

CI/CS 2004 Technical Program

Sunday, May 9, 2004			
18:00 - 21:00	Registration and Reception - Kingston Yacht Club		
Monday, May 10, 2004			
8:00 - 8:30	Registration		
8:15 - 8:30	Welcome		
8:30 - 9:20	Plenary Session Keynote Speaker: Dr. John Lee, McGill University <i>Explosion Safety Issues of Hydrogen</i>		
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12:10 - 13:30	LUNCH		

Monday, May 10, 2004

	Session E – Explosions - II Session Chair M. Birouk, University of Manitoba	Session F – Engines - III Session Chair J. Wallace, University of Toronto
13:30 - 13:50	<i>Optical Pyrometry of Fireballs from Heterogeneous Explosives</i> , Levine, J., Tanguay, V., Goroshin, S., Frost, D.L. and Zhang, F.	<i>Effect of Dilution Ratio on Particle Mass and Size in Exhaust from a Compression Ignition, Direct-Injected, Natural Gas Fuelled Engine</i> , Jones, H.L., Rogak, S.N., McTaggart-Cowan, G., Bushe, W.K. and Munshi, S.R.
13:50 - 14:10	<i>Dust Explosion Hazard of Fuel Carry-Over</i> , Basu, A., Amyotte, P. R. and Khan, F.I.	<i>Measurement of Combustion Chamber Deposits Using Thermodynamic Processes</i> , Desormeaux, C. and LaViolette, M.
14:10 - 14:30	<i>Thermal Behaviour of Nano- and Micrometer-Scale Aluminum Powders in Carbon Dioxide</i> , Brandstadt, K., Frost, D. and Kozinski, J.	<i>A Numerical Study of Diesel Particulate Filter Stochastic Regeneration</i> , Wang, D., Wang, M., Reader, G.T and Zheng, M.
14:30 - 14:50	<i>Ground-Based and Microgravity Study of Flame Quenching Distance in Metal Dust Suspensions</i> , Mamen, J., Laviolette, J.P., Goroshin, S., Lee, J. and Sacksteder, K.	<i>Development of a Smoke Sensor for Diesel Engines</i> , Gardiner, D.P., Allan, W.D.E., Freeman, R.D., Pucher, G.R., Faux, D. and Bardon, M.F.
14:50 - 15:10	BREAK	
	Session G - Droplets and Sprays Session Chair R. Sellens, Queen's University	Session H – Engines – IV Session Chair B. Fleck, University of Alberta
15:10 - 15:30	<i>Combustion Noise Reduction in a Kerosene Burner: Investigations in the Spray Characteristics of the Fuel Nozzle</i> , Yimer, I., Jiang, L.Y., Campbell, I., Liu, Z.S., Liu, Z. and Huang, C.	<i>Development of Sectional Models for Simulation of Soot Formation and Growth</i> , Park, S.H., Rogak, S.N., Wen, Z. and Thomson, M.J.
15:30 - 15:50	<i>Effects of Moderate Turbulent Forced Convective Flows on the Vaporization of an Isolated Fuel Droplet</i> , Abou Al-Sood, M.M. and Birouk, M.	<i>Detailed Soot Modeling in a Plug Flow Reactor</i> , Wen, Z., Thomson, M.J., Lightstone, M.F., Park, S.H. and Rogak, S.N.
15:50 - 16:10	<i>Drop Size Distribution in Sprays: From the Principle of Entropy Generation Maximization</i> , Li, X. and Li, M.	<i>Simulation of Temperature Response in Vehicular Catalytic Converter Using Simulink®</i> , Zhang, L., Xu, X.I. And Zheng, M.
16:10 - 16:30	<i>Numerical Methods for the Determination of MEP-Type Drop Size Distributions in Sprays</i> , Li, M. and Li, X.	<i>Time Resolution and Accuracy of On-Road, Real-Time NOx Emission Measurements</i> , Manchur, T.B. and Checkel, M.D.
16:30 - 16:50	<i>Effect of Gas Stream Swirls on the Instability of Viscous Annular Liquid Jets</i> , Du, Q. and Li, X.	<i>The Low NOx Potential of Partially Stratified-Charge Combustion in a Natural Gas Engine</i> , Reynolds, C. and Evans, R.L.

