SPECIAL ISSUE

BASED ON THE MINI-SYMPOSIUM ENTITLED "BIO- AND NANO-MECHANICS AND MATERIALS WITH APPLICATIONS" FOR THE 9TH WORLD CONGRESS ON COMPUTATIONAL MECHANICS (WCCM 2010)

Guest Editors

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FOREWORD

Nanoscience and nanotechnology are rapidly changing the daily life of human beings in the global economy. In particular, nano-mechanics and materials are playing increasingly important roles in biological and biomedical applications, such as biocompatible implant materials and novel materials for drug delivery. This new generation of bio-materials have unique structures and properties and could revolutionize not only medical practice in particular but also 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 was to provide an exposition of the current state of the art on model-based simulation of diverse responses of nano-and bio-systems. We particularly welcomed contributions highlighting the integration of modeling, simulations, and experiments in bio- and nano-mechanics and materials with applications. Presentations were solicited in all the subtopics related to bio- and nano-mechanics and materials with applications, which included but were not limited to the following:

1. Applications of nano- and bio-mechanics and materials
2. Impact of nanomaterials on human safety and health
3. Multiscale modeling and simulation procedures
4. Nano-scale experiments in life science and engineering
5. Nanomaterials for drug delivery and treatment
6. Compatibility of nanomaterials with biological materials
7. Reliability of nanomaterials for biomedical applications
8. The interface between nano- and bio-mechanics

This special issue is a collection of the full papers selected based on a peer-reviewed process after the WCCM 2010. We hope that the special issue and subsequent ones in the future could promote the international collaboration in research and education, and make an immediate contribution to the progress of nanoscience and nanotechnology by disseminating the new findings and integrating different team efforts among active researchers and educators.

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