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KEY=CHEMISTRY - SANTOS TRISTIAN

RECENT INSIGHTS IN PETROLEUM SCIENCE AND ENGINEERING

BoD - Books on Demand This book presents new insights into the development of different aspects of petroleum science and engineering. The book contains 19 chapters divided into two main sections: (i) Exploration and Production and (ii) Environmental Solutions. There are 11 chapters in the first section, and the focus is on the topics related to exploration and production of oil and gas, such as characterization of petroleum source rocks, drilling technology, characterization of reservoir fluids, and enhanced oil recovery. In the second section, the special emphasis is on waste technologies and environmental cleanup in the downstream sector. The book, written by numerous prominent scholars, clearly shows the necessity of the multidisciplinary approach to sustainable development in the petroleum industry and stresses the most updated topics such as EOR and environmental cleanup of fossil fuel wastes.

EDUCATIONAL CONTENT UP CLOSE

EXAMINING THE LEARNING DIMENSIONS OF EDUCATION FOR SUSTAINABLE DEVELOPMENT AND GLOBAL CITIZENSHIP EDUCATION

UNESCO Publishing

PREVENTING CHEMICAL WEAPONS

ARMS CONTROL AND DISARMAMENT AS THE SCIENCES CONVERGE

Royal Society of Chemistry The life and chemical sciences are in the midst of a period of rapid and revolutionary transformation that will undoubtedly bring societal benefits but also have potentially malign applications, notably in the development of chemical weapons. Such concerns are exacerbated by the unstable international security environment and the changing nature of armed conflict, which could fuel a desire by certain States to retain and use existing chemical weapons, as well as increase State interest in creating new weapons; whilst a broader range of actors may seek to employ diverse toxic chemicals as improvised weapons. Stark indications of the multi-faceted dangers we face can be seen in the chemical weapons attacks against civilians and combatants in Iraq and Syria, and also in more targeted chemical assassination operations in Malaysia and the UK. Using a multi-disciplinary approach, and drawing upon an international group of experts, this book analyses current and likely near-future advances in relevant science and technology, assessing the risks of their misuse. The book examines the current capabilities, limitations and failures of the existing international arms control and disarmament architecture - notably the Chemical Weapons Convention - in preventing the development and use of chemical weapons. Through the employment of a novel Holistic Arms Control methodology, the authors also look beyond the bounds of such treaties, to explore the full range of international law, international agreements and regulatory mechanisms potentially applicable to weapons employing toxic chemical agents, in order to develop recommendations for more effective routes to combat their proliferation and misuse. A particular emphasis is given to the roles that chemical and life scientists, health professionals and wider informed activist civil society can play in protecting the prohibition against poison and chemical weapons; and in working with States to build effective and responsive measures to ensure that the rapid scientific and technological advances are safeguarded from hostile use and are instead employed for the benefit of us all.

TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT IN INDUSTRY 4.0

PROCEEDINGS OF THE 4TH INTERNATIONAL CONFERENCE ON TEACHER EDUCATION AND PROFESSIONAL

DEVELOPMENT (INCOTEPD 2019), 13-14 NOVEMBER, 2019, YOGYAKARTA, INDONESIA

CRC Press The main theme of the proceedings of the 4th International Conference on Teacher Education and Professional Development (InCoTEPD 2019) is "Teacher Education and Professional Development in Industry 4.0". The papers have been carefully grouped under the subthemes of teacher education and professional development, curriculum, learning materials, teaching-learning process, technology and media, and assessment in Industry 4.0 education. They also cover vocational education in the era in question and one section is devoted to Industrially disadvantaged societies. As these papers were presented at an internationally refereed conference dedicated to the advancement of theories and practices in education, they provide an opportunity for academics and professionals from various educational fields with cross-disciplinary interests to bridge the knowledge gap and promote research esteem and the evolution of pedagogy.

SCENARIO PLANNING FOR CLIMATE CHANGE

A GUIDE FOR STRATEGISTS

Routledge Climate change, and the resultant impact on resource management and societal wellbeing, is one of the greatest challenges facing businesses and their long-term performance. Uncertainty about access to resources, unanticipated weather events, rapidly changing market conditions and potential social unrest is felt across all business and industry sectors. This book sets out an engaging step-by-step scenario-planning method that executives, Board members, managers and consultants can follow to develop a long-term strategy for climate change tailored for their business. Most climate change strategy books discuss climate mitigation only, focusing on how companies engage with carbon policy, new technologies, markets and other stakeholders about reducing carbon emissions. This book explores these themes but also looks at strategizing for climate change adaptation. Adaptation is equally important, especially given that companies cannot negotiate with nature. There is a need to interpret climate science for business in a way that acknowledges the realities of climate change and identifies a way forwards in responding to this uncertain future.

