

Special issue on New Development in Structural Health Monitoring

Preface

Structural health monitoring (SHM) has been a cutting-edge and promising technology in the engineering community. With SHM systems instrumented on engineering structures, a huge amount of monitoring data regarding the environmental conditions, external loadings and structural responses can be acquired in a real-time and continuous manner. The real-world monitoring data is of great significance in assessing the health and safety status of civil infrastructure. Despite great advances in SHM research and application over the past three decades, some challenges are still existent, such as (i) how to bridge the gap between the SHM and the inspection and condition-based maintenance of civil infrastructure, (ii) how to cope with the high level of uncertainties inherent in the monitoring data during the execution of structural condition assessment and damage detection, and (iii) how to achieve more effective structural condition prognosis and health management with the aid of SHM techniques.

This special issue contains the extended version of selected papers that were presented at the mini-symposium (MS) “New Development in Structural Health Monitoring” organized by the guest editors during the 2015 World Congress on Advances in Structural Engineering and Mechanics held on 25 to 29 August, 2015 in Incheon, Korea. A total of 14 papers have been finally accepted and included in this special issue after a rigorous peer review process. The papers presented in this issue address the following MS theme-relevant topics: structural damage detection, system and force identification, sensor development and fault diagnosis, monitoring-based condition and durability assessment, and data-driven structural performance prognosis.

The guest editors are grateful to all the authors for contributing their latest research work to this special issue. We would like to express our sincere appreciation to the reviewers for their valuable and insightful comments. The guest editors also thank Professor C.B. Yun, Editor-in-Chief of SSS, for his great support in organizing this special issue.

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