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2017 CATALOG

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Table of Contents

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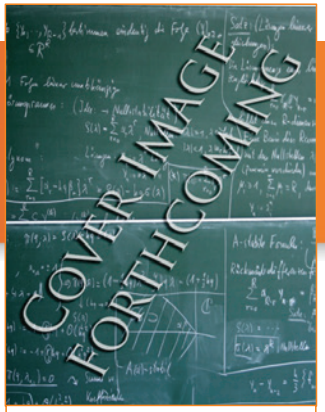

Sample Introduction Systems in ICP-MS and ICP-OES

Diane Beauchemin Department of Chemistry, Queen's University, Kingston, Ontario, Canada

ELSEVIER

A single source of authoritative information on all aspects of the practice of ICP-MS

ISBN: 978-0-444-59482-2

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 540

TRIM: 7.5w x 9.25h

AUDIENCE

Analytical chemists in academia and industry; users of ICP-MS equipment in research establishments

KEY FEATURES

- Recognized experts give credibility to each chapter as a reference source
- A single source providing both the big picture for ICP-MS--from theory, to methods, to selected applications--and specific information about discrete sampling techniques
- Provides access to core data for practical work, comparison of results, and decision making

DESCRIPTION

Sample Introduction Systems in ICP-MS and ICP-OES provides an in-depth analysis of sample introduction strategies, including flow injection analysis and less common techniques, such as arc/spark ablation and direct sample insertion. The book offers more than a review of the literature, as it critically evaluates what has been accomplished so far and what could be done to extend the capabilities of the technique for analysis of any type of sample, such as aqueous, gaseous or solid. The latest progress made in fields such as FIA, ETV, LC-ICP-MS, CE-ICP-MS is included and critically discussed. The book addresses problems related to the optimization of the system, peak dispersion and calibration, and automatization.

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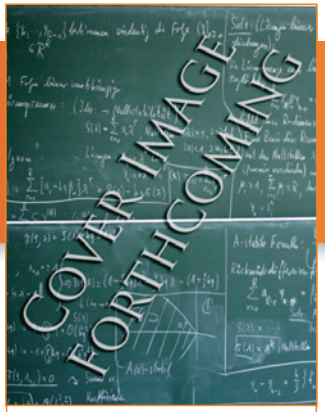

Liquid Chromatography, 2e

Fundamentals and Instrumentation

Edited by: ***Salvatore Fanali*** Istituto di Metodologie, CNR, Rome, Italy
Paul R. Haddad School of Chemistry, Univ. of Tasmania, Hobart, Australia
Colin Poole Wayne State University, Detroit, MI, USA
Marja-Liisa Riekkola Laboratory of Analytical Chemistry, Department of Chemistry, University of Helsinki, Finland

ISBN: 978-0-12-805393-5

PREVIOUS EDITION ISBN: 9780124158078

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 500

TRIM: 6w x 9h

AUDIENCE

scientists working in academia/research institutes; teachers and university students from B.Sc. level to PhD level; industry professionals in R&D and quality control managers

A single source of authoritative information on all aspects of the practice of modern liquid chromatography for advanced students and professionals working in a laboratory or managerial capacity

KEY FEATURES

- Authoritative and visionary experts in the field provide an overview and focused treatment of a single topic
- Presents the fundamental information such as theory, separation mechanisms, instrumentation, and new column technology
- Thorough selected references and tables with commonly used data to facilitate research, practical work, comparison of results, and decision making
- Extensive original tables and figures, placing recent research developments into a general context
- Worked examples, intuitive explanations, and clear figures reinforce learning

DESCRIPTION

Liquid Chromatography: Fundamentals and Instrumentation, second edition is a single source of authoritative information on all aspects of the practice of modern liquid chromatography. It gives those working in both academia and industry the opportunity to learn, refresh, or deepen their knowledge of the basics of liquid chromatography. In the years since the first edition published, thousands of papers have been published reporting new achievements in liquid chromatography, including the development of new stationary phases, improvement of instrumentation, development of theory, and new applications in biomedicine, metabolomics, proteomics, foodomics, pharmaceuticals, and more. This second edition addresses these new developments with updated chapters from the most expert researchers in the field.

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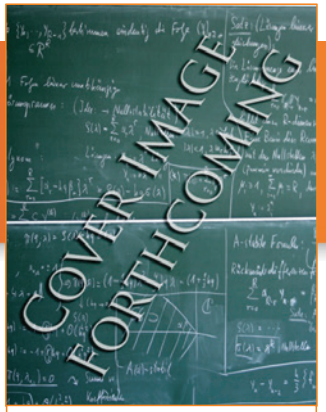

Liquid Chromatography, 2e

Applications

Edited by: ***Salvatore Fanali*** Istituto di Metodologie, CNR, Rome, Italy
Paul R. Haddad School of Chemistry, Univ. of Tasmania, Hobart, Australia
Colin Poole Wayne State University, Detroit, MI, USA
Marja-Liisa Riekkola Laboratory of Analytical Chemistry, Department of Chemistry, University of Helsinki, Finland

ELSEVIER

A single source of authoritative information on all aspects of the practice of modern liquid chromatography for advanced students and professionals working in a laboratory or managerial capacity

ISBN: 978-0-12-805392-8

PREVIOUS EDITION ISBN: 9780124158061

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 670

TRIM: 6w x 9h

AUDIENCE

scientists working in academia/research institutes; teachers and university students from B.Sc. level to PhD level; industry professionals in R&D and quality control managers

KEY FEATURES

- Authoritative and visionary experts in the field provide an overview and focused treatment of a single topic
- Emphasizes the integration of chromatographic methods and sample preparation and explains how liquid chromatography is used in different industrial sectors
- Covers the most interesting and valuable applications of LC to the different fields, e.g., proteomic, metabolomics, foodomics, pollutants and contaminants, drug (forensic, toxicological, pharmaceutical, biomedical) analysis
- Thorough selected references and tables with commonly used data to facilitate research, practical work, comparison of results, and decision making

DESCRIPTION

Liquid Chromatography: Applications, second edition is a single source of authoritative information on all aspects of the practice of modern liquid chromatography. It gives those working in both academia and industry the opportunity to learn, refresh, or deepen their knowledge of the wide variety of applications of liquid chromatography. In the years since the first edition published, thousands of papers have been published reporting new achievements in liquid chromatography, including the development of new stationary phases, improvement of instrumentation, development of theory, and new applications in biomedicine, metabolomics, proteomics, foodomics, pharmaceuticals, and more. This second edition addresses these new developments with updated chapters from the most expert researchers in the field.

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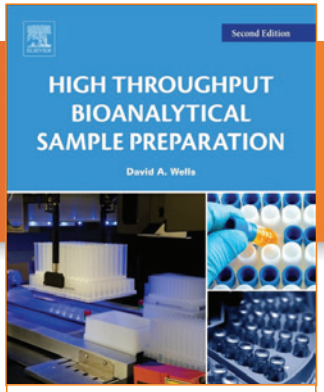


High Throughput Bioanalytical Sample Preparation, 2e

Methods and Automation Strategies

David A. Wells Sample Prep Solutions, St. Paul, MN, USA

ELSEVIER

A must-have resource for industrial analytical chemists and others seeking to optimize their daily workflow, this authoritative reference features detailed coverage of emerging preperation techniques, including micro sampling and molecularly imprinted polymers

ISBN: 978-0-444-63758-1

PREVIOUS EDITION ISBN: 9780444510297

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 740

TRIM: 7.5w x 9.25h

AUDIENCE

Primarily analytical chemists (particularly those performing sample preparation for bioanalytical applications), bench scientist supervising analysts, and pharma/biotech/CROs. Additionally of interest to manufacturers of sample prep products, automation products, and accessory products; academic researchers; non-analytical chemists who are faced with sample preparation challenges

KEY FEATURES

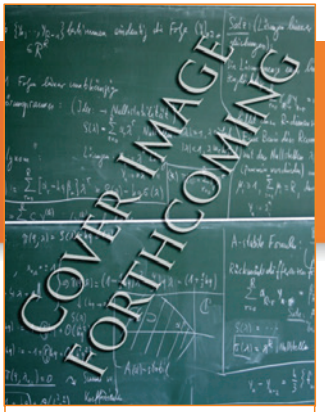
- Offers broad coverage of all sample preparation methods and techniques—including the latest industry developments—within bioanalysis
- Provides detailed 'How-To' approaches for each technique, making its applications immediately implementable
- Authored by an industry analytical chemist who has more than 30 years of experience in all facets of sample preparation, drug analysis, and more
- Features a thorough and inclusive bibliography of related publications in the field

DESCRIPTION

High Throughput Bioanalytical Sample Preparation: Methods and Automation Strategies, Second Edition, is the go-to resource for industrial analytical chemists and others seeking the latest techniques for optimizing sample preparation in their everyday workflow.

Outlining the latest preparation techniques from around the globe, this helpful guide provides answers to questions such as: How do I automate a procedure? How do I work to reduce matrix interferences? Could I do this procedure on-line instead of in a batch manually? What sorbent materials are available in the market? How do I use a cation exchange resin? What has been published on micro-sampling techniques? What is a molecularly imprinted polymer? Can liquid-liquid extraction be used in a plate format? How do I seal microplates after elution? Can I elute analytes in tiny microliter volumes? How do I evaporate eluates in a microplate? How can I use my LEAP auto-sampler to perform sample prep? Which microplate can work with 50 microliter sample volumes?

Featuring detailed coverage of the newer techniques that have emerged since the first edition published, including micro sampling and molecularly imprinted polymers, this book addresses the workflow pain points associated with extraction process efficiency, outlining exactly how to optimize productivity through enhanced method development. Combining a step-by-step approach with a thorough explanation of the technology, this new edition features 40% new content and 60% revised content, accurately and thoroughly capturing the latest developments in research since the previous edition published in 2003.



Separation Science and Proteomics

Current Trends and New Approaches

Alexandre Stoyanov University of Missouri, Columbia, MO, USA

Provides readers with advance theory and methodology for the most important separation methods contributing to current proteomics

ISBN: 978-0-12-805396-6

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 230

TRIM: 7.5w x 9.25h

AUDIENCE

Analytical chemists and researchers focusing on proteome analysis; secondary audience includes medicinal chemists with a focus on separation science

KEY FEATURES

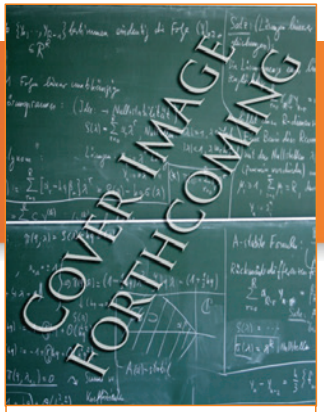
- Covers theoretical aspects such as resolving power limitations as flow rate and electric current density reach technical limits
- Provides a critical review of newly proposed separation methods and approaches, including a range of equilibrium gradient methods
- Addresses the physical aspects important for optimization of the separation process, including acid–base equilibria, dissociation schemes, and chemistry of non-aqueous solutions
- Analyzes biophysical methods of protein structure analysis and discusses scaling to micro-separations and possible applications of nanotechnologies

DESCRIPTION

Separation Science and Proteomics: Current Trends and New Approaches provides readers with advance theory and methodology for the most important separation methods contributing to current proteomics. Intended to be a practical reference that meets the needs of everyday practitioners, it will also serve as a go-to guide for scientists focused on the theory of separation science, new methods development and new equipment design.

Future progress in proteomics is connected to the introduction of new and more powerful techniques as well as the perfection of techniques proposed over the past several decades. An in-depth understanding of physical mechanisms for a particular separation method or methods combination is crucial for scientists who need to bridge the gap between traditional and contemporary methods.

Authored by a chemist who has more than 20 years of experience in separation science and proteomics, this book offers readers insights and solutions to the separation mechanism of a full range of related techniques complex problems, including the concentration distribution of analysed protein during IEF separation in natural or IPG gradients or detailed mechanisms of electrophoresis in thermal gradients.



UV-Visible Spectrophotometry of Water and Wastewater, 2e

Edited by: ***Olivier Thomas*** Emeritus Professor EHESP, French School of Public Health, Rennes, France
Christopher Burgess Burgess Consultancy, Durham, UK

ISBN: 978-0-444-63897-7
PREVIOUS EDITION ISBN: 9780444530929
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 380
TRIM: 6w x 9h

AUDIENCE

Practitioners and analytical chemists from water authorities and companies searching for solutions in monitoring water and wastewater; academic and industrial researchers and instrument designers interested in environmental metrology and sensor design

Current methods and applications for water quality monitoring based on UV spectra, including the most recent works and developments

KEY FEATURES

- Adds dozens of new chemicals of interest to the first electronic library of UV-spectra, providing data readily available for researchers and users
- Includes new sections on data integrity and security, UV estimation of classes of compounds, UV and turbidity, pollution tracking, high frequency monitoring, seawater, disinfection by products assessment, pesticides and pharmaceuticals, and more
- Provides a theoretical basis for further research in the field of spectra exploitation
- Contains helpful practical applications of this quick, simple, and inexpensive technique

DESCRIPTION

UV-Visible Spectrophotometry of Water and Wastewater is the first book dedicated to the use of UV spectrophotometry for water and wastewater quality monitoring. Using practical examples, the book illustrates how this technique can be a source of new methods of characterization and measurement. Easy and fast to run, this simple and robust analytical technique must be considered as one of the best ways to obtain a quantitative estimation of specific or aggregate parameters (eg. Nitrate, TOC), and simultaneously qualitative information on the global composition of water and its variation.

This second edition presents the current methods and applications for water quality monitoring based on UV spectra, including the most recent works and developments. After the introduction of the basics for UV spectrophotometry understanding, the applications of UV measurement are presented both from the family of chemicals and water quality parameters and from the type of water. Writing from years of experience in the development and applications of UV systems and from scientific and technical works, the authors provide several useful examples showing the great interest of UV spectrophotometry for water quality monitoring. At the end of the book, the UV spectra library of the first edition includes dozens of new chemicals of interest.

The Application of Green Solvents in Separation Processes

Francisco Pena-Pereira Analytical and Food Chemistry Department, Faculty of Chemistry, University of Vigo
Marek Tobiszewski Department of Analytical Chemistry, Chemical Faculty, Gdansk, University of Technology (GUT)

ELSEVIER

Comprehensive overview of the advances and challenges in green chemistry, moving extraction and separation toward more sustainable processes

ISBN: 978-0-12-805297-6
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 284
TRIM: 7.5w x 9.25h

AUDIENCE

Environmental scientists, analytical chemists, green chemistry researchers, biochemists, engineers, bioanalytical chemists, environmental engineers

KEY FEATURES

- Provides insights into recent advances in greener extraction and separation processes
- Gives an understanding of alternatives to harmful solvents commonly used in extraction and separation processes, as well as advanced techniques for such processes
- Written by a multidisciplinary group of internationally recognized scientists

DESCRIPTION

The Application of Green Solvents in Separation Processes features a logical progression of a wide range of topics and methods, beginning with an overview of green solvents, covering everything from water and organic solvents, to ionic liquids, switchable solvents, eutectic mixtures, supercritical fluids, gas-expanded solvents, and more.

In addition, the book outlines green extraction techniques, such as green membrane extraction, ultrasound-assisted extraction, and surfactant-mediated extraction techniques. Green sampling and sample preparation techniques are then explored, followed by green analytical separations, including green gas and liquid capillary chromatography, counter current chromatography, supercritical fluid chromatography, capillary electrophoresis, and other electrical separations. Applications of green chemistry techniques that are relevant for a broad range of scientific and technological areas are covered, including the benefits and challenges associated with their application.

Analysis of Cosmetic Products, 2e

Edited by: ***Amparo Salvador*** Professor, Department of Analytical Chemistry, University of Valencia, Valencia, Spain
Alberto Chisvert Associate Professor, Department of Analytical Chemistry, University of Valencia, Valencia, Spain

ISBN: 978-0-444-63508-2
PREVIOUS EDITION ISBN: 9780444522603
PUB DATE: March 2017
FORMAT: Hardback
PAGES: c. 530
TRIM: 7.5w x 9.25h

AUDIENCE

Analytical chemists, scientists working in the cosmetics/personal care products industry; graduate-level students in related areas; legislators

As a comprehensive guide to the analysis and characterization of cosmetic products, this book helps users select appropriate analytical procedures for production

KEY FEATURES

- Provides comprehensive coverage of the specific analytical procedures for different analytes and cosmetic samples
- Includes information on the biomonitoring of cosmetic ingredients in the human body and the environment
- Describes the most recent developments in global legislation governing the cosmetics industry
- Introduces green technologies and the use of nanomaterials in the development and analysis of cosmetic ingredients

DESCRIPTION

Analysis of Cosmetic Products, Second Edition, advises the reader from an analytical chemistry perspective on the choice of suitable analytical methods for production monitoring and quality control of cosmetic products. Divided into sections based on the analyte, this book helps professionals working in the cosmetic industry or in research laboratories select appropriate analytical procedures for production, maintain in-market quality control of cosmetic products, and plan for the appropriate types of biomedical and environmental testing.

This updated and expanded second edition covers fundamental concepts relating to cosmetic products, current global legislation, and the latest analytical methods for monitoring and quality control. New to this edition are sections devoted to the characterization of nanomaterials and other new active ingredients, as well as an introduction to green cosmetic chemistry.

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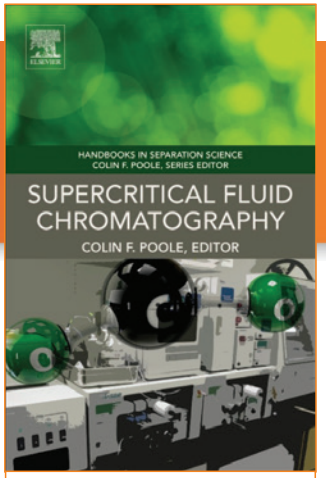

Supercritical Fluid Chromatography

Edited by: ***Colin F Poole*** Department of Chemistry, Wayne State University, Detroit, MI, USA

ELSEVIER

Defines the concept of contemporary practice in supercritical fluid chromatography and how it should be implemented in laboratory science

KEY FEATURES

- Edited and authored by world-leading chromatography experts
- Provides comprehensive coverage of SFC in a single volume
- Contains extensive referencing that facilitates identification of key research developments
- Presents more than 200 figures and tables to aid in the retention of key concepts

DESCRIPTION

Supercritical Fluid Chromatography is a thorough and encompassing reference that defines the concept of contemporary practice in supercritical fluid chromatography (SFC) and how it should be implemented in laboratory science. Supercritical fluid chromatography is a rapidly developing laboratory technique for the separation and identification of compounds in mixtures. Significant improvements in instrumentation have rekindled interest in supercritical fluid chromatography in recent years and enhanced its standing in the scientific community. Many scientists are familiar with column liquid chromatography and its strengths and weaknesses, but the possibilities brought to the table by SFC are less well-known and underappreciated.

Given the changes that have taken place in SFC, this book presents contemporary aspects and applications of the technique, introducing SFC as a natural solution in the larger field of separation science. The focus on state-of-the-art instrumental SFC distinguishes this work as the go-to reference work for those interested in implementing the technique at a more advanced level than is currently used in many laboratories.

ISBN: 978-0-12-809207-1

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 540

TRIM: 6w x 9h

AUDIENCE

Analytical chemists, pharmaceutical scientists, medicinal chemists, in addition to instructors and students taking related coursework. Secondary audience includes junior scientists entering or working in the field of supercritical fluid chromatography to consolidate their knowledge and improve their skills

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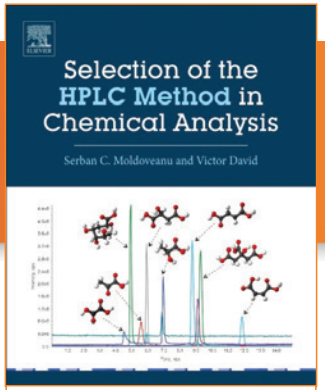

Selection of the HPLC Method in Chemical Analysis

Serban Moldoveanu RJ Reynolds Tobacco Co., Winston-Salem, NC, USA
Victor David Faculty of Chemistry, University of Bucharest, Bucharest, Romania

ELSEVIER

Serves as a practical guide to users of HPLC, providing exacting criteria for method selection, development, and validation

ISBN: 978-0-12-803684-6
PUB DATE: November 2016
FORMAT: Paperback
PAGES: c. 588
TRIM: 7.5w x 9.25h

AUDIENCE

Analytical chemists practicing HPLC and students at the graduate level taking related coursework in analytical chemistry

KEY FEATURES

- Addresses the various aspects of practice and instrumentation needed to obtain reliable HPLC analysis results
- Leads researchers to the best choice of an HPLC method from the overabundance of information existing in the field
- Provides exacting criteria for HPLC method selection, development, and validation
- Authored by world-renowned HPLC experts who have more than 60 years of combined experience in the field

DESCRIPTION

Selection of the HPLC Method in Chemical Analysis serves as a practical guide to users of high performance liquid chromatography, providing exacting criteria for method selection, development, and validation. High performance liquid chromatography is the most common analytical technique currently practiced in chemistry. However, the process of finding the appropriate information for a particular analytical project requires significant effort and pre-existent knowledge in the field. Further, sorting through the wealth of published data and literature takes both time and effort away from the critical aspects of HPLC method selection.

This book, for the first time, presents a systematic approach for sorting through the available information, also providing a critical analysis of the progress in HPLC for selecting a specific analysis. It is an inclusive, go-to reference for HPLC method selection, development, and validation.

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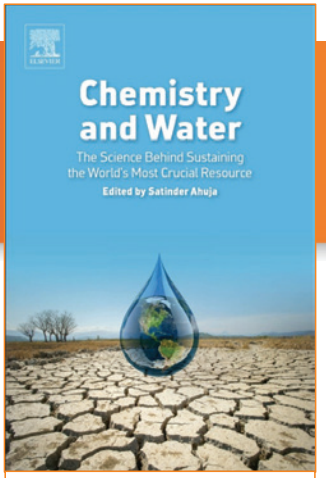


Chemistry and Water

The Science Behind Sustaining the World's Most Crucial Resource

Satinder Ahuja Ahuja Consulting, Calabash, NC, USA

This book explores and presents the science behind the important role water plays to assure our survival and sustain human life

KEY FEATURES

- Explores the role water plays to assure our survival and maintain life
- Contains more than 75 figures and illustrations that aid in the retention of key concepts
- Multi-authored and edited by world leaders in chemistry and water research
- Addresses the use of the nexus of food, energy, and water to ensure sustainability

DESCRIPTION

After air, water is the most crucial resource for human survival. To achieve water sustainability, we will have to deal with its scarcity and quality, and find ways to reclaim it from various sources. *Chemistry and Water: The Science Behind Sustaining the World's Most Crucial Resource* applies contemporary and sophisticated separation science and chromatographic methods to address the pressing worldwide concerns of food production, efficient energy use, and potable, readily available fresh water across global communities.

Edited and authored by world-leading analytical chemists, the book presents the latest developments in research on a broad range of topics, including water quality and pollution, water treatment technologies and practices, water shortage and energy production, water quality and energy production, challenges to achieving sustainable water supplies, water reclamation techniques, and wastewater reuse.

ISBN: 978-0-12-809330-6

PUB DATE: November 2016

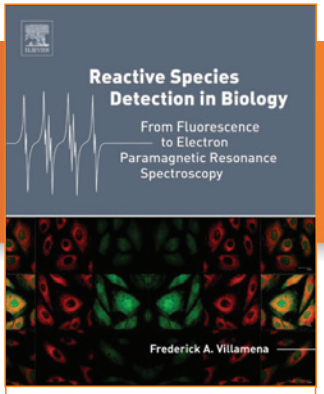
FORMAT: Paperback

PAGES: c. 630

TRIM: 6w x 9h

AUDIENCE

Analytical chemists, chemical engineers, environmental scientists, food scientists, water scientists, and individuals involved in production of energy, food, and water



Reactive Species Detection in Biology

From Fluorescence to Electron Paramagnetic Resonance Spectroscopy

Frederick A. Villamena Ohio State University, Columbus, Ohio, USA

ISBN: 978-0-12-420017-3

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 330

TRIM: 7.5w x 9.25h

AUDIENCE

Research scientists / principal investigators in the fields of chemistry, biomedical research, nutrition/food science, public health, biology/biochemistry, biomedical engineering, and other related fields dealing with antioxidants (cosmetics, home products, fuel cell research, materials research)

Describes the theories, chemistries, methodologies, and applications for the detection of reactive species in biological systems, both *in-vitro* and *in-vivo*

KEY FEATURES

- Reviews all current advances in radical detection
- Emphasizes chemical structures and reaction schemes fundamental to radical detection and identification
- Describes the uses, advantages, and disadvantages of various probe designs
- Examines new approaches to radical probe development

DESCRIPTION

Reactive Species Detection in Biology: From Fluorescence to Electron Paramagnetic Resonance Spectroscopy discusses the reactive oxygen species that have been implicated in the pathogenesis of various diseases, presenting theories, chemistries, methodologies, and various applications for the detection of reactive species in biological systems, both *in-vitro* and *in-vivo*.

Techniques covered include fluorescence, high performance chromatography, mass spectrometry, immunochemistry, and electron paramagnetic resonance spectroscopy. Probe design and development are also reviewed in order to advance new approaches in radical detection through synthesis, computations, or experimental applications.

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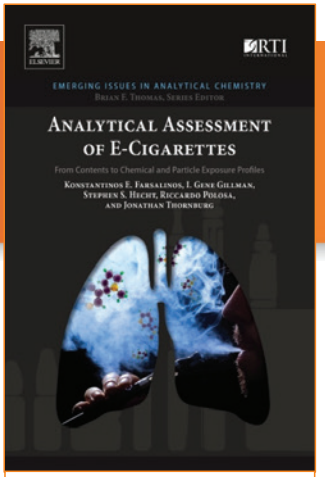

Analytical Assessment of e-Cigarettes

From Contents to Chemical and Particle Exposure Profiles

Konstantinos E. Farsalinos Onassis Cardiac Surgery Center, Athens, Greece; Medical Imaging Research Center, University Hospital Gathuisberg, Leuven, Belgium
I. Gene Gillman Enthalpy Analytical, Inc., Durham, North Carolina, USA
Stephen S. Hecht Department of Laboratory Medicine and Pathology, University of Minnesota, Minneapolis, MN, USA
Riccardo Polosa Institute for Internal Medicine and Clinical Immunology and Centre for Tobacco Research (CPCT), University of Catania, Catania, Italy; Faculty of Medicine, University of Southampton, Southampton, UK
Jonathan Thornburg RTI International, Research Triangle Park, North Carolina, USA

ELSEVIER

This book provides knowledge through analytical chemistry methods that help inform legislators, users, and the public of the potential health impact of e-cigarettes

ISBN: 978-0-12-811241-0
PUB DATE: November 2016
FORMAT: Paperback
PAGES: c. 154
TRIM: 6w x 9h

AUDIENCE

Broad global audience including analytical chemists, pharmacologists, medical doctors, tobacco stakeholders, manufacturers, distributors, users, legislators and their staffs, regulatory scientists and administrators, and public health officials

KEY FEATURES

- Discusses the chemistry and physics involved in aerosol production, inhalation, deposition, chemical exposure, and effect assessment
- Contains current information and state-of-the-science methods on e-cigarette emissions, exposures, and harm assessment
- Offers an authoritative, objective perspective from five of the most well-recognized scientists in their areas of expertise who have no personal stake in the e-cigarette industry or the opposition
- Includes a foreword written by Dr. Neal Benowitz

DESCRIPTION

A volume in the *Emerging Issues in Analytical Chemistry* series, *Analytical Assessment of E-Cigarettes: From Contents to Chemical and Particle Exposure Profiles* addresses the many issues surrounding electronic cigarettes in an unprecedented level of scientific detail. The plethora of product devices, formulations, and flavors, combined with the lack of industry standards and labeling requirements, quality control, and limited product oversight, has given rise to public concern about initiation of use and potential for adverse exposure and negative long-term health outcomes. This volume discusses how analytical methods can address these issues and support the manufacturing, labeling, distribution, testing, regulation, and monitoring for consistency of products with known chemical content and demonstrated performance characteristics.

The book begins with the background on aerosol drug delivery services and e-cigarettes, constituents of nicotine-containing liquid dosing formulations, typical use scenarios and associated aerosol emissions, and chemical exposures and pharmacological and toxicological effect profiles, and then continues with descriptions of the analytical methods used to characterize the chemicals in formulations and emissions from e-cigarettes, including their stability, physical particle-size distribution and thermal degradation under commonly employed conditions of use.

Analytical methods enabling detection of biomarkers of exposure and harm in complex biological matrices are discussed, with an emphasis on constituents or emissions of current medicinal interest or with potential to produce harm. Opportunities and challenges for analytical chemistry in supporting the continued development and use of safe and consistent dosage formulations as alternatives to tobacco products are also explored, with a concluding section describing an analytical approach to a risk-benefit assessment of e-cigarette use on human health.

The *Emerging Issues in Analytical Chemistry* series is published in partnership with RTI International and edited by Brian F. Thomas. Please be sure to check out our other featured volumes:
Thomas, Brian F. and ElSohly, Mahmoud. *The Analytical Chemistry of Cannabis: Quality Assessment, Assurance, and Regulation of Medicinal Marijuana and Cannabinoid Preparations*, 9780128046463, December 2015. Hackney, Anthony C. *Exercise, Sport, and Bioanalytical Chemistry: Principles and Practice*, 9780128092064, March 2016. Tanna, Sangeeta and Lawson, Graham. *Analytical Chemistry for Assessing Medication Adherence*, 9780128054635, April 2016. Rao, Vikram; Knight, Rob; and Stoner, Brian. *Sustainable Shale Oil and Gas: Analytical Chemistry, Biochemistry, and Geochemistry Methods*, 9780128103890, September 2016.

CHEMISTRY

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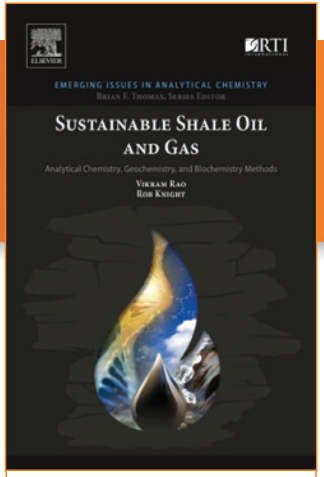


Sustainable Shale Oil and Gas

Analytical Chemistry, Geochemistry, and Biochemistry Methods

Vikram Rao Research Triangle Energy Consortium, Research Triangle Park, NC, USA
Rob Knight University of California San Diego, La Jolla, CA , USA

ELSEVIER

"That which cannot be measured, cannot be regulated or otherwise controlled or exploited." This is the last sentence of the book, and informs all aspects of sustainable enterprise: productivity improvement, environmental protection and the wellbeing of the public in contact with the industry.

ISBN: 978-0-12-810389-0

PUB DATE: September 2016

FORMAT: Paperback

PAGES: c. 170

TRIM: 6w x 9h

AUDIENCE

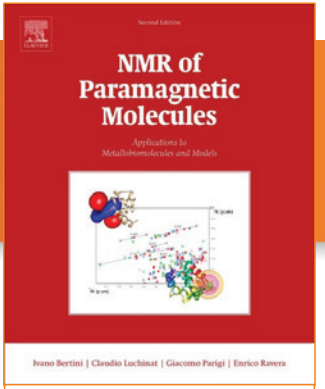
Technology leaders, technical leaders in environmental compliance groups, and research personnel in oil and gas companies; epidemiologists in the lung and heart space; public health professionals; technical aides to legislators; all with a knowledge of college level inorganic chemistry and preferably organic chemistry. Could be used in advanced undergraduate and low level graduate courses in environmental sciences

KEY FEATURES

- Provides a clear understanding of the potential environmental issues as well as a path to solutions
- Includes background information for understanding potential impacts of shale operations from both an environmental and public health perspective
- Authored by leaders from diverse disciplines with expertise in a variety of areas: groundwater quality, petroleum-related operations, microbial ecology, and electronic technologies
- Reviews new sensing and evaluation methods that could be key enablers to sustainable fracking: portable mass spectrometry, microbiome analysis, DNA as tracers, and a microparticulate matter detector

DESCRIPTION

Shale oil and gas have altered the energy landscape, possibly permanently. They burst upon the fossil energy scene with a suddenness that initially defied prediction. Even the political balance of the world has changed. But, with the methods employed, the vast majority of the oil and gas remains in the ground. At the same time, serious environmental impact issues have been raised. A new volume in the Emerging Issues in Analytical Chemistry series, *Sustainable Shale Oil and Gas Production: Analytical, Biochemical, and Geochemical Methods* was written on the premise that analytical methods to inform these areas were wanting. While not attempting to be comprehensive, it describes important analytical methods, some still in development. These methods are underpinned primarily by chemistry, but geochemistry and even biochemistry play significant roles. The book has a solutions flavor; problems are posed together with approaches to ameliorate them.



NMR of Paramagnetic Molecules, Vol 2, 2e

Applications to Metallobiomolecules and Models

Ivano Bertini Department of Chemistry, University of Florence, Italy
Claudio Luchinat University of Florence, Florence, Italy
Giacomo Parigi University of Florence, Florence, Italy
Enrico Ravera University of Florence, Florence, Italy

This updated and expanded guide describes how to perform high-resolution NMR experiments, obtain structural and dynamic information on paramagnetic metal ion-containing systems, interpret NMR spectra of paramagnetic molecules, and improve experimental techniques

ISBN: 978-0-444-63436-8
PREVIOUS EDITION ISBN: 9780444205292
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 496
TRIM: 7.5w x 9.25h

AUDIENCE

Chemists (analytical, physical, organic, inorganic); structural biologists/life scientists; physicists; advanced students in these areas

A Volume in the Current Methods in Inorganic Chemistry Series.

KEY FEATURES

- Reflects all advances in the field in a completely updated new edition
- Presents new material on self-orientation residual dipolar couplings, solid state NMR, dynamic nuclear polarization, and paramagnetic restraints for structure calculations
- Includes information relevant to paramagnetic molecules, metallobiomolecules, paramagnetic compounds, and paramagnetic NMR spectroscopy
- Presents specific examples of paramagnetic inorganic species and experimental techniques for structure characterization

DESCRIPTION

NMR of Paramagnetic Molecules: Applications to Metallobiomolecules and Models, Second Edition is a self-contained, comprehensive reference for chemists, physicists, and life scientists whose research involves analyzing paramagnetic compounds. Since the previous edition of this book was published, there have been many advancements in the field of paramagnetic NMR spectroscopy. This completely updated and expanded edition contains the latest fundamental theory and methods for mastery of this analytical technique. Users will learn how to interpret the NMR spectra of paramagnetic molecules, improve experimental techniques, and strengthen their understanding of the underlying theory and applications.

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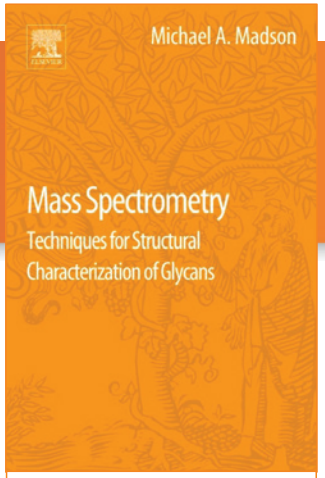

Mass Spectrometry

Techniques for Structural Characterization of Glycans

Mike Madson BioLogistics, LLC, Iowa, USA

ELSEVIER

This short-format reference presents new methods for conducting detailed carbohydrate qualitative analysis—arming analytical chemists, pharmaceutical scientists, and food scientists with a quick reference that will allow them to determine the structures of carbohydrate molecules, thus providing the relevant research necessary for advances in this area of study

ISBN: 978-0-12-804129-1

PUB DATE: May 2016

FORMAT: Hardback

PAGES: c. 78

TRIM: 6w x 9h

AUDIENCE

Analytical chemists, pharmaceutical scientists, and food scientists conducting research in mass spectral analysis.

KEY FEATURES

- Authored by an analytical chemist with more than 30 years of experience in research and industry
- Serves as a quick reference in mass spectral analysis and carbohydrates
- Includes more than 60 figures to aid in the retention of key concepts

DESCRIPTION

Mass Spectrometry: Techniques for the Structural Characterization of Glycans presents new methods for conducting detailed carbohydrate qualitative analysis—arming analytical chemists, pharmaceutical scientists, and food scientists with a quick reference that will allow them to determine the structures of carbohydrates molecules.

As there is a need in the scientific community for content specific to structural determination and analysis of new glycoprotein drug, and because structure-activity analysis requires a structural determination of the N- and O-linked oligosaccharides linked to glycol-proteins, this book provides the relevant research that are necessary for advances and new outcomes in this area of study.

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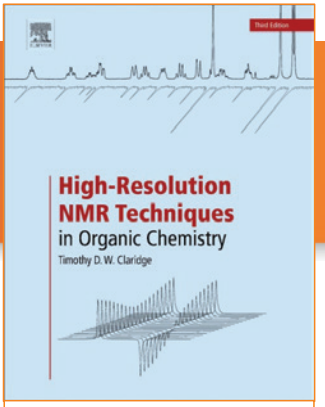


High-Resolution NMR Techniques in Organic Chemistry, 3e

Timothy D.W. Claridge University of Oxford, Oxford, UK

ELSEVIER

Timely and thorough, this revision describes the most important high-resolution NMR techniques used in elucidating the structure of organic molecules and examining their behavior in solution

ISBN: 978-0-08-099986-9

PREVIOUS EDITION ISBN: 9780080548180

PUB DATE: May 2016

FORMAT: Paperback

PAGES: c. 542

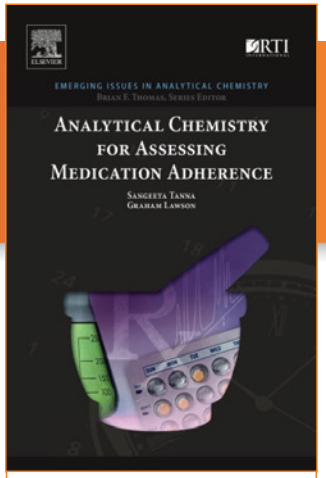
TRIM: 8.5w x 10.875h

AUDIENCE

Organic Chemistry students and professionals who require NMR skills, NMR directors at academic and industry institutions

DESCRIPTION

High-Resolution NMR Techniques in Organic Chemistry, Third Edition describes the most important NMR spectroscopy techniques for the structure elucidation of organic molecules and the investigation of their behaviour in solution. Appropriate for advanced undergraduate and graduate students, research chemists and NMR facility managers, this thorough revision covers practical aspects of NMR techniques and instrumentation, data collection, and spectrum interpretation. It describes all major classes of one- and two-dimensional NMR experiments including homonuclear and heteronuclear correlations, the nuclear Overhauser effect, diffusion measurements, and techniques for studying protein–ligand interactions. A trusted authority on this critical expertise, *High-Resolution NMR Techniques in Organic Chemistry, Third Edition* is an essential resource for every chemist and NMR spectroscopist.



Analytical Chemistry for Assessing Medication Adherence

Sangeeta Tanna De Montfort University, Leicester, UK
Graham Lawson De Montfort University, Leicester, UK

ELSEVIER

An early-stage review of attempts to ameliorate the major public healthcare problem of poor medication adherence through analytical chemistry techniques, setting the scene for future developments

ISBN: 978-0-12-805463-5
PUB DATE: April 2016
FORMAT: Paperback
PAGES: c. 142
TRIM: 6w x 9h

AUDIENCE

Analytical chemists, clinical chemists, and medicinal chemists; pharmacologists; healthcare professionals including pharmacists, nurses, and clinicians; analytical instrument manufacturers; pharmaceutical scientists; regulatory officials and public health officials

KEY FEATURES

- Surveys the strengths, weaknesses, and appropriateness of existing instruments and techniques and points the way toward a program of therapeutic optimization
- Brings together data scattered amongst professional journals and other sources in a single convenient volume
- Presents the problem of adherence and the authors' evaluation of possible solutions based on the analysis of patient bio-samples

DESCRIPTION

The lack of adherence to medication is a growing public health problem worldwide and is costing many patients their good health and healthcare systems billions of dollars. A new volume in the *Emerging Issues in Analytical Chemistry* series, *Analytical Chemistry for Assessing Medication Adherence* introduces the concept of medication adherence/compliance and reports international perspectives on medication adherence while highlighting its importance. It then describes the opportunities for analytical chemistry to assess medication adherence and thereby provide an evidence base for clinicians to improve patient health outcomes. The authors highlight the strengths and weaknesses of each of the analytical techniques cited in addition to categorizing the findings in terms of the biological samples used to assess adherence and identifying methods to extract biological samples prior to analysis. The final chapter provides the authors' perspective in this area, emphasising the importance of medication optimization for individual patients.

The *Emerging Issues in Analytical Chemistry* series is published in partnership with RTI International and edited by Brian F. Thomas. Please be sure to check out our other featured volumes:

- Thomas, Brian F. and ElSohly, Mahmoud. *The Analytical Chemistry of Cannabis: Quality Assessment, Assurance, and Regulation of Medicinal Marijuana and Cannabinoid Preparations*, 9780128046463, December 2015.
- Hackney, Anthony C. *Exercise, Sport, and Bioanalytical Chemistry: Principles and Practice*, 9780128092064, March 2016.
- Rao, Vikram, Knight, Rob, and Stoner, Brian. *Sustainable Shale Oil and Gas: Analytical Chemistry, Biochemistry, and Geochemistry Methods*, 9780128103890, forthcoming September 2016.
- Farsalinos, Konstantinos, et al. *Analytical Assessment of e-Cigarettes: From Contents to Chemical and Particle Exposure Profiles,* 9780128112410, forthcoming November 2016.

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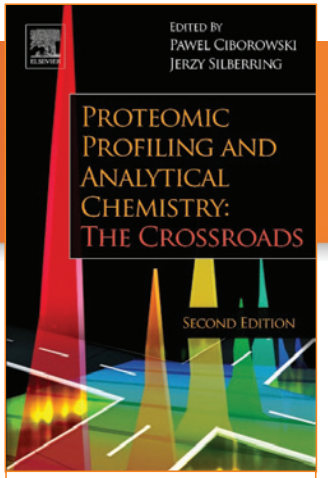

Proteomic Profiling and Analytical Chemistry, 2e

The Crossroads

Edited by: ***Pawel Ciborowski*** Mass Spectrometry and Proteomics Core Facility, University of Nebraska Medical Center, Omaha, NE, USA
Jerzy Silberring AGH University of Science and Technology, Kraków, Poland, and Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Kraków, Poland

ELSEVIER

By providing an overview and understanding of the analytical chemistry tools applicable to proteomic profiling and validation experiments, this book bridges the gap between overly specialized courses and books in mass spectrometry, proteomics, and analytical chemistry, helping researchers with an analytical chemistry background to break into the proteomics field

ISBN: 978-0-444-63688-1

PREVIOUS EDITION ISBN: 9780444593788

PUB DATE: March 2016

FORMAT: Paperback

PAGES: c. 282

TRIM: 7.5w x 9.25h

AUDIENCE

analytical chemists, mass spectrometrists, researchers in proteomics, molecular biologists, biotechnologists, and pharmaceutical scientists

KEY FEATURES

- Covers the analytical consequences of protein and peptide modifications that may have a profound effect on how and what researchers actually measure
- Includes practical examples illustrating the importance of problems in quantitation and validation of biomarkers
- Helps in designing and executing proteomic experiments with sound analytics

DESCRIPTION

Proteomic Profiling and Analytical Chemistry: The Crossroads, Second Edition helps scientists without a strong background in analytical chemistry to understand principles of the multistep proteomic experiment necessary for its successful completion. It also helps researchers who do have an analytical chemistry background to break into the proteomics field. Highlighting points of junction between proteomics and analytical chemistry, this resource links experimental design with analytical measurements, data analysis, and quality control. This targeted point of view will help both biologists and chemists to better understand all components of a complex proteomic study.

The book provides detailed coverage of experimental aspects such as sample preparation, protein extraction and precipitation, gel electrophoresis, microarrays, dynamics of fluorescent dyes, and more. The key feature of this book is a direct link between multistep proteomic strategy and quality control routinely applied in analytical chemistry. This second edition features a new chapter on SWATH-MS, substantial updates to all chapters, including proteomic database search and analytical quantification, expanded discussion of post-hoc statistical tests, and additional content on validation in proteomics.

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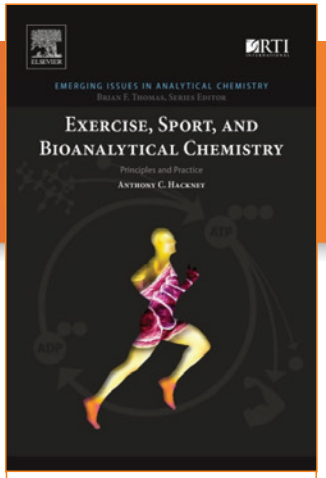

Exercise, Sport, and Bioanalytical Chemistry

Principles and Practice

Anthony C Hackney Schools of Public Health and Medicine, University of North Carolina, Chapel Hill, NC, USA

ELSEVIER

An overview of the biochemistry of exercise, sport, and physical activity—from key traditional concepts and recent findings to developing trends in analytical chemistry that will inform future research and application

ISBN: 978-0-12-809206-4

PUB DATE: March 2016

FORMAT: Paperback

PAGES: c. 126

TRIM: 6w x 9h

AUDIENCE

Analytical chemists, biochemists, and physiologists, as well as trainers, competitive and elite athletes, and physical therapists

KEY FEATURES

- Provides readers with the fundamental biochemistry and some elements of the physiology behind physical activity/exercise and describes the analytical techniques used to elucidate the science
- Written in clear, concise, compelling prose that is neither simplistic to scientists nor too sophisticated for a large, diverse global audience
- A one-page Close-Up in each chapter illustrates key topics to catch, engage, entertain, and create a novel synthesis of thought

DESCRIPTION

A new volume in the *Emerging Issues in Analytical Chemistry* series, *Exercise, Sport, and Bioanalytical Chemistry: Principles and Practice* focuses on the basic and applied aspects of energy metabolism in humans. Concise and scientific, yet intelligible to the nonscientist, the book consists of two parts. Part I, Introduction: Basics and Background, provides the biochemistry necessary to understand the rest of the book and describes analytical processes and results as an aid to grasping the science. Part II, Applications: Knowledge into Practice, explores measurement techniques for metabolism, energy expenditure of various activities, techniques that enhance expenditure, metabolic adaptation, foods and drugs that enhance expenditure, and the role of bioanalytical chemistry in future research in exercise and sport. Discussion of the benefits of exercise and practices for improving the capacity to perform exercise is illustrated by many useful and entertaining examples. This volume allows readers to come away with a grasp of the scientific concepts, how they are manifested in research techniques, and how the results of research can be applied in the real world of public health and personal development.

The *Emerging Issues in Analytical Chemistry* series is published in partnership with RTI International and edited by Brian F. Thomas. Please be sure to check out our other featured volumes:

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- Rao, Vikram, Knight, Rob, and Stoner, Brian. *Sustainable Shale Oil and Gas: Analytical Chemistry, Biochemistry, and Geochemistry Methods*, 9780128103890, forthcoming September 2016.
- Farsalinos, Konstantinos, et al. *Analytical Assessment of e-Cigarettes: From Contents to Chemical and Particle Exposure Profiles*, 9780128112410, forthcoming November 2016.

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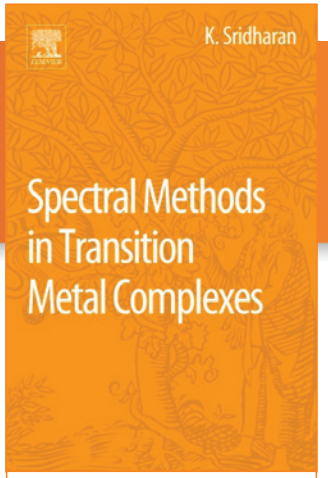

Spectral Methods in Transition Metal Complexes

K. Sridharan Dean, School of Chemical & Biotechnology, SASTRA University, Thanjavur, Tamil Nadu, India

ELSEVIER

As a comprehensive guide to spectral methods in transition metals, this book characterizes the metal complexes using electronic spectroscopy, IR spectroscopy, NMR spectroscopy, and EPR spectroscopy

ISBN: 978-0-12-809591-1

PUB DATE: February 2016

FORMAT: Paperback

PAGES: c. 190

TRIM: 6w x 9h

AUDIENCE

Analytical chemists, spectroscopy researchers, and instructors at the graduate level teaching related coursework

KEY FEATURES

- Provides readers with a single reference on metal complexes and coordination compounds
- Contains more than 100 figures, tables, and illustrations to aid in the retention of key concepts
- Authored by a scientist with nearly 40 years of experience in research and instruction

DESCRIPTION

Spectral Methods in Transition Metal Complexes provides a conceptual understanding on how to interpret the optical UV-vis, vibrational EPR, and NMR spectroscopy of transition metal complexes.

Metal complexes have broad applications across chemistry in the areas of drug discovery, such as anticancer drugs, sensors, special materials for specific requirements, and catalysis, so a thorough knowledge in preparation and characterization of metal complexes, while niche, is critical.

Accessible to both the seasoned researcher and the graduate student alike, this book provides readers with a single source of content that addresses spectral methods in transition metal complexes.

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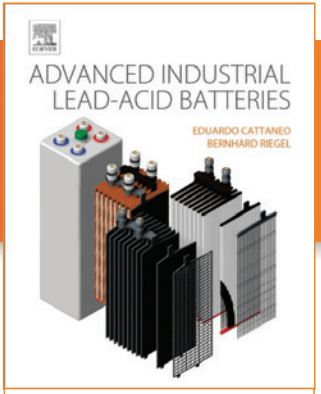

Advanced Industrial Lead-Acid Batteries

Eduardo Cattaneo Director Research & Development, Hoppecke Batteries, Brilon, Germany
Bernhard Riegel Senior Researcher, Hoppecke Batteries, Brilon, Germany

ELSEVIER

Presents the latest developments in Lead-Acid Batteries (LAB) outlining the new requirements for their use in telecommunications, new emerging management techniques and energy storage and answers questions about battery performance, maintenance and service life

ISBN: 978-0-444-63252-4
PUB DATE: June 2017
FORMAT: Hardback
PAGES: c. 450
TRIM: 7.5w x 9.25h

AUDIENCE

Chemists, electrochemists, chemical engineers and material scientists in academia, government and corporate labs contacting research on electrochemical energy storage devices

KEY FEATURES

- Presents a complete description and deployment of industrial batteries
- Gives a detailed account of all the components of the industrial batteries and their functions
- Gives the most common service-life limiting factors of industrial batteries
- Provides a comprehensive list of battery testing methods, ie capacity, self-discharge tests
- Lists the usual parameters in battery management systems necessary for correct field function
- Provides details on all manufacturing techniques of LAB

DESCRIPTION

Lead acid batteries (LAB) for reserve and motive power applications have undergone in the last years an evolution process triggered by novel developments in the telecommunication, information technology, material handling and renewable energy applications.

