

**PROGRAM**

**Sunday , May 31, 2015**

6:00 pm – 8:00 pm Registration desk open (Ontario Hall Lobby)

**Monday, June 1, 2015**

8:00 am – 4:00 pm Registration desk open (Social Science Centre, Second Floor Lobby)  
 8:30 am – 9:00 am Opening ceremony (Social Science Centre, Room 2050)  
 9:00 am – 10:00 am Plenary session

<b>Plenary session</b>		<b>Monday, June 1, 2015</b>	<b>9:00 am – 10:00 am</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Maciej Floryan (Western University)</b>	
9:00 am	<i>D. Weaver (McMaster University):</i> “The Changing Face of Applied Mechanics 1967 – 2015”		

10:00 am – 10:20 am Refreshment break (Social Science Centre, Second Floor Lobby)  
 10:20 am – 12:00 pm Concurrent sessions  
 11:00 am – 2:30 pm Satellite meeting: Meeting of chairs/heads of Mechanical Engineering Departments  
 (Spencer Engineering Building, Room 3102)

<b>Aerodynamics 1</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 37</b>		<b>Chair: Pierre Sullivan (University of Toronto)</b>	
10:20 am	<i>Mark Feero (University of Toronto), Philippe Lavoie (University of Toronto), Pierre Sullivan (University of Toronto):</i> “Effects of Wind Tunnel Model End Conditions on Low Reynolds Number Airfoil Studies”		0042
10:40 am	<i>Ying Su (McGill University), Sunghun Choi (McGill University), Timothy Lee (McGill University):</i> “Wingtip Vortex Control via Tip-Mounted Half-Delta Wings”		0083
11:00 am	<i>Graham Feltham (University of Toronto), Alis Ekmekci (University of Toronto):</i> “Near Wake Flow Topology of Ahmed Bodies”		1137
11:20 am	<i>Paul Ziade (University of Toronto), Pierre Sullivan (University of Toronto):</i> “Large-Eddy Simulation of Turbulent Round Jets in Crossflows”		0051
11:40 am	<i>Andrew Tenney (Syracuse University), Jacques Lewalle (Syracuse University):</i> “Propagation of Fluctuations and Flow Separation on an Unsteadily Loaded Airfoil”		1143

<b>Biomechanics</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Louis Ferreira (Western University)</b>	
10:20 am	<i>Jonathan Kusins (Western University), Remus Tutunea-Fatan (Western University), Louis Ferreira (Western University):</i> “Experimental Apparatus for Analysis of Bone Removal During Surgical Resurfacing Procedures”		1105
10:40 am	<i>Nicholas Bourgeois (Carleton University), Robert Langlois (Carleton University):</i> “Indicators of Motion Induced Interruption Occurrences in Heavy-Weather Sea Conditions”		1138
11:00 am	<i>Ida Khosravipour (University of Manitoba), Yunhua Luo (University of Manitoba), Shabnam Pejhan (University of Manitoba), Urs Wyss (University of Manitoba):</i> “Contact Stress Analysis of Surface Guided Knee Implant Using Finite Element Modeling”		0023
11:20 am	<i>Mitra Radmanesh (University of New Brunswick), Amirkianoosh Kiani (University of New Brunswick):</i> “Enhancing Biocompatibility of Grade 4-Titanium Using Laser Surface Texturing For Bone and Tissue Transplant Applications”		0016
11:40 am	<i>Marcel Rodriguez (University of Calgary), Leping Li (University of Calgary):</i> “Nonlinear Mechanical Response of Porcine Knee Joint”		0015

<b>Boundary Layers</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Serhiy Yarusevych (University of Waterloo)</b>	
10:20 am	<i>Andrew Lambert (University of Waterloo), Serhiy Yarusevych (University of Waterloo):</i> “Vortex Visualization and Characterization in the Laminar Separation Bubble over a NACA 0018 Airfoil”		1111
10:40 am	<i>Mohammadreza Ghazanchaei (Western University), Kazimierz Adamiak (Western University), Peter Castle (Western University):</i> “Modeling of Dielectric Barrier Discharge Actuator for Airflow Control”		1159
11:00 am	<i>Shady Ali (Western University), Eric Savory (Western University) Chao Zhang (Western University):</i> “Numerical Investigation of Blockage Development in an Aeroengine Transonic Axial Compressor Stage”		1215
11:20 am	<i>Abul Fahad Akon (Western University), Gregory Kopp (Western University):</i> “Fluctuating Pressures and Flow Characteristics Within Separation Bubbles on Surface-Mounted Prisms”		0097
11:40 am	<i>Nima Moallemi (University of British Columbia), Joshua Brinkerhoff (University of British Columbia):</i> “Numerical Simulation of Laminar Shear-Layer Reattachment in a Planar Sudden Expansion”		1099

<b>Computational Fluid Dynamics 1</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Hadi Moradi (Western University)</b>	
10:20 am	<i>Hadi Vafadar Moradi (Western University), Maciej Floryan (Western University):</i> “Spectral Algorithm for Linear Stability Analysis of Flow in Ribbed Annuli”		1231
10:40 am	<i>Tatiana López (Universidad Pontificia Bolivariana), César Nieto (Universidad Pontificia Bolivariana), Carlos Bustamante (Universidad Pontificia Bolivariana):</i> “Hydrodynamic Study of Gas-Particle Interaction in an FCC Downer Reactor”		0041
11:00 am	<i>Stephen Murray (McMaster University), Marilyn Lightstone (McMaster University), Stephen Tullis (McMaster University):</i> “Dispersed Phase Single-Particle Lagrangian And Correlation Dimensional Statistics In Kinematically Simulated Turbulence”		1134
11:20 am	<i>Masoumeh Jafari (University of Windsor), Ronald Barron (University of Windsor), Ramaswami Balachandar (University of Windsor):</i> “CFD Simulation of Spray Cooling Systems”		1168

<b>Nanostructures and MEMS 1</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: Jun Yang (Western University)</b>	
10:20 am	<i>Xiaobing Cai (Western University), Jun Yang (Western University):</i> “Sound Absorption by Multilayer of Microperforated Membranes”		0069
10:40 am	<i>Jin Zhang (University of Toronto), Shaker Meguid (University of Toronto):</i> “Multiscale Modelling of Thermo-Electro-Mechanical Behaviours of Gallium Nitride Nanowires: Size and Temperature Dependence of the Piezoelectric Potential”		0029
11:00 am	<i>Qiuquan Guo (Western University), Mingjun Hu (Western University), Xiaobing Cai (Western University), Jun Yang (Western University):</i> “A Rapid Method for Preparation of Metal Coated 3D Printing Objects”		1119
11:20 am	<i>Philip Egberts (University of Calgary):</i> “Friction Behaviour of Hexagonal-Shaped Graphene Islands Grown on Copper by Chemical Vapour Deposition (CVD)”		1225

<b>Turbulence &amp; Vortex Dynamics</b>		<b>Monday, June 1, 2015</b>	<b>10:20 am – 11:40 pm</b>
<b>University Community Centre, Room 63</b>		<b>Chair: Xiaohua Wu (Royal Military College)</b>	
10:20 am	<i>Karine Lavertu (Université de Sherbrooke), André Laneville (Université de Sherbrooke), Hachimi Fellouah (Université de Sherbrooke):</i> Quasi-Steady Hypothesis and Conductor Galloping		0093
10:40 am	<i>Maryam Dallali (Queen's University), Vincenzo Armenio (University of Trieste):</i> "Large Eddy Simulation of Suspended Sediments in Turbulent Flow"		1130
11:00 am	<i>Abdelkrem Eltaggaz (University of Guelph):</i> "Suppression of Vortex Shedding for Flow Past around a Circular Cylinder using Splitter Plate"		0075
11:20 am	<i>Ali Esmaeilnejad (University of Alberta), Sina Ghaemi (University of Alberta):</i> "Spatial Development of the Zone of Negative Turbulence Production in an Asymmetry Channel Flow"		1198