ARGUMENTATION IN CHEMISTRY EDUCATION

RESEARCH, POLICY AND PRACTICE

Royal Society of Chemistry Many studies have highlighted the importance of discourse in scientific understanding. Argumentation is a form of scientific discourse that plays a central role in the building of explanations, models and theories. Scientists use arguments to relate the evidence that they select from their investigations and to justify the claims that they make about their observations. The implication is that argumentation is a scientific habit of mind that needs to be appropriated by students and explicitly taught through suitable instruction. Edited by Sibel Erduran, an internationally recognised expert in chemistry education, this book brings together leading researchers to draw attention to research, policy and practice around the inclusion of argumentation in chemistry education. Split into three sections: Research on Argumentation in Chemistry Education, Resources and Strategies on Argumentation in Chemistry Education, and Argumentation in Context, this book blends practical resources and strategies with research-based evidence. The book contains state of the art research and offers educators a balanced perspective on the theory and practice of argumentation in chemistry education.

ABSTRACTS OF PAPERS

THIRD CHEMICAL CONGRESS OF NORTH AMERICA, TORONTO, CANADA, JUNE 5-10, 1988

MONETIZING NATURAL GAS IN THE NEW “NEW DEAL” ECONOMY

Springer Nature Natural gas markets have undergone momentous changes, worldwide. This book updates and expands on the dynamics, performance and forward path of expanding natural gas use in the US and worldwide, including international trade. It brings together major research themes and findings with recent updates and analysis of new trends and developments. It also explores many considerations for natural gas market development, such as the importance of infrastructure, transparent pricing, and institutional capacity. This book is unique in providing background on the full natural gas value chain as well as information and analysis that can foster scenario-building and decision-making. Of particular value are the lessons learned and demonstrated for those countries that aspire to build effective natural gas markets and to expand natural gas development and use.

THERMAL ENERGY

SOURCES, RECOVERY, AND APPLICATIONS

CRC Press The book details sources of thermal energy, methods of capture, and applications. It describes the basics of thermal energy, including measuring thermal energy, laws of thermodynamics that govern its use and transformation, modes of thermal energy, conventional processes, devices and materials, and the methods by which it is transferred. It covers 8 sources of thermal energy: combustion, fusion (solar) fission (nuclear), geothermal, microwave, plasma, waste heat, and thermal energy storage. In each case, the methods of production and capture and its uses are described in detail. It also discusses novel processes and devices used to improve transfer and transformation processes.

ENCYCLOPEDIA OF FOOD CHEMISTRY

Elsevier Encyclopedia of Food Chemistry is the ideal primer for food scientists, researchers, students and young professionals who want to acquaint themselves with food chemistry. Well-organized, clearly written, and abundantly referenced, the book provides a foundation for readers to understand the principles, concepts, and techniques used in food chemistry applications. Articles are written by international experts and cover a wide range of topics, including food chemistry, food components and their interactions, properties (flavor, aroma, texture) the structure of food, functional foods, processing, storage, nanoparticles for food use, antioxidants, the Maillard and Strecker reactions, process derived contaminants, and the detection of economically-motivated food adulteration. The encyclopedia will provide readers with an introduction to specific topics within the wider context of food chemistry, as well as helping them identify the links between the various sub-topics. Offers readers a comprehensive understanding of food chemistry and the various connections between the sub-topics Provides an authoritative introduction for non-specialists and readers from undergraduate levels and upwards Meticulously organized, with articles structured logically based on the various elements of food chemistry

GLOBAL ENVIRONMENT OUTLOOK - GEO-6: HEALTHY PLANET, HEALTHY PEOPLE

Cambridge University Press Published to coincide with the Fourth United Nations Environmental Assembly, UN Environment's sixth Global Environment Outlook calls on decision makers to take bold and urgent action to address

pressing environmental issues in order to protect the planet and human health. By bringing together hundreds of scientists, peer reviewers and collaborating institutions and partners, the GEO reports build on sound scientific knowledge to provide governments, local authorities, businesses and individual citizens with the information needed to guide societies to a truly sustainable world by 2050. GEO-6 outlines the current state of the environment, illustrates possible future environmental trends and analyses the effectiveness of policies. This flagship report shows how governments can put us on the path to a truly sustainable future - emphasising that urgent and inclusive action is needed to achieve a healthy planet with healthy people. This title is also available as Open Access on Cambridge Core.

CONFRONTING GLOBAL CLIMATE CHANGE

EXPERIMENTS & APPLICATIONS IN THE TROPICS

CRC Press This book offers a solutions-based approach to climate change problems which potentially impinge on human beings within the tropics. It largely comprises research articles with supplementary applications and illustrations. The effects of atmospheric phenomena, energy acquisition, wind power, CO₂ sequestration, are linked with soils, aquatic life, reducing deforestation, rainwater harvesting and clay pot farming, climate, plant disease and food security to show that no area of life is untouched by the phenomenon of climate change. It discusses specific problem areas and provides an overview of geotechnical and sustainable solutions to lessen the impact of climate.