Advanced Industrial Lead-Acid Batteries, written for technologists and engineers, presents a detailed account on different types of reserve and motive power industrial lead acid batteries, and includes recent developments and new applications.

CHEMISTRY

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The Science and Technology of Unconventional Oils

Finding Refining Opportunities

M. M. Ramirez-Corredores Refining Technologies, BP International Ltd., Sunbury-on-Thames, UK

Comprehensive analysis of S&T activities and R&D results on the properties, behavior and refining of unconventional oils including fossil and biomass-derived oils

ISBN: 978-0-12-801225-3

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 388

TRIM: 7.5w x 9.25h

AUDIENCE

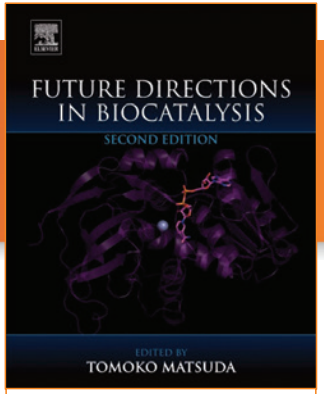
Undergraduate, graduate, postdoctoral students in: chemical engineering, chemistry, process engineering, industrial engineering, petroleum engineering, oil refining, renewable fuels. Researchers and R&D managers on Oil Refining, Biorefineries and Lignocellulosic (2nd Generation) Renewable Fuels developers

KEY FEATURES

- Relates physicochemical properties and phenomenological behavior of unconventional oils to refining challenges
- Describes commercially available technologies and problems they solve
- Lists recent improvements in various processes and identifies technology gaps
- Explains emerging new refining technologies and the problems they solve
- Discusses future needs and challenges, and suggests further research and development needs

DESCRIPTION

The Science and Technology of Unconventional Oils: Finding Refining Opportunities is intended for setting a baseline for the processing of unconventional oils, by discussing relevant knowledge and identifying technology gaps. It focuses on the discussion of the scientific results and technology activities on the refining of unconventional oils, both fossil and biomass-derived (bio-oil). The presence of reactive and refractory compounds and components that negatively impact refining processing are described and analyzed. The known and emerging technologies are the basis for establishing technology gaps, which in return set the S&T needs to be addressed in the forthcoming future.



Future Directions in Biocatalysis, 2e

Edited by: ***Tomoko Matsuda*** Tokyo Institute of Technology, Department of Bioengineering, Yokohama, Japan

ELSEVIER

Future directions as well as the latest research progress of unique and cutting-edge researchers in biocatalysis will be given to organic chemist and bioorganic chemist

ISBN: 978-0-444-63743-7

PREVIOUS EDITION ISBN: 9780444530592

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 450

TRIM: 7.5w x 9.25h

AUDIENCE

University and industry researchers with their specialties in synthetic organic chemistry, biocatalysis, or enzymology: chemists and chemical engineers, biochemists, researchers in chemical and pharmaceutical industries, reference book for graduate courses in bioorganic engineering and bioengineering

KEY FEATURES

- Gives future directions in the biocatalysis research area
- Includes research topics based on their uniqueness, originality and novelty and not popularity
- Includes many figures to explain the content easily for both organic chemists and biochemists, showing that there is no boundary between organic chemistry and biochemistry

DESCRIPTION

Future Directions in Biocatalysis, 2nd edition shows the future direction and latest research on how to utilize enzymes, ie natural catalyst, to make medicines and other necessities for humans. It emphasizes the most important and unique research on biocatalysis instead of ABC's of biocatalysis. It helps new researchers in the field to identify needs and start new projects addressing current environmental concerns and develop techniques based on green technology. It also gives users (specialists) hints and clues in searching new research topics using enzymes. The book outlines future directions in biocatalysis rather than reviewing already conducted research and expands into new applications of biocatalysis.

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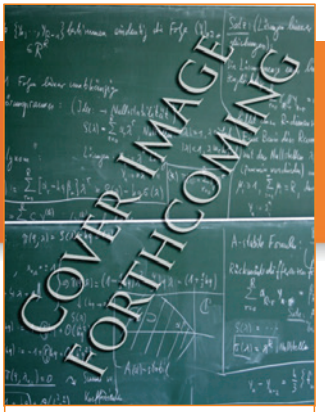

Nanolayer Research

Methodology and Technology for Green Chemistry

Toyoko Imae Research Center for Materials Science, Nagoya University, Chikusa, Nagoya, Japan

ELSEVIER

This book introduces the advancements in nanolayers research emphasizing recent trends, methodologies and technologies from basic to application for green science

KEY FEATURES

- Outlines basic principles of nanolayers
- Includes methodology and technology of nanolayers
- Includes numerous nanolayers applications

DESCRIPTION

Nanolayer Research: Methodology and Technology for Green Chemistry introduces the topic of nanolayer research and current methodology from basic to application for green science. Each chapter is written by a specialist in the specific reaserch area offering a deep coverage of the topic. Nanofilms are explained with the application in mind for electronic devices for smart grids, units for cells, electrodes for butteries, and sensing systems for environmental purposes on the applicable subjects. Therefore, readers can use this book not only as a textbook for basic knowledge but also as a reference book for practical research.

ISBN: 978-0-444-63739-0

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 450

TRIM: 7.5w x 9.25h

AUDIENCE

Colloid and surface chemists, chemists and chemical engineers in academia, government and industrial research labs. The book could also be used as an advanced text for graduate specific courses in colloid/nanotechnology areas

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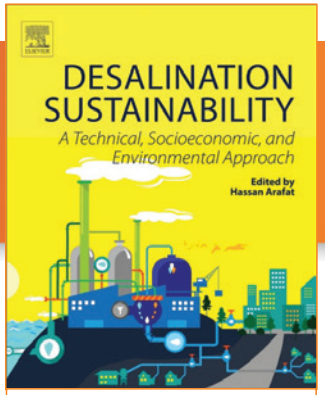

Desalination Sustainability

A Technical, Socioeconomic, and Environmental Approach

Hassan Arafat Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emirates

ELSEVIER

Reviews the desalination process, its current potential and research needs combining technical with economic, environmental, social, and political aspects

ISBN: 978-0-12-809791-5

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 300

TRIM: 7.5w x 9.25h

AUDIENCE

Academic researchers in chemical engineering/ desalination technology, policy makers, social scientists, public utility managers, environmental scientists, cost engineers, renewable energy developers and marketers, as well as desalination technology providers

KEY FEATURES

- Presents the issues related to desalination sustainability
- Guides researchers and technology developers on how to quantify the energy efficiency of a proposed desalination process, using thermodynamics-based tools
- Outlines a clear and practical methodology on how to probe the economic feasibility of desalination using simple but effective tools such as levelized cost of water (LCOW) calculation
- Presents a roadmap for decision makers on the applicability of a desalination process at a particular setting

DESCRIPTION

In *Desalination Sustainability*, a technical, socioeconomical and environmental approach guides researchers and technology developers on how to quantify the energy efficiency of a proposed desalination process, using thermodynamics-based tools. It offers the technical reader, an understanding of the issues related to desalination sustainability. For example, technology users such as public utility managers would gain ability and tools to assess when desalination is a good choice for a city or a country and when it is not. The book provides a clear and practical methodology on how to probe the economic feasibility of desalination using simple but effective tools such as levelized cost of water (LCOW) calculation: an easy roadmap for decision makers to make a preliminary assessment of whether renewable-powered desalination is a good choice for their particular setting.

Current Trends and Future Developments on (Bio-) Membranes

Silica Membranes: Preparation, Modelling, Application, and Commercialization

Angelo Basile Senior Researcher, Institute on Membrane Technology (ITM) Italian National Research Council (CNR), Italy
Kamran Ghasemzadeh

ELSEVIER

A comprehensive coverage of Silica Membranes including theory, preparation, characterization and applications

ISBN: 978-0-444-63866-3
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 450
TRIM: 7.5w x 9.25h

AUDIENCE

Membrane scientists involving in membrane preparation for various applications, chemical engineers and material scientists at undergraduate and particularly graduate students, post-doctoral researchers, and professors. Membrane fabrication companies

KEY FEATURES

- Reviews available methods for silica membranes characterization, preparation
- Includes modelling methods
- Discusses silica membranes applications for hydrogen production
- Discusses silica membranes applications in CO2 capturing
- Discusses silica membranes applications for water treatment
- Discusses silica membranes applications in Pervaporation

DESCRIPTION

In recent years there is a growing research activity on various type of membranes due to the necessity of gas separation and water treatment processes. Many industrial companies and academic centres have focused on finding the best strategy for carrying out the mentioned processes. *Silica membranes: preparation, modelling, application and commercialization* discusses one of the most promising inorganic membranes, namely silica membranes, in different applications. In the field of membrane separation technology, silica membranes play a key role in the future of chemical industry. Silica membranes are one of the most promising alternatives for separations at high temperatures and aggressive media and the latest research findings as well as the potential industrial applications are discussed in detail. The book is a valuable reference for all researchers and engineers in both academia and industry.

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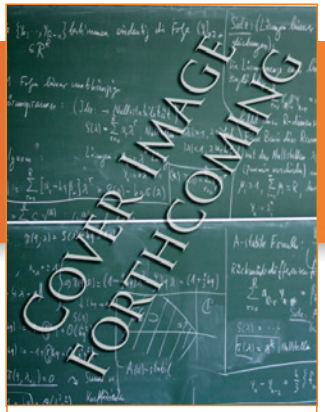


Methanol

Science and Engineering

Angelo Basile Institute on Membrane Technology of the Italian National Research Council, ITM-CNR, c/o University of Calabria, Rende, Italy
Francesco Dalena Chemical Department, University of Calabria, Rende, Italy

ISBN: 978-0-444-63903-5
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 600
TRIM: 7.5w x 9.25h

AUDIENCE

Chemistry and chemical engineers researching catalytic phenomena in an academic /government /industrial research environment , materials scientists. The book is a key reference text for R&D managers in industry interested in the development of bioenergy technologies as well as academic researchers and postgraduate students

A reference book which includes the most advanced production processes, new technologies, different applications, the modelling and also the economic role that this C1 molecule occupies today

KEY FEATURES

- Provides the latest developments on methanol research
- Reviews methanol production methods and their economics
- Outlines the use of methanol as an alternative green transportation fuel
- Includes new technologies, numerous new applications of methanol

DESCRIPTION

Methanol: Science and Engineering provides a comprehensive review of the chemistry, properties current and potential uses and applications of methanol. The book is divided in four parts. The first part gives a detailed account of the current production methods and their economics. The second part deals with the applications of methanol and provides useful insights into the potential future applications. Modelling of the various reactor systems is the topic of the third part whereas the last part reviews the economic and environmental impact of this one chemical. This a must-have book for all researchers and engineers studying alternative sources of energy.

New and Future Developments in Microbial Biotechnology and Bioengineering

Penicillum System Properties and Applications

Edited by: ***Vijai G. Gupta*** Biochemistry School of Natural Sciences, National University of Ireland, Galway, Ireland

ELSEVIER

Reviews advances in penicillum research and its applications in biological control, bioprocess technology, industrial processes, biofuels/bioenergy, and alternative fuel production

ISBN: 978-0-444-63501-3

PUB DATE: May 2017

FORMAT: Hardback

PAGES: c. 450

TRIM: 8.5w x 10.875h

AUDIENCE

Bioengineers, Biochemical Engineers, Biochemist, Biotechnologists, food technologist, enzymologists, and related Professionals/ researchers. Graduate and postgraduate students, researchers and microbiologist, mycologist

KEY FEATURES

- Compiles the latest developments and current studies in the area of the penicillium system
- Contains chapters contributed by top researchers with global appeal
- Includes current applications in the bioindustry and lists future potential applications of these fungi species
- Identifies research needs

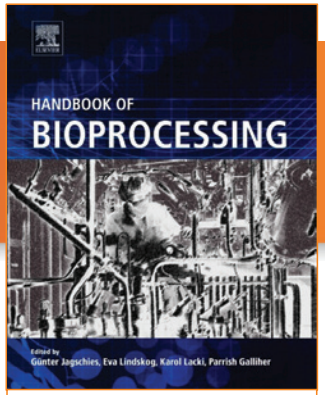
DESCRIPTION

New and Future Developments in Microbial Biotechnology and Bioengineering: Penicillum System Properties and Applications covers important research work on the applications of penicillium from specialists from an International perspective. The book compiles advancements and ongoing processes in the area of the penicillium system, along with updated information on the possibilities for future developments. All chapters are derived from current peer reviewed literature as accepted by the international scientific community.

These important fungi were found to secrete a range of novel enzymes and other useful proteins, and are still being extensively studied and improved for specific use in the food, textile, pulp and paper, biocellulosic ethanol production, and other industries.

The book caters to the needs of researchers/academicians dealing with penicillium spp. related research and applications, outlining emerging issues on recent advancements made in the area of research and its applications in bioprocess technology, chemical engineering, molecular taxonomy, biofuels/bioenergy research, and alternative fuel development.

In addition, the book also describes the identification of useful compound combinations/enzyme cocktails and the fermentation conditions required to obtain them at an industrial scale. Finally, the book provides updated information on the best utilization of these fungi as a natural tool to meet the next challenges of biotechnology.



Handbook of Bioprocessing

Edited by: ***Günter Jagschies*** Senior Director, GE Healthcare, Uppsala, Sweden
Eva Lindskog Upstream Marketing Leader, GE Healthcare, Uppsala, Sweden
Karol Lacki Staff Scientist and Strategic Customer Collaboration Leader, GE Healthcare, Uppsala, Sweden
Parrish M. Galliher Chief Technology Officer, GE Healthcare for the Upstream Bioprocessing Business

ELSEVIER

A complete review of bioprocessing methods and strategies for the development and manufacture of biotherapeutic products

ISBN: 978-0-08-100623-8
PUB DATE: May 2017
FORMAT: Hardback
PAGES: c. 784
TRIM: 7.5w x 9.25h

AUDIENCE

Chemical/biochemical/bioprocess engineers, process chemists, analytical chemists, molecular biologists, microbiologists, biochemists/ biotechnologists, virologists, graduate-level students in these disciplines

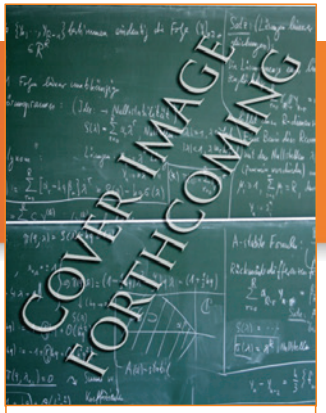
KEY FEATURES

- 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

DESCRIPTION

Handbook of Bioprocessing 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.



Lignocellulosics

Renewable Feedstock for (Tailored) Functional Materials and Nanotechnology

Edited by: ***Ilari Filpponen*** Aalto University, Aalto, Finland
Maria Soledad Peresin Technical Research Centre of Finland, Biologinkuja, Finland
Tiina Nypelö BOKU University of Natural Resources and Life Sciences, Vienna, Austria

ISBN: 978-0-12-804077-5
PUB DATE: May 2017
FORMAT: Hardback
PAGES: c. 10
TRIM: 7.5w x 9.25h

AUDIENCE

Researchers in chemistry, chemical engineering and materials science related to biomaterials and lignocellulosics and those interested in new uses for lignocellulosic biomass (technology and R&D managers) and those concerned with practical applications in the industry (operational management level)

Comprehensive overview on recent advances of using lignocellulosic substrate, describing the functionalization and processing of lignocellulosics via a number of useful examples

KEY FEATURES

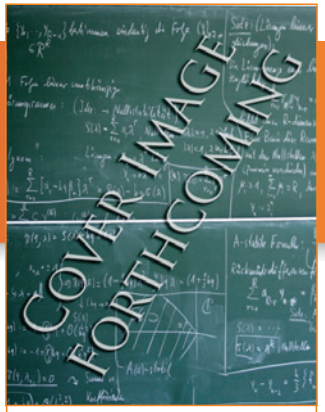
- Provides a detailed description of functional lignocellulosic materials and their properties
- Brings together research advances in the areas of chemistry, chemical engineering, physics, and materials science
- Concentrates on the fundamental properties of lignocellulose
- Includes unique coverage of lignin research

DESCRIPTION

Lignocellulosics: Functional Lignocellulosics and Nanotechnology: Renewable Feedstock for (Tailored) Functional Materials and Nanotechnology gives a comprehensive overview of recent advances in using lignocellulosic substrates in materials science and nanotechnology. The functionalization and processing of lignocellulosics are described via a number of examples that cover films, gels, sensors, pharmaceutics, and energy storage.

In addition to the research related to functional cellulose nanomaterials, there has been an increased interest in research on lignin and lignocellulosics. Lignin is associated with cellulose in plants via biosynthesis, and is commonly extracted from the cellulose material to gain lignin-free raw material of high cellulose content.

In addition, lignin as a valuable material has gained a lot of attention in the last few years. Lignin research has shifted from purely extraction and fundamental characterization, now also focusing on the preparation of exciting materials, such as nanoparticles. This book explains how utilizing biomaterials as a raw material allows ambitious reconstruction of smart materials that are green and multifunctional.



Algal Green Chemistry

Recent progress in Biotechnology

Edited by: ***Rajesh Prasad Rastogi*** BRD School of Biosciences, Sardar Patel University, Anand, Gujarat, India
Datta Madamwar BRD School of Biosciences, Sardar Patel University, Anand, Gujarat, India
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

ISBN: 978-0-444-63784-0

PUB DATE: May 2017

FORMAT: Paperback

PAGES: c. 400

TRIM: 7.5w x 9.25h

AUDIENCE

Chemical and biochemical engineers, biotechnologists, agricultural chemists and environmental engineers associated with the development of algal biotechnology in academic, government, and industrial research. A textbook for graduate/postgraduate students, teachers, and researchers

Highlights the emerging information on green algal technology for the production of diverse chemicals/metabolites and other products of commercial value

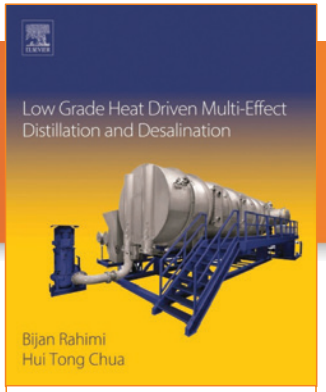
KEY FEATURES

- Discusses high-value chemicals from algae and their industrial applications
- Explores the potential of algae as a renewable source of bioenergy and biofuels
- Considers the potential of algae as feed and super-food
- Presents the role of triggers and cues to algal metabolic pathways
- Includes developments in the use of algae as bio-filters

DESCRIPTION

Algal Green Chemistry: Recent Progress in Biotechnology presents emerging information on green algal technology for the production of diverse chemicals, metabolites, and other products of commercial value. This book describes and emphasizes the emerging information on green algal technology, with a special emphasis on the production of diverse chemicals, metabolites, and products from algae and cyanobacteria.

Topics featured in the book are exceedingly valuable for researchers and scientists in the field of algal green chemistry, with many not covered in current academic studies. It is a unique source of information for scientists, researchers, and biotechnologists who are looking for the development of new technologies in bioremediation, eco-friendly and alternative biofuels, biofertilizers, biogenic biocides, bioplastics, cosmeceuticals, sunscreens, antibiotics, anti-aging, and an array of other biotechnologically important chemicals for human life and their contiguous environment. This book is a great asset for students, researchers, and biotechnologists.



Low Grade Heat Driven Multi-Effect Distillation and Desalination

Hui Tong Chua School of Mechanical and Chemical Engineering, The University of Western Australia, Perth, Australia
Bijan Rahimi Mechanical Engineering, Chemical Engineering, Sharif University of Technology, Water and Energy Research Centre Tehran, Tehran, Iran

ISBN: 978-0-12-805124-5
PUB DATE: May 2017
FORMAT: Paperback
PAGES: c. 250
TRIM: 7.5w x 9.25h

AUDIENCE

Researchers, engineering scientists, graduate students, and industrial practitioners working in desalination, petrochemical and mineral refining sectors

Concise reference that focuses on the emerging synergy between low-grade heat and evaporation/multi-effect distillation

KEY FEATURES

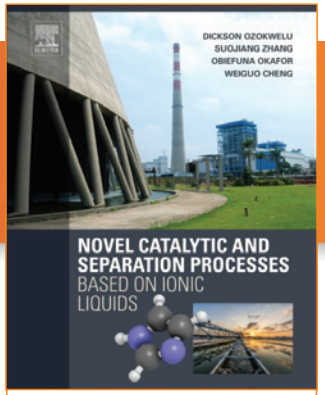
- Focuses on advanced, yet practical, distillation technologies using low-grade sensible heat
- Explains the new design paradigm that must accompany the development of technologies
- Contains key experimental data that serves to prove the core concepts that underpin the new technologies
- Covers extensive thermo-economic analyses of the technologies, the price point for adoption, capital cost comparison with existing technologies, operating costs, and net present values

DESCRIPTION

Low Grade Heat Driven Multi-Effect Distillation and Desalination describes the development of advanced multi-effect evaporation technologies that are driven by low grade sensible heat, including process waste heat in refineries, heat rejection from diesel generators or microturbines, and solar and geothermal energy. The technologies discussed can be applied to desalination in remote areas, purifying produced water in oil-and-gas industries, and to re-concentrate process liquor in refineries.

This book is ideal for researchers, engineering scientists, graduate students, and industrial practitioners working in the desalination, petrochemical, and mineral refining sectors, helping them further understand the technologies and opportunities that relate to their respective industries.

For researchers and graduate students, the core enabling ideas in the book will provide insights and open up new horizons in thermal engineering.



Novel Catalytic and Separation Processes Based on Ionic Liquids

Dickson Ozokwelu Dr. Dickson Ozokwelu Office of Energy Efficiency & Renewable Energy Advanced Manufacturing Office U.S. Department of Energy Maryland, USA
Suojiang Zhang Professor Suojiang Zhang Institute of Process Engineering Chinese Academy of Sciences Beijing, China
Obiefuna Okafor Dr. Obiefuna Okafor Senior Chemical Process Engineer Corning Incorporated New York, USA
Weiguo Cheng Dr. Weiguo Cheng Institute of Process Engineering Chinese Academy of Sciences Beijing, China

ELSEVIER

Details progress on catalytic and separation processes based on ionic liquids and their use in biomass utilization and fine chemicals synthesis

ISBN: 978-0-12-802027-2

PUB DATE: April 2017

FORMAT: Hardback

PAGES: c. 500

TRIM: 7.5w x 9.25h

AUDIENCE

Industrial chemists and engineers, staff and students of R&D in Chemistry, Chemical Engineering, Biology, Environmental and Energy Engineering

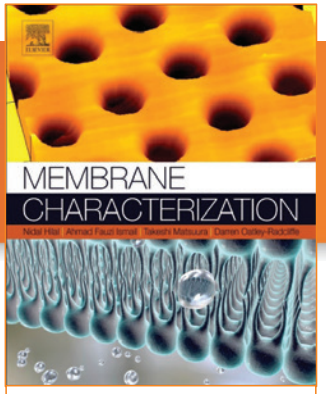
KEY FEATURES

- Presents new preparation and advanced characterization of ionic liquids catalysts
- Outlines catalytic reactions using ionic liquid, thus showing higher yields and selectivity
- Presents novel separation science and technology based on ionic liquids and non-thermal processes

DESCRIPTION

Novel Catalytic and Separation Process Based on Ionic Liquids presents the latest progress on the use of ionic liquids (ILs) in catalytic and separation processes. The book discusses the preparation of ILs, the characterization of IL catalysts by spectroscopic techniques, catalytic reactions over IL catalysts, separation science and technology of ILs, applications in biomass utilization, and synthesis of fine chemicals.

Scientists, engineers, graduate students, managers, decision-makers, and others interested in ionic liquids will find this information very useful. The book can be used as a springboard for more advanced work in this area as it contains both theory and recent applications, research conducted, and developments in separation techniques and catalysis using ionic liquids.



Membrane Characterization

Edited by: ***Nidal Hilal*** Centre for Water Advanced Technologies and Environmental Research (CWATER,) Swansea University, UK
Ahmad Fauzi Ismail Professor, Department of Gas Engineering, Faculty of Chemical and Natural Resources Engineering, Universiti Teknologi Malaysia, Johor, Malaysia
Takeshi Matsuura Professor, Faculty of Engineering, Chemical and Biological Engineering, The University of Ottawa, Ottawa ON, Canada
Darren Oatley-Radcliffe College of Engineering, Swansea University, UK

ELSEVIER

A detailed account of membrane characterization techniques and their specific application and performance

KEY FEATURES

- Features specific details on many membrane characterization techniques for various membrane materials of industrial and academic interest
- Contains examples of international best practice techniques for the evaluation of several membrane parameters, including pore size, charge, and fouling
- Discusses various membrane models more suitable to a specific application
- Provides examples of ab initio calculations for the design, optimization, and scale-up of processes based on characterization data

DESCRIPTION

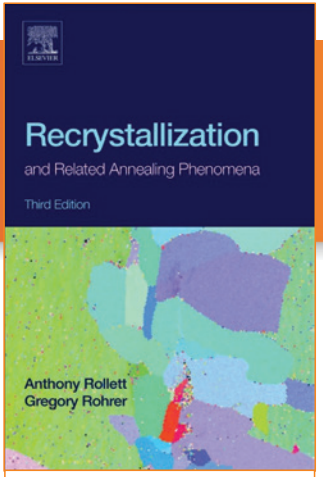
Membrane Characterization provides a valuable source of information on how membranes are characterized, an extremely limited field that is confined to only brief descriptions in various technical papers available online.

For the first time, readers will be able to understand the importance of membrane characterization, the techniques required, and the fundamental theory behind them. This book focuses on characterization techniques that are normally used for membranes prepared from polymeric, ceramic, and composite materials.

ISBN: 978-0-444-63776-5
PUB DATE: April 2017
FORMAT: Paperback
PAGES: c. 400
TRIM: 7.5w x 9.25h

AUDIENCE

Membrane scientists involved in membrane preparation for various applications; chemical engineers and material scientists; students at the upper undergraduate and graduate levels; post-doctoral researchers; and professors; Membrane manufacturers



Recrystallization and Related Annealing Phenomena, 3e

Anthony Rollett Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, USA
Gregory S. Rohrer Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, USA

ELSEVIER

Invaluable reference on topics in biotechnology for those interested in the latest in applied microbiology

ISBN: 978-0-08-098235-9
PREVIOUS EDITION ISBN: 978-0-08-044164-1
PUB DATE: March 2017
FORMAT: Hardback
PAGES: c. 680
TRIM: 7.5w x 9.25h

AUDIENCE

Graduate through active materials scientists and materials engineers in industry involved in the characterization, modelling and thermal treatment of metals

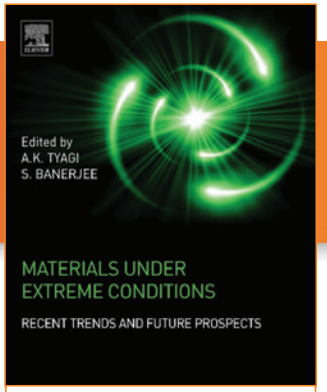
KEY FEATURES

- Includes over 50% of new, revised, and updated material, highlighting the significant recent literature results in grain growth in non-crystallizing systems, 3D characterization techniques, quantitative modeling techniques, and all-new appendices on texture and measurements
- Contains synthesized, detailed coverage from leading authors that bridge the gap between theory and practice
- Includes a critical level of synthesis and pedagogy with an authored rather than edited volume

DESCRIPTION

Recrystallization and Related Annealing Phenomena, Third Edition, fulfills the information needs of materials scientists in both industry and academia. The subjects treated in the book are all active research areas, forming a major part of at least four regular international conference series. This new third edition ensures the reader has access to the latest findings, and is essential reading to those working in the forefront of research in universities and laboratories.

For those in industry, the book highlights applications of the research and technology, exploring, in particular, the significant progress made recently in key areas such as deformed state, including deformation to very large strains, the characterization of microstructures by electron backscatter diffraction, the modeling and simulation of annealing, and continuous recrystallization.



Materials Under Extreme Conditions

Recent Trends and Future Prospects

Edited by: ***A.K. Tyagi*** Head, Solid State Chemistry Section, Chemistry Division, Bhabha Atomic Research Centre (BARC), Mumbai, India, and Professor of Chemistry, Homi Bhabha National Institute (HBNI), Mumbai, India
S Banerjee DAE Homi Bhabha Chair Professor, Bhabha Atomic Research Centre (BARC), Mumbai, India

ELSEVIER

Comprehensive overview of research highlights on chemical transformation and decomposition of materials exposed to extreme conditions

ISBN: 978-0-12-801300-7
PUB DATE: March 2017
FORMAT: Hardback
PAGES: c. 700
TRIM: 7.5w x 9.25h

AUDIENCE

Researchers in academia and industry and technologists in chemical engineering, materials chemistry, chemistry, condensed matter physics

KEY FEATURES

- Describes and analyzes the chemical transformation and decomposition of a wide range of materials exposed to extreme conditions
- Brings together information currently scattered across the Internet or incoherently dispersed amongst journals and proceedings
- Presents chapters on phenomena, materials synthesis, and processing, characterization and properties, and applications
- Written by established researchers in the field

DESCRIPTION

Materials Under Extreme Conditions: Recent Trends and Future Prospects analyzes the chemical transformation and decomposition of materials exposed to extreme conditions, such as high temperature, high pressure, hostile chemical environments, high radiation fields, high vacuum, high magnetic and electric fields, wear and abrasion related to chemical bonding, special crystallographic features, and microstructures.

The materials covered in this work encompass oxides, non-oxides, alloys and intermetallics, glasses, and carbon-based materials. The book is written for researchers in academia and industry, and technologists in chemical engineering, materials chemistry, chemistry, and condensed matter physics.

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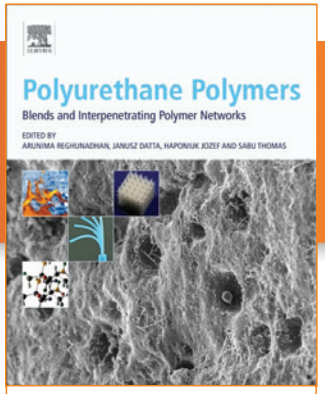


Polyurethane Polymers

Blends and Interpenetrating Polymer Networks

Edited by: ***Sabu Thomas*** Mahatma Gandhi University, Kerala, India
Januscz Datta Department of Polymers Technology, Gdansk University of Technology, Gdansk, Poland
Haponiuk Jozef Professor, Head of Department, Department of Polymers Technology, Gdansk University of Technology, Gdansk, Poland
Arunima Warrier International and Interuniversity Centre for Nanosciences and Nanotechnology (IIUCNN), Mahatma Gandhi University, Priyadarshini Hills, Kottayam, Kerala, India

ELSEVIER

Comprising two volumes, this book discusses polyurethane blends and composites, including their synthesis, processing, characterization, properties, and recycling

ISBN: 978-0-12-804039-3

PUB DATE: March 2017

FORMAT: Hardback

PAGES: c. 600

TRIM: 7.5w x 9.25h

AUDIENCE

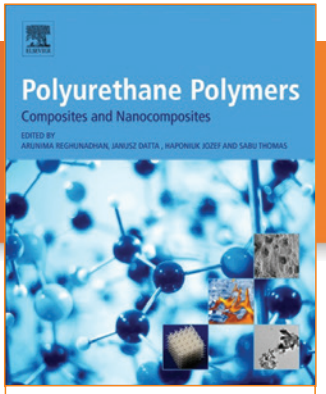
Graduates and postgraduates, engineers, research scholars (primarily in the field of chemical engineering, polymer chemistry, materials science, and polymer physics), polymer engineers and polymer technologists from industries and also for those who are working in biomedical field. Professionals, researchers, industrial practitioners, graduate students, and senior undergraduates in the fields of polymer science, surface science, bioengineering and chemical engineering, and materials science

KEY FEATURES

- Provides an elaborate coverage of the chemistry of polyurethane, including its synthesis and properties
- Includes available characterization techniques
- Relates types of polyurethanes to their potential properties
- Discusses blends options

DESCRIPTION

Polyurethane Polymers: Blends and Interpenetrating Networks deals with almost all aspects of blends and IPNs formed by polyurethane, including the thermal, mechanical, morphological, and viscoelastic properties of each blend presented in the book. In addition, major applications related to these blends and IPNs are mentioned.



Polyurethane Polymers

Composites and Nanocomposites

Edited by: ***Sabu Thomas*** Mahatma Gandhi University, Kerala, India
Januscz Datta Department of Polymers Technology, Gdansk University of Technology, Gdansk, Poland
Haponiuk Jozef Professor, Head of Department, Department of Polymers Technology, Gdansk University of Technology, Gdansk, Poland
Arunima Warrier International and Interuniversity Centre for Nanosciences and Nanotechnology (IIUCNN), Mahatma Gandhi University, Priyadarshini Hills, Kottayam, Kerala, India

ELSEVIER

Discuss almost all aspects of polyurethane blends and composites, including their synthesis, processing, characterization, properties, and recycling

ISBN: 978-0-12-804065-2

PUB DATE: March 2017

FORMAT: Hardback

PAGES: c. 600

TRIM: 7.5w x 9.25h

AUDIENCE

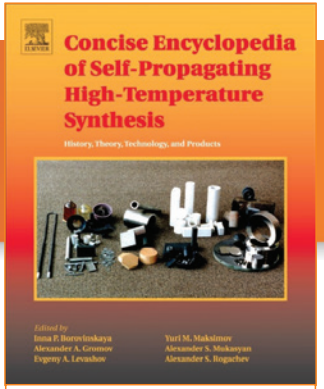
Graduates and postgraduates, engineers, research scholars (primarily in the field of chemical engineering, polymer chemistry, material science, and polymer physics), polymer engineers and polymer technologists from industries and also for those who are working in biomedical field. Professionals, researchers, industrial practitioners, graduate students, and senior undergraduates in the fields of polymer science, surface science, bioengineering and chemical engineering, and materials science

KEY FEATURES

- Provides an elaborate coverage of the chemistry of polyurethane, its synthesis, and properties
- Includes available characterization techniques
- Relates types of polyurethanes to their potential properties
- Discusses composites, nanocomposites options, and PU recycling

DESCRIPTION

Polyurethane Polymers: Composites and Nanocomposites concentrates on the composites and nanocomposites of polyurethane based materials. Polyurethane composites are a very important class of materials widely used in the biomedical and industrial field that offer numerous potential applications in many areas. This book discusses current research and identifies future research needs in the area.



Concise Encyclopedia of Self-Propagating High-Temperature Synthesis

History, Theory, Technology, and Products

Edited by: ***Inna Borovinskaya*** Institute of Structural Macrokinetics and Materials Science, Russian Academy of Sciences, Chernogolovka,Russia; ***Alexander Gromov*** Nuremberg Technical University Georg Simon Ohm, Nuremberg, Germany ; ***Evgeny Alexandrovich Levachov*** Division of Powder Metallurgy and Functional Coatings, National University of Science and Technology, Moscow, Russia ; ***Yuri Maksimov*** Department for Structural Macrokinetics of the Tomsk Science Center, Siberian Branch of the Russian Academy of Sciences, Tomsk, Russia; ***Alexander Mukasyan*** Department of Chemical and Biomolecular Engineering, University of Notre Dame, IN, USA ; ***Alexander Sergeevich Rogachev*** Institute of Structural Macrokinetics and Materials Science, Russian Academy of Sciences, Chernogolovka, Russia

Provides an in-depth description of the chemistry and physics, reactions, materials, and processes of self-propagating high-temperature synthesis and combustion synthesis

ISBN: 978-0-12-804173-4

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 500

TRIM: 7.5w x 9.25h

AUDIENCE

Graduate students and researchers in academia and industry working in the field of combustion chemistry and chemical engineering

KEY FEATURES

- Written by high-level experts in the field from all continents, along with editors who are are founders of the field
- Includes new phenomena, such as acoustics and high-energy reactions in combustion synthesis
- Provides an in-depth description of the chemistry and physics, reactions, materials, and processes of self-propagating high-temperature synthesis and combustion synthesis

DESCRIPTION

Concise Encyclopedia of Self-Propagating High-Temperature Synthesis: History, Theory, Technology, and Products helps students and scientists understand the fundamental concepts behind self-propagating high-temperature synthesis (SHS). The book provides an in-depth description of the whole spectrum of the chemistry, physics, reactions, materials, and processes of self-propagating high-temperature synthesis.

New phenomena, such as acoustics and other emissions and high-energy reactions in combustion synthesis are also featured, making the book an indispensable resource for researchers in academia, industry, and research institutes who deal with the production and characterization of SHS all over the world.

CHEMISTRY

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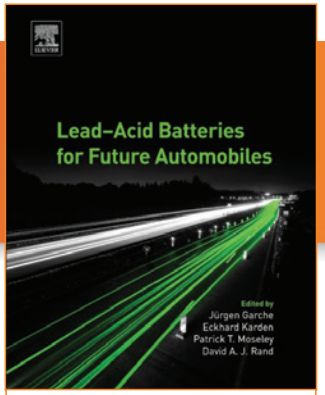


Lead-Acid Batteries for Future Automobiles

Edited by: ***Jürgen Garche*** Fuel Cell and Battery Consulting, Ulm, Germany
Eckhard Karden Ford Motor Company, Research and Innovation Centre (RIC), Aachen, Germany
Patrick T. Moseley International Lead Zinc Research Organization Inc., Durham, North Carolina, USA
David A. J. Rand CSIRO Energy Flagship, Clayton, Australia

ELSEVIER

Describes how lead-based battery systems could dominate in the micro and mild hybrid EV markets, exploring obstacles and technical developments

ISBN: 978-0-444-63700-0

PUB DATE: March 2017

FORMAT: Hardback

PAGES: c. 550

TRIM: 7.5w x 9.25h

AUDIENCE

The main audience is the R&D community ie, chemists, chemical engineers who must develop a LAB with high power, lifetime and low cost. The book mainly has a scientific character but it also gives practical guidelines for applications of LABs in hybrid cars, downsizing concepts and standards/tests

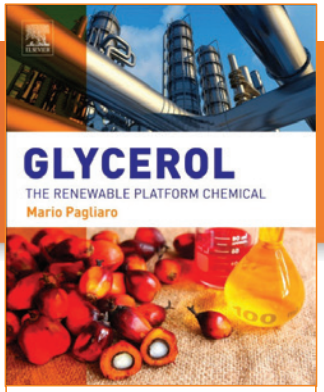
KEY FEATURES

- Presents an overview of development trends for future automobiles and the demands that they place on the battery
- Describes how to adapt LABs for use in micro and mild hybrid EVs via collector construction and materials, via carbon additives, via new cell construction (bipolar), and via LAB hybrids with Li-ion and supercap systems
- System integration of LABs into vehicle power-supply and hybridization concepts
- Short description of competitive battery technologies

DESCRIPTION

Lead-Acid Batteries for Future Automobiles provides an overview on the innovations that were recently introduced in automotive lead-acid batteries and other aspects of current research. Innovative concepts are presented, some of which aim to make lead-acid technology a candidate for higher levels of powertrain hybridization, namely 48-volt mild or high-volt full hybrids.

Lead-acid batteries continue to dominate the market as storage devices for automotive starting and power supply systems, but are facing competition from alternative storage technologies and being challenged by new application requirements, particularly related to new electric vehicle functions and powertrain electrification.



Glycerol

The Renewable Platform Chemical

Mario Pagliaro Istituto per lo Studio dei Materiali Nanostrutturati, CNR Palermo, Italy

ISBN: 978-0-12-812205-1

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 220

TRIM: 7.5w x 9.25h

AUDIENCE

Research chemists and chemical engineers in the chemical, oleochemical, biodiesel, biotechnology and cement industries as well as in academia

Completely unique information and insight on the chemical applications of glycerol, also known as glycerine, as raw material

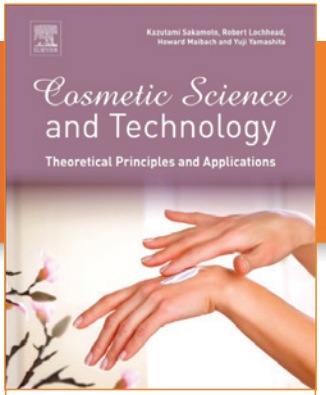
KEY FEATURES

- Features completely unique information and insight from leading expert Mario Pagliaro, including recent developments in the field, gathered in over a decade of intense R&D activities
- Includes new chapters on the glycerol market, glycerol polymers, the use of glycerol in the cement and construction industries, its use an antifreeze, and its sustainable production
- Contains reliable, accessible information appropriate for research chemists and chemical engineers in the chemical, oleochemicals, biodiesel, biotechnology and cement industries as well as in academia; industry professionals; management consultants and market analysts

DESCRIPTION

Glycerol: The Renewable Platform Chemical provides a valuable overview of the glycerol market, including industrial applications and sustainable production of glycerol. Replacing previous works on the subject, this useful resource describes glycerol, also known as glycerine, and its chemical derivatives, especially the new bioglycerol-derived products. The monograph also discusses how the industrial use of glycerol as raw material for producing commodity chemicals depends on broader scope and lower cost of the catalytic process used to convert glycerol of varying purity grades into valued monomers. New chapters on glycerol polymers, the use of glycerol as antifreeze, and its sustainable production offer new and practically relevant information for researchers and professionals from academy and industry alike.

Glycerol: The Renewable Platform Chemical features new processes beginning to be commercialized, such as low cost and biocompatible glycerol polymers as a major alternative to the conventional polymers, with the first practical applications now emerging in the biomedical and patient care markets. The book offers both a source of inspiration for new projects and a reliable source of information on how glycerol is replacing petrochemicals in many real world applications.



Cosmetic Science and Technology: Theoretical Principles and Applications

Edited by: ***Kazutami Sakamoto*** Professor, Fellow of the Chemical Society of Japan, Faculty of Pharmacy, Chiba Institute of Science, Choshi-city, Chiba, Japan
Howard Lochhead School of Polymers and High Performance Materials, The Univ. of Southern Mississipi, Hattiesburg, MS, USA
Howard Maibach Professor of Dermatology, University of California, San Francisco, USA
Yuji Yamashita Chiba Institute of Science, 3 Shiomicho, Choshi, Chiba Prefecture, Japan

ELSEVIER

Comprehensive source on the science and technology of cosmetics, their properties, formulation, uses, function, and dermatological and toxicological effects

ISBN: 978-0-12-802005-0
PUB DATE: February 2017
FORMAT: Hardback
PAGES: c. 600
TRIM: 8.5w x 10.875h

AUDIENCE

Chemical engineers, chemists, physical chemists and cosmetic chemists in cosmetics research and development, dermatologists, toxicologists

KEY FEATURES

- Covers the science, preparation, function, and interaction of cosmetic products with skin
- Addresses safety and environmental concerns related to cosmetics and their use
- Provides a graphical summary with short introductory explanation for each topic
- Relates product type performance to its main components
- Describes manufacturing methods of oral care cosmetics and body cosmetics in a systematic manner

DESCRIPTION

Cosmetic Science and Technology: Theoretical Principles and Applications covers the fundamental aspects of cosmetic science that are necessary to understand material development, formulation, and the dermatological effects that result from the use of these products. The book fulfills this role by offering a comprehensive view of cosmetic science and technology, including environmental and dermatological concerns.

As the cosmetics field quickly applies cutting-edge research to high value commercial products that have a large impact in our lives and on the world's economy, this book is an indispensable source of information that is ideal for experienced researchers and scientists, as well as non-scientists who want to learn more about this topic on an introductory level.

CHEMISTRY

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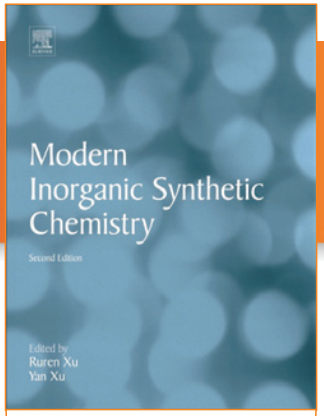


Modern Inorganic Synthetic Chemistry, 2e

Edited by: ***Ruren Xu*** State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, China
Yan Xu State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, Changchun, China

ELSEVIER

Provides fundamental knowledge of inorganic synthesis of distinct compounds, functional materials and inorganic aggregates using biomimetic, rational design synthesis and biocatalysis

ISBN: 978-0-444-63591-4
PREVIOUS EDITION ISBN: 9780444535993
PUB DATE: February 2017
FORMAT: Hardback
PAGES: c. 778
TRIM: 8.5w x 10.875h

AUDIENCE

Researchers, teachers and graduate students as well as engineers, in chemical engineering, physical and inorganic chemistry and materials science/chemistry. Researchers and engineers in the chemical and materials industry

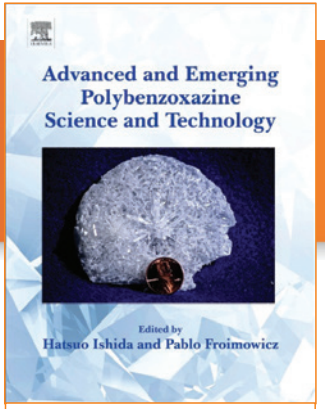
KEY FEATURES

- Focuses on the chemistry of inorganic synthesis, assembly, and organization of wide-ranging inorganic systems
- Covers all major methodologies of inorganic synthesis
- Provides state-of-the-art synthetic methods
- Includes real examples in the organization of complex inorganic functional materials
- Contains more than 4000 references that are all highly reflective of the latest advancement in inorganic synthetic chemistry
- Presents a comprehensive coverage of the key issues involved in modern inorganic synthetic chemistry as written by experts in the field

DESCRIPTION

Modern Inorganic Synthetic Chemistry, Second Edition captures, in five distinct sections, the latest advancements in inorganic synthetic chemistry, providing materials chemists, chemical engineers, and materials scientists with a valuable reference source to help them advance their research efforts and achieve breakthroughs.

Section one includes six chapters centering on synthetic chemistry under specific conditions, such as high-temperature, low-temperature and cryogenic, hydrothermal and solvothermal, high-pressure, photochemical and fusion conditions. Section two focuses on the synthesis and related chemistry problems of highly distinct categories of inorganic compounds, including superheavy elements, coordination compounds and coordination polymers, cluster compounds, organometallic compounds, inorganic polymers, and nonstoichiometric compounds. Section three elaborates on the synthetic chemistry of five important classes of inorganic functional materials, namely, ordered porous materials, carbon materials, advanced ceramic materials, host-guest materials, and hierarchically structured materials. Section four consists of four chapters where the synthesis of functional inorganic aggregates is discussed, giving special attention to the growth of single crystals, assembly of nanomaterials, and preparation of amorphous materials and membranes. The new edition's biggest highlight is Section five where the frontier in inorganic synthetic chemistry is reviewed by focusing on biomimetic synthesis and rationally designed synthesis.



Advanced and Emerging Polybenzoxazine Science and Technology

Edited by: ***Hatsuo Ishida*** Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, Ohio, USA
Pablo Froimowicz Institute of Technology in Polymers and Nanotechnology, (UBA-CONICET) University of Buenos Aires, (Buenos Aires, Argentina).

ELSEVIER

Introduces advanced topics of benzoxazine resins and polybenzoxazines as presented through the collaboration of leading experts in the benzoxazine community

ISBN: 978-0-12-804170-3
PUB DATE: February 2017
FORMAT: Hardback
PAGES: c. 700
TRIM: 7.5w x 9.25h

AUDIENCE

All research areas, including academia, governmental institutions, and industries spread throughout the world. Chemists, chemical engineers, material scientists, material process engineers, polymer scientists, composite manufacturers, aerospace engineers

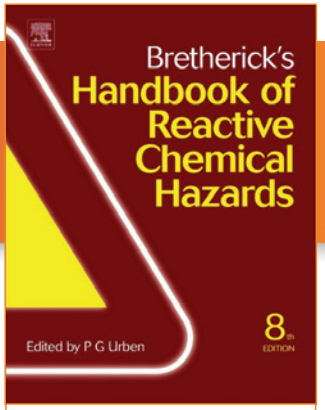
KEY FEATURES

- Includes the latest advancements in benzoxazine chemistry
- Describes advanced materials, such as aerogels, carbons, smart coatings, nanofibers, and shape memory materials
- Includes additional characterization data and techniques, such as FT-IR, Raman, NMR, DSC, and TGA analyses

DESCRIPTION

Advanced and Emerging Polybenzoxazine Science and Technology introduces advanced topics of benzoxazine resins and polybenzoxazines as presented through the collaboration of leading experts in the benzoxazine community, representing the authoritative introduction to the subjects. Broad topics covered include the recent development and improved understanding of the subjects, including low temperature cure, aerogels and carbon aerogels, smart chemistry in fire retarding materials and coatings, metal containing benzoxazines, rational design of advanced properties, and materials from natural renew.

In the past twenty years, the number of papers on polybenzoxazine has continuously increased at an exponential rate. During the past three years, the number of papers published is more than the previous 17 years combined. The material is now part of only a few successfully commercialized polymers in the past 35 years. Therefore, interest in this material in both academia and industry is very strong.



Bretherick's Handbook of Reactive Chemical Hazards, 8e

Edited by: ***PETER URBEN*** Consultants Courtaulds Chemicals, (Suisse) S.A., Warwickshire, UK

ELSEVIER

Essential reading for those working with chemicals that includes every chemical for which documented information on reactive hazards is available

ISBN: 978-0-08-100971-0

PREVIOUS EDITION ISBN: 97801237325639

PUB DATE: February 2017

FORMAT: Hardback

PAGES: c. 1180

TRIM: 8.5w x 10.875h

AUDIENCE

Industrial chemists, chemical lab workers, chemical engineers, university chemistry labs, research centers, chemical safety experts and consultants

KEY FEATURES

- Includes new pure compound/class of compounds records and updates on all existing records
- Presents a worldwide unique reference work on chemical reactive hazards
- Lists important hazardous reactions and includes references to real chemical incidents
- Provides guidelines on the safe use and handling of chemicals In the lab and industry

DESCRIPTION

Bretherick's Handbook of Reactive Chemical Hazards, Eighth Edition presents the latest updates on the unexpected, but predictable, loss of containment and explosion hazards from chemicals and their admixtures and actual accidents. The extensively cross-referenced book enables readers to avoid explosion and loss of containment of chemicals.