Tuesday, May 11, 2004

8:30 - 9:20	Plenary Session Keynote Speaker: Dr. Brant Peppley, Royal Military College of Canada <i>The Role of Combustion in the Development of Fuel Cells</i>	
	Session I - Fuel Cells Session Chair E.W. Grandmaison, Queen's University	Session J – Engines – V Session Chair E. Weckman, University of Waterloo
9:30 - 9:50	<i>Experimental Diagnostics of PEM Fuel Cells</i> , Mughal, A. and Li, X.	<i>Effects of Spark Duration and Energy Deposition in a Direct-Injection Engine in Stratified Mode</i> , Seers, P., Ashford, M.D. and Matthews, R.D.
9:50 - 10:10	<i>Development and Characterization of Copper-Anode Based Lower-Temperature Solid Oxide Fuel Cell Fabricated by Single-Step Sintering</i> , Rajender Reddy, K and Karan, K.	<i>An Experimental Study of Spark Anemometry Using High Speed Video and Enhanced Control of Spark Ignition</i> , Gardiner, D.P., Wang, G. and Bardon, M.F.
10:10 - 10:30	<i>The Effect of Radiation Heat Transfer in Solid Oxide Fuel Cell Modelling</i> , VanderSteen, J.D.J. and Pharoah, J.G.	<i>Importance of Transducer Type and Position in the Detection of Abnormal Combustion</i> , Tousignant, T., Tjong, J. and Reader, G.T.
10:30 - 10:50	BREAK	
	Session K – Fire – II Session Chair J. Kozinski, McGill University	Session L – Fuel Reforming Session Chair G. Smallwood, NRC
10:50 - 11:10	<i>Interior Temperature and Heat Flux Measurements During A House Burn</i> , Dale, J.D., Ackerman, M.Y., Torvi, D.A., Threlfall, T.G. and Thorpe, P.A.	<i>Effects of Reformer Gas Addition on Burning Velocities of Methane with Diluents at Elevated Temperature</i> , Han, P., Checkel, M.D. and Fleck, B.A.
11:10 - 11:30	<i>Simulation of Vertical Wall Fires with One-Dimensional Turbulence Modeling</i> , Shihn, H. and DesJardin, P.E.	<i>Partial Fuel Reforming to Maintain Burning Velocity at High EGR Dilution Rates</i> , Ponnusamy, S., Checkel, M.D. and Fleck, B.A.
11:30 - 11:50	<i>Towards a Thermo-Mechanical Damage Model for Composite Structures</i> , Luo, C. and DesJardin, P.E.	<i>Improving Engine Combustion by Hydrogen Produced in an EGR Reformer</i> , Ko, S.J., Ting, D. S.-K., Reader, G.T. and Zheng, M.
11:50 - 12:10	<i>Exterior Heat Flux Measurements During House Burn and Implications for Building Codes</i> , Threlfall, T.G., Torvi, D.A. and Thorpe, P.A.	<i>Effects of Internal Fuel Reforming and Initial Temperature on HCCI Combustion of Lean Ethanol/Air Mixtures – A Computational Study</i> , Gnanam, P., Sobiesiak, A. and Reader, G.
12:10 - 13:30	LUNCH	

