

Seminar

Date: 19 October 2009 (Monday)

Time: 11:00 am - 12:00 pm

Venue: EF 305, The Hong Kong Polytechnic University

Structural Health Monitoring Using Smart Sensing Technologies and Advanced Signal Processing

Prof. W.J. Staszewski

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Abstract:

Maintenance of structures is important in many areas of aerospace, civil and mechanical engineering to ensure structural integrity and safety. There exist a variety of different Non-Destructive Testing (NDT) methods used for damage detection. The majority of these methods were developed in the 1960s. Recent years have shown a range of new damage detection techniques and sensing technologies. These methods allow for global, on-line monitoring of large structures and fall into Structural Health Monitoring (SHM) area. They are capable of achieving continuous monitoring for damage also thanks to the application of new sensors. Damage monitoring systems which use smart sensor technologies are concerned with a design philosophy directed to the integration of actuators, sensors, and signal processing. This approach will be demonstrated using application examples from crack detection in metals and impact damage detection in composites. A variety of different damage detection methods, sensing technologies and signal processing techniques will be presented.

Biosketch:

Prof. Wieslaw Staszewski is a Professor of Mechanical Engineering at Sheffield University. He has experience of research collaborative projects both in the UK and Europe, working with industrial partners, EU and research agencies. He is the author of over 200 research publications, predominantly in damage detection and advanced signal processing areas. This includes one monograph on wavelets for damage detection and eleven book contributions. Prof. Staszewski is the Associate Editor of four international journals. He has been involved in organisation of a number of international conferences and invited to present seminars, lectures, conference keynote addresses in the UK, Europe, USA and Asia. Prof. Staszewski is a Fellow of the Institute of Physics and the Institution of Mechanical Engineers.

* Refreshment will be served after the seminar.