

Seismic Risk Analysis and Management of Structure Systems

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Deadline for manuscript
submissions:

closed (10 May 2024)

Message from the Guest Editors

Traditional deterministic approaches are somehow on course to be replaced by risk-based methods for the seismic analysis and design of structures and infrastructure systems. A noted merit of risk analysis is the provision of a broader set of rigorous performance indicators accounting for various sources of uncertainties involved in earthquake hazard analysis, infrastructure exposure modeling, and structural-damage assessment, particularly from a view of life-cycle management for aging infrastructure facilities under an increasingly deteriorating built environment. A reliable risk analysis is therefore crucial for pre-event planning and post-event restoration decision making.

This Special Issue aims to advance the state of the art and state of the practice in seismic risk analysis and management of both singular structures and interdependent infrastructure systems, including bridges, buildings, distributed lifeline structures, etc. Physics-based and/or data-driven risk analyses for infrastructure systems at regional levels are particularly welcome.



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Message from the Editor-in-Chief

Current urban environments are home to multi-modal transit systems, extensive energy grids, a building stock, and integrated services. Sprawling neighborhoods are composed of buildings that accommodate living and working quarters. However, it is expected that the cities and communities of the future will face complex and enormous challenges, including maintenance, interconnectivity, resilience, energy efficiency, and sustainability issues, to name but a few. A smart city uses advanced technologies and a digital infrastructure to improve the outcomes in every aspect of a city's operations. A smart building optimizes the experience of occupants, staff, and management by using a modern and connected environment. Innovations in technology that can bring dramatic improvements to design, planning, and policy are critical in developing the cities and buildings of the future.

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