

SPECIAL ISSUE

Multiscale Model-Based Simulation with Applications to Nano and Bio Systems For the 8th World Congress on Computational Mechanics

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FOREWORD

Advances in nanoscience and engineering are rapidly changing the daily life of the human being in the global economy. In particular, nanomechanics and nanomaterials are playing an increasingly important role in biological and biomedical applications. This new generation of biomaterials has unique structures and properties and could revolutionize not only the medical practice, in particular, but also life science and engineering, in general. Understanding the behavior of nano- and biosystems is of great scientific interest and technological importance and requires concurrent development of experiments, theory, modeling, and simulation. The aim of this mini-symposium organized for the 8th World Congress on Computational Mechanics (WCCM8) is to provide an exposition of the current state of the art on multiscale model-based simulation of diverse responses of nano- and biosystems. Efforts have been made to highlight the integration of modeling, simulations, and experiments in nanomechanics and nanomaterials. Presentations are in all the subtopics on bio- and nanomechanics and materials, which include, but are not limited to, the following:

1. Applications of nano- and biomechanics and materials
2. Multiscale modeling and simulation procedures
3. Nanoscale experiments in life science and engineering
4. Optimization of multiscale microstructures of biomaterials
5. Micro ElectroMechanical Systems (MEMS) and Nano Electromechanical Systems (NEMS) devices for drug delivery and treatment
6. The interface between nano- and biomechanics

This special issue is a collection of the full papers selected based on a peer-review process. We hope that this special issue and subsequent ones will promote international collaboration in research and education and make an immediate contribution to the progress of nanoscience and nanotechnology by disseminating new findings and integrating different team efforts among active researchers and educators.

We would like to thank the authors for their excellent contributions, the reviewers for their discerning comments on the papers, and the publisher for making this special issue possible.

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