

PROGRAM

Tuesday 14 July @ 1800 – Reception and Registration at the Point Grill, UBC

CANSMART/SMN 2015
International Conference
SMART MATERIALS, STRUCTURES & NANOTECHNOLOGY
 Vancouver, British Columbia, Canada
Wednesday 15 July 2015

0800 Registration

0820 Welcome & Opening address: Prof. Jinsong Leng and Prof. George Akhras

0830 Session #1: Keynote Presentations: Moderator: Prof. Jinsong Leng

Prof. Farhad Ansari : *Monitoring and Condition Assessment of Bridges with Optical Fibers*

Prof. Lei Jiang : *Bio-Inspired Interfacial Materials with Super-Wettability*

1000 - Coffee Break

1030 Session# 2 Moderator: Prof. Christian Boller

1030 Remote Structural Health Monitoring of Grand River Bridge at Cayuga
Au, A.M.C.
 Ministry of Transportation, Ontario, Canada.

1055 A Structural Health Monitoring System of a Wooden Warren Truss
Locklin, L., Akhras, G.
 Center for Smart Materials and Structures, Royal Military College of Canada.

1120 Polarization Diversity Scheme for High Performance Vibration Detection in Φ -OTDR system
Ren, M., Lu, P., Chen, L and Bao, X.
 University of Ottawa.

1145 Investigations on Non-Stationary Excitation Design for Optimal Vibration-Based Structural Damage Detection
Georgantopoulou, A. S.¹, Fassois, S. D.^{1,2}
¹University of Patras, Greece, ² Khalifa University (KUSTAR), UAE

1030 Session # 3 Moderator: Ms. Sumitra Rajagopalan

1030 Effect of Nano-Structural Shape on the Mechanical Response of SiC/Cu Interpenetrating Phase Nanocomposites: A Molecular Dynamics Study
Shadlou S., Wegner, L.D.
 University of Saskatchewan, Canada.

1055 Study on Electric Properties of Graphene and Carbon Black Nanoparticles as Compliant Electrode for Dielectric Elastomer Actuators
Mose, F., Pourazadi, S., Wantono, C., Menon, C.
 MENRVA group, SFU

1120 Silver Nanowire Arrays for LSPR-Based Gas Sensing Applications
Siegel, J., Řezníčková, A., Kvítek, O., Krajcar, R., Polivkova, M., Švorčík, V.
 University of Chemistry and Technology Prague.

1145 Analysis of CNTFET Current Transport Model for Logic Gate Application
Farhana, S., Alam, AHM. Z., Klan, S.
 International Islamic University Malaysia.

1210 - Lunch

<p>1330 Session# 4 Moderator: Prof. Alfredo Güemes</p> <p>1330 Precision of Imaging Algorithm Based on ToF Estimation of Guided Waves: Experimental Assessment <i>Le Duff, A.^{1,2}, Quaegebeur, N.³, Ostiguy, P.-C.³, Masson, P.³</i> ¹Groupe ESEO, ²LUNAM Université, ³GAUS, Université de Sherbrooke</p> <p>1355 Optimization of Bridge Inspection Procedures with Structural Health Monitoring Technologies <i>Cusson, D., Lounis, Z., Ozkan, I.</i> National Research Council Canada.</p> <p>1420 A Novel Response-Based Approach to Localize Low Intensity Damage of Beam-Like Structures <i>Shahsavari, V.¹; Bastien, J.¹; Chouinard, L.²; Clément, A.¹</i> ¹Laval University, ²McGill University.</p> <p>1445 Crack Growth Monitoring in Composite Materials using Embedded Optical Fibre Bragg Grating Sensor <i>Pereira, G., Mikkelsen, L., McGugan, M.</i> Technical University of Denmark.</p>	<p>1330 Session # 5 Moderator : Prof. Claus-Peter Fritzen</p> <p>1330 Design and Fabrication of Fused Silica based Nano-platform for DNA Templating <i>Mahshid, S., Berard, D., Ahamed, J., Sladek, R., Leslie S., Reisner, W.</i> McGill University</p> <p>1355 A Coated Carbon Nanotube Sensor Network for In-situ Active Sensing of Ultrasonic Elastic Waves <i>Li, W.¹, Liu, L.¹, Zhou, M.¹, Zhang, H.², Lu, Y.², Su, Z.¹, Hong, M.¹, Liu, M.¹, Xu, H.¹, Lu, B.¹</i> ¹Hong Kong Polytechnic University, ²City University of Hong Kong.</p> <p>1420 Fabrication of Nano-sized Nb-Ni-Zn-Ferrites by Combustion Synthesis and Ultrasonic Agitation Methods <i>Goo, D.Y.¹, Choi, Y.¹, Kim, C.T.², Hong, S.I.²</i> ¹Dankook University, Republic of Korea, ²Jungwha Nano Eng</p> <p>1445 LSPR based Sputtered thin Au film Sensor System Study <i>Řezníčková, A., Kvítek, O., Siegel, J., Švorčík, V.</i> University of Chemistry and Technology Prague.</p>
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1510 - Coffee Break

