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Emerging Techniques in Concrete Materials and Structures: Experiments, Theories and Applications

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Message from the Guest Editors

Dear Colleagues,

As is well-known, concrete has played a significant role in human society since its invention. In response, emerging techniques, such as ultra-high-performance concrete (UHPC), coral aggregate concrete (CAC), and seawater sea–sand concrete (SSC), have emerged. Furthermore, the development of low-carbon and eco-friendly concrete is becoming increasingly popular, due to human concerns for their living environment. Evaluating the structural performance while applying these promising techniques in engineering structures is essential. In recent years, machine learning (ML)-based and vision-based methods in structural evaluation have received significant attention and have become supplements to traditional evaluation methods.

This Issue aims to invite high-quality contributions on the emerging techniques in concrete materials and structures. Authors are encouraged to submit original papers presenting new materials or structures, theoretical, and/or application-oriented research, including models, algorithms, and applications. Additionally, review papers on these topics are also welcome.

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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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