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## **KEY=TRANSPORT - BRAYLON KADENCE**

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### **FLOW AND TRANSPORT IN THE NATURAL ENVIRONMENT**

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#### **ADVANCES AND APPLICATIONS**

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Springer Verlag **Very Good, No Highlights or Markup, all pages are intact.**

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### **AGRICULTURAL AND ENVIRONMENTAL APPLICATIONS OF BIOCHAR**

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#### **ADVANCES AND BARRIERS**

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John Wiley & Sons **Agricultural and Environmental Applications of Biochar: Advances and Barriers: Over the past decade, biochar has been intensively studied by agricultural and environmental scientists and applied as a soil quality enhancer and environmental ameliorator in various trials worldwide. This book, with 21 chapters by 57 accomplished international researchers, reports on the recent advances of biochar research and the global status of biochar application. Scientific findings, uncertainties, and barriers to practice of biochar amendment for sustaining soil fertility, improving crop production, promoting animal performance, remediating water and land, and mitigating greenhouse gas emissions are synthesized. The book presents a whole picture of biochar in its production, characterization, application, and development. Agricultural and Environmental Applications of Biochar: Advances and Barrier highlights the mechanisms and processes of biochar amendment for achieving stunning agricultural and environmental benefits. Composition and characteristics of biochar, its interactions with contaminants and soil constituents, and its transformation in the environment are illustrated to enlighten the achievements of biochar amendment in improving soil physical, chemical, and biological quality and animal health, reducing soil greenhouse gas emissions, and decontaminating stormwater and mine sites. Additional emphasis is given to the pyrogenic carbon in Terra Preta soils and Japanese Andosols, the pyrolysis technology for converting agricultural byproducts to biochar, and the existing economic and technical barriers to wide application of biochar in Australia, China, New Zealand, North America, and Europe. Readers will appreciate the comprehensive review on the up-to-date biochar research and application and gain critical guidance in best biochar generation and utilization.**

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### **ADVANCED MEMBRANE SCIENCE AND TECHNOLOGY FOR SUSTAINABLE ENERGY AND ENVIRONMENTAL APPLICATIONS**

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Elsevier **Membrane materials allow for the selective separation of gas and vapour and for ion transport. Materials research and development continues to drive improvements in the design, manufacture and integration of membrane technologies as critical components in both sustainable energy and clean industry applications. Membrane utilisation offers process simplification and intensification in industry, providing low-cost, and efficient and reliable operation, and contributing towards emissions reductions and energy security. Advanced membrane science and technology for sustainable energy and environmental applications presents a comprehensive review of membrane utilisation and integration within energy and environmental industries. Part one introduces the topic of membrane science and engineering, from the fundamentals of membrane processes and separation to membrane characterization and economic analysis. Part two focuses on membrane utilisation for carbon dioxide (CO<sub>2</sub>) capture in coal and gas power plants, including pre- and post-combustion and oxygen transport technologies. Part three reviews membranes for the petrochemical industry, with chapters covering hydrocarbon fuel, natural gas and synthesis gas processing, as well as advanced biofuels production. Part four covers membranes for alternative energy applications and energy storage, such as membrane technology for redox and lithium batteries, fuel cells and hydrogen production. Finally, part five discusses membranes utilisation in industrial and environmental applications, including microfiltration, ultrafiltration, and forward osmosis, as well as water, wastewater and nuclear power applications. With its distinguished editors and team of expert contributors, Advanced membrane science and technology for sustainable energy and environmental applications is an essential reference for membrane and materials engineers and manufacturers, as well as researchers and academics interested in this field. Presents a comprehensive review of membrane science and technology, focusing on developments and applications in sustainable energy and clean-industry Discusses the**

fundamentals of membrane processes and separation and membrane characterization and economic analysis  
Addresses the key issues of membrane utilisation in coal and gas power plants and the petrochemical industry, the use of membranes for alternative energy applications and membrane utilisation in industrial and environmental applications

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### **SMART MATERIALS FOR ADVANCED ENVIRONMENTAL APPLICATIONS**

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[Royal Society of Chemistry](#) The development of smart materials for environmental applications is a highly innovative and promising new approach to meet the increasing demands from society on water resources and pollution remediation. Smart materials with surfaces that can reversibly respond to stimuli from internal and external environments by changing their properties show great promise as solutions for global environmental issues. Many of these functional materials are inspired by biological systems, that use sophisticated material interfaces to display high levels of adaptability to their environment. Leading researchers present the latest information on the current and potential applications of omniphobic slippery coatings, responsive particle stabilized emulsions and self-healing surfaces among other functional materials. The book contains a section dedicated to water treatment and harvesting, describing and explaining strategies such as use of copolymer membranes and surfaces with patterned wettability. It provides a valuable source of information for environmental, materials, polymer and nano-scientists interested in environmental applications of functional material surfaces.

