Special Issue

Intelligent Sensing Technology for Structural Vibration Control and Non-Destructive Testing

Message from the Guest Editors

Structural vibrations are widespread phenomena, impacting civil structures during seismic events, bridges under vehicle loads, high-rises in strong winds, and mechanical equipment during operation. Effective vibration control and damage monitoring are crucial for maintaining structural integrity. Advances in high-precision sensors—such as accelerometers, fiber Bragg gratings, piezoelectric sensors, and vision-based sensors—along with improvements in multi-source data fusion algorithms, have facilitated their application in critical infrastructure, including bridges, high-rises, wind turbines, and industrial machinery. Limitations in sensing accuracy, delays in feature extraction, and inadequate control strategies often reduce their effectiveness in capturing rare or extreme vibration modes, thereby impeding accurate damage detection. This Special Issue welcome contributions on topics including, but not limited to: the development of intelligent sensors, AI-powered vibration monitoring, multi-sensor fusion for disaster simulation in infrastructure, and advanced safety early warning systems.

Guest Editors

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Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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