Special Issue

Transition Metal Dichalcogenides: From Fundamentals to Nanoelectronics

Message from the Guest Editors

Owing to their atomically thin thickness and superb electrical and optical properties, there have been intense research efforts directed at the growth and fundamental properties of two-dimensional (2-D) materials, such as graphene and layered materials of Transition Metal Dichalcogenides. Their intrinsic fundamental properties are very interesting and are a result of confinement in one dimension and its crystal structure symmetry. With their unique properties, such as spin-orbital coupling broken time reversal symmetry and valley polarization, many novel phenomena are expected to be uncovered. Engineering materials of different compositions to form hybrid composites with exclusive properties also enable to possess diverse functionalities. This Issue seeks to highlight a wide range of layered materials, particularly in Transition Metal Dichalcogenides, not only for fundamental physics but also for nanoelectronics ranging from field effect transistors, and sensors, to applications in plasmonics and photonics.

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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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