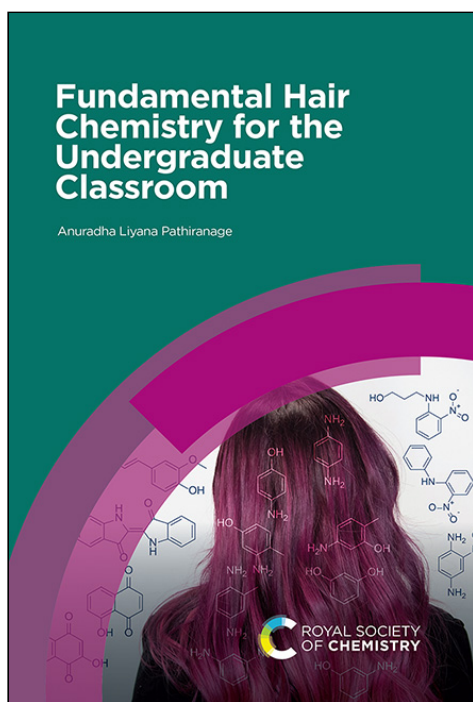




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Target Audience: College/higher education, ,

Audience: Professional and scholarly

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Pages: 246

BIC: PNN, PSB, TGM, TDCJ

THEMA: PNN, PSB, TGM, TDCJ, 4TC,
4CTB

BISAC: SCI013040, SCI007000,
SCI013060, TEC009010,
TEC021000

Fundamental Hair Chemistry for the Undergraduate Classroom

Anuradha Liyana Pathirana Austin Peay State University, USA

Synopsis

This title reveals human hair as an unexpectedly powerful model for teaching core chemical principles. By connecting everyday practices to the molecular reactions behind them, the book transforms familiar beauty routines into rich opportunities for learning. Students encounter organic mechanisms, redox chemistry, lipid science and formulation concepts through relatable, real-world examples. Designed for upper-level undergraduates and educators, it blends mechanism-driven explanations with hands-on activities that bring chemical theory to life. Filling the gap between traditional textbooks and industry-focused cosmetic science, the result is a compelling demonstration that chemistry is woven through everyday life and that even a single strand of hair can illuminate the molecular world.

Key Features and Highlights

- Uses familiar hair-care processes, like dyeing, bleaching, perming, straightening and shampoo formulation, to teach core chemistry concepts such as protein structure, redox chemistry, surfactants, polymers and dyes.
- Provides rigorous chemical depth and integrates active learning, appropriate for undergraduate chemistry and chemical education courses, while remaining highly accessible and pedagogically friendly.
- Offers a complete, adoptable course resource that gives instructors a coherent framework and students a clear, contextual learning pathway which will enhance engagement and conceptual understanding through real-world examples that demonstrates the societal relevance of chemistry.

Brief Contents

- Chemical and Structural Foundations of Hair Pigmentation and Bleaching
- The Chemistry of Hair Straightening and Curling
- Natural Compounds in Hair Coloring
- Non-Oxidative Hair Dye Chemistry: Semi-permanent and Temporary
- The Chemistry of Permanent Oxidative Hair Dyes
- Hair Lipid Chemistry: Structure, Function, and Cosmetic Implications
- Shampoo Chemistry and Formulation

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Laser-induced Breakdown Spectroscopy for Heritage Science

Rosalba Gaudiuso University of Bari "Aldo Moro", Italy

Stefano Legnaioli National Research Council, Italy

Synopsis

This book introduces laser-induced breakdown spectroscopy (LIBS) to practising conservation scientists and also technicians and students needing a hands-on introduction to the technique. The book begins with the physical and chemical background of the technique from the perspective of practical applications of interest for cultural heritage diagnostics. Further discussion addresses the broader context of challenges which are still open, highlighting the technique's strengths and weaknesses and the opportunities it offers. The reader is then provided with a selection of case studies to familiarise themselves with the practical aspects and a tutorial section on instrumental set-up and LIBS data analysis and interpretation.

Key Features and Highlights

- Demystifies laser-induced breakdown spectroscopy (LIBS) by grounding its physical and chemical principles in real-world applications.
- Tailored for technicians, students and conservation scientists seeking a hands-on, accessible entry point into LIBS for heritage diagnostics.
- Showcases how this technique is revolutionizing cultural heritage studies, both at the benchtop and in portable setups, making it ideal for fieldwork and laboratory environments alike.

