Special Issue

Advanced Dielectric Materials: From Classical Insulators to Functional Composites

Message from the Guest Editor

Dielectric materials play a key role in energy storage, insulation, and electromagnetic applications, where new composite systems continuously redefine their performance and functional limits. This Special Issue aims to present the latest advances in dielectric materials, covering both classical insulators and emerging composite systems with enhanced electrical, thermal, and structural properties. Emphasis will be placed on understanding the relationships between composition, morphology, particle size, and dielectric performance across micro-, meso-, and nanoscale domains.

Recent studies have focused on hybrid and nanostructured materials, such as PVDF-based composites, metal–organic frameworks (MOFs), and polymer–ceramic systems, which show tunable dielectric behavior, enhanced energy density, and tailored electromagnetic responses. Progress in material synthesis, interface engineering, and modeling has opened new pathways for high-performance dielectric applications in sensors, capacitors, and electromagnetic shielding. This Special Issue seeks original research and comprehensive reviews addressing the synthesis, characterization, modeling, and application of dielectric materials.

Guest Editor

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Message from the Editor-in-Chief

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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