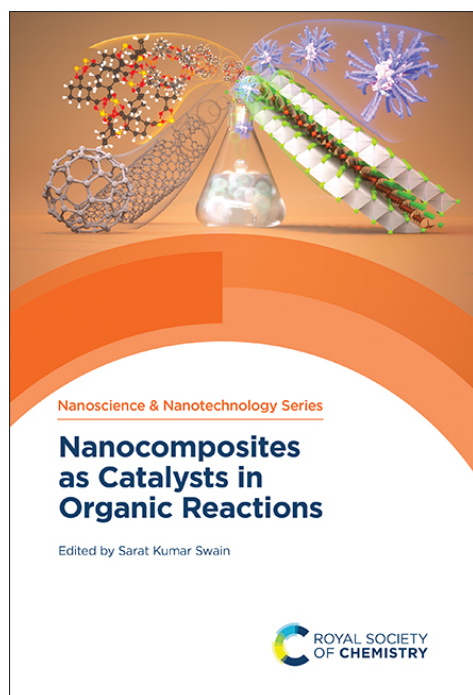




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## Nanocomposites as Catalysts in Organic Reactions

Sarat Kumar Swain Veer Surendra Sai University of Technology, India

### Synopsis

Nanocomposite based catalysts serve as prominent materials to smoothly carry out organic reactions owing to their maximum catalytic action, shorter reaction time, high yield, great selectivity, reduced waste generation, easy separation method and more recyclable nature. The main focus of this book is to provide a comprehensive idea of sustainable heterogeneous nanocomposite systems, their preparation procedure and physico-chemical characteristics.

### Brief Contents

- Nanocomposites: Sustainable Heterogeneous Catalysts
- Synthesis Strategies for the Design of Nanocomposite Catalysts
- Physicochemical Properties of Nanocomposite Catalysts
- Polymer Based Nanocomposites as Catalysts in Organic Reactions
- Carbon-based Nanocomposites as Catalysts in Organic Reactions
- Metal–Organic Frameworks and Graphene Based Nanocomposites in Catalytic Applications
- Metal–Organic Framework (MOF)-based Nanocomposites as Catalysts in Organic Reactions
- Biomolecule Based Nanocomposites as Catalysts in Organic Reactions
- Nanocomposites as Catalysts for Organic Reduction Reactions
- Nanocomposites as Catalysts for Organic Oxidation Reactions
- Nanocomposites as Catalysts in Organic Photochemistry
- Nanocomposites as Catalysts in Organic Coupling Reactions
- Nanocomposites as Catalysts in Organic Rearrangement Reactions
- Nanocomposites as Catalysts in Organic Condensation Reactions
- Magnetic Nanocomposites as Catalysts in Organic Reactions
- Nanocomposites as Catalysts in Heterocyclic Reactions
- Nanocomposites Based on Silver Nanoparticles for Hydrogenation Reactions in Polluted Water
- Nanocomposites as Catalysts in Organic Name Reactions

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## Biomedical Implant Corrosion Mitigation Through Surface Engineering

**Ashish Kumar** Bihar Engineering University, India

**Abhinay Thakur** Lovely Professional University, India

### Synopsis

Modern biomedical implants have made a positive contribution to patient quality of life, but their eventual corrosion limits their longevity and efficacy. New developments in surface engineering techniques show promise in extending corrosion resistance in implants, and the development of biocompatible and biodegradable materials offers new opportunities in implant development. This book bridges the gap between research and clinical practice. With expert contributions from around the globe, it will inspire future innovation and collaboration between researchers, industry professionals, and clinicians.

### Brief Contents

- Introduction to Biomedical Implants and Corrosion
- Fundamentals of Surface Engineering Techniques
- Surface Modification Techniques for Corrosion Control in Biomedical Implants
- Advanced Materials for Corrosion Mitigation in Biomedical Implants
- Corrosion Characterization and Evaluation of Biomedical Implants
- Computational Modeling for Surface Engineering of Biomedical Implants
- Surface Engineering and Biomechanical Considerations in Surface-engineered Biomedical Implants
- Innovative Approaches for Corrosion Control in Biomedical Implants
- Surface Modification Techniques for Corrosion Control in Biomedical Implants
- Surface Engineering of Dental Implants
- Surface Engineering of Cardiovascular Implants: A Highlight on Nanoscale Modifications
- Surface Engineering of Neural Implants
- Regulatory and Clinical Considerations for Surface-Engineered Biomedical Implants
- Future Directions and Emerging Trends in Surface Engineering of Biomedical Implants
- Conclusive Insights from Biomedical Implant Surface Engineering

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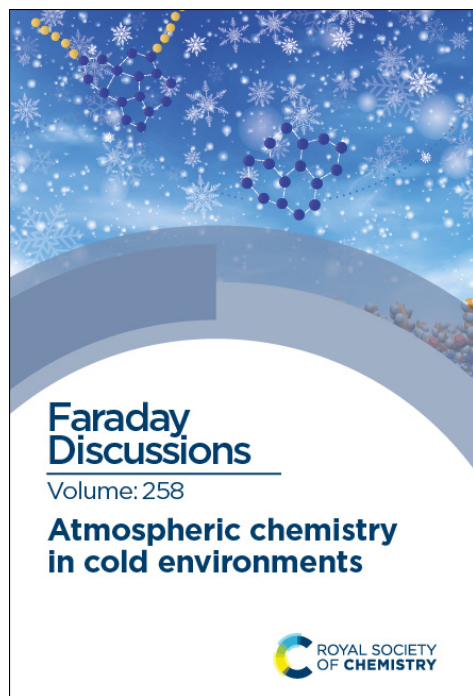
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**Series:** Faraday Discussions

## Atmospheric Chemistry in Cold Environments

### Faraday Discussion 258

#### Synopsis

Wintertime and cold region atmospheric chemistry have important impacts on health, geochemical cycles and climate. Central to discussions of these topics are aspects that make gas- and multiphase atmospheric science in cold environments unique and complex, including key components such as sea ice, snow and ice clouds. Processes that occur at low temperatures in the atmosphere and at the ocean–atmosphere interface, including multiphase processes, the formation and processing of aerosol, particle nucleation and growth, trace gas emissions and fluxes, aerosol and pollution transport and changes of sea ice and snow with time and space are key areas of research in this discussion. Recent results from field campaigns, laboratory experiments, atmospheric modelling and computational work, have all contributed to this investigation.

This volume brings together world-leading established and early-career scientists working in the disciplines of atmospheric science, physics, chemistry, sea-ice science, meteorology and oceanography, to discuss the latest research in this area.

#### Brief Contents

- Multiphase chemistry in aerosol, ice/mixed-phase clouds, and snow
- Role of trace gases in particle and ice nucleation and growth
- Exchange processes through/in snow and sea-ice
- Emissions of trace gases and aerosol and atmospheric mixing/transport

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