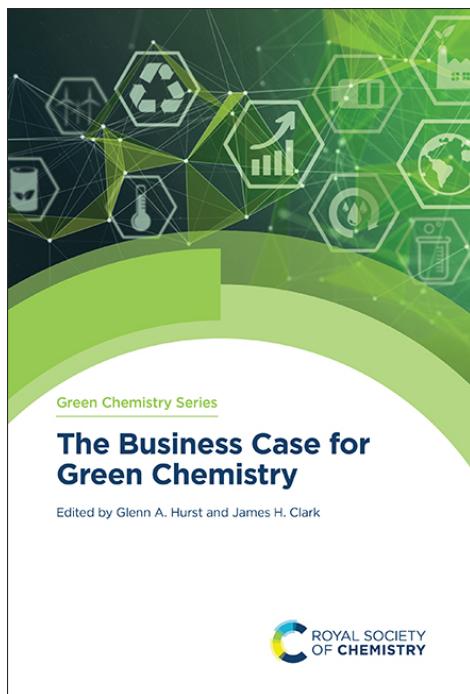


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BIC: RNU, KN

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BISAC: BUS072000, SCI013060, TEC018000

Series: Green Chemistry Series

Volume 91

The Business Case for Green Chemistry

Glenn A Hurst University of York, UK

James H Clark University of York, UK

Synopsis

Green chemistry is now well established in academic research but to make a real difference it needs to impact industry. This book provides a series of views from industry on the importance of green chemistry, both in terms of current and future activities in their businesses. With contributions from large and small companies, established and new businesses and from different countries, this book provides a valuable in-house perspective on how important green and sustainable chemistry is to industry.

Key Features and Highlights

- Highlights the benefits of green chemistry from an industrial and commercial viewpoint
- Emphasises potential for cost reduction and new business opportunities as well as environmental benefits
- Provides real life examples of commercialisation of green products and applications of green chemistry principles in industry

Brief Contents

- The Commercialisation of Green Chemistry
- From Sawdust to CyreneTM: A Journey in Many Parts
- Green Chemistry Metrics: DOZN – A Quantitative Green Chemistry Evaluator for a Sustainable Future
- Making the Case for Radical Green Business Transition
- Electrification is a Key Driver in Green Chemical Manufacturing: A Business Case for Process Electrification
- Advancing Green Chemistry in the Indian Pharmaceutical Industry: A Sustainable Approach
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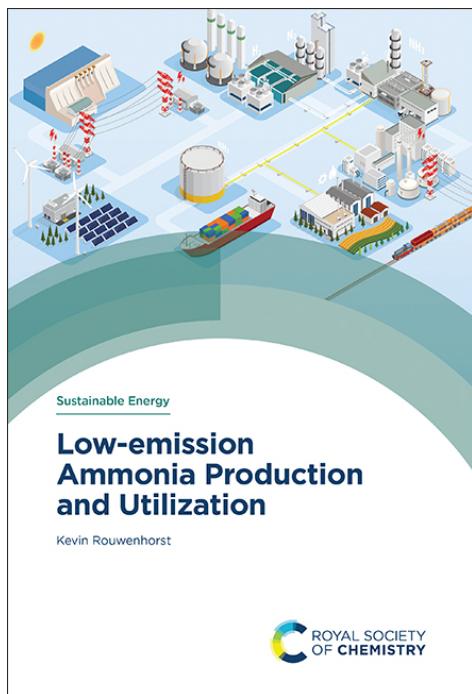
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Audience:

Size: 234 x 156 (Royal 8vo) mm

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BIC: THX, RNFY, TD, TQ

THEMA: THV, RNFY, TD, TQ

BISAC: TEC031010, NAT038000,
SCI013060, TEC010000

Series: Sustainable Energy Volume 5

Low-emission Ammonia Production and Utilization

Kevin Rouwenhorst University of Twente, Netherlands

Synopsis

The book emphasises industrial aspects of low-emission ammonia with scientific explanations for low-carbon fossil ammonia production and renewable ammonia production via various electrolysis technologies, as well as storage, handling, and utilization of ammonia for energy applications, while also covering safety, regulations, environmental considerations, business methods, and policy. Thus, this book presents the state-of-the-art of relevant technologies in the energy transition.

