

Special Issue

Eco-Sustainable Designing of Metal Oxide Thin Films with High Properties Using Advanced Micro- and Nanofabrication Technologies

Message from the Guest Editors

This Special Issue focuses on novel advances and offers unique opportunities for metal oxides to integrate diverse optical, electrical, magnetic, mechanical, and chemical properties for various applications. Advanced micro- and nanofabrication technologies, atomic layer deposition, chemical vapor deposition, pulsed laser deposition, or magnetron sputtering offer the capability of controlling film thickness, composition, and microstructure with a high degree of precision, keys to enabling optimization of their functional properties. These sustainable fabrication strategies underline the reduction in resource consumption and the use of green precursors. In addition, nanostructuring techniques enhance the transparency, conductivity, and photocatalytic activity by tailoring the films' morphology and crystalline structure. Integrating computational modeling and machine learning significantly accelerates the discovery of novel materials and processing conditions. Applications of eco-sustainably designed metal oxide thin films span from photovoltaics, sensors, and transistors to energy storage systems, which have become the backbone of green technologies.

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Message from the Editorial Board

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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