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[Science Education Research and Practices in Taiwan](#) Elsevier

This book highlights the development and outcomes of research on and practical experience in science education in Taiwan. As the outcomes of the scholarship on science education in Taiwan have garnered attention in science education communities around the world, this book gathers the most relevant research on Taiwan, presenting it in a cohesive overview that will move science education forward in terms of policy, research and practice.

[Amino Alcohols—Advances in Research and Application: 2013 Edition](#) Royal Society of Chemistry

Complex systems is a new field of science studying how parts of a system give rise to the collective behaviors of the system, and how the system interacts with its environment. This book examines the complex systems involved in environmental sustainability, and examines the technologies involved to help mitigate human impacts, such as renewable energy, desalination, carbon capture, recycling, etc. It considers the relationships and balance between environmental engineering and science, economics, and human activity, with regard to sustainability.

[Chemistry for the IB Diploma](#) IGI Global

This volume comprises the carefully revised papers of the 9th IUTAM Symposium on Laminar-Turbulent Transition, held at the Imperial College, London, UK, in September 2019. The papers focus on the leading research in understanding transition to turbulence, which is a challenging topic of fluid mechanics and arises in many modern technologies as well as in nature. The proceedings are of interest for researchers in fluid mechanics and industry who have to handle these types of problems, such as in the aeronautical sector.

[Volume 9: Historical Perspectives, Part B: Notable People in Mass Spectrometry](#) Elsevier

[The World Scientific Handbook Of Energy](#) World Scientific

[Solid-Phase Extraction](#) ScholarlyEditions

"The 50 years since the publication of 'Fabric of Geology,' edited by C.C. Albritton Jr., have seen immense changes in both geology and philosophy of science. 'Rethinking the Fabric of Geology' explores a number of philosophical issues in geology, ranging from its nature as a historical science to implications for geological education"--Provided by publisher.

[An Introduction to Graphene and Carbon Nanotubes](#) Springer Science & Business Media

Biotechnology harnesses cellular and biochemical systems to advance knowledge of the molecular cause of disease and to provide new diagnostic tools and more precisely targeted drugs. Within a decade, global investment in medical biotechnology has increased more than ten-fold, resulting in therapies for previously untreatable conditions. But what exactly is biotechnology and what are its origins? What further benefits to human health could it offer in the future? Written in an accessible style, contributors to this book explore the history behind different biotechnology tools, how they are used, and how they are reshaping the future of diagnostics, therapeutics and vaccines. Among the technologies examined are genetic engineering, DNA sequencing, monoclonal antibodies, stem cells, gene therapy, cancer immunotherapy and the most recent newcomer - synthetic biology. Applying new biotechnologies in medicine is not without great challenges. As medicines shift from small organic molecules to large, complex structures, such as therapeutic proteins, drugs become difficult to make, administer and regulate. This book will intrigue anyone interested in medicine and how we have been, and may continue to, engineer better health for ourselves. Such changes have major implications for how and where drugs are manufactured, the cost of medicine and the ethics of how far society is prepared to go to combat disease.

[Pulp and Paper Industry](#) Elsevier

This latest Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) will again form the standard reference for all those concerned with climate change and its consequences, including students, researchers and policy makers in environmental science, meteorology, climatology, biology, ecology, atmospheric chemistry and environmental policy.

[Biopharmaceutical Processing](#) John Wiley & Sons

Introduction to Fluoropolymers demystifies fluoropolymers for a wide audience of designers, engineers, sales staff and managers. This important group of high-performance polymers has applications across a wide range of market sectors, including automotive, aerospace, medical devices, high performance apparel, oil & gas, renewable energy / solar photovoltaics, electronics / semiconductor, pharmaceuticals, and chemical processing. Dr. Ebnesaajad covers the history and applications of a wide variety of materials, including expanded polytetrafluoroethylene, polyvinyl fluoride, vinylidene fluoride polymers and fluoroelastomers, just to name a few. Properties and applications are illustrated by real-world examples as diverse as waterproof clothing, vascular grafts and coatings for aircraft interiors. The different applications of fluoropolymers show the benefits of a group of materials that are highly water-repellant and flame-retardant, with unrivalled lubrication properties and a high level of biocompatibility. Health and safety and environmental aspects are also covered throughout the book. Demystifies fluoropolymers for a broad audience of engineers in areas such as product design and manufacturing, as well as for non-engineers such as technical sales and management professionals Explains the potential of fluoropolymers for a wide range of applications across sectors such as aerospace, energy and medical devices Ideal for both recently qualified engineers and engineers with limited experience of fluoropolymers