12:00 pm – 1:30 pm                      Lunch break  
 1:30 pm – 2:30 pm                      Plenary session

<b>Plenary session</b>		<b>Monday, June 1, 2015</b>	<b>1:30 pm – 2:30 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Robert Klassen (Western University)</b>	
1:30 pm	<i>Robert McMeeking (University of California):</i> "The Generation of Stress in the Storage Particles of Lithium-Ion Batteries"		

2:30 pm – 2:50 pm                      Refreshment break (Social Science Centre, Second Floor Lobby)  
 2:50 pm – 4:50 pm                      Concurrent sessions  
 5:00 pm – 6:00 pm                      Plenary session

<b>Aerodynamics 2</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:30 pm</b>
<b>University Community Centre, Room 37</b>		<b>Chair: Pierre Sullivan (University of Toronto)</b>	
2:50 pm	<i>David Johnson (University of Waterloo), Tyler Gallant (University of Waterloo):</i> "Measurement of Rotating Wind Turbine Blade Angle of Attack with a Five-Hole Pressure Probe"		0052
3:10 pm	<i>Sharman Perera (University of Ontario Institute of Technology), Edward Waller (University of Ontario Institute of Technology), Paul Walsh (Ryerson University), Andrew Doxtator (University of Ontario Institute of Technology), Ali Akhtar (University of Ontario Institute of Technology):</i> "CFD modeling of the Wind Chamber used for Radioactive Particle Resuspension Experiment"		0032
3:30 pm	<i>Alam Md Mahbub (Harbin Institute of Technology):</i> "Flow-Topology Around a Cylinder Submerged in Different Width Wake"		1203
3:50 pm	<i>Jeffrey McClure (University of Waterloo), Serhiy Yarusevych (University of Waterloo):</i> "Vortex Shedding from Finned Cylinders"		1139
4:10 pm	<i>Tyler Gallant (University of Waterloo), David Johnson (University of Waterloo):</i> "Analysis of Wind Turbine Blade Stall using Tuft Flow Visualization"		0028

<b>Biomaterials</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Louis Ferreira (Western University)</b>	
2:50 pm	<i>Mohammad Mirkhalaf (McGill University), Francois Barthelat (McGill University):</i> “Doctor Blading Artificial Nacre and Bone”		1109
3:10 pm	<i>Meisam Asgari (McGill University), Hossein Khadivi Heris (McGill University), Luc Mongeau, (McGill University):</i> “A Model for the Collagen Fibrils in Biological Soft Tissues”		1164
3:30 pm	<i>Kongying Xie (Queen's University), Husam Elkaseh (Queen's University), Robert Campbell (Hotel Dieu Hospital), Yong Jun Lai (Queen's University):</i> “Study of Laser Adjustable Sutures for Trabeculectomy”		0071
3:50 pm	<i>Roberto Martini (McGill University), Ravi Chintapalli (McGill University), Francois Barthelat (McGill University):</i> “Flexible Armors Inspired from Natural Fish Scales and Osteoderms”		1108
4:10 pm	<i>Melanie Chin (Western University), Timothy Newson (Western University):</i> “Validation of a Novel Tonometry Device for the Developing World”		1177
4:30 pm	<i>Meisam Asgari (McGill University), Aisa Biria (McGill University):</i> “On the Energetics of the Edge of an Open Lipid Bilayer”		0010

<b>Experimental Methods 1</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:30 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Martin Agelin-Chaab (UOIT)</b>	
2:50 pm	<i>Hassan Iftekhar (University of Ontario Institute of Technology), Weijie Shao (University of Ontario Institute of Technology), Martin Agelin-Chaab (University of Ontario Institute of Technology):</i> “Reynolds Number Effect on Forward Facing Step in Pressure Gradient”		0081
3:10 pm	<i>Yaw Afriyie (University of Manitoba), Mark Tachie (University of Manitoba), Mikhail Koupriyanov (Price Industries Ltd) Tom Epp (Price Industries Ltd):</i> “Mixing Characteristics in Turbulent Orifice Jets”		0085
3:30 pm	<i>Sarwesh Mali (University of Manitoba), Ebenezer Essel (University of Manitoba), Ali Nematollahi (University of Manitoba), Mark Tachie (University of Manitoba):</i> “Experimental and Numerical Study of Flow Characteristics Through a Gradual Contraction”		0092
3:50 pm	<i>Hassan Iftekhar (University of Ontario Institute of Technology), Martin Agelin-Chaab (University of Ontario Institute of Technology):</i> “Flow Around 2D Bluff Bodies Mounted Close to a Floor”		1155
4:10 pm	<i>Masoumeh Jafari (University of Windsor), Ronald Barron (University of Windsor), Ramaswami Balachandar (University of Windsor):</i> “Temperature Measurements in Industrial Scale Spray Cooling Systems”		1201

<b>Micro- and Nano-fluidics</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:10 pm</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Sushanta Mitra (York University)</b>	
2:50 pm	<i>Jeremy Wong (University of Toronto), Craig Simmons (University of Toronto):</i> “Design Considerations for On-Chip Biosensing in Microfluidic Cardiovascular Models”		1162
3:10 pm	<i>Weirong Nie (Nanjing University), Liu Huang (Nanjing University), Liying Jiang (Western University):</i> “A Novel Microfluidic Switch Design with Response Characteristics to High Acceleration”		1173
3:30 pm	<i>Nabeel AlRawahi (Sultan Qaboos University), Myo Myint (Sultan Qaboos University), Joydeep Dutta (Sultan Qaboos University):</i> “Experimental Study on Enhancement of Heat Transfer Using Nanoparticles Based Fluids”		0076
3:50 pm	<i>Edmond Young (University of Toronto), Alwin Wan (University of Toronto):</i> “Combining Micromilling And Liquid-Based Solvent Bonding For Ultra-Rapid Fabrication Of Plastic Microchips”		1095

<b>Nanostructures and MEMS 2</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: Jun Yang (Western University)</b>	
2:50 pm	<i>Invited talk</i> Jacky Chow (Queen's University), Yongjun Lai (Queen's University): "Air Bubble Assisted Detection for Micro Mass Sensor"		0072
3:30 pm	Dongxing Zhang (Western University), Jun Yang (Western University): "Remote Manipulation of 3D Printed Complex Magnetic Architecture after Surface Modification"		1110
3:50 pm	Rogelio Hernandez Aguirre (University of Waterloo), Patricia Nieva (University of Waterloo), Amir Khajepour (University of Waterloo): "A Multifunctional MEMS Sensor System for Brake System Applications"		1120
4:10 pm	Dogan Sinar (Western University), George Knopf (Western University), Suwas Nikumb (National Research Council): "Laser Modification of Printed Graphene-Oxide (GO) and Graphene-Cellulose (G-CMC) Thin Films"		0086
4:30 pm	Ishan Ali Khan (Ryerson University), Seyed Hashemi (Ryerson University): "Natural Frequencies of Double and Triple Walled Carbon Nanotubes Using Finite Element Formulation"		1126