Brief Contents

- Developments in Ammonia Production and Utilization
- Ammonia Synthesis Technology
- Gas-based and Solid-based Ammonia Plants
- Electrolysis-based Hydrogen Production
- Renewable Ammonia Plants
- Ammonia Storage and Transportation
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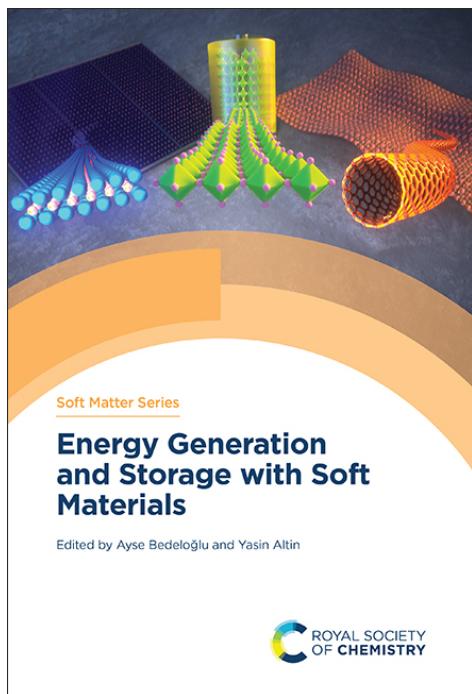
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BIC: PHFC1, THRB

THEMA: PHFC1, THY

BISAC: SCI013050, TEC031010

Series: Soft Matter Series Volume 25

Energy Generation and Storage with Soft Materials

Ayse Bedeloglu Bursa Technical University

Yasin Altin Bursa Technical University

Synopsis

Soft materials are revolutionizing energy technologies by enabling efficient energy conversion, storage, and harvesting. This text explores their potential in flexible solar cells, advanced batteries, and nanogenerators. With insights from global experts, it bridges fundamental principles and practical applications, offering an interdisciplinary perspective. Designed for researchers, engineers, and students, it serves as an essential resource for developing sustainable, adaptable, and high-performance energy solutions, highlighting the transformative impact of liquids, polymers, colloids, and biomaterials on future energy systems.

Key Features and Highlights

- An unparalleled interdisciplinary exploration of soft materials in energy science.
- Up-to-date and in-depth insights into the latest developments in the field.
- Real-world examples demonstrate soft material solutions for the energy industry.

Brief Contents

- Soft Materials: An Overview of Structure and Features
- Soft Supercapacitors: Lightweight Storage for the Future
- Soft Batteries: Electrochemical Innovations for Sustainable Energy Storage
- Soft Materials Revolution in Fuel Cells: Advancements and Innovations in Energy Conversion and Storage Technologies
- Advancements in Dielectric Capacitors Utilizing Soft Materials: A Comprehensive Investigation into Innovative Energy Storage Systems
- Flexible Solar Cells: Adaptable Solutions for Sustainable Energy Harvesting
- Piezoelectric Nanogenerators: Harnessing Mechanical Energy in Soft Materials
- Advancing Sustainable Energy: Harnessing Thermoelectric Generators with Soft Materials for Innovative Power Solutions
- Soft Heat Harvest: Advancing Energy Sustainability with Pyroelectric Nanogenerators in Diverse Soft Materials
- Triboelectric Nanogenerators: Friction-induced Energy Conversion Mechanisms
- Bio-inspired Energy Generation: Harnessing Soft Tissues for Power
- Soft Biomaterials for Sustainable Energy Generation and Storage
- Stretchable Energy Harvesting Devices
- Multifunctional Soft Materials: Simultaneous Energy Generation and Storage Mechanisms
- Commercialization and Emerging Trends in Soft Material Science: A Roadmap for Future Energy Technologies

