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Numerical Modeling in Mechanical Behavior and Structural Analysis

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Message from the Guest Editors

With the development of computational technology and the increasing demand for system behavior evaluation, numerical modeling has become a popular and powerful method in both academic research and engineering practice. When the project involves a complicated construction process, the geological stratigraphic distribution is complex, high uncertainties are embedded, or multi-scale analyses are required, numerical modeling in mechanical behavior and structural analysis is essential. To help overcome the hurdles faced by the application of numerical modeling, this Special Issue will highlight recent value-added contributions to the state of the art and state of practice for numerical modeling. We seek high-quality research manuscripts addressing key numerical aspects, including the following topics:

- Advanced simulation algorithms;
- Innovative numerical simulation methods;
- Multi-scale and multi-physics computational modeling;
- Artificial intelligence-aided numerical simulation;
- Building information modeling-aided numerical modeling;
- Full-life cycle evaluation of infrastructure;
- Coupling analysis in numeric;
- Case study using numerical method.

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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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