

Challenges in the Numerical Simulation from Small to Large Scale Structures

Guest Editors:

Dr. André Furtado

Dr. Aires Colaço

Dr. Ana Ramos

Dr. Cláudio Horas

Dr. Sérgio Pereira

Deadline for manuscript
submissions:

1 October 2024

Message from the Guest Editors

This Special Issue aims to cover the recent advances and challenges in the numerical simulation of civil engineering structures. We invite the submission of new research, case studies, projects, reviews and state-of-the-art discussions related to the numerical simulation of structures. In addition, the works can be related to the following topics:

- Engineering optimization
- CAD Integration
- Multiscale and multiphysics applications
- Crash and impact simulation
- Strengthening and retrofitting
- Approximation techniques (FEM, FV, DEM, BEM, PUM and meshless methods, isogeometric analysis, phase-field modeling)
- Domain decomposition methods
- High order methods
- Coupling strategies (Fluid-structure interaction, multi-model, multiscale)
- Optimal control
- Error estimation and mesh/modeling adaptation
- Stochastic approaches, Uncertainty quantification
- Algorithms
- Parallel computing
- Code development
- High Performance Computing
- Image processing
- Mesh generation
- Machine learning and data-driven approaches



Editor-in-Chief

Prof. Dr. David Arditi

Construction Engineering and
Management Program,
Department of Civil,
Architectural, and Environmental
Engineering, Illinois Institute of
Technology, 3201 South
Dearborn Street, Chicago, IL
60616, USA

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.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within Scopus, SCIE (Web of Science), Inspec, and other databases.

Journal Rank: JCR - Q2 (*Engineering, Civil*) / CiteScore - Q1 (*Architecture*)

Contact Us

Buildings Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/buildings
buildings@mdpi.com
[X@Buildings_MDPI](https://twitter.com/Buildings_MDPI)