



ASCE JOURNAL OF NANOMECHANICS AND MICROMECHANICS

Call for Papers

Special Issue: **Multiscale Modeling and Simulation of Physical Phenomena of Material Systems**

Complex material systems, especially at small scales, require the marriage of advancements of theoretical studies, exploitations of computational methods, and non-traditional experimental validations to unveil their underpinning mechanism. The advent of superior synthesis techniques coupled with ever increasing computational powers has enabled concerted effort toward design and development of materials with impressive functional characteristics. This special issue will center on the recent research advances in computational modeling, theoretical analysis, and experimental characterization of material systems at nano/micro scale. Examples include, but are not limited to, materials

used in structural, biological, thermal, electrical, optical and electronic applications. Scope of this special issue will span from quantum mechanics, molecular dynamics, to continuum theories, including sequential or concurrent multiscale modeling. The issue will cover interdisciplinary research areas of material science, engineering, and physics. Original research articles and reviews are welcome.

Potential topics include, but are not limited to, the following:

- Novel approaches for ab initio methods, tight-binding simulations, density functional theory (DFT).
- Molecular dynamics, discrete defect dynamics, enriched continuum approaches, phase field modeling and multiscale modeling methodologies;
- Heterogeneous materials with coupled multi-physics behavior (phase change, chemo-mechanics, nonlinear thermo-mechanics...)
- Microstructures with complex interfaces
- Interface and adhesion at micro/nano scale
- Applications and high-performance computing for nanoscale simulations in overlapping areas between chemistry, biology, physics, materials science, and mechanics

Guest Editors for Special Issue:

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All manuscript submissions to this special issue will be subjected to a rigorous peer review process to ensure the highest standards of quality. Please indicate in your cover letter that the submitted manuscript has not been published previously, is not under review by any other journal, and will not be submitted elsewhere before a final decision is made by JNM. Moreover, you are suggested to include the title of the special issue and the name of the guest editors in the submission cover letter.

Manuscript submission:

1. Manuscripts must be prepared according to the Journal's guidelines, available at <http://www.asce.org/Content.aspx?id=12884905933>
2. When submitting the manuscript, select the special issue for your paper.
3. Submit your manuscript in PDF format online at the ASME Journal Tool website via <https://www.editorialmanager.com/jrnmeng/default.asp>
4. Important Dates

Manuscript Due: August 15, 2013

Authors Notification: October 15, 2013

Publication Date: December 15, 2013