### Monday, August 10, 2015

**Welcome Reception, Exhibition and Poster Sessions**

**McGill Otto Maass – Ground Hall and Lab 100**

18:00 to 21:00

**General Poster Session**

Shanti Singh, NRCan Canadian Explosives Research Laboratory &
Chi-Min Shu, National Yunlin University of Science and Technology (Session Chairs)

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<td>Chemical Kinetics on Thermal Decompositions of Di-tert-butyl Peroxide Studied by Calorimetry: an Overview</td>
<td>C.-S. Kao (National United University), Y.-S. Duh, W.-L. Lee</td>
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<td>GP-2</td>
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<td>C.-S. Kao (National United University), Y.-S. Duh, W.-L. Lee</td>
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<td>Crystallization Measurement by Optical Observation DSC using a Polarizing Filter</td>
<td>Y. Kasai (Hitachi High-Tech Science Corporation), M. Iwasa, K. Shibata, B. Goolsby</td>
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<td>Predicting Friction Material Composition Solely from TGA Data</td>
<td>T. Adams (The Lubrizol Corporation)</td>
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<td>R. Kovach (The Lubrizol Corporation)</td>
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<td>Higher Orders of Virial Coefficients for Polar Molecules</td>
<td>J. Avsec (University of Maribor)</td>
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<td>Thermal Properties of a 1,8-Diaminonaphthalene Phytic Acid Salt</td>
<td>B. A. Howell (Central Michigan University), A. Dembski</td>
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Green Approach to Evaluating Thermal Hazard Reaction of PAA  N/A  GP-12
C.-M. Shu (National Yunlin University of Science and Technology), Y.-T. Tsai, W.-C. Chen, J.-R. Lin, M.-S. Liao, Y.-W. Wang
Bomb Calorimetry of Barium Styphnate using a Reduced Sample Size  N/A  GP-13
S. Hightower (Sandia National Laboratories)

**Student Poster Session**

**Chris Li, Drexel University &**

**Steve Sauerbrunn, University of Delaware (Session Chairs)**

- **DSC Analysis of Thermal Stability of Polymers to Determine Suitability as Bio Medical Implants**  N/A  SP-1
  *A. Gore (Case Western Reserve University), A. Riga, C. Maier, A. Venkataswamy, D. Mantheni*

- **Evaluating Polymer Durability as Measured by Thermogravimetric Analysis (TGA)**  N/A  SP-2
  *A. Leong (Case Western Reserve University), A. Riga, M. P. K. Maheswaram, F. Jia, J. Beiriger, C. Grimm*

- **Characterization on the Thermal Runaway of Commercial 18650 Lithium-ion Batteries Used in Electric Vehicle**  39  SP-3
  *M.-T. Tsai (National United University), Y.-S. Duh, C.-S. Kao*

- **Characterization on Thermal Decompositions of Tert-Butyl Hydroperoxide (TBHP) by Confinement Test**  60  SP-4
  *H.-Y. Kuo (National United University), Y.-S. Duh, C.-S. Kao*

- **Thermal Stability of Ethylene Carbonate Reacted with De-lithiated Cathode Materials in Lithium-ion Batteries**  75  SP-5
  *Y.-L. Chen (National United University), Y.-S. Duh, C.-S. Kao*

- **Thermal Stability of Gelatin Gels Confined to Silica Gel Nanopores**  N/A  SP-6
  *J. Prado (University of Alabama Birmingham), S. Vyazovkin*

- **Effect of Salt on the Main Phase Transition of Solid-Supported Lipid Bilayers**  N/A  SP-7
  *U. Kayiganwa Nativella (Université de Montréal)*

- **Phase Transitions of Organogels of N-Alkyl-(R)-12-Hydroxyoctadecylammonium Chlorides in Safflower Oil**  N/A  SP-8
  *F. Alvarez Mitre (UASLP), R. G. Weiss, V. Ajay Mallia, J. F. Toro Vazquez*

- **Evaluating the Binding Affinity of a GM1 Binding Pro-drug**  N/A  SP-9
  *J. St-Jean (Université de Montréal), A. Melkoumov, X. Banquy, J. L. Chain, G. Leclair*

- **Polyelectrolyte Effects in G-quadruplexes**  91  SP-10
  *B. Kim (University of Toronto)*
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B. Laiwang (National Yunlin University of Science and Technology), Y.-L. Chen, J. Deng, C.-M. Shu, Z.-M. Luo, M.-L. You

Thermal Release Hazard for Decomposition of CHP in the Existence of Incompatibles by DSC, TAM III, and TIC N/A

B. Laiwang (National Yunlin University of Science and Technology), S.-H. Liu, S.-Y. Huang, C.-M. Shu, H.-Y. Hou, J. Deng

Microcosmic Thermal Analysis on Coal Mixed with Oxide at Different Temperatures N/A

C.-Y. Huang (National Yunlin University of Science and Technology), Y.-H. Chang, C.-M. Shu, J. Deng, J.-Y. Zhao, A. Huang

Thermal Analysis of Li₂O-Containing Oxide Systems N/A

B. Konar (McGill University), P. Hudon, M.-A. Van Ende, I.-H. Jung

Thermal Analysis and Thermodynamic Optimization of the K₂O-SiO₂ and K₂O-Al₂O₃ Systems N/A