<b>Turbulence</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 63</b>		<b>Chair: Xiaohua Wu (Royal Military College)</b>	
2:50 pm	<i>Invited talk</i> Babak Vajdi Hokmabad (University of Alberta), Sina Ghaemi (University of Alberta): "The Turbulent Structure of Inner Layer over Superhydrophobic Surface"		1104
3:30 pm	Xiaohua Wu (Royal Military College), Jean-Pierre Hickey (Royal Military College): "Very-Large-Scale Direct Numerical Simulation of the Canonical Flat-Plate Boundary Layer"		0012
3:50 pm	Anuvrat Mishra (University of Manitoba), Mark Tachie (University of Manitoba), David Kuhn (University of Manitoba): "Effect of Aspect Ratio on the Near Field Dynamics of Free Surface Jet"		1112
4:10 pm	Fama Fouladi (University of Windsor), Paul Henshaw (University of Windsor), David Ting (University of Windsor): "Turbulent Flow Behind a Partially Blocking Grid"		0087
4:30 pm	Sébastien Poncet (Université de Sherbrooke), Stéphane Viazzo (Université d'Aix-Marseille): "Boundary Layers Properties for Turbulent Taylor-Couette-Poiseuille Flows in a Narrow-Gap Cavity"		0007

<b>Vibration of Structures 1</b>		<b>Monday, June 1, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Enayat Mahajeri (SVSU)</b>	
2:50 pm	Enayat Mahajeri (Saginaw Valley State University), Gary Burgess (Michigan State University): "Recreation of Random Vibration During Truck Transportation"		0009
3:10 pm	Mohamed Bognash (Western University), Tianfu Wang (Arcelor Mittal), Samuel Asokanthan (Western University): "Bouncing Dynamics Considerations for Micro Switch Design"		1106
3:30 pm	Nima Bahrani (University of Toronto), Kamran Behdinin (University of Toronto): "High-Cycle Fatigue Testing on Aero-Engine Blade"		0070
3:50 pm	Farhad Mir Hosseini (University of Ottawa), Patrick Dumond (University of Ottawa), Natalie Baddour (University of Ottawa): "A Structural Approach for Solving the Inverse Eigenvalue Problem of a Beam with a Grounded Mass-Spring Attachment"		0078
4:10 pm	Patrick Dumond (University of Ottawa), Natalie Baddour (University of Ottawa): "The Inverse Eigenvalue Determinant Method for Jacobi and Tridiagonal Matrices"		1129
4:30 pm	Xiaoxu Ji (Western University), James Dickey (Western University), Tammy Eger (Laurentian University): "An Algorithm for Optimal Seat Selection for Heavy Mobile Machinery in Different Industrial Vibration Environments"		1181

Plenary session		Monday, June 1, 2015	5:00 pm – 6:00 pm
Social Science Centre, Room 2050		Chair: Maciej Floryan (Western University)	
5:00 pm	<i>Lise Désabrais (NSERC Program Officer):</i> “NSERC Programs Overview”		

- 6:30 pm – 8:30 pm
- Welcome reception (London Hall Lobby, 1140 Western Rd.)
- Buffet-style dinner will be offered to participants
- The following CSME awards will be presented:
- I.W. Smith Award: *Scott Tsai (Ryerson University)*
  - Robert W. Angus Medal: *Greg Naterer (Memorial University of Newfoundland)*
  - Jules Stachiewicz Medal: *Sanjeev Chandra (University of Toronto)*
  - C.N. Downing Award: *Kamran Behdinan (University of Toronto)*
  - Fellow of the CSME: *Dominic Groulx (Dalhousie University), Igor Leonardovich Piro (University of Ontario Institute of Technology), Lidan You (University of Toronto), Hoi Dick Ng (Concordia University)*
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**Tuesday, June 2, 2015**

8:00 am – 4:00 pm Registration desk open (Social Science Centre, Second Floor Lobby)  
 9:00 am – 4:00 pm Satellite meeting: CSME Board Meeting (Spencer Engineering Building, Room 3102)  
 9:00 am – 10:00 am Plenary session

<b>Plenary session</b>		<b>Tuesday, June 2, 2015</b>	<b>9:00 am – 10:00 am</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Pierre Sullivan (University of Toronto)</b>	
9:00 am	<i>Gregory Kopp (Western University):</i> “Assessing Wind Speeds in Tornadoes from Observed Damage”		

10:00 am – 10:20 am Refreshment break (Social Science Centre, Second Floor Lobby)  
 10:00 am – 1:00 pm Satellite meeting: CANCAM Central Committee meeting (Claudette MacKay-Lassonde Pavilion, Room 60)  
 10:20 am – 12:20 pm Concurrent sessions

<b>Biological Fluid Mechanics 1</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 11:40 am</b>
<b>University Community Centre, Room 37</b>		<b>Chair: David Steinman (University of Toronto)</b>	
10:20 am	<i>Onaizah Onaizah (Western University), Tamie Poepping (Western University), Mair Zamir (Western University):</i> “Lumped Parameter Model of Flow Through the Carotid Bifurcation”		1101
10:40 am	<i>Laura Haya (University of Ottawa), Stavros Tavoularis (University of Ottawa):</i> “The Effect of Sinus Geometry on the Turbulence Downstream of a Bileaflet Heart Valve”		0013
11:00 am	<i>Daniel Goldman (Western University), Christopher Ellis (Western University), Graham Fraser (Western University):</i> Computational Modeling of Microbubble Distribution in Microvascular Networks		1124
11:20 am	<i>Tamie Poepping (Western University), Amanda DiCarlo (Western University), Onaizah Onaizah (Western University), Mair Zamir (Western University):</i> “Evaluating Flow Disturbances in the Carotid Bifurcation”		1132
11:40 am	<i>Hani Abulkhair (Concordia University), Lyes Kadem (Concordia University):</i> “Experimental Investigation of Hemodynamic Variations Inside Abdominal Aortic Aneurysm During Change of Posture”		0066

<b>Convection</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Eric Savory (Western Engineering)</b>	
10:20 am	<i>Mohammad Hossain (Western University), Maciej Floryan (Western University):</i> “Thermal Drift Due to Modulated Dual Heating”		1221
10:40 am	<i>Christopher Csernyei (Western University), Anthony Straatman (Western University):</i> “Convective Heat Transfer Due to Multiple Circular Jets Impinging on a Large Cylinder”		1222
11:00 am	<i>Mohammad Bashar (Western University), Kamran Siddiqui (Western University):</i> “Transient Heat Transfer Behavior in the Liquid Domain of a PCM During Phase Change”		1217
11:20 am	<i>Mohammed Ismail (University of Windsor), Shahram Fotowat (University of Windsor), Amir Fartaj (University of Windsor):</i> “Study of Al <sub>2</sub> O <sub>3</sub> /Water Nanofluid in a Multiport Slab Heat Exchanger”		1189
11:40 am	<i>Robert Varty (Consultant in Engineering Science, Canada):</i> “Thermodynamics and Fluid Mechanics of Heavy Water and Supercritical Water”		1131

<b>Drops, Bubbles</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Mona Hassanzadeh (Western University)</b>	
10:20 am	<i>Mona Hassanzadeh Jobehdar (Western University), Kamran Siddiqui (Western University), Wajid Chishty (Institute for Aerospace Research, NRC), Aly Hafez Gadallah (Western University):</i> “Characterization of the two-phase flow due to a holed bubble breaker inside an effervescent atomizer using high speed imaging”		1220
10:40 am	<i>Abbas Ghasemi (University of Waterloo), Yanzhou Qin (University of Waterloo), Xianguo Li (University of Waterloo):</i> “Computational Study of Multiphase Transport Through Fuel Cell Flow Channel”		0039
11:00 am	<i>Rajan Ray (University of Windsor), Paul Henshaw (University of Windsor):</i> “Relation Between Paint Application Parameters and Droplet Diameter: A Way to Improve Efficiency and Reduce Air Emissions”		0062
11:20 am	<i>Rouhollah Shokri (University of Alberta), Sina Ghaemi (University of Alberta), David Nobes (University of Alberta), Sean Sanders (University of Alberta):</i> “Experimental Investigation of Particles Turbulence in a High Reynolds Vertical Pipe Flow”		1186
11:40 am	<i>Alan Kalbfleisch (Western University), Kamran Siddiqui (Western University):</i> “The Effect of Mesh-Type Bubble Breaker on Two Phase Vertical Co-Current Flow”		1216