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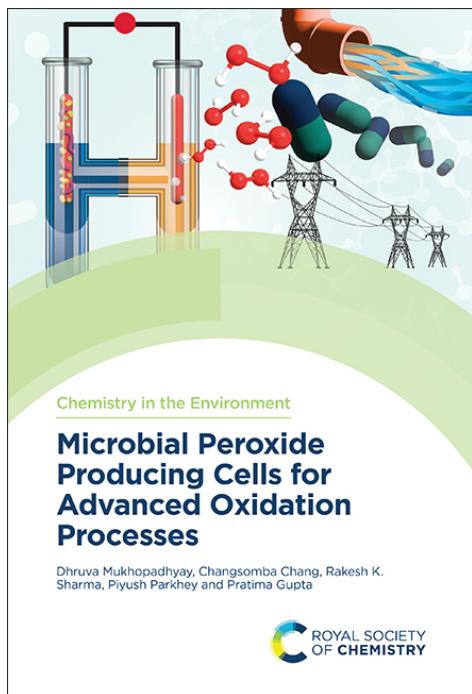
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Pages: 162

BIC: TQ, PSG

THEMA: PNC, PSG, TQK

BISAC: SCI013080, SCI026000,
TEC010010

Series: Chemistry in the Environment

Volume 17

Microbial Peroxide Producing Cells for Advanced Oxidation Processes

Dhruba Mukhopadhyay National Institute of Technology Raipur, India

Changsomba Chang National Institute of Technology Raipur, India

Rakesh K. Sharma Manipal University Jaipur, India

Piyush Parkhey Trinity International, India

Pratima Gupta National Institute of Technology Raipur, India

Synopsis

Discover the ground-breaking potential of microbial electrochemical systems in this essential guide for environmental engineers and academic professionals. Explore how these systems harness the power of exo-electrogenic bacteria to generate electricity and produce reactive oxygen species without external energy input. Learn how they offer a sustainable alternative to energy-intensive advanced oxidation processes, promising efficient pollutant treatment solutions with significantly lower energy requirements. Dive into this invaluable resource and revolutionize your approach to environmental engineering.

Key Features and Highlights

- Provides an introduction to, and overview of, a sustainable solutions for producing reactive oxygen species for water treatment
- Explores the topic from pioneering lab research to tackling scalability for pilot and industrial applications

Brief Contents

- Introduction to Advanced Oxidation Processes (AOPs)
- Microbial Electrochemical Systems (MES) for Sustainable Wastewater Treatment
- Microbial Peroxide-producing Cells (MPPCs) and Electrochemical Hydrogen Peroxide Synthesis
- MPPC-mediated Electrochemically Assisted Advanced Oxidation Processes (EAOPs)
- Scale-up Challenges and Future Perspectives

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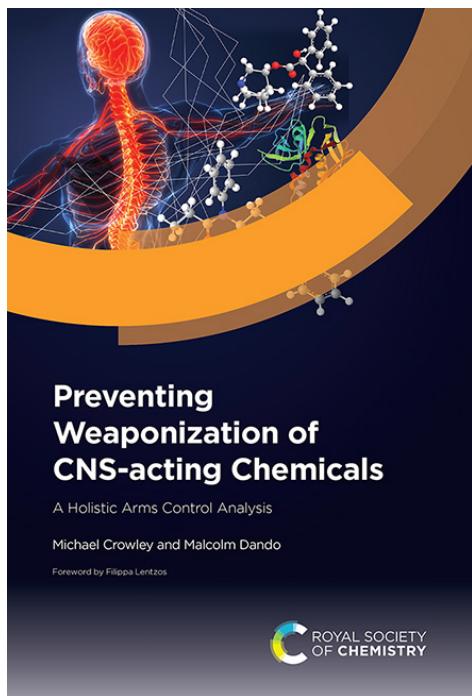
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BIC: PSB, PNN, MMQ, JWA, JWMC, PSAN, MJN