D.-G. Kim (McGill University), M.-A. van Ende, I.-H. Jung

Crystallization Kinetics of Salts from Aqueous Solutions N/A

V. Stanford (University of Alabama at Birmingham), C. McCulley, J. Prado, S. Vyazovkin

Evaluation of Explosion Properties with Different Particle Size Distribution of Bisphenol A Dust N/A

T.-H. Lin (National Yunlin University of Science and Technology), C.-P. Li, S.-J. Shen, J.-Y. Liao, Y.-T. Tsai, C.-M. Shu

Thermal Decomposition Analysis Using Calorimetric Technology and a Simulation Approach to Determine the SADT of Self-reactive Bis (2,4-dichlorobenzoyl) Peroxide N/A


Adiabatic and Non-isothermal Calorimetry Combined with Simulation Approach to Study the Decomposition Characteristic of DCLBP N/A


The Binary System n-Decane – n-Eicosane as a Model System for the Analysis of Complex Mixtures of Hydrocarbons N/A

M. Ignacio (University of Guelph), K. M. Marczenko, G. W. Reitz, D. V. Soldatov

Thermal Stability of Phosphorus Compounds Derived from 2-Dopyl-1,4-benzenediol Dioleate N/A

G. Lienhart (Central Michigan University), B. A. Howell

A Coupled Experimental Study and Thermodynamic Modeling of Mn-RE Systems for the Development of Mg Alloys N/A

J. Kim (McGill University), M. Paliwal, I.-H. Jung

Interactions of Prolyl Oligopeptidase with Covalent and Non-covalent Inhibitors Studied by DSC N/A

C. Nevitt (McGill University), J. Di Trani, A. Mittermaier
Tuesday, August 11, 2015

Plenary Lecture
McGill Otto Maass – Auditorium 112
Peggy Cebe, Tufts University (NATAS President)

8:00–8:05  Greetings
8:05–8:50  Plenary Lecture: Thermosensitive Liposomes: a Therapeutic Strategy to Enhance the Effectiveness of Nanomedicines in Oncology

C. Allen (University of Toronto)

Pharmaceutics
Auditorium 10
Karine Khougaz, National Research Council & Suresh Narine, Trent University (Session Chairs)

9:00–9:40  A Perspective on Thermal Analysis in Pharmaceutics
Invited Speaker: S.-D. Clas (PharmaSolv Consulting)

9:40–10:00  Direct Measurement of a Binary Amorphous Drug-polymer Phase
Diagram: Methodology and Implications for Physical Stability
M. Grass (Bend Research Inc), M. Morgen, D. Vodak

10:00–10:20  Thermal Analysis in Characterization and Evaluation of Novel Lipid-based Drug Delivery Systems
J. Musakhanian (Gattefosse Corporation)

10:20–10:40  EXHIBITION & COFFEE BREAK (Lab 100)

10:40–11:20  Thermal Analysis to Design Freeze-dried Pharmaceuticals
Invited Speaker: R. Suryanarayanan (University of Minnesota)

11:20–11:40  *  Thermal Dissolution Analysis and Chemical Imaging by Dissolution Analysis; Two New Techniques for Characterising Dissolution Kinetics and Mapping Materials on a Micro and Nano Scale
M. Reading (Huddersfield University)

11:40–12:00  Calorimetric Studies of the Interactions Between Immunoglobulin G and Polyacrylates
F. Winnik (Université de Montreal), D. Ma
Environmental Sustainability & Green Chemistry  
Room 217  
Wassila Benaissa, SOLVAY Corporate Research & Innovation (Session Chair)

9:00–9:20  Thermal Degradation of Phosphorus Derivatives of 2,5-bis- 112 Hydroxymethylfuran
B. A. Howell (Central Michigan University), X. Han

9:20–9:40 * NATAS Student Travel Grant Award: Thermal Degradation of N/A Bisphosphorus Esters of Isosorbide
Y. Daniel (Central Michigan University), B. A. Howell

9:40–10:00  Solid State Chemical Transformation of Glycyl-glycine and Leucyl- N/A alanine
F. I. Ali (University of Guelph), A. Tsang, M. Schreiber, D. V. Soldatov

10:00–10:20 * NATAS Student Travel Grant Award: Thermal Decomposition of 126 Poly(styrene) in the Presence of an Antioxidant
S. Lazar (Central Michigan University), B. A. Howell

High Temperature Thermal Analysis  
Room 328  
Stephen Corbin, Dalhousie University (Session Chair)

9:00–9:40  Characterization of the Sintering Process of Engineering Ceramics Using N/A Advanced Thermal Analysis Methods
Invited Speaker: J. Blumm (NETZSCH)

9:40–10:00  Study of the Sintering Behaviour of Powder-metallurgy-based Titanium-iron Alloys Using Differential Scanning Calorimetry and Dilatometry N/A J. O'Flynn (Dalhousie University), S. Corbin

10:00–10:20  Determining the Transient Liquid Phase Bonding Behaviour of Inconel 625 and BNi-2 foil using Differential Scanning Calorimetry N/A D. C. Murray (Dalhousie University), S. Corbin

10:20–10:40  EXHIBITION & COFFEE BREAK (Lab 100)

