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Semiconductor Nanomaterials for Memory Devices

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Message from the Guest Editors

Memory Technology is a key component of the modern information society. Its value will be further enhanced in the future big-data era. As a kind of matter carrier for recording data or information, semiconductor nanomaterials increasingly play important roles in memory devices due to their potential advantage of device miniature and high-density integration. The electrical/optical/spin/magnetic/chemical/ferroelectric properties, band structure, atomic structure, defect, and various phases of semiconductor nanomaterials together decide the ways of efficient data encoding, which includes volatile and nonvolatile memories. Their microscopic working mechanism, response to external stimuli, characterization/analysis, growth, optimization/design, and device fabrication of the semiconductor nanomaterials are closely related to memory performances including data retention, power consumption, signal contrast, encoding speed, write/erase cycling and so on.

The Special Issue aims at providing an overview of the most recent progress and new developments in the design and utilization of semiconductor nanomaterials for advanced memory devices as well as their related technologies.

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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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