Special Issue

Advances in Dielectric Ceramics for Energy-Storage Applications

Message from the Guest Editor

Dielectric ceramics have emerged as critical materials for modern energy-storage systems due to their ultrafast charge–discharge rates, high power density, and excellent thermal stability. With the rapid growth of renewable energy integration, electric vehicles, and pulsed power technologies, the demand for compact, efficient, and reliable energy-storage components has never been greater. However, the relatively low energy density of dielectric ceramics compared to batteries or electrochemical capacitors remains a key challenge. Recent advances in material design including high-entropy dielectric ceramics and multilayer architectures have opened new pathways to simultaneously enhance breakdown strength and polarization.

This Special Issue aims to present and disseminate the most recent advances related to dielectric ceramics for energy-storage applications. We invite contributions addressing innovative materials, processing techniques, characterization methods, and device integration strategies that push the limits of energy density, efficiency, and reliability.

Guest Editor

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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