCL) spectroscopy, fluorescence spectroscopy, ellipsometry, cavity-enhanced absorption

spectroscopy, such as cavity ring-down spectroscopy (CRDS) and evanescent wave-CRDS both in gas and condensed phases, time-resolved spectroscopy etc. Applications introduced in the different chapters demonstrates the usefulness of the spectroscopic techniques for the characterization of fundamental properties of molecules, e.g. in connection with environmental impact, bio-activity, or usefulness for pharmaceutical drugs, and materials important e.g. for nano-science, nuclear chemistry, or bio-applications. The book presents how spectroscopic techniques can help to better understand substances, which have also great impact on questions of social and economic relevance (environment, alternative energy, etc.).

*Basics, Instrumentation, and Applications* Voyageur Press (MN)

This edited book presents a novel collection of field-based empirical studies on the Quaternary geomorphology of the Lower Ganga Basin. The book covers a wide range of topics discussing various geomorphological facets of the Lower Ganga and its subsidiary rivers focussing on laterites, palaeoenvironment and palaeogeomorphology, palaeo-coastal landforms, neotectonism, tidal-fluvial dynamics, extra-channel geomorphology and channel-pattern adjustment among others. Various methodologies were applied ranging from historical records and religious texts to state-of-the-art remote sensing and GIS techniques. The book appeals to all scientists and post-graduate students of geomorphology and related areas who want to acquire detailed knowledge of the geology and geomorphology of the Lower Ganga Basin or are in search of new methodologies for studying the feedback mechanisms between forms and processes.

Proceedings of IWPSD 2017 Springer

Despite a number of books on biophotonics imaging for medical diagnostics and therapy, the field still lacks a comprehensive imaging book that describes state-of-the-art biophotonics imaging approaches

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intensively developed in recent years. Addressing this shortfall, *Advanced Biophotonics: Tissue Optical Sectioning* presents contemporary methods and applications of biophotonics imaging. Gathering research otherwise scattered in numerous physical, chemical, biophysical, and biomedical journals, the book helps researchers, bioengineers, and medical doctors understand major recent bioimaging technologies and the underlying biophotonics science. Well-known international experts explore a variety of "hot" biomedical optics and biophotonics problems, including the use of photoacoustic imaging to investigate the molecular and cellular processes in living systems. The book also covers Monte Carlo modeling, tissue optics and tissue optical clearing, nonlinear optical microscopy, various aspects of optical coherence tomography, multimodal tomography, adaptive optics, and signal imaging. With 58 color images, this book represents a valuable contribution to the biomedical and biophotonics literature. Designed for researchers and practitioners in biophotonics, the book is also a useful resource for scientists in laser physics and technology, fiber optics, spectroscopy, materials science, biology, and medicine as well as students studying biomedical physics and engineering, biomedical optics, and biophotonics.

*Workbook* Elsevier

A multidisciplinary overview of bio-derived solvent applications, life cycle analysis, and strategies required for industrial commercialization This book provides the first and only comprehensive review of the state-of-the-science in bio-derived solvents. Drawing on their own pioneering work in the field, as well as an exhaustive survey of the world literature on the subject, the authors cover all the bases—from bio-derived solvent applications to life cycle analysis to strategies for industrial commercialization—for researchers and professional chemists working across a range of industries. In the increasingly critical area of sustainable chemistry, the search for new and better green solvents has become a top priority. Thanks to their renewability,

biodegradability and low toxicity, as well as their potential to promote advantageous organic reactions, green solvents offer the promise of significantly reducing the pernicious effects of chemical processes on human health and the environment. Following an overview of the current solvents markets and the challenges and opportunities presented by bio-derived solvents, a series of dedicated chapters cover all significant classes of solvent arranged by origin and/or chemical structure. Throughout, real-world examples are used to help demonstrate the various advantages, drawbacks, and limitations of each class of solvent. Topics covered include: The commercial potential of various renewably sourced solvents, such as glycerol The various advantages and disadvantages of bio-derived versus petroleum-based solvents Renewably-sourced and waste-derived solvents in the design of eco-efficient processes Life cycle assessment and predictive methods for bio-based solvents Industrial and commercial viability of bio-based solvents now and in the years ahead Potential and limitations of methodologies involving bio-derived solvents New developments and emerging trends in the field and the shape of things to come Considering the vast potential for new and better products suggested by recent developments in this exciting field, *Bio-Based Solvents* will be a welcome resource among students and researchers in catalysis, organic synthesis, electrochemistry, and pharmaceuticals, as well as industrial chemists involved in manufacturing processes and formulation, and policy makers.

**Advances in Urbanism, Smart Cities, and Sustainability** Royal Society of Chemistry

The book, 'Laser Physics and Technology', addresses fundamentals of laser physics, representative laser systems and techniques, and some important applications of lasers. The present volume is a collection of articles based on some of the lectures delivered at the School on 'Laser Physics and Technology' organized at Raja Ramanna Centre for Advanced Technology during March, 12-30, 2012. The objective of the School was to

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provide an in-depth knowledge of the important aspects of laser physics and technology to doctoral students and young researchers and motivate them for further work in this area. In keeping with this objective, the fourteen chapters, written by leading Indian experts, based on the lectures delivered by them at the School, provide along with class room type coverage of the fundamentals of the field, a brief review of the current status of the field. The book will be useful for doctoral students and young scientists who are embarking on a research in this area as well as to professionals who would be interested in knowing the current state of the field particularly in Indian context.

resistance and control of structures, waste management, structural health monitoring, and geo-environmental engineering. This book will be useful for students, researchers and professionals working in sustainable technologies in civil engineering.

**The Elements of Physics** Cambridge University Press

This book disseminates the current knowledge of semiconductor physics and its applications across the scientific community. It is based on a biennial workshop that provides the participating research groups with a stimulating platform for interaction and collaboration with colleagues from the same scientific community. The book discusses the latest developments in the field of III-nitrides; materials & devices, compound semiconductors, VLSI technology, optoelectronics, sensors, photovoltaics, crystal growth, epitaxy and characterization, graphene and other 2D materials and organic semiconductors.

**Proceedings of CIPR 2021** Springer

This book comprises select peer-reviewed proceedings of the International Conference on Recent Developments in Sustainable Infrastructure (ICRDSI) 2019. The topics span over all major disciplines of civil engineering with regard to sustainable development of infrastructure and innovation in construction materials, especially concrete. The book covers numerical and analytical studies on various topics such as composite and sandwiched structures, green building, groundwater modeling, rainwater harvesting, soil dynamics, seismic