Special Issue

Multi-Scale Modeling of Material Behavior in Engineering Environments

Message from the Guest Editors

Human use of materials drives environmental interaction and technological progress, with eras often named after dominant materials. As materials and control of their properties expand, new methods are required. Research now models not only individual traits but also interrelations, environmental effects, and structural changes in service. Multi-scale modeling links microscopic phenomena, meso-structural evolution, and macroscale processes in manufacturing, processing, and operation, including simulations of degradation in varied environments. We use “behavior” to describe and predict material responses to controllable stimuli. Expanding data access and computational power support machine learning, new models, and algorithms. Advances in describing environments and analytical tools enhance computational techniques. As engineering material models evolve, collecting the latest achievements is timely. The thematic scope include the following: Modeling the technology of manufacturing a complex material structure; Studies of material degradation processes at various scales and in various environments; Simulations of phenomena and processes of transformation in the structure of materials.

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Deadline for manuscript submissions

20 April 2026

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/254102

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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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