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### **COMPUTERS IN EARTH AND ENVIRONMENTAL SCIENCES**

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### **ARTIFICIAL INTELLIGENCE AND ADVANCED TECHNOLOGIES IN HAZARDS AND RISK MANAGEMENT**

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[Elsevier](#) **Computers in Earth and Environmental Sciences: Artificial Intelligence and Advanced Technologies in Hazards and Risk Management** addresses the need for a comprehensive book that focuses on multi-hazard assessments, natural and manmade hazards, and risk management using new methods and technologies that employ GIS, artificial intelligence, spatial modeling, machine learning tools and meta-heuristic techniques. The book is clearly organized into four parts that cover natural hazards, environmental hazards, advanced tools and technologies in risk management, and future challenges in computer applications to hazards and risk management. Researchers and professionals in Earth and Environmental Science who require the latest technologies and advances in hazards, remote sensing, geosciences, spatial modeling and machine learning will find this book to be an invaluable source of information on the latest tools and technologies available. Covers advanced tools and technologies in risk management of hazards in both the Earth and Environmental Sciences Details the benefits and applications of various technologies to assist researchers in choosing the most appropriate techniques for purpose Expansively covers specific future challenges in the use of computers in Earth and Environmental Science Includes case studies that detail the applications of the discussed technologies down to individual hazards

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### **ADVANCES AND APPLICATIONS IN ENERGY AND THE NATURAL ENVIRONMENT**

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### **PROGRAMME AND ABSTRACTS [OF THE] 15TH INTERNATIONAL MEETING 16TH-20TH SEPTEMBER 1991, UNIVERSITY OF MANSHESTER, ENGLAND**

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### **POLYMER-BASED ADVANCED FUNCTIONAL MATERIALS FOR ENERGY AND ENVIRONMENTAL APPLICATIONS**

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[Springer Nature](#)

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### **ADVANCED GREEN MATERIALS**

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### **FABRICATION, CHARACTERIZATION AND APPLICATIONS OF BIOPOLYMERS AND BIOCOMPOSITES**

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[Woodhead Publishing](#) **Advanced Green Materials: Fabrication, Characterization and Applications of Biopolymers and Biocomposites** looks at their extraction, purification, modification, and processing for various industrial, biomedical, pharmaceutical, and construction applications. The book comprehensively summarizes recent technical research accomplishments in natural materials and discusses various aspects of natural materials from a chemistry/engineering point of view. The book is unique with contributions from experts working on hybrid biopolymers and bio-composites, bioactive and biodegradable materials, bio-inert polymers and composites, natural polymer and composites, and metallic natural materials. The book will be a useful reference for scientists, academicians, research scholars, and biotechnologists. Advanced biocomposite materials continue to become increasingly popular and important for a broad range of different science and engineering applications. In the race to exploit the unique mechanical, thermal, and electrical properties of these materials, researchers must also address new challenges to predict, understand, and manage the potentially adverse effects they could have on the environment and human lives. The book describes recent developments and applications of biopolymers and biocomposites for applications in various industrial fields. Chapters include original research and the latest reviews in similar fields. Biopolymers and biocomposites occupy an exceptional position in the exciting new world of novel biomaterials. Considering their sustainability, non-toxic properties, and their ability to have tailored properties and functions, they should be considered as a smart candidate in the advancement of biomaterials technology. Covers all types of biopolymers and advanced industrial applications, from packaging to biomedical therapeutics Discusses the shift from research to industrial large-scale application of biopolymers and biocomposites Emphasizes new strategic trends, such as bio-based and biodegradable additives for bioplastics, PHAs, new lignin-based biopolymers, and new polymers based on terpenes and biosensor applications

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## ADVANCED ENVIRONMENTAL ANALYSIS

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### APPLICATIONS OF NANOMATERIALS VOLUME 2

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Royal Society of Chemistry Environmental analysis techniques have advanced due to the use of nanotechnologies in improving the detection sensitivity and miniaturization of the devices in analytical procedures. These allow for developments such as increases in analyte concentration, the removal of interfering species and improvements in the detection limits. Bridging a gap in the literature, this book uniquely brings together state-of-the-art research in the applications of novel nanomaterials to each of the classical components of environmental analysis, namely sample preparation and extraction, separation and identification by spectroscopic techniques. Special attention is paid to those approaches that are considered greener and reduce the cost of the analysis process both in terms of chemicals and time consumption. Advanced undergraduates, graduates and researchers at the forefront of environmental science and engineering will find this book a good source of information. It will also help regulators, decision makers, surveillance agencies and the organizations assessing the impact of pollutants on the environment.

