Journal of Nanomaterials

Special Issue on

Multifunctional Oxide Films and Nanostructures

CALL FOR PAPERS

Emergent functionalities can be achieved in transition metal oxide thin films and nanostructures through the interplay between structural, electronic, and magnetic degrees of freedom. Epitaxial thin films and nanoscale heterostructures provide pivotal platforms to explore the effects of dimensionality, strain, interface, surface, defect, and microstructure on physical properties. To explore their technological applications, research efforts are required from theoretical simulations and modeling, material synthesis and growth, and defect and microstructure control, as well as in-depth physical property characterization.

This special issue focuses on multifunctional oxide films and nanostructures with an emphasis on the information and energy applications. It covers a broad range of topics from theoretical calculation, material design and synthesis, advanced characterization, device fabrication, and performance evaluation. We call for contributions of original research articles as well as reviews and perspectives which cover most recent advances in relative fields.

Potential topics include, but are not limited to:

- Design, growth, and characterization of single-phase and/or nanocomposite oxide films and nanostructures
- Ferroelectric, ferromagnetic, and multiferroic oxide thin films
- Strain, interface, and defect engineering in strongly correlated oxides
- Electron transport and carrier dynamics in semiconductors
- Simulation and modeling for functional oxides and energy-related materials
- Emerging electronic and optoelectronic devices
- Photocatalysis, photoelectrochemistry, and photovoltaics
- Solar cells, sensors, and energy harvesting

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