10:40–11:20  An Overview of the Fundamentals of Both Low and High Temperature N/A Thermal Conductivity as Related to Thermoelectric Materials
Invited Speaker: T. Tritt (Clemson University)

11:20–11:40  Determining the Oxidation Behavior of Metal Powders During Heating N/A Through Thermogravimetric and Evolved Gas Analysis Using a Coupled Gas Chromatography-Mass Spectrometry Technique
C. Whitman (Dalhousie University), J. O'Flynn, S. Corbin, A. Rayner
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<td>Gel Networks Made from Positive and Negatively Charged Fractal Particles</td>
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<td>B. Grady (University of Oklahoma), J. Weston, J. Harwell</td>
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<td>K. Farah (Lasell College), D. Sharma</td>
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<td>9:40–10:00</td>
<td>Heat Capacity Measurements of Aviation Turbine Fuels</td>
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<td>T. Fortin (National Institute of Standards and Technology), T. Bruno</td>
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<td>C. Potter (TA Instruments)</td>
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<td>10:40–11:00</td>
<td>ASTM Standards &amp; Applications of Thermal Analysis in Forensic Science</td>
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<td>A. Riga (Case Western Reserve University), M. P. K. Maheswaram, D. Mantheni, C. Scott</td>
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<td>11:00–11:20</td>
<td>Legal Case Study to Evaluate Product Liability Used Forensic Polymer Chemistry Measured by FTIR Spectroscopy and Differential Scanning Calorimetry</td>
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<td>J. Moran (Notre Dame College), A. Riga</td>
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<td>Managing an Expert Scientific Witness: Skills, Qualifications, Preparation, and Testimony</td>
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<td>A. Riga (Case Western Reserve University), D. Mantheni, M. P. K. Maheswaram, C. Scott, J. Moran</td>
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<td>J. Beiriger (Case Western Reserve University), A. Riga, D. Mantheni, M. P. K. Maheswaram, J. Moran, C. Scott</td>
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<td>A. Leong (Case Western Reserve University), A. Riga, D. Mantheni, M. P. K. Maheswaram, C. Scott, K. S. Alexander</td>
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13:40–14:00  * Thermomechanical, Thermorheological and Dynamic Mechanical Measurements Using a Temperature Controlled Stage, a Digital Microscope and Image Analysis Software
M. Reading (Huddersfield University), G. Parkes, M. Morton

14:00–14:20 Fog Testing of Automotive Components  N/A
C. Potter (TA Instruments)

14:20–14:40  * Energetic of Degradation and Thermal Behaviour of Glass Fibre Reinforced Polymer Rebars (GFRP) Composites
F. Al-Mubaddel (King Saud University)

14:40–15:00  * Thermal and Morphological Studies on PP/Petroleum Fly Ash Composites With and Without Compatibilizer
F. Al-Mubaddel (King Saud University)

15:00–15:20 EXHIBITION & COFFEE BREAK (Lab 100)

Energetic Materials
Room 217
Charles Dubois, École Polytechnique de Montréal (Session Chair)

10:40–11:20 Techniques to Assess the Thermal Hazard Properties of Ammonium Nitrate and Ammonium Nitrate-Based Explosives  N/A
Invited Speaker: R. Turcotte (NRCan Canadian Explosives Research Laboratory)

11:20–11:40 Nanocalorimetry of Energetic Materials  N/A
D. LaVan (National Institute of Standards and Technology), F. Yi, M. Staymates, J. G. Gillen

11:40–12:00 Safe Handling of Peroxide Explosives  N/A
J. Oxley (University of Rhode Island), J. Smith

12:00–13:20 LUNCH BREAK

13:20–13:40 Testing Explosives and Propellants in the ARC  N/A
P. Ralbovsky (NETZSCH Instruments North America)

13:40–14:00 On-going Study on the Thermal Decomposition of Nitrocellulose and its Mixture with Nitroglycerine  N/A
R. Turcotte (NRCan Canadian Explosives Research Laboratory), Q. Kwok, S. Singh, M. Paquet

14:00–14:20  * Effect of Particle Coating on the Thermal Response of Mixtures of Micro- and Nano-Aluminum Particles and Water
K. Trowell (McGill University), Y. Wang, Y. Yavor, S. Goroshin, J. Bergthorson, D. Frost, J.-C. St-Charles, C. Dubois
14:20–14:40  Cure Kinetics of Glycidyl Azide Polymer with Electron Acceptors by Means of DSC Analysis  N/A  
E. Comtois (General Dynamics Ordnance and Tactical Systems Canada - Valleyfield University), C. Dubois, R. Pontes  

14:40–15:00  * Flame Propagation Characteristics and Combustion Behaviour of FeOOH-coated Zirconium Particles  171  
Q. Wang (Xi'an University of Science and Technology), J. Deng, J. Sun, H. Wen, Z. Luo, L. Ma, B. Liu  

15:00–15:20  EXHIBITION & COFFEE BREAK (Lab 100)  

H. Dong (Institute of Applied Physics and Computational Mathematics), T. Hong, X. Zhang  

15:40–16:00  * Numerical Simulation for the Thermal Response of the Cookoff Bombs with PBX Explosive on Fire  N/A  
X. Zhang (Institute of Applied Physics and Computational Mathematics), T. Hong, H. Dong  

