

Special Issue

Multiscale Mechanical Behaviors of Advanced Materials and Structures

Message from the Guest Editor

With the rapid development of advanced design methods and manufacturing tools, novel materials and structures are demonstrating broad application prospects. Underlying these advancements is the skillful utilization of numerical simulation methods, machine learning, and mechanical theories, necessitating in-depth research. The mechanical properties of materials change under external loads. Predicting these mechanical properties, such as crack propagation, fatigue life, plasticity, and buckling, is crucial for the utilization of materials and structures, and the underlying theories and simulations warrant further exploration. Moreover, developing theoretical and numerical models and tailoring the mechanical properties of materials are of significant value for the design of materials and structures with specific mechanical functions. This Special Issue will focus on research utilizing theoretical models, numerical methods, and other tools to predict and tailor the mechanical behavior of materials. The papers collected in this Special Issue can help researchers, engineers, and scientists find advanced mechanical analysis methods and provide ideas for the search for new materials.

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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