BIOMARKERS, DIAGNOSTICS AND PRECISION MEDICINE IN THE DRUG INDUSTRY

CRITICAL CHALLENGES, LIMITATIONS AND ROADMAPS FOR THE BEST PRACTICES

Academic Press The high failure rate in the pharmaceutical industry has positioned biomarkers and personalized medicine in the frontline, as possible solutions. If executed right, biomarkers and companion diagnostics (CDx) can potentially help the drug industry enhance the probability of success, accelerate the time to market, and, more importantly, benefit patients by supporting accurate diagnosis and selection of the most effective and least toxic therapies. This book aims to examine the challenges and limitations in biomarkers and laboratory tests. It also offers advice on best practices to ensure proper application of biomarkers and bridges the gap between diagnostic business development claims and real-life deliverables. The book covers biomarkers for different purposes, provides examples from different technologies, which includes standard-of-care approved assays as well as for-investigational-use and

for-research-use-only assays. It also includes new data for biomarkers in different therapeutic indications and offers case studies and practical examples. This book serves as a reference to drug developers, IVD providers, clinical labs, healthcare givers, academicians, and researchers for best practices to help increase the probability of success in drug development and improve patient management. Provides the unique insight of an expert with extensive experience in diagnostics and clinical laboratory on one side and drug discovery and development on the other side Addresses the challenges of drug development and precision medicine and suggests how to eliminate or mitigate these challenges through better utilization of biomarkers and diagnostics in drug development and patient management Features case studies and real-life examples from different classes of biomarkers on different platforms for different therapeutic areas and includes more than 200 illustrations

INNOVATION MANAGEMENT IN THE INTELLIGENT WORLD

CASES AND TOOLS

Springer Nature This book introduces readers to state-of-the-art cases and tools for managing innovation in today's rapidly changing business environment. It provides a wealth of methodological knowhow and guidance on practical applications, as well as case studies that reveal various challenges in technology and innovation management. Written by a mix of academic scholars and practitioners, the respective chapters present tools and approaches for the early detection of emerging fields of innovation, as well as relevant processes and resources. The contributing authors hail from leading innovative companies including Google, Amazon, Intel, Daimler-Benz, and NASA.

TOXICOLOGICAL RISK ASSESSMENT AND MULTI-SYSTEM HEALTH IMPACTS FROM EXPOSURE

Elsevier Toxicological Risk Assessment and Multisystem Health Impacts From Exposure highlights the emerging problems of human and environmental health attributable to cumulative and multiple sources of long-term exposure to environmental toxicants. The book describes the cellular, biological, immunological, endocrinologic, genetic, and epigenetic effects of long-term exposure. It examines how the combined exposure to nanomaterials, metals, pharmaceuticals, multifrequency radiation, dietary mycotoxins, and pesticides accelerates ecotoxicity in humans, animals, plants, and the larger environment. The book goes on to also offer insights into mixture risk assessments, protocols for evaluating the risks, and how this information can serve the regulatory agencies in setting safer exposure limits. The book is a go-to resource for scientists and professionals in the field tackling the current and

emerging trends in modern toxicology and risk assessment. • Bridges basic research with clinical, epidemiological, regulatory, and translational research, conveying both an introductory understanding and the latest developments in the field • Evaluates real-life human health risk assessment for long-term exposures to xenobiotic mixtures and the role they play in contributing to chronic disease • Discusses advances in predictive (in silico) toxicology tools and the benefits of using omics technologies in toxicology research

STRATEGIC MANAGEMENT AND THE CIRCULAR ECONOMY

Routledge In recent years, the Circular Economy (CE) has gained worldwide attention as an effective alternative economic system to the current take-make-waste model of production and consumption. As more and more firms begin to recognize the potential of this novel approach, the CE quickly moves from theory to practice and the demand for a coherent and structured strategic approach - one that companies can rely upon when commencing their circular journey - grows accordingly. Strategic Management and the Circular Economy aims to bridge the theory-practice gap by putting forward a detailed step-by-step process for analysis, formulation, and planning of CE strategies. Starting from a solid framework of easy-to-grasp constructs (key principles, business objectives and areas of intervention), the authors guide the reader through an understanding of how conventional tools for strategic management can be re-programmed under a CE perspective. To assist learning and encourage circular thinking, the reader is constantly prompted with examples of how forward-looking companies across industries and geographies are already applying circular strategies to future-proof their operations, boost innovation, penetrate new markets and secure customer loyalty.

