CALL FOR PAPERS

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

Special Issue on Resilience of Engineering Systems (SI Number: SI033B)

DESCRIPTION AND SCOPE

Our modern life has grown to depend on many and nearly ubiquitous large complex engineering systems, such as tunnels, gas/oil pipelines, geotechnical infrastructures, etc. All of them are the backbones of our modern society, therefore, the complex real-world systems should not only be reliable, but with high resilient capacity, which plays a fundamental role during a disruptive scenario. This poses the following challenge. The rapid growth is scale, complexity and interconnection of our real-world systems and their environment is associated with a significant growth of uncertainties and risks, arising from the growing gap between current model capabilities and demands to capture new phenomena. Deficiencies of current models concern, in particular, capturing critical issues and mechanisms that are seemingly minor but have the potential to lead to catastrophic risks and dramatic consequences through cascading failures in complex systems. As a conclusion, developments should target at resilient and cost-effective solutions to eliminate or reduce these vulnerabilities by making our complex systems and networks resilient at a minimum level of risk proneness. The goal is not to preserve existing systems, but to preserve and even enhance critical to high-technology systems, where failure consequences can be particularly severe.

Analysing and modelling the resilience of these complex and large-scale engineering systems in the real-world has recently raised significant interest among both academia and industry. It has been recognised that such comprehensive development requires innovative theories, approaches and technologies for resilient design and risk reduction for complex systems and networks at systems scale. Such developments will facilitate further robust economic growth through resilient and efficient high-performance systems.

In this “Resilience Renaissance” era, efforts should be made to deliver more fundamental, conceptual, as well as applicable papers.

The objective and scope of this special issue is, to gather contributions from both academia and industry, to present the most recent advances in the field of theories and concepts for resilience assessment of engineering systems.

GUEST EDITORS

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TOPICS

- General conception of engineering systems resilience
- Resilience assessment approaches
- System and network models compatible to resilience analysis
- Approaches to capture uncertainties and indeterminacy in resilience assessment
- Uniform standards to define system resilience
- Resilient system design and maintenance strategies
- Risk and resilience analysis on practical systems

TIMELINE

- **31 July 2019** — Deadline for Manuscript Submissions
- **June 2020** — Special Issue Journal Publication Date

MANUSCRIPT SUBMISSION

Authors should prepare their manuscript following the guidelines in the ASCE Author Guide:
https://ascelibrary.org/doi/book/10.1061/9780784479018

Manuscripts can be submitted to the online peer review system: Part B. Mechanical Engineering
https://journaltool.asme.org/Authors/Author/Login?returnUrl=%2FAuthors%2FAuthor%2FSubmit%2FDetails%3FjournalID%3D27

Upon submitting, please select the Special Issue: SI033B; then assign the paper type as: Research Paper.

POTENTIAL CONTRIBUTORS

- Unsolicited manuscripts
- From participants of Mini-Symposium “Reliability and Resilience of Critical Infrastructure Systems and Networks” at ICASP13, 2017
- From participants of Mini-Symposium “Reliability Analysis in the Presence of Deep Uncertainties” at ICASP13, 2017
- From participants of Symposium “Resilience and Sustainability of Urban Systems” at ISRERM, 2018
- From ESREL, 2018
- Solicited based on the abstracts for ESREL, 2019

QUALITY ASSURANCE STANDARDS

The guest editors ensure that the special issue will include only the top quality contributions from the leading experts in the field. The standard review procedure of ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems will guarantee the quality of the accepted manuscripts. This will lead to high citations and high impact of the special issue.