Special Issue

Multi-Scale Analysis and Computing of Materials and Structures

Message from the Guest Editors

The field of materials science and structural engineering has witnessed remarkable advancements in recent years. A key challenge in this domain lies in understanding and predicting material behavior across multiple length and time scales, from atomic interactions to macroscopic mechanical properties. This Special Issue, "Multi-Scale Analysis and Computing of Materials and Structures", aims to showcase cutting-edge research that bridges theoretical, computational, and experimental approaches to address these challenges. The scope of this issue encompasses a wide range of topics, including but not limited to the following:

- Multi-scale modeling techniques (e.g., molecular dynamics, finite element methods, or homogenization theories).
- Computational algorithms for coupling different scales (e.g., concurrent, hierarchical, or adaptive methods).
- Machine learning and data-driven approaches to accelerate multi-scale simulations.
- Experimental validation of multi-scale predictions in materials (e.g., composites, biomaterials, or metamaterials).
- Applications in structural engineering, such as fracture mechanics, fatigue analysis, and design optimization.

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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.

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