

## Special Issue

# Development and Application of Advanced In Situ Microscopy and Spectroscopy Techniques for Functional Materials at the Nanoscale

### Message from the Guest Editors

In recent decades, the fundamental understanding of static and dynamic processes at the nanoscale has greatly improved, owing to innovative experiments and theoretical approaches. We have seen rapid progress in the development and applications of advanced microscopy and spectroscopy techniques for nanoscale material characterization with high spatial, temporal, and energetic resolutions. In particular, radiation-based (light, X-ray and electron) and probe-based (atomic-, pizeo-, and magentic-force) microscopy and spectroscopy techniques have made fast strides and thus attracted considerable research interest. This Special Issue aims to focus on the latest theoretical developments and practical applications of novel microscopy and spectroscopy techniques that have been successfully established and applied on various nanoscale materials and devices. We aim to attract both academic and industrial researchers in order to pool together the current knowledge of nanoscale characterization of nanomaterials and to present new ideas for future applications and new technologies for advancing nanomaterial research.

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### Guest Editors

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### Deadline for manuscript submissions

closed (20 January 2026)



## Nanomaterials

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## 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.

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### Editor-in-Chief

Prof. Dr. Eugenia Valsami-Jones

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