<p>1540 Session# 6 Moderator: Prof. Patrice Masson</p> <p>1540 PZT-based Guided Wave Dispersion Curves of Layered Pipe Structures for Damage Detection <i>Yan, S.^{1,2}, Cheng, Y.¹, Li, Y.^{1,2}, Chang, H.¹, Liu, D.¹</i> ¹Shenyang Jianzhu University, China, ²Dalian University of Tech</p> <p>1605 Sparse Solution Strategy for Simultaneous Localization and Magnitude Estimation of Impact Loads <i>Ginsberg, D.¹, Fritzen, C.-P.^{1,2}</i> ¹University of Siegen, Germany. ²Center of Sensor Systems, University of Siegen, Germany</p> <p>1630 Learning A Regression Model for A Stretchable Electro-Active Polymer Sensor <i>Pourazadi, S.¹, Moein, H.¹, Ranjbar, S.², Wantono, C.¹, Menon, C.¹</i> ¹MENRVA group, SFU, ²School of Computing Science, SFU</p>	<p>1330 Session # 7 Moderator: Prof. Spiliios Fassois</p> <p>1540 Strain Effect on Thermal Conductivity of Graphene/Silicene Superlattice Nanoribbon <i>Zhao, J, Chen, J.</i> Harbin Institute of Technology, China.</p> <p>1605 Study of Tri-metal Catalyst for Bio-alcohol Fuel Cell <i>Lo, A.¹, Chung, Y.², Shu, Y.¹, Hung, W.², Tseng, C.², Lin, C.²</i> ¹National Chin-Yi University of Technology, Taiwan, ²Fen Chia University, Taiwan</p> <p>1630 Simulation Based Smart Sensing Design for Fatigue Damage Detection in CFRP Using Nonlinear Phenomena <i>Boller, C.¹, Bagchi, S.², Sridaran Venkat, R.¹, Starke, P.¹, Mitra, M.²</i> ¹Saarland University, Saarbrücken/Germany, ²Indian Institute of Technology, Mumbai/India</p>
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0800 Registration

0830 Session #8: Keynote Presentations: Moderator: Prof. Afzal Suleman

Dr. Yoseph Bar-Cohen: *Humanlike Robots as Platforms for Enhanced Electroactive Materials*

Prof. Norman Wereley: *Muscular Compliance in Bioinspired Soft Robots*

1000 - Coffee Break

1030 Session# 9 Moderator: Prof. Wieslaw Ostachowicz

1030 Low-Cost Touchscreen Technology Based on Guided Wave Reflection

Brault, L.-P., Quaegebeur, N., Masson, P., Beaudet, N., Sarret, P.
 Université de Sherbrooke.

1055 Numerical and Experimental Analyses of Pulse Laser-Generated Ultrasound

Liu, P., Ab.Wahab, N., Sohn, H.
 Korea Advanced Institute of Science and Technology.

1120 Flight Dynamics of an Aircraft using a Morphing Tail Configuration

Bras, M. ², Lau, F. ¹, Suleman, A. ²
¹Instituto Superior Técnico, University of Lisbon, ²University of Victoria.

