

## **Special Issue on Advances and Applications for Structural Health Monitoring in Marine and Civil Infrastructures**

### **Preface**

The special issue of *Smart Structures and Systems, an International Journal of Mechatronics, Sensors, Monitoring, Control, Diagnosis, and Life Cycle Engineering*, contains the papers invited from those presented at the 2013 World Congress on Advances in Structural Engineering and Mechanics (ASEM13) held in Jeju, Korea on September 8-12, 2013 and the 2014 World Congress on Advances in Civil, Environmental, and Materials Research (ACEM14) held in Busan, Korea on August 24-28, 2014. In the two conferences, several special sessions were organized on a variety of research subjects of structural health monitoring and damage detection in marine, coastal and civil infrastructures, by reflecting recent societal concerns and public attentions.

This special issue on *Advances and Applications for Structural Health Monitoring in Marine and Civil Infrastructures* is organized into two main categories. The first six articles focus on specific SHM studies for marine and coastal infrastructures: subsea pipeline monitoring with distributed fiber optical sensors, vibration-based structural identification of gravity-type caissons, electro-mechanical impedance sensing on tidal current power jackets, anchor collision analysis for submarine power cables, damage detection in deep water risers, and experimental modal analysis and environmental effect on fixed type offshore structures. The subsequent eight articles address on a variety of SHM subjects for civil infrastructures: model reduction technique for optimal sensor placement, local dynamic characteristics of cable anchorage for electro-mechanical impedance monitoring, Bayesian approach for bridge vibration monitoring, structural nonlinearity identification using incomplete structural responses, sub-structural system identification of cable stayed bridge, experimental modal identification of cable stayed bridge under typhoons, thermal gradient analysis for arch bridge girders, and Kalman filter-based strain estimation.

We hope that the readers may find this special issue interesting and useful for their future studies related to improving the safety and reliability and reducing the risk and uncertainty of various structures of their interests. We would like to express our sincere appreciation to the authors for their great contributions to this special issue. We particularly wish to express our gratitude to Professor C.K. Choi of KAIST and Professor C.B. Yun of UNIST for their support and encouragement in the preparation of this special issue.

Guest Editors

Jeong-Tae Kim, Pukyong National University, Korea  
Jin-Hak Yi, Korea Institute of Ocean Science and Technology, Korea