Brief Contents

- Historical Background and State-of-the-art
- LIBS Set-up
- Designing LIBS Experiments
- How to Interpret a LIBS Spectrum
- Analytical LIBS: Qualitative and Quantitative Measurements
- What Can LIBS Do for You?
- Hyphenated Techniques
- Advanced Applications: *In Situ*, Remote, and Underwater LIBS
- Troubleshooting
- Health and Safety



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Publication Date: 16 December 2026

Target Audience:

Target: Professional and scholarly

Audience:

Size: 234 x 156 (Royal 8vo) mm

Pages: 196

BIC: PNFS, TTBL, ABC

THEMA: PNFS, TTBL, ABC, 4CP

BISAC: SCI013010, TEC019000,
ART056000

Series: Practical and Technical
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NMR Analyses of Membrane Proteins and Supramolecular Complexes

Ichio Shimada University of Tokyo, Japan

Koh Takeuchi University of Tokyo, Japan

Tomohide Saio Tokushima University, Japan

Synopsis

This book presents detailed descriptions of the methodologies for structurally analysing large molecular weight systems along with the landmark achievements in the NMR analysis of membrane proteins and supramolecular protein complexes. Other structural technologies that complement NMR-derived information are discussed. Describing the current state of the art in this field, it attempts to illuminate the challenges that still need to be addressed to realize the full potential of NMR. The book covers the hot research fields that benefit not only NMR specialists but also biologists, biochemists, molecular biologists and medicinal chemists. Providing comprehensive research examples will benefit postdocs and PhD candidates, enabling them to improve the design of their experiments. Since membrane proteins and supramolecular complexes contain many drug targets, researchers in the pharmaceutical industry will also find information of interest.

Key Features and Highlights

- Showcases how NMR reveals protein structure and dynamics under physiological conditions, linking molecular behaviour to biological and pharmacological function.
- Details innovative methodologies for analysing large proteins and supramolecular complexes, including complementary structural technologies.
- A valuable guide for NMR specialists, biologists and pharmaceutical scientists working on drug targets and experimental design.

Brief Contents

- Historical Background and Future Perspectives
- Relaxation-optimized SAIL Methods for Elucidating the Structure and Dynamics
- Rotational Diffusion Anisotropy is an Untapped Resource in NMR Structure Determination
- The Impact of AlphaFold on NMR Studies of Difficult Systems
- NMR Resonance Assignments for Individual Units of Larger Systems
- Utilization of Low- γ Nuclei Detection for NMR Analyses of High Molecular Weight Systems
- Paramagnetic Probes
- Conformational Dynamics of G Protein-coupled Receptors Revealed by NMR
- Application of Bicelle NMR to Uncover the Membrane Region of HIV-1 Fusion Protein
- Solution NMR Approaches to Reveal the Intricate Details of the Dynamics Underlying Protein Quality Control
- Structural and Functional Dynamics of Potassium Ion Channels as Revealed by NMR
- Studying Voltage Dependent Anion Channels by NMR Spectroscopy
- Native-state NMR characterization of membrane systems
- Dynamic structures of histones in a nucleosome and histone chaperones
- NMR analyses of chaperone-client complexes
- Studying protein folding at birth by NMR spectroscopy

