Multiscale Modeling and Characterization Technique of Advanced Nanostructured Materials for Extreme Service

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Message from the Guest Editors

Dear Colleagues,

This Special Issue will focus on the latest innovations in multiscale modeling, bridging the gap between macroscopic material behavior and nanoscale phenomena. Researchers are invited to contribute original articles, reviews, and case studies that explore novel computational methods, experimental techniques, and their applications in real-world scenarios. Furthermore, we are calling for contributions that integrate machine learning techniques with multiscale modeling to push the boundaries of materials science. Topics of interest include, but are not limited to, the following:

1. Multiscale Numerical Simulations: advanced simulations that integrate different scales of material behavior to predict performance under extreme conditions.
2. Experimental Characterization Techniques: cutting-edge methods for analyzing the structural and mechanical properties of nanomaterials.
3. Interdisciplinary Approaches: collaborative studies that combine insights from materials science, physics, engineering, and computational science.
4. Machine Learning Applications: innovative uses of machine learning to enhance modeling and characterization processes.

Special Issue

Editor-in-Chief

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Message from the Editor-in-Chief

Nanoscience and nanotechnology are exciting fields of research and development, with wide applications to electronic, optical, and magnetic devices, biology, medicine, energy, and defense. At the heart of these fields are the synthesis, characterization, modeling, and applications of new materials with lower nanometer-scale dimensions, which we call "nanomaterials". These materials can exhibit unusual mesoscopic properties and include nanoparticles, coatings and thin films, metal–organic frameworks, membranes, nano-alloys, quantum dots, self-assemblies, 2D materials such as graphene, and nanotubes. Our journal, *Nanomaterials*, has the goal of publishing the highest quality papers on all aspects of nanomaterial science to an interdisciplinary scientific audience. All of our articles are published with rigorous refereeing and open access.

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