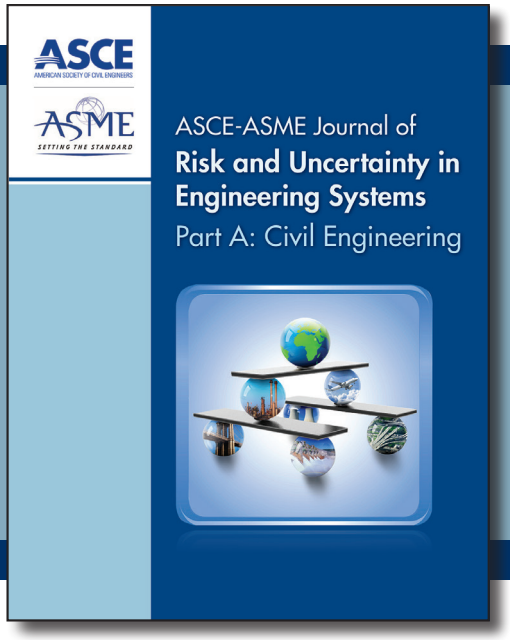
ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering

Guest Editors:
Zhenhao Zhang, Changsha University of Science & Technology, zhangzhenhao@csust.edu.cn
De-Cheng Feng, Southeast University, dcfeng@seu.edu.cn
You Dong, The Hong Kong Polytechnic University, you.dong@polyu.edu.hk
Emilio Bastidas-Arteaga, La Rochelle University, ebastida@univ-lr.fr



Call for Papers

Special Collection Advances in Efficient Methods in Random Fields Modeling and Analysis

Aims & Scope

Spatial and temporal variability widely exists in practical engineering and has a significant influence on structural performance. Generally, it is modeled by the random field/process methods which typically transfer the field into a set of random variables, then it can be implemented in conventional uncertainty analysis framework. Efficient random field modeling and analysis usually involves three aspects, the adopted mathematical representation method, the accurate reflection of the geometric correlations, and the effective sampling of the discretized random variables. With the development of probabilistic mechanics and random process theory, novel methods are developed for efficient random field modeling and convenient uncertainty analysis of structures involving random field properties. Besides, the AI-inspired data-driven approaches bring new insights for resolving the traditional difficulties of random field analysis, e.g., correlation relation identification, surrogate models, dimension reduction methods, etc. This special collection aims to gather contributions presenting the recent advances in efficient random field modeling, analysis, and applications.

Topic Areas

- Efficient representation methods of random fields
- Generation of conditional random fields with limited data
- Methods for representing random field over complex geometries
- High efficient sampling methods for high-dimensional random filed models
- Structural reliability, risk and resilience analysis of structures with random fields
- Application of machine learning methods in random field modeling and analysis

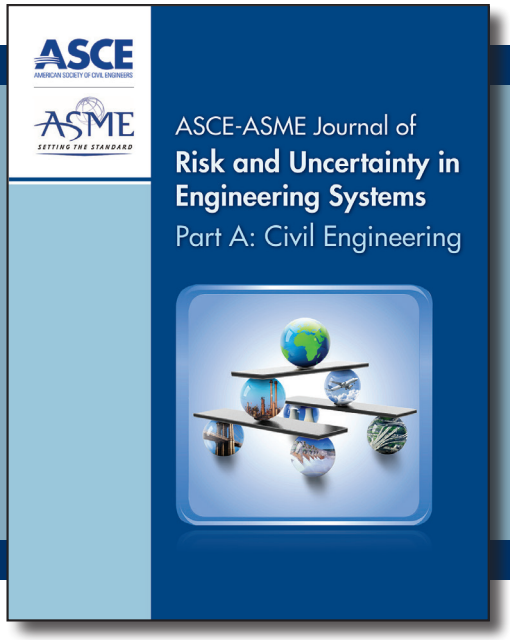
AMERICAN SOCIETY OF CIVIL ENGINEERS
1801 Alexander Bell Dr., Reston, VA 20191, USA | Phone: 1(800) 548.2723 (US)/1(703) 295.6300 (Int'l) | Web: ascelibrary.org | E-mail: ascelibrary@asce.org

ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering

Guest Editors:
Zhenhao Zhang, Changsha University of Science & Technology, zhangzhenhao@csust.edu.cn
De-Cheng Feng, Southeast University, dcfeng@seu.edu.cn
You Dong, The Hong Kong Polytechnic University, you.dong@polyu.edu.hk
Emilio Bastidas-Arteaga, La Rochelle University, ebastida@univ-lr.fr

Call for Papers

Special Collection Advances in Efficient Methods in Random Fields Modeling and Analysis



- Stochastic process-based random fields modeling and analysis
- Analytical methods for probability analysis of random fields
- Analytical probabilistic structure of random fields
- Random fields/process-based reliability design theory, such as structural target reliability index determination methods, etc.

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

1. Paper Submission Deadline: March 31, 2023
2. Initial Review Completed: June 30, 2023
3. Special Issue Publication Date: December 31, 2023

Standard Submission Instructions

Papers should be submitted electronically to the Journal at https://editorialmanager.com/jrnrueng/default1.aspx. 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 *ASCE-ASME Journal for Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering* and then select the special issue Advances in efficient methods in random fields modeling and analysis. Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

AMERICAN SOCIETY OF CIVIL ENGINEERS
1801 Alexander Bell Dr., Reston, VA 20191, USA | Phone: 1(800) 548.2723 (US)/1(703) 295.6300 (Int'l) | Web: ascelibrary.org | E-mail: ascelibrary@asce.org