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### CHEMISTRY OF ADVANCED ENVIRONMENTAL PURIFICATION PROCESSES OF WATER

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#### FUNDAMENTALS AND APPLICATIONS

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Newnes Chemistry of Advanced Environmental Purification Processes of Water covers the fundamentals behind a broad spectrum of advanced purification processes for various types of water, showing numerous applications through worked examples. Purification processes for groundwater, soil water, reusable water, and raw water are examined where they are in use full-scale, as a pilot approach, or in the laboratory. This book also describes the production of ceramic particles (nanotechnology) and materials for the creation of filtration systems and catalysts that are involved. Uses chemistry fundamentals to explain the mechanisms behind the various purification processes Explains in detail process equipment and technical applications Describes the production of ceramic particles and other new materials applicable to filtration systems Includes worked examples

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### ADVANCES IN NANOCOMPOSITE MATERIALS FOR ENVIRONMENTAL AND ENERGY HARVESTING APPLICATIONS

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Springer Nature This book discusses the fundamental, synthesis, properties, physico-chemical characterizations and applications of recently explored nanocomposite materials. It covers the applications of these different nanocomposite materials in the environmental and energy harvesting fields. The chapters explore the different techniques used for preparation and characterization of several types of nanocomposite materials for applications related to environmental and energy pathways. This book presents a panorama of current research in the field of nanocomposite structures for different applications. It also assesses the advantages and disadvantages of using different types of nanocomposite in the design of different material products. The comprehensive chapters explain the interactions between nanocomposite materials and mechanisms related to applications in environmental pollution and energy shortage.

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### ADVANCES IN ECOLOGY ENVIRONMENT AND CONSERVATION RESEARCH AND APPLICATION: 2011 EDITION

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ScholarlyEditions Advances in Ecology Environment and Conservation Research and Application: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Ecology Environment and Conservation. The editors have built Advances in Ecology Environment and Conservation Research and Application: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Ecology Environment and Conservation 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 Advances in Ecology Environment and Conservation Research and Application: 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/>.

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### ADVANCES IN ENVIRONMENT RESEARCH AND APPLICATION: 2013 EDITION

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ScholarlyEditions Advances in Environment Research and Application: 2013 Edition is a ScholarlyEditions™ book that delivers timely, authoritative, and comprehensive information about Climate Change and Global Warming. The editors have built Advances in Environment Research and Application: 2013 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Climate Change and Global Warming in this book to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Advances in Environment Research and Application: 2013 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/>.

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### ADVANCED CERAMICS FOR ENERGY AND ENVIRONMENTAL APPLICATIONS

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CRC Press Advanced Ceramics possess various unique properties and are able to withstand harsh environments. The aim of this book is to cover various aspects of the advanced ceramics like carbides, nitrides and oxides for energy and

environment related applications. Advanced ceramics with additional functionality propose significant potential for greater impact in the field of energy and environmental technologies. This book focuses on the nanostructured ceramics synthesis, properties, structure-property relation and application in the area of energy and environment. It covers the high impact work from around 50 leading researchers throughout the world working in this field. This will help metallurgists, biologists, mechanical engineers, ceramicists, material scientists and researchers working in the nanotechnology field with inclusion of every aspect of advanced ceramics for energy and environmental applications.

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### **ADVANCES IN ECOLOGY ENVIRONMENT AND CONSERVATION RESEARCH AND APPLICATION: 2012 EDITION**

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**ScholarlyEditions** *Advances in Ecology Environment and Conservation Research and Application / 2012 Edition* is a **ScholarlyEditions™** eBook that delivers timely, authoritative, and comprehensive information about Ecology Environment and Conservation. The editors have built *Advances in Ecology Environment and Conservation Research and Application / 2012 Edition* on the vast information databases of **ScholarlyNews.™** You can expect the information about Ecology Environment and Conservation 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 *Advances in Ecology Environment and Conservation Research and Application / 2012 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/>.