<b>Mechatronics</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Aaron Price (Western University)</b>	
10:20 am	<i>Nima Alibabaei (Ryerson University), Alan Fung (Ryerson University), Kaamran Raahemifar (Ryerson University):</i> “Development of Residential HVAC Control and Demand Management System Using Intelligent Strategy Planning Models”		1211
10:40 am	<i>Paul White (University of Manitoba), Rhyse Maryniuk (University of Manitoba), Sobhan Sadri (University of Manitoba), Christine Wu (University of Manitoba):</i> “Scale Experimental Test Vehicle for Rollover Study”		1171
11:00 am	<i>Xuejun Wang (East China University of Science and Technology), Wenjun Zhang (University of Saskatchewan), Changli Liu (East China University of Science and Technology):</i> “Positioning Accuracy Recovery for RRR Compliant Mechanism System under PZT Actuator Failure”		1219
11:20 am	<i>Hamid Alemohammad (University of Waterloo), AbdulRahman Ghannoum (University of Waterloo), Liliana Zdravkova (University of Waterloo), Krishna Iyer (University of Waterloo), Patricia Nieva (University of Waterloo), Aiping Yu (University of Waterloo), Amir Khajepour (University of Waterloo):</i> “Optical Fiber Sensors for In-Situ Monitoring of Lithium Batteries”		1123
11:40 am	<i>Amir Mousavi Lajimi (Simon Fraser University), Navid Noori (Simon Fraser University), Amr Marzouk (Simon Fraser University), Behraad Bahreyni (Simon Fraser University), Farid Golnaraghi (Simon Fraser University):</i> “A Novel Nonlinear Amplitude-Modulation Gyroscope Incorporating Internal Resonance”		1135
12:00 pm	<i>Hamed Hossein Afshari (McMaster University), Andrew Gadsden (University of Maryland), Ryan Ahmed (McMaster University), Saeid Habibi (McMaster University):</i> “State of Charge Estimation of Li-Ion Batteries Using the Dynamic 2 <sup>nd</sup> Order Smooth Variable Structure Filter”		1195



<b>Renewable Energy Systems 1</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: Kamran Siddiqui (Western University)</b>	
10:20 am	<i>Afarin Amirirad (Ryerson University), Alan Fung (Ryerson University):</i> “The Role of HRW Systems in Reducing Greenhouse Gas Emission and Energy Savings of Ontario-Based Plants”		0084
10:40 am	<i>Altamash Baig (Ryerson University), Alan Fung (Ryerson University):</i> “Optimized Load Allocation of Boilers Using Mixed Integer Non-Linear Programming for Reduced Natural Gas Consumption”		0059
11:00 am	<i>Soroush Arghavan (Western University), Mohammadhadi Akbari (Shiraz University):</i> “A New Design for the Improvement of Uniform Cooling in Air-Cooled Li-Ion Battery Stacks”		1102
11:20 am	<i>Tamima Ahmed (Ryerson University), Alan Fung (Ryerson University):</i> “Energy Benchmarking Analysis Based on Ventilation Consumption of Small and Medium Powder Coating Industries in the Greater Toronto Area (GTA)”		1118
11:40 am	<i>Carsen Banister (University of Waterloo), Michael Collins (University of Waterloo):</i> “Seasonal Performance Investigation of a Dual Tank Solar-Assisted Heat Pump System”		0050

<b>Vibration of Structures 2</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Ashraf El-Damatty (Western University)</b>	
10:20 am	<i>Ahmed Musa (Western University), Ashraf El-Damatty (Western University):</i> “Seismic Behaviour of Steel Liquid-Filled Conical Tanks Designed Under Hydrostatic Pressure”		1170
10:40 am	<i>Niel Van Engelen (McMaster University), Michael Tait (McMaster University), Dimitrios Konstantinidis (McMaster University):</i> “Horizontal Models of Unbonded Fiber Reinforced Elastomeric Isolators”		1114
11:00 am	<i>Reza Mirza Hessabi (University of Toronto), Jiejing Zhou (University of Toronto), Oya Mercan (University of Toronto):</i> “Seismic Response Investigations of Nonlinear Single-Degree-of-Freedom Systems Equipped with Gyromass Dampers”		0067
11:20 am	<i>Ahmed Elansary (Western University), Ashraf El-Damatty (Western University):</i> “Seismic Analysis for Composite Conical Tanks”		1142
11:40 am	<i>Ahmed Elshaer (Western University), Girma Bitsuamlak (Western University), Ashraf El-Damatty, (Western University):</i> “Vibration Control of Tall Buildings Using Aerodynamic Optimization”		1098
12:00 pm	<i>Mohammad Damshenas (Sharif University of Technology), Mohammad Taghi Ahmadian (Sharif University of Technology), Ahmad Barari (University of Ontario Institute of Technology):</i> “Vibration Analysis of Coupled Axial and Transverse Vibrations of Oil Well Drill Strings Without the Effect of Drilling Mud”		1133

<b>Wind Engineering</b>		<b>Tuesday, June 2, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 63</b>		<b>Chair: Horia Hangan (Western University)</b>	
10:20 am	<i>Dan Parvu (Western University), Adrian Costache (Western University), Horia Hangan (Western University):</i> “Large Scale Particle Streak Velocimetry in the WindEEE Dome”		0082
10:40 am	<i>Nicholas Tam (University of Waterloo), Kobra Gharali (University of Waterloo), David Johnson, (University of Waterloo):</i> “Aerodynamic and Acoustic Effects of a Serrated Trailing Edge on Wind Turbine Blades”		1103
11:00 am	<i>Bodhisatta Hajra (Western University), Haitham Aboshosha (Western University), Girma Bitsuamlak (Western University):</i> “Large Eddy Simulation of Wind-Induced Pressure on a Low Rise Building”		1122
11:20 am	<i>Chowdhury Jubayer (Western University), Horia Hangan (Western University):</i> “Effect of Atmospheric Wind on a Ground Mounted Solar Panel Array”		0091
11:40 am	<i>Chieh-Hsun Wu (Western University), Gregory Kopp (Western University):</i> “Applicability of Quasi-Steady Theory on Building Point Pressures”		0077

12:00 pm – 1:30 pm                      Lunch break  
 1:30 pm – 2:30 pm                      Plenary session

<b>Plenary session</b>		<b>Tuesday, June 2, 2015</b>	<b>1:30 pm – 2:30 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Samuel Asokanthan (Western University)</b>	
1:30 pm	<i>Kon-Well Wang (University of Michigan):</i> “Recent Advances in Adaptive Metastructures for Structural Dynamics Enhancement”		

2:30 pm – 2:50 pm Refreshment break (Social Science Centre, Second Floor Lobby)  
 2:50 pm – 5:10 pm Concurrent sessions

