

Special Issue

Mechanical Performance of Ultra-High-Performance Concrete (UHPC) and Its Composite Structures

Message from the Guest Editors

Ultra-high-performance concrete (UHPC) is an advanced, durable construction material with excellent mechanical properties, which make it attractive not only for building new structures, but also for strengthening, repairing, and retrofitting damaged structures. An increasing interest in UHPC results in a broad range of applications for the structures, such as buildings, bridges, offshore structures, highway pavement, etc. Thus, investigation of the static, fracture, fatigue, and durability behavior of UHPC material and UHPC composite structural elements is essential for designing or retrofitting structures consisting of UHPC. Moreover, in the application of UHPC composite structures (such as UHPC–concrete composite bridge decks, UHPC–steel composite structures, FRP-reinforced UHPC structures, etc.), the interfacial behavior between UHPC and the corresponding material is one of the key factors determining the durability and service life and requires a detailed understanding.

Guest Editors

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Deadline for manuscript submissions

closed (30 April 2024)



Buildings

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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.

Editor-in-Chief

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