Special Issue

New Trends in Advanced Materials and Mechanical Behavior of Materials

Message from the Guest Editors

The rapid development of advanced materials is reshaping the conception, design, and assessment of engineering structures. Novel material systems—ranging from architected and lattice materials to advanced composites, smart materials, and additively manufactured metals—have granted researchers unprecedented levels of control over mechanical performance across multiple length and time scales. Meanwhile, the complexity of these materials challenges experimental characterization, constitutive modeling, numerical simulation, and structural integrity assessment.

This Special Issue aims to provide a comprehensive platform for recent advances in the understanding, modeling, and application of advanced materials under mechanical loading. Emphasis is placed on the mechanical behavior of materials subjected to static, cyclic, and dynamic conditions, including damage initiation, fracture, fatigue, impact, and multiscale phenomena. Contributions addressing experimental techniques, theoretical developments, and computational approaches—such as multiscale modeling, phase-field methods, lattice and metamaterial modeling, and data-driven or hybrid methodologies—are of particular interest.

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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