

Special Issue

Structure, Properties and Device Applications of 2D Nanomaterials

Message from the Guest Editor

Since the fabrication of graphene in 2004, a large family of 2D materials has been reported, including transition-metal dichalcogenides, phosphorene, silicene, hexagonal boron nitride, MoSi₂N₄, etc. Due to their unique and fascinating physical and chemical properties, 2D materials present potential applications in electronic devices, catalysts, and energy storage and conversion. Two-dimensional magnetic materials are important for spintronic devices. Recently, the 2D ferromagnetic materials CrI₃, Cr₂Ge₂Te₆, and Fe₃Ge₂Te₂ have been successfully fabricated. Spintronic devices based on 2D ferromagnetic materials, such as tunneling magnetic junctions and spin field-effect transistors, have been demonstrated to exhibit outstanding performance. These findings not only opened new avenues for fundamental research on magnetism in systems with reduced dimensionality, but also provided exciting new opportunities for 2D spintronics. This Special Issue mainly focuses on the structure and properties of novel 2D materials and on device applications in several fields encompassing nanoelectronics, transistors, sensors, and spintronics.

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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