Special Issue

Innovative Nanomaterials and Their Expanding Applications in Solar Energy Technologies

Message from the Guest Editors

Micro/nanostructured materials have revolutionized the field of photovoltaic solar cells, leading to significant enhancements in efficiency and performance. These advancements include plasmonic enhancement, improved light scattering, and increased carrier collection efficiency. Micro-/nanostructures are particularly effective in enhancing light harvesting in the near-infrared or infrared regions of the solar spectrum. Furthermore, the integration of nanoparticles into solar cells has catalyzed the development of novel and disruptive photovoltaic technologies. Additionally, solution-processed solar cells have not only improved performance but also enabled flexibility and mass production via roll-to-roll techniques. This Special Issue aims to provide a comprehensive collection of research articles and reviews that explore the diverse applications and advancements of micro/nanostructures and micro/nanomaterials in solar energy technologies. We are particularly interested in contributions that extend beyond traditional solar cell improvements to include innovative applications of solar energy.

Guest Editors

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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.

Editor-in-Chief

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