THEMA: PSE, MKT, JWA, JWMC, PSAN, MKJ

BISAC: SCI013040, SCI007000, MED030000, POL061000

Preventing Weaponization of CNS-acting Chemicals

A Holistic Arms Control Analysis

Michael Crowley University of Bradford, UK

Malcolm Dando University of Bradford, UK

Filippa Lentzos KCL, UK

Synopsis

Suitable for biochemists and researchers in neuroscience, this book follows a 3-step Holistic Arms Control approach.

- 1) Examining the (bio)chemical agents and relevant physiological systems they effect, as well as associated dual-use technologies that need to be regulated
- 2) Analysing a range of potentially applicable international law, international arms control, disarmament and other instruments, and attendant control regimes constraining misuse and finally;
- 3) Providing a strategy to strengthen existing regulatory mechanisms as well as suggesting new measures to prevent the misuse of the neurosciences and associated dual-use technologies without limiting the widespread health and other societal benefits that flow from their benign application.

Brief Contents

- Neuroscience and the Future of the Chemical and Biological Weapons Disarmament and Arms Control Regime
- Malign Application of Neuroscience and Related Fields
- 21st Century Advances in Understanding of Basic Survival Circuits of the Brain
- Disrupting Circuits of the Higher Central Nervous System
- Advances in Other Science and Technology Relevant to Hostile Misuse of CNS-acting Chemicals
- The Biological and Toxin Weapons Convention and Preventing the Weaponization of CNS-acting Chemicals
- The Chemical Weapons Convention and Preventing the Weaponization of CNS-acting Chemicals
- International Human Rights Law Constraining the Weaponization of CNS-acting Chemical Agents
- International Humanitarian Law Applicable to CNS-acting Chemical Agent Weapons
- Application of the United Nations Drug Control Conventions to CNS-acting Chemical Agent Weapons
- The Scientific and Medical Communities' Role in Preventing Weaponization of CNS-acting Chemical Agents and Broader Misuse of Neuroscience
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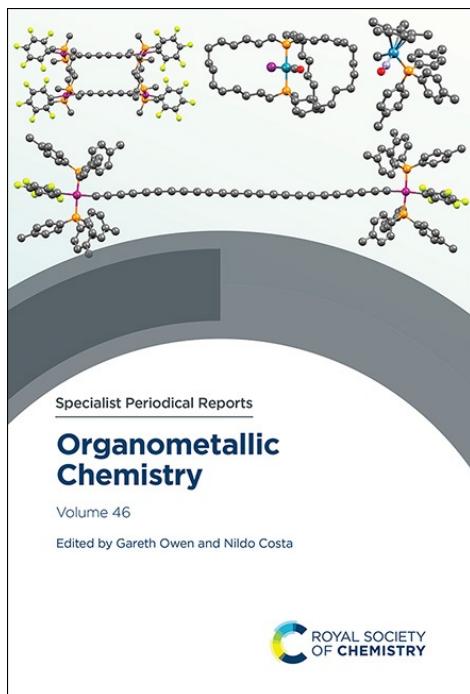
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THEMA: PNND

BISAC: SCI013040

Series: Specialist Periodical Reports -

Organometallic Chemistry

Volume 46

Organometallic Chemistry

Volume 46

Gareth Owen University of South Wales, UK

Nildo Costa University of South Wales, UK

Synopsis

This volume serves as an invaluable resource, offering thoroughly analysed, evaluated, and distilled information on the latest advancements in organometallic and coordination chemistry, as well as emerging fields. With the ever-growing volume of information, researchers often struggle to stay current with the literature in their domain.

