

## High-Performance Concrete: Modification Methods, Sustainability, and Multifunctional Applications

Guest Editors:

**Dr. Yekai Yang**

**Prof. Dr. Weiqiang Wang**

**Dr. Yiwei Weng**

**Dr. Zhaoyao Wang**

**Dr. Qiao Wang**

**Dr. Ruizhe Shao**

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### Message from the Guest Editors

High-performance concrete or ultra-high-performance concrete (HPC/UHPC) have received extensive attention over the past few decades. Compared to traditional concrete materials, HPC/UHPC not only has extremely high mechanical properties, but also has high ductility. Meanwhile, due to the addition of SCMs and additives, it has excellent durability. These characteristics make HPC/UHPC suitable for use in a great variety of application scenarios, such as in 3D printing construction, dry concrete construction, protective reinforcement, etc.

Although there is increasing research on HPC/UHPC, many challenges and research barriers remain unresolved and require that further innovative exploration be conducted. This Special Issue aims to provide a platform to showcase the latest developments in HPC/UHPC at the material and structural scales.

This Issue will publish high-quality original research papers in the following fields. These include, but are not limited to:

- (1) Latest modification methods and mechanism analysis;
- (2) Low carbon, energy-saving, and sustainable;
- (3) 3D printing performance and structural applications;
- (4) Multiple application scenarios.



## 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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*Buildings* Editorial Office  
MDPI, St. Alban-Anlage 66  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
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