<b>Biological Fluid Mechanics 2</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 37</b>		<b>Chair: David Steinman (University of Toronto)</b>	
2:50 pm	<i>Adam Fortais (Western University), Tamie Poepping (Western University), John de Bruyn (Western University):</i> “Non-Newtonian Blood-Mimicking Fluid for Particle Image Velocimetry”		1097
3:10 pm	<i>Scott Cooper (McGill University), Richard Leask (McGill University):</i> “The Role of Heparin Sulphate in Endothelial Cell Leukocyte Attachment in Regions of Spatial Wall Shear Stress Gradients”		1151
3:30 pm	<i>Sean Peterson (University of Waterloo), Brian Kettlewell (University of Waterloo):</i> “Ascertaining the Influence of Intraglottal Vortices Upon the Dynamics of the Vocal Cords”		0054
3:50 pm	<i>Matthew Doyle (University of Toronto), Wanyu Zhang (University of Toronto), Fabian Alvarado (University of Toronto), Haruki Ide (Hospital for Sick Children), Lars Grosse-Wortmann (Hospital for Sick Children), Richard Weisel (Hospital for Sick Children), Osami Honjo (Hospital for Sick Children), Leonard Tse (Toronto General Hospital), Cristina Amon (University of Toronto):</i> “A Computational Fluid Dynamics Model of Failing Fontan Circulation for Use in the Design of a Novel Treatment”		0057
4:10 pm	<i>Anna Chtchetinina (Concordia University), Lyes Kadem (Concordia University), Hoi Dick Ng (Concordia University):</i> “PIV measurement of jets through model mitral valve with different leaflet suture configurations”		0053
4:30 pm	<i>Hamed Avari (Western University), Eric Savory (Western University):</i> “Laser Doppler Velocimetry Measurements of Wall Shear Stress Under Steady and Pulsatile Flow Conditions in a Parallel Plate Flow Chamber”		1212

<b>Computational Fluid Dynamics 2</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:30 pm</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Hadi Moradi (Western University)</b>	
2:50 pm	<i>Seyed Mohammad Taghavi (Laval University), Ali Eslami (Laval University), Kamran Alba (University of Huston), Ian Frigaard (University of British Columbia):</i> “Numerical Simulation of Displacement Flow of Viscoplastic Fluids”		0045
3:10 pm	<i>Natalia Gomez (Universidad Pontificia Bolivariana), Carlos Bustamante (Universidad Pontificia Bolivariana), César Nieto (Universidad Pontificia Bolivariana):</i> “Two-Dimensional Hydrodynamics Study of FCC Riser Reactor by Eulerian-Eulerian Approach”		0060
3:30 pm	<i>Ming Teng (University of Saskatchewan), Donald Bergstrom (University of Saskatchewan):</i> “Simulation of Asymmetric Turbulent Channel Flow with Roughness on One Wall”		1185
3:50 pm	<i>Md Nazmus Sakib (Western University), Maciej Floryan (Western University):</i> “Three-Dimensional Spectrally-Accurate Algorithm for the Navier-Stokes Equations”		0036
4:10 pm	<i>Sahab Zandi (Western University), Alireza Mohammadi (Western University), Maciej Floryan (Western University):</i> “Spectral Algorithm for Analysis of Flows in Vibrating Channels”		0033

<b>Fluid-Structure Interactions</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:10 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Michael Paidoussis (McGill University)</b>	
2:50 pm	<i>Kostas Karazis (Areva Inc), Michael Paidoussis (McGill University):</i> “Sloshing of Supported Shells Conveying Fluid”		0063
3:10 pm	<i>Zoheb Nasir (Western University), Girma Bitsuamlak (Western University):</i> “Numerical Modeling of Tornadic Load on a Tall Building”		1192
3:30 pm	<i>Ouajih Hamouda (McMaster University), David Weaver (McMaster University), Jovica Riznic:</i> “Transient Loading on Nuclear Steam Generator Tubes During a Two-Phase Blowdown		1116
3:50 pm	<i>Mojtaba Kheiri (McGill University):</i> Transition in Dynamical Behaviour of a Flexible Slender Cylinder Subjected to Axial Flow, with a Variable Support at the Upstream End		1196

<b>Fracture Mechanics</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Francois Barthelat (McGill University)</b>	
2:50 pm	<i>Mohammad Mirkhalaf (McGill University), Ahmad Khayer Dastjerdi (McGill University), Francois Barthelat (McGill University):</i> “Overcoming brittleness through bio-inspiration and microarchitecture”		1107
3:10 pm	<i>Hossein Ghaednia (University of Windsor), Sreekanta Das (University of Windsor), Jamshid Zohrehheydariha (University of Windsor):</i> “Simulation of Dent-Crack Defect in Pipeline Using FEA”		1152
3:30 pm	<i>Yifan Huang (Western University) Wenxing Zhou (Western University):</i> “Residual Stress State in Single-edge Notched Tension Specimen Caused by the Local Compression Technique”		0037
3:50 pm	<i>Yongjian Wang (University of Alberta), Chong-Qing Ru (University of Alberta):</i> “Shape Effect of Traction-Separation Law on Dynamic Fracture of X80 Pipeline Steel”		0035
4:10 pm	<i>Sourayon Chanda (University of Alberta), Chong-Qing Ru (University of Alberta):</i> “Cohesive Zone Model for Temperature Dependent Fracture Analysis of Pipeline Steel”		0065
4:30 pm	<i>Hossein Ghaednia (University of Windsor), Sreekanta Das (University of Windsor), Jamshid Zohrehheydariha (University of Windsor), Sara Kenno (University of Windsor):</i> “Understanding the Strain Distributions Caused by a Dent Defect”		1153

<b>Multicomponent Materials</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:50 pm</b>
<b>University Community Centre, Room 63</b>		<b>Chair: Liying Jiang (Western University)</b>	
2:50 pm	<i>Hui Liu (Western University), Liying Jiang (Western University), Danielle Zeng (Ford Motor Company), Yang Li (Ford Motor Company):</i> “Numerical Prediction on Elastic Properties of Chopped Fiber Reinforced Composites”		0090
3:10 pm	<i>Shailesh Chekurthi (University of Manitoba), Raghavan Jayaraman (University of Manitoba):</i> “Strain-Rate-Dependent Mixed Mode Failure Analysis of Unidirectional Carbon Fiber Reinforced Composite Laminates”		1199
3:30 pm	<i>Peiyong Tsai (McMaster University), Suvojit Ghosh (McMaster University), Peidong Wu (McMaster University), Ishwar Puri (McMaster University):</i> “Design of Stiffness by Controlled Organization of Microstructure in an Elastomeric Nanocomposite”		0099
3:50 pm	<i>Syeda Sumaiya (University of Manitoba), Shailesh Chekurthi (University of Manitoba), Raghavan Jayaraman (University of Manitoba), Sitarz Blaine (Standard Aero), Brian McMillan (Standard Aero):</i> “Effect of Surface Treatment on the Strength and the Environmental Durability of Bond at the Metal – Polymer Composite Interface”		1175
4:10 pm	<i>M. Siddiqui (King Fahd University), Abul Fazal Arif (King Fahd University):</i> “Computational Homogenization of Metal Matrix Composites”		1204
4:30 pm	<i>Tyler Tallman (University of Michigan), Kon-Well Wang (University of Michigan):</i> “The Influence of Filler Volume Fraction on Sensitivity to Distributed Strain in Carbon Nanofiber/Polyurethane Nanocomposites”		1154

