

Special Issue

2D/3D Perovskite and Halide Perovskite: Synthesis, Structure, and Optoelectronic Device Application

Message from the Guest Editor

Perovskites have been demonstrated to have outstanding photovoltaic properties such as high absorption coefficient, large charge carrier diffusion length, and high charge carrier mobility. They have thus emerged as promising materials for highly effective light-emitting diodes, solar cells, and photocatalysts. The power conversion efficiency of perovskite solar cells reached 25.5% in 2021, being close to that of silicon solar cells. This Special Issue aims to explore the state-of-the-art nanomaterials and nanotechnologies applied in perovskite optoelectronics and photovoltaics with respect to design of charge transport materials, novel absorbers, all-inorganic perovskite, 2D/3D engineering, control of morphology and crystallization of absorbers, interface modification, defect engineering, large-area/long stability fabrication, facile manufacturing, new device architectures, etc. Such technologies can make significant progress in the development of perovskite optoelectronics and photovoltaics. Original research and review articles are welcome.

Guest Editor

Prof. Dr. Bo-Tau Liu

Department of Chemical and Materials Engineering, National Yunlin University of Science and Technology, Yunlin 64002, Taiwan

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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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

Prof. Dr. Eugenia Valsami-Jones

School of Geography, Earth and Environmental Science, University of
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