Special Issue

High-Strength, High-Ductility, Low-Carbon and Sustainable Modern Cementitious Materials

Message from the Guest Editors

Cement and concrete are the backbone of modern infrastructure, yet their performance limitations and environmental impact present ongoing challenges. Traditional cementitious materials often struggle to meet the demands of contemporary engineering projects, particularly in terms of durability, mechanical properties, and sustainability. Over the past decade, significant advancements have been made in developing high-performance cement and concrete, incorporating novel materials and techniques to enhance structural integrity and longevity while reducing the carbon footprint of production. Despite these breakthroughs, widespread adoption of these advanced materials remains hindered by issues such as cost, compatibility with existing construction practices, and the complexity of optimizing their performance. This Special Issue aims to highlight the most recent developments in high-performance cement and concrete, exploring innovative solutions that push the boundaries of material science and engineering. Contributions are welcome to focus on the intersection of performance improvement, environmental impact, and practical applications.

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About the Journal

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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