<b>Renewable Energy Systems 2</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 4:30 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: Prabir Basu (Dalhousie University)</b>	
2:50 pm	<i>Prabir Basu (Dalhousie University), Manoj Raut (TWA Panle Systems Inc), Bishnu Achary (Greenfield Research Incorporated):</i> “Improved Gasification through Torrefaction of Biomass”		0073
3:10 pm	<i>Md Maniruzzaman Akan (Ryerson University), Alan Fung (Ryerson University), Tamima Ahmed:</i> “Comparison Analysis of Weather Normalization for Industrial Plants Using Prism and Excel”		1117
3:30 pm	<i>Omid Nemati (Ryerson University), Alan Fung (Ryerson University):</i> “An Air Source Heat Pump for Hydronic Home Heating, Application of an Air Based Photovoltaic/Thermal Collector”		1113
3:50 pm	<i>Waleed Alzahrani (Ryerson University), Alan Fung (Ryerson University), Wey Leong (Ryerson University):</i> “Experimental Performance Study of a Vertical and a Horizontal Ground Loops Coupled to a Ground Source Heat Pump”		1172
4:10 pm	<i>Lam Dang (Ryerson University), Wey Leong (Ryerson University):</i> “A Numerical Study of Basement Heat Losses”		0031

<b>Vibration of Structures 3</b>		<b>Tuesday, June 2, 2015</b>	<b>2:50 pm – 5:10 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Samuel Asokanathan (Western University)</b>	
2:50 pm	<i>Narayanan Kidambi (University of Michigan), Ryan Harne (University of Michigan), Kon-Well Wang (University of Michigan):</i> “Asymmetric Influences on the Energy Dissipation Properties of a Metastable Module Excited Near Resonance”		1190
3:10 pm	<i>Elsa Piollet (Polytechnique Montreal), Guilhem Michon (Universite de Toulouse), Annie Ross (Polytechnique Montreal):</i> “Transient Response of a Sandwich Structure Damped with a Fibrous Core Material”		0094
3:30 pm	<i>Mohammad Komijani (University of Waterloo), Robert Gracie (University of Waterloo):</i> “Nonlinear Thermo-Electro-Mechanically Induced Vibration of FGPM Beams”		1128
3:50 pm	<i>Vinicius Rabelo (Lakehead University), Meilan Liu (Lakehead University):</i> “Fourth Order Approximate Solutions for the Undamped Free Vibration of Strongly Nonlinear Oscillators Subjected to Initial Displacements”		0024
4:10 pm	<i>Olga Sergushova (Keele University), Danila Prikazchikov (Keele University):</i> “Low-Frequency Vibrations of Inhomogeneous Elastic Structures with Contrast Properties”		1169
4:30 pm	<i>Soroush Arghavan (Western University), Mohamed Bognash (Western University), Samuel Asokanathan (Western University):</i> “Stochastic Dynamics and Stability of a Class of MEMS Gyroscopes”		0088
4:50 pm	<i>Mohammad Damshenas (Sharif University of Technology), Mohammad Taghi Ahmadian (Sharif University of Technology), Ahmad Barari (University of Ontario Institute of Technology):</i> “Vibration Analysis of Drill String Under Inclined Drilling Including Stick-Slip Phenomenon with the Effect of Drilling Mud Injection”		1206

6:00 pm – 9:30 pm

Banquet (Sommerville House, Room 3326 = “The Great Hall”)

**Wednesday, June 3, 2015**

8:00 am – 12:00 pm Registration desk open (Social Science Centre, Second Floor Lobby)  
 9:00 am – 10:00 am Plenary session

<b>Plenary session</b>		<b>Wednesday, June 3, 2015</b>	<b>9:00 am – 10:00 am</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Kamran Siddiqui (Western University)</b>	
9:00 am	<i>Stavros Tavoularis (University of Ottawa):</i> “Vortices”		

10:00 am – 10:20 am Refreshment break (Social Science Centre, Second Floor Lobby)  
 10:20 am – 12:20 pm Concurrent sessions

<b>Advanced Manufacturing 1</b>		<b>Wednesday, June 3, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Evgueni Bordatchev (NRC)</b>	
10:20 am	<i>Benjamin Hamilton (Western University), Sama Hussein (Western University), Remus Tutunea-Fatan (Western University), Evgueni Bordatchev (National Research Council):</i> “Strategies in Single Point Inverted Cutting for Fabrication of Structured Surfaces”		1228
10:40 am	<i>Sasan Sattarpanah Karganroudi (Université du Québec à Trois-Rivières), Jean-Christophe Cuillière (Université du Québec à Trois-Rivières), Vincent François (Université du Québec à Trois-Rivières) Souheil-Antoine Tahan (École de Technologie Supérieure Montreal):</i> “An Improvement of Fixtureless Inspection for Non-Rigid Parts Based on Filtering Sample Points”		0040
11:00 am	<i>Hamad Bubshait (McMaster University), Allan Spence (McMaster University):</i> “Measurement Methods and Data Representation for Mechanical Part Refurbishment/Replacement”		0064
11:20 am	<i>Steve Bruneau (Memorial University of Newfoundland), Ashley Sullivan (Memorial University of Newfoundland), Zetian Zhang (Memorial University of Newfoundland), Bruce Colbourne (Memorial University of Newfoundland):</i> “Ice-Microtome Design for Procurement and Crystal Analysis of Ice Thin Sections”		1183
11:40 am	<i>Md Mizanur Rahman (Polytechnique Montréal), Réne Mayer (Polytechnique Montréal):</i> “Experimental Study of Touch Probing with a Five Axis Machine Tool”		1163

<b>Computational Solid Mechanics 1</b>		<b>Wednesday, June 3, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Liying Jiang (Western University)</b>	
10:20 am	<i>Matin Parchei Esfahani (University of Waterloo), Robert Gracie (University of Waterloo):</i> “A Coupled Dynamic Simulation of Hydraulic Fracturing”		1200
10:40 am	<i>Kevin Brooks (University of Windsor), Nader Zamani (University of Windsor):</i> “Use of Rigid Bar Elements in Finite Element Analysis”		0011
11:00 am	<i>Jianhui Zhai (Beijing Institute of Technology), Yu Su (Beijing Institute of Technology):</i> “A Phase-Field Modeling of the Microstructural Evolution in Ti-6Al-4V Alloy Under Mechanical Loading”		0068
11:20 am	<i>Benjamin Varela (Rochester Institute of Technology), Yevgeni Parfilko (Rochester Institute of Technology):</i> “Simulating Debris Impacts into Tornado Saferooms with LS-Dyna”		0019
11:40 am	<i>Alexandre Nana (Université du Québec à Trois-Rivières), Jean-Christophe Cuillière (Université du Québec à Trois-Rivières), Vincent François (Université du Québec à Trois-Rivières):</i> “Structural Topology Optimization with Adaptive Mesh Refinement and De-refinement”		0022
12:00 pm	<i>Amir Khalilollahi (Pennsylvania State University), Enayat Mahajeri (Saginaw Valley State University), Gary Burgess (Michigan State University):</i> Transient Heat Flow Analysis using FEA and Laplace Transform-Based Collocation		0020



<b>Computational Fluid Dynamics 3</b>		<b>Wednesday, June 3, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Alireza Mohammadi (Western University)</b>	
10:20 am	<i>Alireza Mohammadi (Western University), Maciej Floryan (Western University):</i> “Characteristics of New Mode of Instability in a Channel with Longitudinal Grooves”		0027
10:40 am	<i>Mani Annamalai (Indian Institute of Technology), Arpita Srivastava (Indian Institute of Technology)</i> <i>Shaligram Tiwari (Indian Institute of Technology):</i> “Numerical Investigation of Jet Pump with Twisted Tapes”		1165
11:00 am	<i>Seyed Mohammad Reza Attarzadeh (Concordia University), Ali Dolatabadi (Concordia University),</i> <i>Moussa Tembely (Concordia University):</i> “Effect of Microstructured Roughness on Micro-Droplet Dynamics”		1178
11:20 am	<i>Seyed Mohammad Taghavi (Laval University), Ronald Larson (University of Michigan):</i> “Shear-Thinning Effects on Nanofiber Formation by Centrifugal Spinning”		0047
11:40 am	<i>Faegheh Ghorbanishohrat (University of Waterloo), David Johnson (University of Waterloo):</i> “Oil Flow Visualization of the Laminar Separation Bubble on a SD 7037 Airfoil”		0098

