

Special Issue on  
**Magnetic Properties of Multifunctional/Heterostructure  
Materials: Research Trends for Technological  
Applications**

# CALL FOR PAPERS

Brief summary of the area and where it sits within the wider subject: magnetic based multifunctional materials, such as magneto-optic and magnetoelectric composites, represent a growing topic of interest in condensed matter physics leading to a rise in the development of a broad spectrum of integrated systems for lab-on-a-chip devices. Their potential is due to the fact that this kind of system is composed of at least two distinct phases that interact with each other through a complex mechanical interface coupling. Thus the overall properties of the new composite system greatly exceed the properties of the homogeneous constituent phases. Design, manufacturing, packaging, and testing are of great interest in the topics of this call for papers, as well as computer simulation and reverse engineering with the aim to drive fundamental understanding of the behavior of these multifunctional systems and to develop methodologies for tuning and predicting design of composite materials with superior properties.

Proposed aims and the scope for the special issue: in this special issue, the aim will be to fill important gaps in the scientific community's understanding of magnetic properties of multifunctional composites and devices which can be electrically (E) or optically (Opt) tuned and, subsequently, may impact the design and engineering of new technological devices. The editors are encouraging scientists and engineers to submit their theoretical or experimental work on bulk or nanostructure multifunctional systems and on any intersection of physics and engineering. The technological gap and challenge are the miniaturization of these complex systems with the capability of being tunable. The next generation of tunable devices requires, for example, an improvement in the quality factor of the mechanical coupling, Q-factor, diffusion and chemical stability, and resilient devices.

Potential topics include but are not limited to the following:

- ▶ Multiferroic materials and heterostructures (bulk and nanomaterials)
- ▶ Magneto-optic materials
- ▶ Magnetoelastic materials
- ▶ Magnetoelectric phenomena
- ▶ Microwave and millimeter-wave E-field and Opt tunable materials
- ▶ Voltage-controlled magnetic anisotropy and switching
- ▶ Magnetoresistance, magnetoimpedance, and hall effect

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/acmp/bmmdi/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

**Lead Guest Editor**

Jose Vargas, National Scientific and Technical Research Council (CONICET), Bariloche, Argentina  
[jmvargas@ieee.org](mailto:jmvargas@ieee.org)

**Guest Editors**

Arkady Zhukov, UPV/ EHU, San Sebastian, Spain  
[arkadi.joukov@ehu.eus](mailto:arkadi.joukov@ehu.eus)

Daniel Lottis, Western Digital, San Jose, USA  
[daniel.lottis@wdc.com](mailto:daniel.lottis@wdc.com)

Bogdan F. Valcu, Western Digital Media, San Jose, USA  
[bvalcu@hotmail.com](mailto:bvalcu@hotmail.com)

Valeria Rodionova, Immanuel Kant Baltic Federal University, Kaliningrad, Russia  
[valeriarodionova@gmail.com](mailto:valeriarodionova@gmail.com)

**Submission Deadline**

Friday, 23 February 2018

**Publication Date**

July 2018