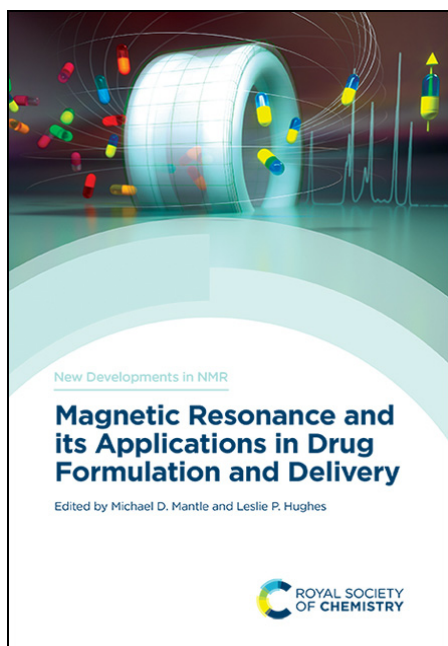


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BISAC: SCI013010, TEC009010, TEC059000

Magnetic Resonance and its Applications in Drug Formulation and Delivery

Michael D Mantle University of Cambridge, UK
Leslie P Hughes AstraZeneca, UK

Synopsis

This book details the latest research and development in the use of magnetic resonance imaging and spectroscopy as tools to give quantitative insights/information concerning late stage pharmaceutical formulation, tablet manufacturing and drug dissolution behaviour. The book combines different facets of magnetic resonance and highlights the use of spatial resolution (MRI) and how this adds to the knowledge base to further our understanding of the microscopic physicochemical processes occurring during drug release from solid dosage forms. Focusing on late-stage development rather than molecular drug discovery provides a unique approach. The book is an ideal companion for anyone in disciplines using spectroscopy for study.

Brief Contents

- Applications of NMR in Drug Substance and Drug Product Development
- The Application of Magnetic Resonance to Testing Counterfeit, Falsified and Substandard Medicines
- Nuclear Quadrupole Resonance Spectroscopy in Pharmaceuticals
- NMR Crystallography in Pharmaceutical Development
- Using Water Proton NMR to Characterize Aluminum-Adjuvanted Vaccines
- Magnetic Resonance Methods Applied to the Study and Development of Cell Cultures and Bioreactors for Biopharmaceutical Production
- Applications of Pulsed Field Gradient Nuclear Magnetic Resonance to Late-stage Pharmaceutical and Biopharmaceutical Development and Deployment
- Applications of MRI to Study Controlled Drug Release Formulations: From Model Formulations Towards the Understanding of Drug Products Behaviour
- Short-T₂ Imaging Applications in Pharmaceutical Research

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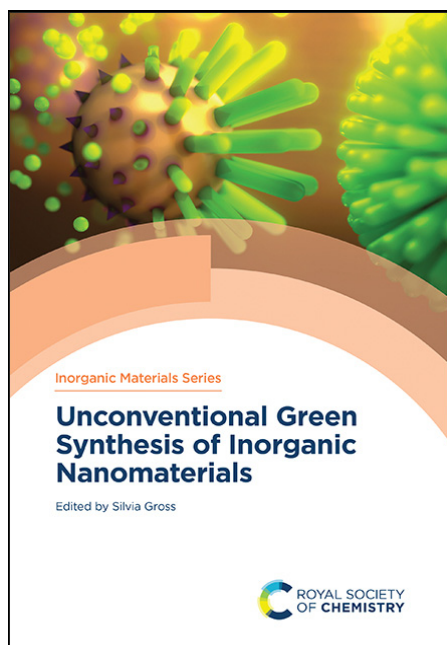
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Unconventional Green Synthesis of Inorganic Nanomaterials

Silvia Gross University of Padova, Italy

Synopsis

Inorganic nanomaterials are an extremely broad and versatile class of materials, and their enhanced chemical, thermal and mechanical stability with respect to their organic counterparts make them appealing candidates for a wide range of technological applications. This book will provide a much-needed overview of the fast-developing areas of green synthesis of metal nanoparticles, metal oxides and metal sulphides. These have many applications, including in catalysis, electronics, optics, and nanomedicine. Suitable for advanced undergraduates, postgraduates, and other researchers, it provides a convenient introduction to the topic.

