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Recent Advances in Environmental Science from the Euro-Mediterranean and Surrounding Regions (3rd Edition) Frontiers Media SA

The third volume in a series of handbooks on graphene research and applications Graphene is a valuable nanomaterial used in technology. This handbook is focused on Graphene-Like 2D Materials. The Handbook of Graphene, Volume 3 covers topics that include planar graphene superlattices; magnetic and optical properties of graphene materials with porous defects; and nanoelectronic application of graphyne and its structural derivatives.

Developments in Strategic Materials and Computational Design V John Wiley & Sons

Coal mining continues to make advances, especially in the areas of safety and environmental protection as a result of mining. This book contains nine peer-reviewed articles on green coal mining that address most of the important issues associated with improving coal mining. These issues include the protection of water above coal mines, both surface and ground water, and the subsidence that occurs during and after mining with methods to limit it and methods of rehabilitation. Additional issues include mine entry and production area support and methods to control gas emissions.

ICSBE 2022 Frontiers Media SA

This book provides a cutting-edge research overview on the latest developments in the field of Optics and Photonics. All chapters are authored by the pioneers in their field and will cover the developments in Quantum Photonics, Optical properties of 2D Materials, Optical Sensors, Organic Opto-electronics, Nanophotonics, Metamaterials, Plasmonics, Quantum Cascade lasers, LEDs, Biophotonics and biomedical photonics and spectroscopy.

Detector-Based Reference Calibrations for Electro-Optical Instruments Springer

Materials Under Extreme Conditions: Recent Trends and Future Prospects analyzes the chemical transformation and decomposition of materials exposed to extreme conditions, such as high temperature, high pressure, hostile chemical environments, high radiation fields, high vacuum, high magnetic and electric fields, wear and abrasion related to chemical bonding, special crystallographic features, and microstructures. The materials covered in this work encompass oxides, non-oxides, alloys and intermetallics, glasses, and carbon-based materials. The book is written for researchers in academia and industry, and technologists in chemical engineering, materials chemistry, chemistry, and condensed matter physics. Describes and analyzes the chemical transformation and decomposition of a wide range of materials exposed to extreme conditions Brings together information currently scattered across the Internet or incoherently dispersed amongst journals and proceedings Presents chapters on phenomena, materials synthesis, and processing, characterization and properties, and applications Written by established researchers in the field

Nanostructured Semiconductors CRC Press

This volume contains a collection of 14 papers submitted from the below five symposia held during the 11th International Symposium on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE-11), June 14-19, 2015 in Vancouver, BC, Canada: Photocatalysts for Energy and Environmental Applications Advanced Functional Materials, Devices, and Systems for the Environment Geopolymers, Inorganic Polymer Ceramics and Sustainable Composites Macroporous Ceramics For Environmental and Energy Applications Advanced Sensors for Energy, Environment, and Health Applications

Electrofiltration of Biopolymers John Wiley & Sons

Environmental science is an interdisciplinary academic field that integrates physical-, biological-, and information sciences to study and solve environmental problems. ESSE - The International Conference on Environmental Science and Sustainable Energy provides a platform for experts, professionals, and researchers to share updated information and stimulate the communication with each other. In 2017 it was held in Suzhou, China June 23-25, 2017.

Green Coal Mining Techniques 2020 kassel university press GmbH

This volume offers a comprehensive overview of advanced research in the field of environmental green chemistry for air, soil and water pollutants, and presents emerging technologies on the chemical treatment of polluted sites and wastes. The 15 chapters, prepared by internationally respected experts, address the following topics: (1) monitoring of indoor and outdoor air pollutants; (2) atmospheric

degradation processes and formation mechanisms of secondary pollutants; (3) the environmental assessment and impacts of soils polluted by heavy metals and hydrocarbons; (4) sustainable and emerging technologies for the chemical treatment of organic and animal wastes and wastewaters; (5) photocatalytic CO2 conversion methods for the mitigation of greenhouse effects; and (6) non-conventional methods in green chemistry synthesis. Lastly, the authors outline the future perspectives of each topic. Given its multidisciplinary approach, combining environmental analysis and engineering, the book offers a valuable resource for all researchers and students interested in environmental chemistry and engineering.

