

Special Issue

Ferroelectric Materials, Devices and Applications

Message from the Guest Editors

Ferroelectric materials exhibit spontaneous polarization under an external electric field, which can be reversibly switched by changing the applied voltage. This unique property makes them highly attractive in a wide range of electronic and sensing applications. Since the initial discovery of ferroelectricity in Rochelle salt, research on ferroelectric materials has continuously evolved—from traditional perovskite oxides to emerging systems such as doped hafnia (HfO₂), aluminum–scandium nitride (Al_xSc_{1-x}N), and two-dimensional materials. These advances provide new solutions to scalability and CMOS compatibility challenges, leading to renewed interest in ferroelectric-based devices such as FeRAMs, FeFETs, negative-capacitance transistors, and neuromorphic synaptic devices. This Special Issue aims to provide an overview of recent advances and future perspectives in ferroelectric materials, devices, and applications. We welcome original research and review papers on topics including novel ferroelectric materials, nanostructures, heterostructures, interfaces, and domain engineering, as well as the integration of ferroelectric materials with other functional materials.

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