21st CTAS Annual Workshop & Exhibition

May 10 & 11, 2011
University of Guelph
Guelph, Ontario, Canada
**Tuesday May 10, 2011**

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<th>Time</th>
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<td>8:00 – 8:30</td>
<td>Registration <em>(Room 1504)</em></td>
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| 8:30 – 9:15  | **Plenary Lecture**  
The Thermodynamic and Thermal Stability of Amino Acids and Nucleic Acid Bases under Hydrothermal Conditions by Solution Calorimetry, Densimetry and UV-Visible Spectroscopy  
E. Balodis, V. Mann and Peter Tremaine, Department of Chemistry, University of Guelph, ON |
| 9:15 – 9:30  | **Open Forum**  
Moderator: P. Tremaine                                                 |
| 9:30 – 10:00 | **Advanced Techniques in Thermogravimetry**  
C. A. Potter, TA Instruments                                              |
| 10:00 – 10:30| **Exhibition, Posters & Coffee break (Rooms 1504 and 1508)**           |
| 10:30 – 11:00| **Review of Thermal Conductivity Characterization Techniques**  
A. Harris, C-Therm Technologies Ltd.                                      |
| 11:00 – 11:30| **Sample Preparation for Dynamic Mechanical Analysis**  
A. Hammer, Mettler-Toledo, Inc                                             |
| 11:30 – 12:00| **How Well Do You Know Your Thermal Analysis & Calorimetry Facts?**  
N. Garcia, Setaram Inc                                                     |
| 12:00 – 13:15| **Lunch (The Atrium)**                                                 |
Vendor Presentations
New Science Complex, Room 1511

13:15 – 13:30       Setaram Inc.
13:30 – 13:45       Mettler-Toledo Inc.
13:45 – 14:00:      TA Instruments
14:00 – 14:15       Netzsch Instruments Inc.
14:15 –14:30       C-Therm Technologies Inc
14:30 – 16:30       Exhibition, Posters & Coffee break (Rooms 1504 and 1508)

Social Event:
The Bullring Pub
Mixer / Dinner
18:00 – 21:00
Wednesday May 11, 2011

Technical Session
New Science Complex, Room 1511

08:00 – 08:30  Registration

08:30 – 09:15  Plenary Lecture
Nanotechnology and its Applications from Medicine to Construction
Subhash C. Mojumdar, Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, Púchov (Slovakia)

G. Zimmerman¹, H. Arcis², P. Tremaine²
¹University of Bloomsburg, Pennsylvania (USA), ²University of Guelph, ON.

09:35 – 09:55  Comparison of Decomposition Gases of Two “Green” Explosives by TG-DSC-FTIR-MS
B. Acheson¹, Q. Kwok¹, R. Turcotte¹ P. Brousseau²
¹Canadian Explosives Research Laboratory, Ottawa, ON, ²Defence R&D Canada, Valcartier, QC.

09:55 – 10:25  Exhibition, Posters & Coffee break (Rooms 1504 and 1508)

10:25 – 10:45  Inclusion Compounds of Leucyl-alanine (Leu-Ala) with Dimethylsufoxide (DMSO), Guaiacol and Pyridine Derivatives
A. Yazdani, V. V. Chirmanov, D. V. Soldatov
Department of Chemistry, University of Guelph, ON
10:45 – 11:05  Enthalpy of Solution of CO$_2$ in Aqueous Solutions of Ethanolamines at Temperatures of 50 °C and 100 °C and for Pressures from 0.2 to 5 MPa.
H. Arcis$^1$, K. Ballerat-Busserolles$^2$, L. Rodier$^2$, J.Y. Coxm$^2$.
$^1$University of Guelph, ON, $^2$Laboratoire de Thermodynamique et Interactions Moléculaires, Aubière (France)

11:05 – 11:25  Calorimetry and Thermal Analysis of Cement
Nelson Garcia, Andre A. Levchenko
Setaram Inc., Pleasanton, California (USA).