16:00–16:20  Dynamics Features of Fluoropolymer - Al₂O₃ Reactions at Various Heating Rates  N/A  
K. Martirosyan (University of Texas Rio Grande Valley), M. Hobosyan  

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**Biomaterials & Biopolymers**  
**Auditorium 10**  
Sophie-Dorothée Clas, PharmaSolv Consulting & Karine Khougaz, National Research Council (Session Chairs)  

13:20–14:00  The Lipid Biorefinery: Polymers and Fine Chemicals  N/A  
Invited Speaker: S. Narine (Trent University)  

14:00–14:20  Evaluation of the Ability of Cationic Lipids to Disrupt Membranes  N/A  
L. Crocker (Merck Research Laboratories)  

14:20–14:40  Localized Heating Around Nanoparticles on Polymeric and Lipid Membranes: Application in Drug Delivery  N/A  
A. Skirtach (Ghent University)  

14:40–15:00  Vibrational Heat Capacity of Collagen and Collagen-Water  N/A  
M. Pyda (Rzeszow University of Technology), P. Zawada, P. Cebe  

15:00–15:20  EXHIBITION & COFFEE BREAK (Lab 100)  

15:20–15:40  Lipid Derived Phase Change Materials for Thermal Energy Storage  N/A  
M. Floros (Trent University), M. Tessier, S. Narine
15:40–16:00  Green Silk-Graphene Nano-composite Materials  N/A  BB-6

X. Hu  (Rowan University)

16:00–16:20  Mitigating the Crystallization Temperature of Biodiesel  N/A  BB-7

A. Mohanan  (Trent University), S. Narine, L. Bouzidi

16:20–16:40  Fast Scanning Calorimetry of Silk Fibroin Protein  N/A  BB-8

P. Cebé  (Tufts University), B. Partlow, D. Kaplan, A. Wurm, E. Zhuravlev, C. Schick

**Fast Scanning Calorimetry**

**Room 328**

Louis Cuccia, Concordia University (Session Chair)

13:20–13:40  **NATAS Fellows Award sponsored by NETZSCH**: Melting Kinetics of Polymer Crystals Examined by Fast-scan DSC  N/A  Fast-1

A. Toda  (Hiroshima University), T. Ando, K. Taguchi, K. Nozaki, M. Maruyama, Y. Mizutani, K. Tagashira, T. Fukushima, H. Kaji, M. Konishi

13:40–14:00  About the Interplay Between Rigid Amorphous Fraction and Crystalline Fraction in Polypropylene  N/A  Fast-2

J. Schawe  (Mettler-Toledo AG)

14:00–14:20  **NATAS Student Travel Grant Award**: Determination of the Nonlinearity Parameter in the TNM Model of Structural Recovery: Simulation of Flash DSC Data  N/A  Fast-3

R. Bari  (Texas Tech University), S. Simon

14:20–14:40  **NATAS Student Travel Grant Award**: Intrinsic Isotherms, Asymmetry of Approach, and Memory Effect Experiments for a Single Polystyrene Film using Rapid Scanning Chip Calorimetry  195

E. Lopez  (Texas Tech University), S. Simon

14:40–15:00  Investigation of Injection Molded PBT Microstructure via Fast Scanning Calorimetry  N/A  Fast-5

A. Rhoades  (Penn State Erie, Behrend College), J. Guo, J. Williams, R. Androsch

15:00–15:20  EXHIBITION & COFFEE BREAK (Lab 100)
# Nanocomposites & Composites

**Room 328**

**Pierre-Claver Nkinamubanzi, National Research Council (Session Chair)**

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<td>High Performance Multi-functional Nanocoatings</td>
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<td><em>Invited Speaker: L. Sun (University of Connecticut)</em></td>
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<td>16:00–16:20</td>
<td>Void Level in Composites by Thermal Diffusivity</td>
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<td><em>S. Sauerbrunn (University of Delaware - CCM), J. Deitzel</em></td>
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<td>16:20–16:40</td>
<td>The Use of Thermal Analysis Methods in Cement and Concrete Applications</td>
<td>N/A</td>
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<td><em>P.-C. Nkinamubanzi (National Research Council)</em></td>
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<td>16:40–17:00</td>
<td>Influence of Carbon Nano-tubes and Calcium Carbonate Filler on the Crystallization Behavior of Polypropylene at Processing Relevant Supercooling</td>
<td>N/A</td>
<td>Nano-4</td>
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<td><em>J. Schawe (Mettler-Toledo AG)</em></td>
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**NATAS Members Meeting**

McGill Otto Maass – Auditorium 10

17:00 to 17:30

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**CTAS Annual General Meeting**

McGill Otto Maass – Room 328

17:00 to 17:30
Wednesday, August 12, 2015

METTLER Award in Thermal Analysis – Plenary Lecture
sponsored by Mettler Toledo
McGill Otto Maass – Auditorium 112
Queenie Kwok, NRCan Canadian Explosives Research Laboratory (Conference Chair)

8:00–8:05  Greetings

8:05–8:50  METTLER Award in Thermal Analysis: The Role of Thermal Analysis in Understanding Fundamentals Essential for Solving Practical Problems in Polymer Applications and Processing
R. Chartoff (University of Oregon)

In Memoriam Edith Turi
Auditorium 10
Joseph Menczel, Thermal Measurements & Lawrence Judovits, Arkema Inc (Session Chairs)

