

Special Issue

Advances in Nanostructured Metal Halide Perovskites for Optoelectronics: Materials, Devices and Commercialization

Message from the Guest Editors

This Special Issue aims to spotlight cutting-edge research accelerating perovskite optoelectronics toward sustainable commercialization. We invite contributions addressing, but not limited to, the following themes:

- Material Innovations: Novel compositions (e.g., lead-free alternatives), dimensionality engineering (2D/3D, nanocrystals), defect passivation strategies and advanced crystallization techniques for enhanced stability and performance.
- Device Physics and Engineering: Charge-carrier dynamics, interfacial engineering, novel device architectures (tandem cells, flexible devices) and mitigation of non-radiative losses.
- Scalability and Stability: Large-area deposition methods (vacuum evaporation, printing, coating), encapsulation technologies, accelerated aging protocols and mechanistic understanding of degradation pathways.
- Beyond Photovoltaics: Advances in perovskite-based LEDs (PeLEDs), photodetectors, lasers, and emerging applications.

We cordially invite researchers to share breakthrough discoveries and critical reviews that address the scientific and technological hurdles facing perovskite optoelectronics.

Guest Editors

Dr. Fang Yuan

Dr. Hua Dong

Dr. Kun Zhu

Deadline for manuscript submissions

20 March 2026



Nanomaterials

an Open Access Journal
by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed



mdpi.com/si/252906

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

[mdpi.com/journal/
nanomaterials](https://mdpi.com/journal/nanomaterials)





Nanomaterials

an Open Access Journal
by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed



[mdpi.com/journal/
nanomaterials](https://mdpi.com/journal/nanomaterials)



About the Journal

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
Birmingham, Birmingham B15 2TT, UK

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, CAPIus / SciFinder, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Physics, Applied) / CiteScore - Q1 (General
Chemical Engineering)