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Functional Semiconducting Nanomaterials and Applications in Energy Conversion and Environmental Remediation

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Message from the Guest Editors

Semiconducting nanomaterials have been attracting great attention with the expectation of clean, renewable, and sustainable technologies in energy and environmental fields. The novel photocatalytic and optoelectrical properties of semiconducting nanomaterials shed significant insights into emerging solar-driven research areas, including solar-to-fuel conversion by water splitting, solar-to-electricity conversion by solar cells, and environmental remediation by advanced oxidation process (AOP) along with their hybrid systems. In particular, the design of novel semiconducting nanomaterials and in-depth understanding of the reaction mechanisms will be the key drivers in achieving innovative energy and environmental applications. In this Special Issue in *Nanomaterials*, the new research findings on the extended version of semiconducting nanomaterials and their energy, environmental, and optoelectronic applications will be addressed where halide perovskites, metal-organic frameworks (MOFs), and carbon-based materials will be included with materials design strategies.



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Special Issue



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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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