EARLY DRUG DEVELOPMENT

BRINGING A PRECLINICAL CANDIDATE TO THE CLINIC

John Wiley & Sons This one-stop reference systematically covers key aspects in early drug development that are directly relevant to the discovery phase and are required for first-in-human studies. Its broad scope brings together critical knowledge from many disciplines, ranging from process technology to pharmacology to intellectual property issues. After introducing the overall early development workflow, the critical steps of early drug development are described in a sequential and enabling order: the availability of the drug substance and that of the drug product, the prediction of pharmacokinetics and -dynamics, as well as that of drug safety. The final section focuses on intellectual

property aspects during early clinical development. The emphasis throughout is on recent case studies to exemplify salient points, resulting in an abundance of practice-oriented information that is usually not available from other sources. Aimed at medicinal chemists in industry as well as academia, this invaluable reference enables readers to understand and navigate the challenges in developing clinical candidate molecules that can be successfully used in phase one clinical trials.

CHEMISTRY FOR SUSTAINABLE TECHNOLOGIES

A FOUNDATION

Royal Society of Chemistry Following the success of the first edition, this fully updated and revised book continues to provide an interdisciplinary introduction to sustainability issues in the context of chemistry and chemical technology. Its prime objective is to equip young chemists (and others) to more fully to appreciate, defend and promote the role that chemistry and its practitioners play in moving towards a society better able to control, manage and ameliorate its impact on the ecosphere. To do this, it is necessary to set the ideas, concepts, achievements and challenges of chemistry and its application in the context of its environmental impact, past, present and future, and of the changes needed to bring about a more sustainable yet equitable world. Progress since 2010 is reflected by the inclusion of the latest research and thinking, selected and discussed to put the advances concisely in a much wider setting - historic, scientific, technological, intellectual and societal. The treatment also examines the complexities and additional challenges arising from public and media attitudes to science and technology and associated controversies and from the difficulties in reconciling environmental protection and global development. While the book stresses the central importance of rigour in the collection and treatment of evidence and reason in decision-making, to ensure that it meets the needs of an extensive community of students, it is broad in scope, rather than deep. It is, therefore, appropriate for a wide audience, including all practising scientists and technologists.

CLIMATE CHANGE AND PRAGMATIC ENGINEERING MITIGATION

CRC Press This volume brings together 18 experts with diverse backgrounds and expertise from around the globe to tackle climate change from multiple angles. A comprehensive exposition of the interconnection between ocean, weather, and climate variability is a pre-requisite for understanding the challenge. The solution approach encompasses a better appreciation of the roof, refined solar energy estimation, heightened heat exchange effectiveness, improved

understanding of photovoltaic operation in the Arctic, and integration of thermoelectric with photovoltaic. Adaptation is an essential and immediate remedy that every individual must take part in, understanding that men and women respond to the thermal environment differently. Imagine future buildings made from appetizing materials, closing a sustainable design process with self-sufficient communities. Would hydrogen become a crucial part of the mitigation?

IMPLEMENTING THE CIRCULAR ECONOMY FOR SUSTAINABLE DEVELOPMENT

Elsevier Implementing the Circular Economy for Sustainable Development presents the concept of the circular economy with the goal of understanding its present status and how to better implement it, particularly through environmental policies. It first tackles the definition of a circular economy in the context of sustainability and the differences in defining the concept across disciplines, including its fallibilities and practical examples. It then goes on to discuss the implementation of a circular economy, including the increasing variety of technological, mechanical, and chemical procedures to contend with and the need for stakeholder support in addition to improved business models. The second half of the book, therefore, presents tools, approaches, and practical examples of how to shape environmental policy to successfully implement a circular economy. It analyzes deficiencies of current regulations and lays the groundwork for the design of integrated environmental policies for a circular economy. Authored by an expert in environmental economics with decades of experience, Implementing the Circular Economy for Sustainable Development is a timely, practical guide for sustainability researchers and policymakers alike to move more efficiently toward a circular economy and sustainable development. Presents a clear view of the critical components, features, and issues of a circular economy Discusses a variety of practical examples from current policies in the context of a circular economy to better understand the challenges associated with its implementation Analyzes strengths and weaknesses of current environmental policies and their interactions with innovations in engineering and science

BIONANOTECHNOLOGY TO SAVE THE ENVIRONMENT

MDPI Nanotechnology is the science of manipulating atoms and molecules in the nanoscale thousand times smaller than the width of a human hair. The world market for products that contain nanomaterials is expected to increase enormously in the future. The use of nanotechnology has stretched across various streams of science, from electronics to medicine and has also found applications in the field of cosmetics. How will this revolution impact our lifestyle and our planet? Very often the progresses of science, human knowledge and evolution of our lifestyle has been associated

with devastating effects on our forests, oceans and more in general on our planet. The real challenge in the years to come is the sustainability of human evolution. The reader of this interesting book will discover how nanotechnology, and in particular nanomaterials derived from plant biomass and fishery's waste, can improve the quality of our environment by reducing carbon emissions, improving the recycling of materials and even, in the long run, become a profitable business. Green nanotechnologies can be applied to a huge number of products ranging from intelligent textiles to smart drugs or functional polymers which can have a big impact on our daily lives, but nevertheless help us in saving our biodiversity and our planet. However, to fully achieve all these benefits, companies and scientists should be supported by National and International Agencies and Institutions in order to facilitate and support scientific development in this field allowing from one side the protection of intellectual property, but on the other giving accessibility of these technologies to emerging countries for improving the quality of life and the environment all over the world equally.

