



Journal of Nanomaterials

Special Issue on  
**Thin Film and Nanostructures for Storage, Memory,  
and Cognitive Applications**

# CALL FOR PAPERS

In recent years, patterned media, nonvolatile memory, and cognitive devices are intensively studied worldwide because they are regarded as next-generation storage, memory, and non-von Neumann-based devices. Thin film and nanostructures are very important for storage, memory, and cognitive applications based on their electrical, optical, and magnetic properties. The control in the synthesis of multielement materials and nanofabrication have reached an unprecedented level on the atomic scale with new deposition, postanneal, and nanofabrication techniques developed in recent years. These new technologies enable low power consumption, ultrahigh density, and novel functions by adopting these new films and nanostructures.

The aim of this special issue is to publish high-quality research papers on the design, fabrication, theory, analysis, and characterization of thin films (e.g., oxide and chalcogenide) and nanostructures for storage, memory, and cognitive applications. It will address topics from basic to application driven research.

Potential topics include, but are not limited to:

- ▶ Synthesis and characterization of thin films, multilayered systems, and superlattices
- ▶ Characterization and control of intrinsic or extrinsic defects in films, heterostructures, and nanocomposites
- ▶ Films deposited on flexible substrates
- ▶ Energy storage and sensing devices of carbon-based materials
- ▶ Nanofabrication techniques
- ▶ Nanostructures fabricated by top-down or bottom-up techniques
- ▶ Interfacial properties
- ▶ Storage, memory, and cognitive devices
- ▶ Computer simulations of structural and electronic processes in thin films and nanostructures
- ▶ Device integration and performance
- ▶ Processing issues in device fabrication
- ▶ Scalability of memory device
- ▶ Low power devices
- ▶ Multibit (multilevel) storage
- ▶ Concepts and enabling technologies for 3D memory
- ▶ Novel memory access devices for 3D memory
- ▶ Testing scheme and performance enhancement for memory devices
- ▶ Phase change materials and its application

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**Manuscript Due**

Friday, 11 September 2015

**First Round of Reviews**

Friday, 4 December 2015

**Publication Date**

Friday, 29 January 2016

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