The expertly curated reviews in this volume cover a broad range of topics, including applications of green chemistry principles in olefin metathesis, chiral-at-metal centre complexes, trifluoromethyl-selenolation reactions, multifunctional M_2L_4 -type capsule macrocycles and more.

Brief Contents

- Olefin isomerisation–metathesis (ISOMET): recent advances in sustainable applications
- Chiral-at-metal complexes: synthesis, characterisation and applications
- Carbonylation with tailor-made palladium catalysts – activity and regioselectivity
- M_2L_4 -type cages: recent advances towards adaptive and functional supramolecular architectures
- Macrocycle-based supramolecular encapsulation of metallocenes
- Transition-metal-mediated trifluoromethylselenolation reactions with diverse $SeCF_3$ reagents
- Synthesis and catalytic applications of palladium pincer complexes of organoselenium ligands
- Cyclopentadienyl iron selenium complexes
- Precursor development for the growth of Ru, Re, and Al metal films by thermal atomic layer deposition
- Ligands and metal complexes deriving from 2,6-bis-hydrazinopyridine as precursor
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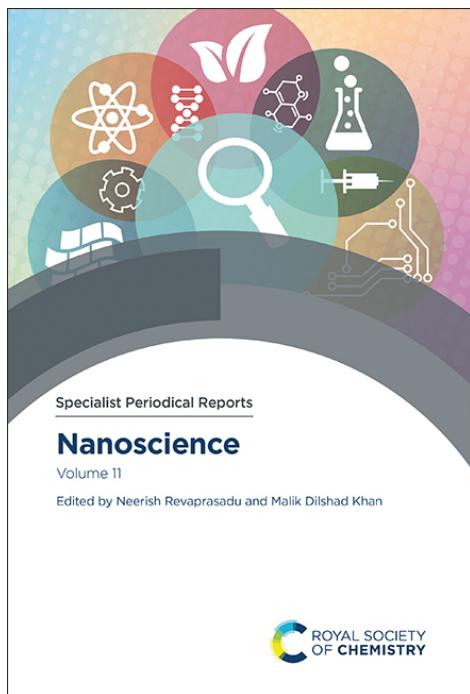
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BIC: TBN, PD

THEMA: TBN, PDT

BISAC: TEC027000, SCI000000

Series: Specialist Periodical Reports -

Nanoscience Volume 11

Nanoscience

Volume 11

Neerish Revaprasadu University of Zululand, South Africa

Malik Dilshad Khan Catalonia Institute for Energy Research (IREC),
Barcelona, Spain

Synopsis

This new volume provides a critical and comprehensive assessment of the most recent research and opinion in the field of nanoscience from across the globe. It covers topics such as perovskite-based photodetectors, impurity-induced magnetism in spintronics, single-atom catalysts, photoelectrochemical CO_2 reduction, and many more.

Appealing to anyone practising in nano-allied fields or wishing to enter the nano-world, this useful resource provides a succinct reference on recent developments in this area now and looking to the future.

Brief Contents

- Spin manipulation in 2D non-magnetic materials: Impurity-induced magnetism for spintronics
- Recent advances 2D materials for supercapacitor electrode application
- Carbon nanotubes for flexible photoelectrodes
- Metal oxide–carbon composites in next generation solar cells
- Advances in photoelectrochemical CO_2 reduction to multcarbon fuel
- Single atom catalysts (SACs) for energy applications
- Molybdenum disulfide: An emerging 2D material for fabrication of triboelectric nanogenerator devices
- Recent advances in metal oxide materials for optoelectronic applications
- Single-crystal metal halide perovskite-based photodetectors
- Photocatalytic degradation of emerging organic pollutants by novel nanocatalysts and metal-loaded spent nanosorbents
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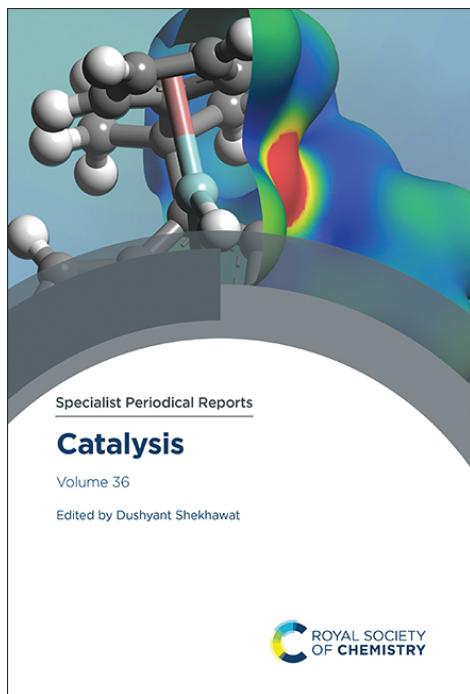
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BIC: PNRD, PNN