BREAK THE CASTE

INEQUALITY, IMMOBILITY, AND POVERTY IN AMERICA AND HOW WE CAN CHANGE IT

Garrett County Press In Break the Caste, George Gerharz unmask common American misperceptions of poverty, inequality, and social mobility. Based on personal experience from five decades of anti-poverty work and current research, he proposes solutions to inequality, lack of mobility, and poverty and examines how the American social order and corporate powers create these problems. In this book, he provides four strategies to create a more equal and economically mobile nation.

CASE STUDIES IN PERSONALIZED NUTRITION

Singing Dragon A practical reference and teaching book of case studies for nutrition practitioners and other healthcare professionals, demonstrating how to apply the latest evidence-informed principles of personalized nutrition. Covering a range of complex cases such as autoimmunity and inflammation, hormonal disruption, mental health concerns and more, this edited collection explains the most recent developments in nutrition science and how these can inform patient management. Complete with in-depth case histories, Q&As with the practitioner and explaining the clinical reasoning behind decisions, this is the most comprehensive guide to help put theoretical knowledge of personalized nutrition into practice.

TEACHING CHEMISTRY IN HIGHER EDUCATION

A FESTSCHRIFT IN HONOUR OF PROFESSOR TINA OVERTON

Creathach Press Teaching Chemistry in Higher Education celebrates the contributions of Professor Tina Overton to the scholarship and practice of teaching and learning in chemistry education. Leading educators in United Kingdom, Ireland, and Australia—three countries where Tina has had enormous impact and influence—have contributed chapters on innovative approaches that are well-established in their own practice. Each chapter introduces the key education literature underpinning the approach being described. Rationales are discussed in the context of attributes and learning outcomes desirable in modern chemistry curricula. True to Tina's personal philosophy, chapters offer pragmatic and useful guidance on the implementation of innovative teaching approaches, drawing from the authors' experience of their own practice and evaluations of their implementation. Each chapter also offers key guidance points for implementation in readers' own settings so as to maximise their adaptability. Chapters are supplemented with further reading and supplementary materials on the book's website (overtonfestschrift.wordpress.com). Chapter topics include innovative approaches in facilitating group work, problem solving, context- and problem-based learning, embedding transferable skills, and laboratory education—all themes relating to the scholarly interests of Professor Tina Overton. About the Editors: Michael Seery is Professor of Chemistry Education at the University of Edinburgh, and is Editor of Chemistry Education Research and Practice. Claire Mc Donnell is Assistant Head of School of Chemical and Pharmaceutical Sciences at Technological University Dublin. Cover Art: Christopher Armstrong, University of Hull

THE GEOGRAPHY OF CENTRAL ASIA

HUMAN ADAPTATIONS, NATURAL PROCESSES AND POST-SOVIET TRANSITION

Springer Nature This book provides a profound geographical description and analysis of Central Asia. The authors take a synthetic approach in a period of critical transformation in the post-soviet time. The monograph analyzes comprehensively the physical and human geography as well as human-nature interactions of Central Asia with focus on Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan. Natural processes are described at a systemic scale, focusing on ecological impacts and consequences and contemporary human adaptations and organization. It also discusses in which ways the human organizations try to apply solutions for their needs such as security, territorial

management and resources renewability, material and functional needs, identity elaborations, culture and communication. The Geography of Central Asia appeals to scientists and students of regional geography and interested academics from other areas such as social, political, economic and environmental studies within the context of Central Asia. The book is also a very useful resource for field trips into this area.

ADVANCES IN ENERGY STORAGE

LATEST DEVELOPMENTS FROM R&D TO THE MARKET

John Wiley & Sons ADVANCES IN ENERGY STORAGE An accessible reference describing the newest advancements in energy storage technologies **Advances in Energy Storage: Latest Developments from R&D to the Market** is a comprehensive exploration of a wide range of energy storage technologies that use the fundamental energy conversion method. The distinguished contributors discuss the foundational principles, common materials, construction, device operation, and system level performance of the technology, as well as real-world applications. The book also includes examinations of the industry standards that apply to energy storage technologies and the commercial status of various kinds of energy storage. The book has been written by accomplished leaders in the field and address electrochemical, chemical, thermal, mechanical, and superconducting magnetic energy storage. They offer insightful treatments of relevant policy instruments and posit likely future advancements that will support and stimulate energy storage. **Advances in Energy Storage** also includes: A thorough introduction to electrochemical, electrical, and super magnetic energy storage, including foundational electrochemistry concepts used in modern power sources A comprehensive exploration of mechanical energy storage and pumped hydro energy storage Practical discussions of compressed air energy storage and flywheels, including the geology, history, and development of air energy storage In-depth examinations of thermal energy storage, including new material developments for latent and thermochemical heat storage Perfect for practicing electrical engineers, mechanical engineers, and materials scientists, **Advances in Energy Storage: Latest Developments from R&D to the Market** is also an indispensable reference for researchers and graduate students in these fields.

