

CALL FOR PAPERS

ASCE-ASME Journal of Risk and Uncertainty in
Engineering Systems Part B: Mechanical
Engineering

Special Issue SI02

Stochastic multiscale modeling of heterogeneous materials and structures

Description: Over the last few years, the intense research activity at the micro- and nano-scale marked out the need to account for disparate levels of uncertainty from various sources and across scales. As even over-refined deterministic approaches are not able to account for this issue, an integration of stochastic and multiscale methodologies is required to provide a rational framework for the analysis and design of heterogeneous materials and structures. Facing the emergence of new engineered materials, accurate stochastic modeling across multiple length scales becomes imperative.

The scope of this special issue is to present the most recent advances in the field of stochastic multiscale modeling of heterogeneous materials and structures. In this respect, contributions addressing the following topics are welcome:

- Random field modeling of heterogeneous media
- Efficient simulation of random microstructure/morphology
- Stochastic fracture and damage
- Wave propagation in micro-structured random media
- Finite element solution of multiscale stochastic partial differential equations
- Stochastic finite element (SFE) analysis of composite materials and structures
- Methods for improving the efficiency of Monte Carlo simulation
- Efficient algorithms to accelerate the SFE solution of multiscale problems

- Large-scale applications

Topic Areas: Multiscale modeling, Uncertainty quantification, Heterogeneous materials, Random microstructures, Random fields, Stochastic finite elements.

Publication Target Dates (US format: month/date/year)

1. Paper Submission Deadline: August 1, 2018
2. Initial Review Completed: April 1, 2019
3. Special Issue Publication Date: September 2019

Standard Submission Instructions

Papers should be submitted electronically to the Journal at <http://journaltool.asme.org>. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal page**, select the ***Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering*** and then select the special issue **SI029B**.

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