THEMA: PNRD, PNN

BISAC: SCI013060, SCI013040

Series: Specialist Periodical Reports -
Catalysis Volume 36

Catalysis

Volume 36

Dushyant Shekhawat National Energy Technology Laboratory, USA

Synopsis

This new volume explores modern catalysis and provides an extensive review of the expansive literature published in the area. Chapters highlight catalytic materials for CO₂ valorization, catalysis for intermediate temperature chemical production, the reaction mechanism of ethylene epoxidation on silver, and more.

This latest edition will appeal to both academic researchers and industrial professionals, with chapters bridging the gap between lab studies and practical applications. The book will be of great benefit to any researcher wanting a succinct reference on developments in this area, both right now and with a look to the future.

Brief Contents

- Microwave-assisted catalytic conversion of waste biomass and plastic feedstocks via thermochemical routes
- Acid-base bifunctional catalysis of ceria- and zirconia-based oxides for non-reductive CO₂ conversion
- The active landscape of catalytic materials for CO₂ valorization
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- The reaction mechanism of ethylene epoxidation on silver

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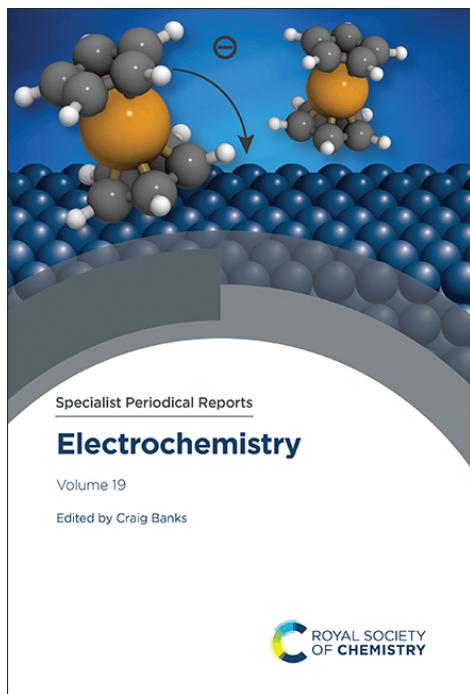
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BIC: PNRH

THEMA: PNRH

BISAC: SCI013100

Series: Specialist Periodical Reports -
Electrochemistry Volume 19

Electrochemistry

Volume 19

Craig E Banks Manchester Metropolitan University, UK

Synopsis

This volume offers readers a comprehensive overview of the latest research in the field, compiled and authored by leading experts. It examines current trends in electrochemical sensing and its applications, covering a wide range of topics.

The extensive coverage includes point-of-use applications, metal-organic framework-based electrocatalysts for electrocatalytic water splitting, electrocatalytic metal chalcogenides for water electrolysis, and chiral induced spin selectivity. This volume is designed to appeal to a broad audience, from chemists and biochemists to engineers and materials scientists. The reviews of both established and emerging interests in the field make this an essential reference for researchers engaged in this dynamic and evolving area.

