Special Issue

Two-Dimensional Nanomaterials for High-Performance Transistors and Photodetectors

Message from the Guest Editor

Two-dimensional (2D) nanomaterials have shown great potential for high-performance electronic and optoelectronic applications. Due to their atomic-scale thickness, high mobility, and absence of surface dangling bonds, 2D nanomaterials have unique advantages in suppressing the short-channel effect and producing high-performance transistors. Similarly, because of their diverse bandgaps, strong light–matter interactions, and capability for flexible assembly in heterostructures with proper band alignment, 2D nanomaterials present fascinating advantages in realizing broadband and high-sensitivity photodetectors. This Special Issue aims to present an overview of recent innovations and advancements in 2D nanomaterials for high-performance transistors and photodetectors. Its scope includes novel materials, doping and defect engineering, integration strategies, contact optimization, and performance improvements. We are particularly interested in novel device architectures, mechanisms, and process integrations for wafer-scale fabrication. We also welcome studies on flexible, transparent, and low-power transistors and photodetectors.

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.

Editor-in-Chief

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