Tuesday, May 11, 2004

	Session M – Explosions - III Session Chair D. Frost, McGill University	Session N – Engines – VI Session Chair W. Hallett, University of Ottawa
13:30 - 13:50	<i>Gasdynamic Flow Fields Produced by the Frontal Collision of a Detonation with a Shock Wave</i> , Botros, B.B., Ng, H.D., Yang, J.M. and Lee, J.H.S.	<i>Experimental Study of Methane Auto-ignition with Hydrocarbon Additives Under Engine-relevant Conditions</i> , Huang, J., Bushe, W.K., Hill, P.G. and Munshi, S.
13:50 - 14:10	<i>Detonation Stability with Chain-Branching Kinetics for Large Activation Energy</i> , Liang, Z. and Bauwens, L.	<i>Effects of Heat-Release Rate Shaping on Engine Indicated Mean Effective Pressure</i> , Kumar, R., Wu, Y., Reader, G.T. and Zheng, M.
14:10 - 14:30	<i>The Interaction of a Detonation with a Perforated Plate</i> , Noble, G., Chao, J., and Lee, J.H.S.	<i>Mixing in a Constant Volume, Direct Injection Turbulent Combustion Chamber</i> , Xia, C. and Sobiesiak, A.
14:30 - 14:50	<i>Detonation Properties of JP-10 in Air at Elevated Temperatures and Pressure</i> , Card, J. and Ciccarelli, G.	<i>Turbulence Distortion by Expanding Reaction Zones</i> , Emami, B., Liu, R., Ting, D. S.-K. and Checkel, M.D.
14:50 - 15:10	BREAK	
	Session O – Fire - III Session Chair P. Desjardin, SUNY Buffalo	Session P – Flames – I Session Chair P. Amyotte, Dalhousie University
15:10 - 15:30	<i>Measurement of Fuel Regression Rates in a Jet Fuel Pool Fire in Crosswind</i> , Randsalu, E.J., Lam, C.S. , Weckman, E.J., Brown, A.L. and Gill, W.	<i>Study of Laminar, Premixed Ethanol/Air Flames of H₂ and CO</i> , Babu, M., Sobiesiak, A. and Ting, D. S-K.
15:30 - 15:50	<i>Extinguishment of Large Cooking Oil Pool Fires by the Use of Water Mist Systems</i> , Liu, Z., Kim, A.K. and Carpenter, D.	<i>Tomographic Methods Applied to Flames</i> , Farrugia, B. and LaViolette, M.
15:50 - 16:10	<i>Effects of Crosswind on Pool Fires</i> , Woods, J., Fleck, B. and Kostiuk, L.	<i>Effects of Chemically-Passive Suppressants on Laminar Premixed Hydrogen/Air Flames</i> , Qiao, L., Kim, C.H. and Faeth, G.M.
16:10 - 16:30	<i>Preliminary Simulations of Pool Fire Behaviour in a Crosswind with a Large Adjacent Object</i> , Devaud, C. and Weckman, E.J.	<i>Doubly Conditional Moment Closure with Stochastically Modelled Strain for Methane/Air Combustion</i> , Lozada-Ramirez, J., Bushe, W.K. and Frisque, A.
16:30 - 16:50	<i>Catalytic Gasification of Glucose in Subcritical Water</i> , Hashaikh, R., Fang, Z. , Hawari, J., Butler, I.S. and Kozinski, J.	<i>Analysis of the Sandia Flame 'D' Using an Implementation of Conditional Source-Term Estimation in a Commercial RANS Solver</i> , Grout, R. and Bushe, W.K.
17:00 - 17:20	CI/CS Business Meeting	
17:30 - 22:00	Banquet (Fort Henry - Bus Shuttle Available)	

Wednesday, May 12, 2004

8:30 – 9:00	<p>Plenary Session</p> <p>Keynote Speaker: Manfred Klein, Environment Canada</p> <p><i>Prevention of Air Pollution and Greenhouse Gas Emissions in Gas Turbine Facilities</i></p>
	<p>Session Q – Emissions & Controls</p> <p>Session Chair</p> <p>Dr. A. Sobiesiak, University of Windsor</p>
9:10 - 9:30	<p><i>Activity Decay of Solid Sorbents in Combustion Atmosphere</i>, Wang, J. and Anthony, E.J.</p>
9:30 - 9:50	<p><i>Soot Concentration Profiles in a Non-premixed Methane Laminar Flame at High Pressure</i>, Thomson, K., Gulder, O., Weckman, E., Fraser, R., Smallwood, G. and Snelling, D.</p>
9:50 – 10:10	<p><i>Measurement and Modeling of Soot Formation in Binary Fuel Mixtures</i>, Trottier, S., Guo, H., Smallwood, G.J. and Johnson, M.R.</p>
10:10 - 10:30	<p><i>Oxygen-enriched Combustion Studies with the Low NO_x CGRI Burner</i>, Poirier, D., Grandmaison, E.W. , Matovic, M.D., Lawrence, A.D. and Boyd, E.</p>
10:30 - 10:50	BREAK
	<p>Session R – Flames – II</p> <p>Session Chair</p> <p>Dr. M.D. Matovic, Queen's University</p>
10:50 – 11:10	<p><i>Numerical Modelling of a Laminar Axisymmetric Coflow Methane/Air Diffusion Flame at Pressures Between 5 and 20 ATM</i>, Liu, F., Thomson, K.A., Guo, H. and Smallwood, G.J.</p>
11:10 – 11:30	<p><i>Simulation of Freely Propagating, Premixed, Laminar Flames of Iso-octane/Air Mixtures with Methylcyclopentadienyl Manganese Tricarbonyl (MMTTM) Additive</i>, Battoei-Avarzaman, M. and Sobiesiak, A.</p>
11:30 – 11:50	<p><i>A Numerical Study on the Flame Propagation of Laminar Methane/Air Triple Flames</i>, Guo, H., Liu, F. and Smallwood, G.J.</p>
11:50 – 12:10	<p><i>Application of Laminar Flamelet Model to a Diffusion Flame Combustor</i>, Jiang, L.-Y., Campbell, I. and Su, K.</p>