Special Issue

Multi-Scale Modeling of Advanced Materials: Numerical Methods and Experimental Research

Message from the Guest Editors

In the last decades, relevant progress has been in the area of advanced materials like composites, lightweight and high-strength alloys, shape-memory alloys, high-entropy alloys, and many more besides. The effective usage of these materials is strictly related to the understanding and the development of advanced constitutive models. The scope of the Special Issue includes but is not limited to:

- Novel and multiscale numerical methods for the prediction, analysis, and design of the mechanical properties, including computational damage and fracture mechanics.
- Theoretical and fundamental insights into the microstructure–property relationships.
- Understanding the manufacturing processes, deformation mechanisms, and mechanical/failure responses of advanced materials.
- Theoretical and experimental investigations of the connection between the manufacturing processes and the physical mechanisms of the interactions between plasticity, damage, and fracturing.
- Advanced numerical and experimental methods for studying the microstructure, process, full-field measurements across different length scales, and various microscopic visualization methods.

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Deadline for manuscript submissions

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Message from the Editor-in-Chief

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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