Editorial

Smart Sensing Technologies and Their Applications in Civil Infrastructures

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With the rapid development of urbanization in some developing countries such as China, India, and Brazil, numerous huge civil infrastructures have been built in recent years. The performance of these structures during construction, operation, maintenance, and repair becomes a major concern. In order to accurately assess the health condition of engineering structures and prevent potential failure, a variety of smart sensing technologies and methods have been successfully developed in the past few decades, such as fiber optic sensing (FOS), wireless sensor network (WSN), acoustic emission (AE), time domain reflectometry (TDR), microelectromechanical system (MEMS), global position system (GPS), particle image velocimetry (PIV), and laser scanning. Due to their inherent advantages, these technologies have played an increasingly important role in health monitoring of different types of civil infrastructures.

The aim of this special issue is to present original research articles on smart sensing technologies and their applications in civil infrastructures. The topics cover various aspects including novel smart sensing mechanisms and devices for civil infrastructures; applications of smart sensors and sensing systems in civil infrastructures; in-field implementation of structural health monitoring and diagnosis systems; supporting technologies and methodologies in monitoring civil infrastructures, such as real-time data acquisition and processing, data transferring, remote management, and performance evaluation; and typical case study of sensing applications and civil infrastructures monitoring.

The papers in this special issue are expected to provide in-depth insights into the development and applications of smart sensing technologies in civil infrastructures and be useful for civil engineering practitioners and researchers.

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