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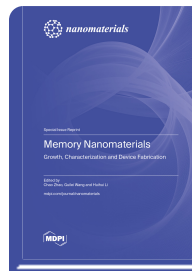
## **Memory Nanomaterials: Growth, Characterization and Device Fabrication**

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This Special Issue is designed to guide readers through the forefront of 21st-century storage technologies. Beginning with the physical limits of traditional semiconductor technology, we concentrate on breakthrough principles, novel materials, and innovative structures—encompassing silicon heterostructures and nanostructures, advances in nanostructure processing and integration for DRAM, as well as emerging DRAM architectures. At the same time, the materials and device mechanisms of a variety of next-generation memories—including resistive RAM (RRAM), phase-change memory (PCM), magnetoresistive RAM (MRAM) and ferroelectric RAM (FRAM)—are explored. Topics such as reliability analysis and nanostructure characterization, materials computation and device simulation, logic-memory 3D integration, and innovative memory applications present studies from material growth and device fabrication to performance evaluation. We have invited leading experts in the field to share their insights and latest findings, collectively charting a blueprint for high-performance, energy-efficient, and highly scalable memory technologies that will drive the information age toward smarter, greener, and more efficient storage solutions.



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