# Special Issue

# Innovative Smart Materials for Resilient Buildings and Transportation Systems

## Message from the Guest Editor

This Special Issue focuses on emerging smart construction materials that enhance the durability, sustainability, and performance of buildings and infrastructure systems. As the demand for resilient and low-maintenance structures increases, smart materials—such as self-healing composites, bacterial-based concrete, and shape memory alloys and polymers—offer transformative capabilities for extending service life, reducing repair costs, and improving structural reliability under diverse environmental conditions. We invite original research and review articles that explore the development, characterization, modeling, and application of smart materials across civil, architectural, and transportation engineering domains. Topics of interest include, but are not limited to, the following:

- Smart and self-healing materials;
- Shape memory materials;
- Experimental and field investigations;
- Modeling, optimization, and machine learning;
- Sustainable integration;
- Infrastructure applications.

This Special Issue aims to highlight innovative approaches and foster interdisciplinary collaboration that advances the science and practical application of smart materials in the built environment.

## Guest Editor

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## Deadline for manuscript submissions

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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

Prof. Dr. David Arditi
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manuscripts are peer-reviewed and a first decision is provided to authors approximately 14.9 days after submission; acceptance to publication is undertaken in 2.7 days (median values for papers published in this journal in the first half of 2025).