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Recent Developments in Vibration Control and Monitoring of Civil Structures

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Message from the Guest Editors

Dear Colleagues,

Civil structures are prone to different types of dynamic loads, e.g., earthquakes, strong wind, ocean waves. To avoid the risk of structural damage, or ultimately collapse, there is a need for the installation of structural control and monitoring systems in the structures. As expected, novel structural designs often require the development of novel control and monitoring systems, with improved performance characteristics compared to traditional solutions.

This Special Issue aims to garner excellent research involving several aspects of theoretical development, algorithms, design, experiment, and practical implementations of control and monitoring systems in civil structures. Topics of interest include but are not limited to the following:

- Design of novel high-performance dampers/sensors;
- Modeling of novel dampers/sensors;
- Experiments of novel damping/monitoring systems;
- Performance of novel dampers against extreme events;
- Structural identification based on monitoring data;
- Novel algorithms for identifying structural parameters and loadings.

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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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