

## ROBUST DESIGN OF STRUCTURES

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### ABSTRACT

The design of engineering structures is increasingly challenged by the need to ensure performance under uncertain and evolving conditions. From climate-induced hazards and seismic events to material variability and modeling inaccuracies, the sources of uncertainty in structural behavior are broad and complex. Traditional deterministic design methods often fall short in addressing these challenges sufficiently. In response, the concept of robust design—creating structures that maintain functionality across a wide range of scenarios—has emerged as a critical objective in structural engineering.

This mini symposium, "Robust Design of Structures" aims to bring together researchers and practitioners working across domains such as structural engineering, computational science, architecture, and computational design to explore how modern tools and interdisciplinary approaches can lead to safer and more resilient built environment. The symposium encourages contributions that address the theoretical foundations, computational strategies, and applications of robust design of load-bearing structures.

Key topics of interest include, but are not limited to:

- modeling and simulation of robust structures
- form finding and optimization for robust design
- basic concepts in structural mechanics
- distributed redundancy
- sensitivity analysis
- progressive collapse, risk, and fault tree analysis
- reliability and fail-safe design of structures
- uncertainty quantification for robust design