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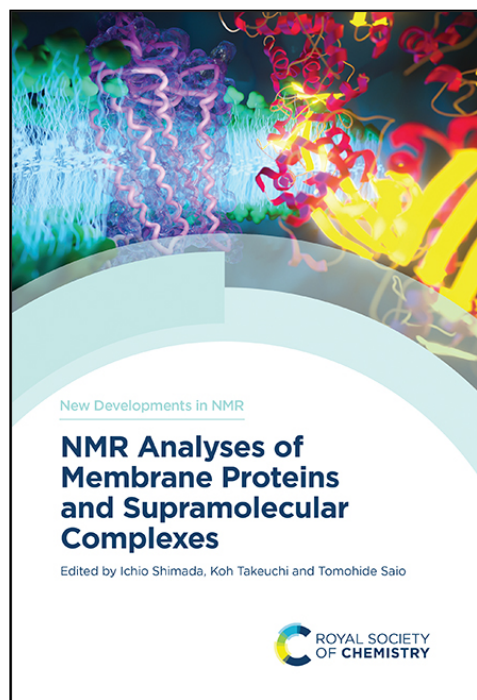
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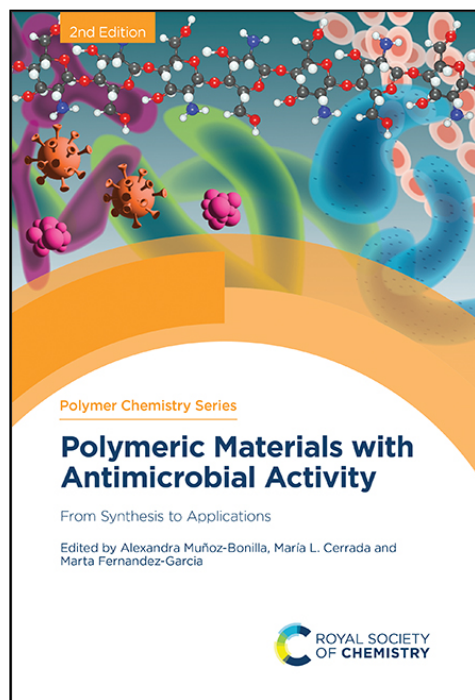
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Date:

Target Audience: Professional and scholarly

Audience:

Size: 234 x 156 (Royal 8vo) mm

Pages: 472

BIC: PNNP, TGM

THEMA: PNNP, TGM, PSE

BISAC: TEC055000, TEC059000,
TEC021000, SCI013040

Series: Polymer Chemistry Series
Volume 49

Polymeric Materials with Antimicrobial Activity

From Synthesis to Applications

Alexandra Muñoz-Bonilla Institute of Science and Technology of Polymers, Spain

María L Cerrada Institute of Science and Technology of Polymers, Spain

Marta Fernandez-Garcia Institute of Science and Technology of Polymers, Spain

Synopsis

This updated second edition provides a fundamental overview of the science, material types and applications of antimicrobial polymer systems, investigating developments in the field from the past ten years.

Key Features and Highlights

- Delivers a foundational overview of the science, material types, and applications of antimicrobial polymer systems, making it a valuable reference for both new and experienced researchers.
- Integrates diverse design strategies for antimicrobial materials, offering insights into both conventional and innovative approaches.
- Covers a broad spectrum of polymeric systems highlighting their unique functionalities and use cases.

Brief Contents

- Introduction to Antimicrobial Polymeric Materials
- Polymeric Materials Containing Natural Compounds with Antibacterial and Virucidal Properties
- Antimicrobial Activity of Chitosan in Food, Agriculture and Biomedicine
- Water-soluble Antimicrobial Polymers for Functional Cellulose Fibres and Hygiene Paper Products
- Recent Trends in Synthesis, Antimicrobial Activity and Applications of Polymers with Ammonium and Phosphonium groups
- Biomimetic Polyurethanes
- Carbon-based Polymer Nanocomposites: From Material Preparation to Antimicrobial Applications
- Synthesis, Structure and Antimicrobial Activities of Polymeric and Non-polymeric Silver and Other Metal Complexes
- Polymer/Copper-based Materials for Antimicrobial Applications
- Photocatalytic Oxide–Polymer (Nano)composites for Antimicrobial Coatings and Other Applications
- Recent Advances in Electrospun Polymer Nanofibers with Antimicrobial Activities
- Recent Advances in the Prevention of Hospital and Community Acquired Infections Using Antibacterial Textiles and Clothing
- Antimicrobial Polymeric Dental Materials
- Re-thinking Polymeric Antimicrobial Materials: A Surface Approach
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Food Bioactives and Their Metabolites in Health and Disease

Cesarettin Alasalvar TÜBİTAK MRC Food Institute, Turkey

Giuseppina Mandalari University of Messina, Italy

Fereidoon Shahidi Memorial University of Newfoundland, Canada

Synopsis

While many foods contain bioactive compounds with potential health benefits — such as anti-inflammatory, antioxidant and cardioprotective effects — their true impact depends on how they are absorbed and metabolized in the body. This book explores the science behind food bioactives and their metabolites, highlighting their roles in health promotion and disease prevention, particularly in conditions like diabetes and heart disease. A valuable resource for food scientists, technologists, and product developers working in personalized nutrition, functional foods and nutraceuticals.

