Special Issue

Prospects of Nanoscale Optical Materials in Sensor Technology

Message from the Guest Editors

Nanoscale optical materials are revolutionizing sensor technology by offering enhanced sensitivity, rapid response, compact size, and high selectivity. Fluorescent quantum dots and metal nanoparticles stand out for their tunable optical properties and strong plasmonic effects, enabling high-precision, real-time sensing. Integrating these materials with optical fibers allows remote, non-invasive sensing with improved accuracy and responsiveness, bridging nanotechnology and photonics for new research and applications. This Special Issue highlights advances in designing, synthesizing, and integrating nanomaterials—such as quantum dots, plasmonic nanostructures, 2D materials, hybrids, photonic crystals, and metamaterials—with fiber-based sensors. Topics include microfluidics, label-free biosensing, ultrasensitive detection, and environmental monitoring. By uniting interdisciplinary work, this collection offers an overview of recent progress and future trends, especially emphasizing nanostructure integration into optical fibers. Contributions from nanotechnology, photonics, chemistry, materials science, and biomedical engineering are welcome.

Guest Editors

Dr. Pavani Krishnapuram

Dr. Suresh Kumar Jakka

Dr. Paulo Fernando da Costa Antunes

Dr. Marta Sofia dos Anjos Ferreira

Deadline for manuscript submissions

10 February 2026

Nanomaterials

an Open Access Journal by MDPI

Impact Factor 4.3
CiteScore 9.2
Indexed in PubMed

mdpi.com/si/246978

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

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

MDPI

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, CAPlus / SciFinder, Inspec, and other databases.

Journal Rank:

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