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## Fabio Casciati, Michele Giordano – Structural Health Monitoring 2010

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Structural Health Monitoring (SHM) is a modern branch of Structural Engineering covering applications in military, transportation, construction, energy and industrial processes fields.

This book contains five keynote lectures, 44 papers organized in special sessions and a total of 155 papers for regular sessions, which were tailored consistently with those planned at the IWSHM held in Stanford one year ago. This is an attempt to drive the attendance toward general areas, rather than to offer it specialty themes. Also the experience of the special session was already experimented successfully last year at IWSHM.

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«Structural Damage Localization for Truss Structures Robust Against Time Synchronization Errors in a Wireless Sensor Network» by G. Yan and S.J. Dyke

«Application of Online NDT Techniques to Decommissioned Bridge Testing» by H. Sohn, Y.-K. An, M.K. Kim and H.J. Lim

«Vehicle Tracking Using Mobile Wireless Sensor Networks During Dynamic Load Testing of Highway Bridges» by J. Kim, J.P. Lynch, J.-J. Lee and C.-G. Lee

«A Real-Time Multi-Channel Wireless Sensing System for Analog Cable Replacement Application» by S. Casciati, L. Faravelli and Z.-C. Chen

«Cable Stress Monitoring for a Cable Stayed Bridge» by Y. Cao and M.L. Wang  
Ultrasonic Guided Wave Propagation for SHM of Engineering Structures

«Characterization of Guided-wave Attenuation in Composite Plates» by K.S. Nadella, C.E.S. Cesnik and K.I. Salas

«Local Damage Detection Process for Aging Steel Bridge Joints» by S. KR. Yadav, S. Banerjee and T. Kundu

«Ultrasonic Crack Monitoring at High Temperatures Using SH Waves (>500°C)» by F.B. Cegla, J-O. Davies and A. Jarvis

«Damage Detection in a Real Complex Structure with a Guided Wave SHM Sparse Array System—Performance and Artefact Suppression» by T. Clarke and R. Cawley

«Monitoring of a Wind Turbine Rotor Blade with Acousto Ultrasonics and Acoustic Emission Techniques During a Full Scale Fatigue Test» by E. Schulze, L. Schubert and B. Frankenstein

«Ultrasonic Guided Waves in Continuously Welded Rails for Buckling Prediction» by I. Bartoli, R. Phillips, S. Coccia, F. Lanza Di Scalea, S. Salamone, A. Marzani, M. Faten and G. Carr

«Ultrasonic Guided Waves SHM for Sign Support Structure» by X. Zhu, P. Rizzo and J. Bruck

«Beamforming of Wavefield Data After Frequency-Wavenumber Filtering for Damage Detection» by B. Xu and M. Ruzzene

«Two-Dimensional Periodic Arrays for Structural Health Monitoring: Theory and Experiments» by B. Xu, M. Ruzzene and M. Senesi

«Analysing Guided Wave Propagation with Ultrasonic Imaging Methods for the Optimisation of a Helicopter Tail Boom SHM System» by W. Hillger, A. Szewieczek and D. Schmidt

«Effects of Applied Loads and Temperature Variations on Ultrasonic Guided Waves» by J.E. Michaels, S.J. Lee and T.E. Michaels

#### Industrial Smart Material Applications (ISMA)

«Sensor-Embedded Textiles for the Reinforcement, Dynamic Characterisation, and Structural Health Monitoring of Masonry Structures» by T.B. Messervey, D. Zangani and C. Fuggini

«Miniature Fiber-Optic MOMS Piezometer» by D. Inaudi, E. Pinet, F. Juneau and C. Rodrigues

«Laboratory and Field Comparison of Long-gauge Strain Sensing Technologies» by C. Rodrigues and D. Inaudi

«Development and Testing of Uni-Directional Sensor-Embedded Reinforcing Textiles for Masonry Applications» by A. Coricciati, P.A. Corvaglia, A. Largo and G. Fardin

«Geotechnical Monitoring of Construction Activities by Distributed Fiber Optic Sensors Embedded in Geotextiles» by J. Schneider-Gloetzel, R. Gloetzel, K. Krebber, S. Liehr, M. Wendt and A. Wosniok

«Static Deformation Measurements with Fiber-Optic Sensors: A Long-Term Monitoring Experiment on R.C. Beams» by F. Lanata and A. Del Grosso

«Frequency Characteristic Evaluation of FBG Sensor Using a Hopkinson's Bar» by T. Nakajima

«Health Monitoring of a Railway Bridge by Fiber Optic Sensor (SOFO)» by Y. Kawano, T. Mikami and F. Katsuki

«Carbon Nanosensors for Health Monitoring of PZT Bondline During Curing and Its In-Service Life» by G. Lanzara, L. Zhang and F.-K. Chang

#### Isma Thematic Session: Hot Spot Applications for Structural Health Monitoring

«A Wavefield Imaging Technique for Delamination Detection in Composite Structures» by H. Sohn, D. Dutta, J.Y. Yang, M.P. Desimio, S.E. Olson and E.D. Swenson

«Interaction of Elastic Waves with Corrosion Damage» by E.D. Swenson, M.P. Desimio, S.E. Olson and H. Sohn

«Interaction of Lamb Waves with Structural Features of an Aircraft Fuselage» by S.E. Olson, M.P. Desimio, E.D. Swenson and H. Sohn

«Lamb Wave Decomposition Using Amplitude Matching with Concentric Circular PZT Transducers» by C. Yeum, H. Sohn and J.-B. Ihn

«Design Framework Validation for a Hot Spot on Complex Aircraft Structures» by J.-B. Ihn, M.S. Leonard, S.E. Olson and M.P. Desimio

«Damage Detection in a Bonded Composite Wing» by M.S. Leonard and K.S. Brown

«Rotorcraft's Hot Spot Monitoring Using Distributed Smart Patch System» by S. Banerjee, S. Beard and X.P. Qing

«Complex Aircraft Structures Inspection Based on Anomalous Wave Propagation Imaging Method» by C.C. Chia, J.-R. Lee, C.-I. Park, J. He. Kim, J. Ho. Kim and M.J. Choi