

Special Issue

Modeling and Numerical Simulations in Materials Mechanics

Message from the Guest Editor

This Special Issue's scope encompasses theoretical advancements, numerical algorithm development, and practical applications, emphasizing solving industrially relevant problems. Key themes include but are not limited to multiscale and multiphysics frameworks that seamlessly bridge quantum, molecular, mesoscopic, and continuum scales; data-driven and AI-enhanced models leveraging machine learning to accelerate simulations, discover constitutive laws, or reduce dimensionality; uncertainty quantification to improve the reliability of predictions in the presence of material heterogeneity, manufacturing defects, or environmental variability; digital twin technologies enabling the real-time monitoring and adaptive control of material systems; and sustainability-driven modeling for designing recyclable materials, minimizing energy consumption in manufacturing, or predicting long-term degradation.

Guest Editor

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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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