

Multiscale Model-Based Simulation with Applications to Nano And Bio Systems

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ABSTRACT

Nanoscience and nanotechnology are rapidly changing the daily life of the human being in the global economy. In particular, nano mechanics and materials are playing an increasingly important role in biological and biomedical applications. This new generation of bio materials has unique structures and properties and could revolutionize not only the medical practice in particular but also the life science and engineering in general. Understanding the behavior of nano and bio systems is of great scientific interest and technological importance, which requires concurrent development of experiments, theory, modeling, and simulation. The aim of this mini-symposium is to provide an exposition of the current state of the art on multiscale model-based simulation of diverse responses of nano and bio systems. We particularly welcome contributions highlighting the integration of modeling, simulations, and experiments in nano mechanics and materials. Presentations are solicited in all the subtopics on bio and nano mechanics and materials, which include but are not limited to the following:

1. Applications of nano and bio mechanics and materials
2. Multiscale modeling and simulation procedures
3. Nanoscale experiments in life science and engineering
4. Optimization of multiscale microstructures of biomaterials
5. MEMS and NEMS devices for drug delivery and treatment
6. The interface between nano and bio mechanics

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