

Special Issue

Nanostructure-Based Energy Electrocatalysis

Message from the Guest Editors

Energy electrocatalysis is an important branch of electrochemistry involving the interaction of electrical and chemical reactions in an electrochemical cell. Additionally, the activity and kinetics of an electrochemical reaction are highly influenced by the composition and structure of electrocatalysts. Nanostructured electrocatalysts usually show different electrocatalytic reaction activities and reaction paths from bulk counterparts. Moreover, surface reconstruction, catalyst-support interaction or the interface engineering of nanostructures often remarkably affect the underlying reaction mechanisms, lead to high-performance electrocatalysts. This Special Issue mainly focuses on energy electrocatalysis, including the design and synthesis of nanostructured electrocatalytic materials, typical applications in the electrolysis of water, proton exchange membrane fuel cells, metal-air batteries, electrosynthesis, piezoelectric catalysis and the corresponding electrocatalytic mechanism. Potential topics include, but are not limited to:

- Electrolysis of water
- Proton exchange membrane fuel cell
- Metal-air battery based on nanostructures
- Electrosynthesis
- Piezoelectric catalysis

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call “nanomaterials”. These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano–alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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