9:00–9:20  In Memoriam Edith Turi – Introduction
J. Menczel (Thermal Measurements)

9:20–9:40  Crystal-to-Crystal Transition in Semicrystalline Polymers
J. Menczel (Thermal Measurements), S. Kohl

9:40–10:00  Thermal Analysis of Isosorbide Containing Thermoplastics and Thermosets
M. Jaffé (New Jersey Institute of Technology), W. Hammmon, G. Olaoya, G. Busto, R. Bhatt, A. Sadoh

10:00–10:20  Fast Scanning Calorimetry of Semicrystalline Trogamid
P. Cebe (Tufts University), B. Mao, A. Wurm, E. Zhuravlev, C. Schick

10:20–10:40  EXHIBITION & COFFEE BREAK (Lab 100)

10:40–11:00  Mimicking Bone Nanostructure by Combining Block Co-polymer Self-Assembly and 1D Crystal Nucleation
C. Li (Drexel University)

11:00–11:20  Tackling Difficult Industrial Problems: Thermal Analysis of Oily Nanofilms on Steel
J. Matisons (Gelest Inc)
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<td>11:20–11:40</td>
<td>Strong Memory of Crystallization in Melts of Broadly Distributed Ethylene 1-Alkene Copolymers. A Study of Molar Mass and Comonomer Compositions Fractions</td>
<td>N/A A. Mamun (Florida State University), X. Chen, R. G. Alamo</td>
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<td>11:40–12:00</td>
<td>Cure Characterization of Readily Available Epoxies by Modulated Temperature DSC</td>
<td>N/A L. Judovits (Arkema), R. B. Prime</td>
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<td>12:00–13:20</td>
<td>LUNCH BREAK</td>
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<tr>
<td>13:20–13:40</td>
<td>Single Fiber Shear Modulus: Using a Rheometer as a Torsional Pendulum</td>
<td>N/A S. Sauerbrunn (University of Delaware), M. Sheehan</td>
</tr>
<tr>
<td>13:40–14:00</td>
<td>Influence of Moisture on Coal Oxidation Kinetics by TG-IR Analysis</td>
<td>N/A X. Zhai (Xi’an University of Science&amp;Technology), H. Wen, K. Wang, J. Guo, Z. Yu</td>
</tr>
</tbody>
</table>

**Thermal Hazards & Process Safety**

*Room 217*

**Wassila Benaissa, SOLVAY Corporate Research & Innovation & Richard Kwasny, Fauske and Associates (Session Chairs)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker(s)</th>
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</thead>
<tbody>
<tr>
<td>9:00–9:40</td>
<td>Enthalpy or Energy that is the Question for Process Safety Calorimetry</td>
<td>N/A Invited speaker: D. Carson (Institut National de l’Environnement Industriel et des Risques)</td>
</tr>
<tr>
<td>9:40–10:00</td>
<td>Process Safety and Heterogeneous Catalytic Hydrogenation using Reaction Calorimetry</td>
<td>N/A R. Kwasny (Fauske &amp; Associates, LLC), D. Knoechel</td>
</tr>
<tr>
<td>10:00–10:20</td>
<td>Thermal Hazard Evaluation of Cumene Hydroperoxide (CHP) Using an Isothermal Calorimeter</td>
<td>N/A S.-H. Wu (TransWorld University)</td>
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<tr>
<td>10:20–10:40</td>
<td>EXHIBITION &amp; COFFEE BREAK (Lab 100)</td>
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<tr>
<td>10:40–11:00</td>
<td>Thermal Analysis of Two Alkyl-imidazolium Ionic Liquids</td>
<td>N/A C.-Y. Huang (National Yunlin University of Science and Technology), S.-Y. Huang, S.-H. Liu, J. Deng, H.-Y. Hou, Y.-H. Chang, C.-M. Shu</td>
</tr>
<tr>
<td>11:00–11:20</td>
<td>Fire Prevention Mechanism of the Coal Spontaneous Combustion for Zn/Mg/Al Layered Double Hydroxides</td>
<td>N/A B. Liu (Xi’an University of Science and Technology), C. Wang, X. Zhai, X. Zhang, Q. Wang, J. Deng</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>11:20–11:40</td>
<td>Accelerated Reactions in Thermal Hazards Screening</td>
<td>N/A</td>
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<td><em>P. Ralbovsky (NETZSCH Instruments North America)</em></td>
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<tr>
<td>11:40–12:00</td>
<td>Thermal Hazard Analysis with Custom-Made High-Pressure Crucibles and Their Application to Ionic Liquids</td>
<td>N/A</td>
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<td><em>H. Xia (University of Notre Dame), J. Brennecke</em></td>
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<tr>
<td>12:00–13:20</td>
<td>LUNCH BREAK</td>
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<tr>
<td>13:20–13:40</td>
<td>Simultaneous Consideration of DSC, ARC and DEWAR Data for Determination of Thermal Hazard Indicators</td>
<td>N/A</td>
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<td><em>B. Roduit (AKTS Inc.), M. Hartmann, P. Folly, A. Sarbach, P. Brodard, R. Baltensperger</em></td>
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<tr>
<td>13:40–14:00</td>
<td>Effects of UV for (3,4-Epoxycyclohexane) Methyl-3’4’-Epoxycyclohexyl-carboxylate (EEC) Mixed with Reactants via Calorimetric Technology and Theoretical Kinetic Models</td>
<td>N/A</td>
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<td></td>
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<td><em>B. Laiwang (National Yunlin University of Science and Technology), Y.-T. Tsai, J. Deng, C.-M. Shu, J.-R. Chen</em></td>
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<tr>
<td>14:00–14:20</td>
<td>Detection of Thermal Explosion Hazards for 18650 Li-ion Batteries Module by VSP2</td>
<td>N/A</td>
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<td></td>
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<td><em>C.-Y. Huang (National Yunlin University of Science and Technology), W.-C. Chen, Y.-W. Wang, J.-R. Chen, C.-M. Shu, Y.-H. Chang</em></td>
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<tr>
<td>14:20–14:40</td>
<td>Effects of Dust Explosion on the Production of Powdered Polyester Resin</td>
<td>N/A</td>
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<td><em>C.-M. Shu (National Yunlin University of Science and Technology), Y.-T. Tsai, T.-H. Lin, S.-Y. Lin, S.-C. Ho</em></td>
</tr>
<tr>
<td>14:40–15:00</td>
<td>Experimental Study on the Corresponding Relationship Between the Index Gases and Critical Temperature for Coal Spontaneous Combustion</td>
<td>N/A</td>
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<td><em>Y. Xiao (Xi’an University of Science and Technology), Q.-W. Li, J. Deng, C.-M. Shu</em></td>
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<tr>
<td>15:00–15:20</td>
<td>EXHIBITION &amp; COFFEE BREAK (Lab 100)</td>
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## Biocalorimetry