GENDER AND THE ENVIRONMENT BUILDING EVIDENCE AND POLICIES TO ACHIEVE THE SDGS

BUILDING EVIDENCE AND POLICIES TO ACHIEVE THE SDGS

OECD Publishing Gender equality and environmental goals are mutually reinforcing, with slow progress on environmental actions affecting the achievement of gender equality, and vice versa. Progress towards the Sustainable Development Goals (SDGs) requires targeted and coherent actions.

A-LEVEL CHEMISTRY

Nelson Thornes Each topic is treated from the beginning, without assuming prior knowledge. Each chapter starts with an opening section covering an application. These help students to understand the relevance of the topic: they are motivational and they make the text more accessible to the majority of students. Concept Maps have been added, which together with Summaries throughout, aid understanding of main ideas and connections between topics. Margin points highlight key points, making the text more accessible for learning and revision. Checkpoints in each chapter test students' understanding and support their private study. A selection of questions are included at the end of each chapter, many form past examination papers. Suggested answers are provided in the Answers Key.

THE ELUSIVE AFRICAN RENAISSANCE

ESSAYS ON TODAY'S CRITICAL DEVELOPMENT ISSUES

McFarland Africa faces several major development challenges that have adversely affected the political and material well being of the majority of the people living there. This collection of new essays rigorously analyzes those frontier development issues--including democracy, leadership, the economy, poverty alleviation through microfinance schemes, food security, education, health and political instability--and offers prescriptions that differ from the dominant neoliberal solutions.

PLANT GENOME EDITING - POLICIES AND GOVERNANCE

Frontiers Media SA

INTRODUCTION TO MATERIALS FOR ADVANCED ENERGY SYSTEMS

Springer This first of its kind text enables today's students to understand current and future energy challenges, to acquire skills for selecting and using materials and manufacturing processes in the design of energy systems, and to develop a cross-functional approach to materials, mechanics, electronics and processes of energy production. While taking economic and regulatory aspects into account, this textbook provides a comprehensive introduction to the range of materials used for advanced energy systems, including fossil, nuclear, solar, bio, wind, geothermal, ocean and hydropower, hydrogen, and nuclear, as well as thermal energy storage and electrochemical storage in fuel cells. A separate chapter is devoted to emerging energy harvesting systems. Integrated coverage includes the application of scientific and engineering principles to materials that enable different types of energy systems. Properties, performance, modeling, fabrication, characterization and application of structural, functional and hybrid materials are described for each energy system. Readers will appreciate the complex relationships among materials selection, optimizing design, and component operating conditions in each energy system. Research and development trends of novel emerging materials for future hybrid energy systems are also considered. Each chapter is basically a self-contained unit, easily enabling instructors to adapt the book for coursework. This textbook is suitable for students in science and engineering who seek to obtain a comprehensive understanding of different energy processes, and how materials enable energy harvesting, conversion, and storage. In setting forth the latest advances and new frontiers of research, the text also serves as a comprehensive reference on energy materials for experienced materials scientists, engineers, and physicists. Includes pedagogical features such as in-depth side bars, worked-out and end-of- chapter exercises, and many references to further reading Provides comprehensive coverage of materials-based solutions for major and emerging energy systems Brings together diverse subject matter by integrating theory with engaging insights

NEGATIVE EMISSIONS TECHNOLOGIES AND RELIABLE SEQUESTRATION

A RESEARCH AGENDA

National Academies Press To achieve goals for climate and economic growth, "negative emissions technologies" (NETs) that remove and sequester carbon dioxide from the air will need to play a significant role in mitigating climate change. Unlike carbon capture and storage technologies that remove carbon dioxide emissions directly from large point sources such as coal power plants, NETs remove carbon dioxide directly from the atmosphere or enhance natural carbon sinks. Storing the carbon dioxide from NETs has the same impact on the atmosphere and climate as

simultaneously preventing an equal amount of carbon dioxide from being emitted. Recent analyses found that deploying NETs may be less expensive and less disruptive than reducing some emissions, such as a substantial portion of agricultural and land-use emissions and some transportation emissions. In 2015, the National Academies published *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration*, which described and initially assessed NETs and sequestration technologies. This report acknowledged the relative paucity of research on NETs and recommended development of a research agenda that covers all aspects of NETs from fundamental science to full-scale deployment. To address this need, *Negative Emissions Technologies and Reliable Sequestration: A Research Agenda* assesses the benefits, risks, and "sustainable scale potential" for NETs and sequestration. This report also defines the essential components of a research and development program, including its estimated costs and potential impact.

