

ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems

Part B: Mechanical Engineering

Special Issue SI029B on

Stochastic multiscale modeling of heterogeneous materials and structures

Call for papers

The *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems* dedicates selected issues to a special topic. Each Special Issue consists of original papers and educational articles of general value to the field (submitted in response to a Call for Papers). Following the success of two Mini-Symposia on this topic in WCCM XI and UNCECOMP 2017, I am pleased to announce a Special Issue to be dedicated to “*Stochastic multiscale modeling of heterogeneous materials and structures*”.

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

Contributed papers for this Special Issue should be initially submitted via e-mail to the Guest Editor (gstefanou@civil.auth.gr). All papers will undergo a fast review from independent reviewers. The deadline for submission of manuscripts is **April 1, 2018**. Papers received after the deadline will be considered if space and time permits.

George Stefanou
Guest Editor