Special Issue

Electrocatalysis and Hydrogen Technologies: Innovative Pathways for Sustainable Energy

Message from the Guest Editor

This Special Issue aims to showcase advancements in electrocatalysis and hydrogen technologies, focusing on novel materials, engineering strategies, and theoretical insights. It addresses key challenges such as catalyst stability, efficiency, and scalability to accelerate the transition toward sustainable hydrogen-based energy solutions. The Special Issue will cover a wide range of topics, including, but not limited to, the following:

- Development of novel electrocatalysts for water electrolysis
- Advances in non-precious metal catalysts for cost-effective H2 generation
- Catalyst stability, degradation mechanisms, and mitigation strategies
- Proton exchange membrane fuel cells and alkaline fuel cells
- Oxygen reduction reaction (ORR) catalysts for fuel cell applications
- Electrocatalysis for direct methanol, ethanol, and ammonia fuel cells
- CO2 reduction and hydrogen production synergies
- Electrochemical approaches to hydrogen storage
- Hydrogen production from ammonia (NH3), formic acid, and other carriers
- Density functional theory (DFT) and machine learning for catalyst design
- Reaction kinetics and pathway elucidation for electrocatalytic processes

Guest Editor

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Message from the Editor-in-Chief

Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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