Primary and more specialized sources are easily traced, and this new edition includes available record updates, also adding a number of new records. In this newly updated and expanded edition, the content is presented in a clear and user-friendly format.

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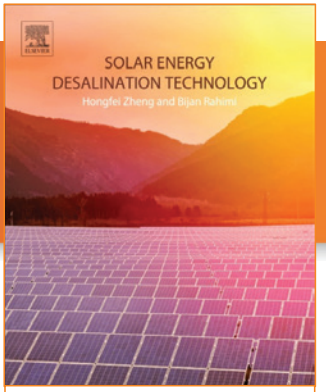


Solar Energy Desalination Technology

Hongfei Zheng Beijing Institute of Technology, Beijing, China

ELSEVIER

Concise reference explaining the fundamental principles of how to obtain clean water from the sea using solar thermal energy

ISBN: 978-0-12-805411-6

PUB DATE: February 2017

FORMAT: Paperback

PAGES: c. 250

TRIM: 7.5w x 9.25h

AUDIENCE

Students, chemical engineers, and researchers working in the field of solar desalination of seawater

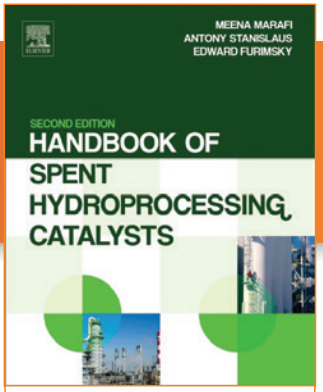
KEY FEATURES

- Explains the principles of solar thermal energy usage to produce clean water from sea water
- Introduces and explains new kinds of solar desalination systems, including their technical level and working principle
- Provides fundamental knowledge on water treatment and solar collection

DESCRIPTION

Solar Energy Desalination Technology explains how to obtain clean water from sea water using solar energy. Special methods and types used in solar desalination are introduced, providing new thoughts, concepts, and feasible solutions in the desalination field, along with the thermal and economic efficiency relating to current technology.

Many places in the world are suffering from fresh water shortage. However, those places are often rich with solar resources, sea water, and/or brackish water resources that could dramatically benefit from solar energy as a viable solution for the production of fresh water.



Handbook of Spent Hydroprocessing Catalysts, 2e

Meena Marafi Petroleum Refining Department, Petroleum Research and Studies Center, Kuwait Institute for Scientific Research, Safat, Kuwait
Anthony Stanislaus Petroleum Refining Department, Petroleum Research and Studies Center, Kuwait Institute for Scientific Research, Safat, Kuwait
Edward Furimsky Research Scientific, IMAF Group, Canada

ELSEVIER

Comprehensive coverage of all aspects of spent hydroprocessing catalysts, including reuse after regeneration and utilization schemes for non-reusable catalysts

ISBN: 978-0-444-63881-6
PREVIOUS EDITION ISBN: 9780444535566
PUB DATE: February 2017
FORMAT: Paperback
PAGES: c. 400
TRIM: 7.5w x 9.25h

AUDIENCE

Chemists and chemical engineers in catalysis as well as to catalyst regenerators, catalyst manufacturers, metal reclaiming companies as well as governments and agencies involved in regulatory affairs. For decision makers, the *Handbook* serves as guidance with respect to developing new and improving existing strategic options for the refining industry

KEY FEATURES

- Includes experimental results and testing protocols which serve as a basis for the development of methodologies for the characterization of solid wastes
- Presents a database which assists researchers in selecting/designing research projects on spent catalysts, i.e., regeneration vs. rejuvenation and metal reclamation
- Provides the environmental laws, acts, and liabilities to raise awareness in safety and health issues in all aspects of spent catalysts
- Contains solid waste management procedures specific to hydroprocessing that serve as a model for designing research projects in other solid waste areas

DESCRIPTION

Handbook of Spent Hydroprocessing Catalysts, Second Edition, covers all aspects of spent hydroprocessing catalysts, both regenerable and non-regenerable. It contains detailed information on hazardous characteristics of spent and regenerated catalysts. The information forms a basis for determining processing options to make decisions on whether spent catalysts can be either reused on refinery site after regeneration or used as the source of new materials.

For non-regenerable spent catalysts, attention is paid to safety and ecological implications of utilizing landfill and other waste handling and storage options to ensure environmental acceptance. As such, this handbook can be used as a benchmark document to develop threshold limits of regulated species.

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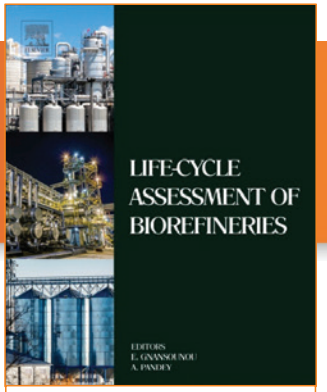


Life-Cycle Assessment of Biorefineries

Edited by: ***Edgard Gnansounou*** Professor of modelling and planning of Energy Systems, Ecole Polytechnique Federale de Lausanne, Switzerland
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

ELSEVIER

Presents comprehensive information on the basics of lifecycle assessment and its relationship and impact on fuel policies and integrated biorefineries

ISBN: 978-0-444-63585-3
PUB DATE: January 2017
FORMAT: Hardback
PAGES: c. 300
TRIM: 7.5w x 9.25h

AUDIENCE

Primary readers are chemist and (bio) chemical engineering PG/PhD students; Postdoctorate researchers in academia and industry; Engineers (process engineers) in bio-industries; consultants and policy makers. The book is useful for students and researchers engaged in postgraduate or masters programs leading to MSc, MTech or MS degree in Biotechnology, Industrial Biotechnology, Biochemical Engineering, Biological Engineering, Biotechnology & Bioengineering, Biomedical Engineering.

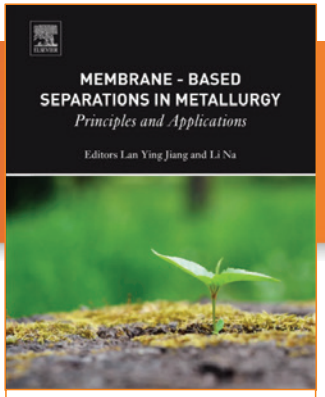
KEY FEATURES

- Provides state-of-art information on the basics and fundamental principles of LCA for biorefineries
- Contains key features for the education and understanding of integrated biorefineries
- Presents models that are used to cope with land-use changes and their effects on biorefineries
- Includes relevant case studies that illustrate main points

DESCRIPTION

Life-Cycle Assessment of Biorefineries, the sixth and last book in the series on biomass-biorefineries discusses the unprecedented growth and development in the emerging concept of a global bio-based economy in which biomass-based biorefineries have attained center stage for the production of fuels and chemicals.

It is envisaged that by 2020 a majority of chemicals currently being produced through a chemical route will be produced via a bio-based route. Agro-industrial residues, municipal solid wastes, and forestry wastes have been considered as the most significant feedstocks for such bio-refineries. However, for the techno-economic success of such biorefineries, it is of prime and utmost importance to understand their lifecycle assessment for various aspects.



Membrane-Based Separations in Metallurgy

Principles and Applications

Edited by: ***Lan Ying Jiang*** School of Metallurgy and Environment, Central South University (Main Campus), Hunan, China
Li Na Department of Chemical Engineering, School of Chemical Engineering and Technology, Xi'an Jiaotong University, Shannxi, China

ELSEVIER

The book is a unique reference to the application of membrane separations in the metallurgical industry that comprehensively outlines metallurgy background, the fundamentals of membrane separations, separation process design, and all of the socioeconomic and environmental benefits of these technologies

ISBN: 978-0-12-803410-1
PUB DATE: December 2016
FORMAT: Hardback
PAGES: c. 362
TRIM: 7.5w x 9.25h

AUDIENCE

Chemists; chemical and metallurgical engineers; membrane technologists; environmental engineers in academia, research and industry, developers and manufacturers of membranes

KEY FEATURES

- Outlines membrane separation processes and their use in the field of metallurgy
- Includes case studies and examples of various processes
- Describes individual unit operations and sectors of extractive metallurgy in a clear and thorough presentation for students and engineers
- Provides a quick reference to wastewater treatment using membrane technology in the metallurgical industry
- Outlines the design of flowsheets, a topic that is not covered in academic studies, but is necessary for the design of working process
- Provides examples and analysis of the economic implications and environmental and social impacts

DESCRIPTION

Membrane-Based Separation in Metallurgy: Principles and Applications begins with basic coverage of the basic principles of the topic and then explains how membrane technology helps in the development of new environmentally friendly and sustainable metallurgical processes.

The book features the principles of metallurgical process and how widely the membrane-based technology has been applied in metallurgical industry, including the basic principles of membrane-based separation in terms of material science, membrane structure engineering, transport mechanisms, and module design, detailed metallurgical process flowcharts with emphasis on membrane separations, current process designs, and describes problems and provides possible solutions.

In addition, the book includes specific membrane applications, molecular design of materials, fine tuning of membrane's multi-scale structure, module selection and process design, along with a final analysis of the environmental and economic benefits achieved by using these new processes.

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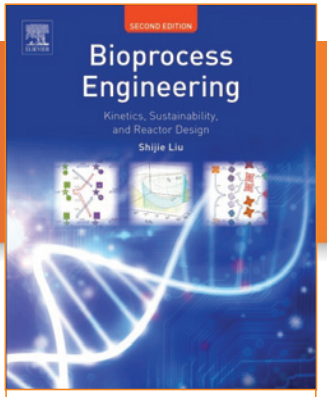


Bioprocess Engineering, 2e

Kinetics, Sustainability, and Reactor Design

Shijie Liu College of Environmental Science and Forestry (SUNY ESF), State University of New York, NY, USA

ELSEVIER

This updated edition contains systematic and comprehensive coverage of biological and chemical transformations, their kinetics, performance, design, sustainability, and more

ISBN: 978-0-444-63783-3

PREVIOUS EDITION ISBN: 9780444595256

PUB DATE: October 2016

FORMAT: Hardback

PAGES: c. 1152

TRIM: 7.5w x 9.25h

AUDIENCE

Senior undergraduate students and graduate students in Chemical and Bioprocess Engineering and Biological Engineering Research Engineers and Scientists in Biotechnology and Bioprocess Design

KEY FEATURES

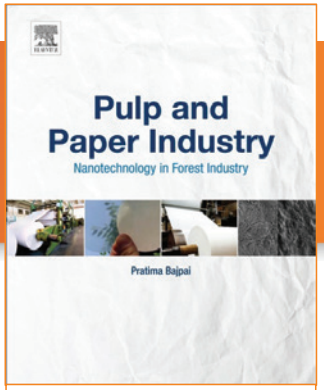
- Includes the mechanistic description of biotransformations and chemical transformations
- Provides quantitative descriptions of bioprocesses
- Contains extensive illustrative drawings, which make the understanding of the subject easy
- Includes bioprocess kinetics and reactor analysis
- Contains examples of the various process parameters, their significance, and their specific practical use
- Incorporates sustainability concepts into the various bioprocesses

DESCRIPTION

Bioprocess Engineering: Kinetics, Sustainability, and Reactor Design, Second Edition, provides a comprehensive resource on bioprocess kinetics, bioprocess systems, sustainability, and reaction engineering. Author Dr. Shijie Liu reviews the relevant fundamentals of chemical kinetics, batch and continuous reactors, biochemistry, microbiology, molecular biology, reaction engineering, and bioprocess systems engineering, also introducing key principles that enable bioprocess engineers to engage in analysis, optimization, and design with consistent control over biological and chemical transformations.

The quantitative treatment of bioprocesses is the central theme in this book, with more advanced techniques and applications being covered in depth. This updated edition reflects advances that are transforming the field, ranging from genetic sequencing, to new techniques for producing proteins from recombinant DNA, and from green chemistry, to process stability and sustainability.

The book introduces techniques with broad applications, including the conversion of renewable biomass, the production of chemicals, materials, pharmaceuticals, biologics, and commodities, medical applications, such as tissue engineering and gene therapy, and solving critical environmental problems.



Pulp and Paper Industry

Nanotechnology in Forest Industry

Pratima Bajpai Consultant-Pulp and Paper, Thapar Centre for Industrial R&D, Patiala, India

ELSEVIER

Presents in-depth coverage of nanocellulose focusing on developments, challenges and opportunities in the nanocellulose market, identifies the key barriers to innovation, and the breakthroughs required to make nanocellulosic materials viable alternatives in this important sector

ISBN: 978-0-12-811101-7

PUB DATE: September 2016

FORMAT: Paperback

PAGES: c. 240

TRIM: 7.5w x 9.25h

AUDIENCE

Foresters, Material Scientists, Pulp and Paper Technologists/ Engineers, Senior Paper Scientists, Applied Chemists, Chemical Engineers, Professionals, Academics, Analysts, Consultants

KEY FEATURES

- 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

DESCRIPTION

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.

Current Developments in Biotechnology and Bioengineering

Foundations of Biotechnology and Bioengineering

Edited by: ***Ashok Pandey*** Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)
Jose Antonio Couto Teixeira Full Professor and Head of the Biological Engineering Research Center (CEB), School of Engineering, University of Minho, Portugal

Provides the principles and foundations of biotechnology and bioengineering for researchers in the area of industrial biotechnology

ISBN: 978-0-444-63668-3
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 280
TRIM: 7.5w x 9.25h

AUDIENCE

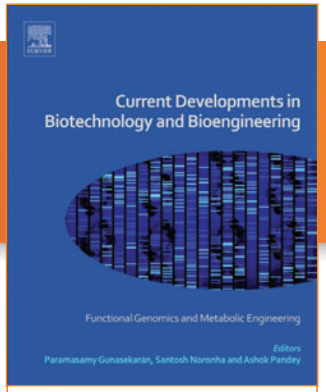
Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

KEY FEATURES

- Provides state-of-art information on basics and fundamental principles of biotechnology and bioengineering
- Supports the education and understanding of biotechnology education and R&D
- Contains advanced content for researchers engaged in bioengineering research

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Foundations of Biotechnology and Bioengineering is a package of nine books that compile the latest ideas from across the entire arena of biotechnology and bioengineering. This volume focuses on the underlying principles of biochemistry, microbiology, fermentation technology, and chemical engineering as interdisciplinary themes, constructing the foundation of biotechnology and bioengineering.



Current Developments in Biotechnology and Bioengineering

Functional Genomics and Metabolic Engineering

Edited by: ***P Gunasekaran*** Vice-Chancellor, Thiruvalluvar University, Vellore, India
Santosh Noronha Assistant Professor in the Department of Chemical Engineering, Indian Institute of technology, Mumbai, India
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

ELSEVIER

Provides an overview of functional genomics and metabolic engineering theory and how they apply to industrial biotechnology

ISBN: 978-0-444-63667-6
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 300
TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

KEY FEATURES

- Provides state-of-the-art information and applications of functional genomics and metabolic engineering as applied to biotechnology
- Supports the education and understanding of biotechnology education and R&D
- Demonstrates new means of enabling cells to produce valuable proteins, polypeptides, and primary and secondary metabolites

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Functional Genomics and Metabolic Engineering provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends in the field, compiling the latest ideas from across the entire arena of biotechnology and bioengineering.

This volume provides data-based scientific knowledge and state-of-art information on functional genomics and metabolic engineering. It covers the core subjects of functional genomics, such as epigenomics, metagenomics, genomics of extremophiles, genomics studies in nutrient transport, genomics of miRNA, and genomics of pathogenesis.

An overview of metabolic engineering theories and approaches is supported with specific important examples of secondary metabolites, including *Streptomyces*, pentose utilization in *E. coli*, bacterial ethanol fermentation, yeast mediated benzaldehyde biotransformation, carotenoid production, acetic acid production by *E. coli*, and NADH regeneration.

CHEMISTRY

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Current Developments in Biotechnology and Bioengineering

Food and Beverages Industry

Edited by: ***Ashok Pandey*** Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)
Guocheng Du Dean of the School of Biotechnology, Jiangnan University, China
Maria Ángeles Sanromán Associate Professor of Chemical Engineering, University of Vigo, Spain
Carlos Ricardo Soccol Research group leader of the Department of Bioprocess Engineering and Biotechnology, Federal University of Parana, Brazil
Claude-Gilles Dussap Head of the Chemical and Biochemical Engineering team, University Blaise Pascal -- CNRS, France

ELSEVIER

A compendium of the most recent developments in food and beverages fermentation processes that is based on biotechnological advances

KEY FEATURES

- Contains comprehensive coverage of food and beverage production
- Covers all types of fermentation processes and their application in various food products
- Includes unique coverage of the biochemical processes involved in beverages production

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Food and Beverages Industry provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends compiled from the latest ideas across the entire arena of biotechnology and bioengineering. This volume reviews current developments in the application of food biotechnology and engineering for food and beverage production.

As there have been significant advances in the areas of food fermentation, processing, and beverage production, this title highlights the advances in specific transformation processes, including those used for alcoholic beverage and fermented food production. Taking a food process and engineering point-of-view, the book also aims to select important bioengineering principles, highlighting how they can be quantitatively applied in the food and beverages industry.

ISBN: 978-0-444-63666-9
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 510
TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

Current Developments in Biotechnology and Bioengineering

Biological Treatment of Industrial Effluents

Edited by: ***Duu-Jong Lee*** Life-Time Specially Appointed Professor of National Taiwan University (NTU) and Chair Professor and Vice President of National Taiwan University of Science and Technology (NTUST), Taiwan; ***Patrick C. Hallenbeck*** Professor in the Department of Microbiology and Immunology, University of Montreal, Canada and Senior Scientist at the US Air Force Academy Life Sciences Research Center; ***Hao Huu Ngo*** Professor of Environmental Engineering, School of Civil and Environmental Engineering, University of Technology, Sydney ***Veeriah Jegatheesan*** School of Engineering at RMIT University, Australia; ***Ashok Pandey*** Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

Reviews the biological treatment of industrial effluents and outlines the key elements of environmental sustainability and cleanup processes

ISBN: 978-0-444-63665-2

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 510

TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

KEY FEATURES

- Outlines available biochemical processes for the treatment of solid industrial waste
- Covers aerobic and anaerobic treatments, their mechanisms, and selection criteria
- Highlights specific industrial applications, such as anammox processes

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Biological Treatment of Industrial Effluents provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends in data-based scientific knowledge and advanced information on the role and application of environmental biotechnology and engineering in the treatment of industrial effluents.

These treatment processes have been broadly classified under aerobic and anaerobic processes which determines the scope and level of pollutant removal. Chapters in this volume review the most recent developments and perspectives at different environmental cleanup operation scales.

Current Developments in Biotechnology and Bioengineering

Solid Waste Management

Edited by: ***Jonathan W-C Wong*** Professor in the Department of Biology, Hong Kong Baptist University, Hong Kong SAR
R. D. Tyagi Professor of Biochemical Engineering and biotransformation, Institut national de la recherché Scientifique – Eau, terre, et environnement (INRS-ETE), University of Québec, Canada
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

Provides the latest developments and biotechnology based alternatives to solid waste recycling, treatment, and disposal

ISBN: 978-0-444-63664-5
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 520
TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

KEY FEATURES

- Reviews available bioprocesses for the production of bioproducts from solid waste
- Outlines processes for the production of energy from solid waste using biochemical conversion processes
- Lists various environmentally friendly treatments of solid waste and its safe disposal

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Solid Waste Management provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, reviewing the latest innovative developments in environmental biotechnology and bioengineering as they pertain to solid wastes, also revealing current research priority areas in solid waste treatment and management.

The fate of solid wastes can be divided into three major areas, recycling, energy recovery, and safe disposal. From this foundation, the book covers such key areas as biotechnological production of value added products from solid waste, bioenergy production from various organic solid wastes, and biotechnological solutions for safe, environmentally-friendly treatment and disposal. The state of the art situation, potential advantages, and limitations are discussed, along with proposed strategies on how to overcome limitations.

CHEMISTRY

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Current Developments in Biotechnology and Bioengineering

Bioprocesses, Bioreactors and Controls

Edited by: ***Christian Larroche*** Head of the department for the Study and Development of Processes involving Microorganisms, School of Material Engineering, Blaise Pascal University, France; ***M. Angeles Sanroman*** Head of the Bioengineering and Sustainable Processes Group, University of Vigo, Spain; ***Guocheng Du*** Professor, School of Biotechnology, Jiangnan University, China; ***Ashok Pandey*** Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)

A single compendium of the most recent developments in industrial bioprocesses, bioreactors (fermenters), and their control

ISBN: 978-0-444-63663-8

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 822

TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

KEY FEATURES

- Describes industrial bioprocesses based on the reaction media
- Lists the type of bioreactors used for a specific bioprocess/application
- Outlines the principles of control systems in various bioprocesses

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Bioprocesses, Bioreactors and Controls provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, reviewing industrial biotechnology and bioengineering practices that facilitate and enhance the transition of processes from lab to plant scale, which is becoming increasingly important as such transitions continue to grow in frequency.

Focusing on industrial bioprocesses, bioreactors for bioprocesses, and controls for bioprocesses, this title reviews industrial practice to identify bottlenecks and propose solutions, highlighting that the optimal control of a bioprocess involves not only maximization of product yield, but also taking into account parameters such as quality assurance and environmental aspects.

Current Developments in Biotechnology and Bioengineering

Production, Isolation and Purification of Industrial Products

Edited by: ***Ashok Pandey*** Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)
Sangeeta Negi Motilal Nehru National Institute of Tech., Trivandrum, India
Carlos Ricardo Soccol Research group leader of the Department of Bioprocess Engineering and Biotechnology, Federal University of Parana, Brazil

ISBN: 978-0-444-63662-1
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 854
TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate and PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

Single compendium detailing information on recent developments in industrial bioprocesses for the production of highly significant microbial products

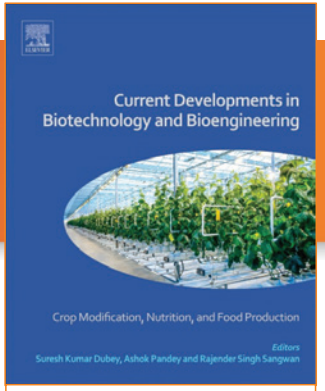
KEY FEATURES

- Provides information on industrial bioprocesses for the production of microbial products by fermentation
- Includes separation and purification processes of fermentation products
- Presents economic and feasibility assessments of the various processes and their scaling up
- Links biotechnology and bioengineering for industrial process development

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Production, Isolation and Purification of Industrial Products provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, focusing on industrial biotechnology and bioengineering practices for the production of industrial products, such as enzymes, organic acids, biopolymers, and biosurfactants, and the processes for isolating and purifying them from a production medium.

During the last few years, the tools of molecular biology and genetic and metabolic engineering have rendered tremendous improvements in the production of industrial products by fermentation. Structured by industrial product classifications, this book provides an overview of the current practice, status, and future potential for the production of these agents, along with reviews of the industrial scenario relating to their production.



Current Developments in Biotechnology and Bioengineering

Crop Modification, Nutrition, and Food Production

Edited by: ***Suresh Kumar Dubey*** Associate Professor in the Molecular Ecology Lab at the Department of Botany, Banaras Hindu University, India
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)
Rajender Singh Sangwan Founder and CEO of the Center of Innovative and Applied Bioprocessing (CIAB), India, and Chief Scientist at the CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow, India.

A single compendium of detailed information on recent developments highlighting the role biotechnology plays in modern agriculture

ISBN: 978-0-444-63661-4
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 290
TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate, PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

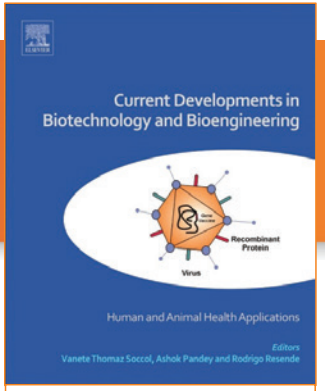
KEY FEATURES

- Highlights recent developments in agriculture due to biotechnology
- Relates the effect of climate change in agriculture to the development of new crops
- Describes the application of metabolic engineering in the development of new genetically modified plants

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Crop Modification, Nutrition, and Food Production provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, presenting data-based scientific knowledge on agribiotechnology and describing world agriculture and the role biotechnology can play in ensuring food security over the next fifty years.

The book discusses the effects of climate change in agriculture and the resultant emergence of new crops, including drought tolerant and more nutritious plants. In addition, the book discusses insect and virus resistance in plants and outlines plant metabolic engineering for agriculture, genetically engineered plants, and microbial diseases.



ISBN: 978-0-444-63660-7

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 654

TRIM: 7.5w x 9.25h

AUDIENCE

Postgraduate, PhD students and researchers in academia, government and corporate research in the area of bioengineering/biochemical engineering, biomedical/biological engineering and industrial biotechnology

Current Developments in Biotechnology and Bioengineering

Human and Animal Health Applications

Edited by: ***Vanete Thomaz Soccol*** Research Fellow of the National Council for Scientific and Technological Development, Federal University of Parana, Brazil
Ashok Pandey Center of Innovative and Applied Bioprocessing, Mohali (Punjab, India) and Former Chief Scientist and Head, Centre for Biofuels & Biotechnology Division, CSIR-National Institute for Interdisciplinary Science & Technology (Trivandrum, India)
Rodrigo R. Resende Adjunct Professor and Head of the Cell Signaling and Nanobiotechnology Laboratory, Department of Biochemistry and Immunology, Federal University of Minas Gerais, Brazil

ELSEVIER

This book provides up-to-date information, data, and knowledge on the modern applications of biotechnology in human and animal health

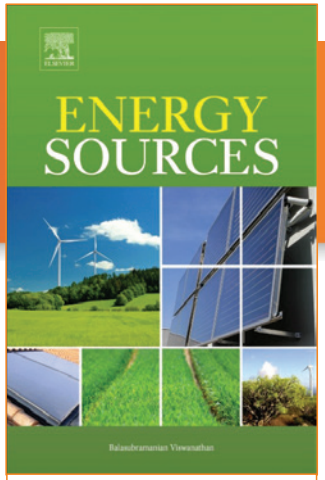
KEY FEATURES

- Provides development in human and animal health due to biotechnology
- Includes immunotechnology and vaccinology
- Outlines diagnostic techniques based on tissue and metabolic engineering principles
- Considers potential uses of the various biotechnology based techniques and the ethical issues raised in their use

DESCRIPTION

Current Developments in Biotechnology and Bioengineering: Human and Animal Health Applications provides extensive coverage of new developments, state-of-the-art technologies, and potential future trends, presenting data-based scientific knowledge and information on medical biotechnological interventions for human and animal health.

Drawing on the key development areas in this field, the book reviews biotechnological advances and applications in immunotechnology, vaccines and vaccinology, combinatorial libraries, gene and cell therapy, tissue engineering, and parasite and infectious disease diagnostics. This title outlines why biotechnological techniques in these areas are useful in a clinical context and considers their potential uses, limitations, and the ethical considerations surrounding their use.



Energy Sources

Fundamentals of Chemical Conversion Processes and Applications

Balasubramanian Viswanathan Head, National Center for Catalysis Research, Indian Institute of Technology, Chennai, India

ELSEVIER

Provides the latest information on energy and the environment, the two main concerns of any progressive society that hopes to be sustainable in the future

ISBN: 978-0-444-56353-8

PUB DATE: August 2016

FORMAT: Hardback

PAGES: c. 394

TRIM: 6.25w x 9.375h

AUDIENCE

Academics and Researchers, graduate students in energy engineering courses, energy technocrats, energy policy makers

KEY FEATURES

- Compiles, in a single source, all energy conversion processes, enabling easy evaluation and selection
- Explains the science behind each conversion process and facilitates understanding
- Contains many illustrations, diagrams, and tables, enabling a clear and comprehensible understanding of the pros and cons of the various processes
- Includes an exhaustive glossary of all terms used in the conversion processes
- Presents current status and new direction, thus enabling the planning process for future research needs
- Provides a concise and comprehensive overview of all energy sources

DESCRIPTION

Energy Sources: Fundamentals of Chemical Conversion Processes and Applications provides the latest information on energy and the environment, the two main concerns of any progressive society that hopes to be sustainable in the future. Continuous efforts have to be exercised in both these areas by any of the developing communities, as concern over energy conversion continues to evolve due to various ecological imbalances, including climate change.

This book provides the fundamentals behind all energy conversion processes, identifies future research needs, and discusses the potential application of each process in a clear-and-concise manner. It is a valuable source for both chemists and chemical engineers who are working to improve current and developing future energy sources, and is a single reference that deals with almost all energy sources for these purposes, reviewing the fundamentals, comparing the various processes, and suggesting future research directions.

CHEMISTRY

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Pulp and Paper Industry

Chemical Recovery

Pratima Bajpai Consultant-Pulp and Paper, Thapar Centre for Industrial R&D, Patiala, India

ELSEVIER

This book explores the scientific and technical advances in the latest developments, technologies for chemical recovery of nonwood black liquor, direct alkali regeneration systems, alternative processes, the use of new value streams, and the environmental challenges

ISBN: 978-0-12-811103-1

PUB DATE: August 2016

FORMAT: Paperback

PAGES: c. 242

TRIM: 7.5w x 9.25h

AUDIENCE

Pulp and Paper Technologist/ Engineers, Senior Paper Scientists, Applied Chemists, Chemical Engineers, Professionals, Academics, Analysts, Consultants

KEY FEATURES

- Thorough and in depth coverage of scientific and technical advances in chemical recovery in pulp making
- Discusses alternative chemical recovery processes, i.e. alternative causticisation and gasification processes
- Progress being made in the recovery of filler, coating colour and pigments
- Utilisation of new value streams (fuels and chemicals) from residuals and spent pulping liquor
- Discusses Environmental challenges (Air Emissions, Mill closure)
- Presents ways in which the economics, energy efficiency, and environmental protection associated with the recovery process can be improved

DESCRIPTION

Pulp and paper Industry: Chemical Recovery examines the scientific and technical advances that have been made in chemical recovery, including the very latest developments. It looks at general aspects of the chemical recovery process and its significance, black liquor evaporation, black liquor combustion, white liquor preparation and lime reburning. It also describes the technologies for chemical recovery of nonwood black liquor, as well as direct alkali regeneration systems in small pulp mills. In addition, it includes a discussion of alternative chemical recovery processes, i.e. alternative causticisation and gasification processes and the progress being made in the recovery of filler, coating colour and pigments. Furthermore, it discusses the utilisation of new value streams (fuels and chemicals) from residuals and spent pulping liquor, and the environmental challenges.

New and Future Developments in Microbial Biotechnology and Bioengineering

Microbial Cellulase System Properties and Applications

Edited by: ***Vijai G. Gupta*** Biochemistry School of Natural Sciences, National University of Ireland, Galway, Ireland

ELSEVIER

An indispensable reference source for chemists, biochemical engineers/bioengineers, biochemists, biotechnologists and researchers who want to know about the unique properties of microbial cellulose and its future applications

ISBN: 978-0-444-63507-5

PUB DATE: August 2016

FORMAT: Hardback

PAGES: c. 290

TRIM: 8.5w x 10.875h

AUDIENCE

Bioengineers, Biochemical Engineers, Biochemist, Biotechnologists

KEY FEATURES

- Compiles the latest developments made and currently undergoing in the area of microbial cellulase system
- Chapters are contributed from top researchers on this area around the globe
- Includes information related to almost all areas of microbial cellulase system
- Extensive cover of current industrial applications and discusses potential future applications

DESCRIPTION

New and Future Developments in Microbial Biotechnology and Bioengineering: Microbial Cellulase System Properties and Applications covers the biochemistry of cellulase system, its mechanisms of action, and its industrial applications. Research has shed new light on the mechanisms of microbial cellulase production and has led to the development of technologies for production and applications of cellulose degrading enzymes.

The biological aspects of processing of cellulosic biomass have become the crux of future research involving cellulases and cellulolytic microorganisms, as they are being commercially produced by several industries globally and are widely being used in food, animal feed, fermentation, agriculture, pulp and paper, and textile applications. The book discusses modern biotechnology tools, especially in the area of microbial genetics, novel enzymes, and new enzyme and the applications in various industries.

As a professional reference, this new book is useful to all researchers working with microbial cellulase system, both academic institutions and industry-based research bodies, as well as to teachers, graduate, and postgraduate students with information on continuous developments in microbial cellulase system. The book provides an indispensable reference source for chemists, biochemical engineers/bioengineers, biochemists, biotechnologists and researchers who want to know about the unique properties of this microbe and explore its future applications.

New and Future Developments in Microbial Biotechnology and Bioengineering

Aspergillus System Properties and Applications

Edited by: ***Vijai G. Gupta*** Biochemistry School of Natural Sciences, National University of Ireland, Galway, Ireland

ELSEVIER

Reviews the current knowledge of aspergillus system properties and their chemistry, recent research advancements, bioprocesses, and related industrial applications, discussing commercial and ecological bioproducts for use in food, textiles, pulp and paper, and biocellulosic ethanol production

ISBN: 978-0-444-63505-1

PUB DATE: August 2016

FORMAT: Hardback

PAGES: c. 266

TRIM: 8.5w x 10.875h

AUDIENCE

Bioengineers, Biochemical Engineers, Biochemists, Biotechnologists, food technologists, enzymologists, and related Professionals/ researchers. Graduate and postgraduate students, researchers and microbiologists, mycologists.

KEY FEATURES

- Compiles available, up-to-date information on recent developments made in the study of aspergillus system properties
- Contains global content from pioneering international authors
- Presents current research efforts and links them to various applications, including uses in foods, textiles, pulp and paper, and in biocellulosic ethanol production
- Provides an indispensable resource for biologists who are interested in learning about the potential applications of the fungi aspergillus

DESCRIPTION

New and Future Developments in Microbial Biotechnology and Bioengineering: Aspergillus System Properties and Applications provides information on emerging issues related to recent advancements in aspergillus research and its applications in bioprocess technology, chemical engineering, genome biology, molecular taxonomy, secondary and metabolite production, industrial process and biofuels/bioenergy research, and alternative fuel development. The book covers the various novel enzymes secreted by these fungi and their specific use in the food, textile, pulp and paper, biocellulosic ethanol production, and other industries.

The book describes research and experimentation on aspergillus activity and directly connects them to their use in bioprocess technology, chemical engineering, bioremediation process, secondary metabolite production, pharmaceutical processes, protein production, industrial process, biofuels/bioenergy research, and alternative fuel development. Readers will find this book to be an indispensable resource for biotechnologists, biochemical engineers, biochemists, microbiologists, bioinformatics researchers, and other biologists who are interested in learning about the potential applications of these fungi.

Stem Cell Manufacturing

Edited by: ***Joaquim M. S. Cabral*** Instituto Superior Técnico (IST), Technical University of Lisbon, Portugal
Claudia Lobato de Silva Department of Bioengineering, Instituto Superior Técnico, Lisboa, Portugal
Lucas G Chase Cellular Dynamics International, Inc., Madison, WI, USA
Maria Margarida Diogo Stem Cell Bioengineering Laboratory, Instituto Superior Técnico (IST), Technical University of Lisbon, Portugal

ELSEVIER

This timely book discusses the technologies that enable transfer of the laboratory-based practice of stem cell tissue culture to the clinic environment as therapeutics, while achieving control, reproducibility, automation, validation, and safety of process and product

ISBN: 978-0-444-63265-4
PUB DATE: July 2016
FORMAT: Hardback
PAGES: c. 326
TRIM: 7.5w x 9.25h

AUDIENCE

Primary audience: Academic and industrial researchers, bioprocess engineers, chemical and biochemical engineers. Graduate students and academics working in the area of Stem Cells and as a teaching book.

Secondary: Chemists, biochemists and biologists working on stem cell research would also be interested in this book

KEY FEATURES

- Presents the first 'Flowchart' of stem cell manufacturing enabling easy understanding of the various processes in a sequential and coherent manner
- Covers all bioprocess technologies required for the transfer of the bench findings to the clinic including the process components: cell signals, bioreactors, modeling, automation, safety, etc.
- Presents comprehensive coverage of a true multidisciplinary topic by bringing together specialists in their particular area
- Provides the basics of the processes and identifies the issues to be resolved for large scale cell culture by the bioengineer
- Addresses the critical need in bioprocessing for the successful delivery of stem cell technology to the market place by involving professional engineers in sections of the book

DESCRIPTION

Stem Cell Manufacturing discusses the required technologies that enable the transfer of the current laboratory-based practice of stem cell tissue culture to the clinic environment as therapeutics, while concurrently achieving control, reproducibility, automation, validation, and safety of the process and the product.

The advent of stem cell research unveiled the therapeutic potential of stem cells and their derivatives and increased the awareness of the public and scientific community for the topic. The successful manufacturing of stem cells and their derivatives is expected to have a positive impact in the society since it will contribute to widen the offer of therapeutic solutions to the patients. Fully defined cellular products can be used to restore the structure and function of damaged tissues and organs and to develop stem cell-based cellular therapies for the treatment of cancer and hematological disorders, autoimmune and other inflammatory diseases and genetic disorders.

CHEMISTRY

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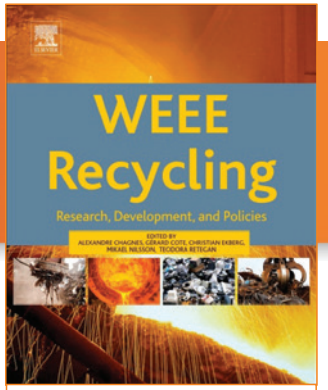


WEEE Recycling

Research, Development, and Policies

Edited by: ***Alexandre Chagnes*** Chimie ParisTech-CNRS, Institut de Recherche de Chimie Paris, Paris, France
Gérard Cote Chimie ParisTech-CNRS, Institut de Recherche de Chimie Paris, Paris, France
Christian Ekberg Dept. of Chemical and Biological Engineering, Chalmers University of Technology, Göteborg, Sweden
Mikael Nilsson Chemical Engineering and Materials Science, University of California at Irvine, Irvine CA, USA
Teodora Retegan Nuclear Chemistry and Industrial Materials Recycling, Gothenburg, Sweden

This practical guide examines Waste Electrical and Electronic Equipment (WEEE) recycling—including management, chemistry, and technology as well as the economic and environmental impact of WEEE recycling on resource management

ISBN: 978-0-12-803363-0
PUB DATE: July 2016
FORMAT: Hardback
PAGES: c. 220
TRIM: 7.5w x 9.25h

AUDIENCE

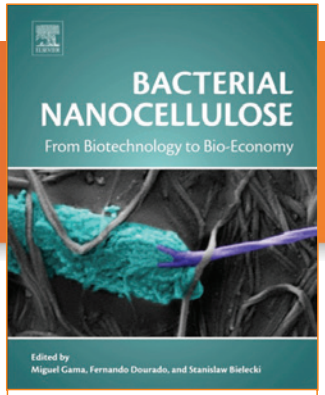
Chemical engineers, metallurgists, technicians from industry and academic researchers involved in hydrometallurgy, life cycle analysis, and recycling. University professors and students are also key readers, as more and more interest and concern is emerging around WEEE recycling in educational programs

KEY FEATURES

- Describes the two metallurgical processes—hydro- and pyro-metallurgy—and their application in recycling of metals
- Provides a life cycle analysis in the WEEE recycling of metals
- Outlines how to determine economic parameters in the recycling of waste metals
- Discusses the socio economic and environmental implication of metal recycling

DESCRIPTION

WEEE Recycling: Research, Development, and Policies covers policies, research, development, and challenges in recycling of waste electrical and electronic equipment (WEEE). The book introduces WEEE management and then covers the environmental, economic, and societal applications of e-waste recycling, focusing on the technical challenges to designing efficient and sustainable recycling processes—including physical separation, pyrometallurgical, and hydrometallurgical processes. The development of processes for recovering strategic and critical metals from urban mining is a priority for many countries, especially those having few available ores mining.



Bacterial Nanocellulose

From Biotechnology to Bio-Economy

Edited by: ***Francisco Gama*** Minho University, Biological Engineering Department, Campus de Gualtar, Braga, Portugal
Fernando Dourado Minho University, Biological Engineering Department, Campus de Gualtar, Braga, Portugal
Stanislaw Bielecki Institute of Technical Biochemistry Lodz Lodz University of Technology, Lodz, Poland

ISBN: 978-0-444-63458-0

PUB DATE: July 2016

FORMAT: Hardback

PAGES: c. 242

TRIM: 7.5w x 9.25h

AUDIENCE

Chemical and biochemical engineers, biomedical engineers in industry and academia, materials scientists, and researchers in academia and industry working on nano-cellulose

This informative overview provides an update on the current and future applications of bacterial nanocellulose, its ecology, and the economics of its production

KEY FEATURES

- Discusses recent progresses on the molecular mechanism of BNC biosynthesis, its regulation, and production techniques
- Covers advances in the use of BNC in bio- and nano-polymer composite materials
- Presents a detailed economic analysis of BNC production
- Provides an overview on the regulatory framework on the food and biomedical fields
- Reviews current research in the biomedical and food industries, identifies gaps, and suggests future needs
- Raises awareness about this material and its potential uses in emergent fields, such as the development of aerogels and optoelectronic devices

DESCRIPTION

Bacterial Nanocellulose: From Biotechnology to Bio-Economy presents an overview on the current and future applications of bacterial nanocellulose, perspectives on the ecology and economics of its production, and a brief historic overview of BNC related companies.

Platform Chemical Biorefinery

Future Green Chemistry

Satinder Kaur Brar Institut National de la Recherche Scientifique (Eau, Terre et Environnement, INRS-ETE), Québec, Canada
Saurabh Jyoti Sarma Institut National de la Recherche Scientifique (Eau, Terre et Environnement, INRS-ETE), Québec, Canada
Kannan Pakshirajan Department of Biotechnology, Indian Institute of Technology Guwahati, Assam, India

ELSEVIER

Providing engineering details of existing or potential platform chemical biorefinery processes for technical staff, this critical review of the entire platform chemical biorefinery process includes global practices and their potential environmental and market-related consequences

ISBN: 978-0-12-802980-0
PUB DATE: June 2016
FORMAT: Hardback
PAGES: c. 514
TRIM: 7.5w x 9.25h

AUDIENCE

Chemical/biochemical engineers, biotechnologists, biochemists, as well as industrial microbiologists, environmental biotechnologists, environmental engineers. Also, professional researchers working in the industries dealing with industrial chemical manufacturing or industrial biotechnology

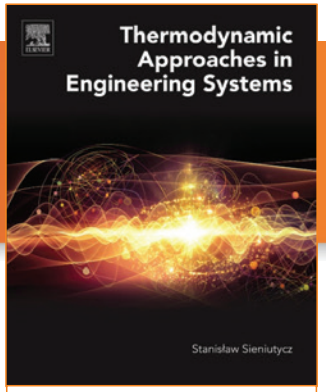
KEY FEATURES

- Offers comprehensive coverage of platform chemicals biorefineries, recent advances and technology developments, potential issues for preventing commercialization, and solutions
- Discusses existing technologies for platform chemicals production, highlighting benefits as well their possible adverse effects on the environment and food security
- Includes a global market analysis of platform chemicals and outlines industry opportunities
- Serves as a useful reference for both academic readers and industry technical workers

DESCRIPTION

Platform Chemical Biorefinery: Future Green Chemistry provides information on three different aspects of platform chemical biorefinery. The book first presents a basic introduction to the industry beneficial for university students, then provides engineering details of existing or potential platform chemical biorefinery processes helpful to technical staff of biorefineries. Finally, the book presents a critical review of the entire platform chemical biorefinery process, including extensive global biorefinery practices and their potential environmental and market-related consequences.

Platform chemicals are building blocks of different valuable chemicals. The book evaluates the possibility of renewable feedstock-based platform chemical production and the fundamental challenges associated with this objective. Thus, the book is a useful reference for both academic readers and industry technical workers. The book guides the research community working in the field of platform chemical biorefinery to develop new pathways and technologies in combination with their market value and desirability.



Thermodynamic Approaches in Engineering Systems

Stanislaw Sieniutycz Faculty of Chemical and Process Engineering, Warsaw University of Technology, Warsaw, Poland

ISBN: 978-0-12-805462-8

PUB DATE: May 2016

FORMAT: Paperback

PAGES: c. 720

TRIM: 7.5w x 9.25h

AUDIENCE

Scientists in academia and industry, chemical engineers, and students in chemistry, electrochemistry, and biochemistry

Comprehensive reference providing a synthesis of nontrivial achievements of thermodynamics in important branches of chemical and biochemical engineering

KEY FEATURES

- Presents clearly structured chapters beginning with an introduction, elaboration of the process, and results summarized in a conclusion
- Written by a first-class expert in the field of advanced methods in thermodynamics
- Provides a synthesis of recent thermodynamic developments in practical systems
- Presents very elaborate literature discussions from the past fifty years

DESCRIPTION

Thermodynamic Approaches in Engineering Systems responds to the need for a synthesizing volume that throws light upon the extensive field of thermodynamics from a chemical engineering perspective that applies basic ideas and key results from the field to chemical engineering problems.

This book outlines and interprets the most valuable achievements in applied non-equilibrium thermodynamics obtained within the recent fifty years. It synthesizes nontrivial achievements of thermodynamics in important branches of chemical and biochemical engineering. Readers will gain an update on what has been achieved, what new research problems could be stated, and what kind of further studies should be developed within specialized research.

Environment and Development

Basic Principles, Human Activities, and Environmental Implications

Edited by: ***Stavros Poulopoulos*** Kazakh-British Technical University, School of Chemical Engineering, Almaty, Republic of Kazakhstan
Vassilis Inglezakis Nazarbayev University, School of Engineering, Department of Chemical Engineering, Astana, Republic of Kazakhstan

ELSEVIER

Focuses on the adverse impacts of human activities and development on both natural and inhabited environments, covering associated problems and solutions for achieving harmonic sustainable development in a range of environments and presenting the latest research findings and trends in global environmental policy

ISBN: 978-0-444-62733-9

PUB DATE: May 2016

FORMAT: Hardback

PAGES: c. 584

TRIM: 7.5w x 9.25h

AUDIENCE

The book suits students in all engineering disciplines (particularly chemical, mechanical, and environmental engineering), environmental science and technology professionals (including ecologists, environmentalists, and professional engineers dealing with environmental issues), and policy makers and government officials.

KEY FEATURES

- Offers a discussion of the extraterrestrial environment and waste in earth orbit as one of the distinctive topics of the book
- Addresses global environmental policy issues and policies
- Presents tabulated data to support the analysis and explain the issues presented
- Includes case studies covering many topics of current interest
- Analyzes environmental issues and proposes solutions grounded in recent research findings
- Discusses the various interpretations of the development concept as well as alternative pathways to sustainable development

DESCRIPTION

Environment and Development: Basic Principles, Human Activities, and Environmental Implications focuses on the adverse impact that human activities, developments, and economic growth have on both natural and inhabited environments. The book presents the associated problems, along with solutions that can be used to achieve a harmonic, sustainable development that provides for the co-existence of man and natural life. Chapters provide detailed information on a range of environments including: atmospheric, aquatic, soil, natural, urban, energy, and extraterrestrial, as well as the relationship between the environment and development. In addition, this comprehensive book presents the latest research findings and trends in global environmental policy for each issue.

High Temperature Oxidation and Corrosion of Metals, 2e

David John Young David John Young School of Materials Science and Engineering University of New South Wales New South Wales, Australia

Beginning with a high level understanding of the fundamental mechanisms of high temperature alloy oxidation, this book presents a combination of the physical chemistry and materials science methodologies used to analyze alloy corrosion mechanisms and how they can provide quantitative predictions for reaction rates

ISBN: 978-0-08-100101-1

PREVIOUS EDITION ISBN: 9780080445878

PUB DATE: June 2016

FORMAT: Hardback

PAGES: c. 734

TRIM: 6.25w x 9.375h

AUDIENCE

The book is intended for post-graduate students and others taking up research or seeking an understanding in the field of high temperature corrosion resistance. It is relevant to the power generation, waste incineration and petrochemical industries, as well as gas turbine, fuel cell and solar thermal technologies.

KEY FEATURES

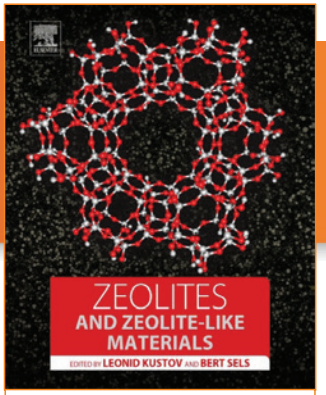
- Emphasizes quantitative calculations for predicting reaction rates and the effects of temperature, oxidant activities, and alloy compositions
- Uses phase diagrams and diffusion paths to analyze and interpret scale structures and internal precipitation distributions
- Presents a detailed examination of corrosion in industrial gases (water vapor effects, carburization and metal dusting, sulphidation)
- Contains numerous micrographs, phase diagrams, and tabulations of relevant thermodynamic and kinetic data
- Combines physical chemistry and materials science methodologies
- Provides two completely new chapters (chapters 11 and 13), and numerous other updates throughout the text

DESCRIPTION

High Temperature Oxidation and Corrosion of Metals, Second Edition, provides a high level understanding of the fundamental mechanisms of high temperature alloy oxidation. It uses this understanding to develop methods of predicting oxidation rates and the way they change with temperature, gas chemistry, and alloy composition.

The book focuses on the design and selection of alloy compositions which provide optimal resistance to attack by corrosive gases, providing a rigorous treatment of the thermodynamics and kinetics underlying high temperature alloy corrosion.

In addition, it emphasizes quantitative calculations for predicting reaction rates and the effects of temperature, oxidant activities, and alloy compositions. Users will find this book to be an indispensable source of information for researchers and students who are dealing with high temperature corrosion.



Zeolites and Zeolite-like Materials

Edited by: ***Bert Sels*** Center for Surface Chemistry and Catalysis, Catholic University of Leuven, Leuven, Belgium
Leonid Kustov Head of Laboratory of Polyfunctional Catalysts, N.D. Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Head of Laboratory of Green Chemistry Chemistry Department, Moscow State University, Moscow, Russia

ELSEVIER

This comprehensive book reviews important aspects of the synthesis, characterization and applications of zeolites, zeolite-like materials and new micro/mesoporous systems, including novel catalytic processes related to the conversion of renewable raw materials, applications in drug delivery, sorption/separations, non-linear optics, and new membrane systems.