Brief Contents

- Inorganic Chemistry Within Nanoreactors
- Biogenic Synthesis of Inorganic Materials
- The Role of Supercritical Carbon Dioxide and Water in the Synthesis of Metal and Metal Oxide Nanoparticles: Current State of the Art, Further Perspectives and Needs
- Highly Efficient Rapid Preparation of Inorganic Nanostructured Materials by Microwave Heating
- *In Situ* Synthesis of Multifunctional Hybrid Nanocomposites Based on Graphene Derivatives and Inorganic Nanoparticles for Advanced Applications
- Further Sustainable and/or Unconventional Low Temperature Wet-chemical Synthetic Methods

Series: Inorganic Materials Series

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THEMA: PNK, PNRC, RNU, TGM

BISAC: SCI013030, SCI050000, TEC021000

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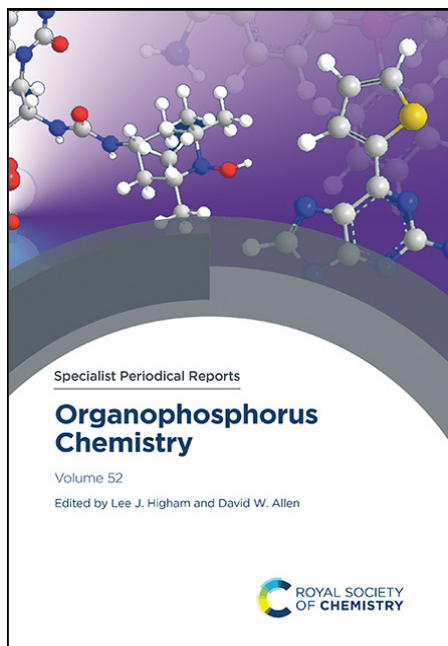
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Organophosphorus Chemistry Volume 52

Lee J Higham Newcastle University, UK
David W Allen Sheffield Hallam University, UK

Synopsis

This annual review of the literature provides a comprehensive and critical survey of a vast field of study involving organophosphorus compounds, ranging from phosphines and their chalcogenide derivatives, phosphonium salts and P-ylides, to trivalent and quinquevalent phosphorus acid derivatives and penta- and hexa-coordinated phosphorus compounds. Recent developments in applications as reagents in green synthetic procedures are also given. With an emphasis on interdisciplinary content, this book will appeal to the worldwide organic chemistry and engineering research communities.

Brief Contents

- Trivalent phosphorus acid derivatives
- Phosphine chalcogenides
- Phosphonium salts and P-ylides
- Quinquevalent phosphorus acids
- Pentacoordinated and hexacoordinated compounds
- Phosphazenes
- Green synthetic approaches in organophosphorus chemistry: recent developments

Series: Specialist Periodical Reports

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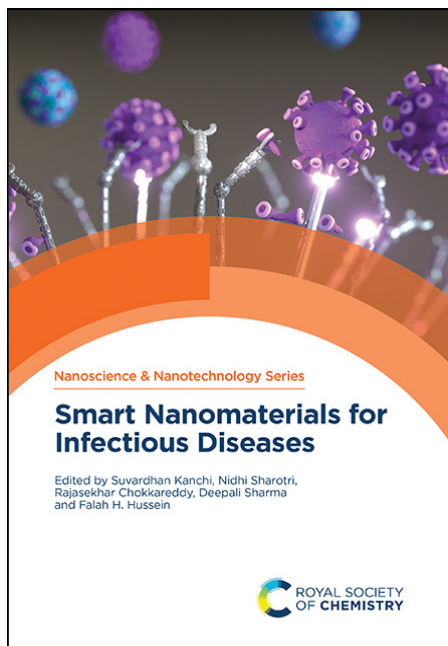
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Size: 234 x 156 (Royal 8vo) mm

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THEMA: MJCJ, PDT, PSB, RNU, TGM

BISAC: MED022090, SCIO07000, SCIO50000, TEC021000

Smart Nanomaterials for Infectious Diseases

Suwardhan Kanchi CHRIST, India

Nidhi Sharotri Sri Sai University, India

Rajasekhar Chokkareddy Aditya College of Engineering, India

Deepali Sharma Toronto Research Chemicals, Canada

Falah H Hussein University of Babylon, Iraq

Synopsis

The book focuses on how sustainable nanomaterials can help with various aspects of infectious diseases, including prevention, diagnosis, and treatment, as well as the characteristics that materials should possess in order to enter clinical trials.

Brief Contents

- Carbon Reinforced Polymer Nanocomposites Against Infectious Diseases
- Nano-strategies for Infectious Pulmonary Diseases
- Biofilm Associated Infections and Their Management
- Green Nanomaterial Zinc Oxide and Chitosan for Antimicrobial Activity Against Oral Pathogens
- Biopolymers-based Drug Delivery Systems
- Mechanism of Silver and Gold Nanoparticles Against Infectious Disease-causing Pathogens
- Nanotoxicology and its Remediation
- Biocompatibility and Functionalization of Sustainable Nanomaterials
- Nanomaterials-based Narrowband UV-B Light Emitting Devices for Phototherapy Treatment in Skin Infectious Diseases
- Bioengineered Nanomaterials: Recent Trends and Bottlenecks in Management of Infectious Diseases
- *Ex Vivo* Immunization: A Strategy For Immunization Against SARS-Cov2
- Neuroinvasion by SARS-CoV-2 Influences the Prognosis of Neurological Disorders
- Socio-economic: Involving Communities in the Fight Against Infectious Illnesses for Stronger Health System
- Sustainable Nanomaterials for Mosquito-based Infectious Disease Control
- Sustainable Nanomaterials and Diagnosis for Arboviral Infections
- A Brief Appraisal of Nanomaterials for COVID 19
- Biosurfactants: Production Methods, Properties and Their Applications in Food Industry

