Special Issue

Optical Fiber Sensing and Complementary Technologies for Structural Safety Monitoring of Key Infrastructure

Message from the Guest Editors

This Special Issue focuses on the latest advances, applications and innovative technologies of optical fiber sensing-based structural safety monitoring, emphasizing key infrastructure like subgrades, slopes, wind power structure, hydraulic structure and other structures. These structures are prone to degradation or failure due to environmental erosion, dynamic loads and material aging, making real-time, high-precision monitoring essential. It covers core optical fiber sensing (FBG, DVS/DAS, DSS) and complementary methods (WSN, GNSS, piezoelectric sensors, etc.). The main topics to be covered include, but are not limited to:

- Optical Fiber Sensing Technology;
- Structural Safety Monitoring;
- Subgrade Monitoring;
- Wind Farm Monitoring;
- Slope Monitoring;
- Fiber Bragg Grating (FBG);
- Distributed Vibration Sensing (DVS);
- Distributed Strain Sensing (DSS);
- Piezoelectric sensors;
- InSAR.

We welcome original papers, reviews and case studies on related topics. It aims to provide an academic platform, promote industrial application, address challenges and point out future directions.

Guest Editors

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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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