Developments in Strategic Ceramic Materials II KIT Scientific Publishing

"Tooth Enamel: Frontiers in Mineral Chemistry and Biochemistry, Integrative Cell Biology and Genetics" incorporates the proceedings of the 9th International Enamel Symposium (Enamel 9) hosted in the UK and chaired by Professor Jennifer Kirkham and Professor Ariane Berdal. The topic covers cellular and molecular aspects of the development, pathology, evolution and repair or regeneration of dental enamel. The original research papers and reviews will be of interest to all enamel and biomineralization researchers. Clinicians will find up-to-date thinking and opinion on the aetiology of enamel pathologies and their potential future treatment via novel strategies for preventing, repairing and regenerating enamel.

Multifunctional Ceramic Filter Systems for Metal Melt Filtration Walter de Gruyter GmbH & Co KG

This volume contains the selected papers resulting from the 7th Annual International Workshop on Materials Science and Engineering, and is focusing on the following six aspects: 1. Various Materials Properties, Processing, and Manufactures; 2. Multifunctional Materials Properties, Processing, and Manufactures; 3. Nanomaterials and Biomaterials; 4. Civil Materials and Sustainable Environment; 5. Electrochemical Valuation, Fracture Resistance, and Assessment; 6. Designs Related to Materials Science and Engineering. This proceeding presents and discusses key concepts and analyzes the state-of-the-art of the field. IWMSE 2021 is an academic conference in a series held once per year. The conference not only provides insights on materials science and engineering, but also affords conduit for future research in these fields. It provides opportunities for the delegates to exchange new ideas and application experiences, to establish business or research relations and to find global partners for future collaboration.

Proceedings of the International Workshop ABC-Salt (II) and HiTAC 2011 Walter de Gruyter GmbH & Co KG

This volume includes selected contributions presented during the 2nd edition of the international conference on WaterEnergyNEXUS which was held in Salerno, Italy in November 2018. This conference was organized by the Sanitary Environmental Engineering Division (SEED) of the University of Salerno (Italy) in cooperation with Advanced Institute of Water Industry at Kyungpook National University (Korea) and with The Energy and Resources Institute, TERI (India). The initiative received the patronage of UNESCO – World Water Association Programme (WWAP) and of the International Water Association (IWA) and was organized with the support of Springer (MENA Publishing Program), Arab Water Council (AWC), Korean Society of Environmental Engineering (KSEE) and Italian Society of Sanitary Environmental Engineering Professors (GITISA). With the support of international experts invited as plenary and keynote speakers, the conference aimed to give a platform for Euro-Mediterranean countries to share and discuss key topics on such water-energy issues through the presentation of nature-based solutions, advanced technologies and best practices for a more sustainable environment. This volume gives a general and brief overview on current research focusing on emerging Water-Energy-Nexus issues and challenges and its potential applications to a variety of environmental problems that are impacting the Euro-Mediterranean zone and surrounding regions. A selection of novel and alternative solutions applied worldwide are included. The volume contains over about one hundred carefully refereed contributions from 44 countries worldwide selected for the conference. Topics covered include (1) Nexus framework and governance, (2) Environmental solutions for the sustainable development of the water sector, (3) future clean energy technologies and systems under water constraints, (4) environmental engineering and management, (5) Implementation and best practices Intended for researchers in environmental engineering, environmental science, chemistry, and civil engineering. This volume is also an invaluable guide for industry professionals working in both water and energy sectors.

Advances in Materials Science and Engineering John Wiley & Sons

This book presents the state-of-the-art results of synthesis, characterization, modification, and technological applications of clays, clay minerals, and materials based on clay minerals, such as polymer-clay nanocomposites and clay hybrids. It also presents some important results obtained in the broad area of clays and clay materials characterization. Moreover, this book provides a comprehensive account of polymer and biopolymer-clay nanocomposites, the use of clay as adsorption materials of industrial pollutants, the ceramic industry, and the physical-chemical aspects of aqueous dispersions of clay and clay minerals. This book is beneficial for students, teachers, and researchers who are interested in expanding their knowledge about the use of clays in a diverse range of fields, including nanotechnology, biotechnology, environmental science, industrial remediation, pharmaceuticals, and so on.