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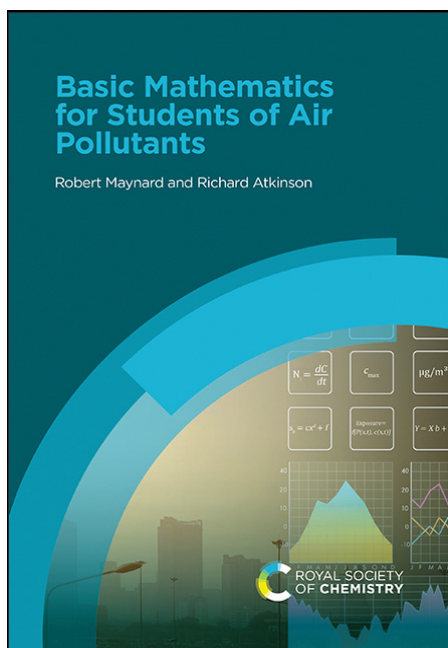
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Basic Mathematics for Students of Air Pollutants

Robert Maynard University of Birmingham, UK
Richard Atkinson St George's, University of London, UK

Synopsis

Air pollution is recognised as a major threat to global public health. The study of air pollution requires an understanding of various mathematical concepts that some students may not have encountered. For students struggling with the necessary maths this book provides a brilliant basic resource to get them up to speed. The two authors use their long experience in the air pollution field to provide a selection of the basic mathematical techniques required for the study of air pollution. Aimed at students of air pollution with a limited background in mathematics, this book is a useful addition to any air pollution course.

Brief Contents

- Introduction
- Logarithms
- Exponential Decay and Semi-logarithmic Graph Paper
- Other Curvilinear Relationships
- Preliminary Examination of a Set of Measurements
- The Normal Distribution Curve
- Does the Normal Distribution Curve Fit the Data?
- Distribution of the Diameters of Particles in a Typical Aerosol
- The Statistical Distribution of Mass and Surface Area of Particles Comprising an Aerosol
- Deposition of Particles in the Respiratory Tract
- Gases, Liquids and Droplets
- Elementary Considerations of Line Fitting Techniques: Derivation of Concentration-Response Relationships
- Air Pollution and Health
- Causality
- Quantification of the Effects of Air Pollutants on Health

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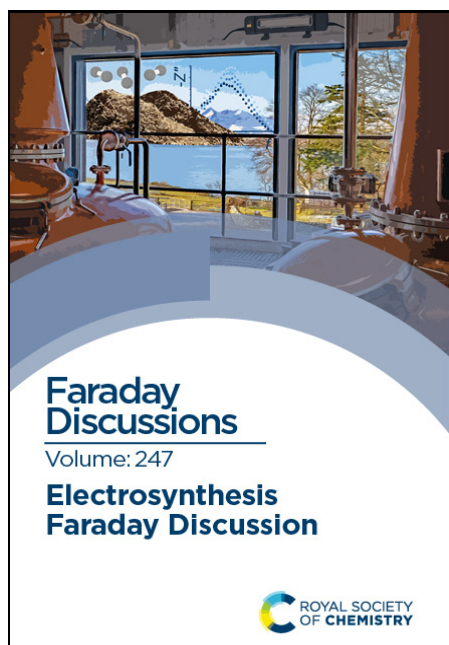
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Electrosynthesis Faraday Discussion 247

Synopsis

Organic electrosynthesis initially emerged in the field of synthetic chemistry as an intrinsically green method to replace hazardous chemicals with electrons for oxidations and reductions. In recent years it has been shown to offer unique opportunities to increase conversion efficiencies and synthesise new molecules that are not accessible thermochemically or photochemically and not accessible from petroleum. It can also be used to streamline biocatalysis and chemocatalysis in biorefineries, manufacture chemicals from regional and community scale quantities of agricultural waste, and in the pharmaceutical and chemical industries to access fine chemicals in a more efficient and sustainable fashion. Nevertheless, many of these efforts remain exploratory as a fundamental understanding of the elementary processes involved in these transformations is still lacking. Join synthetic chemists, physical chemists, material scientists, electrochemists, computational scientists, and engineers to harness the transformative knowledge required to develop this technology.

