Special Issue

Structural Design of Ceramic Materials and Ceramic-Based Composites

Message from the Guest Editor

It is known that the use of complex modern approaches to the formation of materials, which can be combined under the term "structural design" can achieve multiple increases in performance in materials of known composition.

- Multicomponent solid solutions based on metal borides and carbides have a significantly higher resistance to oxidation, hardness, and fracture toughness compared to binary carbides and borides.
- Providing weak bonds in ceramic composites with high-modulus matrix and low-modulus inclusions creates good conditions for crack bifurcation, leading to an increase in fracture toughness.
- The organization of a multilevel pore structure is capable of endowing otherwise bioinert oxide ceramics with osteoconductive properties, etc.

I am pleased to invite you to publish research works aimed at studying approaches to controlling the performance characteristics of ceramics and ceramic-based materials through structure and composition, devoted to the research of physical laws that determine the increase in characteristics or endowing the material with fundamentally new properties at various levels of the structural hierarchy from the nano- to macro-range.

Guest Editor

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Deadline for manuscript submissions

closed (20 December 2023)

Materials

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Impact Factor 3.2
CiteScore 6.4
Indexed in PubMed

mdpi.com/si/155146

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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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