

## Preface

### **Special issue on Structural Health Monitoring: From Data to Decision Making**

In order to raise the recognition of SHM in Australia, a group of researchers in Australia joined together and established the Australian Network of Structural Health Monitoring (ANSHM) on 30 June 2009. The objectives of ANSHM are to promote and advance the field of SHM in Australia on behalf of its members, and specifically to: 1) Coordinate and integrate efforts for better development and application of SHM techniques in Australia; 2) Showcase achievements, exchange ideas and disseminate knowledge nationally and internationally; 3) Promote and facilitate national and international collaborative research and development; 4) Raise general community awareness on the need for and value of SHM research and application.

This special issue aims to showcase the Australian research in SHM. The main theme is “from data to decision making”. The massive volume of data created by those sensors in SHM systems brings not only new opportunities for modelling and analysis, but also challenges for computation and processing. By processing continuously acquired information, smart structures can learn about users, environment, energy, and resources within and surrounding themselves, as well as providing valuable information for making decisions for maintenance and management. On the other hand, there are some scientific challenges, including efficient data acquisition, proper data normalization, fusion and integration, and robust data mining for damage detection, especially for structures with high uncertainties in their characteristics and environmental conditions. This special issue focuses on the development of various algorithms for damage detection and bridge management, including the methodologies for performance evaluation of the aged civil structures toward retrofitting solutions.

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