Journal of Nanomaterials

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Special Issue on

Cutting Edge Technologies by Silicon- and Silicon Oxide-Based Nanostructures

CALL FOR PAPERS

Due to its semiconductor properties and natural abundance, Si has been widely used for electronics, in both its pure and doped states. In contrast, its oxide SiO_2, which is an insulator, is traditionally employed as refractory or filtering material. The rise of nanotechnology and the development of microfabrication techniques have opened new perspectives in this context. As often happens at the nanoscale, Si and SiO_2 nanostructures show different properties from the bulk, which can also be tuned according to size and shape. Moreover, they have proven to be excellent substrates for the design of reactive platforms. The combination of these aspects has led to the use of Si and SiO_2 as base components for a number of nanomaterials with peculiar behavior, which have applications in a variety of fields from energy to biomedicine to logic gates.

This special issue focuses on the synthesis, characterization, and uses of silicon- and silicon oxide-based nanostructures. We are particularly interested in works dealing with cutting edge technologies and applications, such as energy storage (e.g., lithium and sodium ion batteries), nanoelectronics, catalysis, and theragnostics, but we are also interested in related environmental and health issues. However, considering that a deep knowledge of the physicochemical properties of each system is the basis of robust and advanced technological development, theoretical and computational studies are welcome as well. We invite all interested researchers to submit either original papers or review articles.

Potential topics include but are not limited to the following:

- Synthesis, characterization, and properties of Si- and SiO2-based nanostructures
- Silica and silicates from biomasses: production and applications
- Composite nanomaterials based on Si or SiO2
- Si- and SiO2-based nanostructures for energy production and storage
- Si-based nanostructures for electronics, logic gates, and memories
- Si- and SiO2-based nanostructures for sensing
- Si- and SiO2-based nanostructures in catalysis
- Biomedical applications of Si- and SiO2-based nanomaterials
- Toxicity of silica nanostructures
- Theory and computational modelling of Si- and SiO2-based nanostructures

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jnm/ctss/.

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

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