**Room 328**  
Anthony Mittermaier, McGill University (Session Chair)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter/Institution</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>9:00–9:40</td>
<td>Transforming ITC Into kinITC Yields Thermodynamic and Kinetic Information</td>
<td>N/A (Centre National de la recherche scientifique Bureau)</td>
<td>Bioc-1</td>
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<tr>
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<td><strong>Invited Speaker: P. Dumas</strong></td>
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<td><strong>Invited Speaker: G. Makhatadze</strong></td>
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<td>10:20–10:40</td>
<td>EXHIBITION &amp; COFFEE BREAK (Lab 100)</td>
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<tr>
<td>10:40–11:00</td>
<td>Probing G-register Exchange Dynamics in Guanine Quadruplexes</td>
<td>N/A (McGill University), A. Mittermaier</td>
<td>Bioc-3</td>
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<td><strong>R. Harkness</strong></td>
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<tr>
<td>11:00–11:40</td>
<td>Isothermal Titration Calorimetry Methods for Studying Protein Allostery and Coupled Folding/Binding Reactions</td>
<td>N/A (McGill University)</td>
<td>Bioc-4</td>
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<td>A. Mittermaier</td>
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<tr>
<td>11:40–12:00</td>
<td>Energetics of G-quadruplex Polymorphism</td>
<td>213 (University of Toronto)</td>
<td>Bioc-5</td>
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<td><strong>B. Kim</strong></td>
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<tr>
<td>12:00–13:20</td>
<td>LUNCH BREAK</td>
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<td>13:20–14:00</td>
<td>Characterization of Ligand Binding by the Cocaine-Binding Aptamer</td>
<td>N/A (York University), O. Reinstein, S. Slavkovic</td>
<td>Bioc-6</td>
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<td><strong>Invited Speaker: P. Johnson</strong></td>
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<tr>
<td>14:00–14:20</td>
<td>Facile Determination of Hoogsteen Base Pair Populations in Duplex</td>
<td>N/A (McGill University), A. Mittermaier</td>
<td>Bioc-7</td>
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<td></td>
<td><strong>R. Harkness</strong></td>
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<tr>
<td>14:20–15:00</td>
<td>Ion Binding Properties of K+-selective and Non-selective Cation Channels</td>
<td>N/A (Texas A&amp;M University)</td>
<td>Bioc-8</td>
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<td><strong>Invited Speaker: S. Lockless</strong></td>
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<tr>
<td>15:00–15:20</td>
<td>EXHIBITION &amp; COFFEE BREAK (Lab 100)</td>
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<td>15:20–16:00</td>
<td>Ionic Switch Controls the DNA State in Phage λ</td>
<td>N/A (Carnegie Mellon University)</td>
<td>Bioc-9</td>
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<td><strong>Invited Speaker: A. Evilevitch</strong></td>
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<tr>
<td>16:00–16:20</td>
<td>Studying Biological Reaction Kinetics Using Isothermal Calorimetry</td>
<td>N/A (McGill University), A. Mittermaier</td>
<td>Bioc-10</td>
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<td></td>
<td><strong>J. Di Trani</strong></td>
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Simultaneous & Combined Techniques  
Room 321  
Charles Potter, TA Instruments (Session Chair)

