Advances in Methods for Performance Characterization and Prediction of Reinforced Concrete

Guest Editors:

Dr. Jiaolong Ren
School of Civil and Architectural Engineering, Shandong University of Technology, Zibo 255000, China

Dr. Jiandong Huang
School of Civil Engineering, Guangzhou University, Guangzhou 510006, China

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Message from the Guest Editors

Reinforced concrete is very important for buildings and construction. However, conventional concepts and approaches in performance characterization and prediction of reinforced concrete are not always appropriate for current requirements of durability and toughness for civil engineering. Notwithstanding the enormous efforts of academic researchers and industry, a general solution for performance characterization under special conditions (e.g., dynamic loads, freeze thawing) and high-efficiency performance prediction (e.g., big data, uncertainty, self-adaption) remains to be further discussed. This Special Issue aims to collect both original research and review articles regarding innovative methods for performance characterization and prediction of reinforced concrete materials and structures.

Potential topics include but are not limited to:

- Multiscale analysis;
- Image processing technology;
- Thermal analysis;
- Machine learning method;
- Data-driven method;
- Uncertainty quantification;
- Special loading conditions (dynamic loads, freeze thawing, etc.).

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Special Issue

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.

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