

Special Issue

State-of-the-Art Nanomaterials for Solar Cells

Message from the Guest Editors

The use of nanostructures in solar cells has become an attractive route for achieving efficiencies higher than the experimental values reported for devices without nanostructures. An important advantage of nanomaterials is that their electrical and optical properties can be tailored as a function of nanostructure size, shape, composition, etc., which can result in improved device performance. In this sense, the application of nanostructures into solar cells can result in higher photon absorption and thereby higher efficiencies. However, the introduction of nanostructures often results in the reduction in the open-circuit voltage of the device as a consequence of recombination losses due to carrier confinement, which means it is quite challenging to achieve the goal of solar cell efficiencies higher than 30% for a single junction. To date, new nanomaterials and their properties need to be explored for applications in solar cells. This Special Issue welcomes manuscripts related to nanomaterials' synthesis and the optimization of their properties for applications to solar cells.

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.

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