Key Features and Highlights

- Provides detailed information on the role played by food bioactives as well as their metabolites on health promotion and disease prevention including the impact on non-communicable diseases such as diabetes and heart disease.
- Establishes the mechanism of action on the formation of metabolites by the gut microbiota (catabolism and catabolites).
- Suggests future research avenues.

Brief Contents

- Food Bioactives and their Metabolites in Health and Disease
- Introduction to the Concept of Food Bioactive Compounds and their Metabolites
- Bioavailability and Bioaccessibility of Food Bioactives
- Food Bioactives and their Metabolites in Cardiovascular Diseases
- Food Bioactives and their Metabolites in Cardiometabolic Syndrome
- Important Inflammation Modulators in Obesity and Weight Management
- Food Bioactives and their Metabolites in Colon Cancer
- Dietary Bioactives and their Metabolites in Immune Health
- Brain Health: Cognition, Depression, and Neurodegenerative Diseases
- Food Bioactives Ameliorate Neurodegeneration and Improve Cognitive Function
- Gut Health, Microbiota, and Gut–Brain Axes
- Biotransformation and Interaction between Bioactive Compounds and the Gut Microbiota
- Phytochemicals on Metabolism Disorders and Gut Microbiota: Prevention and Therapy
- Food Bioactives and their Metabolites in Reproductive Health: Nuts
- Emerging Natural Compounds for Bone Health and Osteoporosis Management
- Antimicrobial and Antiviral Effect of Food Bioactives and their Metabolites
- Food Bioactives and their Metabolites in Antiaging
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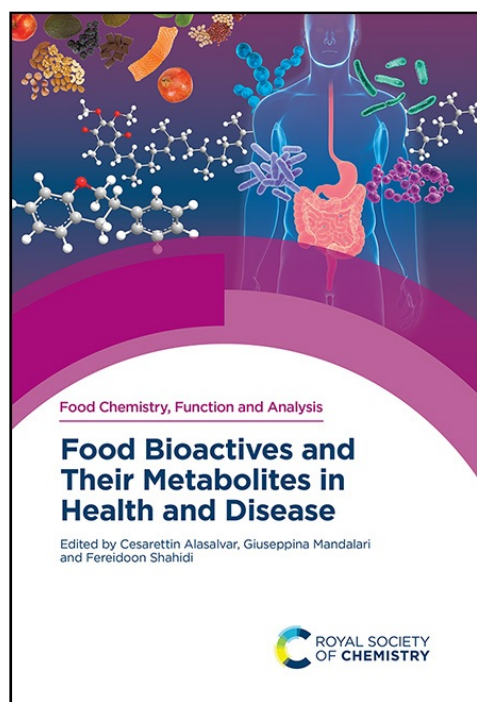
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Advance Book Information

Sustainable Smart Nanoengineering Solutions for Corrosion Challenges

Chandrabhan Verma King Fahd University of Petroleum and Minerals, Saudi Arabia

Ashish Kumar Bihar Engineering University, India

Abhinay Thakur Lovely Professional University, India

Synopsis

This book explores the latest advances in nanocoatings for corrosion mitigation through a sustainability-focused lens. Covering nanotechnology innovations, the design and application of smart encapsulated coatings, and insights from leading experts, it is an essential resource for researchers and engineers developing environmentally responsible corrosion-management solutions.

Key Features and Highlights

- Combines nanotechnology and sustainability to tackle corrosion, highlighting eco-friendly nanocoating innovations.
- Focuses on real-world applications with case studies and strategies engineers and scientists can use directly.
- Brings together insights from chemistry, engineering, and environmental science for a cross-disciplinary view of corrosion control.