HERBS, SPICES AND MEDICINAL PLANTS

PROCESSING, HEALTH BENEFITS AND SAFETY

John Wiley & Sons The latest research on the health benefits and optimal processing technologies of herbs and spices. This book provides a comprehensive overview of the health benefits, analytical techniques used, and effects of processing upon the physicochemical properties of herbs and spices. Presented in three parts, it opens with a section on the technological and health benefits of herbs and spices. The second part reviews the effect of classical and novel processing techniques on the properties of herbs/spices. The third section examines extraction techniques and analytical methodologies used for herbs and spices. Filled with contributions from experts in academia and industry, *Herbs, Spices and Medicinal Plants: Processing, Health Benefits and Safety* offers chapters covering thermal and non-thermal processing of herbs and spices, recent developments in high-quality drying of herbs and spices, conventional and novel techniques for extracting bioactive compounds from herbs and spices, and approaches to analytical techniques. It also examines purification and isolation techniques for enriching bioactive phytochemicals, medicinal properties of herbs and spices, synergy in whole-plant medicine, potential applications of polyphenols from herbs and spices in dairy products, biotic and abiotic safety concerns, and adverse human health effects and regulation of metal contaminants in terrestrial plant-derived food and phytopharmaceuticals. Covers the emerging health benefits of herbs and spices, including their use as anti-diabetics, anti-inflammatories, and anti-oxidants. Reviews the effect of classical and novel processing techniques on the properties of herbs and spices. Features informed perspectives from noted academics and professionals in the industry. Part of Wiley's new IFST Advances in Food Science series. **Herbs, Spices**

and Medicinal Plants is an important book for companies, research institutions, and universities active in the areas of food processing and the agri-food environment. It will appeal to food scientists and engineers, environmentalists, and food regulatory agencies.

CHEMICAL HEALTH THREATS

ASSESSING AND ALERTING

Royal Society of Chemistry Chemical health threats can have impacts across national borders and so may be more effectively tackled by international cooperation than by individual governments acting alone. As such, in November 2013, the European Union published the EU Decision for Serious Cross Border Threats to Health establishing a number of mechanisms for a coordinated, Europe-wide response with regards to preparedness, risk assessment, risk management, risk communication and international cooperation. Comprising a series of chapters from leading international researchers, this book covers recent developments in the field which support the implementation of these European legal instruments. It begins by contextualising the need for data that surveillance of toxic threats can deliver, before going on to examine some of the tools that have been developed to facilitate toxicosurveillance in Europe as well as current toxicosurveillance networks outside the EU. In addition, this book covers the European Union regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), and the work of the Alerting System for Chemical Health Threats (ASHT) project to improve the risk assessment and management of chemical health threats in Europe. The volume provides a vital resource for researchers, educators, policy-makers and practitioners with an interest in key questions facing global hazardous substance control.

EMERGING CONTAMINANTS

ANTICIPATING DEVELOPMENTS

CRC Press Emerging Contaminants: Anticipating Developments examines the factors that have led "new" environmental contaminants to emerge in the past and combines the lessons learned to anticipate potential new developments. The analyses described in this book originate in multiple disciplines: the science of toxicology; environmental law and regulation; the field of product stewardship; and the social science which explains why ideas take hold. Over a dozen case studies of contaminants that emerged as environmental issues over the last hundred

years illustrate crucial points. The results of the analyses in this book support a step-by-step method to assess the potential for a contaminant to emerge, and a framework to apply those conclusions to managing site liabilities. **Features:** Describes an unprecedented understanding of why contaminants emerge as issues, based on a multidisciplinary analysis Makes abstract concepts tangible, basing analyses on data and illustrating key points with case studies Enables readers to anticipate and prepare to manage future challenges associated with emerging chemicals Presents an analytical framework for companies to assess and manage business risks Written for regulators, policymakers, industry professionals with responsibility for contaminated site management, as well as attorneys, and consultants, this book provides a framework for anticipating the emergence of new contaminants so that the risks—whether to human health and the environment or to a business—can be anticipated and appropriately managed.