ISBN: 978-0-444-63506-8
PUB DATE: May 2016
FORMAT: Hardback
PAGES: c. 460
TRIM: 7.5w x 9.25h

AUDIENCE

(Physical) chemists and chemical engineers, graduate and post graduate students working in the field of zeolites, MOFs, micro/mesoporous materials, catalysis, optoelectronic materials, laser techniques, drug delivery, adsorption/separation of complicated mixtures, organic synthesis

KEY FEATURES

- Provides a comprehensive review of the literature pertaining to zeolites and zeolite-like materials since 2000
- Covers the chemistry of novel zeolite-like materials such as Metal-Organic Frameworks (MOFs), Covalent Organic Frameworks (COFs), hierarchical zeolite materials, new mesoporous and composite zeolite-like micro/mesoporous materials
- Presents essential information of the new zeolite-like structures, with a balanced coverage of the most important areas of the zeolite research (synthesis, characterization, adsorption, catalysis, new applications of zeolites and zeolite-like materials)
- Contains chapters prepared by known specialists who are members of the International Zeolite Association

DESCRIPTION

Zeolites and Zeolite-like Materials offers a comprehensive and up-to-date review of the important areas of zeolite synthesis, characterization, and applications. Its chapters are written in an educational, easy-to-understand format for a generation of young zeolite chemists, especially those who are just starting research on the topic and need a reference that not only reflects the current state of zeolite research, but also identifies gaps and opportunities.

The book demonstrates various applications of zeolites in heterogeneous catalysis and biomass conversion and identifies the endless possibilities that exist for this class of materials, their structures, functions, and future applications. In addition, it demonstrates that zeolite-like materials should be regarded as a living body developing towards new modern applications, thereby responding to the needs of modern technology challenges, including biomass conversion, medicine, laser techniques, and nanomaterial design, etc.

The book will be of interest not only to zeolite-focused researchers, but also to a broad scientific and non-scientific audience.

CHEMISTRY

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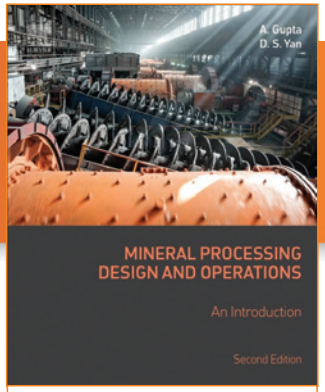


Mineral Processing Design and Operations, 2e

An Introduction

Ashok Gupta Carine-Perth, Australia
Dennis S Yan Minerals Engineering and Extractive Metallurgy, Curtin University of Technology, Kalgoorlie, Australia

ELSEVIER

The practical resource describes the basic theory and current practices behind separating and concentrating minerals of economic interest such as iron ores, beach sand minerals, and rare earth minerals

ISBN: 978-0-444-63589-1
PREVIOUS EDITION ISBN: 9780444516367
PUB DATE: May 2016
FORMAT: Hardback
PAGES: c. 850
TRIM: 7.5w x 9.25h

AUDIENCE

Metallurgists and process engineers as well as university students as an introductory guide to large scale industrial operations to liberate and recover commercially minerals from ores. Students and engineers interested in the disciplines of metallurgy, chemical engineering, mechanical and electrical engineering (including electronic engineering), both in operation and research are expected to benefit.

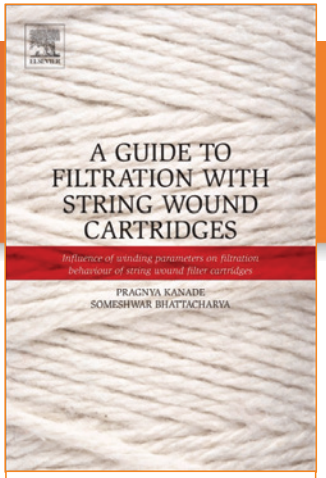
KEY FEATURES

- Outlines the theory and practice in the design of flow sheets and operation of an integrated mineral processing plant
- Introduces the basic magnetism, electrostatic, conductivity, and dielectrophoresis properties of minerals and related separation techniques
- Describes automation in mineral processing plants allowing maximum yields and consistent high concentrate grades
- Outlines problems and offers solutions in the form of various examples

DESCRIPTION

Mineral Processing Design and Operations: An Introduction, Second Edition, helps further understanding of the various methods commonly used in mineral beneficiation and concentration processes. Application of theory to practice is explained at each stage, helping operators understand associated implications in each unit process. Covers the theory and formulae for unit capacities and power requirements to help the designer develop the necessary equipment and flow-sheets to economically attain maximum yield and grade.

This second edition describes theories and practices of design and operation of apparatus and equipment, including an additional chapter on magnetic, electrostatic, and conductivity modes of mineral separation. Basics of process controls for efficient and economic modes of separation are introduced.



A Guide to Filtration with String Wound Cartridges

Influence of Winding Parameters on Filtration Behaviour of String Wound Filter Cartridges

Pragnya S. Kanade Textile Engineering Department, Faculty of Technology and Engineering, The M.S. University of Baroda, Gujarat, India
Someshwar S. Bhattacharya Textile Engineering Department, Faculty of Technology and Engineering, The M.S. University of Baroda, Gujarat, India

ELSEVIER

The book provides a concise but comprehensive reference that explains the science behind winding phenomena with reference to the use of string wound cartridges in various environments and their necessity as a tool to help quell the ever-increasing scarcity of water reserves

ISBN: 978-0-12-804847-4
PUB DATE: March 2016
FORMAT: Paperback
PAGES: c. 216
TRIM: 6w x 9h

AUDIENCE

Researchers, scientists and chemical engineers working in filtration and separation industry

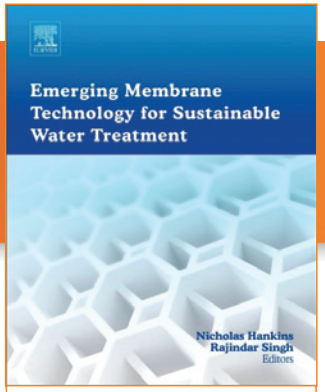
KEY FEATURES

- Presents data and conclusions that are based on actual experimental work
- Provides explanations on why winding parameters influence the performance of wound cartridges
- Describes problems encountered during cartridge formation and during its use in filter testing

DESCRIPTION

A Guide to Filtration with String Wound Cartridges: Influence of Winding Parameters on Filtration Behaviour of String Wound Filter Cartridges explains the science behind winding phenomena with reference to the use of string wound cartridges in various environments, and is helpful in educating aspiring researchers and technicians on these new technologies that seek to quell the ongoing scarcity of water through the use of new and emerging filtration techniques.

The book provides detailed information about cartridge winding parameters, the number of layers put on the cartridge, their necessary availability, and the retention capacity and pressure drop. In addition, the book provides guidelines regarding the selection of winding variables so that new cartridges that cater to the specific porosity of different sized particles can be developed.



Emerging Membrane Technology for Sustainable Water Treatment

Edited by: ***Rajindar Singh*** Membrane Ventures, LLC, Colorado Springs, CO, USA
Nick Hankins The Centre for Sustainable Water Technology, Department of Engineering Science, The University of Oxford, Oxford, UK

ELSEVIER

This timely, practical guide discusses how membrane technology—a viable solution to the problems of water stress and poor sanitation—can be an economically and environmentally friendly approach to address the escalating problem of water availability and shortages on a global scale

ISBN: 978-0-444-63312-5

PUB DATE: March 2016

FORMAT: Hardback

PAGES: c. 462

TRIM: 7.5w x 9.25h

AUDIENCE

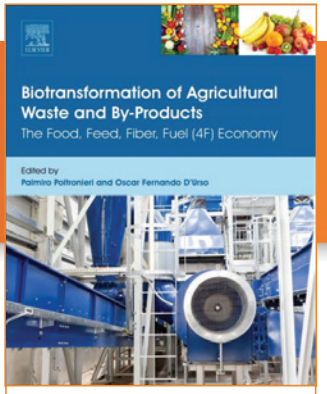
Chemical and environmental engineers working in membrane treatment of water and waste-water; graduate and postgraduate students and researchers in academia; government and corporate labs; and water treatment equipment and global engineering companies.

KEY FEATURES

- Provides a unique source on membrane technology and its application for water treatment
- Focuses on technologies designed for the treatment of seawater and brackish water
- Highlights the most economically and environmentally friendly membrane technologies
- Lists various technologies and emphasizes their link to renewable energy, energy efficiency, nanotechnology, reuse, and recycle

DESCRIPTION

Emerging Membrane Technology for Sustainable Water Treatment provides the latest information on the impending crisis posed by water stress and poor sanitation, a timely issue that is one of the greatest human challenges of the 21st century. The book also discusses the use of membrane technology, a serious contender that can be used to confront the crisis on a global scale, along with its specific uses as a solution to this escalating problem.



Biotransformation of Agricultural Waste and By-Products

The Food, Feed, Fibre, Fuel (4F) Economy

Edited by: ***P Poltronieri*** Institute of Sciences of Food Production, National Research Council (ISPA-CNR), Lecce, Italy
Oscar Fernando D'Urso Food Safety and Technology Research Group, Bioesplora, San Michele Salentino, Italy

ELSEVIER

Discusses advances in technology and plant design which support the exploitation and valorization of vegetable and fruit by-products through fermentation (feed-batch liquid fermentation, solid state fermentation) in bio-based bio-chemicals/biofuels production

ISBN: 978-0-12-803622-8
PUB DATE: March 2016
FORMAT: Hardback
PAGES: c. 358
TRIM: 7.5w x 9.25h

AUDIENCE

Biotechnologists, biochemical engineers, biochemists, microbiologists, plant biochemists, agronomists, research students in these areas, entrepreneurs, policy makers, stakeholders, and politicians

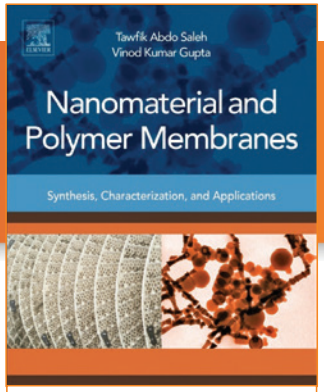
KEY FEATURES

- Provides an overview of all plant based biosources
- Includes examples of biochemical/biofuel production from plant waste
- Discusses the production of enzymes used in the plant fermentation processes
- Explores the new fermentation technologies and production of chemicals and fuels from various plants

DESCRIPTION

Biotransformation of Agricultural Waste and By-Products in the 4F Economy: The Food, Feed, Fiber, Fuel (4F) Economy presents an evaluation of plant species better exploitable for a particular transformation. As crops are already covering large parts of cultivable soils, is it is not conceivable to try to extend the cultures beyond the limit of available soils, but a further increase in productivity is not easy to obtain.

The book discusses advances in technology and plants design which support the exploitation and valorization of vegetable and fruit by-products through fermentation (feed-batch liquid fermentation, solid-state fermentation) in bio-based bio-chemicals/biofuels production. Pathways in the biosynthesis of fibers, sugars, and metabolites are provided with a focus on the lifecycle of bacteria, yeasts, and even plant species. The text analyzes cellular structures and the organization of cell walls in order to show which polysaccharides offer more favorable fermentative processes and which are detrimental.



Nanomaterial and Polymer Membranes

Synthesis, Characterization, and Applications

Tawfik Abdo Saleh Chemistry Department, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia
Vinod Kumar Gupta Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee, India, and Applied Chemistry Department, University of Johannesburg, Johannesburg, South Africa

ELSEVIER

Through a comprehensive but concise reference on the theory, characterization, and applications of the synthesis of polymeric nanocomposite membranes, this book offers a perfect source to document state-of-the-art developments and innovations in the field

ISBN: 978-0-12-804703-3
PUB DATE: February 2016
FORMAT: Paperback
PAGES: c. 272
TRIM: 7.5w x 9.25h

AUDIENCE

Graduate and postgraduate students, researchers in academia and industry, and chemical engineers working in the field of membrane science and nanomaterials and their applications in water treatment, desalination, and adsorption

KEY FEATURES

- Presents a powerful single source for the development of new, rapid, and highly efficient membrane composites
- Offers a perfect source to document state-of-the-art developments and innovations in nanocomposite membranes, ranging from materials development and characterization of properties to membrane applications
- Covers applications in membrane science, water treatment, and the removal of pollutants from waste water
- Provides theoretical and practical information about the synthesis and application of polymeric nanocomposite membranes
- Includes instructor support material available at textbooks.elsevier.com

DESCRIPTION

Nanomaterial and Polymer Membranes: Synthesis, Characterization, and Applications presents a unique collection of up-to-date polymeric nanomaterial membranes. The book offers a perfect source to document state-of-the-art developments and innovations in nanocomposite membranes, ranging from materials development and characterization of properties to membrane applications.

The book discusses applications that encompass the enhancement of sorption and degradation processes and their usage for the removal of different pollutants, including heavy metals, dyes, pesticides, and other organic and inorganic pollutants from the industry.

CHEMISTRY

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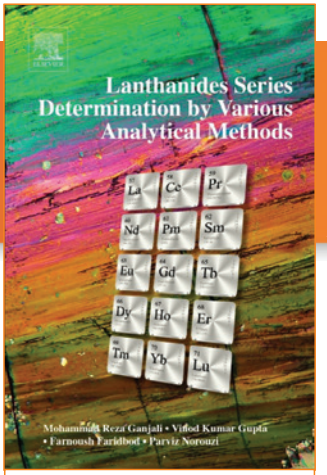


Lanthanides Series Determination by Various Analytical Methods

Mohammad Reza Ganjali Centre of Excellence in Electrochemistry, Faculty of Chemistry, University of Tehran, Tehran, Iran
Vinod Kumar Gupta Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee, India, and Applied Chemistry Department, University of Johannesburg, Johannesburg, South Africa
Farnoush Faridbod Faculty of Chemistry, University of Tehran, Tehran, Iran
Parviz Norouzi Centre of Excellence in Electrochemistry, Faculty of Chemistry, University of Tehran, Tehran, Iran

Comprehensive and concise overview of recent advances in the determination and application of lanthanides in catalysis, chemical industry, aerospace, materials and life sciences, and in sustainable energy technologies

ISBN: 978-0-12-804704-0
PUB DATE: February 2016
FORMAT: Paperback
PAGES: c. 438
TRIM: 6w x 9h

AUDIENCE

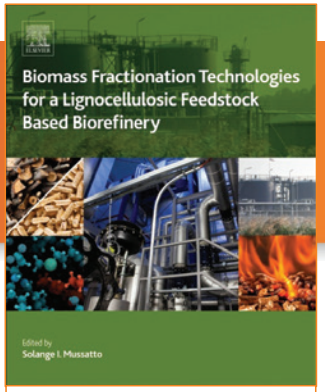
Researchers in academia and industry working on lanthanide applications in chemical engineering, chemistry, physics, materials, and environmental and life sciences, and postgraduate students in these areas

KEY FEATURES

- Written by world-leading experts in research on lanthanide determination
- Discusses determination methods that range from very advanced and expensive techniques to simple and inexpensive methods
- A single source of information for a broad collection of lanthanide detection techniques and applications
- Includes a complete list of reports and patents on lanthanide determination
- Discusses both advantages and disadvantages of each determination method, giving a well-balanced overview

DESCRIPTION

Lanthanides Series Determination by Various Analytical Methods describes the different spectroscopic and electrochemical methods used for the determination and measurement of lanthanides. Numerous examples of determination methods used in real sample analysis are gathered and explained, and the importance of lanthanides as applied in chemical industry, agriculture, clinical and pharmaceutical industry, and biology is discussed, with many applications and recent advantages given.



Biomass Fractionation Technologies for a Lignocellulosic Feedstock Based Biorefinery

Edited by: ***Solange Inês Mussatto*** Department of Biotechnology Delft University of Technology Delft, The Netherlands

ELSEVIER

Through the presentation of extensive research and tremendous scientific and technological developments, this book covers the most important topics relating to biomass fractionation, including the most recent advances, challenges, and perspectives for each fractionation technique

ISBN: 978-0-12-802323-5

PUB DATE: February 2016

FORMAT: Hardback

PAGES: c. 648

TRIM: 7.5w x 9.25h

AUDIENCE

Chemical Engineers, biotechnologists, microbiologists, biologists, agricultural chemists, environmental engineers

KEY FEATURES

- Provides information on the most advanced and innovative pretreatment processes and technologies for biomass
- Reviews numerous valuable products from lignocellulose
- Discusses integration of processes for complete biomass conversion with minimum waste generation
- Identifies the research gaps in scale-up
- Presents an indispensable reference for all professionals, students, and workers involved in biomass biorefinery, assisting them in establishing efficient and economically viable process technologies for biomass fractionation

DESCRIPTION

Biomass Fractionation Technologies for a Lignocellulosic Feedstock-based Biorefinery reviews the extensive research and tremendous scientific and technological developments that have occurred in the area of biorefinering, including industrial processes and product development using 'green technologies', often referred as white biotechnology.

As there is a huge need for new design concepts for modern biorefineries as an alternative and amendment to industrial crude oil and gas refineries, this book presents the most important topics related to biomass fractionation, including advances, challenges, and perspectives, all with references to current literature for further study.

Presented in 26 chapters by international field specialists, each chapter consists of review text that comprises the most recent advances, challenges, and perspectives for each fractionation technique. The book is an indispensable reference for all professionals, students, and workers involved in biomass biorefinery, assisting them in establishing efficient and economically viable process technologies for biomass fractionation.

CHEMISTRY

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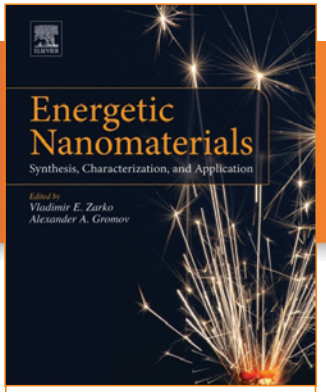


Energetic Nanomaterials

Synthesis, Characterization, and Application

Edited by: ***Vladimir E Zarko*** Institute of Chemical Kinetics and Combustion, Siberian Branch, Academy of Sciences, Novosibirsk, Russia
Alexander Gromov Nuremberg Technical University Georg Simon Ohm, Nuremberg, Germany

ELSEVIER

Fills the current gap in book publications on nanoenergetics, the energetic nanomaterials that are applied in explosives, gun and rocket propellants, and pyrotechnic devices, covering their unique properties and future applications

ISBN: 978-0-12-802710-3
PUB DATE: February 2016
FORMAT: Paperback
PAGES: c. 374
TRIM: 7.5w x 9.25h

AUDIENCE

Researchers in academia and industry working in the fields of energetic materials, combustion chemistry, and chemical engineering; and graduate students in these areas

KEY FEATURES

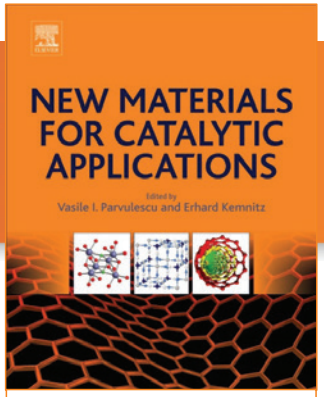
- Written by high-level experts in the field of nanoenergetics
- Covers the hot topic of energetic nanomaterials, including nanometals and their applications in nanoexplosives
- Fills a gap in energetic nanomaterials book publications

DESCRIPTION

Energetic Nanomaterials: Synthesis, Characterization, and Application provides researchers in academia and industry the most novel and meaningful knowledge on nanoenergetic materials, covering the fundamental chemical aspects from synthesis to application.

This valuable resource fills the current gap in book publications on nanoenergetics, the energetic nanomaterials that are applied in explosives, gun and rocket propellants, and pyrotechnic devices, which are expected to yield improved properties, such as a lower vulnerability towards shock initiation, enhanced blast, and environmentally friendly replacements of currently used materials.

The current lack of a systematic and easily available book in this field has resulted in an underestimation of the input of nanoenergetic materials to modern technologies. This book is an indispensable resource for researchers in academia, industry, and research institutes dealing with the production and characterization of energetic materials all over the world.



New Materials for Catalytic Applications

Vasile I. Parvulescu Department of Organic Chemistry, Biochemistry and Catalysis, University of Bucharest, Bucharest, Romania
Erhard Kemnitz Institut für Chemie, Humboldt-Universität zu Berlin, Berlin, Germany

ELSEVIER

This comprehensive book on the topic of the use of new materials in catalytic applications discusses new materials for applications in which heterogeneous catalysts are less investigated and suggests new catalytic uses for these materials

ISBN: 978-0-444-63587-7
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 374
TRIM: 7.5w x 9.25h

AUDIENCE

Academics researching catalytic phenomena, materials scientists, industrial researchers working with solid state materials to invent new chemicals, industrial development scientists

KEY FEATURES

- Presents organometallic concepts for the synthesis of nanocatalysts
- Provides a synthesis of new materials following the fluorolytic sol-gel concept
- Covers electronic and photocatalytic properties via synthesis of nano-oxide materials
- Details the nature of sites in MOFs generating catalytic properties immobilization of triflates in solid matrices for organic reactions

DESCRIPTION

New Materials for Catalytic Applications proposes the use of both new and existing materials for catalytic applications, such as zeolites, metal oxides, microporous and mesoporous materials, and monocrystals. In addition, metal-oxides are discussed from a new perspective, i.e. nano- and photocatalytic applications.

The material presents these concepts with a new focus on strategies in synthesis, synthesis based on a rational design, the correlation between basic properties/potential applications, and new catalytic solutions for acid-base, redox, hydrogenation, photocatalytic reactions, etc.

CHEMISTRY

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Pulp and Paper Industry

Energy Conservation

Pratima Bajpai Consultant-Pulp and Paper, Thapar Centre for Industrial R&D, Patiala, India

ELSEVIER

Presents a number of energy-efficient technologies and practices that are cost-effective and available for implementation today in the pulp and paper industry.

ISBN: 978-0-12-803411-8

PUB DATE: January 2016

FORMAT: Hardback

PAGES: c. 280

TRIM: 7.5w x 9.25h

AUDIENCE

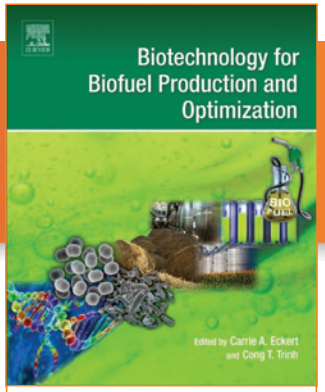
Pulp and Paper technologist/ Engineers, Paper manufacturers, Paper mill personnel, Senior Paper Scientists and R&D Professionals, Academics, Analysts and Consultants

KEY FEATURES

- Thorough and in-depth coverage of energy-efficient technologies and practices in paper and pulp industry
- Presents cost-effective and available for implementation today technologies
- Discusses Biotechnological processes, especially enzymatic processes in the pulp and paper industry to reduce the energy consumption and improve the product quality
- Presents qualitative and quantitative results/data on energy savings for various steps of pulp and paper making process

DESCRIPTION

Pulp and Paper Industry: Energy Conservation presents a number of energy-efficient technologies and practices that are cost-effective and available for implementation today. Emerging energy-efficient technologies and future prospects in this field are also dealt with. Qualitative and quantitative results/data on energy savings for various steps of pulp and paper making process are presented. There is no specific book on this topic. This will be a comprehensive reference in the field.



Biotechnology for Biofuel Production and Optimization

Edited by: ***Carrie E Eckert*** National Renewable Energy Laboratory (NREL); University of Colorado, Boulder; the Renewable and Sustainable Energy Institute (RASEI), Golden, CO, USA
Cong T Trinh Dept of Chemical and Biomolecular Engineering, University of Tennessee Knoxville, TN, USA; BioEnergy Science Center (BESC), Oak Ridge National Laboratory, Oak Ridge, TN, USA

ELSEVIER

Presents the process engineering and enzyme pathways for the production of a variety of biofuels and biofuels precursors, providing the most recent research

ISBN: 978-0-444-63475-7
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 552
TRIM: 7.5w x 9.25h

AUDIENCE

Chemical Engineers, Biochemical Engineers, Microbiologists, Biotechnologists working in academic institutes, research institutes, industries and governmental agencies; MS/M Tech students; Ph D scholars; researchers studying Biohydrogen production, Wastewater treatment for value-addition, Alternate energy sources, and/or Renewable energy from biomass

KEY FEATURES

- Describes state-of-the-art engineering of metabolic pathways for the production of a variety of fuel molecules
- Discusses recent advances in synthetic biology and metabolic engineering for rational design, construction, evaluation of novel pathways and cell chassis
- Covers genome engineering technologies to address complex biofuel-tolerant phenotypes for enhanced biofuel production in engineered chassis
- Presents the use of novel microorganisms and expanded substrate utilization strategies for production of targeted fuel molecules
- Explores biohybrid methods for harvesting bioenergy
- Discusses bioreactor design and optimization of scale-up

DESCRIPTION

Biotechnology for Biofuel Production and Optimization is the compilation of current research findings that cover the entire process of biofuels production from manipulation of genes and pathways to organisms and renewable feedstocks for efficient biofuel production as well as different cultivation techniques and process scale-up considerations. This book captures recent breakthroughs in the interdisciplinary areas of systems and synthetic biology, metabolic engineering, and bioprocess engineering for renewable, cleaner sources of energy.

CHEMISTRY

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Patent Law Basics for Chemists and Research Professionals

Sarah Hasford Washington, D.C., USA

A primer on patent law for researchers in chemistry, pharmaceutics, and other sciences that delves deep into the process of obtaining patents

KEY FEATURES

- Provides valuable information about patent law changes brought about by the 2011 America Invents Act (AIA)
- Demystifies the patent application process and highlights common, avoidable mistakes
- Includes a handy glossary for quick reference, along with accessible explanations and summaries for the layperson

DESCRIPTION

Patent Law Basics for Chemists and Research Professionals provides an accessible overview for chemists, research scientists, pharmaceutical researchers, R&D executives, and others working with the unique issues that those patenting chemical inventions face. Researchers must often work with patent professionals at the direction of their supervisors in order to procure patent protection for the inventions they have discovered and/or to determine whether the products they are developing would infringe on patents held by others.

By providing chemists and research professionals with a better understanding of what information is most important to obtain the strongest possible patent protection, scientists can work with patent professionals more effectively, thereby enhancing the strength and value of patents with which they are involved.

Beginning with the basics, this useful primer introduces the reader to patents, patents rights, and other types of intellectual property, such as trademarks and copyrights. A sample patent is dissected to explain its various parts and interpretation.

The book discusses the types of inventions patented in the life sciences, chemical, and pharmaceutical technologies, and the basic legal requirements for obtaining a patent, along with common application mistakes. Delving deeper into what can be a mysterious process to the outsider, the book also explores relevant case law and typical patent litigation.

ISBN: 978-0-12-803548-1
PUB DATE: March 2017
FORMAT: Paperback
PAGES: c. 250
TRIM: 6w x 9h

AUDIENCE

Chemists, especially in medicinal and drug development chemistry

CHEMISTRY

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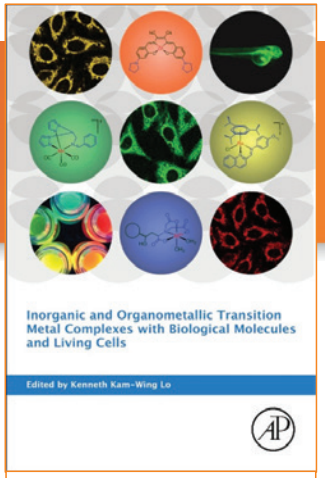

Inorganic and Organometallic Transition Metal Complexes with Biological Molecules and Living Cells

Edited by: ***Kenneth Kam-Wing Lo*** City University of Hong Kong, China

Presents valuable information on inorganic and organometallic transition metals that is ideal for new and established researchers in this evolving area

KEY FEATURES

- Geared toward researchers and students who seek an introductory overview of the field, as well as researchers working in advanced areas
- Focuses on the interactions of inorganic and organometallic transition metal complexes with biological molecules and live cells
- Foscuses on the fundamentals and their potential therapeutic and diagnostic applications
- Covers recent biological applications of transition metal complexes, such as anticancer drugs, enzyme inhibitors, bioconjugation agents, chemical biology tools, and bioimaging reagents

DESCRIPTION

Inorganic and Organometallic Transition Metal Complexes with Biological Molecules and Living Cells provides a complete overview of this important research area that is perfect for both newcomers and expert researchers in the field. Through concise chapters written and edited by esteemed experts, this book brings together a comprehensive treatment of the area previously only available through scattered, lengthy review articles in the literature. Advanced topics of research are covered, with particular focus on recent advances in the biological applications of transition metal complexes, including inorganic medicine, enzyme inhibitors, antiparasital agents, and biological imaging reagents.

ISBN: 978-0-12-803814-7

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 414

TRIM: 6w x 9h

AUDIENCE

Inorganic chemistry, medicinal chemistry, and drug development researchers; secondarily advanced chemistry and biology students

CHEMISTRY

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Strategies for Palladium-Catalyzed Non-Directed and Directed C-H Bond Functionalization

Edited by: ***Anant R. Kapdi*** Institute of Chemical Technology, Mumbai, India
Debabrata Maiti Mumbai University Institute of Chemical Technology, Mumbai, India

ELSEVIER

Presents a common platform for comparing both directed and non-directed C-H Bond Functionalization in transitional metal-based catalysis

ISBN: 978-0-12-805254-9
PUB DATE: March 2017
FORMAT: Paperback
PAGES: c. 290
TRIM: 6w x 9h

AUDIENCE

Graduate level students, postdocs, and faculty active in transition metal-based catalysis

KEY FEATURES

- Addresses the involvement of catalytic systems (palladacycles) for better functionalization of (hetero)arenes to emphasize the need for developing better, more selective systems
- Covers the use of powerful mechanistic tools for understanding and assisting the development of better functionalization strategies
- Discusses the finer aspects of C-H bond functionalization, such as control of regioselectivity with or without directing groups
- Includes a chapter detailing the synthesis of naturally occurring molecules or functional molecules via both pathways for assessing the applicability of the functionalization strategies

DESCRIPTION

Strategies for Palladium-Catalyzed Non-Directed and Directed C-H Bond Functionalization portrays the complete scope of these two aspects of C-H bond functionalization in a single volume for the first time. Featured topics include the influence of palladacyclic systems in C-H bond functionalization (need for newer catalytic systems for better efficiency), mechanistic aspect of the functionalization strategies leading to better systems, and applications of these methodologies to natural product synthesis and material synthesis.

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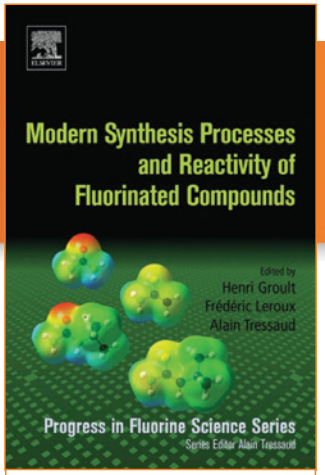

Modern Synthesis Processes and Reactivity of Fluorinated Compounds

Progress in Fluorine Science

Edited by: ***Henri Groult*** University of Pierre and Marie Curie, Paris, France
Frederic Leroux University of Strasbourg, France
Alain Tressaud ICMCB-CNRS University of Bordeaux, Pessac Cedex, France

ISBN: 978-0-12-803740-9
PUB DATE: November 2016
FORMAT: Paperback
PAGES: c. 750
TRIM: 6w x 9h

AUDIENCE

Inorganic chemistry researchers in industry/academia

Covers a wide scope of organic, inorganic, and polymeric and physical chemistries and compiles modern syntheses and reaction mechanisms leading to fluorocompounds

KEY FEATURES

- Contains quality content edited, and contributed, by leading scholars in the field
- Presents applied guidance on the preparation of original fluorinated compounds, potentially transferable from the lab scale to industrial applications
- Provides practical synthesis information for a wide audience interested in fluorine compounds in many branches of chemistry, materials science, and physics

DESCRIPTION

Modern Synthesis Processes and Reactivity of Fluorinated Compounds focuses on the exceptional character of fluorine and fluorinated compounds. This comprehensive work explores examples taken from all classes of fluorine chemistry and illustrates the extreme reactivity of fluorinating media and the peculiar synthesis routes to fluorinated materials.

The book provides advanced and updated information on the latest synthesis routes to fluorocompounds and the involved reaction mechanisms. Special attention is given to the unique reactivity of fluorine and fluorinated media, along with the correlation of those properties to valuable applications of fluorinated compounds.

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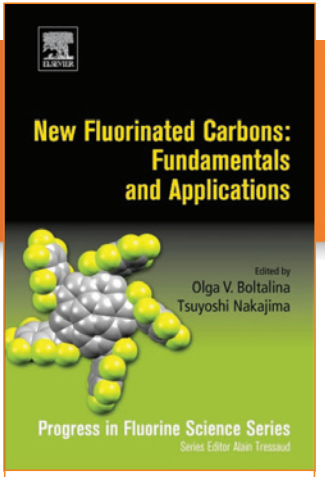

New Fluorinated Carbons: Fundamentals and Applications

Progress in Fluorine Science Series

Edited by: ***Olga V. Boltalina*** Colorado State University, Fort Collins, Colorado, USA
Tsuyoshi Nakajima Aichi Institute of Technology, Toyota, Japan
Alain Tressaud ICMCB-CNRS University of Bordeaux, Pessac Cedex, France

ELSEVIER

This expanded second volume from Alain Tressaud's popular *Progress in Fluorine Science* series provides an overview of cutting-edge research and emerging applications using a variety of new fluorinated carbon materials

KEY FEATURES

- Features contributions by leading experts in the field
- Includes fundamental and current research on synthesis, chemical, and physical properties of fluorinated carbons
- Explores practical applications in energy, electronics, and lubricants
- Examines a range of new fluorinated carbon materials

DESCRIPTION

New Fluorinated Carbons: Fundamentals and Applications is the second volume in Alain Tressaud's *Progress in Fluorine Science* series. This volume provides an overview of cutting-edge research and emerging applications using new fluorinated carbon materials such as fullerenes, carbon nanotubes, polycyclic aromatic molecules, carbon nanofibers, and graphenes.

Edited by recognized experts Olga Boltalina and Tsuyoshi Nakajima, this book includes valuable chapters on syntheses, structure analyses, and chemical and physical properties of fluorinated carbons written by leaders in each respective field. The work also explores the diverse practical applications of these functional materials—from energy storage and energy conversion devices to molecular electronics and lubricants.

ISBN: 978-0-12-803479-8
PUB DATE: September 2016
FORMAT: Paperback
PAGES: c. 428
TRIM: 6w x 9h

AUDIENCE

Chemistry researchers in academia and industry

CHEMISTRY

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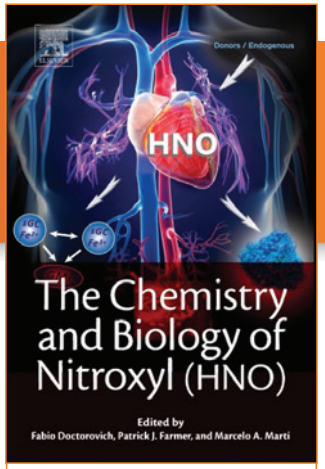

The Chemistry and Biology of Nitroxyl (HNO)

Edited by: ***Fabio Doctorovich*** University of Buenos Aires, Buenos Aires, Argentina
Patrick J. Farmer Baylor University, Waco, TX, USA
Marcelo A. Marti University of Buenos Aires, Buenos Aires, Argentina

ELSEVIER

Provides first-of-its-kind coverage of the intriguing biologically active molecule called nitroxyl, or azanone per IUPAC nomenclature, which has been traditionally elusive due to its intrinsically high reactivity

ISBN: 978-0-12-800934-5
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 402
TRIM: 6w x 9h

AUDIENCE

Researchers, particularly chemists in academia and industry; secondary markets within Biochemistry, Biology, and Pharmaceutics

KEY FEATURES

- Presents the first book on HNO (nitroxyl or azanone), an increasingly important molecule in biochemistry and pharmaceutical research
- Provides a valuable coverage of HNO's chemical structure and significant reactions, including practical guidance on working with this highly reactive molecule
- Contains high quality content from recognized experts in both industry and academia

DESCRIPTION

The Chemistry and Biology of Nitroxyl (HNO) provides first-of-its-kind coverage of the intriguing biologically active molecule called nitroxyl, or azanone per IUPAC nomenclature, which has been traditionally elusive due to its intrinsically high reactivity.

This useful resource provides the scientific basis to understand the chemistry, biology, and technical aspects needed to deal with HNO. Building on two decades of nitric oxide and nitroxyl research, the editors and authors have created an indispensable guide for investigators across a wide variety of areas of chemistry (inorganic, organic, organometallic, biochemistry, physical, and analytical); biology (molecular, cellular, physiological, and enzymology); pharmacy; and medicine.

This book begins by exploring the unique molecule's structure and reactivity, including important reactions with small molecules, thiols, porphyrins, and key proteins, before discussing chemical and biological sources of nitroxyl. Advanced chapters discuss methods for both trapping and detecting nitroxyl by spectroscopy, electrochemistry, and fluorescent inorganic cellular probing.

Expanding on the compound's foundational chemistry, this book then explores its molecular physiology to offer insight into its biological implications, pharmacological effects, and practical issues.

CHEMISTRY

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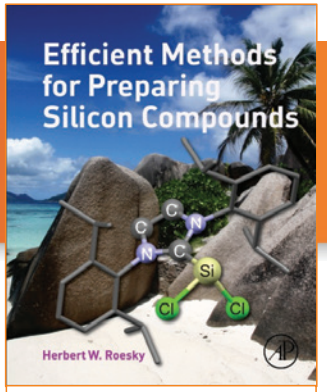


Efficient Methods for Preparing Silicon Compounds

Herbert W Roesky University of Göttingen, Germany

This unique and valuable reference provides chemistry researchers and students with background, properties, and practical guidance on silicon compounds and synthesis. Edited by a renowned expert in the field, each chapter explores a different type of compound, thoroughly illustrated with useful schemes and supplemented by additional references.

ISBN: 978-0-12-803530-6

PUB DATE: May 2016

FORMAT: Paperback

PAGES: c. 514

TRIM: 7.5 x 9.25 in /235*191 mm

AUDIENCE

Inorganic chemistry researchers, those with some interest in relevant materials science and geochemistry.

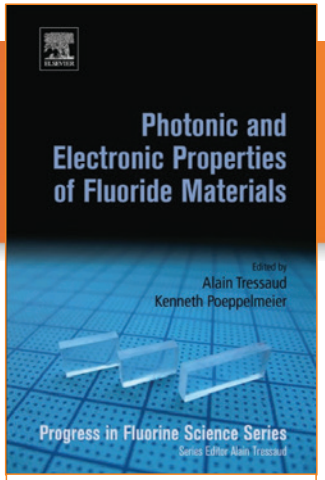
KEY FEATURES

- Includes contributions and edits from leading experts in the field
- Includes detailed chemical schemes and useful references for each preparative method
- Organized by the coordination numbers of the central silicon atom for each compound for easy navigation
- Serves as a go-to primer for researchers in novel compositions of silicon matter

DESCRIPTION

Efficient Methods for Preparing Silicon Compounds is a unique and valuable handbook for chemists and students involved in advanced studies of preparative chemistry in academia and industry. Organized by the various coordination numbers (from two to six) of the central silicon atom of the reported compounds, this book provides researchers with a handy and immediate reference for any compound or properties needed in the area.

Edited by a renowned expert in the field, each chapter explores a different type of compound, thoroughly illustrated with useful schemes and supplemented by additional references. Knowledgeable contributors report on a broad range of compounds on which they have published and which are already used on a broad scale or have the potential to be used in the very near future to develop a new field of research or application in silicon chemistry.



Photonic and Electronic Properties of Fluoride Materials

Progress in Fluorine Science Series

Edited by: ***Alain Tressaud*** ICMCB-CNRS University of Bordeaux, Pessac Cedex, France
Kenneth R. Poeppelmeier Northwestern University, Chicago, IL, USA

ELSEVIER

As the first volume in this new series, this book provides an overview of the important optical, magnetic, and nonlinear properties of fluoride materials that begins with a brief review of relevant synthesis methods from single crystals to nanopowders, offering valuable insight for inorganic chemistry and materials science researchers

ISBN: 978-0-12-801639-8
PUB DATE: March 2016
FORMAT: Hardback
PAGES: c. 520
TRIM: 6w x 9h

AUDIENCE
Researchers in inorganic chemistry and materials science

KEY FEATURES

- Provides unique coverage of the physical properties of fluoride materials for chemists and material scientists
- Begins with a brief review of relevant synthesis methods from single crystals to nanopowders
- Includes valuable information about functional organic fluorides used in nano-electronics, in particular in liquid crystal devices, in organic light-emitting diodes, or in organic dyes for sensitized solar cells

DESCRIPTION

Photonic and Electronic Properties of Fluoride Materials: Progress in Fluorine Science, the first volume in this new Elsevier series, provides an overview of the important optical, magnetic, and non-linear properties of fluoride materials. Beginning with a brief review of relevant synthesis methods from single crystals to nanopowders, this volume offers valuable insight for inorganic chemistry and materials science researchers.

Edited and written by leaders in the field, this book explores the practical aspects of working with these materials, presenting a large number of examples from inorganic fluorides in which the type of bonding occurring between fluorine and transition metals (either d- or 4f-series) give rise to peculiar properties in many fundamental and applicative domains.

This one-of-a-kind resource also includes several chapters covering functional organic fluorides used in nano-electronics, in particular in liquid crystal devices, in organic light-emitting diodes, or in organic dyes for sensitized solar cells.

The book describes major advances and breakthroughs achieved by the use of fluoride materials in important domains such as superconductivity, luminescence, laser properties, multiferroism, transport properties, and more recently, in fluoro-perovskite for dye-sensitized solar cells and inorganic fluoride materials for NLO, and supports future development in these varied and key areas.

The book is edited by Alain Tressaud, past chair and founder of the CNRS French Fluorine Network. Each book in the collection includes the work of highly-respected volume editors and contributors from both academia and industry to bring valuable and varied content to this active field.

CHEMISTRY

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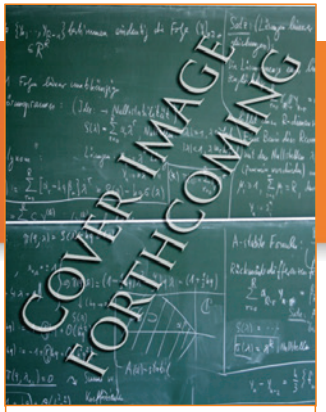


Organosilicon Compounds

From Theory to Synthesis to Applications

Vladimir Ya Lee University of Tsukuba, Tsukuba, Japa

Theoretical, synthetic, physiochemical, and applied aspects of organosilicon chemistry

ISBN: 978-0-12-801981-8

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 450

TRIM: 7.5w x 9.25h

AUDIENCE

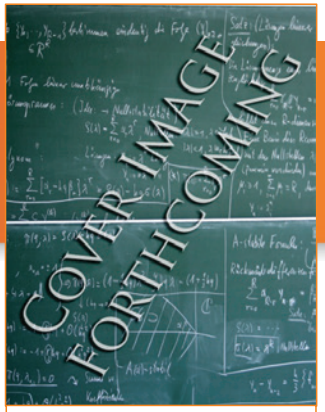
Organic, organometallic, Main group chemistry researchers

KEY FEATURES

- Features valuable contributions from prominent experts that cover both fundamental (theoretical, synthetic, physico-chemical) and applied (material science, applications) aspects of modern organosilicon chemistry
- Covers important breakthroughs in the field as well as with the historically significant achievements of the past
- Includes applied information for a wide range of specialists from junior and senior researchers (from both academia and industry), working in organometallic, organosilicon, main group element, transition metal, and industrial silicon chemistry, as well as those from interdisciplinary fields such as polymer, material science, and nanotechnology

DESCRIPTION

Organosilicon Compounds: From Theory to Synthesis to Applications provides a comprehensive overview of this important area of organic and organometallic chemistry, dealing with compounds containing carbon–silicon bonds. This field, which includes compounds which are widely encountered in commercial products such as in the fabrication of sealants, adhesives, and coatings, has seen many milestone discoveries reported during the last few years. Beginning with the theoretical aspects of organosilicon compounds' structure and bonding, the book than explores the synthetic aspects, including main group element organosilicon compounds, transition metal complexes, silicon cages and clusters, reactive intermediates, silaaromatics, multiple bonds to silicon, and more. *Organosilicon Compounds* then explores physical and chemical properties, through X-ray crystallography, 29Si NMR spectroscopy, mass spectrometry, and other methods. Finally, the work delves into applications for industrial uses and in related fields, such as polymer, material science, nanotechnology, bioorganic, and medicinal silicon chemistry.



Encapsulated Catalysts

Samahe Sadjadi Iran Polymer and Petrochemical Institute, Tehran, Iran

ISBN: 978-0-12-803836-9

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 400

TRIM: 6w x 9h

AUDIENCE

Researchers in chemistry and chemical engineering; secondarily in materials science

Explores the encapsulation effects on reactivity, synthesis, and selectivity for organic, inorganic, hybrid, and biological systems

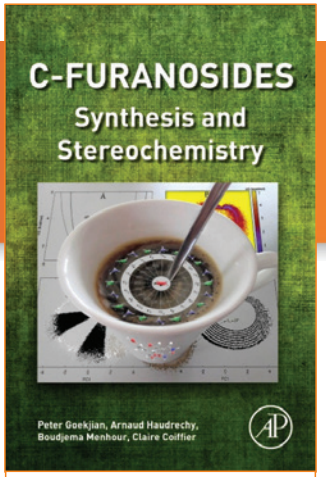
KEY FEATURES

- Discusses one of the most promising advances in catalysis and recent developments in the area including enzyme mimic catalysts and new nano-materials for catalyst encapsulation
- Provides interdisciplinary coverage of organic, inorganic and biological materials for encapsulation of catalysts
- Describes various types of reactions which can be catalyzed in presence of encapsulated catalysts

DESCRIPTION

Although reactivity and selectivity of homogenous catalysts are better than their heterogeneous counterparts, the difficulty of their separation from reaction mixture, and/or their sensitivity to reaction conditions, limit their industrial applications. Immobilization of homogenous catalysts on inorganic or organic supports enables the separation of homogenous catalysts, as well as the protection or reuse of catalysts. Recently, the combination of encapsulation and catalyst support has led to new generation of supported catalysts in which the catalyst is encapsulated within cavities of support. In these, the support not only plays its classic role by protecting the catalyst and improving its separation and reusability, but also, it participates in catalysis via encapsulation of catalyst within its micro cavity, resulting in improved reactivity and selectivity of catalyst. In this regard, encapsulated catalysts could pave the way for developing of enzyme mimic catalysts.

Encapsulated Catalysts provides valuable information for chemists, chemical engineers, and materials scientists in this promising, growing area. The book describes many kinds of encapsulated catalysts and their applications in chemistry, in organic, inorganic, hybrid, and biological systems. Unlike other works, which discuss traditional supports, this useful resource uniquely focuses on the encapsulation effects on reactivity and selectivity.



C-Furanosides

Synthesis and Stereochemistry

Peter Goekjian Chemistry Department, Claude Bernard University Lyon 1, Lyon, France
Arnaud Haudrechy Institute of Molecular Chemistry, Reims (ICMR), University of Reims Champagne-Ardenne, Reims, France
Boudjema Menhour Institute of Molecular Chemistry, Reims (ICMR), University of Reims Champagne-Ardenne, Reims, France
Claire Coiffier Institute of Molecular Chemistry, Reims (ICMR), University of Reims Champagne-Ardenne, Reims, France

This comprehensive overview examines published approaches to different C-furanoside stereoisomers, and interprets outcomes in terms of a reasonable number of stereochemical models. The book enables the reader to determine the best approach to a particular C-glycoside compound, and explores the various rational models for stereochemical analysis of furanoside reactivity

ISBN: 978-0-12-803739-3
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 550
TRIM: 6w x 9h

AUDIENCE

Organic, natural product, and carbohydrate chemists in industry and academia

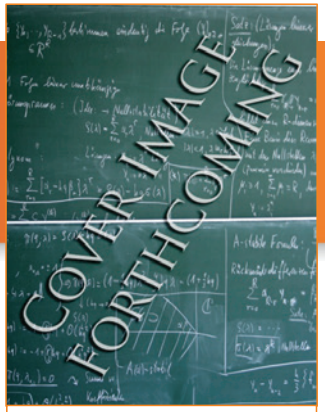
KEY FEATURES

- Provides a comprehensive review of the growing literature in C-furanosides
- Enables readers to choose the most convenient approach to access a defined target in natural products synthesis or pharmacology and make reasonable predictions for the stereochemical outcome in unpublished cases
- Explores the various rational models for stereochemical analysis of furanoside reactivity, with a clear distinction made between physical chemical mechanisms and stereochemical models
- Provides an interpretation of the outcome in terms of a reasonable number of stereochemical models

DESCRIPTION

C-Furanosides: Synthesis and Stereochemistry provides a much needed overview of synthetic and stereochemical principles for C-pentofuranosides: analogs of a 5-membered ring carbohydrate glycoside (furanoside), in which the anomeric oxygen has been replaced with a carbon. Carbon analogs of carbohydrates, dubbed C-glycosides, have remained an important and interesting class of mimetics, be it in natural product synthesis, for pharmacological applications, as conformational probes, or for biological studies.

While our understanding of conformational behavior and of stereoselective synthesis in 6-membered ring compounds is quite good, our ability to predict the conformation of 5-membered ring compounds, or to predict the stereochemical outcome of a given reaction, remains anecdotal—even the famous anomeric effect is poorly understood in 5-membered rings. Through a comprehensive review of literature approaches to the different C-furanoside stereoisomers, as well as an interpretation of the outcome in terms of a reasonable number of stereochemical models, *C-Furanosides: Synthesis and Stereochemistry* enables the reader to determine the best approach to a particular C-glycoside compound, and also to understand a certain level of rationalization and predictability for the synthesis of new systems.



The Chemistry of Heterocycles

Vishnu Ji Ram Emeritus Professor, Lucknow University, and former Dy. Director Director for the Central Drug Research Institute, Lucknow, India
Arun Sethi Professor of Chemistry at Lucknow University, India
Mahendra Nath Prof in the Department of Chemistry, Delhi University
Ramendra Pratap Asstant Profesor, Department of Chemistry, Delhi University, India

ISBN: 978-0-08-101033-4
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 680
TRIM: 6w x 9h

AUDIENCE

Predominantly organic, heterocycle and medicinal chemists, at both academic and industrial levels. Particular interest for upper-level students and those teaching in these areas

A comprehensive review of key knowledge and current advances in the chemistry and application of these important structures

KEY FEATURES

- Provides clear, detailed information on each heterocyclic group, including structural features such as ring strain, basicity, synthesis and reactivity towards electrophilic and nucleophilic reagents
- Highlights the latest advances in the field including phosphorous and selenium-based heterocycles, supported by numerous illustrations
- Includes details of functionalized heterocycles used as synthons for the construction of various arenes and heteroarenes

DESCRIPTION

Heterocycle compounds are an essential component of modern organic and medicinal chemistry. They are the cornerstone of many of our most popular pharmaceuticals, and play a central role in natural product development for a range of industries. A solid understanding of the varied properties of different heterocyclic compounds is therefore highly beneficial to researchers, and *The Chemistry of Heterocycles; structure, activity and applications* provides a detailed guide to the chemistry, behavior and potential of these important structures to support such researchers.

