Special Issue

Symmetry and Textured Ceramics

Message from the Guest Editor

Intrinsic crystallographic characteristics, especially symmetry operations along axes of symmetry with extrinsic microstructural combinations, govern the properties of ceramics. The term texture describes the preferred crystallographic orientation of grains in a polycrystalline material. Crystallographic texture enables access to a wide variety of anisotropic ceramic properties, thus enabling the enhancement and performance of anisotropic polycrystalline materials, especially when the use of single crystals is impractical or impossible. Textured polycrystalline ceramics possess mechanical reliability as well as compositional versatility. Many applications require the directional properties of single crystals, whereas others require the averaged isotropic properties of polycrystalline ceramics. For example, electrical properties can be enhanced by the elimination of high-angle grain boundaries in materials with directional electronic or ionic conduction. Likewise, mechanical compliance and related properties, such as piezoelectricity, can be improved by limiting the mechanical clamping caused by the misalignment of neighbouring grains...

Guest Editor

Dr. Aleksandra B. Šaponjić

Department of Materials, Vinca Institute of Nuclear Sciences—National, Institute of the Republic of Serbia, University of Belgrade, 11000 Belgrade, Serbia

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Symmetry
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
symmetry@mdpi.com

mdpi.com/journal/symmetry

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About the Journal

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Editor-in-Chief

Prof. Dr. Sergei Odintsov
1. ICREA, 08010 Barcelona, Spain
2. Institute of Space Sciences (IEEC-CSIC), C. Can Magrans s/n, 08193 Barcelona, Spain

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