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Ferromagnetic, Ferroelectric, and Multiferroic Oxide Nanopowders, Nanoceramics, and Thin Films

Guest Editor:

Prof. Dr. Sergei Trukhanov
Scientific Practical Materials Research Centre of National Academy of Sciences of Belarus, Minsk, Belarus

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Message from the Guest Editor

Oxide compounds of multiferroics are most in demand because of their chemical resistance during domestic use, as this is operation in an oxidizing air atmosphere. Ferrites, complex oxides of iron cations with various crystal structures such as the structure of perovskite, spinel, garnet and magnetoplumbite, are the basic class of compounds for the search for room temperature multiferroics, since they most often have spontaneous long-range magnetic and dielectric orders. The production of iron oxide compounds in nanoform, such as nanopowders, nanoceramics and thin films, very often leads to the desired results due to the appropriate distortion of the unit cell and the appearance of conditions for the occurrence of spontaneous polarization. The combination of intense values of spontaneous magnetization and polarization in nanoscale iron oxide compounds is very promising from a practical point of view.

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Editor-in-Chief

Prof. Dr. Shirley Chiang
Department of Physics, University of California Davis, One Shields Avenue, Davis, CA 95616-5270, USA

Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call "nanomaterials". These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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Contact Us

Nanomaterials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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nanomaterials@mdpi.com
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