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### **ELECTROSPINNING FOR ADVANCED ENERGY AND ENVIRONMENTAL APPLICATIONS**

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**CRC Press** *Electrospinning for Advanced Energy and Environmental Applications* delivers a state-of-the-art overview of the use of electrospun fibers in energy conversion and storage, as well as in environmental sensing and remediation. Featuring contributions from leading experts in electrospinning and its specific applications, this book: Introduces the electrospinning technique and its origins, outlining achievable one-dimensional (1D) nanoscaled materials and their various applications Discusses the use of electrospun materials in energy devices, including low- and high-temperature fuel cells, hydrogen storage, dye-sensitized solar cells, lithium-ion batteries, and supercapacitors Explores environmental applications of electrospun fibers, such as the use of electrospinning-issued materials in membranes for water and air purification, as well as in sensors and biosensors for pollution control Beneficial to both academic and industrial audiences, *Electrospinning for Advanced Energy and Environmental Applications* presents basic electrospinning approaches and their advantages in dedicated applications, while providing a review of the latest advances and technical challenges associated with electrospun materials. The book serves as a reference for field newcomers and experts alike, inspiring new ideas and developments for future energy and environmental applications.

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### **ADVANCED ENVIRONMENTAL WIND ENGINEERING**

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**Springer** This book is highly suitable for advanced courses as it introduces state-of-the-art information and the latest research results on diverse problems in the environmental wind engineering field. The topics include indoor natural ventilation, pedestrian wind environment, pollutant dispersion, urban heat island phenomena, urban ventilation, indoor/outdoor thermal comfort, and experimental/numerical techniques to analyze those issues. Winds have a great influence on the outdoor environment, especially in urban areas. Problems that they cause can be attributed to either strong wind or weak wind issues. Strong winds around high-rise buildings can bring about unpleasant, and in some cases dangerous, situations for people in the outdoor environment. On the other hand, weak wind conditions can also cause problems such as air pollution and heat island phenomena in urban areas. Winds enhance urban ventilation and reduce those problems. They also enhance natural ventilation in buildings, which can reduce the energy consumption of mechanical ventilation fans and air conditioners for cooling. Moderate winds improve human thermal comfort in both indoor and outdoor environments in summer. Environmental wind engineering associated with wind tunnel experiments and numerical analysis can contribute to solutions to these issues.

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### **NATURAL RESOURCES CONSERVATION AND ADVANCES FOR SUSTAINABILITY**

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**Elsevier** *Natural Resources Conservation and Advances for Sustainability* addresses the latest challenges associated with the management and conservation of natural resources. It presents interdisciplinary approaches to promote advances in solving these challenges. By examining what has already been done and analyzing it in the context of what still needs to be done, particularly in the context of latest technologies and sustainability, the book helps to identify ideal methods for natural resource management and conservation. Each chapter begins with a graphical abstract and presents complicated or detailed content in the form of figures or tables. In addition, the book compares the latest techniques with conventional techniques and troubleshoots conventional methods with modifications, making it a practical resource for researchers in environmental science and natural resource management. Discusses the pros and cons of past and current endeavors related to natural resource management Presents recent technologies and methods for management and conservation, particularly with applications for sustainability Covers a variety of disciplines, from environmental science to life science Includes a graphical abstract as well as a section on significant achievements in the field and future perspectives

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### **ADVANCES IN ENVIRONMENTAL REMOTE SENSING**

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## **SENSORS, ALGORITHMS, AND APPLICATIONS**

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[CRC Press](#) Generating a satisfactory classification image from remote sensing data is not a straightforward task. Many factors contribute to this difficulty including the characteristics of a study area, availability of suitable remote sensing data, ancillary and ground reference data, proper use of variables and classification algorithms, and the analyst's e

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## **ADVANCED MATERIALS FOR AGRICULTURE, FOOD, AND ENVIRONMENTAL SAFETY**

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[John Wiley & Sons](#) The book focuses on the role of advanced materials in the food, water and environmental applications. The monitoring of harmful organisms and toxicants in water, food and beverages is mainly discussed in the respective chapters. The senior contributors write on the following topics: Layered double hydroxides and environment Corrosion resistance of aluminium alloys of silanes New generation material for the removal of arsenic from water Prediction and optimization of heavy clay products quality Enhancement of physical and mechanical properties of fiber Environment friendly acrylates latices Nanoparticles for trace analysis of toxins Recent development on gold nanomaterial as catalyst Nanosized metal oxide based adsorbents for heavy metal removal Phytosynthesized transition metal nanoparticles- novel functional agents for textiles Kinetics and equilibrium modeling Magnetic nanoparticles for heavy metal removal Potential applications of nanoparticles as antipathogens Gas barrier properties of biopolymer based nanocomposites: Application in food packing Application of zero-valent iron nanoparticles for environmental clean up Environmental application of novel TiO<sub>2</sub> nanoparticles

