

Special Issue

Nanoscale Imaging and Spectroscopy of Nanostructured Materials – Electron Microscopy and Beyond

Message from the Guest Editor

Nanoscale imaging research comes in many guises, but few are as versatile as electron microscopy. Probing nanoscale materials with high-energy electrons results in a plethora of different characterization possibilities. These include morphological and crystallographic information on the nanoscale, as well as elemental, chemical, and plasmonic mapping and responses. Furthermore, electron microscopy is also capable of mapping electric and magnetic fields at the nanoscale. In situ electron microscopy, which describes the imaging and analysis of samples while they are exposed to external stimuli and environment, is a rapidly developing field. External stimuli include gas exposure, heat treatment, indentation, light exposure, electrical bias, fluid exposure, magnetization, etc. Building a full laboratory in the confined space of an electron microscope without compromising the general performance of the instrument is an ongoing and necessary step towards moving electron microscopy from a technique providing aesthetically pleasing images to a characterization tool, which, together with complementary techniques, advances materials science research.

Guest Editor

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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.

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