Special Issue

Advances in Nondestructive Testing of Structures

Message from the Guest Editors

Structures and infrastructure are susceptible to different types of damage as they age or experience altering events. Moreover, it is acknowledged that even if a structure survives a catastrophic event (such as a large earthquake) and remains undamaged, it may not be able to survive future catastrophic events (such as aftershocks or a typhoon). This is why a continuous structural assessment is necessary for structures and infrastructure, both during their lifetime and in the aftermath of a catastrophic incident. Thus far, the structural assessment of cities has heavily relied on visual inspections, which suffer from three significant drawbacks, as follows: 1) subjective judgment, 2) lack of experts, and 3) lengthy process. The aim of this Special Issue is to provide a scientific basis and offer practical solutions for smart city-based structural health monitoring through the application of nondestructive testing methods.

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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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