1145 The Ultimate Smart System - Steps Toward a Self-Replicating Machine

Ellery, A.
 Carleton University.

1030 Session # 10 Moderator: Ms. Sumitra Rajagopalan

1030 Instability, Electrocaloric Effect and Dynamics of Dielectric Elastomers

Liu, L., Lv, X., Liu, Y. and Leng, J.
 Harbin Institute of Technology, China.

1055 Optimal Excitation of Interfacial Shear Stress Array for Mode-Selective Guided Wave Generation

Yazdanpanah Moghadam, P., Quaegebeur, N., Masson, P.
 Université de Sherbrooke.

1120 Vibration-Based Continuous Monitoring of Cable Dynamics and Axial Loads: Environmental Influence

Rainieri, C. and Fabbrocino G.,
 University of Molise, Italy.

1145 Design and Analyses of Deployable Structures Based on Shape Memory Polymer Composites

Li, F., Liu, L., Liu, Y., Leng, J.
 Harbin Institute of Technology, China.

1210 - Lunch

1330 Session# 11 Moderator: Prof. Patrice Masson	1330 Session # 12 Moderator: Prof. Spilios Fassois
1330 Design Optimization of Adaptive Stiffness Composite Structures <i>Sohouli, A.R.¹, Suleman, A.²</i> ¹ Instituto Superior Técnico, University of Lisbon, ² University of Victoria.	1330 A Comparison of Different Statistical Approaches for Strain-Based Structural Health Monitoring under Uncertainty <i>Teimouri, H., Milani, A.-S., Seethaler, R., Loepky, J.</i> University of British Columbia
1355 Hybrid Isolation of Reaction Wheel Disturbances using Filtered-X Least Mean Squares Algorithm <i>Lee, D.-O., Park, G., Han, J.-H.</i> KAIST, Republic of Korea.	1355 A Study of Sources of Error in BWIM Systems using a Model Bridge <i>S. Faraz, B. Algoji, D. Thomson, A. Mufti</i> University of Manitoba
1420 Researches on Improved MUSIC Algorithm for Impact Localization on Stiffened Aircraft Structures <i>Bao, Q.¹, Yuan, S.¹, Qiu, L.¹, Zhong, Y.²</i> ¹ Nanjing University of Aeronautics and Astronautics, China, ² WenZhou University, China.	1420 Adhesion Optimization of Climbing Robotic Structure through Changing the Legs' Elasticity <i>Ahmed, A. and Menon, C.</i> MENRVA Research Group, Simon Fraser University.
1445 Analytical Modeling and Robust Design of Thermally Actuated Micro-Cantilever for High Frequency Vibration <i>Komeili, M. and Menon, C.</i> MENRVA Research Group, Simon Fraser University.	1445 Scaling Resistance of Cement-Based Mortars for Repair <i>Ge, Y., Yang, W., Cai, X.</i> Harbin Institute of Technology, China.

1510 - Coffee Break

1540 Session# 13 Moderator: Prof. Christian Boller	
1540 Glass Transition Temperature of Styrene-Based Shape Memory Polymer and Its Application in Bottle-Shaped Smart Mandrel <i>Du, H.Y., Zhao, W., Liu, L.W., Liu, Y.J., Leng, J.</i> Harbin Institute of Technology, China.	
1605 Structural Health Monitoring of Glass Fiber Reinforced Composites using Graphene Nanoplatelets Networks <i>Guemes, A.¹, Prolongo, M.G.¹, Sanchez, M.², Moriche, R.², Prolongo, S.G.², Ureña, A.²</i> ¹ Univ Politecnica Madrid, ² Univ Rey Juan Carlos I	
1630 DISCOMS: Distributed Sensing for CORium Monitoring and Safety <i>Ferdinand, P.¹, Maurin, L.¹, Rougeault, S.¹, Makil, H.¹, Cheymol, G.¹, Maskrot, H.¹, Le Tutour, P.¹, Duval, D.¹, Journeau, Ch.¹, Villard, J.-F.¹, Haquet, J.-F.¹, Souquet, Q.¹, Barbot, L.¹, Miss, J.², Duhamel, I.², Dechenaux. B.², Brovchenko, M.², Musoyan, G.³, Balleydier, S.³, Pouillé, F.⁴, Helleux, G.⁵, Fourrez, S.⁵, and Pichon, L.⁵</i> ¹ CEA, ² Institut de Radioprotection et de Sûreté Nucléaire (IRSN) ³ AREVA ⁴ LMP ⁵ THERMOCOAX	