Brief Contents

- Introduction to Smart Encapsulated Nanocoatings
- Nanomaterials for Corrosion Control
- Principles of Corrosion Science and Engineering
- Encapsulation Techniques for Smart Coatings
- Synthesis of Nanocomposites from Agro-waste
- Nano Coatings for Infrastructure Resilience
- Innovative Eco-friendly Nanoengineering Solutions for Addressing Corrosion Challenges in the Aerospace and Automotive Sectors
- Marine and Offshore Corrosion Mitigation
- Oligomers as Corrosion Inhibitors
- Tannin Coatings in Corrosion Prevention Strategies
- Nanocoatings for Cultural Heritage Preservation
- Advances in Corrosion Monitoring and Diagnostics
- Superhydrophobic Coatings for Corrosion Protection
- Silica Based Nanocontainers for the Smart Delivery of Anticorrosion Agents
- Challenges and Future Directions in Nanocoatings

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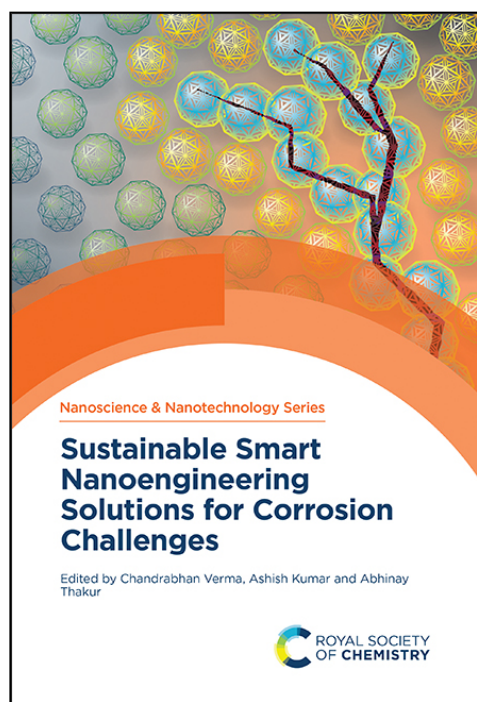
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Audience:

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Pages: 436

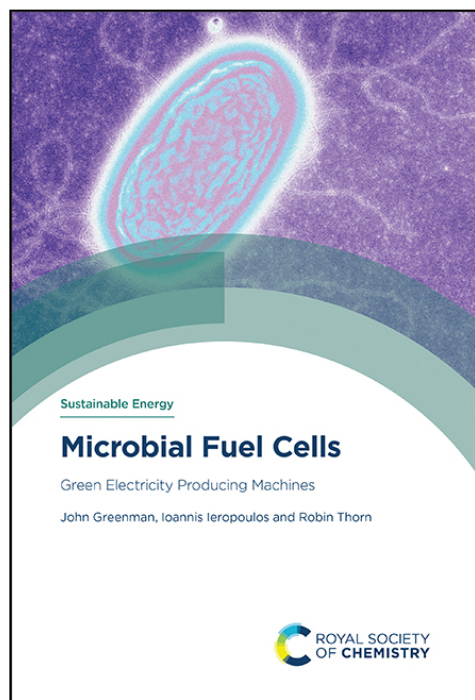
BIC: TGM, TDCK, TGB, TBN, TNKX

THEMA: TGMS, TBN, TNKX

BISAC: SCIO50000, TEC021040,
TEC010000

Series: Nanoscience &
Nanotechnology Series
Volume 77





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Microbial Fuel Cells

Green Electricity Producing Machines

John Greenman University of West England, UK

Ioannis Ieropoulos University of Southampton, UK

Robin Thorn University of West England, UK

Synopsis

Microbial fuel cells (MFCs) are bio-electrochemical systems that generate electricity by using bacteria to oxidise organic and inorganic matter. As concerns about climate change grow, MFCs are attracting attention as a promising renewable energy technology.

This book aims to raise awareness of MFC technology, explain how it works, and highlight its future potential. These green systems can help treat wet organic wastes, accelerate natural recycling processes, and simultaneously produce electricity and clean water.

The book is intended for academics, postgraduate and senior undergraduate students, and industry professionals.

Key Features and Highlights

- Explores both thin, permeable biofilms and thick, diffusion-limited layers, including growth dynamics and adaptive ecosystems.
- Examines how flow rate influences nutrient conditions and physiological control in biofilm development.
- Highlights MFCs configured as sensors and their use in Ecobots, showcasing innovative bioelectronic applications.