Far-infrared Spectroscopy of Dimethyl-Ether and its 13C-enriched Isotopologues and First Spectroscopic Characterization of Tert-butyl-dibromophosphane John Wiley & Sons

Photosynthesis: From Plants to Nanomaterials in the Nanomaterial-Plant Interactions series, summarizes both the foundational mechanisms and latest advances in photosynthesis. With a strong emphasis on artificial photosynthesis, the book also analyzes the role of nanomaterials in energy production. Starting with an introduction to plant photosynthetic systems, chapters discuss the structure of light harvesting systems, energy transfer and membrane protein complexes. The book later describes the role of nanoparticles in photosynthesis, including agricultural applications, advances in nanobionics, and the impact of engineered nanomaterials. This book is an essential read for researchers and students interested in photosynthesis, bionanotechnology and nanomaterials. Presents the latest advances in plant photosynthesis Discusses the role of nanomaterials in energy production and other photosynthetic mechanisms

Highlights nanotechnology and artificial photosynthesis

Photosynthesis KIT Scientific Publishing
Quite a few excellent books about vibrational spectroscopy have already been published. So why write a new one? The last years have seen the birth of new techniques and, first of all, a wealth of new applications. Therefore, a lot of new users need an introduction to these techniques and applications, but, if they are new to vibrational spectroscopy, an introduction to the parent techniques as well. Vibrational spectroscopies can detect and analyze vibrations in molecules. Mainly two different forms are used today: Infrared and Raman spectroscopy. Vibrational spectroscopy is used by chemists to characterize their substances. If the spectra of substances are known, analytical chemists can use them to analyze a mixture of chemicals. Samples may be analyzed even with spatial resolution, on the microscopic as well as on the macroscopic scale. "Infrared and Raman Spectroscopy" is intended for researchers or lecturers in Chemistry, Physics, Materials Science and Life Sciences, who are interested in the composition and properties of their samples. It describes how vibrational spectroscopy will enable them to examine thin layers, surfaces and interfaces, and also improve their knowledge about the properties of composites. Special chapters introduce VCD, ROA, and TERS. The book can serve as a short introduction to vibrational spectroscopy too, so that students at the first graduate level will benefit from it as well.

BALLISTICS 2014 MDPI
Natural gas continues to be the fuel of choice for power generation and feedstock for a range of petrochemical industries. This trend is driven by environmental, economic and supply considerations with a balance clearly tilting in favor of natural gas as both fuel and feedstock. Despite the recent global economic uncertainty, the oil and gas industry is expected to continue its growth globally, especially in emerging economies. The expansion in LNG capacity beyond 2011 and 2012 coupled with recently launched and on-stream GTL plants poses real technological and environmental challenges. These important developments coupled with a global concern on green house gas emissions provide a fresh impetus to engage in new and more focused research activities aimed at mitigating or resolving the challenges facing the industry. Academic researchers and plant engineers in the gas processing industry will benefit from the state of the art papers published in this collection that cover natural gas utilization, sustainability and excellence in gas processing. Provides state-of-the-art contributions in the area of gas processing Covers solutions to technical and environmental problems Input from academia and industry

Advanced Characterization Techniques for Thin Film Solar Cells BoD – Books on Demand
Original research from around the world on weapons-grade projectiles, warheads, missiles, guns and their effects on target materialsNew information on shaped charges, fire, control strategies, simulation, blast resistance, non-lethal systems and more190 original presentations in two printed volumes, plus searchable CD The first part of this 2-volume set, part of an ongoing series, presents previously unpublished research on the design and modeling of ballistic devices ranging from shells to missiles, including explosives, propellants and internal components. The second part investigates the effects of ballistic penetrants on a variety of targets, including human models, as well as hard targets and diverse armors made from engineered fibers, ceramics, metal alloys and concrete. Data is included on the modeling and testing of novel devices, explosives and shielding strategies. Papers in this text were presented at a symposium organized by the National Defense Industrial Association with the International Ballistics Society. The CD-ROM displays figures and illustrations in articles in full color along with a title screen and main menu screen. Each user can link to all papers from the Table of Contents and Author Index and also link to papers and front matter by using the global bookmarks which allow navigation of the entire CD-ROM from every article. Search features on the CD-ROM can be by full text including all key words, article title, author name, and session title. The CD-ROM has Autorun feature for Windows 2000 with Service Pack 4 or higher products along with the program for Adobe Acrobat Reader with Search 11.0. One year of technical support is included with your purchase of this product.

