

Special Issue

Laser–Nanostructure Interactions: From Fundamentals to Applications

Message from the Guest Editor

Lasers are essential in nanotechnology, allowing precise control of nanostructures and driving advancements across scientific and engineering fields. Notably, pulsed fiber lasers with two-dimensional materials as saturable absorbers have transformed the domain, offering high peak power and narrow pulse widths for precision applications. Materials like graphene and transition metal dichalcogenides show enhanced performance, expanding their use in telecommunications and materials processing. Lasers also contribute significantly to nanostructured light emitters, such as quantum dots and quantum dashes, critical for high-performance photonic devices. The quantum phenomena at the nanoscale, enabled by lasers, support applications in quantum information systems and integrated photonic technologies. This Special Issue seeks to provide a platform for researchers to share their findings on laser–nanostructure interactions. We invite original research articles, reviews, and technical notes on topics from fundamental theories to applications in photonics, catalysis, and biosensing, fostering collaboration and advancing nanotechnology.

Guest Editor

Dr. Shuai Guo

School of Science, Department of Optoelectronic Science, Harbin Institute of Technology at Weihai, Weihai 264209, China

Deadline for manuscript submissions

closed (17 October 2025)



Nanomaterials

an Open Access Journal
by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed



mdpi.com/si/233339

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. We are proud of our increasing impact factor and ability to provide rapid decisions to authors.

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)