Special Issue

Advanced Structures and Properties for Ceramic Materials

Message from the Guest Editors

With high-Tc oxide superconductors, the colossal permittivity of dielectrics, advanced ceramic materials have earned their scientific nobility both in ancient times and in their use today. Solid state reaction for their elaboration has been complemented by sol–gel routes and core–shell methods. The sintering of powders under controlled atmosphere and the characterization and properties of grain boundaries and of the interface between the grain and the grain boundary remain challenging. The development of methods of diffraction, imaging by transmission electron, scanning electron and atomic force microscopy helps the characterization of structures and properties. Raman spectroscopy is also exploited. Lead-free piezoelectrics, ferroelectrics, multiferroics including their construction by coating of alternating ferromagnetic and ferroelectric thin films, and dielectrics are defined for applications with positive potential. The energy transition raises pressing challenges for which advanced ceramic materials are on the frontline for energy efficiency, energy storage, high-performance capacitors, electrodes for solid fuel cells, and many other promising fields.

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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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