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## **ADVANCES IN AEROGEL COMPOSITES FOR ENVIRONMENTAL REMEDIATION**

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[Elsevier](#) Advances in Aerogel Composites for Environmental Remediation presents both contextual information about aerogels and details about their application in environmental remediation. A wide variety of aerogels are discussed, ranging from common to advanced and from natural to synthetic. By exploring ongoing research and developments in the environmental remediation technologies using aerogel and its composites, this book addresses common day-to-day environmental problems and presents solutions to the use of aerogel materials. The chapters discuss fabrication of various aerogel composites, along with their design and applications toward different environmental remediation technologies. Additionally, the properties and advantages of aerogels are compared and contrasted to those of traditional materials. Given the consistent increase in environmental pollution, there is an urgent need to explore new materials for advances in remediation technology. Advances in Aerogel Composites for Environmental Remediation brings researchers and practitioners in the fields of environmental remediation, environmental science, and engineering to the forefront of remediation technologies with a thorough breakdown of the benefits of and techniques relevant to aerogel composites. Covers basic properties, unique properties, and fabrication techniques of aerogels, from basic silica aerogels to present-day conventional aerogels Discusses most of the major environmental remediation techniques and the advantages of using aerogels for these remediation techniques in comparison to using traditional methods Presents future prospects for utilizing aerogels in modern day-to-day life and in the fabrication of tangible new products

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## **ADVANCED METHODOLOGIES AND TECHNOLOGIES IN ENGINEERING AND ENVIRONMENTAL SCIENCE**

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[IGI Global](#) The ever-increasing awareness and growing focus on environmental issues such as climate change and energy use is bringing about an urgency in expanding research to provide possible solutions to these problems. Through current engineering research and emerging technologies, scientists work to combat modern environmental and ecological problems plaguing the globe. Advanced Methodologies and Technologies in Engineering and Environmental Science provides emerging research on the current and forthcoming trends in engineering and environmental sciences to resolve several issues plaguing researchers such as fossil fuel emission and climate change. While highlighting these challenges, including chemical toxicity environmental responsibility, readers will learn how engineering applications can be used across disciplines to aid in reducing environmental hazards. This book is a vital resource for engineers, researchers, professors, academicians, and environmental scientists seeking current research on how engineering tools and technologies can be applied to environmental issues.

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## **ADVANCED MATERIALS FOR SUSTAINABLE ENVIRONMENTAL REMEDIATION**

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## **TERRESTRIAL AND AQUATIC ENVIRONMENTS**

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[Elsevier](#) Advanced Materials for Sustainable Environmental Remediation: Terrestrial and Aquatic Environments presents detailed, comprehensive coverage of novel and advanced materials that can be applied to address the growing global concern of the pollution of natural resources in waters, the air and soil. It provides fundamental knowledge on available materials and treatment processes, as well as applications, including adsorptive remediation and catalytic remediation. Organized clearly by type of material, this book presents a consistent structure for each chapter, including characteristics of the materials, basic and important physicochemical features for environmental remediation applications, routes of synthesis, recent advances as remediation medias, and future perspectives. This book offers an interdisciplinary and practical examination of available materials and processes for environmental remediation that will be valuable to environmental scientists, materials scientists, environmental chemists, and environmental engineers alike. Highlights a wide range of synthetic methodologies, physicochemical and engineered features of novel materials and composites/hybrids for environmental purposes Provides comprehensive, consolidated coverage of advanced materials for environmental remediation applications for researchers in environmental science, materials

science, and industry to identify in-depth solutions to pollution Presents up-to-date details of advanced materials, including descriptions and characteristics that impact their applications in environmental remediation processes

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## **ADVANCES IN NANOTECHNOLOGY AND THE ENVIRONMENTAL SCIENCES**

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### **APPLICATIONS, INNOVATIONS, AND VISIONS FOR THE FUTURE**

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CRC Press Showcasing a selection of new research on nanotechnological applications for environmental protection along with new advanced technologies in nanochemistry, this volume presents an interdisciplinary approach that brings together materials science, chemistry, and nanotechnology. Part I of the volume looks at environmental topics that include an exploration of the challenges of the global water crisis and new technology in nanofiltration and water purification. It provides an informative overview of green nanotechnology, green nanomaterials, and green chemistry. Some of the advanced technologies discussed in Part II include the application of quantum dots, a nanochemical approach to using ICT technology, and new research on polymer nanocomposites as a smart material along with its synthesis, preparation, and properties. Other important topics are included as well.

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### **PROGRESS IN EXERGY, ENERGY, AND THE ENVIRONMENT**

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Springer This thorough and highly relevant volume examines exergy, energy and the environment in the context of energy systems and applications and as a potential tool for design, analysis, optimization. It further considers their role in minimizing and/or eliminating environmental impacts and providing for sustainable development. In this regard, several key topics ranging from the basics of the thermodynamic concepts to advanced exergy analysis techniques in a wide range of applications are covered.

