Special Issue

Recent Advances in Nanostructured Photocatalysts for Hydrogen Evolution and Pollution Control

Message from the Guest Editor

Photocatalysis is a sustainable method for hydrogen production and pollutant degradation. Effective photocatalysts require strong light absorption, efficient charge separation and transport, suitably aligned energy bands, and stability. Nanostructured materials enhance performance through high surface area and tunable properties. However, charge recombination limits efficiency, addressed via doping or heterojunctions (e.g., type-II, Z-scheme), where proper band alignment enables feasible redox reactions and interfacial charge transfer. Contributions to this Special Issue, including original research articles and review papers, will focus on the development, synthesis and application of novel photoactive nanomaterials for hydrogen production and pollutant degradation. Emphasis should be placed on photocatalyst design strategies (including elemental doping, and heterojunction construction), advanced characterization techniques to elucidate structure–property–performance relationships, and mechanistic insights governing photocatalytic activity and stability.

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

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