9:00–9:20  Innovative TG-GC-MS Methods for Thermal Degradation Studies of Polymers  N/A  
K. Lilova (SETARAM Inc)  
9:00–9:40  Investigation of Sulfur and Selenium Vapors with Thermal Analysis – Single Photon Ionization Mass Spectrometry  N/A  
9:40–10:00  Identification of Different NR/SBR Blends with Low SBR Contents by TGA-GC/MS  N/A  
N. Fedelich (Mettler Toledo AG)  
10:00–10:20  On-line Characterization of the Organic Chemical Signature of Thermal Processes in Evolved Gas Analysis: Thermogravimetry Hyphenated to Photo-Ionization Mass Spectrometry or Fast Gas Chromatography-Photo-Ionization Mass Spectrometry  N/A  
10:20–10:40  EXHIBITION & COFFEE BREAK (Lab 100)  
10:40–11:00  Development of a TG/DTA Instrument with High-Resolution Sample Observation Capability and Some Applications  N/A  
B. Goolsby (Hitachi High Technologies), Y. Nishiyama, K. Shibata, M. Iwasa  
11:00–11:20  Beyond Peak Area: Approaches for Improving Data Treatment for Evolved Gas Analysis  N/A  
C. DeCarlo (Extral CMS)

Molecular Materials  
Room 321  
Dmitriy Soldatov, University of Guelph (Session Chair)  

13:20–13:40  * NATAS Student Award sponsored by SETARAM: Self Nucleation and Crystallization of Poly(vinyl alcohol)  234  
D. Thomas (Tufts University), P. Cebe  
13:40–14:00  Nucleation and Supercooling in Saturated Fatty Acid Phase Change Materials  N/A  
J. Noel (Dalhousie University), M. A. White
14:00–14:20 Composition, Molecular and Solid State Structure, and Thermal Properties of Polyethylene Based Industrial Waxes  N/A
* M. Ignacio (University of Guelph), K. M. Marczenko, G. W. Reitz, D. Di Mondo, D. V. Soldatov  MM-3

14:20–14:40 Complex Phase Behavior of Mesomorphic and Crystalline Dyes  N/A
* H. Taing (University of Windsor), S. Holger Eichhorn  MM-4

14:40–15:00 NATAS Student Travel Grant Award: Evaluation of Glucose Doped TiO2/Carbon Electrocatalyst Supports for Fuel Cell Application  N/A
* C. Odetola (University of Ontario Institute of Technology), L. Trevani, B. Easton  MM-5

15:00–15:20 EXHIBITION & COFFEE BREAK (Lab 100)

15:20–15:40 Thermal Stability and Decomposition Pathways of Short Leucine-Based Peptides  N/A
* A. J. Smith (University of Guelph), F. I. Ali, D. V. Soldatov  MM-6

15:40–16:00 Temperature Dependent Conformational Polymorphism of a 1,2,3-DTA Ligand  N/A
* R. A. Mayo (University of Guelph), D. J. Sullivan, T. A. P. Fillon, D. V. Soldatov, K. E. Preuss  MM-7

Thermal Transport & Electrical Properties
Auditorium 10
Adam Harris, C-Therm (Session Chair)

15:20–15:40 Simultaneous Thermal Property Measurements  N/A
* E. Wolff (Precision Measurements And Instruments Corporation Laboratory)  TE-1

15:40–16:00 Thermodynamic and Transport Properties for Fluids and Solids Participating in CuCl and Solar Production Processes
* J. Avsec (University of Maribor), Z. Wang, G. Naterer  TE-2

16:00–16:20 A Study of Solid-Solid Phase Transitions of Ammonium Nitrate  N/A
* M. Yao (Nanjing University of Science & Technology), J. Peng  TE-3

16:20–16:40 Thermal Conductivity Testing of Metal Hydrides at Elevated Temperatures and Atmospheric Pressures  N/A
* S. Ackermann (University of New Brunswick), A. Harris; G. S. McGrady, S. Riley  TE-4

16:40–17:00 Effect of Compressive Pressure on Thermal Contact Resistance and Anisotropic Thermal Conductivity of Natural Flake Graphite Sheets
* A. Soleymani (Simon Fraser University), M. A. Fayazbakhsh, M. Bahrami  TE-5
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<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Authors</th>
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</thead>
<tbody>
<tr>
<td>15:20–15:40</td>
<td>Temperature Dependence of the Reaction Rate During Gas-solid Reactions</td>
<td>N/A</td>
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<td><strong>L. Favargeon (Ecole des Mines), M. Pijolat</strong></td>
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<tr>
<td>15:40–16:00</td>
<td>New Kinetic Workflow Intended for Scale-up of Thermal Behavior of Materials Based on Merging Heat Flow Traces with Adiabatic or Large Scale Test Data</td>
<td>N/A</td>
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<tr>
<td></td>
<td><strong>B. Roduit (AKTS Inc.), M. Hartmann, P. Folly, A. Sarbach, P. Brodard, R. Baltensperger</strong></td>
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<tr>
<td>16:00–16:20</td>
<td><strong>NATAS Student Travel Grant Award:</strong> Kinetics of Gelatin Gel Melting: Probing the Effect of Solid Surfaces</td>
<td>N/A</td>
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<td><strong>J. Prado (University of Alabama Birmingham), S. Vyazovkin</strong></td>
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<tr>
<td>16:20–16:40</td>
<td><strong>NATAS Student Travel Grant Award:</strong> Reaction Kinetics of Phenyl Cyanate Ester Trimerization</td>
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<td><strong>M. Pallaka (Texas Tech University), S. Simon</strong></td>
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Shuttle bus from La Citadelle / Delta Hotels to Old Port of Montreal
18:00 to 18:30

