

**ASME Journal of Mechanical Design**  
***Special Issue: Simulation-based Design under Uncertainty***

There is an ever increasing need to design mechanical systems considering uncertainty and variability using simulation models. The past decade has seen a significant growth in uncertainty quantification, propagation and design using probabilistic and non-probabilistic methods. The “Simulation-based Design under Uncertainty” special session of the ASME Design Automation Conference (DAC) has been attracting many papers every year for more than ten years. Design under uncertainty has implications in decision making as well as reliability, quality, safety and risk tolerance of many products. This special issue will cover various related topics under the general umbrella of *Simulation-based Design under Uncertainty*, including methods, models and case studies. Examples of topics of interest include (but are not limited to):

- Computational techniques for uncertainty quantification and propagation
- Design for resilience
- Fusion of simulation and experimental data for design under uncertainty
- Lifecycle analysis and design under uncertainty
- Methodologies for design under uncertainty using probabilistic and non-probabilistic methods
- Model verification, validation, and calibration
- Modeling, analysis, and design of time-dependent problems involving stochastic processes and random fields
- Multidisciplinary analysis and optimization under uncertainty
- Reliability-, risk-, and safety-based design and optimization
- Simulation-based design decisions under uncertainty
- Surrogate modeling of stochastic processes and random fields
- Theoretical foundations for predictive modeling and inference with limited data
- Uncertainty propagation and quantification through multiple scales and/or disciplines

While application areas are not limited to a specific domain of interest, we encourage submissions from interdisciplinary research teams. Although the inclusion of a complete design case study is not mandatory, relevance to engineering design will be explicitly considered as a criterion in the review process.

**Submission Instructions**

Please submit your paper to ASME at <http://journaltool.asme.org/Content/index.cfm> and note on the cover page that your paper is intended for the special issue on “Simulation-based Design under Uncertainty.” Please also email the Editor, Dr. Shapour Azarm at [editor@asmejmd.org](mailto:editor@asmejmd.org) to alert him that your paper is intended for the special issue. Information about the ASME *Journal of Mechanical Design* can be found at <http://www.asmejmd.org/>. Please note that a limit of 12 journal pages without ASME page fees will be observed for full Research Papers. Early submission before the deadline is strongly encouraged.

**Publication Target Dates**

Authors submit papers by: February 29, 2016  
Initial review completed by: April 15, 2016  
Publication of special issue by: November 2016

Early submissions are strongly encouraged. Papers submitted by February 29, 2016 will be reviewed in time for inclusion in the special issue. Papers received after that date may still be considered for the special issue, if time and space permit. Papers that are not reviewed in time for the special issue can still be considered for a regular issue of the journal.

**Guest Editors**

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