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## **CONSERVATION EDUCATION STRATEGIC PLAN TO ADVANCE ENVIRONMENTAL LITERACY, 2007-2012**

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### **ALTERNATIVE FUELS AND ADVANCED VEHICLE TECHNOLOGIES FOR IMPROVED ENVIRONMENTAL PERFORMANCE**

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#### **TOWARDS ZERO CARBON TRANSPORTATION**

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Elsevier Most vehicles run on fossil fuels, and this presents a major emissions problem as demand for fuel continues to increase. Alternative Fuels and Advanced Vehicle Technologies gives an overview of key developments in advanced fuels and vehicle technologies to improve the energy efficiency and environmental impact of the automotive sector. Part I considers the role of alternative fuels such as electricity, alcohol, and hydrogen fuel cells, as well as advanced additives and oils, in environmentally sustainable transport. Part II explores methods of revising engine and vehicle design to improve environmental performance and fuel economy. It contains chapters on improvements in design, aerodynamics, combustion, and transmission. Finally, Part III outlines developments in electric and hybrid vehicle technologies, and provides an overview of the benefits and limitations of these vehicles in terms of their environmental impact, safety, cost, and design practicalities. Alternative Fuels and Advanced Vehicle Technologies is a standard reference for professionals, engineers, and researchers in the automotive sector, as well as vehicle manufacturers, fuel system developers, and academics with an interest in this field. Provides a broad-ranging review of recent research into advanced fuels and vehicle technologies that will be instrumental in improving the energy efficiency and environmental impact of the automotive sector Reviews the development of alternative fuels, more efficient engines, and powertrain technologies, as well as hybrid and electric vehicle technologies

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## **ADVANCES IN COMPUTER SCIENCE, INTELLIGENT SYSTEMS AND ENVIRONMENT**

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### **VOL.3**

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Springer Science & Business Media CSISE2011 is an integrated conference concentrating its focus upon Computer Science, Intelligent System and Environment. In the proceeding, you can learn much more knowledge about Computer Science, Intelligent System and Environment of researchers all around the world. The international conference will provide a forum for engineers, scientist, teachers and all researchers to discuss their latest research achievements and their future research plan. The main role of the proceeding is to be used as an exchange pillar for researchers who are working in the mentioned field. In order to meet high standard of Springer's Advances in Intelligent and Soft Computing, the organization committee has made their efforts to do the following things. Firstly, poor quality paper has been refused after reviewing course by anonymous referee experts. Secondly, periodically review meetings have been held around the reviewers about five times for exchanging reviewing suggestions. Finally, the conference organization had several preliminary sessions before the conference. Through efforts of different people and departments, the conference will be successful and fruitful. We hope that you can get much more knowledges from our CSISE2011, and we also hope that you can give us good suggestions to improve our work in the future.

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## **ADVANCES IN SUSTAINABLE DEVELOPMENT AND MANAGEMENT OF ENVIRONMENTAL AND NATURAL RESOURCES**

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### **ECONOMIC OUTLOOK AND OPINIONS, VOLUME 1**

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Apple Academic Press Published in two volumes, this new book, Advances in Sustainable Development and Management of Environmental and Natural Resources: Economic Outlook and Opinions, addresses the varied aspects of natural

resources and their management in conjunction with socioeconomic aspects. With chapters from authors from around the world, this volume features 24 chapters that cover many aspects of the sustainable utilization of management of natural resources and provides new insight into the nexus of ecology and economy and their application in various fields of science. The chapters include case studies and research from India, Africa, South America, and elsewhere. After first laying the foundation, the volume goes on to discuss sustainable development and natural resource management from an economics point of view. Chapters address myriad issues involved in natural resources and environmental management, including soil and water resources management in arid lands, resource management for agricultural purposes, contemporary global legal norms of environment and sustainable development, how emissions factor into regional economies, mitigation of the impact of climate change through sustainable practices, rainwater harvesting technology, and much more. The chapters include case studies that discuss soil, agroforestry, agriculture, wetlands, and floral diversity. The book provides a solid foundation for a realistic perspective of the role of sustainable development and management of natural resources while taking the socioeconomic impact into consideration as well. It will be a valuable resource and reference for the study of ecology, economics, sustainable development, natural resource management, and other allied fields.

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### **ADVANCED ENVIRONMENTAL BIOTECHNOLOGY**

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**APH Publishing** Biotechnology is the umbrella term that covers various techniques to restore ecological balance. It stands on the understanding of molecular basis of cell functions and our ability to alter cell functions to produce products required by the society.