<b>Geophysical Fluid Dynamics</b>		<b>Wednesday, June 3, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: William Lin (Western University)</b>	
10:20 am	<i>Eric Savory (Western University), Laurent Perret (Ecole Centrale de Nantes), Karin Blackman (Ecole Centrale de Nantes):</i> “Spatio-Temporal Dynamics of a Street Canyon Flow from Combined Field and Wind Tunnel Experiments”		1160
10:40 am	<i>Tibebu Birhane (Western University), Girma Bitsuamlak (Western University):</i> “Evaluating the Performance of Inflow Boundary Condition Models for Rans Simulation of ABL Flow Over Complex Topography”		1197
11:00 am	<i>Matthew Roberto (Western University), Christopher Oreskovic (Western University), Eric Savory (Western University), Juliette Porto (Institut National Polytechnique de Grenoble):</i> “Unsteady Rans Modelling of Density Driven Experimental Thunderstorm Downbursts”		1214
11:20 am	<i>William Lin (Western University), Asli Ozyoruk (Western University), Eric Savory (Western University), Leigh Orf (Central Michigan University):</i> “The Flow Field of an EF5 Tornado in a Supercell Windstorm”		1191
11:40 am	<i>Ryan Kilpatrick (Western University), Kamran Siddiqui (Western University), Horia Hangan (Western University):</i> “Experimental Characterization of Flow around an Escarpment”		1227
12:00 pm	<i>Josué Njock Libii (Indiana Univ):</i> “Examination of Helmholtz Vortex Laws Using Rankine Combined Vortices in Circular Cylinders”		0017

<b>Multibody/Vehicle Dynamics</b>		<b>Wednesday, June 3, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>University Community Centre, Room 37</b>		<b>Chair: Bruce Minaker (University of Windsor)</b>	
10:20 am	<i>Bruce Minaker (University of Windsor), Zheng Yao (University of Windsor):</i> “Design and Analysis of an Interconnected Suspension for a Small Off-Road Vehicle”		1144
10:40 am	<i>Yiteng Liang (University of Waterloo), Asaad Sellmann (Aachen University), Joydeep Banerjee (University of Waterloo), John McPhee (University of Waterloo), Orang Araghi (MapleSoft):</i> “Symbolic Integration of Finite Element Models with Dynamic Multibody Systems”		0055
11:00 am	<i>Eungkil Lee (University of Ontario Institute of Technology), Yuping He (University of Ontario Institute of Technology):</i> “Automated Design Synthesis of LQR Controllers for Road Vehicle Active Suspension Systems”		0030
11:20 am	<i>Joydeep Banerjee (University of Waterloo), John McPhee (University of Waterloo):</i> “Acausal Modelling for Dynamic Multibody Simulation of Damped Three-Dimensional Flexible Beams”		1121
11:40 am	<i>Bruce Minaker (University of Windsor), Fei Hu (University of Windsor):</i> “Road Profile Recovery Using Onboard Acceleration Data”		1218
12:00 pm	<i>Mohamed Hassan (University of Toronto), Shaker Meguid (University of Toronto):</i> “Viscoelastic Multibody Dynamics of Whiplash”		1157



Porous Media		Wednesday, June 3, 2015	10:20 am – 12:00 pm
University Community Centre, Room 63		Chair: Chris DeGroot (Trojan Technologies)	
10:20 am	<i>Christopher DeGroot (Trojan Technologies):</i> “Modelling Solids Separation in Rotating Belt Filters Using a Semi-Empirical Numerical Approach”		1223
10:40 am	<i>Chunendra Sahu, University of Alberta; Morris Flynn, University of Alberta:</i> “Buoyancy-Driven Flows in a Confined Porous Medium”		0096
11:00 am	<i>Jared Penney (University of Waterloo), Marek Stastna (University of Waterloo):</i> “Reaction-driven Flow in a Porous Medium”		1179
11:20 am	Chris Ladubec (University of Waterloo), Robert Gracie (University of Waterloo): “Carbon Sequestration Modelling Using Stabilized Finite Element Methods”		1100
11:40 am	<i>Md Abdus Samad Bhuiyan (Memorial University of Newfoundland), Alamgir Hossain (Memorial University of Newfoundland), Jahrul Alam (Memorial University of Newfoundland):</i> “A Computational Model of Temperature Monitoring at a Leakage in a Leak Detection System of a Pipeline”		0043

12:20 pm – 1:30 pm

Lunch break

1:30 pm – 5:30 pm

Technical tours

- Signup sheet will be available at the Registration Desk (Social Science Centre, Second Floor Lobby)
- Spots will fill up on a first-come, first-served basis
- The following technical tour options are available:
  1. **WindEEE Research Institute and Fraunhofer Project Centre for Composites Research**  
 Bus leaves at 1:30 from the front of Spencer Engineering Building (Lambton Drive close to Western Road entrance). There are 40 spots available on the bus. Estimated return time: 4:45 pm (same location).
  2. **Advanced Facility for Avian Research**  
 Tours will last approximately 45 min. and are limited to 8 persons per group. Groups will form and depart from the Registration Desk at the following times: 1:30 pm, 2:15 pm 3:00 pm, and 3:45 pm.
  3. **Alan Davenport Wing Engineering Group and Boundary Layer Wind Tunnel**  
 Tours will last approximately 45 min. and are limited to 10 persons per group. Groups will form and depart from the Registration Desk at the following times: 1:30 pm, 2:15 pm 3:00 pm, and 3:45 pm.
  4. **Canadian Surgical Technologies & Advanced Robotics**  
 Tours will last approximately 90 minutes and are limited to 25 persons per group. Groups will form and depart from the Registration Desk at the following times: 1:30 pm, and 3:00 pm.
  5. **Western’s Mechanical and Materials Engineering Laboratories**  
 Tours will last approximately 60 minutes and are limited to 12 persons per group. Groups will form and depart from the Registration Desk at the following times: 1:30 pm, 2:30 pm, 3:30 pm, and 4:30 pm.

**Thursday, June 4, 2015**

9:00 am – 10:00 am Plenary session

<b>Plenary session</b>		<b>Thursday, June 4, 2015</b>	<b>9:00 am – 10:00 am</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Aaron Price (Western University)</b>	
9:00 am	<i>Jun Yang (Western University):</i> “Design and Micro/Nano-Engineering of Functional Materials, Surfaces and Devices: from Fundamentals to Applications”		

10:00 am – 10:20 am Refreshment break (Social Science Centre, Second Floor Lobby)  
 10:20 am – 12:20 pm Concurrent sessions

<b>Actuation and Smart Materials</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 11:40 am</b>
<b>University Community Centre, Room 41</b>		<b>Chair: Aaron Price (Western University)</b>	
10:20 am	<b>Invited talk</b> <i>Jian Zhu (National University of Singapore), Ujjaval Gupta (National University of Singapore), Hareesh Godaba (National University of Singapore):</i> “Dynamic Analysis of a Vibration Shaker Based on a Dielectric Elastomer Actuator”		1202
11:00 am	<i>Mohamed Hassan (Queen's University), Brahim Benmokrane (Sherbrooke University):</i> “Durability of a New Generation of Basalt-FRP Reinforcing Bars”		1224
11:20 am	<i>Jianyou Zhou (Western University), Liying Jiang (Western University), Roger Khayat (Western University):</i> “Dynamics Analyses of a Viscoelastic Dielectric Elastomer Oscillator”		0095