Modern Glass Characterization Springer
This book provides a model description for the electromagnetic response of topological nodal semimetals and summarizes recent experimental findings in these systems. Specifically, it discusses various types of topological semimetals – Dirac, Weyl, nodal-line, triple-point, and multifold semimetals – and provides description for the characteristic features of the linear electrodynamic response for all these types of materials. Topological semimetals possess peculiar bulk electronic band structure, which leads to unusual electrodynamic response. For example, the low-energy inter-band optical conductivity of nodal semimetals is supposed to demonstrate power-law frequency dependence and the intra- and inter-band contributions to the conductivity are often mixed. Further, the magneto-optical response is also unusual, because of the non-equidistant spacing between the Landau levels. Finally, in semimetals with chiral electronic bands, e.g. in Weyl semimetals, the simultaneous application of parallel magnetic and electric fields leads to the chiral anomaly, i.e. to a misbalance between the electrons with diffident chiralities. This misbalance affects the electrodynamics properties of the material and can be detected optically. All these points are addressed here in detail. The book is written for a wide audience of physicists, working in the field of topological condensed matter physics. It gives a pedagogical introduction enabling graduate students and non-experts to familiarize themselves with the subject.

Infrared and Raman Spectroscopy Springer Nature
This book highlights the latest knowledge and innovations in the fields of civil engineering and construction industry striving for a sustainable built environment. It consists of high quality and innovative research findings selected from the proceedings of the 13th ICSBE 2022 under the themes of sustainable construction, urban green infrastructure and planning,

rainwater harvesting and water conservation, high-performance concrete, indoor environmental quality and indoor plants, wind and hydro-power energy, waste and wastewater management for enhanced sustainability, impacts of climate change, carbon footprint, global climate model and landscaping, material flows and industrial ecology, sustainable materials, etc.

Proceedings of the 3rd International Gas Processing Symposium Walter de Gruyter GmbH & Co KG

The Research Topic will host an overview of the most recent knowledge on enamel issued from a group of international experts who gathered at the 10th International Symposium on Dental Enamel (Enamel X). The Topic will include manuscripts describing original data, short communication, and reviews. In addition, the Topic will host abstracts and panel discussions presented at the Enamel X meeting, to highlight changing paradigms, unsolved and challenging questions, as well as translational challenges. Bringing together physics, chemistry, biochemistry and development and differentiation, contributions to this Topic will focus on the unique architecture of enamel, from nano- to macro-scale, and the dynamic molecular interactions with lead to extracellular self-assembly and mineralization. This knowledge will open a window into innovative bioinspired treatment and materials for tissue repair and regeneration. Tissue-specific networks and pathways shared with a number of biological systems (clock genes, epithelial polarization/ion handling, cell niche dynamics, and cell signaling) will also be explored. This will give an overall picture of the multiple acellular, cellular and organismal (essentially transgenic mice) processes actively investigated in the enamel field. Similarly, lessons from isolated or syndromic, inherited and acquired enamel defects obtained using cutting edge cell and matrix-omics will establish the emerging genomic framework determining enamel quality. Tooth enamel defects reflect historical and present gene-environment interactions in the animal and human condition such as climate, nutrition, pollutants or fluoride exposures. This last fact is highly relevant in medicine and public health since poor tooth quality and mineral defects are one of the first human worldwide pathologies.

PEM Fuel Cell Durability Handbook, Two-Volume Set Cambridge Scholars Publishing

The book is devoted to nanostructures and nanostructured materials containing both amorphous and crystalline phases with a particular focus on their thermal properties. It is the first time that theoreticians and experimentalists from different domains gathered to treat this subject. It contains two distinct parts; the first combines theory and simulations methods with specific examples, while the second part discusses methods to fabricate nanomaterials with crystalline and amorphous phases and experimental techniques to measure the thermal conductivity of such materials. Physical insights are given in the first part of the book, related with the existing theoretical models and the state of art simulations methods (molecular dynamics, ab-initio simulations, kinetic theory of gases). In the second part, engineering advances in the nanofabrication of crystalline/amorphous heterostructures (heavy ion irradiation, electrochemical etching, aging/recrystallization, ball milling, PVD, laser crystallization and magnetron sputtering) and adequate experimental measurement methods are analyzed (Scanning Thermal Microscopy, Raman, thermal wave methods and x-rays neutrons spectroscopy).

Tooth Enamel Research: Enamel 10 and beyond Elsevier

This book compiles spectroscopy methods under high pressure to investigate different systems such as guest-host interactions, chemical reactions, multiferroics, lanthanide ions and-doped glasses or in general inorganic materials. Among others, luminescence studies, inelastic scattering as well as infrared and Raman studies under high pressure are discussed and described regarding various applications.