[The Encyclopedia of Mass Spectrometry](#) Geological Society of America

Pulp and Paper Industry: Nanotechnology in Forest Industry covers the latest scientific and technical advances in the area of nanotechnology in forest sector providing information on recent developments, structure and properties, raw materials and methods for the production of nanocellulose along with their characterization and application in various industries with an analysis of both challenges and opportunities with respect to environmentally sound technologies and consumer concerns such as health effects. Also identifies the key barriers to innovation, and the breakthroughs required to make nanocellulosic materials viable alternatives in the important sectors. Thorough review of the evolution and development of different types of nanocelluloses In-depth coverage of preparation and characterization of nanocellulose Use of nanocellulose materials in a wide range of applications Commercial and precommercial

developments Challenges and opportunities of nanocellulose market Identifies the key barriers to innovation, and the breakthroughs required to make nanocellulosic materials viable alternatives in the important sectors

[Challenges and Opportunities](#) Springer

Biopharmaceutical Processing: Development, Design, and Implementation of Manufacturing Processes covers bioprocessing from cell line development to bulk drug substances. The methods and strategies described are essential learning for every scientist, engineer or manager in the biopharmaceutical and vaccines industry. The integrity of the bioprocess ultimately determines the quality of the product in the biotherapeutics arena, and this book covers every stage including all technologies related to downstream purification and upstream processing fields. Economic considerations are included throughout, with recommendations for lowering costs and improving efficiencies. Designed for quick reference and easy accessibility of facts, calculations and guidelines, this book is an essential tool for industrial scientists and managers in the biopharmaceutical industry. Offers a comprehensive, go-to reference for daily work decisions Covers both upstream and downstream processes Includes case studies that emphasize financial outcomes Presents summaries, decision grids, graphs and overviews for quick reference

[Encyclopedia of Agriculture and Food Systems](#) Elsevier

This latest Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) will again form the standard reference for all those concerned with climate change and its consequences, including students, researchers and policy makers in environmental science, meteorology, climatology, biology, ecology, atmospheric chemistry and environmental policy.

[Third Chemical Congress of North America, Toronto, Canada, June 5-10, 1988](#)

Elsevier

The volume of waste produced by human activity continues to grow, but steps are being taken to mitigate this problem by viewing waste as a resource. Recovering a proportion of waste for re-use immediately reduces the volume of landfill. Furthermore, the scarcity of some elements (such as phosphorous and the rare-earth metals) increases the need for their recovery from waste streams. This volume of Issues in Environmental Science and Technology examines the potential resource available from several waste streams, both domestic and industrial. Opportunities for exploiting waste are discussed, along with their environmental and economic considerations. Landfill remains an unavoidable solution in some circumstances, and the current situation regarding this is also presented. Other chapters focus on mine waste, the recovery of fertilisers, and the growing potential for compost. In keeping with the Issues series, this volume is written with a broad audience in mind. University students and active researchers in the field will appreciate the latest research and discussion, while policy makers and members of NGOs will benefit from the wealth of information presented.

[Climate Change 2014 – Impacts, Adaptation and Vulnerability: Regional Aspects](#) Frontiers Media SA

Introduction to Chemicals from Biomass, Second Edition presents an overview of the use of biorenewable resources in the 21st century for the manufacture of chemical products, materials and energy. The book demonstrates that biomass is essentially a rich mixture of chemicals and materials and, as such, has a tremendous potential as feedstock for making a wide range of chemicals and materials with applications in industries from pharmaceuticals to furniture. Completely revised and updated to reflect recent developments, this new edition begins with an introduction to the biorefinery concept, followed by chapters addressing the various types of available biomass feedstocks, including waste, and the different pre-treatment and processing technologies being developed to turn these feedstocks into platform chemicals, polymers, materials and energy. The book concludes with a discussion on the policies and strategies being put in place for delivering the so-called Bioeconomy. Introduction to Chemicals from Biomass is a valuable resource for academics, industrial scientists and policy-makers working in the areas of industrial biotechnology, biorenewables, chemical engineering, fine and bulk chemical production, agriculture technologies, plant science, and energy and power generation. We need to reduce our dependence on fossil resources and increasingly derive all the chemicals we take for granted and use in our daily life from biomass – and we must make sure that we do this using green chemistry and sustainable technologies! For more information on the Wiley Series in Renewable Resources, visit [www.wiley.com/go/rrs](http://www.wiley.com/go/rrs) Topics covered include:

- The biorefinery concept
- Biomass feedstocks
- Pre-treatment technologies
- Platform molecules from renewable resources
- Polymers from bio-based monomers
- Biomaterials
- Bio-based energy production

Praise for the 1st edition: "Drawing on the expertise of the authors the book involves a degree of plant biology and chemical engineering, which illustrates the multidisciplinary nature of the topic beautifully" - Chemistry World

[Kenaf: A Multi-Purpose Crop for Several Industrial Applications](#) Springer Nature

The second edition of this classic reference work has been completely revised and updated, as well as being enlarged by 20% to reflect the latest developments in synthetic organic fluorine chemistry, taking into account new applications in materials science and medicinal chemistry. The new developments in transition-metal-catalyzed methods for the introduction of fluorine and fluorinated groups are discussed. In addition, new chapters have been added on such important applications as organic electronics (OLEDs) and fluorinated dyes. Appendices containing synthetic procedures and conversions round off this comprehensive work. This work is a valuable reference for fluorine chemists that also provides nonspecialists with an introduction to the field. From reviews of the first edition: "... a well-produced book with attractive graphics, photos and schemes. Throughout the book, coloured electrostatic maps of small organofluorine compounds are used to illustrate charge distributions. These are effective as well as attractive. I would point any organic chemist to this book who wants to learn about and do some fluorine chemistry. It provides uncluttered descriptions and a clear orientation to the literature in this important area of the organic chemistry." CHEMBIOCHEM - A European Journal of Chemical Biology

[Production Chemicals for the Oil and Gas Industry, Second Edition](#) CRC Press

Production chemistry issues result from changes in well stream fluids, both liquid and gaseous, during processing. Since crude oil production is characterized by variable production rates and unpredictable changes to the nature of the produced fluids, it is essential for production chemists to have a range of chemical additives available for rectifying issues that would not otherwise be fully resolved. Modern production methods, the need to upgrade crude oils of variable quality, and environmental constraints demand chemical solutions. Thus, oilfield production chemicals are necessary to overcome or minimize the effects of the production

chemistry problems. Production Chemicals for the Oil and Gas Industry, Second Edition and carbon nanotubes.

discusses a wide variety of production chemicals used by the oil and gas industry for down-hole and topside applications both onshore and offshore. Incorporating the large amount of research and applications since the first edition, this new edition reviews all past and present classes of production chemicals, providing numerous difficult-to-obtain references, especially SPE papers and patents. Unlike other texts that focus on how products perform in the field, this book focuses on the specific structures of chemicals that are known to deliver the required or desired performance—information that is very useful for research and development. Each updated chapter begins by introducing a problem, such as scale or corrosion, for which there is a production chemical. The author then briefly discusses all chemical and nonchemical methods to treat the problem and provides in-depth descriptions of the structural classes of relevant production chemicals. He also mentions, when available, the environmental properties of chemicals and whether the chemical or technique has been successfully used in the field. This edition includes two new chapters and nearly 50 percent more references.

#### **Modern Fluoroorganic Chemistry** Elsevier

This book presents detailed information on the production and properties of carbon fibers derived from lignin precursors. Focusing on future directions in the carbon fiber industry, it also introduces a novel process for obtaining high-purity lignin, a key aspect in the manufacture of high-quality carbon fiber. Carbon fiber is currently the most preferred lightweight manufacturing material and is rapidly becoming the material of choice for manufacturers around the world. Although more than 80% of commercial carbon fiber is estimated to use PAN (polyacrylonitrile) as a precursor, carbon fiber manufactured from PAN is expensive and therefore its application is limited to high-performance structural materials. Lignin is the second most abundant biopolymer in nature after cellulose and offers a carbon-rich, renewable resource. As a byproduct of the pulp and paper industry and the production of cellulosic ethanol, lignin is also available at low cost, making it an economically attractive alternative to PAN for the production of carbon fibers, as highlighted in this book. The information presented will be of interest to all those involved in the investigation of carbon fiber materials, carbon fiber manufacturers and carbon fiber users.