11:25 – 12:00  Annual General Meeting (35 minutes for discussions)

12:00 – 13:00  Lunch (The Atrium)

13:00 – 13:20  The Decomposition of the Ternary Telluride Tl$_2$ZrTe$_3$ Above Room Temperature
C Raj Sankar, M Guch, H Kleinke
Chemistry Department, University of Waterloo, ON.

Allan Nixon$^1$, Matthew Kaye$^2$, Liliana Trevani$^1$
$^1$Faculty of Science, UOIT, Oshawa, $^2$Faculty of Energy Systems and Nuclear Science, UOIT, Oshawa, ON.

13:40 – 14:00  Application of the MMC 274 to the King’s Lynn Accident
P. Vichos, P. Ralbovsky
Netzsch Instruments North America LLC, Chicago, Illinois (USA).

14:00 – 14:30  Exhibition, Posters & Coffee break (Rooms 1504 and 1508)
14:30 – 14:50  Ionization Constants of Acetic Acid in H₂O and D₂O from 100 °C to 275 °C at 20 MPa: Deuterium Isotope Effects under Hydrothermal Conditions  
K. M. Erickson¹, H. Arcis¹, D. Raffa¹, G. H. Zimmerman², P. R. Tremaine¹  
¹University of Guelph, ON, ²University of Bloomsburg, Pennsylvania (USA).

14:50 – 15:10  Novel Technique for Measuring Thermal Conductivity of Geological Samples Including Logged Core  
R. Bateman¹, A. F. Park², A. Harris³.  
¹Department of Chemical Engineering, University of New Brunswick, Fredericton, NB, ²Department of Earth Sciences, University of New Brunswick, Fredericton, NB, ³C-Therm Technologies Ltd., Fredericton, NB.

15:10 – 15:30  Thermal Conductivity of Polyurethane Composites with Silver Nano- and Micro-Particles  
M. Iqbal¹, S. H. Eichhorn¹ and A. Harris²  
¹Department of Chemistry & Biochemistry, University of Windsor, ON, ²C-Therm Technologies Ltd., Fredericton, NB.

15:30 – 15:50  Melting Properties isotactic Polypropylene at High (1,800,000 °C/min) Heating Rates  
A. Hammer, P. LaPointe, J. Schawe  
Mettler-Toledo, Inc, Columbus, OH (USA).

15:50 – 16:10  Exhibition, Posters & Coffee break (Rooms 1504 and 1508)

16:10 – 16:30  Characterization of Water-in-oil Emulsions by Differential Scanning Calorimetry  
J. Kein, Y. Maham  
Department of Chemical and Materials Engineering, University of Alberta, AB.
16:30 – 16:45 Degradation Mechanism and Thermal Stability of Urea Nitrate Below the Melting Point
S. Désilets¹, P. Brousseau¹, D. Chamberland¹, S. Singh², H. Feng², R. Turcotte², J. Anderson³
¹Defence R&D Canada, Valcartier, QC, ²Canadian Explosives Research Laboratory, Ottawa, ON, ³Defence R&D Canada, Suffield, AB.

16:45 – 17:00 Thermal Analysis of Inclusion Compounds: Some Tips and Tricks
D.V. Soldatov, A. Yazdani, V.V. Chirmanov
Department of Chemistry, University of Guelph, ON.

17:00 – 17:15 Thermal Conductivity of Advanced Textiles
A. Harris
C-Therm Technologies Ltd., Fredericton, NB

17:15 Student Awards Announcement
Poster Session

Thermal Analysis of Highly Unstable Inclusion Materials: Clathrates of a Nickel Complex with Aromatic Guests
V. V. Chirmanov, D. V. Soldatov
Department of Chemistry, University of Guelph, ON

Functionalization of Carbon Nanotubes using a Supercritical Fluid Sol-Gel Aided Method.
D. McGillivray, F. Gaspari, L. Trevani
Faculty of Science, University of Ontario Institute of Technology, Oshawa, ON

Thermal Analysis Techniques for Studying Li-ion Cells and Materials of Construction
P. Vichos, Netzsch Instruments Inc.