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### **ADVANCED ENVIRONMENTAL MONITORING WITH REMOTE SENSING TIME SERIES DATA AND R**

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**CRC Press** This book provides a step-by-step guide on how to use various publicly available remotely sensed time series data sources for environmental monitoring and assessment. Readers will learn how to extract valuable information on global changes from a 20-year collection of ready-to-use remotely sensed data through the free open statistical software R and its geographic data analysis and modeling tools. The case studies are from the Mediterranean region—a designated hot spot regarding climate change effects. Each chapter is dedicated to specific remote sensing products chosen for their spatial resolution. The methods used are adapted from large-scale to smaller-scale problems for different land cover areas. Features Includes real-world applications of environmental remotely sensed data Analyzes the advantages and restrictions of each data source Focuses on a wide spectrum of applications, such as hydrology, vegetation changes, land surface temperature, fire detection, and impacts Includes R computer codes with explanatory comments and all applications use only freely available remotely sensed data Presents a step-by-step processing through open source GIS and statistical analysis software Advanced Environmental Monitoring with Remote Sensing Time Series Data and R describes and provides details on recent advances concerning publicly available remotely sensed time series data in environmental monitoring and assessment. This book is a must-have practical guide for environmental researchers, professionals, and students.

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### **MEDICINAL AND ENVIRONMENTAL CHEMISTRY: EXPERIMENTAL ADVANCES AND SIMULATIONS (PART II)**

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**Bentham Science Publishers** Medicinal and Environmental Chemistry: Experimental Advances and Simulations is a collection of topics that highlight the use of pharmaceutical chemistry to assess the environment or make drug design and chemical testing more environment friendly. The eleven chapters included in the second part of this book set cover diverse topics, blending the fields of environmental chemistry and medicinal chemistry and have been authored by experts, scientists and academicians from renowned institutions. This part is more specialized in nature, focusing primarily on the effects of air pollution and water contamination on human health. Chapters covering pharmaceutical interventions and pollution control measures, respectively follow these initial topics. Part II also features specialized topics that aim to address some unique challenges of the above mentioned problems including antibiotic pollution, pharmaceutical analysis of pollutants, chemosensors, biosteric modifications and new drug development strategies against SARS-CoV2. Key Features: 1. 11 topics which blend environmental chemistry and medicinal chemistry 2. Contributions from more than 40 experts 3. Includes topics covering effects of air pollution on human health and disease 4. Includes specialized topics on pharmaceutical analysis in the environment, and modifications of compounds for pharmaceutical purposes 5. Bibliographic references This reference is an essential source of information for readers and scholars involved in environmental chemistry, pollution management and pharmaceutical chemistry courses at graduate and undergraduate levels. Professionals and students involved in occupational medicine will also benefit from the wide range of topics covered.

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### **ADVANCED MAPPING OF ENVIRONMENTAL DATA**

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**John Wiley & Sons** This book combines geostatistics and global mapping systems to present an up-to-the-minute study of environmental data. Featuring numerous case studies, the reference covers model dependent (geostatistics) and data driven (machine learning algorithms) analysis techniques such as risk mapping, conditional stochastic simulations, descriptions of spatial uncertainty and variability, artificial neural networks (ANN) for spatial data, Bayesian maximum entropy (BME), and more.

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### **BIOCHAR APPLICATIONS IN AGRICULTURE AND ENVIRONMENT MANAGEMENT**

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**Springer Nature** This book provides up-to-date information on biochar use in management of soil health, agriculture productivity, green-house gases, restoration ecology and environment. Biochar application to nutrient deficient and

disturbed soils is a viable option which may promote advances in food safety and food security to human nutrition and overall fundamental research in the agricultural sciences. The book describes in detail how the recalcitrant biochar is able to persist for long periods of time and work as a shelter for soil microbial colonisation and their biomass/numbers. This book also includes contents related to the important role of biochar applications in the restoration of contaminated agricultural soils. The book will be of particular interest to students, teachers and researchers in the disciplines.

