



## Structure, Properties and Device Applications of 2D Nanomaterials

Guest Editor:

**Dr. Xiaohui Hu**

College of Materials Science and  
Engineering, Nanjing Tech  
University, Nanjing 211816, China

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### 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,  $\text{MoSi}_2\text{N}_4$ , 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  $\text{CrI}_3$ ,  $\text{Cr}_2\text{Ge}_2\text{Te}_6$ , and  $\text{Fe}_3\text{GeTe}_2$  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.





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### **Prof. Dr. Shirley Chiang**

Department of Physics, University  
of California Davis, One Shields  
Avenue, Davis, CA 95616-5270,  
USA

## 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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*Nanomaterials* Editorial Office  
MDPI, St. Alban-Anlage 66  
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