PHOTOELECTROCHEMICAL HYDROGEN GENERATION

THEORY, MATERIALS ADVANCES, AND CHALLENGES

Springer Nature This book describes the hydrogen fuel generation from water via photoelectrochemical process. It elaborates the theory and fundamental concepts of photoelectrochemistry to understand the photoelectrochemical process for water splitting to generate hydrogen fuel. The book further deliberates about the hydrogen as a futuristic chemical fuel to store solar energy in the form of chemical bonds and also as a renewable alternative to fossil fuels. The book establishes the need for hydrogen fuel and discusses the standards and practices used for solar driven photoelectrochemical water splitting. It also discusses the current and future status of the nanomaterials as efficient photoelectrodes for solar photoelectrochemical water splitting. The book will be of interest to the researchers, students, faculty, scientists, engineers, and technologists working in the domain of material science, energy harvesting, energy conversion, photo electrochemistry, nanomaterials for photo-electrochemical (PEC) cell, etc.

SUSTAINABLE DEVELOPMENT FOR THE AMERICAS

SCIENCE, HEALTH, AND ENGINEERING POLICY AND DIPLOMACY

CRC Press Environmental sustainability efforts require a great deal of engagement and political will, ranging from local communities to state departments. Science diplomats—from experts and scientists to spokespersons and ambassadors—can help facilitate at all levels and yield valued resources from technology sharing, capacity building,

and knowledge exchanges. This book explores the importance of sustained international scientific cooperation, building community resilience, and the role of political will in sustainability and diplomacy. It shows how even small diplomatic efforts can influence myriad issues, from overfishing to human rights negotiations to global carbon emission reduction. Features: • Examines various topics such as global climate change, arid environments, water security and governance, trans-boundary conflict and cooperation, urban and rural resilience, and public health. • Presents case studies from various geographic regions through the lens of diplomacy, including the US-Mexico border, the Gulf of California, South America, Europe, the Middle East, Central and South Asia, and China. • Discusses how building networks of people, organizations, and countries engaged in science diplomacy is crucial for mutual growth and for overcoming conflicting political stances. *Sustainable Development for the Americas: Science, Health and Engineering Policy and Diplomacy* provides a useful resource for diplomats, policymakers, students, and decision-makers. It provides numerous examples of how using science and technology for policy and diplomacy is essential to finding common ground among nations for a collective global benefit.

THE UNIVERSITY UNTHOUGHT

NOTES FOR A FUTURE

Taylor & Francis Why is it important to have a revolutionary critical pedagogy? What are the new inter/disciplinary engagements possible within the university? What will it be like to live and learn in this university of the future? Drawing on these essential questions, this volume explores the political future(s) of the university. It does not take a simplistic recourse to the tenets of liberal democracy but seeks a more engaged positioning of the university space within everyday practices of the social. It cross-examines the history of this 'ideal' university's relationship with the banal everyday, the 'apolitical' outside and what exceeds intellectual reason, to finally question if such historicizing of the university is necessary at all. Along with its companion *The Idea of the University: Histories and Contexts*, this brave new intervention makes a compelling foray into the political future(s) of the university. It will be of interest to academics, educators and students of the social sciences and humanities, especially education. It will also be of use to policy-makers and education analysts, and be central to the concerns of any citizen.

A NEW COAST

STRATEGIES FOR RESPONDING TO DEVASTATING STORMS AND RISING SEAS

More severe storms and rising seas will inexorably push the American coastline inland with profound impact on communities, infrastructure, and natural systems. In *A New Coast*, Jeffrey Peterson presents the science behind predictions for coastal impacts and explains how current policies fall short of what's needed to prepare for these changes. He outlines a framework of bold, new national policies and funding to support local and state governments. Peterson calls for engagement of citizens, the private sector, as well as local and national leaders in a "campaign for a new coast." This is a forward-looking volume offering new insights for policymakers, planners, business leaders preparing for the changes coming to America's coast.

THE USE OF DISPERSANTS IN MARINE OIL SPILL RESPONSE

National Academies Press Whether the result of an oil well blowout, vessel collision or grounding, leaking pipeline, or other incident at sea, each marine oil spill will present unique circumstances and challenges. The oil type and properties, location, time of year, duration of spill, water depth, environmental conditions, affected biomes, potential human community impact, and available resources may vary significantly. Also, each spill may be governed by policy guidelines, such as those set forth in the National Response Plan, Regional Response Plans, or Area Contingency Plans. To respond effectively to the specific conditions presented during an oil spill, spill responders have used a variety of response options—including mechanical recovery of oil using skimmers and booms, in situ burning of oil, monitored natural attenuation of oil, and dispersion of oil by chemical dispersants. Because each response method has advantages and disadvantages, it is important to understand specific scenarios where a net benefit may be achieved by using a particular tool or combination of tools. This report builds on two previous National Research Council reports on dispersant use to provide a current understanding of the state of science and to inform future marine oil spill response operations. The response to the 2010 Deepwater Horizon spill included an unprecedented use of dispersants via both surface application and subsea injection. The magnitude of the spill stimulated interest and funding for research on oil spill response, and dispersant use in particular. This study assesses the effects and efficacy of dispersants as an oil spill response tool and evaluates trade-offs associated with dispersant use.