<b>Advanced Manufacturing 2</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 58</b>		<b>Chair: Evgueni Bordatchev (NRC)</b>	
10:20 am	<i>Shirzad Mohajerani (Western University), Evgueni Bordatchev (National Research Council), Remus Tutunea-Fatan (Western University):</i> “Current State-of-the-Art in Modeling and Simulation of Laser Polishing Process”		0079
10:40 am	<i>Mitra Radmanesh (University of New Brunswick), Amirkianoosh Kiani (University of New Brunswick):</i> “Nd:YAG Laser Surface Treatment of Stainless Steel 304”		0044
11:00 am	<i>Meysar Zeinali (Laurentian University), Sumesh Kunwar (Laurentian University):</i> “Human Head and Face Detection and Tracking Using Single Camera to Improve Human Robot Interaction”		1127
11:20 am	<i>Sama Hussein (Western University), Benjamin Hamilton (Western University), Evgueni Bordatchev (National Research Council), Remus Tutunea-Fatan (Western University):</i> “Parameter-Driven Geometric Modeling of Retroreflective Features”		1150
11:40 am	<i>Yanjun Qian (University of Waterloo), Hyock-Ju Kwon (University of Waterloo):</i> “Development of Ultrasonic Surface Treatment Device”		0101

<b>Combustion and Flames</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 11:40 am</b>
<b>University Community Centre, Room 60</b>		<b>Chair: Chao Zhang (Western University)</b>	
10:20 am	<i>Mahmoud Elhalwagy (Western University), Chao Zhang (Western University):</i> “Modified Biodiesel Chemical Kinetics Based on Numerical Simulation in an Ignition Quality Tester”		1213
10:40 am	<i>Mark Finney (US Forest Service), Jack Cohen (US Forest Service), Jason Forthofer (US Forest Service), Sara McAllister (US Forest Service), Kozo Saito (University of Kentucky), Nelson Akafuah (University of Kentucky), Michael Gollner (University of Maryland), Daniel Gorham (University of Maryland):</i> “Buoyant Instabilities and Flame Spread in Wildland Fires: Implication of the Need for Scaling Instability Analysis”		1226
11:00 am	<i>Shammawi Anderson (University of Alberta), Andre McDonald (University of Alberta):</i> “Test Methodology For Comparing Wildland Fire Chemical Treatments”		1125
11:20 am	<i>Maciej Floryan (Western University), Mohammad Hossain (Western University), Andrew Bassom (University of Western Australia):</i> “Structured Natural Convection”		1232

<b>Computational Solid Mechanics 2</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 11:40 pm</b>
<b>University Community Centre, Room 61</b>		<b>Chair: Samuel Asokanathan</b>	
10:20 am	<i>Negin Shahbazian (University of Toronto), Mohammad Rahman (University of Toronto), Kamran Behdinan (University of Toronto):</i> “A Novel Design of the Heat Exchanger of an Aircraft’s Environmental Controller”		1140
10:40 am	<i>Oxana Skiba (University of Waterloo), Robert Gracie (University of Waterloo):</i> “On the Importance of Thermal Effects in Dislocation Dynamics”		0026
11:00 am	<i>Shahzada Aly (King Fahd University); Khaled Al-Athel King Fahd University), Abul Fazal Arif (King Fahd University), Javad Mostaghimi (University of Toronto):</i> “Computational Modeling and Calibration of a 3D Metal Foam Heat Sink”		1208
11:20 am	<i>Mohammad Rahman (University of Toronto), Negin Shahbazian (University of Toronto), Kamran Behdinan (University of Toronto):</i> “Redesign of a DC-Link Capacitor for an Aircraft Power and Thermal Management Controller”		1141

<b>Elasticity/Plasticity</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 63</b>		<b>Chair: Robert Klassen (Western University)</b>	
10:20 am	<i>Vineet Bhakhri (Western University), Meysam Haghshenas (University of Waterloo), Richard Oviasuyi (Nova Chemical), Robert Klassen (Western University):</i> “Indentation-Induced Deformation Behaviour of Magnesium”		1182
10:40 am	<i>Ali Asghar Roostaei (University of Waterloo), Hamid Jahed (University of Waterloo):</i> “Cyclic Plasticity Modelling of Wrought Magnesium Alloys”		0058
11:00 am	<i>Robert Klassen (Western University), Heygaan Rajakumar (Western University):</i> “Effect of Irradiation and Thermal Recovery on the Hardness of Inconel 800H and AISI 310 Alloys”		0021
11:20 am	<i>Ariful Islam (Western University), Vineet Bhakhri (Western University), Robert Klassen (Western University):</i> “Plastic Deformation of Gold Micro Spheres”		1096
11:40 am	<i>Suresh Shrivastava (McGill University), Bob Munlemvo Mayemba (Dessau Consulting):</i> “Plastic Buckling Paradox for Plates in Biaxial Loading”		1229

<b>Experimental Methods 2</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 12:00 pm</b>
<b>University Community Centre, Room 37</b>		<b>Chair: Abouzar Sadrekarimi (Western University)</b>	
10:20 am	<i>Abouzar Sadrekarimi (Western University):</i> “Electrical Resistivity of Sands”		0008
10:40 am	<i>Maha Al Massri (Western University), Timothy Newson (Western University):</i> “Numerical Investigation of the Bearing Capacity of Ring Foundations on Clay”		1207
11:00 am	<i>Bahareh Marzbanrad (University of Waterloo), Ehsan Toyserkani (University of Waterloo), Hamid Jahed (University of Waterloo):</i> “Applications of Fiber Bragg Grating Sensors to Strain Measurements of AZ31B Extrusion in Rotating Bending Cyclic Tests”		1148
11:20 am	<i>Salman Chaudhry (York Univeristy), Roger Carrick (York University), Alexander Czekanski (York University):</i> “Design of Kolsky Bar to Characterize the Dynamic Response of Elastomers Under High Strain Rate”		1193
11:40 am	<i>Fang Yuan (Henan University of Technology), Liying Jiang (Western University), Kun Pang (Henan University of Technology), Chengying Dong (Henan University of Technology):</i> “Experimental Investigation on Overpressures in a Scale Model of Sidedraw Silo During Emptying”		1180

<b>Non-Newtonian Fluids</b>		<b>Thursday, June 4, 2015</b>	<b>10:20 am – 12:20 pm</b>
<b>Social Science Centre, Room 2050</b>		<b>Chair: Seyed Mohammad Taghavi (Laval University)</b>	
10:20 am	<b><i>Invited Talk</i></b> <i>Faiçal Larachi (Laval University), Pouya Hajiani (Laval University):</i> “Magnetorheological Effects from Tracer Residence Time Distribution in Nanofluid Poiseuille Flows”		1187
10:50 am	<b><i>Invited Talk</i></b> <i>Jesse Greener (Laval University), Mazyar Parvinzadeh Gashti (Laval University):</i> “A Microfluidic Method for Optical Studies of Early Stage Biofilm Response to Applied Shear Stress”		0089
11:20 am	<i>Kamran Alba (University of Huston), Seyed Mohammad Taghavi (Laval University):</i> “Two-Layer Flow of Immiscible Non-Newtonian Fluids: Linear Stability Analysis”		0100
11:40 am	<i>Roozbeh Mollaabbasi (University of Laval):</i> “Effect of Nano Particles on Rheological Properties of Herschel-Bulkley Fluids”		1167
12:00 pm	<i>Roozbeh Mollaabbaasi (Laval University), Kamran Alba (University of Huston), Seyed Mohammad Taghavi (Laval University):</i> “Displacement Flows in Slightly Converging Channels”		0046

12:30 pm – 12:45 pm Closing ceremony (Social Science Centre, Room 2050)