

Special Issue

Preparation and Properties of 2D Materials

Message from the Guest Editors

Since the great success of graphene, atomically thin layered nanomaterials, briefly called 2D materials, have attracted tremendous attention as next-generation materials due to their extraordinary physical properties. Furthermore, van der Waals heterostructured architectures based on a few 2D materials have been proposed as unprecedented platforms for the implementation of versatile devices. Thus, diverse 2D materials beyond existing bulk materials have been widely explored and studied for promising electronic, optoelectronic, sensor, energy, structural, and bio applications. This Special Issue highlights the recent advances in the preparation methods of broad range of 2D materials such as graphene, transition metal dichalcogenides (MoS₂, WS₂, etc.), nitrides (GaN, BN, and Ca₂N), organic materials (covalent frameworks and 2D polymers), MXene (Ti₃C₂, Ta₄C₃, etc.), and Xene (B, Si, Ge, and Sn) and also device applications enabling exotic physical, chemical, electrical, and optical properties. More specifically, it covers the recent progress of 2D materials on synthesis, device, analysis, and simulations for diverse applications.

Guest Editors

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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.

Editor-in-Chief

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