Brief Contents

- Selective organic electrosynthesis
- Interdisciplinary electrosynthesis
- Understanding and controlling organic electrosynthesis mechanisms
- New strategies in organic electrosynthesis
- Materials for electrosynthesis
- Electrofuels
- Flow cells and reactor design

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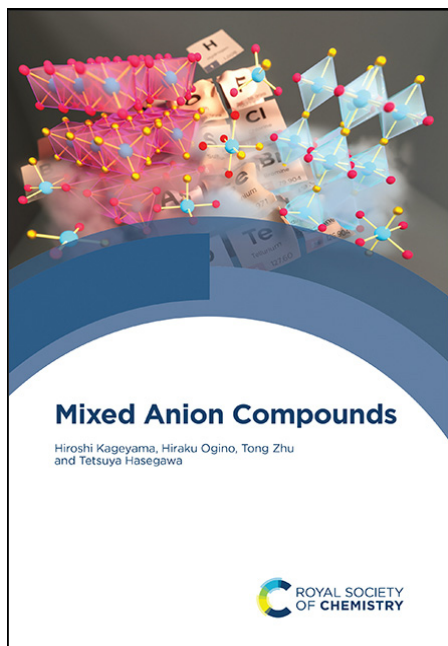
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Mixed Anion Compounds

Hiroshi Kageyama Kyoto University, Japan
Hiraku Ogino University of Tokyo, Japan
Tong Zhu Kyoto University, Japan
Tetsuya Hasegawa University of Tokyo, Japan

Synopsis

Inorganic compounds are widely used in various industries, despite the large number of constituent elements in these materials, the diversity of atomic coordination is severely limited, which gives constraints in materials design for the next generation. In contrast, compounds with multiple anions provide a new materials platform bringing a new degree of freedom for designing materials. Mixed anion compounds have seen a recent resurgence in interest owing to their intriguing properties for a wide variety of applications. The purpose of this book is a systematic description of the science of mixed anion compounds with a comprehensive description of synthesis, analysis, applications, and computational science related to mixed anion compounds. The book will be of particular interest to postgraduate students and researchers in inorganic solid-state chemistry, computational science and the synthesis, analysis and application of mixed anion compounds.

Brief Contents

- Chemistry of Mixed-anion Compounds
- Synthesis Methods of Mixed-anion Compounds
- Techniques for Structural Characterization of Mixed-anion Compounds
- Functions and Applications of Mixed-anion Compounds
- Theoretical Calculations of Mixed-anion Compounds

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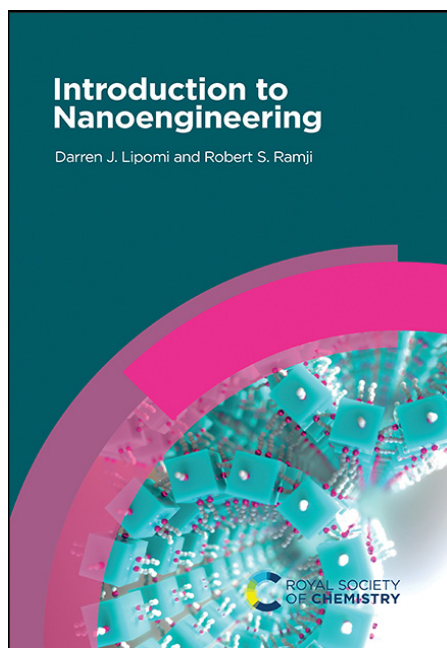
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THEMA: PDT, TBC, TBN, TGM, 4CTB, 4TC
BISAC: SCI050000, TEC009000, TEC021000, TEC027000

Introduction to Nanoengineering

Darren J Lipomi University of California San Diego, USA
Robert S Ramji University of California San Diego, USA

Synopsis

Following the model of teaching from the top down, this book provides a foundation in the burgeoning field of nanoengineering set against a framework of concepts into which the content of future courses on nanoengineering, nanotechnology, or nanoscience will fit. The book is written in an engaging, jargon-free style. Its use of video supplements and cache of 150 solved problems meets students' needs regardless of their background.

Brief Contents

- Nanoengineering: At the Center of It All
- Forces Between Atoms, Ions, and Molecules
- Forces Between Particles and Surfaces
- Forces Due to Surface Tension and Other Effects of Size Confinement
- Organic Nanomaterials: Polymers as Molecules
- Organic Nanomaterials: Polymers in the Solid State
- Advanced Functional Polymers: Photoresists, Semiconductors, Actuators, and Biomaterials
- Scattering, Absorption, and Emission
- Case Studies in Nanoscale Optoelectronics: Solar Cells and Displays
- Size Confinement and Scaling Laws
- Case Studies in Size Confinement: Catalysts and Batteries
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