1800 – Banquet

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Friday 17 July 2015

0800 Registration

0830 Session #14: Keynote Presentations: Moderator: Prof. Jinsong Leng

Prof. Debes Bhattacharyya: *Nanofibrillar Polymer Composites for Biodegradable Tissue Scaffolds and Coronary Stents*

Prof. Dr. Afzal Suleman: *Smart Structures and Material: Visions, Promises and Challenges in Aeronautics*

1000 - Coffee Break

1030 Session# 15 Moderator: Prof. Wieslaw Ostachowicz

1030 Clamped Piezoelectric Movable Transducer for Robust and Selective Guided Wave Mode Generation

Guitel, R., Quaegebeur, N., Micheau, P., Masson, P.
Université de Sherbrooke.

1055 Design, Fabrication, and Testing of a Polymer Force Transducer for Rehabilitation Exoskeletons

Zampierin, S.^{1,2}, Alavi, N.¹, Cocuzza, S.², Debei, S.², Menon, C.¹
¹MENRVA Research Group, Simon Fraser University, ²Università degli Studi di Padova, Italy.

1120 Testing a Binary Crack Sensor Using a Laboratory Model of Cracks in Steel Girders

Raeisi, F.¹, Mufti, A.¹, Thomson, D.J.¹, Mustapha, G.²
¹University of Manitoba, ²Structure Monitoring Technology, Vancouver

1145 Parametric Study on an Active Compression Bandage Performance

Moein, H., Menon, C.
MENRVA Research Group, Simon Fraser University.

1030 Session # 16 Moderator: Prof. Claus-Peter Fritzen

1030 Stimuli Responsive Polymers and Multifunctional Composites: Recent Progress and Future Applications

Liu, Y., Leng, J.
Harbin Institute of Technology, China

1055 Buckling-delamination and Cracking of Thin Solid Films under Compression

Wang, S.¹, Li, L.¹, Xue, X.², Jia, H.¹, Wang, Z.¹
¹Tianjin University, China ²Hunan University, China

1120 The Quest for new Room Temperature Multiferroic Thin Films

Corbellini, L., Hajlaoui, T., Harnagea, C., Pignolet, A.
Institut National de la Recherche Scientifique (INRS), Canada.

1145 The Physical and Electrochemical Properties of Electro-spun EVOH-SO3Li/SiO2 Lithium Ion Battery Separator

Guifen, G.¹, Li, W.¹, Xiaodong, L.¹, Jian, L.¹, Jutao, S.²
¹Harbin University of Science and Technology, China, ²Qingdao University of Science and Technology, China

1210 - Lunch

1330 **Session# 17** Moderator: Prof. Alfredo Güemes

1330 **Study on Electrical Signatures of Electromechanical Impedance Response of Lightweight Materials**

Malinowski, P.¹, Wandowski, T.¹, Opoka, S.¹, Ostachowicz, W.^{1,2}

¹Polish Academy of Sciences, ²Warsaw University of Technology.

1355 **Bayesian Multiple Model Based SHM for Time-Dependent Structures: Application to Wind Turbine Diagnostics**

Avenidaño-Valencia, L.-D.¹, Fassois, S.-D.^{1,2}

¹University of Patras, Greece, ²Khalifa University of Science, Technology and Research, UAE

1420 **Challenges of Commercialising a Smart Polymer Platform: The Case with Thermoresponsive Polymers**

Rajagopalan, S., Cisse, J.

Bioastra Technologies Ltd.

1500 - Closing Remarks

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