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Jayantha A. Epaarachchi
Alan Kin-tak Lau
Jinsong Leng
Editors

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Introduction

The Fourth International Conference on Smart Materials and Nanotechnology in Engineering (SMN 2013) was co-organized by Harbin Institute of Technology, University of Southern Queensland, and The Hong Kong Polytechnic University, and took place 10–12 July 2013 at Gold Coast, Australia.

Recently, the design of a new material with a multi-functional capability has become a key research focus in all materials science and engineering discipline. "Smart material" is one having a structure at the nano-structural level that responds in a particular and controlled way to influences upon it. These range from magnetically changed materials, to "memory" molecules that return to their original form, to materials that generate an electric charge when pressed, twisted, or warped. To some extent, a structure made by this material or more than one type of this material incorporated with an appropriated sensor system has been well defined as a "smart structure", that can be used for the implementation of a damage and performance detection strategy for aerospace, civil, and mechanical engineering and other applications.

Since the last decade, an increasing interest in the development of miniaturized structures and systems, particularly on micro- and nano-electromechanical systems (MEMs and NEMs), and integrated biosensor systems has evolved a new page in the area of smart materials and nanotechnology. The scope of this conference was mainly focused on smart materials and structure, and nanotechnology for different engineering applications ranging from nano-structural and biosensor systems to large scale structures, like smart wind turbine technology and solar energy systems for space vehicles. The topics covered in the conference were in the following areas:

- Sensors and actuators
- Fibre-optic sensor technology
- Multifunctional materials
- Nano-structural composites
- Bio-inspired materials and structures
- Mechanics and modeling
- Applications.

On behalf of the conference chairmen, we would like to express our sincere thanks to all the participants for their scientific contribution to this conference. We convey our gratitude to all the reviewers for their time and dedication to read through all submitted papers and provide a fair judgment on their suitability for

presentation. We applaud SPIE for their support to include all accepted papers in these proceedings.

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