Special Issue

Perovskite Materials and Devices–– Progress and Challenges

Message from the Guest Editors

Halide perovskite materials (HPMs) have been proven to be superior semiconductor materials owing to their extraordinary optical and optoelectronic properties, including high light absorptivity, long diffusion length, and large carrier mobility. Benefiting from these fascinating features, HPMs demonstrate vast potential in various optoelectronic fields, such as in solar cells, light-emitting diodes, photodetectors, and memories. Recently, explosive progress in HPM research has made them competitive with traditional semiconductor materials. For instance, the power conversation efficiency (PCE) of perovskites reaches 23.3% within several years, which is comparative to commercial Si-based solar cells. This outstanding optoelectronic performance is truly attractive; however, stability issues have become a crucial and hot topic for commercial applications. Fortunately, a series of strategies have emerged to improve the stability and efficiency of the devices··· For further reading, please follow the link to the Special Issue Website at: mdpi.com/si/18813

Guest Editors

Prof. Haibo Zeng

Prof. Dr. Shin-Tson Wu

Prof. Yajie Dong

Prof. Dr. Jizhong Song

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Nanomaterials
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
nanomaterials@mdpi.com

mdpi.com/journal/nanomaterials

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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

Prof. Dr. Eugenia Valsami-Jones
School of Geography, Earth and Environmental Science, University of Birmingham, Birmingham B15 2TT, UK

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