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Research on Development of Low Carbon Cementitious Materials

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Deadline for manuscript submissions:
closed (15 February 2024)

Message from the Guest Editors

Dear Colleagues,

Concrete, being the second most consumed material globally, has become a significant contributor to carbon dioxide emissions due to its extensive use. Promoting the use of waste materials or industrial by-products as primary resources in the construction industry and developing resource and construction technology circularity are essential steps towards achieving this aim.

Topics for the Special Issue include (but are not limited to) the following:

- Low-carbon and green cement;
- Sustainable design of concrete;
- Sustainable and green fibre-reinforced cementitious composites;
- Construction and demolition (e.g. concrete waste) waste recycle and reuse in cementitious composites;
- Waste/by-product (industry, agriculture, mining, etc.) recycling and reuse (e.g., glass waste and plastic waste) in cementitious materials;
- 3D printing of concrete and cementitious material for sustainable construction technology;
- Carbon capture and utilization in cementitious materials;
- Nanotechnology and nanomaterials for sustainable cementitious composites;
- Nature-inspired cementitious materials;
- Life cycle assessment (LCA) of low-carbon cementitious materials;

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Special Issue

Guest Editors

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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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