Special Issue

Nanoscale Heterojunction Catalytic Materials via Interface Engineering: Synthesis, Mechanisms and Activity Optimization

Message from the Guest Editors

Heterojunction nanomaterials, engineered through precise interfacial control, exhibit exceptional catalytic activity, selectivity, and stability, enabling breakthroughs in energy conversion, environmental remediation, and sustainable chemistry. This Special Issue seeks to highlight innovative studies bridging synthesis strategies, mechanistic insights, and performance optimization in interface-engineered heterojunction catalysts. Contributions may include, but are not limited to, the following areas:

- Novel synthetic approaches (e.g., atomic-layer deposition, in-situ growth) for tailored heterojunctions;
- Advanced characterization and computational modeling of interfacial phenomena;
- Catalytic applications (e.g., HER, ORR, pollutant degradation) with enhanced efficiency;
- Stability engineering and scale-up challenges for industrial adoption.

We welcome full papers, communications, and reviews that advance the field. Your submissions will provide a timely platform to disseminate breakthroughs in this rapidly evolving area. We look forward to receiving your contributions.

Guest Editors

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Message from the Editor-in-Chief

Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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