Beginning with an introduction to heterocyclic chemistry in Chapter 1, Chapter 2 goes on to provide a practical guide to international nomenclature, including discussion of fused ring systems, heteroatoms with abnormal valencies, and bridged, spiro and polycyclic heterocycles. Three membered heterocycles are then the focus of Chapter 3, where structural and thermodynamic properties, importance in natural products, medicines and materials, and aspects such as strain, basicity and reactivity of three membered nitrogen heterocycles are discussed, before the whole range of three membered heterocycles are outlined in detail. Chapters 4 – 8 then follow the same format, covering well over 100 key heterocycle structures, from Azetidines, Pyrroles and Pyridines, to Benzoxepins and Oxocanes. Finally, Chapter 9 explores cutting-edge advances in the development of Phosphorous and Selenium based heterocycles.

Drawing on the expert knowledge of its highly experienced authors, *The Chemistry of Heterocycles; structure, activity and applications* is a practical tool for all those studying and working with heterocycles across a range of disciplines.

CHEMISTRY

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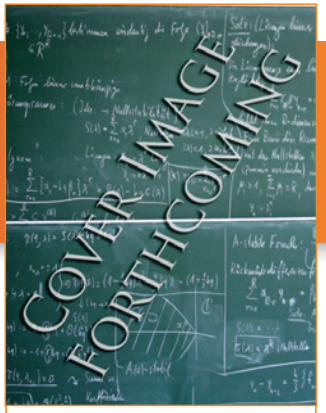


Making Drugs from Fragments

Starting Simple and Keeping it Simple

Vicki Nienaber President and Chief Scientific Officer, Zenobia Therapeutics, USA

ISBN: 978-0-12-809677-2

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 320

TRIM: 6w x 9h

AUDIENCE

Medicinal Chemists, Drug Discovery Researchers, Pharmaceutical Scientists, Managers at Pharmaceutical Organizations, Post grad and academic drug design researchers

A practical guide to evaluating and implementing fragment based drug design from leading experts in the field

KEY FEATURES

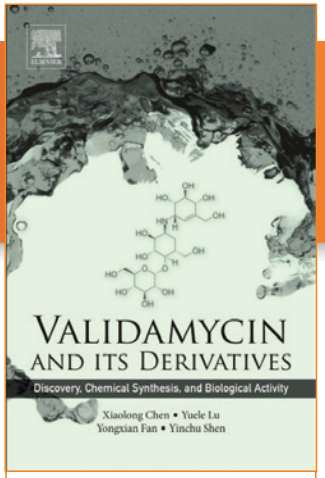
- Discusses current methods and common issues associated with implementing and optimizing FBLD, supported by practical examples from industry experts
- Draws on the author's experience bridging academia and industry to present the key practical knowledge needed by relative new-comers to the technology in an accessible way
- Reviews the need for standardization and highlights implementation options

DESCRIPTION

As a method that offers great benefits in terms of economic viability, rapidity of results and good success rates, fragment-based drug design has quickly been embraced by the drug discovery community. Combining strong coverage of foundational knowledge with expert tips and techniques, *Starting simple and keeping it simple: How to make drugs from fragments* is designed to provoke new ideas and discussion amongst seasoned professionals, whilst helping those in non-scientific roles to evaluate the opportunities and benefits of implementing fragment-based design at their organizations.

Beginning with an introduction to the rules and metrics of fragment-based lead discovery and how to assess their usefulness, the book then reviews methods for prioritizing targets, designing fragment libraries and the potential for combining fragment-based methods with high-throughput screening for the benefit of both. Taking a practical approach to finding fragments is also discussed, followed by fragments finding their own binding sites. Methods for taking simple fragments and optimizing them to simple drug-like candidates are reviewed, followed by a practical overview of why fragments might not develop and optimize as expected. Readers will also learn how parallel processing can help streamline the fragment-to-lead process. The book concludes by asking if the processes and accumulated data can be simplified and standardized to increase the efficiency of fragment-based drug discovery.

Under the expert guidance of its pioneering author, *Starting simple and keeping it simple: How to Make Drugs From Fragments* is both a practical tool for chemists and an accessible guide for their managers to the best ways to implement and optimize fragment-based drug design in their work.



Validamycin and its Derivatives

Discovery, Chemical Synthesis, and Biological Activity

Edited by: ***Xiaolong Chen*** Institute of Fermentation Engineering, Zhejiang University of Technology, PR China

ELSEVIER

Reviews how medicinal chemists are employing the bioactive properties of validamycin and its related agricultural antibiotics in novel pharmaceutical drugs

ISBN: 978-0-08-100999-4

PUB DATE: May 2017

FORMAT: Paperback

PAGES: c. 250

TRIM: 6w x 9h

AUDIENCE

Medicinal chemists and pharmaceutical scientists, particularly those working on the development of novel antibiotics and antidiabetic drugs; biomedical scientists; agricultural chemists; academic researchers and postgraduates studying medicinal chemistry

KEY FEATURES

- Offers complete coverage of validamycin chemistry from a highly experienced team of authors
- Encourages the discovery of further novel drugs based on validamycin derivatives
- Presents an interesting model for establishing new pharmaceutical leads from agricultural sources
- Includes coverage of the total chemical synthesis of validamycin and its intermediates, including valienamine, validamine, valiolamine and validoxylamines

DESCRIPTION

Validamycin and its Derivatives: Discovery, Chemical Synthesis and Biological Activity presents, for the first time, a complete review of the underlying chemistry, synthesis, behavior and application of these compounds.

Beginning with an introduction to validamycin, the book then outlines the key elements of its discovery and production, including details of its structures, isolation, analysis, and issues relating to its large scale production.

Biological activities are then explored in more detail, followed by details of biosynthesis. Further to this, the chemical synthesis of validamycin and its intermediates, including valienamine, validamine, valiolamine, and validoxylamines is reviewed, before preparation of these derivatives and their biological activities are explored.

Finally, the book concludes with a discussion of the economic aspects of working with validamycin and its potential in future applications and trends. With its detailed chemical coverage from a team of expert authors, this detailed guide can be applied to the large-scale industrial production of antibiotics and the adaptation of bioactive agents, from agricultural, to novel pharmaceutical applications.

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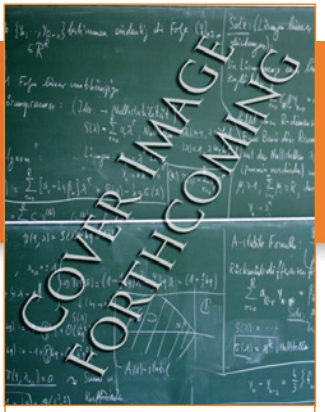


Design of Hybrid Molecules for Drug Development

Edited by: ***Michael Decker*** Professor of Pharmaceutical and Medicinal Chemistry, Institute of Pharmacy and Food Chemistry, Julius-Maximilians-Universität Würzburg, Germany

ELSEVIER

Reviews current advances in the design of hybrid molecules for the development of novel drugs and their improved efficacy

ISBN: 978-0-08-101011-2

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 250

TRIM: 7.5w x 9.25h

AUDIENCE

Medicinal chemists and drug researchers looking for an antidote to the limitations of classical lead discovery. Also computational chemists, biochemists, pharmaceutical scientists, medical professionals and academic researchers

KEY FEATURES

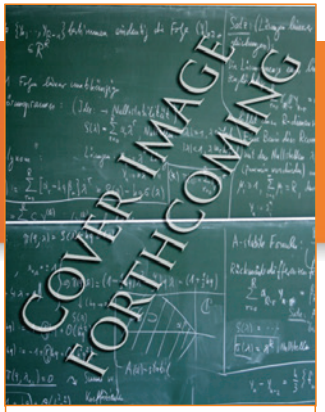
- Highlights an approach unimpaired by the limitations of the classical search for lead structures - one of the core problems in modern drug development processes, making the content of high relevance for both academic and non-academic drug development processes
- Pulls together research and design techniques in a novel way to give researchers the best possible platform from which to review the approaches and techniques applied
- Compares the advantages and disadvantages of these compounds
- Includes the very latest developments, such as photoactivatable and photo-responsive drugs

DESCRIPTION

Design of Hybrid Molecules for Drug Development reviews the principles, advantages, and limitations involved with designing these groundbreaking compounds. Beginning with an introduction to hybrid molecule design and background as to their need, the book goes on to explore a range of important hybrids, with hybrids containing natural products, molecules containing NO- and H2S-donors, dual-acting compounds acting as receptor ligands and enzyme inhibitors, and the design of photoresponsive drugs all discussed.

Drawing on practical case studies, the hybridization of molecules for development as treatments for a number of key diseases is then outlined, including the design of hybrids for Alzheimer's, cancer, and malaria.

With its cutting-edge reviews of breaking developments in this exciting field, the book offers a novel approach for all those working in the design, development, and administration of drugs for a range of debilitating disorders.



Transition Metal-Catalyzed Indole Synthesis

Transition Metal-Catalyzed Heterocycle Synthesis Series

Xiao-Feng Wu Leibniz-Institut für Katalyse (LIKAT), Universität Rostock, Germany and Zhejiang Sci-Tech University, Hangzhou, China

ISBN: 978-0-12-809376-4

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 140

TRIM: 6w x 9h

AUDIENCE

Researchers focused on synthesis (organic and organometallic chemistry), transition metal catalysis, heterocycle chemistry

Short, focused work on properties and synthetic methods of the heterocycle compound Indole

KEY FEATURES

- Brief, focused review of the active research on Indole and its synthesis via transition metal catalysis
- Useful coverage of Indole properties and both intermolecular and intramolecular cyclization
- Volume Five in Elsevier's short work series, *Transition Metal-Catalyzed Heterocycles Synthesis*

DESCRIPTION

Transition Metal-Catalyzed Indole Synthesis: Transition Metal-Catalyzed Heterocycle Synthesis series provides an overview of indole, describing the properties of these heterocycle compounds and a guide to traditional synthetic procedures. The book then explores catalyzed procedures for indole synthesis in greater detail and depth than is currently available in published review articles.

This short series, authored by Xiao-Feng Wu, summarizes recent achievements on heterocycles synthesis with transition metals, such as catalysts, with each volume dedicated to one heterocycle compound.

CHEMISTRY

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Multi-Scale Approaches in Drug Discovery

From Empirical Knowledge to In silico Experiments and Back

Edited by: ***Alejandro Speck-Planche*** FCT Fellow, REQUIMTE/Department of Chemistry and Biochemistry, University of Porto, Portugal

ELSEVIER

A guide to improving efficiency in drug discovery by analyzing and approaching the development of new treatments from many different angles

ISBN: 978-0-08-101129-4

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 220

TRIM: 6w x 9h

AUDIENCE

All scientists working in drug discovery and related areas: medicinal chemists, pharmaceutical chemists, biologists (including those using computational tools), practitioners, experts working in the fields of chemoinformatics and bioinformatics, scientists working in biomedicine and nanotechnology

KEY FEATURES

- Offers practical guidance on ways to implement multiscale approaches for increased efficiency in drug discovery
- Draws on the experience of a highly skilled team of authors under the editorial guidance of one of the field's leading experts
- Includes cutting-edge techniques at the forefront of medicinal chemistry and drug discovery optimization

DESCRIPTION

Multi-Scale Approaches to Drug Discovery: From Empirical Knowledge to In Silico *Experiments and Back* furnishes chemists with the detail they need to identify drug leads with the highest potential before isolating and synthesizing them to produce effective drugs with greater swiftness than classical methods may allow. This significantly speeds up the search for more efficient therapeutic agents.

After an introduction to multiscale approaches that outline the need for, and benefits of, their use, the book goes on to explore a range of useful techniques, research areas, and their potential applications to this process. Activity cliffs in drug discovery, computational biology in drug discovery, and the use of a novel multitasking chemo-bioinformatic models to speed up the discovery of potent and safer antibacterial peptides are all discussed before the book goes on to review drug and gene delivery, Nano-QSAR in drug discovery, medicinal chemistry, computational approaches in peptide discovery, and the design of multi-target drugs/ligands against neurodegenerative disorders.

A study in multitasking chemoinformatic models follows, with a further discussion of polypharmacology. Complex networks for analyzing and studying biochemical pathways, and in combination with QSAR approaches are then explored before the book concludes with a review of medicinal chemistry of therapeutic agents against neglected diseases and natural products as constant sources of efficient chemoth.

America Invents Act Primer

Sarah Hasford Washington, D.C., USA

A valuable desk reference on the Leahy-Smith America Invents Act ("AIA") that provides a straightforward explanation of how the AIA has changed U.S. patent law, when each change took effect, and the practical implications of each change

ISBN: 978-0-12-812096-5

PUB DATE: February 2017

FORMAT: Paperback

PAGES: c. 326

TRIM: 6w x 9h

AUDIENCE

Legal professionals who are involved in patent law, including Patent Attorneys, Patent Agents, Technical Specialists, scientists who serve as Expert Witnesses in patent cases, and Patent Examiners

KEY FEATURES

- An identification of the AIA section's effective date, including the statutory basis for such dates;
- A direct comparison of relevant pre- and post-AIA statutes;
- An analysis of the similarities and differences between pre- and post-AIA statutes;
- A discussion of the legislative goals that were addressed by the AIA section; and
- An analysis of the practical implications of the changes made by the AIA section.

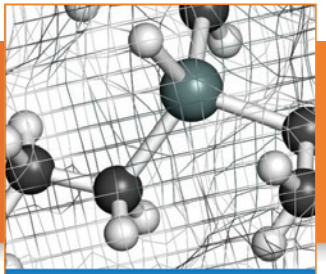
DESCRIPTION

Since its passage in 2011, the Leahy-Smith America Invents Act ("AIA") has brought many significant changes to U.S. patent law. Accordingly, to assist readers in developing an in-depth understanding of these changes, the *America Invents Act Primer* provides discussions of each and every one of the AIA's substantive provisions. More specifically, and whenever possible, each discussion of the AIA's provisions includes the following key features:

- An identification of the AIA section's effective date, including the statutory basis for such dates;
- A direct comparison of relevant pre- and post-AIA statutes;
- An analysis of the similarities and differences between pre- and post-AIA statutes;
- A discussion of the legislative goals that were addressed by the AIA section; and
- An analysis of the practical implications of the changes made by the AIA section.

The *America Invents Act Primer* additionally highlights a number of free resources that can be utilized by readers to attain a deeper understanding of the AIA, including resources that explain how the U.S. Patent and Trademark Office is applying the new law.

Overall, the *America Invents Act Primer* provides a unique and practical desk reference on the AIA that is sure to be useful for years to come.



Organic Synthesis, 4e

Michael B Smith Department of Chemistry, University of Connecticut, USA

ISBN: 978-0-12-800720-4

PREVIOUS EDITION ISBN: 9781890661403

PUB DATE: December 2017

FORMAT: Hardback

PAGES: c. 1086

TRIM: 8.5w x 10.875h

AUDIENCE

Graduate and postgraduate chemistry students and researchers

Using a synthesis-based approach to learning and teaching organic reactions, this book combines updated molecular modeling content, problems, and visualizations

KEY FEATURES

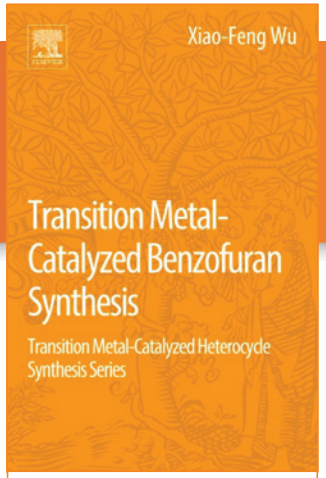
- Fully revised and updated throughout, and teorganized into 19 chapters for a more cogent and versatile presentation of concepts
- Includes reaction examples taken from literature research reported between 2010-2015
- Features new full-color art and new chapter content on process chemistry and green organic chemistry
- Offers valuable study and teaching tools, including Chapter Review Questions and Homework Problems for students; Lecture presentations and other useful material for qualified course instructors

DESCRIPTION

Organic Synthesis, Fourth Edition, provides a reaction-based approach to this important branch of organic chemistry. Updated and accessible, this eagerly-awaited revision offers a comprehensive foundation for graduate students coming from disparate backgrounds and knowledge levels, to provide them with critical working knowledge of basic reactions, stereochemistry and conformational principles. This reliable resource uniquely incorporates molecular modeling content, problems, and visualizations, and includes reaction examples and homework problems drawn from the latest in the current literature.

In the ***Fourth Edition,*** the organization of the book has been improved to better serve students and professors and accommodate important updates in the field. The first chapter reviews basic retrosynthesis, conformations and stereochemistry. The next three chapters provide an introduction to and a review of functional group exchange reactions; these are followed by chapters reviewing protecting groups, oxidation and reduction reactions and reagents, hydroboration, selectivity in reactions. A separate chapter discusses strategies of organic synthesis, and he book then delves deeper in teaching the reactions required to actually complete a synthesis. Carbon-carbon bond formation reactions using both nucleophilic carbon reactions are presented, and then electrophilic carbon reactions, followed by pericyclic reactions and radical and carbene reactions. The important organometallic reactions have been consolidated into a single chapter. Finally, the chapter on combinatorial chemistry has been removed from the strategies chapter and placed in a separate chapter, along with valuable and forward-looking content on green organic chemistry, process chemistry and continuous flow chemistry.

Throughout the text, ***Organic Synthesis, Fourth Edition*** utilizes Spartan-generated molecular models, class tested content, and useful pedagogical features to aid student study and retention, including Chapter Review Questions, and Homework Problems. PowerPoint© presentations and answer keys are also available to support instructor use via textbook.elsevier.com.



Transition Metal-Catalyzed Benzofuran Synthesis

Transition Metal-Catalyzed Heterocycle Synthesis Series

Xiao-Feng Wu Leibniz-Institut für Katalyse (LIKAT), Universität Rostock, Germany and Zhejiang Sci-Tech University, Hangzhou, China

ELSEVIER

Represents a short, focused, and in-depth work on the properties and synthetic methods of the heterocycle compound benzofuran

ISBN: 978-0-12-809377-1

PUB DATE: February 2017

FORMAT: Paperback

PAGES: c. 140

TRIM: 6w x 9h

AUDIENCE

Researchers focused on synthesis (organic and organometallic chemistry), transition metal catalysis, heterocycle chemistry

KEY FEATURES

- Offers a brief, focused review of this active research in benzofuran synthesis via transition metal catalysis
- Useful coverage of benzofuran properties and both intermolecular and intramolecular cyclization
- Volume Four in Elsevier's short work series, *Transition Metal-Catalyzed Heterocycles Synthesis*
- Provides greater detail and depth than is currently available in published review articles

DESCRIPTION

Transition Metal-Catalyzed Benzofuran Synthesis: Transition Metal-Catalyzed Heterocycle Synthesis Series provides an overview of benzofuran, describing properties of these heterocycle compounds and the traditional synthetic procedures used for them. The book then explores catalyzed procedures for benzofuran synthesis in greater detail and depth than is currently available in published review articles.

This volume is part of the short series authored by Xiao-Feng Wu that summarizes recent achievements on heterocycle synthesis with transition metals as catalysts, with each volume dedicated to one heterocycle compound.

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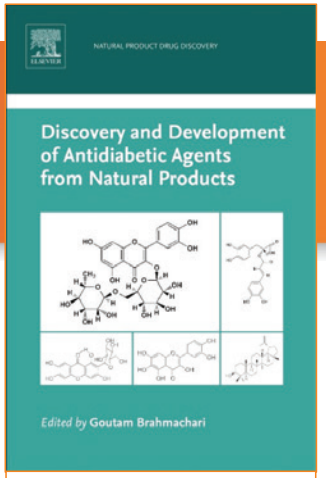


Discovery and Development of Antidiabetic Agents from Natural Products

Natural Product Drug Discovery

Goutam Brahmachari Full Professor of Organic Chemistry, Department of Chemistry, Visva-Bharati (a Central University), Santiniketan, West Bengal, India

ELSEVIER

Reviews the medicinal chemistry and latest developments in the identification and chemical development of antidiabetic agents from natural sources

A Volume in the Natural Product Drug Discovery Series.

KEY FEATURES

- Contains chapters written by active researchers and leading global experts who are deeply engaged in the research field of natural product chemistry for drug discovery
- Provides comprehensive coverage of cutting-edge research advances in the design of medicinal natural products with potential as preventives and therapeutics for diabetes and related metabolic issues
- Presents a practical review of the identification, isolation, and extraction techniques that help support medicinal chemists in the lab

DESCRIPTION

Discovery and Development of Antidiabetic Agents from Natural Products brings together global research on the medicinal chemistry of active agents from natural sources for the prevention and treatment of diabetes and associated disorders. From the identification of promising leads, to the extraction and synthesis of bioactive molecules, this book explores a range of important topics to support chemists in the discovery and development of safer, more economical therapeutics that are desperately needed in response to this emerging global epidemic.

Beginning with an overview of bioactive chemical compounds from plants with anti-diabetic properties, the book goes on to outline the identification and extraction of anti-diabetic agents and antioxidants from natural sources. It then explores anti-diabetic plants from specific regions before looking more closely at the background, isolation, and synthesis of key therapeutic compounds and their derivatives, including Mangiferin, Resveratrol, natural saponins, and alpha-glucosidase enzyme inhibitors. The book concludes with a consideration of current and potential future applications.

Combining the expertise of specialists from around the world, this volume aims to support and encourage medicinal chemists investigating natural sources as starting points for the development of standardized, safe, and effective antidiabetic therapeutics.

ISBN: 978-0-12-809450-1

PUB DATE: October 2016

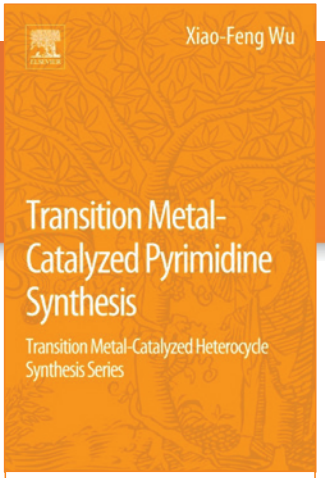
FORMAT: Paperback

PAGES: c. 316

TRIM: 6w x 9h

AUDIENCE

Primarily medicinal chemists and researchers into antidiabetic drug design and drug leads from natural products, with a secondary audience of pharmacologists, biochemists and medical professionals involved in pre-clinical testing, clinical trials and application of antidiabetic drugs. Also of interest to post-grad and academic researchers in these fields



Transition Metal Catalyzed Pyrimidine, Pyrazine, Pyridazine and Triazine Synthesis

Transition Metal-Catalyzed Heterocycle Synthesis Series

Xiao-Feng Wu Leibniz-Institut für Katalyse (LIKAT), Universität Rostock, Germany and Zhejiang Sci-Tech University, Hangzhou, China
Zechao Wang Universität Rostock Leibniz-Institut für Katalysis, Rostock, Germany

ELSEVIER

Represents a short, focused, and in-depth work on the properties and synthetic methods of the heterocycle compound pyrimidine

ISBN: 978-0-12-809378-8
PUB DATE: November 2016
FORMAT: Paperback
PAGES: c. 96
TRIM: 6w x 9h

AUDIENCE

Researchers focused on synthesis (organic and organometallic chemistry), transition metal catalysis, heterocycle chemistry

KEY FEATURES

- Offers a brief, focused review of the active research in pyrimidine synthesis via transition metal catalysis
- Provides useful coverage of pyrimidine properties and both intermolecular and intramolecular cyclization
- Volume Three in Elsevier's short work series, *Transition Metal-Catalyzed Heterocycles Synthesis*
- Provides greater detail and depth than is currently available in published review articles

DESCRIPTION

Transition Metal-Catalyzed Pyrimidine Synthesis: Transition Metal-Catalyzed Heterocycle Synthesis Series provides an overview of pyrimidine, describing properties of these heterocycle compounds and the traditional synthetic procedures used for them. The book then explores catalyzed procedures for pyrimidine synthesis in greater detail and depth than is currently available in published review articles.

This volume is part of the short series authored by Xiao-Feng Wu that summarizes recent achievements on heterocycle synthesis with transition metals as catalysts, with each volume dedicated to one heterocycle compound.

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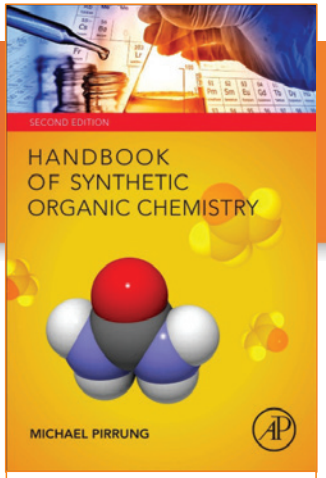


Handbook of Synthetic Organic Chemistry, 2e

Michael C. Pirrung University of California, Riverside, USA

Practical guidance for planning, working up, documenting, analyzing, and improving reactions

KEY FEATURES

- Practical guidance for planning, working up, documenting, analyzing, and improving reactions in synthetic organic chemistry

DESCRIPTION

Handbook of Synthetic Organic Chemistry, Second Edition updates and expands the author's popular 2007 work, *Synthetic Organic Chemist's Companion*. This new handbook provides valuable, practical guidance; incorporates corrections, and includes coverage on important topics, such as lyophylization, crystallization, precipitation, HPLC detectors, gases, and microwave reactions.

The book maintains the useful organization of the author's earlier work, beginning with a basic overview and walking through every practical step of the process of organic synthesis, from reagents, solvents, and temperature control, to documentation, implementation, purification, and analytical methods for the product.

From planning and setting up reactions, to recording them, the book provides insight and valuable guidance into every step of the process.

ISBN: 978-0-12-809581-2

PREVIOUS EDITION ISBN: 9780470107072

PUB DATE: September 2016

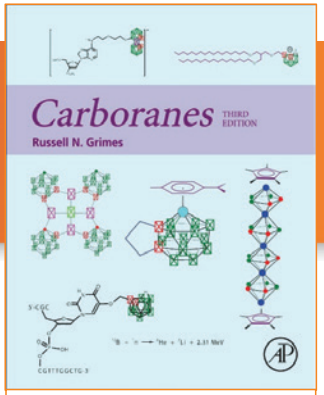
FORMAT: Paperback

PAGES: c. 272

TRIM: 6w x 9h

AUDIENCE

Organic chemistry researchers and advanced students



Carboranes, 3e

Russell N. Grimes University of Virginia, Charlottesville, VA, USA

This definitive resource on the fundamental and applied aspects of carborane chemistry provides a comprehensive overview of the latest published research and review articles in the field

ISBN: 978-0-12-801894-1

PREVIOUS EDITION ISBN: 9780123741707

PUB DATE: August 2016

FORMAT: Hardback

PAGES: c. 1042

TRIM: 7.5w x 9.25h

AUDIENCE

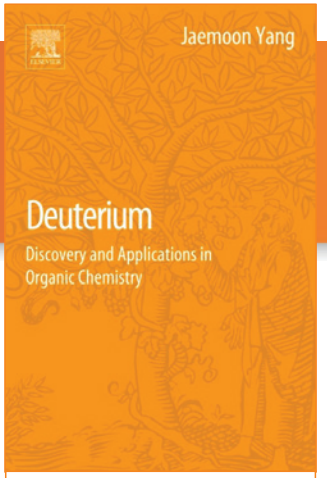
Chemistry researchers in organometallic, organic, and inorganic areas

KEY FEATURES

- Includes over 2,000 molecular structure drawings throughout the text
- Features expanded coverage on applications of carboranes, particularly in biomedicine and nanomaterials, given the growth of research in these areas
- Presents extended and updated tables, listing thousands of compounds with key literature references, provided online via the book's website
- Explores the advances in practical applications for the many areas in which experts have discovered that carboranes afford new possibilities for solving problems and advancing the science

DESCRIPTION

Carboranes, Third Edition, by Russell Grimes, is the definitive resource on the subject. Completely updated with a wealth of research and review articles published in this active field since the previous volume was released in 2011, the book provides a readable and concise introduction to the basic principles underlying the synthesis, structures, and reactions of carboranes, heterocarboranes, and metallacarboranes. Following the valuable foundational information, the book explores the advances in practical applications for the many areas in which experts have discovered that carboranes afford new possibilities for solving problems and advancing the science. These disciplines include polymer science, catalysis, biomedicine, nanomaterials, and others.



Deuterium

Discovery and Applications in Organic Chemistry

Jaemoon Yang Cambridge Isotope Laboratories, Inc., Andover, Massachusetts, USA

ELSEVIER

Short work on the use of heavy hydrogen (2H) in organic synthesis, the stable hydrogen isotope with both a proton and a neutron in its nucleus

ISBN: 978-0-12-811040-9

PUB DATE: May 2016

FORMAT: Paperback

PAGES: c. 116

TRIM: 6w x 9h

AUDIENCE

Organic chemistry researchers in general as well as medicinal chemists

KEY FEATURES

- Provides unique coverage not found elsewhere that is presented in an accessible, dedicated short work
- Contains practical information and examples on the use of Deuterium (D or 2H, Heavy Hydrogen) in organic synthesis
- Presents a detailed description of Deuterium's discovery and applications in the pharmaceutical industry

DESCRIPTION

Deuterium: Discovery and Applications in Organic Chemistry provides a well-illustrated overview of the discovery of 2H or heavy hydrogen, the stable hydrogen isotope with both a proton and a neutron in its nucleus. The work introduces the isotope, its discovery, physical properties, nomenclature, and common compounds, also exploring its application in organic chemistry through classic and recent examples from literature. Finally, the book devotes one chapter to Deuterium in medicinal chemistry and the biological effects of Deuterium Oxide, better known as D2O.

Mechanochemical Organic Synthesis

Davor Margetic Ruder Boškovic Research Institute, Zagreb, Croatia
Vjekoslav Štrukil Ruder Boškovic Research Institute, Zagreb, Croatia

ELSEVIER

A comprehensive survey of current literature in this emerging area of green chemistry, which shows promise for circumventing the use of toxic solvents and reagents and increasing energy efficiency

ISBN: 978-0-12-802184-2
PUB DATE: May 2016
FORMAT: Hardback
PAGES: c. 372
TRIM: 7.5w x 9.25h

AUDIENCE

Chemists (organic, physical) working in research and industry; chemical engineers; graduate-level students in these disciplines; scientists interested in sustainable methods

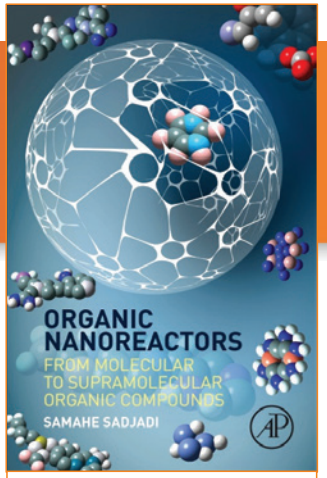
KEY FEATURES

- Features cutting-edge research in the field of mechanochemical organic synthesis for more sustainable reactions
- Integrates advances in green chemistry research into industrial applications and process development
- Focuses on designing techniques in organic synthesis directed toward mild reaction conditions
- Includes global coverage of mechanochemical synthetic protocols for the generation of organic compounds

DESCRIPTION

Mechanochemical Organic Synthesis is a comprehensive reference that not only synthesizes the current literature but also offers practical protocols that industrial and academic scientists can immediately put to use in their daily work. Increasing interest in green chemistry has led to the development of numerous environmentally-friendly methodologies for the synthesis of organic molecules of interest. Amongst the green methodologies drawing attention, mechanochemistry is emerging as a promising method to circumvent the use of toxic solvents and reagents as well as to increase energy efficiency.

The development of synthetic strategies that require less, or the minimal, amount of energy to carry out a specific reaction with optimum productivity is of vital importance for large-scale industrial production. Experimental procedures at room temperature are the mildest reaction conditions (essentially required for many temperature-sensitive organic substrates as a key step in multi-step sequence reactions) and are the core of mechanochemical organic synthesis. This green synthetic method is now emerging in a very progressive manner and until now, there is no book that reviews the recent developments in this area.



Organic Nanoreactors

From Molecular to Supramolecular Organic Compounds

Edited by: ***Samahe Sadjadi*** Iran Polymer and Petrochemical Institute, Tehran, Iran

This comprehensive resource reviews previous research in the emerging field of organic nanoreactors, including coverage of both well-known as well as little-examined compounds

KEY FEATURES

- Focuses on organic nanoreactor compounds for greater depth
- Covers the molecular, supramolecular, and macromolecular perspectives
- Compiles previous and current sources from this growing field in one unique reference
- Provides brief overviews of synthetic routes and characterization methods

DESCRIPTION

Organic Nanoreactors: From Molecular to Supramolecular Organic Compounds provides a unique overview of synthetic, porous organic compounds containing a cavity which can encapsulate one or more guest(s). Confined space within a nanoreactor can isolate the guest(s) from the bulk and effectively influence the reaction inside the nanoreactor. Naturally occurring enzymes are compelling catalysts for selective reactions as their three-dimensional structures build up clefts, caves, or niches in which the active site is located. Additionally, reactive sites carrying special functional groups allow only specific reagents to react in a particular way, to lead to specific enantiomers as products. Equipped with suitable functional groups, then, nanoreactors form a new class of biomimetic compounds, which have multiple important applications in the synthesis of nanomaterials, catalysis, enzyme immobilization, enzyme therapy, and more. This book addresses various synthetic, organic nanoreactors, updating the previous decade of research and examining recent advances in the topic for the first comprehensive overview of this exciting group of compounds, and their practical applications. Bringing in the Editor's experience in both academic research and industrial applications, Organic *Nanoreactors* focuses on the properties and applications of well-known as well as little-examined nanoreactor compounds and materials and includes brief overviews of synthetic routes and characterization methods.

ISBN: 978-0-12-801713-5

PUB DATE: March 2016

FORMAT: Paperback

PAGES: c. 572

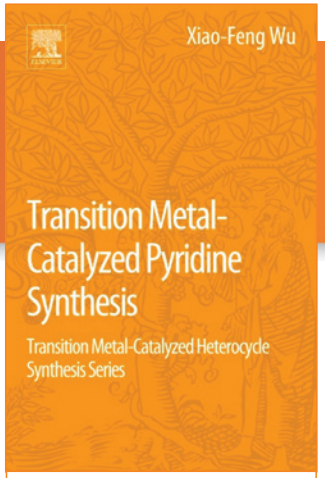
TRIM: 6w x 9h

AUDIENCE

Researchers and advanced students in organic synthesis, nanochemistry, and catalysis

CHEMISTRY

Please contact your Elsevier Sales or Customer Service Representative



Transition Metal-Catalyzed Pyridine Synthesis

Transition Metal-Catalyzed Heterocycle Synthesis Series

Xiao-Feng Wu Leibniz-Institut für Katalyse (LIKAT), Universität Rostock, Germany and Zhejiang Sci-Tech University, Hangzhou, China

ISBN: 978-0-12-809379-5

PUB DATE: February 2016

FORMAT: Paperback

PAGES: c. 82

TRIM: 6w x 9h

AUDIENCE

Short, focused work on properties and synthetic methods of heterocycle compound Pyridine

Short, focused work on properties and synthetic methods of heterocycle compound Pyridine

KEY FEATURES

- Brief, focused review of this active research area, Pyridine synthesis via transition metal catalysis
- Useful coverage of Pyridine properties and both intermolecular and intramolecular cyclization
- Volume Two in Elsevier's short work series, "Transition Metal-Catalyzed Heterocycles Synthesis"

DESCRIPTION

Transition Metal-Catalyzed Pyridine Synthesis provides an overview of pyridines, describing properties of these heterocycle compounds and describing traditional synthetic procedures for them. The book then explores catalyzed procedures for pyridine synthesis in greater detail and depth than is currently available in published Review articles.

The short series *Transition Metal-Catalyzed Heterocycles Synthesis*, authored by Xiao-Feng Wu, summarizes recent achievements on heterocycles synthesis with transition metal as the catalysts, with each volume dedicated to one heterocycle compound.

CHEMISTRY

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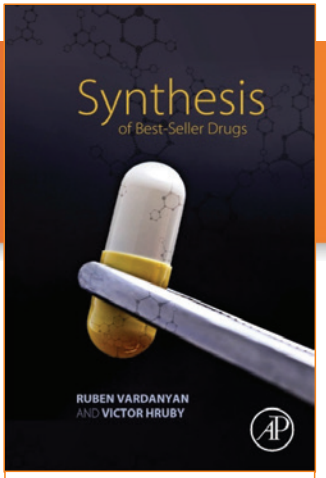


Synthesis of Best-Seller Drugs

Ruben Vardanyan University of Arizona, Tucson, AZ, USA
Victor Hruby University of Arizona, Tucson, AZ, USA

This key reference guide reviews hundreds of the best-selling pharmaceutical drugs organized by key drug groups, highlighting their metabolic action, novel structural features, related drugs and chemical synthesis

ISBN: 978-0-12-411492-0

PUB DATE: January 2016

FORMAT: Paperback

PAGES: c. 846

TRIM: 6w x 9h

AUDIENCE

All those researching the design, development and application of drugs, including medicinal, organic, process and bio chemists, pharmacologists, medical researchers, pharmacists, doctors and students

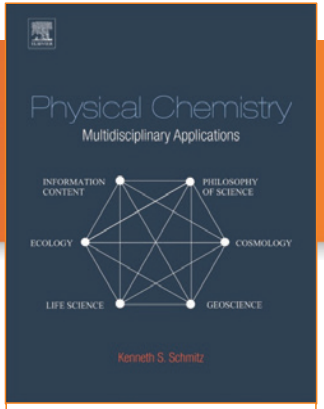
KEY FEATURES

- Describes methods of synthesis, bioactivity and related drugs in key therapeutic areas
- Reviews the main drugs in each of nearly 40 key therapeutic areas, also examining their classification, novel structural features, models of action, and more
- Presents a practical layout designed for use as a quick reference tool by those working in drug design, development and implementation

DESCRIPTION

Synthesis of Best-Seller Drugs is a key reference guide for all those involved with the design, development, and use of the best-selling drugs. Designed for ease of use, this book provides detailed information on the most popular drugs, using a practical layout arranged according to drug type.

Each chapter reviews the main drugs in each of nearly 40 key therapeutic areas, also examining their classification, novel structural features, models of action, and synthesis. Of high interest to all those who work in the captivating areas of biologically active compounds and medicinal drug synthesis, in particular medicinal chemists, biochemists, and pharmacologists, the book aims to support current research efforts, while also encouraging future developments in this important field.



Physical Chemistry

Multidisciplinary Applications

Kenneth S Schmitz University of Missouri, Kansas City, MO, USA

ISBN: 978-0-12-800513-2

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 668

TRIM: 8.5w x 10.78h

AUDIENCE

Researchers and advanced students in the physical and biological sciences: chemistry, physics, geosciences, bio-chemistry, biophysics, life science, materials science, and environmental studies

This new reference covers the concepts, theories, and applications of physical chemistry as they relate to other areas of study including life and environmental sciences, geosciences, cosmology, and philosophy

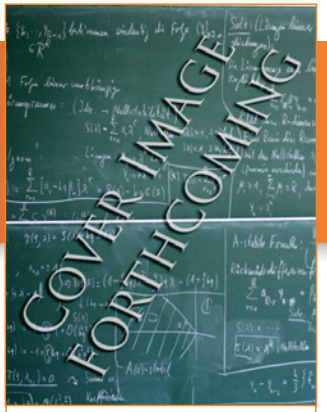
KEY FEATURES

- Emphasizes the intersection of chemistry, math, and physics and the resulting applications across many disciplines of science
- Explores applied physical chemistry principles in six specific areas including life sciences, environmental sciences, geosciences, cosmology, information content (knowledge), and philosophy
- Uses applications from a diverse range of fields to illustrate methods for modeling physical processes, designing new products, and finding solutions to challenging problems
- Provides scientists with the interdisciplinary knowledge to remain competitive in a diverse and rapidly changing job market

DESCRIPTION

Physical Chemistry: Multidisciplinary Applications demonstrates the many ways in which the core concepts of physical chemistry impact other areas of study, including life sciences, environmental sciences, geosciences, cosmology, information content, and philosophy. The applications from these diverse fields illustrate methods that can be used to model physical processes, design new products, find solutions to challenging problems, and become more competitive in a dynamic employment market.

Also available from the author: *Physical Chemistry: Concepts and Theory* (ISBN 9780128005149)



Modelling and Simulation in the Science of Micro- and Meso-Porous Materials

Edited by: ***C.R.A. Catlow*** Royal Institution of Great Britain, London, U.K.
Veronique Van Speybroeck Ghent University, Ghent, Belgium
Rutger van Santen Eindhoven University of Technology, Eindhoven, The Netherlands

ELSEVIER

A guide for using and understanding modelling tools in the study of micro- and meso-porous materials, complete with the most up-to-date developments in the field

ISBN: 978-0-12-805057-6

PUB DATE: June 2017

FORMAT: Paperback

PAGES: c. 330

TRIM: 6w x 9h

AUDIENCE

Graduate students in chemistry, chemical engineering and materials science; both fundamental and applied scientists working on these materials or just entering the field

KEY FEATURES

- Authored and edited by the experts in the field of micro- and meso-porous materials
- Includes introductory material and background both to the science of microporous materials and to the techniques employed in contemporary modelling studies
- Rigorous enough for scientists conducting related research while also accessible to graduate students in chemistry, chemical engineering, and materials science

DESCRIPTION

Scientists studying micro- and meso-porous materials now need either to use modelling tools or to understand their role and significance. *Modelling and Simulation in the Science of Micro- and Meso-Porous Materials* will address these needs as well as providing more general surveys of some of the most significant developments in micro- and meso-porous science. It includes sections on Structure Modelling and Prediction, Synthesis, Nucleation and Growth, Sorption and Separation processes, Reactivity and Catalysis, and Fundamental Developments in Methodology to give a complete overview of the techniques currently utilized in this rapidly advancing field. The book thoroughly addresses the major challenges in the field of microporous materials, including the crystallization mechanism of porous materials and rational synthesis of porous materials with controllable porous structures and compositions. New applications in emerging areas are also covered, including biomass conversion, C1 chemistry, and CO_2 capture.

CHEMISTRY

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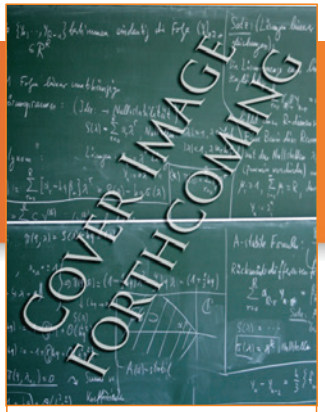


Non-covalent Interactions in Quantum Chemistry and Physics

Theory and Applications

Edited by: ***Alberto Otero de la Roza*** National Institute for Nanotechnology, National Research Council of Canada, Edmonton, Alberta, Canada
Gino A. DiLabio National Institute for Nanotechnology, National Research Council of Canada, Edmonton, Alberta, Canada

ELSEVIER

An in-depth overview of the available quantum-chemistry methods for intermolecular interactions, and the most important applications of those techniques

ISBN: 978-0-12-809835-6
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 1070
TRIM: 8.5w x 10.875h

AUDIENCE

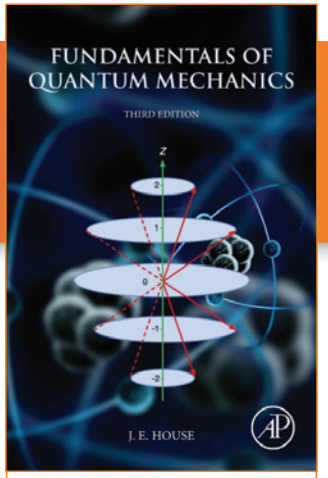
Chemistry and physics researchers in at both graduate and researcher level in both industry and academia interested in the modelling of processes involving intermolecular interactions computationally (including computational/ theoretical chemists, crystallography, supramolecular chemistry); secondary: researchers in related fields that use DFT applications to chemistry, biology (drug design) and material science

KEY FEATURES

- Summarizes the state-of-the-art in the computational intermolecular interactions field in a single comprehensive work
- Introduces students and researchers from related fields wanting to get acquainted with the topic without having to scour the very extensive primary literature sources
- Presents the theoretical foundations of current quantum mechanical methods side by side with a collection of examples of how they have been applied to solve practical problems

DESCRIPTION

Non-covalent Interactions in Quantum Chemistry and Physics provides an entry point for new researchers and a standard reference for researchers publishing in the area of non-covalent interactions. The theoretical development of methods for non-covalent interactions is often performed without regard for actual applications. This book puts theory and applications side-by-side and allows the reader to gauge the strengths and weaknesses of different techniques. It gives a comprehensive and in-depth overview of the available quantum-chemistry methods for intermolecular interactions and details the most relevant fields of application for those techniques. Written by the leading experts in this field, the book enables the experienced researcher to learn the most recent developments and keep up with emerging methods and applications.



Fundamentals of Quantum Mechanics, 3e

James E. House Emeritus Professor of Chemistry, Illinois State University, Normal, IL, USA; Adjunct Professor of Chemistry, Illinois Wesleyan University, Bloomington, IL, USA

A clear and detailed introduction to quantum mechanics and its applications in chemistry and physics

KEY FEATURES

- Clear, accessible style makes the content appropriate for professional researchers and students alike
- Presents the results of quantum mechanical calculations that can be performed with readily available software
- Provides an exceptionally clear discussion of spin-orbit coupling and group theory, along with comprehensive coverage of barrier penetration (quantum mechanical tunneling) that touches upon hot topics, such as superconductivity and scanning tunneling microscopy

DESCRIPTION

Fundamentals of Quantum Mechanics, Third Editions an accessible and detailed introduction to quantum mechanics and its applications in chemistry and physics. All required math is clearly explained, including intermediate steps in derivations, with a clear, but concise, review of the math included at appropriate points.

Most of the elementary quantum mechanical models—including particles in boxes, rigid rotor, harmonic oscillator, barrier penetration, and hydrogen atom—are fully presented, along with applications of these models to selected “real world” topics.

This new edition includes many new topics, such as lasers, band theory, and heat capacity of solids, spectroscopy of molecules and complexes, including applications to ligand fields, and small molecules of astrophysical interest.

ISBN: 978-0-12-809242-2

PREVIOUS EDITION ISBN: 9780123567710

PUB DATE: May 2017

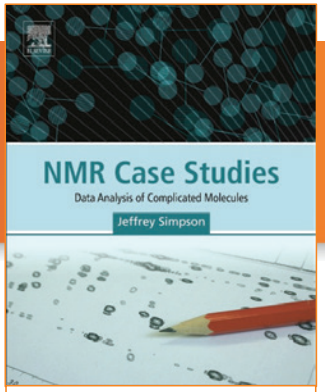
FORMAT: Paperback

PAGES: c. 300

TRIM: 6w x 9h

AUDIENCE

Upper-level undergraduate students and graduate students studying quantum mechanics in chemistry or physics; organic chemists using quantum chemistry in their research



NMR Case Studies

Data Analysis of Complicated Molecules

Jeffrey H Simpson Department of Chemistry, MIT, Cambridge, MA, USA

ISBN: 978-0-12-803342-5

PUB DATE: March 2017

FORMAT: Paperback

PAGES: c. 290

TRIM: 7.5w x 9.25h

AUDIENCE

Analytical chemists primarily; scientists in the pharmaceutical and biotechnology sectors. Academic researchers and graduate students taking related coursework

Details the nuclear magnetic resonance (NMR) spectra of large and interesting molecules, including corticosteroids, biomolecules, polypeptides, and secondary metabolites

KEY FEATURES

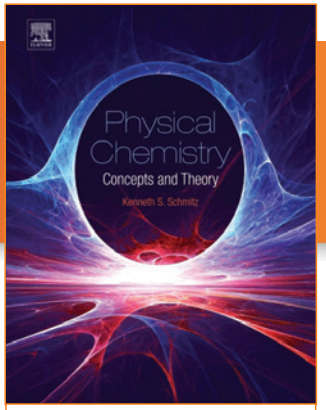
- Features the nuclear magnetic resonance (NMR) spectra of a number of large and interesting molecules, ranging from corticosteroids, to secondary metabolites and large synthetically prepared molecules
- Uses case studies to pair the spectral signals from the various sites of each molecule to their molecular counterparts in a process called assignment
- Includes complex NMR problems, aiding readers in the development of NMR spectral assignment skills
- Features input from a leading scientist with over 20 years of research and instruction experience in the field

DESCRIPTION

NMR Case Studies: Data Analysis of Complicated Molecules provides a detailed discussion of the full logical flow associated with assigning the NMR spectra of complex molecules, also helping readers further develop their NMR spectral assignment skills. The robust case studies present the logic of each assignment, from beginning to end, fully exploring the available range of potential solutions.

Readers will gain a better appreciation of various approaches and develop an intuitive sense for when this particular concept should be implemented, thus enhancing their skillsets and providing a host of methodologies potentially amenable to yielding correct assignments.

Authored by a scientist with more than 20 years of experience in research and instruction, this book is the ideal reference for anyone in search of application-based content. The book addresses complicated molecules, including corticosteroids, biomolecules, polypeptides, and secondary metabolites.



Physical Chemistry

Concepts and Theory

Kenneth S Schmitz University of Missouri, Kansas City, MO, USA

ELSEVIER

This new comprehensive reference covers the concepts, theories, and applications of physical chemistry as they relate to both the physical and biological sciences, helping the reader unite the subdisciplines in the field

ISBN: 978-0-12-800514-9

PUB DATE: December 2016

FORMAT: Hardback

PAGES: c. 842

TRIM: 8.5w x 10.78h

AUDIENCE

Researchers and advanced students in the physical and biological sciences: chemistry, physics, geosciences, bio-chemistry, biophysics, life science, materials science, and environmental studies

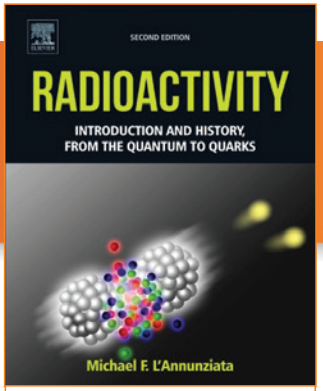
KEY FEATURES

- Describes how materials behave and chemical reactions occur at the molecular and atomic levels
- Uses theoretical constructs and mathematical computations to explain chemical properties and describe behavior of molecular and condensed matter
- Demonstrates the connection between math and chemistry and how to use math as a powerful tool to predict the properties of chemicals
- Emphasizes the intersection of chemistry, math, and physics and the resulting applications across many disciplines of science

DESCRIPTION

Physical Chemistry: Concepts and Theory provides a comprehensive overview of physical and theoretical chemistry while focusing on the basic principles that unite the sub-disciplines of the field. With an emphasis on multidisciplinary, as well as interdisciplinary applications, the book extensively reviews fundamental principles and presents recent research to help the reader make logical connections between the theory and application of physical chemistry concepts.