#### **Journal of Research** John Wiley & Sons

Microfluidics or lab-on-a-chip (LOC) is an important technology suitable for numerous applications from drug delivery to tissue engineering. Microfluidic devices for biomedical applications discusses the fundamentals of microfluidics and explores in detail a wide range of medical applications. The first part of the book reviews the fundamentals of microfluidic technologies for biomedical applications with chapters focussing on the materials and methods for microfabrication, microfluidic actuation mechanisms and digital microfluidic technologies. Chapters in part two examine applications in drug discovery and controlled-delivery including micro needles. Part three considers applications of microfluidic devices in cellular analysis and manipulation, tissue engineering and their role in developing tissue scaffolds and stem cell engineering. The final part of the book covers the applications of microfluidic devices in diagnostic sensing, including genetic analysis, low-cost bioassays, viral detection, and radio chemical synthesis. Microfluidic devices for biomedical applications is an essential reference for medical device manufacturers, scientists and researchers concerned with microfluidics in the field of biomedical applications and life-science industries. Discusses the fundamentals of microfluidics or lab-on-a-chip (LOC) and explores in detail a wide range of medical applications. Considers materials and methods for microfabrication, microfluidic actuation mechanisms and digital microfluidic technologies. Considers applications of microfluidic devices in cellular analysis and manipulation, tissue engineering and their role in developing tissue scaffolds and stem cell engineering.

#### IGI Global

The first IUPAC Manual of Symbols and Terminology for Physicochemical Quantities and Units (the Green Book) of which this is the direct successor, was published in 1969, with the object of 'securing clarity and precision, and wider agreement in the use of symbols, by chemists in different countries, among physicists, chemists and engineers, and by editors of scientific journals'. Subsequent revisions have taken account of many developments in the field, culminating in the major extension and revision represented by the 1988 edition under the simplified title Quantities, Units and Symbols in Physical Chemistry. This 2007, Third Edition, is a further revision of the material which reflects the experience of the contributors with the previous editions. The book has been systematically brought up to date and new sections have been added. It strives to improve the exchange of scientific information among the readers in different disciplines and across different nations. In a rapidly expanding volume of scientific literature where each discipline has a tendency to retreat into its own jargon this book attempts to provide a readable compilation of widely used terms and symbols from many sources together with brief understandable definitions. This is the definitive guide for scientists and organizations working across a multitude of disciplines requiring internationally approved nomenclature.

#### **Deep Subsurface Microbiology** Cambridge University Press

Natural plant fibers fibres are being increasingly used in manufacturing industrial products because of their renewable and biodegradable natures. Kenaf is an annual bast fibre crop that can provide fibres for several industrial applications (composites, insulation mats, absorbents, bedding material, etc.) as well as raw material for energy exploitation (solid biofuels). Kenaf: A Multi-Purpose Crop for Several Industrial Applications introduces the physiology and field management of kenaf, agronomy, productivity, harvesting as well as its the industrial and energy uses of this promising non-food crop. Including recent research collected by the BIOKENAF project, Kenaf: A Multi-Purpose Crop for Several Industrial Applications provides a global picture of state of the art research and developments with Kenaf from Asia, USA and Australia. This thorough introduction if followed up with an assessment of the crops economic viability as well as an the environmental impact assessment of kenaf. Although not a new crop, Kenaf: A Multi-Purpose Crop for Several Industrial Applications provides a comprehensive introduction to this crop and its developing applications for energy engineers, industry managers, politicians and managers working to develop sustainable energy sources and bio-economies.

#### **Ecological Sustainability** Springer Nature

Carbon nanotubes and graphene have been the subject of intense scientific research since their relatively recent discoveries. This book introduces the reader to the science behind these rapidly developing fields, and covers both the fundamentals and latest advances. Uniquely, this book covers the topics in a pedagogical manner suitable for undergraduate students. The book also uses the simple systems of nanotubes and graphene as models to teach concepts such as molecular orbital theory, tight binding theory and the Laue treatment of diffraction. Suitable for undergraduate students with a working knowledge of basic quantum mechanics, and for postgraduate researchers commencing their studies into the field, this book will equip the reader to critically evaluate the physical properties and potential for applications of graphene