



*nanomaterials*



*Special Issue Reprint*

## Design and Development of Nanostructured Thin Films

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Due to their unique size-dependent physicochemical properties, nanostructured thin films are used in a wide range of applications from smart coating and drug delivery to electrocatalysis and highly-sensitive sensors. Depending on the targeted application and the deposition technique, these materials have been designed and developed by tuning their atomic-molecular 2D- and/or 3D-aggregation, thickness, crystallinity, and porosity, having effects on their optical, mechanical, catalytic, and conductive properties. Several open questions remain about the impact of nanomaterial production and use on environment and health. Many efforts are currently being made not only to prevent nanotechnologies and nanomaterials from contributing to environmental pollution but also to design nanomaterials to support, control, and protect the environment. This Special Issue aims to cover the recent advances in designing nanostructured films focusing on environmental issues related to their fabrication processes (e.g., low power and low cost technologies, the use of environmentally friendly solvents), their precursors (e.g., waste-recycled, bio-based, biodegradable, and natural materials), their applications (e.g., controlled release of chemicals, mimicking of natural processes, and clean energy conversion and storage), and their use in monitoring environment pollution (e.g., sensors optically- or electrically-sensitive to pollutants)



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