Special Issue

Applications and Theoretical Studies of Low-Dimensional Nanomaterials

Message from the Guest Editor

Low-dimensional nanomaterials have attracted significant scientific and technological interest due to their unique size-dependent properties. This Special Issue aims to collect high-quality original research articles and comprehensive reviews that explore both the theoretical foundations and practical applications of low-dimensional nanomaterials. Topics of interest include, but are not limited to: Density functional theory (DFT), first-principles calculations, and multiscale simulations; Theoretical investigations of electronic, optical, thermal, and magnetic properties; Quantum confinement effects and excitonic phenomena; Controlled synthesis and scalable fabrication of 0D, 1D, and 2D nanomaterials; Surface engineering, defect modulation, and doping strategies; Van der Waals heterostructures and emerging 2D materials beyond graphene; Advanced characterization techniques at the nanoscale; Energy conversion and storage applications (batteries, supercapacitors, photovoltaics, photocatalysis); Nanoelectronics, optoelectronics, and flexible devices; Catalysis, environmental remediation, sensing, and biomedical applications.

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

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