Also available from the author: *Physical Chemistry: Multidisciplinary Applications* (ISBN 9780128005132).



Radioactivity, 2e

Introduction and History, From the Quantum to Quarks

Michael F. L'Annunziata Oceanside, CA, USA

ELSEVIER

As a comprehensive review of radioactivity from natural and artificial sources on earth and radiation of cosmic origins, this book provides users with a chronological account of the significant historical events on the topic dating from 1895 to the present, along with an introduction to the atom and its nucleus

ISBN: 978-0-444-63489-4

PREVIOUS EDITION ISBN: 9780444527158 (hardback) and 9780444562791 (paperback)

PUB DATE: June 2016

FORMAT: Hardback

PAGES: c. 920

TRIM: 7.5w x 9.25h

AUDIENCE

Chemists (especially physical and nuclear); physicists; scientists interested in radioactivity and nuclear energy; upper division undergraduates through graduate-level students

KEY FEATURES

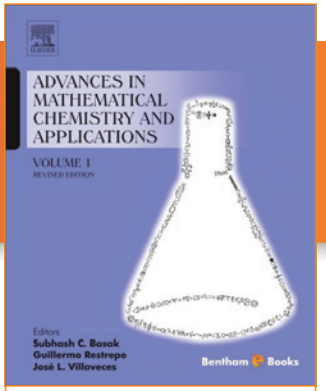
- Provides a detailed account of nuclear radiation – its origin and properties, the atom, its nucleus, and subatomic particles including quarks, leptons, and force carriers (bosons)
- Includes fascinating biographies of the pioneers in the field, including captivating anecdotes and insights
- Presents meticulous accounts of experiments and calculations used by pioneers to confirm their findings

DESCRIPTION

Radioactivity: Introduction and History, From the Quantum to Quarks, Second Edition provides a greatly expanded overview of radioactivity from natural and artificial sources on earth, radiation of cosmic origins, and an introduction to the atom and its nucleus. The book also includes historical accounts of the lives, works, and major achievements of many famous pioneers and Nobel Laureates from 1895 to the present.

These leaders in the field have contributed to our knowledge of the science of the atom, its nucleus, nuclear decay, and subatomic particles that are part of our current knowledge of the structure of matter, including the role of quarks, leptons, and the bosons (force carriers).

Users will find a completely revised and greatly expanded text that includes all new material that further describes the significant historical events on the topic dating from the 1950s to the present.



Advances in Mathematical Chemistry and Applications: Volume 1

Edited by: ***Subhash C. Basak*** University of Minnesota Duluth, USA
Guillermo Restrepo Universidad de Pamplona, Colombia
Jose L Villaveces Universidad de los Andes, Colombia

ELSEVIER

A clear and concise depiction of the "state of the art" of the fundamental concepts of mathematical chemistry and their relevant applications by a large number of reputed contributors of the scientific discipline

ISBN: 978-1-68108-198-4

PUB DATE: January 2016

FORMAT: Paperback

PAGES: c. 360

TRIM: 7.5w x 9.25h

AUDIENCE

MSc and PhD students, academic personnel and researchers seeking updated and critically important information on the fundamental concepts of mathematical chemistry and their applications; Scientists working in new drug discovery and hazard assessment of chemicals

KEY FEATURES

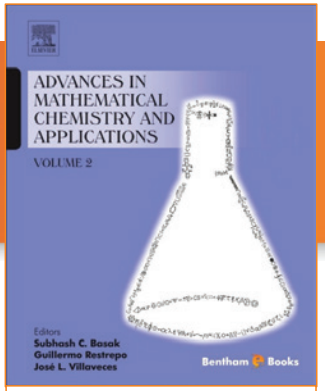
- Brings together both the theoretical and practical aspects of the fundamental concepts of mathematical chemistry
- Covers applications in diverse areas of physics, chemistry, drug discovery, predictive toxicology, systems biology, chemoinformatics, and bioinformatics
- Revised 2015 edition includes a new chapter on the current landscape of hierarchical QSAR modelling
- About half of the book focuses primarily on current work, new applications, and emerging approaches for the mathematical characterization of essential aspects of molecular structure, while the other half describes applications of structural approach to new drug discovery, virtual screening, protein folding, predictive toxicology, DNA structure, and systems biology

DESCRIPTION

Advances in Mathematical Chemistry and Applications highlights the recent progress in the emerging discipline of discrete mathematical chemistry. Editors Subhash C. Basak, Guillermo Restrepo, and Jose Luis Villaveces have brought together 27 chapters written by 68 internationally renowned experts in these two volumes.

Each volume comprises a wise integration of mathematical and chemical concepts and covers numerous applications in the field of drug discovery, bioinformatics, chemoinformatics, computational biology, mathematical proteomics, and ecotoxicology.

Volume 1 includes chapters on mathematical structural descriptors of molecules and biomolecules, applications of partially ordered sets (posets) in chemistry, optimal characterization of molecular complexity using graph theory, different connectivity matrices and their polynomials, use of 2D fingerprints in similarity-based virtual screening, mathematical approaches to molecular structure generation, comparability graphs, applications of molecular topology in drug design, density functional theory of chemical reactivity, application of mathematical descriptors in the quantification of drug-likeness, utility of pharmacophores in drug design, and much more.



Advances in Mathematical Chemistry and Applications: Volume 2

Edited by: ***Subhash C. Basak*** University of Minnesota Duluth, USA
Guillermo Restrepo Universidad de Pamplona, Colombia
Jose L Villaveces Universidad de los Andes, Colombia

ELSEVIER

A clear and concise depiction of the "state of the art" of the fundamental concepts of mathematical chemistry and their relevant applications by a large number of reputed contributors of the scientific discipline

ISBN: 978-1-68108-053-6
PUB DATE: January 2016
FORMAT: Paperback
PAGES: c. 334
TRIM: 7.5w x 9.25h

AUDIENCE

MSc and PhD students, academic personnel and researchers seeking updated and critically important information on the fundamental concepts of mathematical chemistry and their applications; Scientists working in new drug discovery and hazard assessment of chemicals

KEY FEATURES

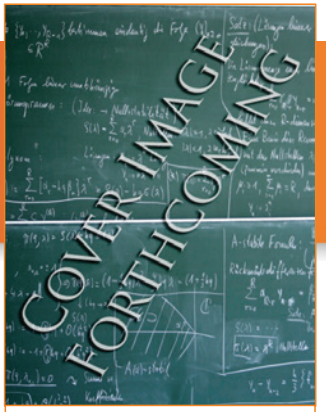
- Brings together both the theoretical and practical aspects of the fundamental concepts of mathematical chemistry
- Covers applications in diverse areas of physics, chemistry, drug discovery, predictive toxicology, systems biology, chemoinformatics, and bioinformatics
- About half of the book focuses primarily on current work, new applications, and emerging approaches for the mathematical characterization of essential aspects of molecular structure, while the other half describes applications of structural approach to new drug discovery, virtual screening, protein folding, predictive toxicology, DNA structure, and systems biology

DESCRIPTION

Advances in Mathematical Chemistry and Applications highlights the recent progress in the emerging discipline of discrete mathematical chemistry. Editors Subhash C. Basak, Guillermo Restrepo, and Jose Luis Villaveces have brought together 27 chapters written by 68 internationally renowned experts in these two volumes.

Each volume comprises a wise integration of mathematical and chemical concepts and covers numerous applications in the field of drug discovery, bioinformatics, chemoinformatics, computational biology, mathematical proteomics, and ecotoxicology.

Volume 2 explores deeper the topics introduced in Volume 1, with numerous additional topics such as topological approaches for classifying fullerene isomers; chemical reaction networks; discrimination of small molecules using topological molecular descriptors; GRANCH methods for the mathematical characterization of DNA, RNA and protein sequences; linear regression methods and Bayesian techniques; *in silico* toxicity prediction methods; drug design; integration of bioinformatics and systems biology, molecular docking, and molecular dynamics; metalloenzyme models; protein folding models; molecular periodicity; generalized topologies and their applications; and many more.



Self-Assembly Processes at Interfaces, Vol 0000

Multiscale Phenomena

Vincent Ball University of Strasbourg, INSERM, Strasbourg, France

A conceptual and unifying view of adsorption, self-assembly and grafting processes at solid–liquid and liquid–gas interfaces

A Volume in the Interface Science and Technology Series.

ISBN: 978-0-12-801970-2

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 300

TRIM: 6w x 9h

AUDIENCE

(Post)-graduate students in chemical engineering, chemistry, physics and biology; researchers in academia and industry performing research in self-assembly at surfaces

KEY FEATURES

- An interdisciplinary work for chemical engineers, chemists, physicists, and biologists
- Provides a unifying view of the field, from fundamentals to methods and applications
- Presens concepts applicable at both solid–liquid and liquid–gas interfaces

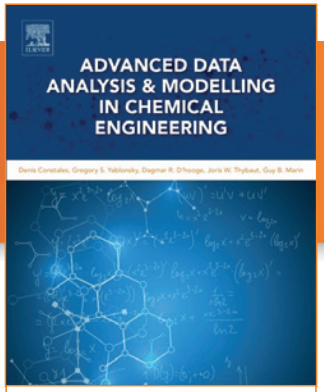
DESCRIPTION

Self-Assembly Processes at Interfaces: Multiscale Phenomena provides the conceptual and unifying view of adsorption, self-assembly and grafting processes at solid–liquid and liquid–gas interfaces. The book also describes experimental methods where these are applicable.

An invaluable resource for (post)-graduate students looking to bridge the gap between acquiring the field's existing knowledge and the creation of new insights, *Self-Assembly Processes at Interfaces* recalls fundamental concepts (giving rigorous, but first-principle-based, calculations and exercises), and shows how these concepts have been used in recent research articles.

The book provides guidelines for how best to start research in the field of surface chemistry with biological macromolecules and molecules able to undergo self-assembly process at interfaces in the presence of a liquid, and it discusses the very fundamental aspects and applications using concepts of biomimetic chemistry.

Highlighting the interdisciplinary aspects of the field of self-assembly at interfaces, *Self-Assembly Processes at Interfaces* is intended for chemical engineers, chemists, physicists, and biologists. Important equations are demonstrated on the basis of fundamental concepts. However, to facilitate ease of use, overly complex mathematical developments are avoided.



Advanced Data Analysis and Modelling in Chemical Engineering

Denis Constales Department of Mathematics, Ghent University, Belgium; ***Gregory S. Yablonsky*** Parks College of Engineering, Aviation and Technology, St. Louis University, USA; ***Dagmar R. D'hooge*** Department of Chemical Engineering and Technical University at Ghent (Belgium); ***Joris W. Thybaut*** Department of Chemical Engineering and Technical Chemistry, Ghent University, Belgium; ***Guy B. Marin*** Department of Chemical Engineering and Technical Chemistry, Ghent University, Belgium

This state-of-the-art overview provides the mathematical foundations of different areas of chemical engineering—including classical analytical methods and computational methods—and describes their typical applications

ISBN: 978-0-444-59485-3

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 400

TRIM: 7.5w x 9.25h

AUDIENCE

Chemical engineers and researchers; PhD students, mathematicians working on topics related to chemical engineering/chemistry

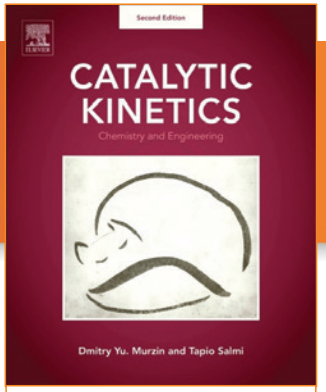
KEY FEATURES

- Presents the main mathematical problems and models of chemical engineering and provides the reader with contemporary methods and tools to solve them
- Summarizes in a clear and straightforward way, the contemporary trends in the interaction between mathematics and chemical engineering vital to chemical engineers in their daily work
- Includes classical analytical methods, computational methods, and methods of symbolic computation
- Covers the latest cutting edge computational methods, like symbolic computational methods

DESCRIPTION

Advanced Data Analysis and Modeling in Chemical Engineering provides the mathematical foundations of different areas of chemical engineering and describes typical applications. The book presents the key areas of chemical engineering, their mathematical foundations, and corresponding modeling techniques.

Modern industrial production is based on solid scientific methods, many of which are part of chemical engineering. To produce new substances or materials, engineers must devise special reactors and procedures, while also observing stringent safety requirements and striving to optimize the efficiency jointly in economic and ecological terms. In chemical engineering, mathematical methods are considered to be driving forces of many innovations in material design and process development.



Catalytic Kinetics, 2e

Chemistry and Engineering

Dmitry Yu Murzin Professor, Chemical Technology, Åbo Akademi University, Turku, Finland
Tapio Salmi Professor, Chemical Reaction Engineering, Åbo Akademi University, Turku, Finland

ELSEVIER

A unique monograph bridging the gaps between hetero-, homo- and enzymatic-catalysis, treating both the kinetics and mass transfer phenomena in catalysis

ISBN: 978-0-444-63753-6
PREVIOUS EDITION ISBN: 978-0-444-56053-7
PUB DATE: June 2016
FORMAT: Paperback
PAGES: c. 740
TRIM: 7.5w x 9.25h

AUDIENCE

Post-graduate students and researchers in academia and industry working in catalysis, kinetics, and chemical engineering

KEY FEATURES

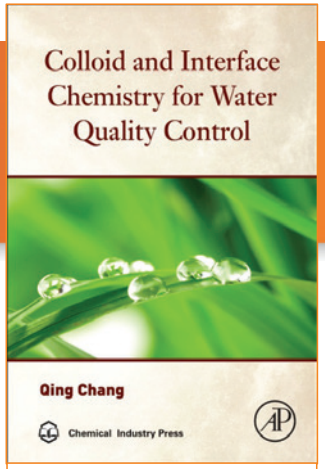
- Fully revised and expanded, providing the latest developments in catalytic kinetics
- Bridges the gaps that exist between hetero-, homo- and enzymatic-catalysis
- Provides necessary tools and new concepts for researchers already working in the field of catalytic kinetics
- Written by internationally-renowned experts in the field
- Examples and exercises following each chapter make it suitable as an advanced course book

DESCRIPTION

Catalytic Kinetics: Chemistry and Engineering, Second Edition offers a unified view that homogeneous, heterogeneous, and enzymatic catalysis form the cornerstone of practical catalysis.

The book has an integrated, cross-disciplinary approach to kinetics and transport phenomena in catalysis, but still recognizes the fundamental differences between different types of catalysis. In addition, the book focuses on a quantitative chemical understanding and links the mathematical approach to kinetics with chemistry.

A diverse group of catalysts is covered, including catalysis by acids, organometallic complexes, solid inorganic materials, and enzymes, and this fully updated second edition contains a new chapter on the concepts of cascade catalysis. Finally, expanded content in this edition provides more in-depth discussion, including topics such as organocatalysis, enzymatic kinetics, nonlinear dynamics, solvent effects, nanokinetics, and kinetic isotope effects.



Colloid and Interface Chemistry for Water Quality Control

Qing Chang Professor in the School of Environmental and Municipal Engineering at Lanzhou Jiaotong University, Lanzhou, Gansu, China

Addresses all the important physical-chemistry theories, links colloid and surface chemistry to water treatment applications

ISBN: 978-0-12-809315-3

PUB DATE: May 2016

FORMAT: Hardback

PAGES: c. 264

TRIM: 6w x 9h

AUDIENCE

Graduate students, researchers, and engineers who are working on water supply and drainage, environmental science and environmental engineering. It also can be used as a reference book by graduate students majoring in chemical engineering, biosystems engineering, or physical chemistry.

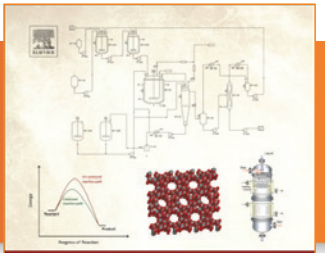
KEY FEATURES

- Concise content makes this suitable for both teaching and learning
- Focuses on water treatment technology and methods, links colloid and surface chemistry to water treatment applications
- Not only addresses all the important physical-chemistry principles and theories, but also presents new developed knowledge on water treatment
- Includes exercises, problems and solutions, which are very helpful for testing learning and understanding

DESCRIPTION

Colloid and Interface Chemistry for Water Quality Control provides basic but essential knowledge of colloid and interface science for water and wastewater treatment. Divided into two sections, chapters 1 to 8 presents colloid chemistry including simple history and basic concepts, diffusion and Brown Motion, sedimentation, osmotic pressure, optical properties, rheology properties, electric properties, emulsion, foam and gel, and so on; chapters 9 to provides interface chemistry theories including the surface of liquid, the surface of solution, and the surface of solid.

This valuable book is the only one that presents colloid and interface chemistry from the water quality control perspective. This book was written for graduate students in the area of water treatment and environmental engineering, and it could be used as the reference for researchers and engineers in the same area.



Industrial Catalytic Processes for Fine and Specialty Chemicals

Edited by: ***Sunil S Joshi*** Senior Principal Scientist, Chemical Engineering & Process Development Division, CSIR-National Chemical Laboratory, Pune, India
Vivek V. Ranade Deputy Director & Chair, Chemical Engineering & Process Development Division, CSIR-National Chemical Laboratory, Pune, India

ELSEVIER

ISBN: 978-0-12-801457-8
PUB DATE: April 2016
FORMAT: Hardback
PAGES: c. 756
TRIM: 7.5w x 9.25h

AUDIENCE

Industrial and academic chemists, and chemical engineers and technologists working in the area of process development using catalysis

Through a comprehensive approach, this book brings out important catalytic reactions for green and sustainable technologies covering catalyst characterization and performance, as well as catalyst stability and recyclability

KEY FEATURES

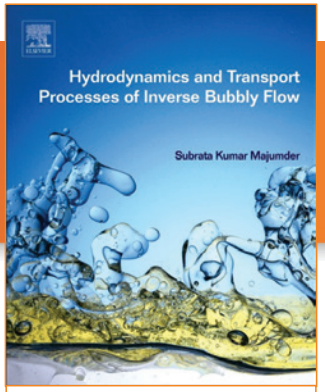
- Discusses the fundamentals of catalytic processes, catalyst preparation and characterization, and reaction engineering
- Outlines the homogeneous catalytic processes as they apply to specialty chemicals
- Introduces industrial catalysis and catalytic processes for fine chemicals
- Includes a number of case studies to demonstrate the various processes and methods for designing green catalysts

DESCRIPTION

Industrial Catalytic Processes for Fine and Specialty Chemicals provides a comprehensive methodology and state-of-the art toolbox for industrial catalysis. The book begins by introducing the reader to the interesting, challenging, and important field of catalysis and catalytic processes.

The fundamentals of catalysis and catalytic processes are fully covered before delving into the important industrial applications of catalysis and catalytic processes, with an emphasis on green and sustainable technologies. Several case studies illustrate new and sustainable ways of designing catalysts and catalytic processes.

The intended audience of the book includes researchers in academia and industry, as well as chemical engineers, process development chemists, and technologists working in chemical industries and industrial research laboratories.



Hydrodynamics and Transport Processes of Inverse Bubbly Flow

Subrata Kumar Majumder Chemical Engineering Department, Indian Institute of Technology Guwahati, Guwahati, India

ELSEVIER

With its important coverage of the science and fundamentals behind hydrodynamic characteristics, this concise reference helps researchers in academia and industry understand the phenomena involved in multiphase flow systems in chemical and biochemical engineering

ISBN: 978-0-12-803287-9

PUB DATE: March 2016

FORMAT: Paperback

PAGES: c. 446

TRIM: 7.5w x 9.25h

AUDIENCE

Graduate students and researchers in academia and industry working in chemical and biochemical engineering

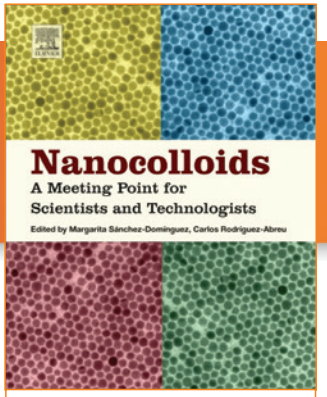
KEY FEATURES

- A first book in the market dedicated to the hydrodynamics of inverse bubbly flows
- Includes fundamentals of conventional and inverse bubble columns for different hydrodynamic parameters
- Includes recommendations for future applications of bubble flows

DESCRIPTION

Hydrodynamics and Transport Processes of Inverse Bubbly Flow provides the science and fundamentals behind hydrodynamic characteristics, including flow regimes, gas entrainment, pressure drop, holdup and mixing characteristics, bubble size distribution, and the interfacial area of inverse bubble flow regimes. Special attention is given to mass and heat transfer.

This book is an indispensable reference for researchers in academia and industry working in chemical and biochemical engineering. *Hydrodynamics and Transport Processes of Inverse Bubbly Flow* helps facilitate a better understanding of the phenomena of multiphase flow systems as used in chemical and biochemical industries.



Nanocolloids

A Meeting Point for Scientists and Technologists

Edited by: ***Margarita Sanchez Dominguez*** Centro de Investigacion en Materiales Avanzados, S.C. (CIMAV-Unidad Monterrey), Nuevo Leon, Mexico
Carlos Rodriguez Abreu INL-International Iberian Nanotechnology Laboratory, Braga, Portugal

ELSEVIER

Provides a current, comprehensive overview of nanotechnology and its role in colloid and interface chemistry by explaining the fundamentals, demonstrating various applications and detailing experimental techniques and methods

ISBN: 978-0-12-801578-0

PUB DATE: March 2016

FORMAT: Hardback

PAGES: c. 514

TRIM: 7.5w x 9.25h

AUDIENCE

Researchers in academia and industry as well as chemical engineers working in the fields of chemistry, physics, materials science, pharmacology and cosmetics

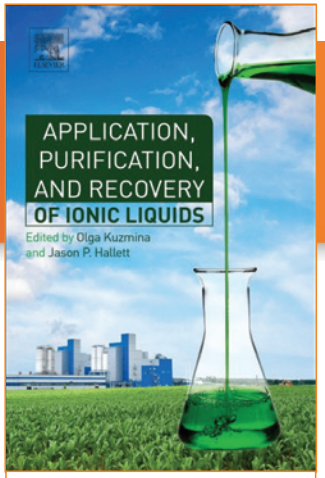
KEY FEATURES

- Edited by leading academics with over 10 years' experience in the field of colloid and surfactant science.
- Each chapter is authored by recognized experts in the field.
- Outlines the underlying fundamental science behind nanocolloids.
- Provides comprehensive coverage of current topics and potential applications in nanocolloid science.
- Presents a multidisciplinary approach to help chemical engineers, chemists, physicists, materials scientists and pharmacologists, form an in-depth understanding of nanocolloid science.

DESCRIPTION

Nanocolloids: A Meeting Point for Scientists and Technologists presents an easy-to-read approach to current trends in nanoscale colloid chemistry, which offers relatively simple and economically feasible ways to produce nanomaterials. Nanocolloids have been the subjects of major development in modern technology, with many current and future applications.

The book helps scientists and technologists to understand the different aspects of modern nanocolloid science. It outlines the underlying fundamental principles of nanocolloid science and covers applications ranging from emulsions to dispersions and suspensions. You will find details on experimental techniques and methods for the synthesis and characterization of nanocolloids, including the latest developments in nanoemulsions and nanoparticles.



Application, Purification, and Recovery of Ionic Liquids

Edited by: ***Olga Kuzmina*** Research Associate, Department of Chemistry, Imperial College London, London, UK
Jason Hallett Senior Lecturer, Faculty of Engineering, Department of Chemical Engineering, Imperial College London, London, UK

ELSEVIER

A comprehensive overview of the methods used for the purification and recovery of ionic liquids, giving users a description of the methods used for recovery and purification of ILs, a summary of the economic aspects of using ILs, and a review on the toxicity data of ILs

ISBN: 978-0-444-63713-0
PUB DATE: February 2016
FORMAT: Paperback
PAGES: c. 276
TRIM: 6w x 9h

AUDIENCE

Researchers and scientists in chemical engineering, organic and physical chemistry, electrochemistry, and technical staff working with ionic liquids

KEY FEATURES

- Chapters written by scientists in academia and researchers in industry, ensuring coverage of both the scientific fundaments and industrial applications
- A single source of information for a broad collection of recovery and purification methods
- Provides information on using ionic liquids as green solvents
- Includes economic aspects of recovery and reuse of ionic liquids

DESCRIPTION

Application, Purification, and Recovery of Ionic Liquids provides a comprehensive overview of the usage of ionic liquids (IL). The book gives a description of the methods used for recovery and purification of ILs, a summary of the economic aspects of using ILs, and a review on the toxicity data of ILs.

It is written for researchers, scientists, and engineers working with ILs, their properties, and usages. The book not only describes the chemical aspects, but the economic and environmental aspects as well, making it of particular interest to professionals applying this technology.

Annual Reports on NMR Spectroscopy, Vol 91

Annual Reports on NMR Spectroscopy

Edited by: ***Graham A. Webb*** Royal Society of Chemistry, Burlington House, London, UK

ISBN: 978-0-12-812085-9

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 300

TRIM: 6w x 9h

AUDIENCE

Organic, inorganic, analytical and physical chemists, biochemists, structural biologists, physicists and all those studying and using NMR spectroscop

This established annual report provides a thorough accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications

KEY FEATURES

- Serves as the premier resource for learning the new techniques and applications of NMR spectroscopy
- Provides a key reference for chemists and physicists using NMR spectroscopy to study the structure and dynamics of molecules
- Covers all aspects of molecular science, including MRI (Magnetic Resonance Imaging)

DESCRIPTION

Annual Reports on NMR Spectroscopy provides a thorough and in-depth accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications. Nuclear magnetic resonance (NMR) is an analytical tool used by chemists and physicists to study the structure and dynamics of molecules. In recent years, no other technique has gained as much significance as NMR spectroscopy. It is used in all branches of science in which precise structural determination is required, and in which the nature of interactions and reactions in solution is being studied.

This book has established itself as a premier means for both specialists and non-specialists who are looking to become familiar with new techniques and applications pertaining to NMR spectroscopy.

Advances in Organometallic Chemistry, Vol 67

Advances in Organometallic Chemistry

Edited by: ***Pedro J. Pérez*** Homogeneous Catalysis Laboratory, Center for Research in Sustainable Chemistry, Universidad de Huelva, Huelva, Spain

This series continually publishes cutting-edge reviews in the field of organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more

ISBN: 978-0-12-812083-5

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 180

TRIM: 6w x 9h

AUDIENCE

Researchers involved in Organometallic Chemistry from a wide perspective, including synthetic protocols, mechanistic studies and practical applications and to those involved in the use of organometallic complexes in homogeneous catalysis

KEY FEATURES

- Contains contributions from leading authorities in the field of organometallic chemistry
- Covers topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more
- Informs and updates readers on all the latest developments in the field
- Carefully edited to provide easy-to-read material

DESCRIPTION

Advances in Organometallic Chemistry contains authoritative review articles of worldwide known researchers on the field of organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more. The book will benefit a wide range of researchers involved in organometallic chemistry, including synthetic protocols, mechanistic studies, and practical applications.

SERIALS

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Advances in Catalysis, Vol 60

Advances in Catalysis

Edited by: ***Chunshan Song*** The Pennsylvania State University, USA

Presents the latest information on the science and technology of catalysis, including such topics as catalyst synthesis, catalyst characterization, and more

KEY FEATURES

- Contains authoritative reviews written by experts in the field
- Explores topics that reflect progress in the field, such as catalyst synthesis, catalyst characterization, catalytic chemistry, reaction engineering, computational chemistry, and physics
- Provides insightful and critical articles, fully edited to suit various backgrounds

DESCRIPTION

Advances in Catalysis fills the gap between journal papers and textbooks across the diverse areas of catalysis research. For more than 60 years, this series has dedicated itself to record and present the latest progress in the field of catalysis, providing the scientific community with comprehensive and authoritative reviews. This series is an invaluable and comprehensive resource for chemical engineers and chemists working in the field of catalysis in both academia and industry.

ISBN: 978-0-12-812072-9

PUB DATE: June 2017

FORMAT: Hardback

PAGES: c. 300

TRIM: 6w x 9h

AUDIENCE

Catalysis researchers and practitioners in academia and industry (mainly chemical engineers, chemists, but also physicists), experts as well as newcomers

SERIALS

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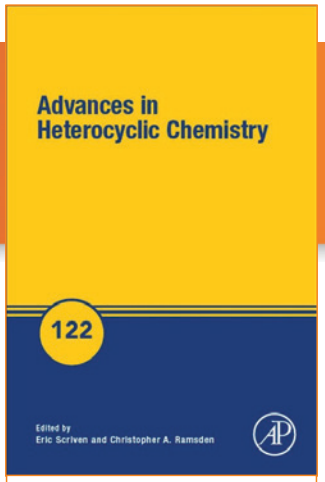

Advances in Heterocyclic Chemistry, Vol 122

Advances in Heterocyclic Chemistry

Edited by: ***Eric Scriven*** Portland, USA
Christopher A. Ramsden Keele University, Staffordshire, UK

Definitive serial publication with comprehensive reviews written by established, world-renowned authorities in heterocyclic chemistry

KEY FEATURES

- Serves as the go-to reference for organic chemists, polymer chemists, and many biological scientists
- Provides the latest comprehensive reviews written by established authorities in the field
- Combines descriptive synthetic chemistry and mechanistic insight to show how chemistry drives the preparation and useful properties of heterocyclic compounds

DESCRIPTION

Advances in Heterocyclic Chemistry is the definitive series in the field—one of great importance to organic chemists, polymer chemists, and many biological scientists. Because biology and organic chemistry increasingly intersect, the associated nomenclature is being used more frequently in explanations.

Written by established authorities in the field from around the world, this comprehensive review combines descriptive synthetic chemistry and mechanistic insight to yield an understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds.

ISBN: 978-0-12-811973-0
PUB DATE: April 2017
FORMAT: Hardback
PAGES: c. 290
TRIM: 6w x 9h

AUDIENCE

Graduate students and research workers in academic and industrial laboratories, organic chemists, polymer chemists and biological scientists

SERIALS
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Advances in Biomembranes and Lipid Self-Assembly, Vol 25

Advances in Biomembranes and Lipid Self-Assembly

Edited by: ***Ales Iglic*** Faculty of Electrical Engineering, University of Ljubljana, Slovenia
Ana Garcia-Sáez Universität Tübingen, Germany
Michael Rappolt University of Leeds, UK

Provides researchers studying cell membranes, lipid model membranes, and lipid self-assemblies, from the microscale to the nanoscale, with comprehensive information

ISBN: 978-0-12-812080-4
PUB DATE: April 2017
FORMAT: Hardback
PAGES: c. 300
TRIM: 6w x 9h

AUDIENCE

experts in the field of chemistry, physics and biology of lipid micro- and nanostructures and biological membranes, and a podium for non-specialists working on the interdisciplinary front

KEY FEATURES

- Surveys recent theoretical and experimental results on lipid micro- and nanostructures
- Presents potential uses of applications, like clinically relevant diagnostic and therapeutic procedures, biotechnology, pharmaceutical engineering, and food products
- Includes both original research and comprehensive reviews written by world leading experts and young researchers
- Provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies, from micro- to nanoscale

DESCRIPTION

Advances in Biomembranes and Lipid Self-Assembly, formerly titled *Advances in Planar Lipid Bilayers and Liposomes,* provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the micro- to the nanoscale.

Planar lipid bilayers are widely studied due to their ubiquity in nature, also finding application in the formulation of biomimetic model membranes, and in the design of artificial dispersion of liposomes.

Moreover, lipids self-assemble into a wide range of other structures, including micelles and the liquid crystalline hexagonal and cubic phases. Consensus has been reached that curved membrane phases also play an important role in nature, especially in dynamic processes, such as vesicles fusion and cell communication.

Self-assembled lipid structures have enormous potential as dynamic materials, ranging from artificial lipid membranes, to cell membranes, from biosensing, to controlled drug delivery, and from pharmaceutical formulations, to novel food products to name a few.

An assortment of chapters in this volume represents both original research and comprehensive reviews written by world-leading experts and young researchers.

The Alkaloids, Vol 77

The Alkaloids

Edited by: ***Hans-Joachim Knolker*** Department of Chemistry, Technical University of Dresden, Germany

This interesting serial on the alkaloids covers their chemistry, biology, pharmacology, and medical applications

KEY FEATURES

- Contains the latest information on the study of alkaloids
- Covers their chemistry, biology, pharmacology, and medical applications
- Presents more than 70 volumes in this interesting field of study

DESCRIPTION

The Alkaloids, a series that has covered the topic for more than 60 years, is the leading book series in the field of alkaloid chemistry. In more than 70 volumes, all aspects of alkaloids—including their chemistry, biology, and pharmacology—are covered in high-quality, timeless reviews written by renowned experts in the field.

ISBN: 978-0-12-811124-6

PUB DATE: March 2017

FORMAT: Hardback

PAGES: c. 300

TRIM: 245

AUDIENCE

Chemists, biologists and biochemists working in research institutions as well as in industry

SERIALS

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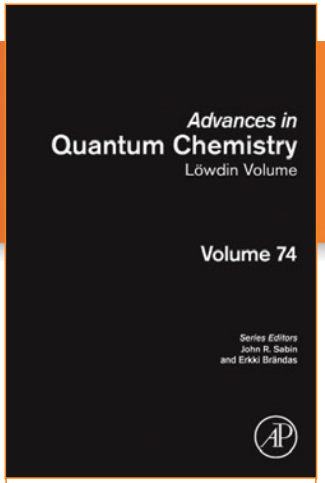

Advances in Quantum Chemistry, Vol 74

Advances in Quantum Chemistry: Lowdin Volume

Edited by: ***John R. Sabin*** Quantum Theory Project, University of Florida, Gainesville, FL, USA
Erkki J. Brandas Uppsala University, Sweden

Explores many aspects of the application of quantum mechanics to atoms, molecules, and solids

KEY FEATURES

- Celebrates Per-Olov Lowdin, who would have been 100 in 2016
- Contains papers by many who use his ideas in theoretical chemistry and physics today

DESCRIPTION

Advances in Quantum Chemistry: Lowdin Volume presents a series of articles exploring aspects of the application of quantum mechanics to atoms, molecules, and solids.

ISBN: 978-0-12-809988-9
PUB DATE: March 2017
FORMAT: Hardback
PAGES: c. 280
TRIM: 6w x 9h

AUDIENCE

Researchers and post-graduates in quantum chemistry and physics from molecular to solid state applications

SERIALS
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Advances in Clinical Chemistry, Vol 79

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

Publishes cutting-edge reviews in the field of clinical chemistry that include the expertise of international contributors

ISBN: 978-0-12-812076-7

PUB DATE: March 2017

FORMAT: Hardback

PAGES: c. 222

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

KEY FEATURES

- Provides the most up-to-date technologies in Clinical Chemistry and Clinical Laboratory Science
- Authored by world renowned clinical laboratory scientists, physicians, and research scientist
- Presents the international benchmark for novel analytical approaches in the clinical laboratory

DESCRIPTION

Advances in Clinical Chemistry, Volume 78, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. The serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

SERIALS

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Advances in Inorganic Chemistry, Vol 69

Polyoxometallate Chemistry

Edited by: ***Rudi van Eldik*** University of Erlangen-Nurnberg, Germany
Lee Cronin University of Glasgow, Glasgow, UK

Contains concise, informative information relating to new materials and applications in nanoscience and catalysis

ISBN: 978-0-12-811105-5
PUB DATE: March 2017
FORMAT: Hardback
PAGES: c. 300
TRIM: 6w x 9h

AUDIENCE

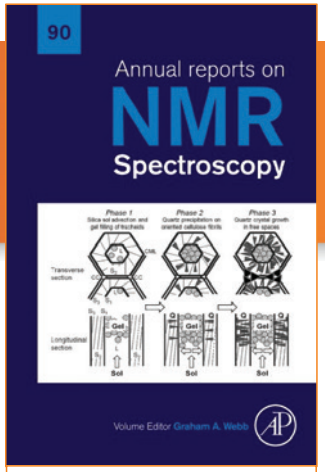
Bioinorganic, inorganic, supramolecular and organometallic chemists

KEY FEATURES

- Presents a single monograph on recent developments in polyoxometallate chemistry as written by scientific leaders in this field
- Concise and informative presentations cover a wide range of topics in this field of chemistry
- Contains detailed literature references, enabling the reader to move on to the source of the reported work where more details can be found
- Provides a solid presentation of a hard-cover book of excellent technical quality

DESCRIPTION

Polyoxometallate Chemistry continues a long-running series that describes recent advances in scientific research, in particular, in the field of inorganic chemistry. Several highly regarded experts, mostly from academia, contribute on specific topics. The current issue focuses on recent advances in the development and application of polyoxometallate complexes in areas such as solution chemistry, self-organization, solar fuels, non-aqueous chemistry, spintronics, nanoscience and catalysis.



Annual Reports on NMR Spectroscopy, Vol 90

Annual Reports on NMR Spectroscopy

Edited by: ***Graham A. Webb*** Royal Society of Chemistry, Burlington House, London, UK

Established annual report that provides a thorough accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its applications

KEY FEATURES

- Serves as the premier resource for learning the new techniques and applications of NMR spectroscopy
- Provides a key reference for chemists and physicists using NMR spectroscopy to study the structure and dynamics of molecules
- Covers all aspects of molecular science, including MRI (Magnetic Resonance Imaging)

DESCRIPTION

Annual Reports on NMR Spectroscopy provides a thorough and in-depth accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications. Nuclear magnetic resonance (NMR) is an analytical tool used by chemists and physicists to study the structure and dynamics of molecules.

In recent years, no other technique has gained as much significance as NMR spectroscopy. It is used in all branches of science in which precise structural determination is required, and where the nature of interactions and reactions in solution is being studied.

This book has established itself as a premier means for both specialists and non-specialists looking to familiarize themselves with the newest techniques and applications pertaining to NMR spectroscopy.

ISBN: 978-0-12-812009-5

PUB DATE: March 2017

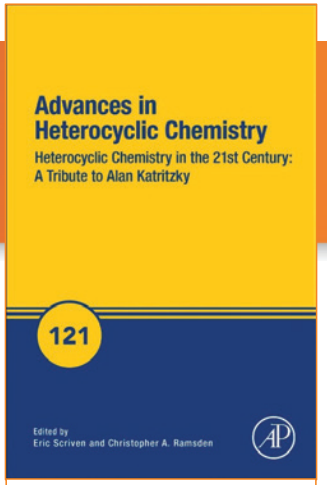
FORMAT: Hardback

PAGES: c. 300

TRIM: 6w x 9h

AUDIENCE

Organic, inorganic, analytical and physical chemists, biochemists, structural biologists, physicists and all those studying and using NMR spectroscopy



Advances in Heterocyclic Chemistry, Vol 121

Heterocyclic Chemistry in the 21st Century: A Tribute to Alan Katritzky

Edited by: ***Eric Scriven*** Portland, USA
Christopher A. Ramsden Keele University, Staffordshire, UK

This definitive serial publication provides the latest comprehensive reviews from world-renowned authorities in the field of heterocyclic chemistry

KEY FEATURES

- Considered the definitive serial in the field of heterocyclic chemistry
- Serves as the go-to reference for organic chemists, polymer chemists, and many biological scientists
- Provides the latest comprehensive reviews as written by established authorities in the field
- Combines descriptive synthetic chemistry and mechanistic insights to enhance understanding on how chemistry drives the preparation and useful properties of heterocyclic compounds

DESCRIPTION

Advances in Heterocyclic Chemistry: Heterocyclic Chemistry in the 21st Century: A Tribute to Alan Katritzky is the definitive series in the field—one of great importance to organic chemists, polymer chemists, and many biological scientists. Because biology and organic chemistry increasingly intersect, the associated nomenclature is used more frequently in explanations.

Written by established, global authorities in the field, this comprehensive review combines descriptive synthetic chemistry and mechanistic insights to yield an understanding on how chemistry drives the preparation and useful properties of heterocyclic compounds.

ISBN: 978-0-12-811174-1
PUB DATE: February 2017
FORMAT: Hardback
PAGES: c. 302
TRIM: 6w x 9h

AUDIENCE

Graduate students and research workers in academic and industrial laboratories, organic chemists, polymer chemists and biological scientists

SERIALS

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Advances in Clinical Chemistry, Vol 78

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

Publishes cutting-edge reviews in the field of clinical chemistry that include the expertise of international contributors

KEY FEATURES

- Provides the most up-to-date technologies in clinical chemistry and clinical laboratory science
- Authored by world renowned clinical laboratory scientists, physicians, and research scientist
- Presents the international benchmark for novel analytical approaches in the clinical laboratory

DESCRIPTION

Advances in Clinical Chemistry, Volume 78, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. The serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry, and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-811919-8

PUB DATE: January 2017

FORMAT: Hardback

PAGES: c. 222

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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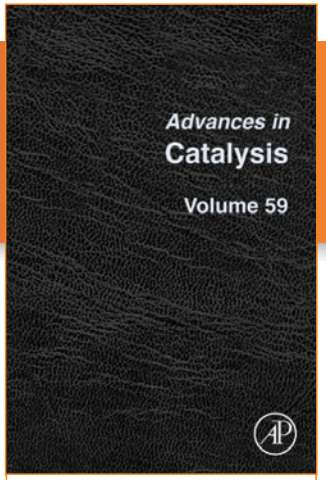

Advances in Catalysis, Vol 59

Advances in Catalysis

Edited by: ***Chunshan Song*** The Pennsylvania State University, USA

Presents the latest information on the science and technology of catalysis, including such topics as catalyst synthesis, catalyst characterization, and more

KEY FEATURES

- Contains authoritative reviews written by experts in the field
- Explores topics that reflect progress in the field, such as catalyst synthesis, catalyst characterization, catalytic chemistry, reaction engineering, computational chemistry, and physics
- Provides insightful and critical articles, fully edited to suit various backgrounds

DESCRIPTION

Advances in Catalysis fills the gap between journal papers and textbooks across the diverse areas of catalysis research. For more than 60 years, this series has dedicated itself to record and present the latest progress in the field of catalysis, providing the scientific community with comprehensive and authoritative reviews. This series is an invaluable and comprehensive resource for chemical engineers and chemists working in the field of catalysis in both academia and industry.

ISBN: 978-0-12-811004-1

PUB DATE: December 2016

FORMAT: Hardback

PAGES: c. 246

TRIM: 6w x 9h

AUDIENCE

Catalysis researchers and practitioners in academia and industry (mainly chemical engineers and chemists but also physicists), experts as well as newcomers

SERIALS

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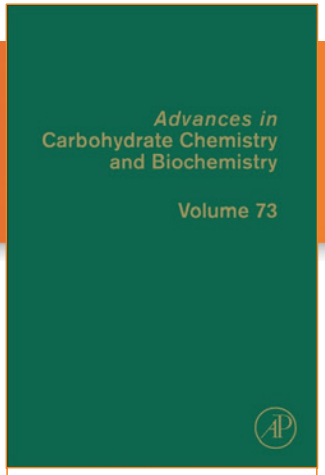

Advances in Carbohydrate Chemistry and Biochemistry, Vol 73

Advances in Carbohydrate Chemistry and Biochemistry

Edited by: ***David Baker*** University of Tennessee, Knoxville, USA

Reviews the current status and future trends in carbohydrate chemistry and biochemistry, providing critical and informative articles

KEY FEATURES

- Features contributions from leading authorities and industry experts who specialize in carbohydrate chemistry, biochemistry, and research
- Integrates the industrial, analytical, and technological aspects of biochemistry, organic chemistry, and instrumentation methodology in the study of carbohydrates
- Informs and updates on all the latest developments in the field

DESCRIPTION

Advances in Carbohydrate Chemistry and Biochemistry has provided, since its inception in 1945, critical and informative articles written by research specialists that integrate the industrial, analytical, and technological aspects of biochemistry, organic chemistry, and instrumentation methodology to the study of carbohydrates. Its articles present a definitive interpretation of the current status and future trends in carbohydrate chemistry and biochemistry.

ISBN: 978-0-12-809983-4

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 346

TRIM: 6w x 9h

AUDIENCE

Researchers in biochemistry, organic chemistry, medicinal chemistry and instrumentation methodology

SERIALS

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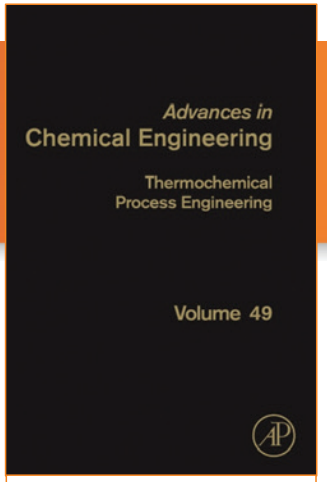

Advances in Chemical Engineering, Vol 49

Thermochemical Process Engineering

Edited by: ***Kevin Van Geem*** Universiteit Gent, Belgium

Important tool for organic chemists, polymer chemistry, and biological scientists who are studying the latest information on thermochemical process engineering

KEY FEATURES

- Contains reviews by leading authorities in their respective areas
- Presents up-to-date reviews of the latest techniques in the modeling of catalytic processes
- Includes a broad mix of US and European authors, as well as academic, industrial, and research institute perspectives
- Provides discussions on the connections between computation and experimental methods

DESCRIPTION

Thermochemical Process Engineering, the latest edition in the *Advances in Chemical Engineering,* provides up-to-date information, comprehensively presenting updates in a systematic fashion that has made the series of great importance to organic chemists, polymer chemists, and many biological scientists since its inception in 1960. The series includes contributions from established authorities in the field who combine descriptive chemistry and mechanistic insight to create an understanding on how the chemistry drives the properties.

ISBN: 978-0-12-809777-9

PUB DATE: December 2016

FORMAT: Hardback

PAGES: c. 404

TRIM: 6w x 9h

AUDIENCE

Chemical engineers in general, especially reaction engineers. University faculty, students and researchers as well as industrial researchers, mainly in chemical engineering/chemistry but also mechanical engineering (combustion engineers) and maybe some applied mathematicians

SERIALS

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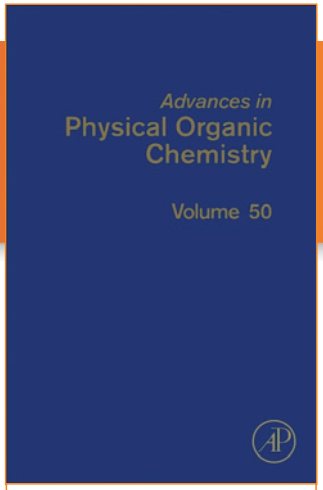

Advances in Physical Organic Chemistry, Vol 50

Advances in Physical Organic Chemistry

Edited by: ***Ian Williams*** University of Bath, UK
Nick Williams University of Sheffield, UK

This series continually publishes cutting-edge reviews in the field of physical organic chemistry, containing results and methodologies

KEY FEATURES

- Reviews the application of quantitative and mathematical methods to help readers understand chemical problems
- Provides the chemical community with authoritative and critical assessments of the many aspects of physical organic chemistry
- Covers organic, organometallic, bioorganic, enzymes, and materials topics
- Presents the only regularly published resource for reviews in physical organic chemistry
- Written by authoritative experts who cover a wide range of topics that require a quantitative, molecular-level understanding of phenomena across a diverse range of disciplines

DESCRIPTION

Advances in Physical Organic Chemistry series is the definitive resource for authoritative reviews of work in physical organic chemistry. It aims to provide a valuable source of information not only for physical organic chemists applying their expertise to both novel and traditional problems, but also for non-specialists across diverse areas who identify a physical organic component in their approach to research. Its hallmark is a quantitative, molecular level understanding of phenomena across a diverse range of disciplines.

ISBN: 978-0-12-804716-3

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 282

TRIM: 6w x 9h

AUDIENCE

Researchers at all levels and in all sectors who need access to definitive reviews of topics requiring a quantitative, molecular-level understanding of chemical phenomena

SERIALS

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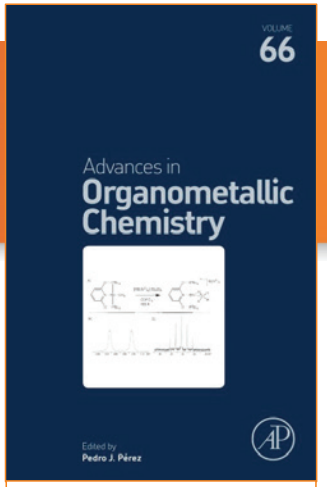

Advances in Organometallic Chemistry, Vol 66

Advances in Organometallic Chemistry

Edited by: ***Pedro J. Pérez*** Homogeneous Catalysis Laboratory, Center for Research in Sustainable Chemistry, Universidad de Huelva, Huelva, Spain

This series publishes cutting-edge reviews on organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, and more

KEY FEATURES

- Contains contributions from leading authorities in the field of organometallic chemistry
- Covers topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more
- Informs and updates readers on all the latest developments in the field
- Carefully edited to provide easy-to-read material

DESCRIPTION

Advances in Organometallic Chemistry contains authoritative review articles of worldwide known researchers on the field of organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more. The book will benefit a wide range of researchers involved in organometallic chemistry, including synthetic protocols, mechanistic studies, and practical applications.

