Special Issue

Nanomaterials for Novel Photoelectrochemical Devices

Message from the Guest Editor

Photoelectrochemistry is an interdisciplinary field of photoelectricity and electrochemistry. It studies optical, electrical, and electrochemical processes where light interacts with semiconductor and chemical systems. Photoelectrochemical (PEC) devices include PEC photovoltaic cells, PEC photolysis, PEC catalysis, PEC detectors. With the expansion of materials systems and research methods, the current research work on PEC devices has mainly focused on light absorption, photoelectric conversion, charge transport, energy band regulation, solid–liquid interface optimization, redox reactions and the construction of nanostructures. Nanomaterials widely used in anodes and cathodes are crucial for the performance of PEC devices, including quantum dots, nanoparticles, nanoarrays, one-dimensional, two-dimensional nanomaterials, (semiconductor, metal, carbon materials). This Special Issue aims to focus on the synthesis and characterization of nanomaterials used in PEC devices, and more importantly, the mechanism by which the microscopic properties of nanomaterials affect the performance of devices.

Guest Editor

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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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