Brief Contents

- Why We Need Green Machines: The Case for Microbial Fuel Cell (MFC) Technology
- The Sizes, Shapes, Electrodes and Chambers of MFCs: Stacks, Cascades and Superstacks
- Microbial Diversity and Function Within Microbial Fuel Cells
- Feedstock and Substrate Utilisation Within Microbial Fuel Cells: The Role of Microbial Metabolic Pathways in the Complete Breakdown and Consumption of Organic Wastes
- Applications of Microbial Fuel Cells for Elemental Recycling
- Electrochemical Techniques Used for Studying Microbial Electrochemical Technologies (METs) and Microbial Fuel Cells (MFCs)
- Modelling of Microbial Fuel Cells
- Photo-microbial Fuel Cells (PMFC), Microbial Desalination Cells (MDC) and Other Microbial Electrochemical Technologies (METs)
- Biosensing, Bioelectronics and Biorobotics (EcoBots)
- Future Perspectives on MFC Technologies: Going to Mars

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Target Audience: Professional and scholarly

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Pages: 284

BIC: PNRH, PSB, PSG

THEMA: THYB, PNRH, PSB, PSG

BISAC: SCI013100, SCI045000, SCI007000

Series: Sustainable Energy Volume 9

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Advancements in Carbon Dioxide Capture and Utilization Technologies

Andy Antzaras Aristotle University of Thessaloniki, Greece

Stavros Alexandros Theofanidis AristEng Sarl, Luxembourg

Angeliki Lemonidou Aristotle University of Thessaloniki, Greece

Synopsis

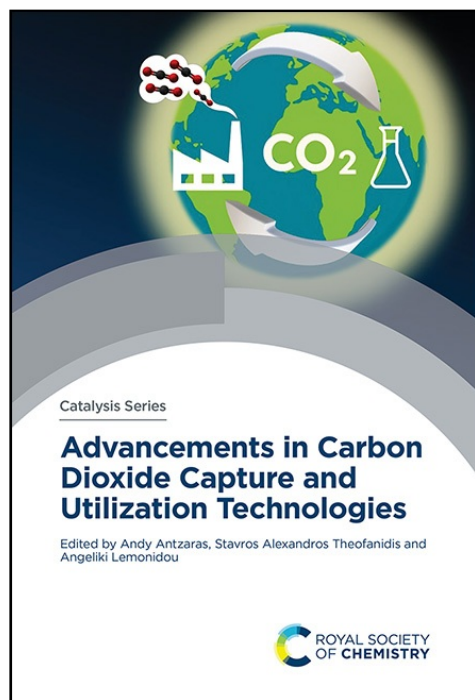
This book explores recent scientific advances in CO₂ capture technologies and the subsequent conversion processes that transform it into useful chemicals and fuels. It shows how these technologies can help reduce climate change impacts by turning CO₂ from a harmful greenhouse gas pollutant into a key building block for producing chemicals or fuels, while promoting a sustainable, circular carbon economy. Ideal for anyone interested in green chemistry and energy science, environmental protection, and innovative solutions to fight climate change.

Key Features and Highlights

- Provides a strong focus on applications
- Discusses the viability of the indirect pathway for CO₂ utilization
- Highlights current and future status of carbon capture technologies

Brief Contents

- Solvent-based CO₂ Capture and Utilization in Rotating Packed Beds
- Intermediate Temperature Magnesium Looping for Pre- and Post-combustion CO₂ Capture and Utilisation
- High Temperature Solid Looping for Post-combustion CO₂ Capture
- Advancements in Direct Air Capture
- Carbonate Looping for Intensification of Thermodynamically Limited Reactions
- Integrated CO₂ Capture with Direct Conversion to Value-added Chemicals at High Temperature
- Mechanistic and Kinetic Studies on Calcium Looping Reactions
- CO₂ Reduction to CO
- CO₂ Catalytic Hydrogenation to Methane: Recent Trends in Developments of Monometallic and Bimetallic Catalysts, and the Impact of Reactor Design
- Valorisation of CO₂ via Catalytic Hydrogenation to Methanol and Dimethyl Ether
- CO₂ to Higher Hydrocarbons
- Dry Methane Reforming: Taking Steps Towards Sustainable Syngas Production
- Microbial CO₂ Valorisation
- Electrochemical CO₂ Conversion
- Benchmarking of CO₂ Capture and Utilisation Processes from a Techno-economic and Environmental Perspective



