Special Issue

HfO_2-Based Ferroelectric Thin Films and Devices

Message from the Guest Editors

The present Special Issue of *Nanomaterials* aims to present the current state-of-the-art in the use of HfO2-based ferroelectric thin films and devices, a field that has blossomed since 2011 with seminal discoveries of the first report of their ferroelectricity and recent advances in theoretical and experimental research, including the mechanism of stabilization of the metastable ferroelectric phase, wake-up effect, and ferroelectric fatigue, domains and domain dynamics, and low-power ferroelectric memory devices, and so on. The scope of this Special Issue is focused on ferroelectric nanoscale materials. Areas to be covered from the point of view of theoretical or experimental research may include, but are not limited to: (1) Fabrication and characterization of HfO2-based ferroelectric nanoscale materials; (2) Novel topological domains in perovskite-based ferroelectric nanoscale materials; (3) Stabilization of metastable HfO2-based ferroelectric phase; (4) Mechanism of wake-up effect and fatigue (or endurance) in HfO2-based thin films; (5) Domain structures and domain dynamics in HfO2-based thin films; (6) Prototypical ferroelectric memory and novel logic devices.

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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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