ISBN: 978-0-12-804709-5

PUB DATE: October 2016

FORMAT: Hardback

PAGES: c. 288

TRIM: 6w x 9h

AUDIENCE

Researchers involved in Organometallic Chemistry from a wide perspective, including synthetic protocols, mechanistic studies and practical applications and to those involved in the use of organometallic complexes in homogeneous catalysis

SERIALS

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Advances in Clinical Chemistry, Vol 77

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

Publishes cutting-edge reviews in the field of clinical chemistry that include the expertise of international contributors

KEY FEATURES

- Provides the most up-to-date technologies in Clinical Chemistry and Clinical Laboratory Science
- Authored by world renowned clinical laboratory scientists, physicians, and research scientist
- Presents the international benchmark for novel analytical approaches in the clinical laboratory

DESCRIPTION

Advances in Clinical Chemistry, Volume 77, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. The serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-804686-9

PUB DATE: October 2016

FORMAT: Hardback

PAGES: c. 278

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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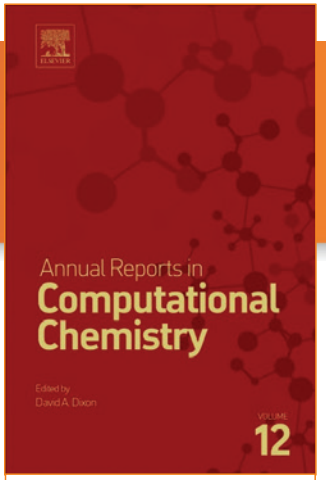

Annual Reports in Computational Chemistry, Vol 12

Annual Reports in Computational Chemistry

Edited by: ***David A. Dixon*** Robert Ramsey Chair, The University of Alabama, Tuscaloosa, AL, USA

ELSEVIER

This timely and critical review of important topics and recent literature in computational chemistry applies its findings to all chemical disciplines

KEY FEATURES

- Includes timely discussions on quantum chemistry and molecular mechanics
- Covers force fields, chemical education, and more
- Presents the latest in chemical education and applications in both academic and industrial settings

DESCRIPTION

Annual Reports in Computational Chemistry provides timely and critical reviews of important topics in computational chemistry as applied to all chemical disciplines. Topics covered include quantum chemistry, molecular mechanics, force fields, chemical education, and applications in academic and industrial settings. Focusing on the most recent literature and advances in the field, each article covers a specific topic of importance to computational chemists.

ISBN: 978-0-444-63714-7

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 254

TRIM: 6w x 9h

AUDIENCE

Researchers and students interested in computational chemistry as well as computational chemists and chemists interested in using computational approaches to address chemical problems

SERIALS

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Advances in Clinical Chemistry, Vol 76

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

This comprehensive series reviews the field of clinical chemistry, presenting the latest technologies as presented by expert international contributors

KEY FEATURES

- Provides the most up-to-date technologies in Clinical Chemistry and Clinical Laboratory Science
- Authored by world renowned clinical laboratory scientists, physicians, and research scientists
- Presents the international benchmark for novel analytical approaches in the clinical laboratory

DESCRIPTION

Advances in Clinical Chemistry, Volume 76, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. The serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-804687-6

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 194

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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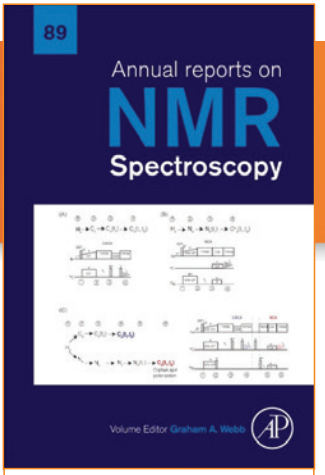


Annual Reports on NMR Spectroscopy, Vol 89

Annual Reports on NMR Spectroscopy

Edited by: ***Graham A. Webb*** Royal Society of Chemistry, Burlington House, London, UK

This established annual report provides a thorough accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications

KEY FEATURES

- Serves as the premier resource for learning the new techniques and applications of NMR spectroscopy
- Provides a key reference for chemists and physicists using NMR spectroscopy to study the structure and dynamics of molecules
- Covers all aspects of molecular science, including MRI (Magnetic Resonance Imaging)

DESCRIPTION

Annual Reports on NMR Spectroscopy provides a thorough and in-depth accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications. Nuclear magnetic resonance (NMR) is an analytical tool used by chemists and physicists to study the structure and dynamics of molecules. In recent years, no other technique has gained as much significance as NMR spectroscopy. It is used in all branches of science in which precise structural determination is required, and in which the nature of interactions and reactions in solution is being studied.

This book has established itself as a premier means for both specialists and non-specialists who are looking to become familiar with new techniques and applications pertaining to NMR spectroscopy.

ISBN: 978-0-12-804712-5

PUB DATE: September 2016

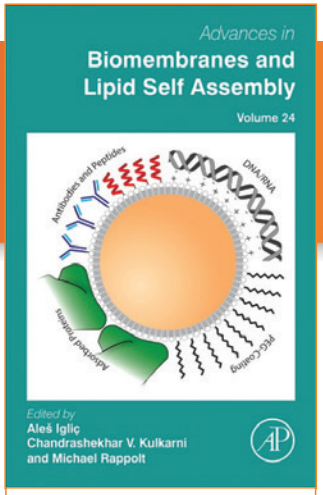
FORMAT: Hardback

PAGES: c. 230

TRIM: 6w x 9h

AUDIENCE

Organic, inorganic, analytical and physical chemists, biochemists, structural biologists, physicists and all those studying and using NMR spectroscopy



ISBN: 978-0-12-804708-8

PUB DATE: July 2016

FORMAT: Hardback

PAGES: c. 214

TRIM: 6w x 9h

AUDIENCE

Experts in chemistry, physics and biology of lipid micro- and nanostructures and biological membranes, and a podium for non-specialists working on the interdisciplinary front

Advances in Biomembranes and Lipid Self-Assembly, Vol 24

Advances in Biomembranes and Lipid Self-Assembly

Edited by: ***Ales Iglic*** Faculty of Electrical Engineering, University of Ljubljana, Slovenia
Chandrashekhar V. Kulkarni University of Central Lancashire, UK
Michael Rappolt University of Leeds, UK

This evolving book series provides a platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies, from the microscale to the nanoscale, presenting their potential for applications in diagnosis and therapy, biotechnology, pharmaceutical engineering, and food products

KEY FEATURES

- Surveys recent theoretical and experimental results on lipid micro- and nanostructures
- Presents potential uses of applications, like clinically relevant diagnostic and therapeutic procedures, biotechnology, pharmaceutical engineering, and food products
- Includes both original research as well as comprehensive reviews written by world leading experts and young researchers
- Provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the micro- to the nanoscale

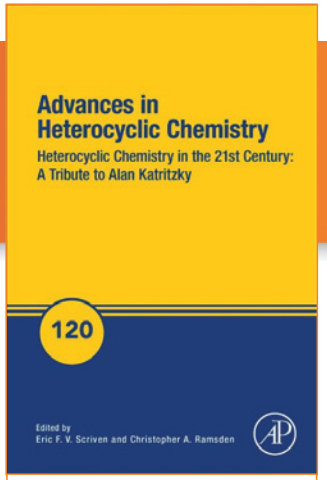
DESCRIPTION

Advances in Biomembranes and Lipid Self-Assembly, formerly titled *Advances in Planar Lipid Bilayers and Liposomes*, provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the micro- to the nanoscale.

Planar lipid bilayers are widely studied due to their ubiquity in nature and find their application in the formulation of biomimetic model membranes, and in the design of artificial dispersion of liposomes.

Moreover, lipids self-assemble into a wide range of other structures, including micelles and the liquid crystalline hexagonal and cubic phases. Consensus has been reached that curved membrane phases do play an important role in nature as well, especially in dynamic processes, such as vesicles fusion and cell communication. Self-assembled lipid structures have enormous potential as dynamic materials ranging from artificial lipid membranes to cell membranes, from biosensing to controlled drug delivery, from pharmaceutical formulations to novel food products to mention a few.

An assortment of chapters in this volume represents both original research as well as comprehensive reviews written by world leading experts and young researchers.



Advances in Heterocyclic Chemistry, Vol 120

Advances in Heterocyclic Chemistry

Edited by: ***Eric Scriven*** Portland, USA
Christopher A. Ramsden Keele University, Staffordshire, UK

This definitive serial publication provides the latest comprehensive reviews written by established, world-renowned authorities actively working in the field of heterocyclic chemistry

ISBN: 978-0-12-805248-8

PUB DATE: July 2016

FORMAT: Hardback

PAGES: c. 352

TRIM: 6w x 9h

AUDIENCE

Graduate students and research workers in academic and industrial laboratories, organic chemists, polymer chemists and biological scientists

KEY FEATURES

- Considered the definitive serial in the field of heterocyclic chemistry
- Serves as the go-to reference for organic chemists, polymer chemists, and many biological scientists
- Provides the latest comprehensive reviews written by established authorities in the field
- Combines descriptive synthetic chemistry and mechanistic insight to enhance understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds

DESCRIPTION

Advances in Heterocyclic Chemistry is the definitive series in the field—one of great importance to organic chemists, polymer chemists, and many biological scientists. Because biology and organic chemistry increasingly intersect, the associated nomenclature also is being used more frequently in explanations. Written by established authorities in the field from around the world, this comprehensive review combines descriptive synthetic chemistry and mechanistic insight to yield an understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds.

SERIALS

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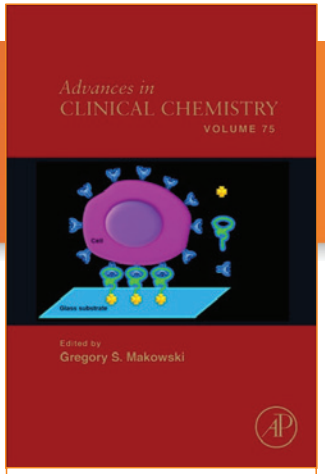

Advances in Clinical Chemistry, Vol 75

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

As part of the internationally acclaimed series, this book continually publishes cutting-edge research and reviews in clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory

KEY FEATURES

- Contains the expertise of international contributors
- Provides the latest cutting-edge technologies in the field of clinical chemistry
- Authored by world-renowned clinical laboratory scientists, physicians, and research scientists

DESCRIPTION

Advances in Clinical Chemistry, Volume 75, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. This serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-804688-3

PUB DATE: June 2016

FORMAT: Hardback

PAGES: c. 190

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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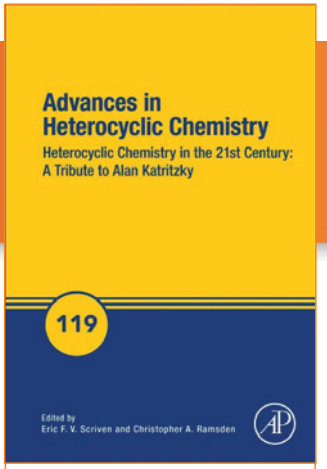

Advances in Heterocyclic Chemistry, Vol 119

Advances in Heterocyclic Chemistry

Edited by: ***Eric Scriven*** Portland, USA
Christopher A. Ramsden Keele University, Staffordshire, UK

This definitive serial publication provides the latest comprehensive reviews written by established, world-renowned authorities actively working in the field of heterocyclic chemistry

KEY FEATURES

- Considered the definitive serial in the field of heterocyclic chemistry
- Serves as the go-to reference for organic chemists, polymer chemists, and many biological scientists
- Provides the latest comprehensive reviews as written by established authorities in the field
- Combines descriptive synthetic chemistry and mechanistic insight to enhance understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds

DESCRIPTION

Heterocyclic Chemistry in the 21st Century: A Tribute to Alan Katritzky, the latest volume in the *Advances in Heterocyclic Chemistry* series, is the definitive resource in the field—one of great importance to organic chemists, polymer chemists, and many biological scientists. Because biology and organic chemistry increasingly intersect, the associated nomenclature is also being used more frequently in explanations.

Written by established authorities in the field from around the world, this comprehensive review combines descriptive synthetic chemistry and mechanistic insights to yield an understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds.

ISBN: 978-0-12-804695-1
PUB DATE: May 2016
FORMAT: Hardback
PAGES: c. 326
TRIM: 6w x 9h

AUDIENCE

Graduate students and research workers in academic and industrial laboratories, organic chemists, polymer chemists and biological scientists

SERIALS

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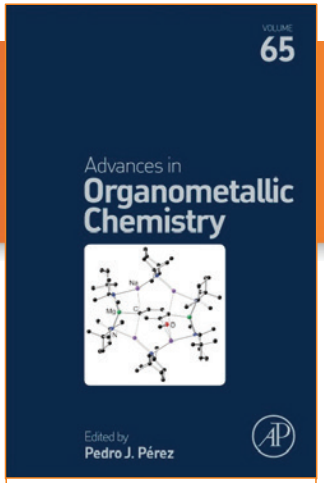

Advances in Organometallic Chemistry, Vol 65

Advances in Organometallic Chemistry

Edited by: ***Pedro J. Pérez*** Homogeneous Catalysis Laboratory, Center for Research in Sustainable Chemistry, Universidad de Huelva, Huelva, Spain

This series continually publishes cutting-edge reviews in the field of organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more

KEY FEATURES

- Contains contributions from leading authorities in the field of organometallic chemistry
- Covers topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more
- Informs and updates readers on all the latest developments in the field
- Carefully edited to provide easy-to-read material

DESCRIPTION

Advances in Organometallic Chemistry contains authoritative review articles of world-wide known researchers on the field of organometallic chemistry, covering topics in organometallic synthesis, reactions, mechanisms, homogeneous catalysis, and more. The book will benefit a wide range of researchers involved in organometallic chemistry, including synthetic protocols, mechanistic studies, and practical applications.

ISBN: 978-0-12-804710-1

PUB DATE: May 2016

FORMAT: Hardback

PAGES: c. 386

TRIM: 6w x 9h

AUDIENCE

Researchers involved in Organometallic Chemistry from a wide perspective, including synthetic protocols, mechanistic studies and practical applications and to those involved in the use of organometallic complexes in homogeneous catalysis.

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SERIALS

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Advances in Clinical Chemistry, Vol 74

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

This book, part of an internationally acclaimed series, continually publishes cutting-edge research and reviews in the field of clinical chemistry, and is the benchmark for novel analytical approaches in the clinical laboratory

KEY FEATURES

- Contains the expertise of international contributors
- Provides the latest cutting-edge technologies in the field
- Authored by world-renowned clinical laboratory scientists, physicians, and research scientists

DESCRIPTION

Advances in Clinical Chemistry, Volume 74, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. This serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-804689-0

PUB DATE: April 2016

FORMAT: Hardback

PAGES: c. 216

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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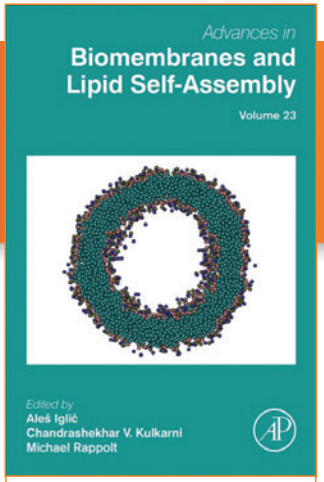

Advances in Biomembranes and Lipid Self-Assembly, Vol 23

Advances in Biomembranes and Lipid Self-Assembly

Edited by: ***Ales Iglic*** Faculty of Electrical Engineering, University of Ljubljana, Slovenia
Chandrashekhar V. Kulkarni University of Central Lancashire, UK
Michael Rappolt University of Leeds, UK

This evolving book series provides a platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the microscale to the nanoscale, presenting their potential for applications in diagnosis and therapy, biotechnology, pharmaceutical engineering, and food products

ISBN: 978-0-12-804715-6

PUB DATE: March 2016

FORMAT: Hardback

PAGES: c. 210

TRIM: 6w x 9h

AUDIENCE

experts in the field of chemistry, physics and biology of lipid micro- and nano- structures and biological membranes, and a podium for non-specialists working on the interdisciplinary front

KEY FEATURES

- Surveys recent theoretical and experimental results on lipid micro- and nanostructures
- Presents potential uses of applications like clinically relevant diagnostic and therapeutic procedures, biotechnology, pharmaceutical engineering, and food products
- Provides both original research as well as comprehensive reviews written by world leading experts and young researchers
- Provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the micro- to the nanoscale.

DESCRIPTION

The Elsevier book series *Advances in Biomembranes and Lipid Self-Assembly* (previously titled *Advances in Planar Lipid Bilayers and Liposomes*), provides a global platform for a broad community of experimental and theoretical researchers studying cell membranes, lipid model membranes, and lipid self-assemblies from the micro- to the nanoscale. Planar lipid bilayers are widely studied due to their ubiquity in nature and find their application in the formulation of biomimetic model membranes and in the design of artificial dispersion of liposomes.

Moreover, lipids self-assemble into a wide range of other structures including micelles and the liquid crystalline hexagonal and cubic phases. Consensus has been reached that curved membrane phases do play an important role in nature as well, especially in dynamic processes such as vesicles fusion and cell communication. Self-assembled lipid structures have enormous potential as dynamic materials ranging from artificial lipid membranes to cell membranes, from biosensing to controlled drug delivery, from pharmaceutical formulations to novel food products to mention a few. An assortment of chapters in this volume represents both original research as well as comprehensive reviews written by world leading experts and young researchers.

SERIALS

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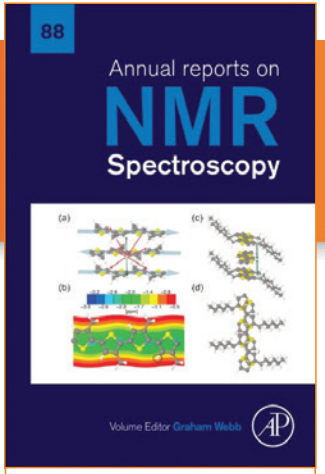

Annual Reports on NMR Spectroscopy, Vol 88

Annual Reports on NMR Spectroscopy

Edited by: ***Graham A. Webb*** Royal Society of Chemistry, Burlington House, London, UK

This established annual report provides a thorough accounting of the progress made in nuclear magnetic resonance (NMR) spectroscopy and its many applications for both specialists and nonspecialists alike

ISBN: 978-0-12-804713-2

PUB DATE: March 2016

FORMAT: Hardback

PAGES: c. 392

TRIM: 6w x 9h

AUDIENCE

Organic, inorganic, analytical and physical chemists, biochemists, structural biologists, physicists and all those studying and using NMR spectroscopy

KEY FEATURES

- Serves as the premier resource for learning the new techniques and applications of NMR spectroscopy
- Presents a thorough accounting of the progress made in nuclear magnetic resonance (NMR) spectroscopy and its many applications
- Provides a key reference for chemists and physicists using NMR spectroscopy to study the structure and dynamics of molecules

DESCRIPTION

Annual Reports on NMR Spectroscopy provides a thorough and in-depth accounting of the progress made in nuclear magnetic resonance (NMR) spectroscopy and its many applications. Nuclear magnetic resonance (NMR) is an analytical tool used by chemists and physicists to study the structure and dynamics of molecules. In recent years, no other technique has gained as much significance as NMR spectroscopy. It is used in all branches of science in which precise structural determination is required, and in which the nature of interactions and reactions in solution is being studied.

This book has established itself as a premier resource for both specialists and non-specialists alike who want to become familiar with the new techniques and applications of NMR spectroscopy.

SERIALS

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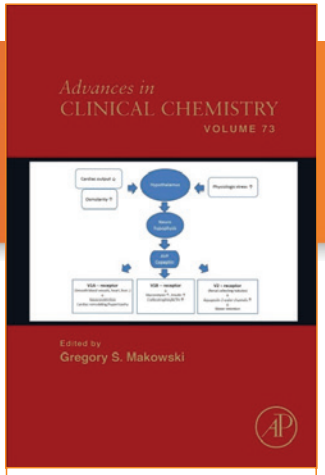

Advances in Clinical Chemistry, Vol 73

Advances in Clinical Chemistry

Edited by: ***Gregory S. Makowski*** Clinical Laboratory Partners, Newington; Hartford Hospital, Hartford; Department of Laboratory Medicine, University of Connecticut Health Center, Farmington, CT, USA

This book, part of an internationally acclaimed series, continually publishes cutting-edge research and reviews in the field of clinical chemistry, and is the benchmark for novel analytical approaches in the clinical laboratory

KEY FEATURES

- Contains the expertise of international contributors
- Provides the latest cutting-edge technologies in the field
- Authored by world-renowned clinical laboratory scientists, physicians, and research scientists

DESCRIPTION

Advances in Clinical Chemistry, Volume 73, the latest installment in this internationally acclaimed series, contains chapters authored by world-renowned clinical laboratory scientists, physicians, and research scientists. The serial discusses the latest and most up-to-date technologies related to the field of clinical chemistry and is the benchmark for novel analytical approaches in the clinical laboratory.

ISBN: 978-0-12-804690-6

PUB DATE: March 2016

FORMAT: Hardback

PAGES: c. 256

TRIM: 6w x 9h

AUDIENCE

Clinical Laboratory Professionals, Physicians and Research Scientists

SERIALS

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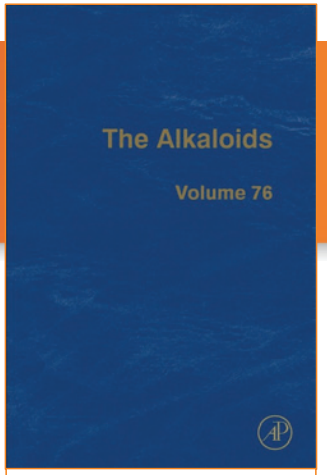

The Alkaloids, Vol 76

The Alkaloids

Edited by: ***Hans-Joachim Knolker*** Department of Chemistry, Technical University of Dresden, Germany

As the only regularly appearing publication series on the topic of alkaloids, this interesting serial covers their chemistry, biology, pharmacology, and medical applications

KEY FEATURES

- Contains the latest information on the study of alkaloids
- Covers their chemistry, biology, pharmacology, and medical applications
- Presents more than 70 volumes in this interesting field of study

DESCRIPTION

The Alkaloids, a series that has covered the topic for more than 60 years, is the leading book series in the field of alkaloid chemistry. In more than 70 volumes, all aspects of alkaloids, including chemistry, biology and pharmacology, are covered in high-quality, timeless reviews written by renowned experts in the field.

ISBN: 978-0-12-804682-1

PUB DATE: February 2016

FORMAT: Hardback

PAGES: c. 340

TRIM: 45

AUDIENCE

Chemists, biologists and biochemists working in research institutions as well as in industry

SERIALS

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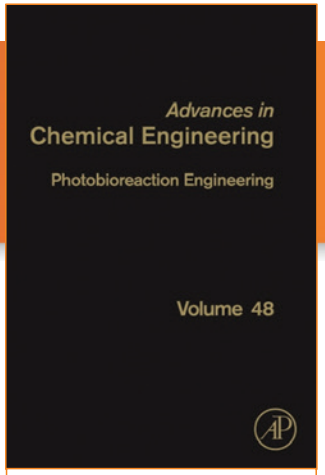

Advances in Chemical Engineering, Vol 48

Photobioreaction Engineering

Edited by: ***Jack Legrand*** Université de Nantes, France

This long running serial, established in 1960, is an important tool for organic chemists, polymer chemistry, and biological scientists who are studying the latest information on photobioreaction engineering

KEY FEATURES

- Presents reviews by leading authorities in their respective areas
- Includes up-to-date reviews of the latest techniques
- Provides a mix of US and European authors, as well as academic/industrial/research institute perspectives

DESCRIPTION

Photobioreaction Engineering, the latest edition in the *Advances in Chemical Engineering* series, a serial that was established in 1960, and remains one of great importance to organic chemists, polymer chemists, and many biological scientists, includes contributions from established authorities in the field who combine descriptive chemistry and mechanistic insight to create an understanding of how the chemistry drives the properties.

ISBN: 978-0-12-803661-7
PUB DATE: February 2016
FORMAT: Hardback
PAGES: c. 326
TRIM: 6w x 9h

AUDIENCE

Chemical engineers. Specialists in microalgae biotechnology.

SERIALS

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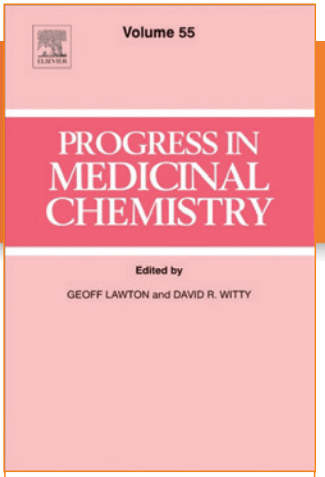


Progress in Medicinal Chemistry, Vol 55

Progress in Medicinal Chemistry

Edited by: ***Geoff Lawton*** St. Ippolyts, Herts, UK
David R. Witty Convergence Pharmaceuticals Ltd, Cambridge, UK

A review of eclectic developments in medicinal chemistry, with authoritative extended reviews of targets and technologies addressing new therapeutics

KEY FEATURES

- Extended timely reviews of topics in medicinal chemistry
- Targets and technologies relevant to the discovery of tomorrow's drugs
- Analyses of successful drug discovery programmes

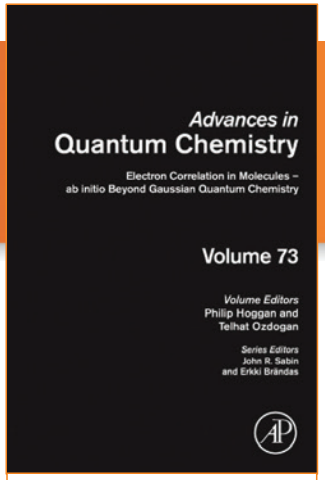
DESCRIPTION

Progress in Medicinal Chemistry provides a review of eclectic developments in medicinal chemistry. This volume includes chapters covering recent advances in cancer therapeutics, *f*luorine in medicinal chemistry, a perspective on the next generation of antibacterial agents derived by manipulation of natural products, a new era for Chagas Disease drug discovery? and imaging in drug development.

ISBN: 978-0-444-63715-4
PUB DATE: February 2016
FORMAT: Hardback
PAGES: c. 250
TRIM: 6w x 9h

AUDIENCE

Everyone interested in the strategy and practice of the preclinical phases of the creation of new medicines. Those wishing to understand the drivers of drug design or expand their knowledge of therapeutic target classes



Advances in Quantum Chemistry, Vol 73

Electron Correlation in Molecules – ab initio Beyond Gaussian Quantum Chemistry

Edited by: ***Philip E. Hoggan*** CNRS, University Blaise Pascal, France
Telhat Ozdogan Amasya University, Turkey

Quantum chemistry has gone far beyond the Gaussian model. Details of progress on the exponential type orbitals and their applications are described. Electron correlation is a frontier for research and the state of the art in density functional and Quantum Monte Carlo approaches is described. This comprehensive series of articles presents the most timely and detailed information available on the latest developments in quantum chemistry

ISBN: 978-0-12-803060-8
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 424
TRIM: 6w x 9h

AUDIENCE

Researchers and post-graduates in quantum chemistry and physics from molecular to solid state applications.

KEY FEATURES

- Presents surveys of current topics in this rapidly-developing field that has emerged at the cross section of the historically established areas of mathematics, physics, chemistry, and biology
- Features detailed reviews written by leading international researchers
- The volume includes review on all the topics treated by world renown authors and cutting edge research contributions.

DESCRIPTION

Electron Correlation in Molecules – ab initio Beyond Gaussian Quantum Chemistry presents a series of articles concerning important topics in quantum chemistry, including surveys of current topics in this rapidly-developing field that has emerged at the cross section of the historically established areas of mathematics, physics, chemistry, and biology.

SERIALS

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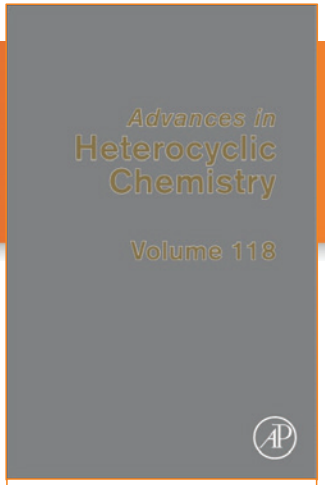

Advances in Heterocyclic Chemistry, Vol 118

Advances in Heterocyclic Chemistry

Edited by: ***Eric Scriven*** Portland, USA
Christopher A. Ramsden Keele University, Staffordshire, UK

This definitive serial publication provides the latest comprehensive reviews written by established, world-renowned authorities actively working in the field of heterocyclic chemistry

KEY FEATURES

- Considered the definitive serial in the field of heterocyclic chemistry
- Serves as the go-to reference for organic chemists, polymer chemists, and many biological scientists
- Provides the latest comprehensive reviews written by established authorities in the field
- Combines descriptive synthetic chemistry and mechanistic insight to enhance understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds

DESCRIPTION

Advances in Heterocyclic Chemistry is the definitive series in the field—one of great importance to organic chemists, polymer chemists, and many biological scientists. Because biology and organic chemistry increasingly intersect, the associated nomenclature also is being used more frequently in explanations. Written by established authorities in the field from around the world, this comprehensive review combines descriptive synthetic chemistry and mechanistic insight to yield an understanding of how chemistry drives the preparation and useful properties of heterocyclic compounds.

ISBN: 978-0-12-804696-8
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 314
TRIM: 6w x 9h

AUDIENCE

Graduate students and research workers in academic and industrial laboratories, organic chemists, polymer chemists and biological scientists

SERIALS

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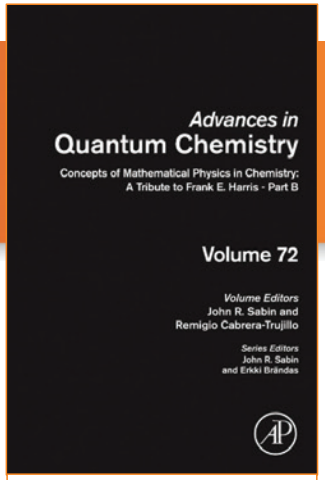

Advances in Quantum Chemistry, Vol 72

Concepts of Mathematical Physics in Chemistry: A Tribute to Frank E. Harris - Part B

Edited by: ***John R. Sabin*** Quantum Theory Project, University of Florida, Gainesville, FL, USA
Remigio Cabrera-Trujillo Universidad Nacional Autonoma de Mexico, Mexico

This comprehensive series of articles presents the most timely and detailed information available on the latest developments in quantum chemistry

KEY FEATURES

- Presents surveys of current topics in this rapidly-developing field that has emerged at the cross section of the historically established areas of mathematics, physics, chemistry, and biology
- Features detailed reviews written by leading international researchers

DESCRIPTION

Concepts of Mathematical Physics in Chemistry: A Tribute to Frank E. Harris - Part B, presents a series of articles concerning important topics in quantum chemistry, including surveys of current topics in this rapidly-developing field that has emerged at the cross section of the historically established areas of mathematics, physics, chemistry, and biology.

ISBN: 978-0-12-803984-7
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 236
TRIM: 6w x 9h

AUDIENCE

Quantum chemists, physical chemists, physicists

SERIALS

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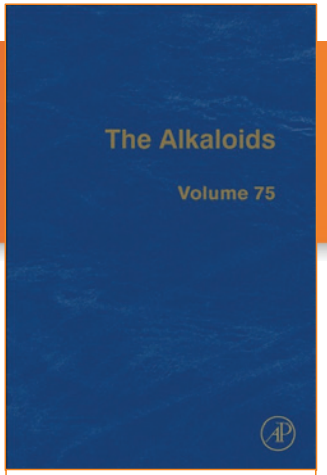

The Alkaloids, Vol 75

The Alkaloids

Edited by: ***Hans-Joachim Knolker*** Department of Chemistry, Technical University of Dresden, Germany

The only regularly appearing publication series which since 1950 has covered all aspects of alkaloids (chemistry, biology, pharmacology and medical applications)

KEY FEATURES

- *The Alkaloids* is the leading book series in the field of alkaloid chemistry
- In more than 70 volumes all aspects of alkaloids, including chemistry, biology and pharmacology, have been covered

DESCRIPTION

For more than 60 years, *The Alkaloids* has been the leading book series in the field of alkaloid chemistry. In more than 70 volumes all aspects of alkaloids, including chemistry, biology and pharmacology, have been covered in high-quality timeless reviews written by renowned experts in the field.

ISBN: 978-0-12-803434-7

PUB DATE: January 2016

FORMAT: Hardback

PAGES: c. 518

TRIM: 6w x 9h

AUDIENCE

Chemists, biologists and biochemists working in research institutions as well as in industry

SERIALS

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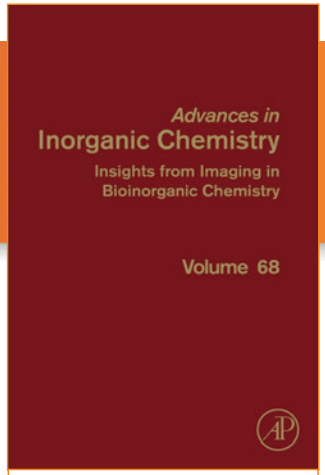


Advances in Inorganic Chemistry, Vol 68

Insights from Imaging in Bioinorganic Chemistry

Edited by: ***Rudi van Eldik*** University of Erlangen-Nurnberg, Germany
Colin Hubbard Oakham, Rutland, UK

This book continues a long-running series that describes recent advances in scientific research, in particular in the field of inorganic chemistry in a broad sense

KEY FEATURES

- Contains concise, informative accounts that are not too highly specialized, therefore appealing to a wide range of scientists and health professionals
- Presents contributions from highly qualified international experts
- Provides intrinsic scientific interest and applications, including important issues relating to the diagnosis and therapeutics that are relevant to public health

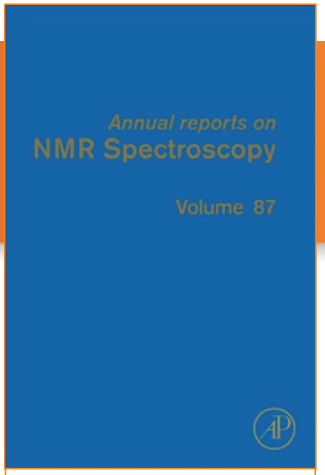
DESCRIPTION

Insights from Imaging in Bioinorganic Chemistry continues a long-running series that describes recent advances in scientific research, in particular, in the field of inorganic chemistry. Several highly regarded experts, mostly from academe, contribute on specific topics. The series editor chooses a sub-field within inorganic chemistry as the theme and focus of the volume, extending invitations to experts for their contributions; the current theme is insights from metal ion imaging in bioinorganic and medicinal chemistry.

ISBN: 978-0-12-803526-9
PUB DATE: January 2016
FORMAT: Hardback
PAGES: c. 510
TRIM: 6w x 9h

AUDIENCE

It is anticipated that the audience will be other related practitioners and others involved in medical and health related research. The imaging technologies included have considerable relevance to a wider audience interested in diagnostic and therapeutic methods related to diseases of considerable public concern. Biomedical scientists are anticipated to be attracted to the subject matter.



Annual Reports on NMR Spectroscopy, Vol 87

Annual Reports on NMR Spectroscopy

Edited by: ***Graham A. Webb*** Royal Society of Chemistry, Burlington House, London, UK

This established annual report provides a thorough accounting of progress in nuclear magnetic resonance (NMR) spectroscopy and its many applications for both specialists and nonspecialists alike

KEY FEATURES

- Serves as the premier resource for learning the new techniques and applications of NMR spectroscopy
- Provides a key reference for chemists and physicists using NMR spectroscopy to study the structure and dynamics of molecules

DESCRIPTION

Annual Reports on NMR Spectroscopy provides a thorough and in-depth accounting of the progress made in nuclear magnetic resonance (NMR) spectroscopy and its many applications. Nuclear magnetic resonance (NMR) is an analytical tool used by chemists and physicists to study the structure and dynamics of molecules. In recent years, no other technique has gained as much significance as NMR spectroscopy. It is used in all branches of science in which precise structural determination is required, and in which the nature of interactions and reactions in solution is being studied. *Annual Reports on NMR Spectroscopy* has established itself as a premier resource for both specialists and non-specialists alike who want to become familiar with the new techniques and applications of NMR spectroscopy.

ISBN: 978-0-12-804711-8

PUB DATE: January 2016

FORMAT: Hardback

PAGES: c. 380

TRIM: 6w x 9h

AUDIENCE

Organic, inorganic, analytical and physical chemists, biochemists, structural biologists, physicists and all those studying and using NMR spectroscopy

SERIALS

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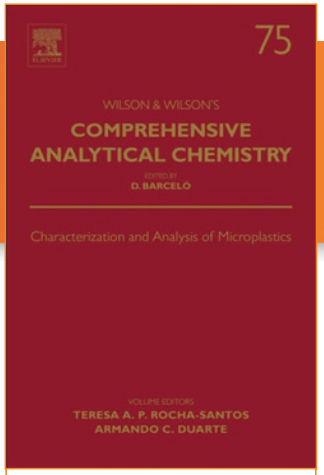

Characterization and Analysis of Microplastics, Vol 75

Edited by: ***Teresa Rocha-Santos*** University of Aveiro, Portugal
Armando C. Duarte University of Aveiro, Portugal

ELSEVIER

This volume provides a comprehensive coverage of the characterization and analysis of microplastics

A Volume in the Comprehensive Analytical Chemistry Series.

KEY FEATURES

- Concise, comprehensive coverage of analytical techniques and applications
- Clear diagrams to adequately support important topics
- Real examples to illustrate applications of the analytical techniques on the sampling, characterization and analysis of microplastics

DESCRIPTION

The characterization and analysis of microplastics is a hot topic considering the current need for reliable data on concentrations of microplastics in environmental compartments and therefore this book will present a comprehensive overview of the analytical techniques and future perspectives of analytical methodologies for microplastics identification and quantification. It aims at fulfilling the gap on the existence of published analytical methodologies for microplastics identification and quantification of microplastics. This overview will include the following main topics: introduction to the fate and behavior of microplastics in the environment, assessment of sampling techniques and sample handling, morphological, physical and chemical characterization of microplastics, and the role of laboratory experiments in the validation of field data.

ISBN: 978-0-444-63898-4
PUB DATE: June 2017
FORMAT: Hardback
PAGES: c. 300
TRIM: 6w x 9h

AUDIENCE

Academics, researchers at undergraduate level and above. Marine scientists, environmental scientists, analytical chemists, organic chemists, biochemists, biologists, polymer scientists, toxicologists

SERIALS
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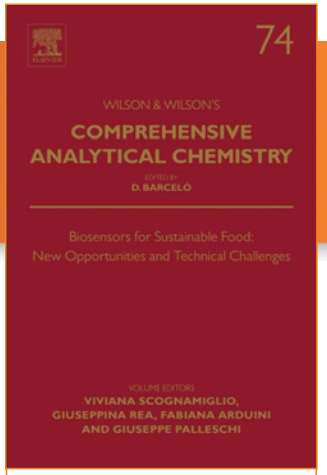


Biosensors for Sustainable Food - New Opportunities and Technical Challenges, Vol 74

Edited by: ***Viviana Scognamiglio*** National Research Council (CNR) Rome, Italy
Giuseppina Rea National Research Council (CNR) Rome, Italy
Fabiana Arduini University "Tor Vergata" Rome, Italy
Giuseppe Palleschi University "Tor Vergata" Rome, Italy

ELSEVIER

This comprehensive book addresses the challenges associated with sustaining the globally increasing demand for food that has been forecast for the next centuries and the immediate need for the food production system to adopt sustainable practices to protect the environment and human health

A Volume in the Comprehensive Analytical Chemistry Series.

ISBN: 978-0-444-63579-2
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 432
TRIM: 229 x 152 (6 x 9)

AUDIENCE

Engineers, biologists, physicists, researchers, food technologists and other professionals working on agrifood-related topics.

KEY FEATURES

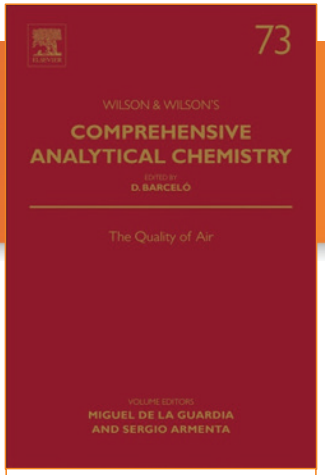
- Presents an interdisciplinary approach to biosensor technology
- Profiles recent advances in synthetic biology, new material design (biohybrids), nanotechnology, micro/nanofluidics, and information technology
- Aims to facilitate the transfer of agrifood biosensor technology from the laboratory to the market

DESCRIPTION

Biosensors for Sustainable Food - New Opportunities and Technical Challenges addresses the challenges associated with sustaining the globally increasing demand for food that has been forecast for the next centuries and the immediate need for the food production system to adopt sustainable practices to protect the environment and human health. It provides a comprehensive overview of established, cutting-edge, and future trends in biosensor technology and its application in the agrifood sector. In particular, different biosensing advances are covered, outlining the newest research efforts in the cross-disciplines of chemistry, biology, and materials science with biosensing research, in order to develop novel detection principles, sensing mechanisms, and device engineering methods.

Food production and consumption have a strong impact on the environment in terms of greenhouse gas emissions, water, and soil contamination, the reduction of arable land, water consumption, and many other factors, which in turn, negatively affect human health. These issues have consequences for economic development, too.

To address these challenges, it is necessary for scientists with different expertise, policymakers, and economists work together to develop new smart technologies and introduce them to the market, along with adequate regulations. In this regard, a sustainable food production system can be thought of as a chain of procedures with a low impact on the environment that guarantees a secured supply of healthier and fortified food while supporting economic growth.



The Quality of Air, Vol 73

Edited by: ***Miguel de la Guardia*** University of Valencia, Spain
Sergio Armenta University of Valencia, Spain

ELSEVIER

As a comprehensive tome on the topic of the quality of air, this book provides the latest research as well as information on the analytical tools available for air quality control within social, political, and legal frameworks

A Volume in the Comprehensive Analytical Chemistry Series.

KEY FEATURES

- Addresses real scenarios of polluted sites
- Presents updates of the available methodologies for the quality control of indoor and outdoor air
- Includes evaluations of working scenarios in different fields as mandated by regulations

DESCRIPTION

The Quality of Air discusses the topic from both the environmental and human health points-of-view. As today's policymakers, academic, government, industrial researchers, and the general public are all concerned about air pollution in both indoor and outdoor scenarios, this book presents the advances in the analytical tools available for air quality control within social, political, and legal frameworks.

With its multi-author approach, there is a wide range of expertise in tackling the topic.

ISBN: 978-0-444-63605-8
PUB DATE: July 2016
FORMAT: Hardback
PAGES: c. 970
TRIM: 229 x 152 (6 x 9)

AUDIENCE

Researchers in the academic, government and industrial sectors, graduate students and for advanced courses on environmental analysis

SERIALS

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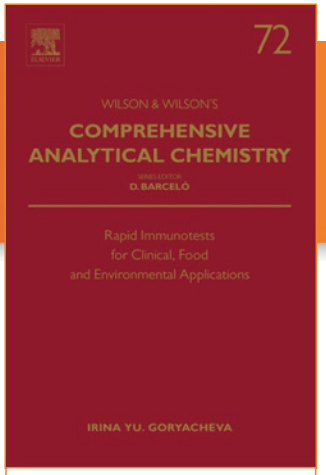


Rapid Immunotests for Clinical, Food and Environmental Applications, Vol 72

Edited by: ***Irina Yu. Goryacheva*** Saratov State University, Russian Federation

ELSEVIER

Provides the latest research in the area of the construction and application of rapid immunotests with plasmonic and luminescent detection

A Volume in the Comprehensive Analytical Chemistry Series.

KEY FEATURES

- Provides comprehensive coverage of rapid immunotests for clinical, food, and environmental applications
- Explores a variety of specialized techniques
- Presents a general overview of imaging techniques in diverse fields

DESCRIPTION

Irina Goryacheva authors this volume titled *Rapid Immunotests for Clinical, Food and Environmental Applications* that is devoted to the latest research in the area of the construction and application of rapid immunotests with plasmonic and luminescent detection, with special attention paid to the achievements of nanotechnology in the areas of labels and solid supports creation.With close attention to the basic principles and the specific issues, considering the breadth of the field that the rapid tests may offer, the coverage of this book is by no means complete, keeping open space for challenge and research

ISBN: 978-0-444-63574-7

PUB DATE: June 2016

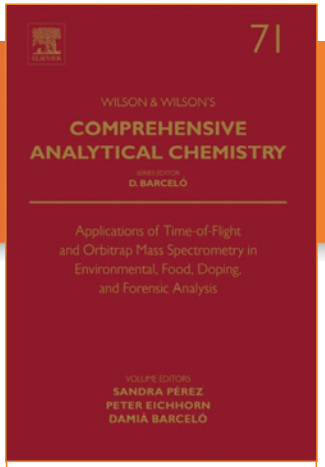
FORMAT: Hardback

PAGES: c. 208

TRIM: 229 x 152 (6 x 9)

AUDIENCE

Researchers and academics who develop immunoassay and nanosystems applications, researchers who use immunoassay as a tool including clinical and veterinary chemists, biochemists, pathologists; students and researchers in nanomaterials, biochemistry and medicine.



Applications of Time-of-Flight and Orbitrap Mass Spectrometry in Environmental, Food, Doping, and Forensic Analysis, Vol 71

Edited by: ***Sandra Perez*** Inst. of Environmental Assessment and Water Research, Spain
Peter Eichhorn Inst. of Environmental Assessment and Water Research, Spain
Damia Barcelo Inst. of Environmental Assessment and Water Research, Spain

ELSEVIER

As a comprehensive reference, this book covers applications of time-of-flight and orbitrap mass spectrometry in environmental, food, doping, and forensic analysis, providing a diverse group of examples that will allow readers to discover not only the potential of high-resolution MS in their sector, but also allow insights into advances in other fields

A Volume in the Comprehensive Analytical Chemistry Series.

ISBN: 978-0-444-63572-3
PUB DATE: June 2016
FORMAT: Hardback
PAGES: c. 502
TRIM: 229 x 152 (6 x 9)

AUDIENCE

Analytical and environmental chemists, pharmaceutical and medicinal chemists, as well as forensic and doping analysts

KEY FEATURES

- Provides comprehensive coverage of applications of time-of-flight and orbitrap mass spectrometry in environmental, food, doping, and forensic analysis
- Explores a variety of specialized techniques, giving a balanced description of the strengths and weaknesses of each
- Presents a general overview of imaging techniques within analysis

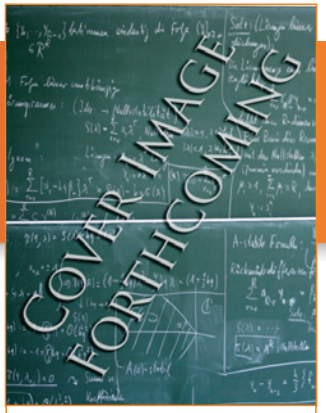
DESCRIPTION

Applications of Time-of-Flight and Orbitrap Mass Spectrometry in Environmental, Food, Doping, and Forensic Analysis deals with the use of high-resolution mass spectrometry (MS) in the analysis of small organic molecules. Over the past few years, time-of-flight (ToF) and Orbitrap MS have both experienced tremendous growth in a great number of analytical sectors and are now well established in many laboratories where high requirements are placed on analytical performance.

This book gives a head-to-head comparison of these two technologies that compete directly with each other. As users with hands-on experience in both techniques, the authors provide a balanced description of the strengths and weaknesses of both techniques. In the vast majority of cases, ToF-MS and Orbitrap-MS have been used for qualitative purposes, mainly identification of discrete molecular entities such as drug metabolites or transformation products of environmental contaminants.

This paradigm is now changing as quantitative capabilities are increasingly being explored, as are non-target approaches for unbiased broad-scope screening. In view of the continuous innovation of high-resolution MS instrument manufacturers in designing and developing more powerful machines, technological advances in both hardware and software are considerable, with many novel applications.

This book summarizes and analyzes these trends. The compilation of selected examples from diverse analytical fields will allow the readers to discover not only the potential of high-resolution MS in their sector, but also shows advances in other fields that rely on hi-res MS.



Neutron Scattering – Applications in Chemistry, Materials Science and Biology, Vol 49

Edited by: ***Felix Fernandez-Alonso*** Rutherford Appleton Laboratory, Chilton, Didcot, UK
David L Price CEMHTI, Orléans, France

ISBN: 978-0-12-805324-9
PUB DATE: June 2017
FORMAT: Hardback
PAGES: c. 475
TRIM: 6w x 9h

AUDIENCE
Graduate students and researchers in academia and industry in the areas of physics, chemistry, materials science, and biology

An authoritative reference covering state-of-the-art applications of neutron scattering across multidisciplines

A Volume in the Experimental Methods in the Physical Sciences Series.

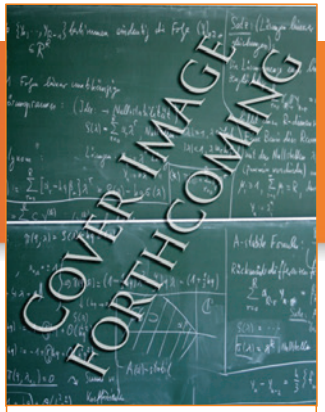
KEY FEATURES

- Completes a three-volume set providing extensive coverage of emerging and highly topical applications of neutron scattering
- Addresses the increasing use of neutrons by chemists, life scientists, and material scientists, in addition to condensed-matter physicists
- Presents up-to-date reviews of recent results, aimed at enabling readers to identify new opportunities and plan neutron scattering experiments in their own field

DESCRIPTION

Neutron Scattering: Applications in Chemistry, Materials Science and Biology provides an in-depth overview of applications of neutron scattering to the fields of physics, materials science, chemistry, biology, the earth sciences, and engineering. The book describes the tremendous advances in instrumental, experimental, and computational techniques over the past quarter-century. Examples include the coming-of-age of neutron reflectivity and spin-echo spectroscopy, the advent of brighter accelerator-based neutron facilities and associated techniques in the United States and Japan over the past decade, and current efforts in Europe to develop long-pulse, ultra-intense spallation neutron sources.

This book complements two earlier volumes in the *Experimental Methods in the Physical Sciences* series: *Neutron Scattering: Fundamentals* (Elsevier 2013) and *Neutron Scattering: Magnetic and Quantum Phenomena* (Elsevier 2015). The set as a whole enables researchers to identify aspects of their work in which neutron scattering techniques might contribute, conceive the important experiments to be done, assess what is required to carry them out, write a successful proposal for one of the major facilities around the globe, and perform the experiments under the guidance of the appropriate instrument scientist.



Morphological, Compositional, and Shape Control of Materials for Catalysis, Vol 177

Paolo Fornasiero Department of Chemical and Pharmaceutical Sciences, University of Trieste, Trieste, Italy
Matteo Cargnello Department of Chemical Engineering and SUNCAT Center for Interface Science and Catalysis, Stanford University, Stanford, CA, USA

ELSEVIER

Provides an essential overview of both synthetic and characterization details in the preparation of novel catalysts and introduces future perspectives in the field

A Volume in the Studies in Surface Science and Catalysis Series.