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Target Audience: Professional and scholarly

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Pages: 610

BIC: PNRD, RNPG, RNU

THEMA: PNRD, RNPG, RNU

BISAC: SCIO13050, SCIO13060,
SCIO92000

Series: Catalysis Series Volume 50

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Thermoresponsive Polymers and Their Innovative Biomedical Applications

Kenichi Nagase Hiroshima University, Japan

Teruo Okano University of Utah, USA

Synopsis

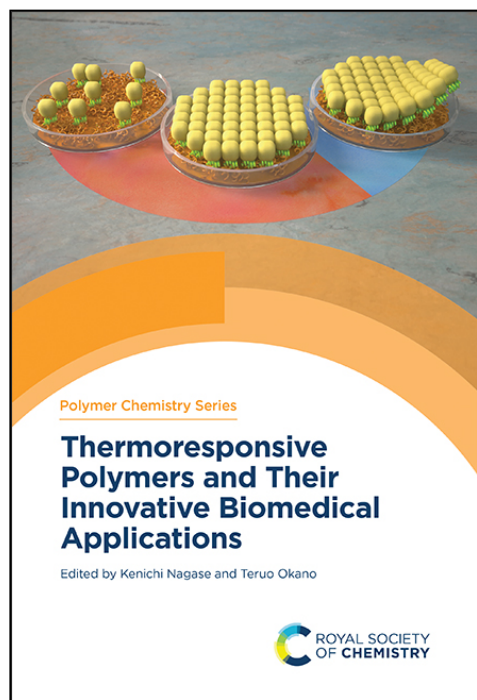
This book examines the biomedical applications of thermoresponsive polymers, covering areas such as drug delivery, biosensing and cell sheet engineering. Featuring the latest developments in polymerization techniques and surface modification strategies, it serves as a valuable resource for researchers and practitioners in polymer chemistry, biomedical engineering and materials science.

Key Features and Highlights

- Features contributions from global experts in polymer chemistry and biomedical engineering.
- Focuses on biomedical applications of poly(N-isopropylacrylamide), including drug delivery, biosensing, bio-separation, and cell sheet therapy - areas rarely covered elsewhere.
- Highlights recent advances in thermoresponsive polymers, especially their use in regenerative therapies through cell sheet technologies.

Brief Contents

- The Smart New Field of Temperature-responsive Polymers for Medical and Life Sciences
- Fundamental Theory of Thermoresponsive Polymers
- Structure and Function of Thermoresponsive Polymers
- Modulation of Phase Transition Temperature
- Synthesis of Thermoresponsive Polymers
- Drug Delivery Using Thermoresponsive Polymeric Micelles and Nanoparticles
- Drug Delivery Using Thermoresponsive Nanofibers
- Injectable Gels Using Thermoresponsive Polymers
- DNA Sensing Using Thermoresponsive Polymers
- Diagnostic Devices
- Bioseparation Using Thermoresponsive Polymers
- Temperature-responsive Cell Culture Dishes
- Cell Sheet Engineering



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THEMA: PNNP, TGML, TCB

BISAC: TEC059000, SCIO13040,
SCIO10000, TEC021040

Series: Polymer Chemistry Series
Volume 50

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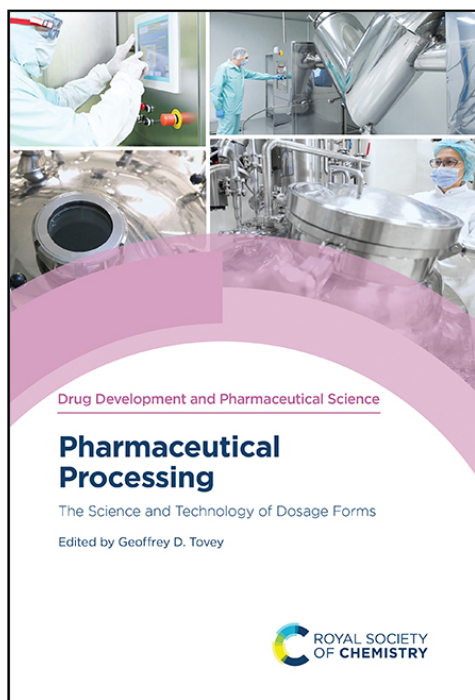
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BIC: MMG, PSB, TD, PNN
THEMA: MKG, PNB, PSE
BISAC: MED071000, SCI007000, SCI013060
Series: Drug Development and Pharmaceutical Science Volume 7

