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Editorial

Resilient Civil Infrastructure under Dynamic Loadings

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A resilient infrastructural system is an important component of a modern city. The main principles are safety, sustainability, functionality, maintainability, and fast recoverability following natural and/or man-made hazards. This special issue addresses new research developments in resilient infrastructural systems under dynamic loadings, for example, wind, traffic, tsunamis, and earthquakes.

In total, 39 submissions have been received and 12 papers have been finally selected for publication. Two papers address the interactional response of soil and structures: "Study on Vibration Reduction Method for a Subway Station in Soft Ground" by Ma et al. and "Numerical Study on the Seismic Response of Structure with Consideration of the Behavior of Base Mat Uplift" by Wang et al. The structural collapse behaviour and its influence on ground vibration are addressed in "Development of Practical Finite Element Models for Collapse of Reinforced Concrete Structures and Experimental Validation" by Bermejo et al., "Study on Progressive Collapse Behavior of SRC Column-Steel Beam Hybrid Frame Based on Pushdown Analysis" by Chu et al., and "Mitigation of Ground Vibration due to Collapse of a Large-Scale Cooling Tower with Novel Application of Materials as Cushions" by F. Lin and Q. Zhong. Three articles focus on the seismic load estimation and seismic structural behaviour as shown in "Source Parameter Estimation Method for Assessment of Structural Resiliencies" by Z. Wang and B. Zhao, "High Performance Damage-Resistant Seismic Resistant Structural Systems for Sustainable and Resilient City" by J. Wang and H. Zhao, and "Shake Table Study on the Effect of Mainshock-Aftershock Sequences on Structures with SFSI" by X. Qin and N. Chouw. Zhang et al. present the nonlinear behaviour of transmission tower-line systems in "Wind-Induced Coupling Vibration Effects of High-Voltage Transmission Tower-Line Systems" and "Nonlinear dynamic analysis of high-voltage overhead transmission lines." He et al. propose a new dynamic force reconstruction method in "Adaptive Reconstruction of a Dynamic Force Using Multiscale Wavelet Shape Functions." Z. Song and C. Su present an approach for estimating structural damping in "Computation of Rayleigh Damping Coefficients for the Seismic Analysis of a Hydro-Powerhouse."

We hope that the papers in this special issue are useful to readers, and the publication of the special issue will stimulate further research in the area of resilient infrastructures.

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