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### **APPLICATIONS OF INORGANIC MASS SPECTROMETRY**

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**John Wiley & Sons** A thorough assessment of the applications of inorganic mass spectrometry. Mass spectrometry is a powerful analytical technique used to identify unknown compounds, to quantify known materials, and to elucidate the structural and chemical properties of molecules. Inorganic mass spectrometry focuses on the analysis of metals and elements rather than organic compounds. *Applications of Inorganic Mass Spectrometry* describes developments in mass spectrometric instrumentation, together with applications in metrology, nuclear science, cosmochemistry, geoscience, environmental science, and planetary science. Divided into two parts, the first part of the book reviews the numerous technological advances that have occurred in mass spectrometry since 1947, a date regarded as the birth of modern mass spectrometry. The second part offers an up-to-date description of the many applications of inorganic mass spectrometry and includes a comprehensive set of references for each application. It is doubtful that any other analytical instrument has had such a significant impact in so many fields of science as mass spectrometry. *Applications of Inorganic Mass Spectrometry* provides researchers, scientists, and engineers with an essential reference for this vital science.

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### **GLOBAL ADVANCES IN SELENIUM RESEARCH FROM THEORY TO APPLICATION**

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#### **PROCEEDINGS OF THE 4TH INTERNATIONAL CONFERENCE ON SELENIUM IN THE ENVIRONMENT AND HUMAN HEALTH 2015**

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**CRC Press** The 4th International Conference on Selenium in the Environment and Human Health was held 18-21 October 2015 in SPaulo, Brazil. This conference provided an effective scientific communication platform for researchers in different disciplines worldwide to elucidate and better understand those complex roles of Se as both essential nutrient and enviro

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### **ADVANCED ENVIRONMENTAL CHEMISTRY**

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**The Energy and Resources Institute (TERI)** Environmental chemistry is becoming increasingly crucial in understanding important issues that range from climate change to local pollution problems. It is the study of the chemical and biochemical phenomena that occur in the environment. It also studies the effects of these chemicals on ecosystems, animals, and human health. *Advanced Environmental Chemistry* discusses environment and its biological cycles. The book provides students and professionals with a clear understanding of the science and its applications. It provides an in depth introduction to the chemical composition of the atmosphere and water. The author also thoroughly explores important concepts such as soil pollution, radioactive pollution, and environment toxicology. All the chapters are followed by multiple choice and short answer questions.

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### **HANDBOOK OF FUNCTIONALIZED NANOMATERIALS**

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#### **ENVIRONMENTAL HEALTH AND SAFETY**

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**Elsevier** *Handbook of Functionalized Nanomaterials: Environmental Health and Safety* discusses the reactive properties of FNMs used in a range of applications, and their toxic impact on the environment. Nanomaterials have unique properties that can make them highly reactive. This reactivity can cause unwanted interactions with living cells, an increase in oxidative stress or damage to genetic material - resulting in damage to the environment and local wildlife. This negative impact is often further increased after surface functionalization of nanomaterials with other materials which offer unique properties of their own. To ensure environmental safety and ecological balance, rigorous toxicity testing of functionalized nanomaterials (FNMs) is necessary. This book discusses the toxicological uncertainties of FNMs and the limitations of FNMs in a range of applications. Later chapters propose methods to reliably assess the harm that functionalized nanomaterials can cause to the environment and wildlife, as well covering recent developments in the field of environmental health safety. The book concludes with a discussion on the future prospects of safe functionalized nanomaterials. Offers a novel, integrated approach, bridging the gap between FNMs and environmental health and safety. Analyses the reactive properties of FNMs and their toxicological potential. Provides an in-depth look at the impact of functionalized nanomaterials on the environment.

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### **7TH ANNUAL SYMPOSIUM ON GEOGRAPHIC INFORMATION SYSTEMS IN FORESTRY, ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT**

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**FEBRUARY 15-18, 1993 : VANCOUVER TRADE AND CONVENTION CENTER, PAN PACIFIC HOTEL, VANCOUVER, BRITISH COLUMBIA, CANADA**

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## **ENVIRONMENTAL DEGRADATION OF ADVANCED AND TRADITIONAL ENGINEERING MATERIALS**

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CRC Press One of the main, ongoing challenges for any engineering enterprise is that systems are built of materials subject to environmental degradation. Whether working with an airframe, integrated circuit, bridge, prosthetic device, or implantable drug-delivery system, understanding the chemical stability of materials remains a key element in determining their useful life. *Environmental Degradation of Advanced and Traditional Engineering Materials* is a monumental work for the field, providing comprehensive coverage of the environmental impacts on the full breadth of materials used for engineering infrastructure, buildings, machines, and components. The book discusses fundamental degradation processes and presents examples of degradation under various environmental conditions. Each chapter presents the basic properties of the class of material, followed by detailed characteristics of degradation, guidelines on how to protect against corrosion, and a description of testing procedures. A complete, self-contained industrial reference guide, this valuable resource is designed for students and professionals interested in the development of deterioration-resistant technological systems constructed with metallurgical, polymeric, ceramic, and natural materials.