Special Issue

Nanostructured Catalysts for Energy Conversion and Environmental Applications

Message from the Guest Editors

Nanostructured catalysts have garnered worldwide attention for their applications in water splitting, CO2 reduction, N2 fixation, and organic pollutant degradation via photochemical, electrochemical, and photoelectrochemical approaches. The catalytic reactivity of these materials is inherently governed by their electronic configurations and surface atomic structures, which are profoundly influenced by their nanostructural features. This Special Issue, titled "Nanostructured Catalysts for Energy Conversion and Environmental Applications", aims at showcasing the latest advances in synthetic methodologies for nanostructured catalysts, including crystal facet engineering, heterostructure design, band gap tuning, morphology tailoring, plasmonic coupling, co-catalyst loading, and related strategies. These advancements are directed toward energy and environmental applications such as photo-/electro-/photoelectrochemical water splitting for hydrogen/oxygen evolution, CO2/N2 reduction to value-added chemicals, the photodegradation of organic contaminants, anti-corrosion technologies, and beyond.

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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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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