Special Issue

Functional Materials for Memristors, Metal-Insulator-Metal (MIM) Tunneling Diodes and Field Effect Transistors (FET)

Message from the Guest Editor

his Special Issue focuses on the functionalization, via emerging materials, fabrication, and testing of THz tunnelling MIM diodes, memristors, and FETs. Applications ranging from telecommunication, to sensing and 3D imaging (such as that using neuromorphic chips), to non-volatile information storage and processing are also highlighted. Recently, memristors made from 2D materials have gained enormous attention. These materials offer advantages such as a low switching voltage, reduced power consumption due to an ultrathin body, and an absence of dangling bonds that can cause scalability issues with ultrathin oxides. The choice of insulating material is crucial for MIM tunneling diodes and FETs. Recently, 2D insulating and semiconducting materials, respectively, have been used for designing and simulating MIM tunneling diodes and FETs. Thus, functional materials play a crucial role in the performance and behavior of these electronic components, impacting their applications and scalability.

- tunneling MIM diodes
- memristors
- FET
- emerging materials
- neuromorphic chips
- volatile memory and information processing
- 3D imaging via neuromorphic chips

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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