

Special Issue

Advanced Ferroelectric Materials Doped with Rare Earth Metal Elements

Message from the Guest Editor

Rare earth-doped perovskite-structured ferroelectric materials are increasingly pivotal in the current electronics and electrical equipment industry. Rare earth elements exhibit high solubility in ABO₃-type ferroelectrics, enabling diverse modifications to their properties. It is well established that characteristics like electrical resistance, dielectric constant, polarization, and transition temperature can be effectively controlled through doping with appropriate rare earth metal cations. These materials find extensive applications in electromechanical and electro-optical systems, pyroelectric detectors, piezoelectric actuators, dielectric energy storage ceramics, microelectromechanical systems, ferroelectric random access memory, and microwave devices. In this Special Issue, we welcome contributions on advanced preparation methods for rare earth metal-doped perovskite ferroelectric materials, theoretical studies including first-principles calculations, research on the regulation of microstructure and electrical properties, and their applications in fields such as piezoelectricity, pyroelectricity, electrocaloric cooling, and dielectric energy storage.

Guest Editor

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Message from the Editorial Board

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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