Special Issue

Phase Change and Ovonic Nanomaterials: Structure, Properties, and Applications

Message from the Guest Editor

Chalcogenide phase-change materials are characterized by unique properties that can be exploited for data-storage applications. Phase-change memories (PCMs) work by reversibly and rapidly switching a phase-change material from an ordered crystalline state with high electrical conductivity to an amorphous disordered state with low conductivity. An electrical/optical pulse thermally induces the transition between the two states. To fully utilize the potential of the phase-change materials, a comprehensive understanding of the relationship between the atomic structure before and after the switching phenomena and its solid-state properties is necessary. Moreover, multi-level memories and the realization of neuromorphic computing is achievable due to the excellent scalability, fast switching speed and low energy consumption of PCMs. This Special Issue will publish research and review papers on the fundamentals and applications of phase-change materials. It should provide an overview of the state-of-the-art developments from experimental and theoretical points of view. It is my pleasure to invite you to submit a manuscript for this Special Issue.

Guest Editor

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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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