



Transmission Electron Microscopy for Investigating Nanomaterials: Structural Analysis, Physical Properties, and Dynamic Behaviors

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Message from the Guest Editors

Transmission electron microscopy (TEM) has made remarkable strides in both technological developments and application fields in the past few decades. Thanks to the invention of the Cs/Cc aberration corrector and the development of ptychography, the spatial resolution of the transmission electron microscope has been drastically enhanced, achieving precision better than 20 pm, while the combination of laser and transmission electron microscopes has advanced the temporal resolution of real-space images into the attosecond regime. Additionally, in-line/off-axis electron holography and 4D-STEM have been successfully employed to investigate the charge density distribution. With its exceptional spatial/time resolution and high flexibility, TEM plays a pivotal role in physics, materials science, biology, medicine, and many other fields.

This Special Issue focuses on the latest cutting-edge theoretical and technological developments of TEM, along with their practical applications for characterizing structures, physical properties, and dynamic behaviors of nanomaterials.





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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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