Brief Contents

- Potentialities of electrochemical devices for memory and neuromorphic computing
- Electroanalytical overview: the determination of chlorpromazine
- Electrochemical approaches towards point-of use applications
- Advances in electrochemical sensing and catalysis: bridging fundamentals and applications
- Electrochemical impedance spectroscopy (EIS) as a thin film characterization tool
- Application of binary metallic photocatalysts for energy generation and storage
- Biogenic sustainable materials for electrochemical sensing: bridging green innovation and real-world applications
- Innovative electro-sensing techniques for detecting ammonium-nitrogen species: recent advances and applications
- Understanding the chemistry in halide superionic conductor solid electrolytes for all-solid-state batteries
- Advancing prostate cancer diagnostics: quantum dot, phthalocyanine, and aptamer-modified electrode surfaces for enhanced electrochemical biosensing
- Chiral induced spin selectivity: a mechanism for enhancing the oxygen evolution reaction in (photo)electrocatalytic water splitting
- Photoelectrochemical biosensors for the detection of colorectal cancer biomarkers
- Design of porphyrins and phthalocyanines as transducers for cancer electrochemical biosensors
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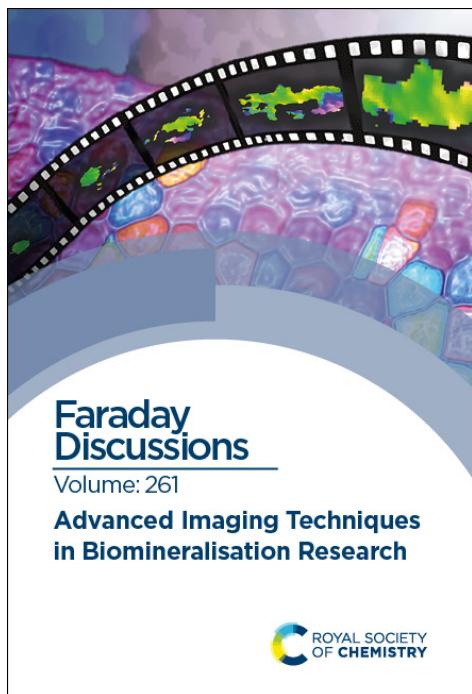
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THEMA: TTBM, PNF, TGM

BISAC: TEC015000, TEC021000,
SCI013010

Series: Faraday Discussions Volume
261

Advanced Imaging Techniques in Biominerisation Research

Faraday Discussion 261

Synopsis

It has become increasingly clear that the relationship between structure and function of hierarchical biominerals can only be understood by connecting the length scales and interrogating comprehensively the impact of atomic-level organisation and the multi-level assembly of the resulting composites. This Faraday Discussion focuses on the application of advanced methods to scrutinise existing paradigms in biominerallization and improve our understanding of mineralisation across length scales by bringing together different communities including world-leading experts in relevant imaging and spectroscopy techniques with the biominerallization community where these methods are commonly used.

Brief Contents

Crystal nucleation in biominerals

This section focuses on understanding events occurring at the atomic scale during the formation of biominerals: crystal nucleation under biological conditions, the interaction between ions and nuclei with biomacromolecules, the role of amorphous precursor phases and the role of kinetics and thermodynamics in determining polymorph type, crystal nucleation and morphology.

Interfaces at the nano scale

This section focuses on high resolution imaging techniques to characterize crystal growth at the nanoscale under biological conditions and the mechanisms leading to the assembly of nano-crystalline building blocks into ordered polycrystalline structures.

Interfaces at the micron scale

This section discusses techniques that are suitable for bridging the gap between the nano- and micron scales for the characterization of the structure of biominerals. Covering both synchrotron X-ray-based imaging and electron microscopy techniques that address different length scales.

Connecting length scales

After dedicating the previous sections to characterizing the structure of biominerals can be characterized at different length scales, this section puts it all together and discusses how the structure and formation of biominerals can be addressed using a range of techniques that can bridge all length scales – from the atomic to the micro-scales.

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