Boarding at Quai Jacques-Cartier
18:30–19:00

Award Banquet – Le Bateau Mouche Dinner Cruise
19:00–22:00

Shuttle bus to La Citadelle / Delta Hotels
22:00–22:30
**Thursday, August 13, 2015**

**Plenary Lecture**  
McGill Otto Maass – Auditorium 112  
Shanti Singh, NRCan Canadian Explosives Research Laboratory (Technical Program Chair)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:00–8:05</td>
<td>Greetings</td>
</tr>
</tbody>
</table>
| 8:05–8:50| Plenary Lecture: Thermal Microscopy for Discovery of New Molecular Materials: from Pharmaceutical Cocrystals to Photo/Thermomechanical Solids N/A  
* T. Friscic (McGill University) |

**Thermal Transport & Electrical Properties**  
Auditorium 10  
Adam Harris, C-Therm (Session Chair)

<table>
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<tr>
<th>Time</th>
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| 9:00–9:20| Measuring the Thermal Barrier Function of Phase Change Material (PCM) Integrated in Sheet-like Carrier Materials N/A  
* B. Pause (Textile Testing & Innovation, LLC.) |
| 9:20–9:40| Improving the Thermal Performance of Printed Circuit Boards by Optimizing Vias Configuration 251  
* A. Soleymani (Simon Fraser University), M. Ahmadi, M. Bahrami |
| 9:40–10:00| The Influence of Thermophysical Properties on Electromagnetic Liquid Flows 263  
* J. Avsec (University of Maribor) |
| 10:00–10:20| A New Concept for the Measurement of Seebeck Coefficients N/A  
* M.-A. Thermitus (NETZSCH Instruments), T. Denner, J. Blumm |
| 10:20–10:40| EXHIBITION & COFFEE BREAK (Ground Hall) |
| 10:40–11:00| Criterion and Need for a Standard for Thermal Effusivity Measurements N/A  
* R. Bateman (C-Therm Technologies) |
| 11:00–11:20| Polar Ionic Conduction in the Solid State of Drugs and Polymers Can be Verified by Dielectric Thermal Analysis N/A  
* K. Rodgers (Case Western Reserve University), A. Riga, D. Mantheni, |
| 11:20–11:40| Microscale IR Thermography; a Practical Application to Visual Thermal Analysis N/A  
* J. Morikawa (Tokyo Institute of Technology) |
11:40–12:00 * Forced Convection Heat Transfer Model & Simulation in the Developing Region of Porous Material Filled Channel for Same Wall Temperature

N. Singh (Endurance Technology), M. Sahni

Kinetics
Room 217

Refat Ghunem, National Research Council & Peter Ralbovsky, NETZSCH Instruments North America (Session Chairs)

9:00–9:20 * Prediction of Modulus Evolution of a Silicone Composite Using DMA for Cure Kinetic Profile Development

J. Gao (GE Global Research), M. Ravalli, J. Kelley, K. Gurnon, F. LeBel, S. Rubinsztajn

9:20–9:40 Kinetics of Wire Insulation Decomposition

H. Salerno (DuPont)

9:40–10:00 Oxidation Kinetics and Reactivity of Jurassic Coal in North Shaanxi

J. Deng (Xi’an University of Science & Technology), K. Wang, Y. Zhang, H. Yang

10:00–10:20 Oxidation Kinetics Characteristics of Jurassic Coal in North Shaanxi in the Low Temperature Process

Y. Zhang (Xi’an University of Science & Technology), J. Deng, K. Wang, J. Zhao

10:20–10:40 EXHIBITION & COFFEE BREAK (Ground Hall)

Localized TA & Nanoconfinement
Room 328

Jonathan Felts, Texas A&M University (Session Chair)

9:00–9:20 Thermomechanical Bond Scission Dynamics Measured on Functionalized Graphene using Scanning Probes

J. Felts (Texas A&M University), A. Oyer, S. Hernandez, K. Whitener, J. Robinson, S. Walton, P. Sheehan

9:20–9:40 Measuring Bias Dependence of Thermal Strain in AlGaN/GaN High Electron Mobility Transistors with Scanning Joule Expansion Microscopy

M. Rosenberger (University of Illinois Urbana-Champaign), W. King, S. Graham, J. Jones, G. Pavlidis
9:40–10:00  * Thermal Analysis by Structural Characterisation; a New General Purpose Thermal Analysis Technique  312
M. Reading (Huddersfield University), M. Morton

10:00–10:20  Multilayer Films and Polymer Blends Characterized by NanoTA and Lorentz Contact Resonance  N/A
E. Dillon (Anasys Instruments), K. Kjoller

10:20–10:40  EXHIBITION & COFFEE BREAK (Ground Hall)

10:40–11:00  * NATAS Student Travel Grant Award: Glass Transition and Viscoelastic Properties of thin Selenium Films at the Nano Scale  306
H. Yoon (Texas Tech University), Y. P. Koh, S. Simon, G. McKenna

11:00–11:20  Modification of PVC Materials for Breath Alcohol Sensor Devices  N/A
J. Allan (University of Ontario Institute of Technology)

11:20–11:40  The Glass Transition Behaviors of Polymers Confined in Alumina Nanoporous Templates  N/A
L. Li (Nanjing University), J. Chen, G. Xue

End of Conference