Pharmaceutical Processing

The Science and Technology of Dosage Forms

Geoffrey D Tovey King's College London and Geoff Tovey Associates, UK
Christian Seiler ViiV Healthcare, UK

Synopsis

Pharmaceutical Processing: The Science and Technology of Dosage Forms is an essential source of information on how formulations of pharmaceutical dosage forms are processed into products. The book provides a review of related technologies and techniques used in dosage form manufacturing, considering recent changes in regulatory and quality demands. This book is an ideal companion to pharmaceutical scientists and technologists, particularly in manufacturing and research and development as well as trainees and new graduates interested in formulation technologies and processes. Whether in academia or industry, large- or small-scale companies, this volume provides a wealth of detail and guidance.

Brief Contents

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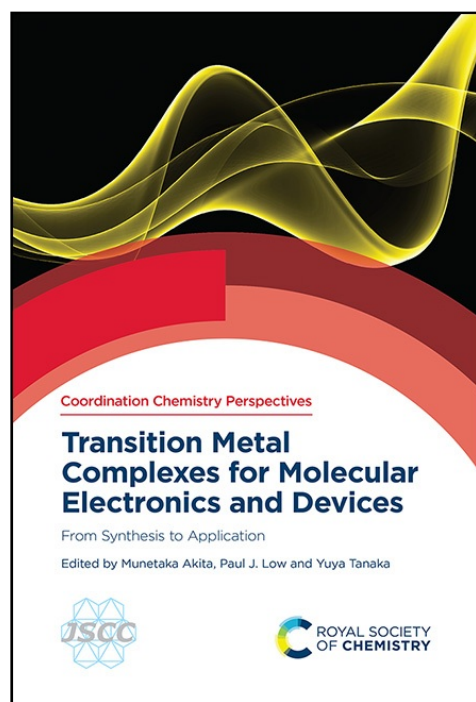
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Transition Metal Complexes for Molecular Electronics and Devices

From Synthesis to Application

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Yuya Tanaka Institute of Science Tokyo, Japan

Synopsis

Originally envisioned as a solution to the limits of semiconductor miniaturization, molecular electronics has evolved into a rich, multidisciplinary field. This book investigates the electronic, optical, chemical, and materials properties of molecular junctions—systems where molecules act as the active components of electronic devices. Focusing on the transformative role of metal complexes, this volume expands the traditional organic framework of molecular electronics. Readers will discover how the inclusion of metal centres introduces new dimensions of spin, magnetism, redox activity, and structural versatility, reshaping our understanding of charge transport at the nanoscale. It is an essential resource for researchers and students seeking to understand the current state and future potential of metal complex-based molecular electronics.

Key Features and Highlights

- Provides an interdisciplinary approach to molecular electronics combining synthetic inorganic chemistry, surface science and theory for readers unfamiliar with these topics.
- Expert authors introduce and contextualise a range of advanced electrical responses arising from the unique structural, electronic, (electro)chemical, magnetic and optical characteristics of metal complexes in molecular junctions.
- Challenging current thinking that largely revolves around mimicry of conventional circuit elements, the book reviews presumptions and integrates discussions of quantum interference, sensing, chemical catalysis and materials properties.

Brief Contents

- Introduction: Metal Complexes in Molecular Electronics
- Mixed-valence Compounds of Molecular Components: from Discrete Molecules to Architectural Assemblies
- Methods of Measurement: Molecular Junctions
- Theoretical and Computational Methods for Molecular Electronics
- Metal Atom Chain Complexes
- Ferrocene as a Redox-tuneable Building Block for Molecular Electronics
- Molecular Wires Based on Metal Acetylide Fragments
- Metal Complexes with Polypyridyl and N-Heterocyclic Ligands as Components in Molecular Electronics
- Self-assembled Monolayers of Metal Complexes in Molecular Tunneling Devices
- Prospects and Opportunities for Transition Metal Complexes in Molecular Electronics

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