Special Issue

Application and Characterization of Innovative Cementitious Materials in the Construction Industry

Message from the Guest Editor

For many years, the cement industry has been the main contributor to greenhouse gas emissions, making reducing its environmental impact a central theme for civil engineering research. A solution could be found by increasing the lifespan of construction elements, either through the adoption of innovative cementitious mixtures or through early damage detection. In this way, extensive repairs or rebuilding could be avoided. To meet these requirements, a search for more durable and high-performance cementitious mixtures has been initiated. This Special Issue will gather research papers on the topic of such innovative cementitious blends, comprising various additives that provide exceptional characteristics, such as improved durability, increased mechanical strength, or self-healing characteristics. Examples of additives include pozzolanic binders, nano-additives, recycled materials, hydrogels, and fibers. The Special Issue will also welcome papers on novel testing methodologies, e.g. non-destructive techniques, that allow us to increase structures' service lives through early damage detection or the monitoring of newly developed properties.

Guest Editor

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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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