Synthesis, Characterization, Magnetic and Electrical Properties of Nanocrystalline Mn$_{0.3}$Ni$_{0.3}$Zn$_{0.4}$Fe$_2$O$_4$ Obtained by Novel Fumarato-hydrazinate Precursor Method
U. B. Gawas$^1$, V. M. S. Verenkar$^1$ and S. C. Mojumdar$^{2,3}$
$^1$Department of Chemistry, Goa University (India) $^2$Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, (Slovakia), $^3$Department of Chemistry, University of Guelph, ON

Multiple Mode Calorimeter (MMC) Performance Tests for Material Characterization Studies
P. Vichos, Netzsch Instruments Inc.

Comparative Nanocrystallization Kinetic Study in Two FINEMET Alloys
E. M. Loftfabad, A. Kohandehghan, Y. Maham
Department of Chemical and Materials Engineering, University of Alberta, Edmonton, AB

Influence of Transition Metal V(II)-doping on Thermal and Optical Properties of Magnesium Rubidium Sulphate Crystals
S. Parthiban$^1$, H. Anandalakshmi$^1$, S. Senthilkumar$^2$ and S. C. Mojumdar$^{3,4}$
$^1$Department of Chemistry, Annamalai University (India), $^2$Chemistry Wing, DDE, Annamalai University (India), $^3$Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, Púchov (Slovakia), $^4$Department of Chemistry, University of Guelph, Guelph, ON
Ion Association in Aqueous MgSO$_4$ and NiSO$_4$ from 25 to 275 °C at 19 MPa by AC Conductance and Raman spectroscopy
M. Madekufamba, P. Tremaine
University of Guelph, ON

Crystal growth, Structure and Characterization of o-hydroxybenzoic acid Single Crystals: Solvent Effects
K. Muthu$^1$, G. Madhurambal$^2$, S. P. Meenakshisundaram$^1$ and S. C. Mojumdar$^{3,4}$
$^1$Department of Chemistry, Annamalai University, Tamilnadu (India), $^2$Department of Chemistry, ADM College for Women, Nagapattinam (India), $^3$Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, Púchov (Slovakia), $^4$Department of Chemistry, University of Guelph, Guelph, ON

Synthesis and Characterization of Ultrafine Spinel Ferrite Obtained by Precursor Combustion Technique
L. R. Gonsalves$^1$, S. C. Mojumdar$^{2,3}$ and V. M. S. Verenkar$^1$
$^1$Department of Chemistry, Goa University (India), $^2$Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, Púchov (Slovakia), $^3$Department of Chemistry, University of Guelph, Guelph, ON.

Stepwise Formation Constants for Aqueous Copper(II) and Copper(I) Chloro-Complexes from 5 to 150 °C.
L. Applegarth$^1$, C. Pye$^2$, L. Trevani$^3$ and P. Tremaine$^1$
$^1$Department of Chemistry, University of Guelph, ON, $^2$Department of Chemistry, St. Marys University, Halifax, NS, $^3$Faculty of Science, University of Ontario Institute of Technology, Oshawa, ON

Effect of Alkali Metal Doping on the Properties and Crystalline Perfection of Bis(thiourea)zinc(II) Chloride Crystals
K. Muthu$^1$, G. Bhagavannarayana$^2$, S. P. Meenakashisundaram$^1$ and S. C. Mojumdar$^{3,4}$
$^1$Department of Chemistry, Annamalai University, Tamilnadu (India), $^2$Materials Characterization Division, National Physical Laboratory, New Delhi, (India), $^3$Department of Chemical Technologies and Environment, Trencin University of A. Dubcek, Púchov, (Slovakia), $^4$Department of Chemistry, University of Guelph, Guelph, ON.
HiTemp 2011 is intended to foster discussion and debate regarding the most recent understanding of high temperature materials and the state of the art in their experimental studies, processes, and diagnostics for scientific and technological applications.

Tuesday, September 20 to Thursday, September 22, 2011
Millennium Hotel
Boston, MA

Experimental studies of high temperature materials
- 10 keynote lectures
- 28 contributed lectures
- 3 poster sessions