Special Issue

New Insights into Ceramic Matrix Composites and Functional Ceramics

Message from the Guest Editor

Multiscale characterization from the atomic to nanoscale dimensions is of high interest as it is becoming more important in understanding the synthesis and performance of advanced ceramic and composites. Scientific research has been performed to limit the effect of their intrinsic brittleness and to understand the deformation and failure modes. Recent advances to control and design ceramics and composites at the nanoscale have been achieved, but long-term mechanical reliability remains a critical issue for successful applications. The materials of interest comprise a wide range of ceramics, including conventional oxide ceramics such as alumina and zirconia, also more specialized compositions such as boride, carbide, and nitride materials. This special issue aims to give a brief overview of the features of advanced ceramic and composite microstructures and the corresponding techniques for characterizing them. The most widespread tools for characterization of ceramic microstructures are microscopic techniques involving different types of electron microscopy, various diffraction, spectroscopic, and nuclear methods.

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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