ISBN: 978-0-12-805090-3
PUB DATE: June 2017
FORMAT: Hardback
PAGES: c. 475
TRIM: 6w x 9h

AUDIENCE

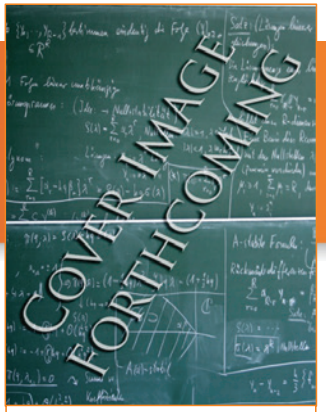
Advanced undergraduate and graduate students, and researchers in academia and industry in the area of inorganic and materials chemistry and chemical engineering

KEY FEATURES

- Presents the latest paradigms in the preparation and application of catalytic materials
- Provides essential background on using well-defined materials for catalysis
- Features discussion of future directions at the end of each chapter

DESCRIPTION

A volume in the *Studies in Surface Science and Catalysis* series, *Morphological, Compositional, and Shape Control of Materials for Catalysis* documents the fast growing developments in the synthesis, characterization, and utilization of nanostructures for catalysis. The book provides essential background on using well-defined materials for catalysis and presents exciting new paradigms in the preparation and application of catalytic materials, with an emphasis on how structure determines catalytic properties. In addition, the book uniquely features discussion of where the future will be in the field, providing ample space dedicated to future directions in each chapter.



Studies in Natural Products Chemistry, Vol 53

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

As an essential resource for researchers and engineers working in natural products and medicinal chemistry, this series presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products

A Volume in the Studies in Natural Products Chemistry Series.

ISBN: 978-0-444-63930-1

PUB DATE: May 2017

FORMAT: Hardback

PAGES: c. 500

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as academic and industry researchers

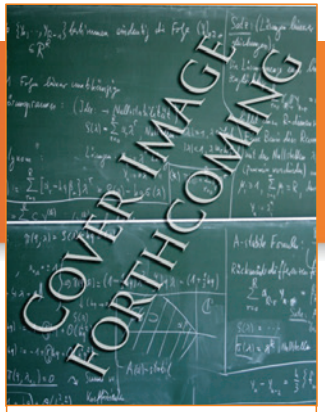
KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to isolate and then determine the structures and biological activity of natural products rapidly, thus opening up exciting opportunities in the field of new drug development to the pharmaceutical industry.

This series covers the synthesis or testing and recording of the medicinal properties of natural products, providing cutting edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis and pharmacology of a diverse array of bioactive natural products.



Climate Change Impacts on Soil Processes and Ecosystem Properties, Vol 35

Edited by: ***William R. Horwath*** Professor, Department of Land Air and Water Resources, University of California-Davis
Yakov Kuzyakov Department Head, Soil Science of Temperate Ecosystems and Agricultural Soil Science, University of Gottingen, Germany

ELSEVIER

This book provides an interdisciplinary overview of key soil processes and ecosystem properties in the Anthropocene Epoch and evaluations for further research

A Volume in the Developments in Soil Science Series.

ISBN: 978-0-444-63950-9
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 600
TRIM: 7.5w x 9.25h

AUDIENCE
Academic researchers, practitioners, policy developers

KEY FEATURES

- Provide an analysis of all areas of soil science in the context of climate change impact on soil processes and ecosystem properties
- Presents information that is displayed in an accessible form for practitioners and disciplines outside of soil science
- Contains a concluding section in each chapter which assesses key areas
- Includes a discussion on future research and direction

DESCRIPTION

Climate Change Impacts on Soil Processes and Ecosystem Properties presents current and emerging soil science research around the areas of soil processes and climate change, also evaluating future research needs. The book combines the five areas of soil science (microbiology, physics, fertility, pedology, and chemistry to give a comprehensive assessment. This integration of topics is rarely done in a single publication due to the disciplinary nature of the soil science areas, so users will find this book to be a comprehensive resource on the topic.

SERIALS
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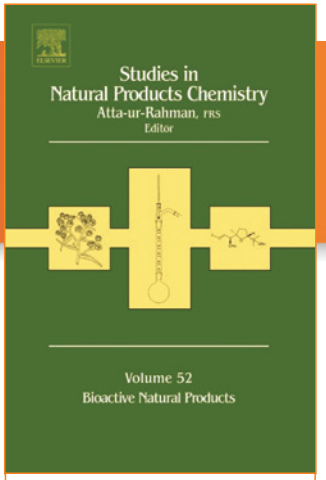


Studies in Natural Products Chemistry, Vol 52

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

Presents researchers and engineers in natural products and medicinal chemistry with current frontiers and future guidelines on bioactive natural products

A Volume in the Studies in Natural Products Chemistry Series.

KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Studies in Natural Products Chemistry covers the synthesis, testing, and recording of the medicinal properties of natural products, providing cutting-edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis, and pharmacology of a diverse array of bioactive natural products.

Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to isolate and then rapidly determine the structures and biological activity of natural products, thus opening up exciting opportunities in the field of new drug development in the pharmaceutical industry.

ISBN: 978-0-444-63931-8

PUB DATE: February 2017

FORMAT: Hardback

PAGES: c. 500

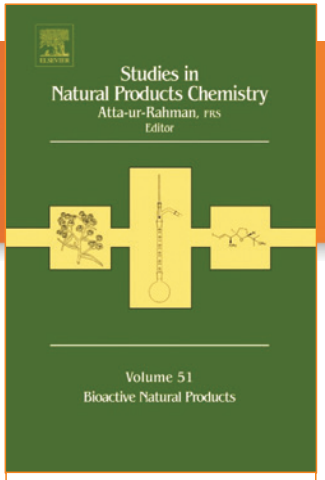
TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as academic and industry researchers

SERIALS

Please contact your Elsevier Sales or Customer Service Representative



Studies in Natural Products Chemistry, Vol 51

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

As an essential resource for researchers and engineers working in natural products and medicinal chemistry, this series presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products

A Volume in the Studies in Natural Products Chemistry Series.

ISBN: 978-0-444-63932-5

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 534

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as academic and industry researchers

KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to isolate and then determine the structures and biological activity of natural products rapidly, thus opening up exciting opportunities in the field of new drug development to the pharmaceutical industry.

This series covers the synthesis or testing and recording of the medicinal properties of natural products, providing cutting edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis and pharmacology of a diverse array of bioactive natural products.

SERIALS

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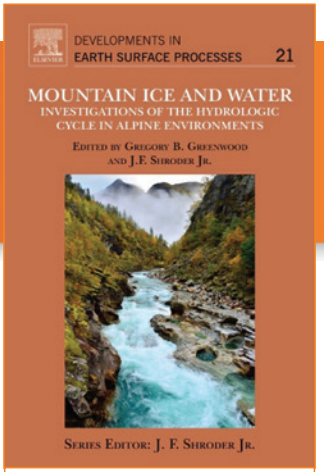


ISBN: 978-0-444-63787-1

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 414

TRIM: 6w x 9h

AUDIENCE

Academic researchers, International aid agencies (e.g. UN, World Bank, and NGOs)

Developments in Earth Surface Processes, Vol 21

Mountain Ice and Water

John F. Shroder Senior Research Scholar, Center for Afghanistan Studies, Emeritus Professor of Geography and Geology, University of Nebraska at Omaha, USA
Gregory B Greenwood Director, Mountain Research Initiative, Institute of Geography, University of Bern, Switzerland

Covers issues pertaining to planetary dynamics, sustainable development, and new thinking on mountain ice and water that help plan for future climate change

KEY FEATURES

- Derived from research papers delivered at the Perth III Conference on Mountains of our Future Earth in Scotland in October 2015
- Helps develop the knowledge necessary for responding effectively in coming decades to the risks and opportunities of global environmental change and tactics for global sustainability
- Provides the research community working on global change in mountains with a broader framework established by the Future Earth initiative

DESCRIPTION

Mountain Ice and Water: Investigations of the Hydrologic Cycle in Alpine Environments is a new volume of papers reviewed and edited by John Shroder, Emeritus Professor of Geography and Geology at the University of Nebraska at Omaha, USA, and Greg Greenwood, Director of the Mountain Research Initiative from Bern, Switzerland.

Chapters in this book were derived from research papers that were delivered at the Perth III Conference on Mountains of our Future Earth in Scotland in October 2015. The conference was established to help develop the knowledge necessary to respond effectively to the risks and opportunities of global environmental change and to support transformations toward global sustainability in the coming decades.

To this end, the conference and book have investigated the future situation in mountains from three points of view. (1) *Dynamic Planet:* Observing, explaining, understanding, and projecting Earth, environmental, and societal system trends, drivers, and processes and their interactions to anticipate global thresholds and risks, (2) *Global Sustainable Development:* Increasing knowledge for sustainable, secure, and fair stewardship of biodiversity, food, water, health, energy, materials, and other ecosystem services, and (3) *Transformations towards Sustainability*: Understanding transformation processes and options, assessing how these relate to human values, emerging technologies and social and economic development pathways, and evaluating strategies for governing and managing the global environment across sectors and scales.

Time and Methods in Environmental Interfaces Modelling, Vol 29

Personal Insights

Dragutin T Mihailovi? Faculty of Agriculture, University of Novi Sad, Serbia
Igor Balaž Faculty of Agriculture, University of Novi Sad, Serbia
Darko Kapor Faculty of Sciences, University of Novi Sad, Serbia

An in-depth, interdisciplinary review of the applications of environmental interface modeling that provides the latest fundamentals and applications of the science

A Volume in the Developments in Environmental Modelling Series.

ISBN: 978-0-444-63918-9
PUB DATE: November 2016
FORMAT: Hardback
PAGES: c. 390
TRIM: 7.5w x 9.25h

AUDIENCE

Environmental scientists, ecologists, Environmental modellers, NGOs, environmental policy makers, researchers

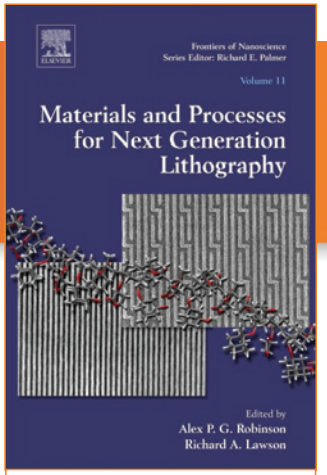
KEY FEATURES

- Includes the use of new mathematical tools, such as category theory, mathematical theory of general systems and formal concept analysis, matrix theory tools, stability analysis, and pseudospectra
- Presents new content related to time in relation to physics and biology
- Combines the word of an experienced author team with over 35 papers of collective experience

DESCRIPTION

Time and Methods in Environmental Interfaces Modelling: Personal Insights considers the use of time in environmental interfaces modeling and introduce new methods, from the global scale (e.g. climate modeling) to the micro scale (e.g. cell and nanotubes modeling), which primarily arise from the personal research insights of the authors.

As the field of environmental science requires the application of new fundamental approaches that can lead to a better understanding of environmental phenomena, this book helps necessitate new approaches in modeling, including category theory, that follow new achievements in physics, mathematics, biology, and chemistry.



Materials and Processes for Next Generation Lithography, Vol 11

Edited by: ***Alex Robinson*** Senior Lecturer, School of Chemical Engineering, Edgbaston, Birmingham, Senior Research Fellow of the Science City Research Alliance, University of Warwick, University of Birmingham, UK
Richard Lawson Research Engineer, Milliken & Company, Spartanburg, SC, USA

ISBN: 978-0-08-100354-1
PUB DATE: December 2016
FORMAT: Hardback
PAGES: c. 622
TRIM: 6w x 9h

AUDIENCE

Lithographers, chemists and device fabricators from the Semiconductor industry, microelectromechanical systems industry, and from device and micro/nanotechnology research in academia

Including information on processing and metrology techniques, this book brings together the world's foremost resist development scientists from various communities to produce a definitive description of the many approaches to lithography fabrication

A Volume in the Frontiers of Nanoscience Series.

KEY FEATURES

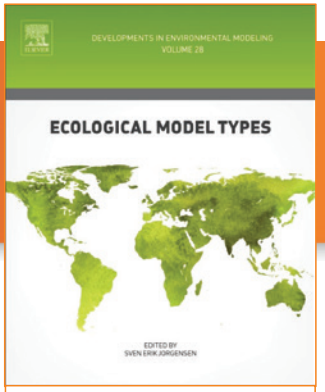
- Assembles up-to-date information from the world's premier resist chemists and technique development lithographers on the properties and capabilities of the wide range of resist materials currently under investigation
- Includes information on processing and metrology techniques
- Brings together multiple approaches to litho pattern recording from academia and industry in one place

DESCRIPTION

As the requirements of the semiconductor industry have become more demanding in terms of resolution and speed it has been necessary to push photoresist materials far beyond the capabilities previously envisioned. Currently there is significant worldwide research effort in to so called Next Generation Lithography techniques such as EUV lithography and multibeam electron beam lithography.

These developments in both the industrial and the academic lithography arenas have led to the proliferation of numerous novel approaches to resist chemistry and ingenious extensions of traditional photopolymers. Currently most texts in this area focus on either lithography with perhaps one or two chapters on resists, or on traditional resist materials with relatively little consideration of new approaches.

This book therefore aims to bring together the worlds foremost resist development scientists from the various community to produce in one place a definitive description of the many approaches to lithography fabrication.



Ecological Model Types, Vol 28

Edited by: ***Sven Erik Jørgensen*** Emeritus Professor, Copenhagen University, Denmark

ELSEVIER

This book provides an understanding on how to analyze quantitatively complex and dynamic ecosystems with the tools available today

A Volume in the Developments in Environmental Modelling Series.

ISBN: 978-0-444-63623-2

PUB DATE: November 2016

FORMAT: Hardback

PAGES: c. 268

TRIM: 7.5w x 9.25h

AUDIENCE

Environmental scientists and engineers, ecologists, environmental modellers and scientists studying climate change

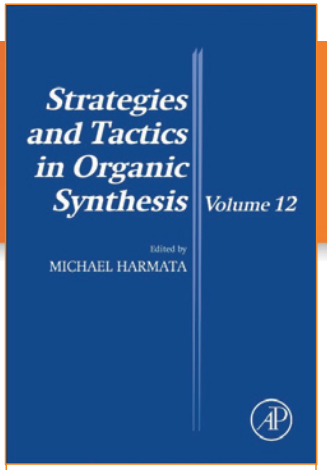
KEY FEATURES

- Bridges the gap between statistical analysis and synthesis of data, enhancing our understanding about ecosystems and their environmental problems
- Helps readers understand complex ecosystems by walking through the best modeling options to analyze and predict environmental effects
- Provides a detailed review of 14 model types, covering the breadth of options available for analysis at this time

DESCRIPTION

Ecological Model Types brings an understanding on how to quantitatively analyze complex and dynamic ecosystems with the tools available today. Ecosystem studies widely use the notions of order, complexity, randomness, and organization, and are used interchangeably in literature, which causes much confusion.

Better models synthesize our knowledge on ecosystems and their environmental problems, in contrast to statistical analysis, which only reveal the relationships between the data. This book brings together experts on ecological models to create a definitive work on how to understand our complex Earth.



Strategies and Tactics in Organic Synthesis, Vol 12

Edited by: ***Michael Harmata*** University of Missouri, MO, USA

Through the presentation of inspirational, firsthand narrative accounts, this book illustrates how to overcome challenges and advance the field of organic synthesis

A Volume in the Strategies and Tactics in Organic Synthesis Series.

ISBN: 978-0-08-100756-3
PUB DATE: October 2016
FORMAT: Hardback
PAGES: c. 278
TRIM: 6w x 9h

AUDIENCE
Organic chemists; academic libraries; chemical and pharmaceutical companies

KEY FEATURES

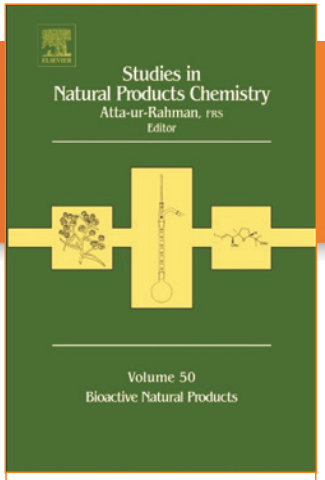
- Presents state-of-the-art developments in organic synthesis
- Provides insight and offers new perspective to problem-solving
- Written by leading experts in the field
- Uses firsthand narrative accounts to vividly illustrate the challenges and joys involved in advancing the science of organic synthesis

DESCRIPTION

Strategies and Tactics in Organic Synthesis provides a forum for investigators to discuss their approach to the science and art of organic synthesis. Rather than a simple presentation of data or a secondhand analysis, this classic provides stories that vividly demonstrate the power of the human endeavor known as organic synthesis and the creativity and tenacity of its practitioners.

Firsthand accounts of each project present the excitement of conception, the frustration of failure, and the joy experienced when either rational thought or good fortune gives rise to the successful completion of a project. This book series shows how synthesis is really done.

Readers will be educated, challenged, and inspired by these accounts, which portray the idea that triumphs do not come without challenges. This innovative approach also helps illustrate how challenges to further advance the science and art of organic synthesis can be overcome, driving the field forward to meet the demands of society by discovering new reactions, creating new designs, and building molecules with atom and step economies that provide functional solutions to create a better world.



Studies in Natural Products Chemistry, Vol 50

Bioactive Natural Products (Part XIII)

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

An essential resource for researchers and engineers working in natural products and medicinal chemistry that includes topics like isolation, synthesis, and biosynthesis

A Volume in the Studies in Natural Products Chemistry Series.

KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Studies in Natural Products Chemistry: Bioactive Natural Products (Part XIII) is the latest in a series that covers the synthesis or testing and recording of the medicinal properties of natural products, providing cutting-edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis, and pharmacology of a diverse array of bioactive natural products.

Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to quickly isolate and determine the structures and biological activity of natural products, thus opening up exciting opportunities in the field of new drug development to the pharmaceutical industry.

ISBN: 978-0-444-63749-9

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 418

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as researchers, particularly those in academia and in the pharmaceutical industry

SERIALS

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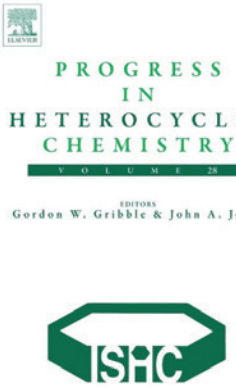

Progress in Heterocyclic Chemistry, Vol 28

Gordon W. Gribble Department of Chemistry, Dartmouth College, Hanover, NH, USA
John A. Joule Emeritus Professor, The University of Manchester, UK

ELSEVIER

A comprehensive annual survey of both original material published in the literature of heterocyclic chemistry in 2015 and developing topics of interest

A Volume in the Progress in Heterocyclic Chemistry Series.

KEY FEATURES

- Recognized as the premiere review of heterocyclic chemistry
- Includes contributions from leading researchers in the field
- Provides a systematic survey of the important 2015 heterocyclic chemistry literature
- Presents articles on new and developing topics of interest to heterocyclic chemists

DESCRIPTION

Progress in Heterocyclic Chemistry (PHC), Volume 28 is an annual review series commissioned by the International Society of Heterocyclic Chemistry (ISHC). Volumes in the series contain both highlights of the previous year's literature on heterocyclic chemistry and articles on new and developing topics of particular interest to heterocyclic chemists.

The highlight chapters in Volume 28 are all written by leading researchers and constitute a systematic survey of the important original material reported in the literature of heterocyclic chemistry during 2015. Additional articles in this volume include Semi-conjugated Heteroaromatic Rings and beta-Lactam Chemistry.

As with previous volumes in the series, Volume 28 will enable academic and industrial chemists, and advanced students, to keep abreast of developments in heterocyclic chemistry in a convenient way.

ISBN: 978-0-08-100755-6
PUB DATE: September 2016
LIST PRICE: $185.00
FORMAT: Hardback
PAGES: c. 666
TRIM: 6w x 9h

AUDIENCE

Organic chemists, academic and industrial chemists, as well as advanced students

SERIALS

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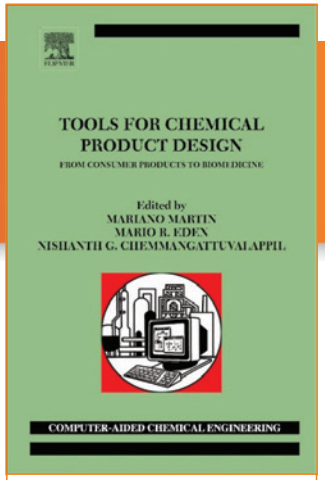


Tools For Chemical Product Design, Vol 39

From Consumer Products to Biomedicine

Edited by: ***Mariano Martin*** Assistant Professor of Chemical Engineering, University of Salamanca, Spain
Mario R. Eden Auburn University, AL, USA
Nishanth G. Chemmangattuvalappil Department of Chemical and Environmental Engineering, University of Nottingham Malaysia campus

ISBN: 978-0-444-63683-6
PUB DATE: September 2016
FORMAT: Hardback
PAGES: c. 18
TRIM: 7.5w x 9.25h

AUDIENCE

Academics in the field of process system engineering and practitioners in industry - from the crude oil to the pharma as well as biotechnology industries

This informative book describes the challenges involved in systematic product design across a variety of industries and provides a comprehensive overview of mathematical tools aimed at the design of chemical products, from molecular design to customer products

A Volume in the Computer Aided Chemical Engineering Series.

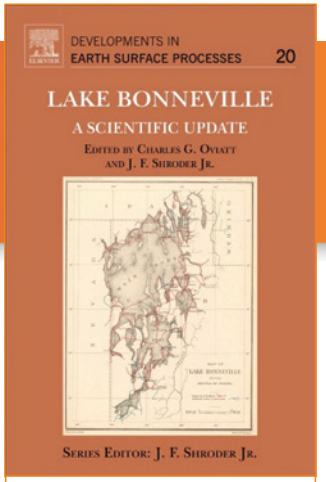
KEY FEATURES

- Features an impressive collection of contributions from leading researchers in the field
- Presents the latest tools available across a variety of industries
- Describes the challenges involved in systematic product design as well as the latest methods for solving such problems
- Covers a wide range of sectors including gasoline additives and blends in the petroleum industry, active ingredients and excipients in the pharmaceutical industry, and a variety of consumer products and specialty chemicals

DESCRIPTION

Tools for Chemical Product Design: From Consumer Products to Biomedicine describes the challenges involved in systematic product design across a variety of industries and provides a comprehensive overview of mathematical tools aimed at the design of chemical products, from molecular design to customer products.

Chemical product design has become increasingly important over the past decade and includes a wide range of sectors including gasoline additives and blends in the petroleum industry, active ingredients and excipients in the pharmaceutical industry, and a variety of consumer products and specialty chemicals. Traditionally, such products have been designed through trial and error methods, which not only are time-consuming, but more importantly only provide limited knowledge that can be translated into next generation products.



Lake Bonneville: A Scientific Update, Vol 20

Edited by: ***Charles G. (Jack) Oviatt*** Department of Geology, Kansas State University, USA
John F. Shroder Senior Research Scholar, Center for Afghanistan Studies, Emeritus Professor of Geography and Geology, University of Nebraska at Omaha, USA

Compiling important data and perspectives from the early 21st century in one handy reference, this book offers new information and evolving scientific interpretations about Lake Bonneville, an important Pleistocene lake in the North American Great Basin

A Volume in the Developments in Earth Surface Processes Series.

ISBN: 978-0-444-63590-7

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 660

TRIM: 6w x 9h

AUDIENCE

Geologists, geomorphologists, geochemists, geophysicists, palaeoclimatologists, archaeologists, palaeoecologists, palaeontologists, and other Earth scientists

KEY FEATURES

- Makes the widespread and detailed literature on this well-known Pleistocene body of water accessible
- Gives expositions of the many famous and iconic landforms and deposits
- Contains over 300 illustrations, most in full color
- Contains chapters on many important topics, including stratigraphy, sedimentology, hydrology, geomorphology, geochronology, isostasy, geophysics, geochemistry, vegetation history, pollen, fishes, mammals, mountain glaciation, prehistoric humans, paleoclimate, remote sensing, and geoantiquities in the Bonneville basin

DESCRIPTION

Lake Bonneville: A Scientific Update showcases new information and interpretations about this important lake in the North American Great Basin, presenting a relatively complete summary of the evolving scientific ideas about the Pleistocene lake. A comprehensive book on Lake Bonneville has not been published since the masterpiece of G.K. Gilbert in 1890. Because of Gilbert's work, Lake Bonneville has been the starting point for many studies of Quaternary paleolakes in many places throughout the world. Numerous journal articles, and a few books on specialized topics related to Lake Bonneville, have been published since the late 1800s, but here the editors compile the important data and perspectives of the early 21st century into a book that will be an essential reference for future generations. Scientific research on Lake Bonneville is vibrant today and will continue into the future.

Resolving Spectral Mixtures, Vol 30

With Applications from Ultrafast Time-Resolved Spectroscopy to Super-Resolution Imaging

Edited by: ***Cyril Ruckebusch*** Université de Lille Cité Scientifique, Villeneuve d'Ascq, France

ELSEVIER

This comprehensive book presents an interdisciplinary approach to demonstrate how and why data analysis, signal processing, and chemometrics are essential to resolving the spectral unmixing problem

A Volume in the Data Handling in Science and Technology Series.

ISBN: 978-0-444-63638-6

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 650

TRIM: 6w x 9h

AUDIENCE

Analytical and bioanalytical chemists, spectroscopists, chemometricians, and scientists working in signal processing, image processing, food & drugs, and pharmaceuticals

KEY FEATURES

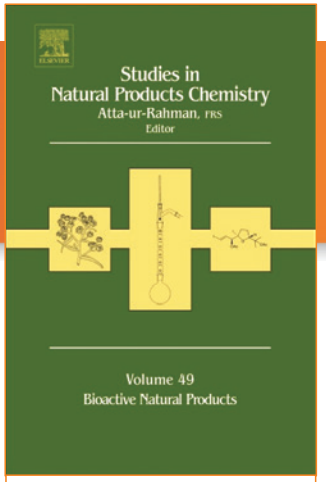
- Demonstrates how and why data analysis, signal processing, and chemometrics are essential to the spectral unmixing problem
- Guides the reader through the fundamentals and details of the different methods
- Presents extensive plots, graphical representations, and illustrations to help readers understand the features of different techniques and to interpret results
- Bridges the gap between disciplines with contributions from a number of well-known and highly active chemometric and signal processing research groups

DESCRIPTION

Resolving Spectral Mixtures: With Applications from Ultrafast Time-Resolved Spectroscopy to Superresolution Imaging offers a comprehensive look into the most important models and frameworks essential to resolving the spectral unmixing problem—from multivariate curve resolution and multi-way analysis to Bayesian positive source separation and nonlinear unmixing. Unravelling total spectral data into the contributions from individual unknown components with limited prior information is a complex problem that has attracted continuous interest for almost four decades.

Spectral unmixing is a topic of interest in statistics, chemometrics, signal processing, and image analysis. For decades, researchers from these fields were often unaware of the work in other disciplines due to their different scientific and technical backgrounds and interest in different objects or samples. This led to the development of quite different approaches to solving the same problem. This multi-authored book will bridge the gap between disciplines with contributions from a number of well-known and strongly active chemometric and signal processing research groups.

Among chemists, multivariate curve resolution methods are preferred to extract information about the nature, amount, and location in time (process) and space (imaging and microscopy) of chemical constituents in complex samples. In signal processing, assumptions are usually around statistical independence of the extracted components. However, the chapters include the complexity of the spectral data to be unmixed as well as dimensionality and size of the data sets. Advanced spectroscopy is the key thread linking the different chapters. Applications cover a large part of the electromagnetic spectrum. Time-resolution ranges from femtosecond to second in process spectroscopy and spatial resolution covers the submicronic to macroscopic scale in hyperspectral imaging.



Studies in Natural Products Chemistry, Vol 49

Bioactive Natural Products (Part XII)

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

An essential resource for researchers and engineers working in natural products and medicinal chemistry that includes topics like isolation, synthesis, and biosynthesis

A Volume in the Studies in Natural Products Chemistry Series.

KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Studies in Natural Products Chemistry: Bioactive Natural Products (Part XII) is the latest in a series that covers the synthesis or testing and recording of the medicinal properties of natural products, providing cutting-edge accounts of the fascinating developments in the isolation, structure elucidation, synthesis, biosynthesis, and pharmacology of a diverse array of bioactive natural products.

Natural products in the plant and animal kingdom offer a huge diversity of chemical structures that are the result of biosynthetic processes that have been modulated over the millennia through genetic effects. With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to quickly isolate and determine the structures and biological activity of natural products, thus opening up exciting opportunities in the field of new drug development to the pharmaceutical industry.

ISBN: 978-0-444-63601-0

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 420

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as researchers, particularly those in academia and in the pharmaceutical industry

SERIALS

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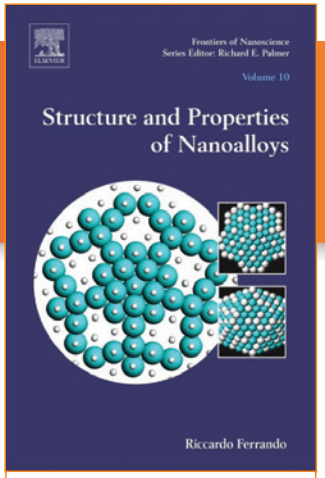


Structure and Properties of Nanoalloys, Vol 10

Riccardo Ferrando Universtià di Genova, Genova, Italy

ELSEVIER

As an important reference on the structure and properties of nanoalloys, this book provides a wide spectrum of information on their possible applications in the fields of catalysis, magnestism, and optics

A Volume in the Frontiers of Nanoscience Series.

ISBN: 978-0-08-100212-4

PUB DATE: August 2016

FORMAT: Hardback

PAGES: c. 338

TRIM: 6w x 9h

AUDIENCE

Researchers and postgraduate students in physics, chemistry, materials science and engineering

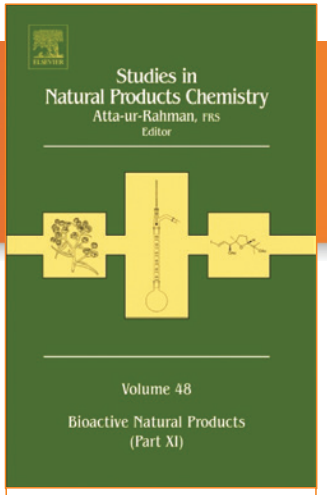
KEY FEATURES

- Provides a well-organized, coherent overall structure, with a tutorial style format ideal for teaching and self-study
- In-depth and fluent descriptions by a single leading academic
- Presents a wealth of experimental and computational results generated over the last decade

DESCRIPTION

Structure and Properties of Nanoalloys is devoted to the topic of alloy nanoparticles, the bi-or multicomponent metallic nanoparticles that are often called nanoalloys. The interest in nanoalloys stems from the wide spectrum of their possible applications in the fields of catalysis, magnetism, and optics.

Nanoalloys are also interesting from a basic science point-of-view due to the complexity of their structures and properties. Nanoalloys are presently a very lively research area, with impressive developments in the last ten years. This book meets the need to systematize the wealth of experimental and computational results generated over the last decade.



Studies in Natural Products Chemistry, Vol 48

Bioactive Natural Products (Part XI)

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

As an essential resource for researchers and engineers working in natural products and medicinal chemistry, this book presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products and their exciting new applications in the field of new drug development

A Volume in the Studies in Natural Products Chemistry Series.

ISBN: 978-0-444-63602-7

PUB DATE: June 2016

FORMAT: Hardback

PAGES: c. 460

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as researchers, particularly those in academia and in the pharmaceutical industry

KEY FEATURES

- Provides the latest on the use of natural products from the plant and animal kingdom and the ways in which they can offer a huge diversity of chemical structures
- Focuses on the chemistry of bioactive natural products and their exciting new applications in the pharmaceutical industry
- Presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products
- Contains contributions by leading authorities in the field

DESCRIPTION

Studies in Natural Products Chemistry, Volume 48, provides the latest on the use of natural products from the plant and animal kingdom and the ways in which they can offer a huge diversity of chemical structures, which are the result of biosynthetic processes that have been modulated over the millennia through genetic effects.

With the rapid developments in spectroscopic techniques and accompanying advances in high-throughput screening techniques, it has become possible to isolate and then rapidly determine the structures and biological activity of natural products, thus opening up exciting opportunities in the field of new drug development.

The series covers all aspects of the science, along with the synthesis, testing, and recording of the medicinal properties of natural products. With articles written by leading authorities in their respective fields of research, the book presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products. It is a valuable resource for all those working in natural product and medicinal chemistry.

SERIALS

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26th European Symposium on Computer Aided Process Engineering, Vol 38

Part A and B

Edited by: ***Zdravko Kravanja*** University of Maribor, Slovenia

ELSEVIER

Presents findings and discussions from the 26th European Society of Computer-Aided Process Engineering (ESCAPE) Event held in Portorož, Slovenia, with coverage of process product synthesis, design integration, modeling, and more

A Volume in the Computer Aided Chemical Engineering Series.

ISBN: 978-0-444-63428-3

PUB DATE: September 2016

FORMAT: Hardback

PAGES: c. 2440

TRIM: 7.5w x 9.25h

AUDIENCE

Chemical engineers, chemical process engineers, researchers in industry and academia, students, and consultants for chemical industries

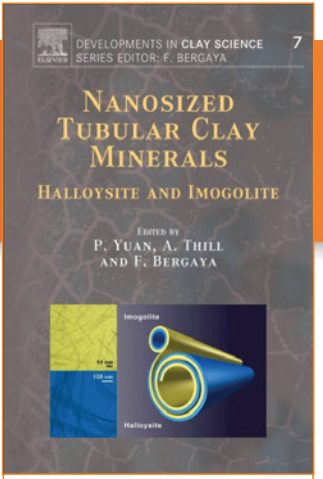
KEY FEATURES

- Presents findings and discussions from the 26th European Society of Computer-Aided Process Engineering (ESCAPE) Event

DESCRIPTION

26th *European Symposium on Computer Aided Process Engineering* contains the papers presented at the 26th European Society of Computer-Aided Process Engineering (ESCAPE) Event held at Portorož Slovenia, from June 12th to June 15th, 2016.

Themes discussed at the conference include Process-product Synthesis, Design and Integration, Modelling, Numerical analysis, Simulation and Optimization, Process Operations and Control and Education in CAPE/PSE.



Nanosized Tubular Clay Minerals, Vol 7

Halloysite and Imogolite

Edited by: ***Peng Yuan*** CAS Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China
Antoine Thill Laboratoire Interdisciplinaire sur l'Organisation Nanométrique et Supramoléculaire, CEA Saclay, Gif sur Yvette, France
Faïza Bergaya Centre National de la Recherche Scientifique, Centre de Recherche sur la Matière Divisée, Orléans, France

ELSEVIER

Provides the latest coverage from leading scientists on a wide field of expertise regarding the current state of knowledge about nanosized tubular clay minerals, bringing a clear view of the fundamental properties of clay materials and how their properties vary in chemical composition, structure, and the ways in which their modes of occurrence affect their engineering applications

A Volume in the Developments in Clay Science Series.

ISBN: 978-0-08-100293-3
PUB DATE: June 2016
FORMAT: Hardback
PAGES: c. 754
TRIM: 229 x 152 (6 x 9)

AUDIENCE

Research scientists, university teachers, industrial chemists, physicists, graduate students, as well as environmental engineers and technologists

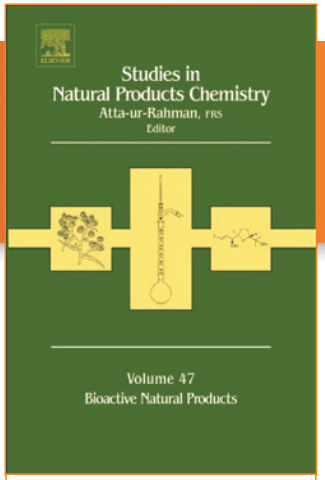
KEY FEATURES

- Examines clay properties from the molecular to the macroscopic scale
- Addresses experimental and modeling issues
- Authored by experts who are well-versed in the properties of nanosized tubular clay minerals

DESCRIPTION

Nanosized Tubular Clay Minerals provides the latest coverage from leading scientists on a wide field of expertise regarding the current state of knowledge about nanosized tubular clay minerals. All chapters have been carefully edited and coordinated, and readers will find a resource that provides a clear view of the fundamental properties of clay materials and how their properties vary in chemical composition, structure, and the ways in which their modes of occurrence affect their engineering applications.

Besides being a great reference, the book provides research scientists, university teachers, industrial chemists, physicists, graduate students, and environmental engineers and technologists with the ability to analyze and characterize clays and clay minerals to improve selectivity, along with techniques on how they can apply clays in ceramics in all aspects of industrial, geotechnical, agricultural, and environmental use.



Studies in Natural Products Chemistry, Vol 47

Edited by: ***Atta-ur-Rahman*** Professor Emeritus, International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), University of Karachi, Karachi, Pakistan

ELSEVIER

As an essential resource for researchers and engineers working in natural products and medicinal chemistry, this book presents current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products

A Volume in the Studies in Natural Products Chemistry Series.

KEY FEATURES

- Focuses on the chemistry of bioactive natural products
- Contains contributions by leading authorities in the field
- Presents sources of new pharmacophores

DESCRIPTION

Studies in Natural Products Chemistry contains the latest articles written by leading authorities in their respective fields of research, presenting current frontiers and future guidelines for research based on important discoveries made in the field of bioactive natural products. It is an invaluable resource for anyone working in natural product and medicinal chemistry.

ISBN: 978-0-444-63603-4

PUB DATE: February 2016

FORMAT: Hardback

PAGES: c. 440

TRIM: 6w x 9h

AUDIENCE

Natural product chemists, medicinal chemists, pharmacologists as well as researchers, particularly those in academia and in the pharmaceutical industry

SERIALS

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The European Research Management Handbook

Jan Andersen Senior Executive Advisor, Science Research and Innovation,University of Copenhagen, Frederiksberg, Denmark
Kristel Toom Vice Head and Researcher, Estonian Academy of Security Sciences, Tallinn, Estonia
Susi Poli Doctoral EdD Candidate at UCL Institute of Education, London, UK
Pamela F. Miller Director, Sponsored Projects Office, University of California at Berkeley, Berkeley, CA, U.S.A.

Provides frameworks, insight, and guidance on research management and research administration

ISBN: 978-0-12-805059-0
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 304
TRIM: 6w x 9h

AUDIENCE

Professional research administrators and support staff in universities and research institutions, Researchers and research groups, and university management as well as those interested in exploring a career in research management or research administration

KEY FEATURES

- Offers a deeper understanding of the research management and administrative landscape through single and collective definitions and experiences
- Provides an overview of the research environment and explores the international research arena
- Discusses some of the most complex issues in research management and administration by covering topics such as ethics, innovation, research impact, organizational structures, and processes for the project life cycle

DESCRIPTION

The European Research Management Handbook addresses the myriad of responsibilities related to research management and administration. The book incorporates narratives from those working in the field to provide insight into the profession. The book also offers a unique perspective on the topic by incorporating global perspectives to address the growing interdisciplinary nature of research collaboration.

The European Research Management Handbook outlines practical advice for those in the research management and administration profession at all levels of experience. It is also a useful tool that research institutions and research groups can use to assist in planning and streamlining their research support.

LIFE SCIENCES
PROFESSIONAL AND CAREER DEVELOPMENT
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ReSearch

A Career Guide for Scientists

Teresa M. Evans PhD, Director, the Office of Career Development, Graduate School of Biomedical Sciences, University of Texas Health and Science Center at San Antonio, San Antonio, TX, USA
Natalie Lundsteen PhD, Director of Graduate Career Development, Graduate School of Biomedical Sciences, University of Texas Southwestern Medical Center, Dallas, TX, USA
Nathan L. Vanderford PhD, MBA, Assistant Professor, Department of Toxicology and Cancer Biology; Assistant Dean for Academic Development, College of Medicine; Assistant Director for Research, Markey Cancer Center, University of Kentucky, Lexington, KY, USA

Inside knowledge on how to effectively leverage skill sets to take that next step in your career

ISBN: 978-0-12-804297-7
PUB DATE: June 2017
FORMAT: Paperback
PAGES: c. 288
TRIM: 6w x 9h

AUDIENCE

Graduate, medical, and postdoctoral students across the Sciences as well as faculty, advisors, industry professionals, societies, and other organizations who are involved in career counselling, science education programs, and/or mentorship programs. Graduates and professionals in other STEM areas

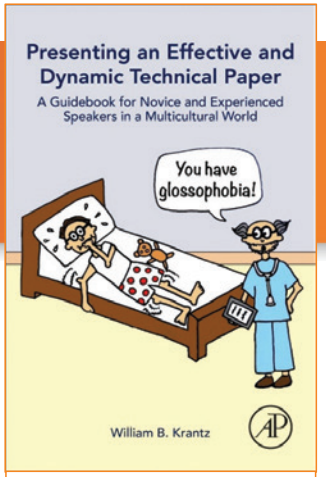
KEY FEATURES

- Fills the knowledge gap in career planning practices for students and early career researchers in the STEM fields, particularly those in the sciences
- Provides global perspectives on seeking career opportunities outside of the United States
- Includes strategies for how to market your transferable skill sets, network, and maximize informational interviews

DESCRIPTION

ReSearch is a career planning guide and practical tool for graduate students and postdocs in the pursuit of any career. This book provides step-by-step processes for the assessment of career goals and the actions that can be taken in order to achieve them. *ReSearch* includes chapters on the basics of career planning, determining unique selling points, and navigating work-life concerns. This book also includes narratives from a number of perspectives to showcase the variety of career options available.

ReSearch is written by experts with inside knowledge of how to effectively leverage skills in order to take that next step in your career, whether you are a recent graduate or are interested in transitioning into something new. This book is also a valuable resource for advisors and careers counselors who mentor students and postdocs about their career plans.



Presenting an Effective and Dynamic Technical Paper

A Guidebook for Novice and Experienced Speakers in a Multicultural World

William B. Krantz President's Teaching Scholar and Professor Emeritus, University of Colorado, Boulder, CO, USA; Rieveschl Ohio Eminent Scholar and Professor Emeritus, University of Cincinnati, Cincinnati,OH, USA

A practical, compact guidebook covering the 'nuts and bolts' of effective public speaking from a cross-cultural perspective

ISBN: 978-0-12-805418-5

PUB DATE: November 2016

FORMAT: Paperback

PAGES: c. 96

TRIM: 6w x 9h

AUDIENCE

Students and researchers across the sciences interested in improving their oral communication skills; in particular non-native English speakers

KEY FEATURES

- Discusses best practices in putting together an effective talk
- Focuses on leveraging the speaker's existing skillsets to develop the delivery style that works best for that individual
- Features one-page quick reference guides for giving both formal oral and informal poster presentations
- Addresses cross-cultural communication, as well as particular concerns for non-native English speakers
- Includes a companion site with tools and video examples of formal and informal presentations for further self-guidance

DESCRIPTION

Presenting an Effective and Dynamic Technical Paper: A Guidebook for Novice and Experienced Speakers in a Multicultural World is intended for inexperienced speakers as well as those aspiring to improve their communication skills in making either formal or informal presentations on a technical subject.

The book focuses on how to make presentations to a cross-cultural audience, including such tactics as how to list the names of the co-authors on your presentation, how to handle eye contact and use humor, both of which can differ across the global spectrum of cultures. The cross-cultural focus of this book relates not only to the audience, but also to the speaker. This book also includes helpful tips for non-native English speakers.

Creating a Culture of Accessibility in the Sciences

Mahadeo A. Sukhai Research Fellow and Team Leader, University Health Network, Princess Margaret Hospital, Ontario Cancer Institute, Toronto, ON, Canada
Chelsea E. Mohler Research Consultant, National Educational Association of Disabled Students, Ottawa, ON, Canada

As a comprehensive guide, this book provides insights and advice on integrating students with disabilities into the STEM fields, with each chapter featuring research and best practices that are interwoven with experiential narratives

ISBN: 978-0-12-804037-9
PUB DATE: December 2016
FORMAT: Paperback
PAGES: c. 316
TRIM: 6w x 9h

AUDIENCE

University faculty, academic administrators, disability office staff, students with disabilities, and industry professionals in STEM and related disciplines. Additional markets include related academic and professional organizations as well as those involved in professional development training and workshops

KEY FEATURES

- Offers a global perspective on making research or work spaces accessible for students with disabilities in the STEM fields
- Discusses best practices on accommodating and supporting students and demonstrates how these practices can be translated across disciplines
- Enhances faculty knowledge of inclusive teaching practices, adaptive equipment, accessibility features, and accommodations in science laboratories, which would enable the safe participation of students with disabilities
- Provides advice for students with disabilities on disclosure and mentoring

DESCRIPTION

Creating a Culture of Accessibility in the Sciences provides insights and advice on integrating students with disabilities into the STEM fields. Each chapter features research and best practices that are interwoven with experiential narratives.

The book is reflective of the diversity of STEM disciplines (life and physical sciences, engineering, and mathematics), and is also reflective of cross-disability perspectives (physical, sensory, learning, mental health, chronic medical and developmental disabilities).

It is a useful resource for STEM faculty and university administrators working with students with disabilities, as well as STEM industry professionals interested in accommodating employees with disabilities.

Technical Career Survival Handbook

100 Things You Need To Know

Peter Burke P.E, Consulting Engineer, Self-Employed

This practical guide provides the information needed to survive a technical career, enabling prospective candidates and those currently in technical careers to explore all technical education possibilities, industries, disciplines, and specialties

KEY FEATURES

- Offers insights on how to pursue and navigate a technical career
- Discusses job searches, interviews, offers, and counteroffers
- Includes day-to-day, in the trenches, job situations that may arise and best practices on how to address them

DESCRIPTION

Technical Career Survival Handbook: 100 Things You Need To Know provides the information needed to survive a technical career, enabling prospective technical career candidates and those currently in technical careers to explore all technical education possibilities, industries, disciplines, and specialties.

This handbook better equips the reader to deal with the tough situations and decisions they have to make throughout their career. Topics include preparing for the workforce, employment challenges, and dealing with on the job situations. This book is a practical guidebook for scientists, engineers, and technicians who apply the principles of science and mathematics to develop practical solutions to technical problems.

ISBN: 978-0-12-809372-6

PUB DATE: November 2016

FORMAT: Paperback

PAGES: c. 268

TRIM: 6w x 9h

AUDIENCE

Scientists, engineers, and technicians who apply the principles of science and mathematics to develop practical solutions to technical problems.

Leadership Lessons for Health Care Providers

Frank James Lexa Chair, ACR Commission on Practice Leadership and Chairman of the Board, Radiology Leadership Institute Project Faculty, Spain; East Asia Regional Manager, the Global Consulting Practicum & Adjunct Professor of Marketing, The Wharton School, Philadelphia, PA, USA

This thought-provoking book provides a solid introduction to the nature of medical leadership, addressing common situations that physicians and allied health professionals encounter and providing tactics for handling common leadership conundrums and increasing leadership abilities

ISBN: 978-0-12-801866-8

PUB DATE: September 2016

FORMAT: Paperback

PAGES: c. 214

TRIM: 6w x 9h

AUDIENCE

Physicians and allied health professionals.Additional markets include related graduate and postgraduate programs, academic and professional organizations as well as those involved in professional development training and workshops

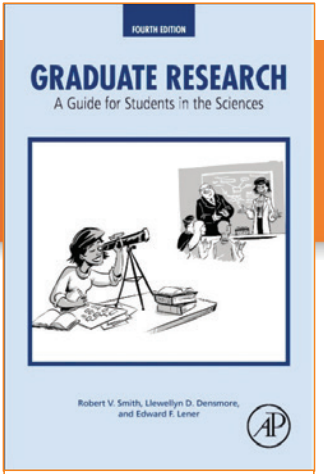
KEY FEATURES

- Discusses and offers practical advice on a number of leadership development topics including levels of leadership, different styles and techniques, dealing with conflict, making hard decisions, and setting priorities
- Includes valuable insight from leaders and specialists in the health care field
- Directs readers to additional leadership resources as next steps

DESCRIPTION

The rapid changes in health care including novel technologies as well as the changing economic, political, and social landscapes are all forcing physicians as well as most types of health care practitioners to re-think their role in leadership. This is particularly true in the US in recent years, but the same issues are widely prevalent affecting health care workers around the globe. Developing capable medical leaders who can navigate these challenges will be essential.

Physicians and other health care practitioners usually receive little or no leadership training in the course of their education. At the next steps in their training: internship, residency and fellowship, gaining clinical acumen takes precedence over developing other skills that are at the core of leadership training. *Leadership Lessons for Health Care Providers* will allow all types of health professionals to gain a better understanding of what leadership is, how to develop their skills while still early in their careers, how to understand and handle common leadership conundrums and chart a path towards increasing their leadership capabilities as they reach mid-career and beyond. This book will provide a great start for those who are interested in learning more about leadership and includes recommendations for next steps at all stages in leadership work.



Graduate Research, 4e

A Guide for Students in the Sciences

Robert V. Smith Collaborative Brain Trust University Consulting (CBT UC), Sacramento, CA, USA
Llewellyn D. Densmore Department of Biological Sciences, Texas Tech University, Lubbock, TX, USA
Edward F. Lener University Libraries, Virginia Tech, Blacksburg, VA, USA

This newly revised go-to resource is for graduate researchers at all stages of study and covers a range of topics including writing and preparation of research proposals, developing and refining teaching skills, and ethics and compliance areas such as research involving human subjects and animals

ISBN: 978-0-12-803749-2
PREVIOUS EDITION ISBN: 9780295977058
PUB DATE: February 2016
FORMAT: Paperback
PAGES: c. 288
TRIM: 6w x 9h

AUDIENCE
Graduate student, graduate advisors, and mentors across the Sciences

KEY FEATURES

- Discusses a broad range of topics including time management, library and literature work, and grant support
- Includes a new chapter on career planning and development with advice on careers in academia, government, and the private sector
- Contains chapters that promote the development of a varied set of communication skills
- Greatly expanded treatment of graduate study and research in international settings

DESCRIPTION

Graduate Research is an all-in-one resource for prospective and matriculated graduate students in the sciences. The newly revised edition includes updates to every chapter. *Graduate Research* covers a range of topics including writing and preparation of research proposals, developing and refining teaching skills, and ethics and compliance areas such as research involving human subjects and animals.

Graduate Research helps readers navigate the multidimensional and interdisciplinary world of scientific research and it is an invaluable resource for graduate researchers as well as those in advising or mentoring roles.

WHAT HAPPENS WHEN RESEARCHERS ARE TURNED AWAY?

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