Final Program

The Canadian Society for Analytical Sciences and Spectroscopy

Welcomes you to the

ICASS 2022

64th International Conference on Analytical Sciences and Spectroscopy

August 8-10, 2022

Four Points by Sheraton Kingston

285 King Street East, Kingston, ON, K7L 3B1, Canada

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Tuesday, August 11 @ 10:40 am | British American Room with Bob Lockerman

Check Out the ICASS 2022 Poster Session

Monday, August 8 | 5:00 – 6:00 pm | Ballroom & Foyer

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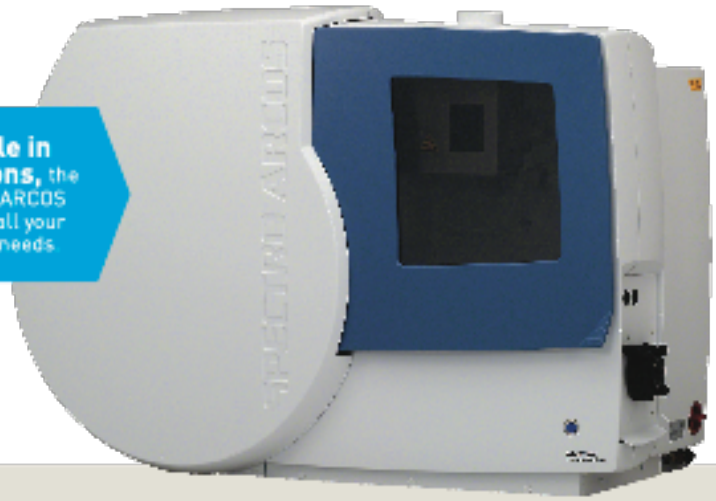

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Welcome to the 64th ICASS

The 64th ICASS organizing team has the pleasure of welcoming you to the Four Points by Sheraton Hotel located in downtown Kingston, close to Lake Ontario and numerous restaurants and shops.

An outstanding program awaits you, which will start with a plenary session on Monday morning, sponsored by **PerkinElmer** and **Burgener Research**, where award presentations will be made. Four to five parallel sessions will then follow from August 8th to August 10th, inclusively. A dedicated poster session will be held on August 8th, immediately following the oral sessions and preceding the Sunset Dinner Cruise. The hotel is conveniently located a 5 minute walk from the deck where boarding will take place.

To facilitate and encourage networking, all meals and coffee breaks (sponsored by **Queen's University Faculty of Arts and Science, SFR, FlowJEM, CEM,** and **Isospark Analytical Solutions**) are included in the registration. Thanks to **CEM** and **Queen's University Faculty of Arts and Science**, three students will get poster cash prizes of $150-$250 during the banquet on August 9th (and there will be at least one joke of the day!). There will also be a performance by renowned magician/comedian Dick Joiner, who will do walk-around magic during the reception sponsored by **Agilent Technologies** and a stage show during dinner. Prepare to laugh and be amazed!

Our hope is that the program featuring numerous high-quality presentations, a nice exhibition, and numerous networking opportunities in a relaxed atmosphere will make the 64th ICASS a memorable event. May you enjoy many fruitful discussions and make several new acquaintances!

64th ICASS Conference Chair
Diane Beauchemin (Queen's University, Canada)

Web Master and Design
Chaoyang Huang (Georgia Tech University, USA)
Madison Langley (Queen's University, Canada)

Organizing committee
Several members of the Beauchemin group (Andre Castillo, Helen Lord, Katie Moghadam, Michael Trolio, and Zichao Zhou, Queen's University, Canada)
Eve Kroukamp (PerkinElmer, Canada)
Richard Oleschuk (Queen's University, Canada)
Zhe She (Queen's University, Canada)
Kevin Stamplecoskie (Queen's University, Canada)
Karen Waldron (Université de Montréal)
Gang Wu (Queen's University, Canada)

Treasurer
Ahmed Al Hejami (Isospark Analytical Solutions, Canada)

Logistics committee
The Beauchemin group (in particular, Madison Langley, Sophia Kienast, Darrian Prendergast, and Andre Castillo, Queen's University, Canada)

PROGRAM AT A GLANCE

Time	Monday August 8, 2022	Tuesday August 9, 2022	Wednesday August 10, 2022
All day	Registration (*Foyer*)	Registration (*Foyer*)	Registration (*Foyer*)
8:00-8:40	Breakfast (*Ballroom*)	Breakfast (*Ballroom*)	Breakfast (*Ballroom*)
9:00-10:00	Gerhard Herzberg Award presentation (*Gibraltar*)	Agricultural & food safety I (*British American)*	Agricultural & food safety II (*British American)*
		Electrochemical & surface analysis I (*Room 303*)	Electrochemical & surface analysis III (*Room 303*)
		NMR II (*Room 204*)	Environmental analysis I and Separations & MS IV (*Gibraltar*)
			Innovations from Manufacturers (*Old Stones Room*)
		Separations & MS II (*Gibraltar*)	Spectroscopy of emerging photonic materials I (*Room 204*)
10:00-10:40	Coffee break & posters (*Old Stones Room*)	Coffee break (*Ballroom*)	Coffee break (*Ballroom*)
10:40-12:00	Burgener Research Graduate Student Award presentation (*Gibraltar*)	Agricultural & food safety I (*British American)*	Agricultural & food safety II (*British American)*
		Electrochemical & surface analysis I (*Room 303*)	Electrochemical & surface analysis III (*Room 303*)
		NMR II (*Room 204*)	Environmental analysis I and Separations & MS IV (*Gibraltar*)
	PerkinElmer Analytical Science and Spectroscopy Award presentation (*Gibraltar*)	Electrochemical & surface analysis I (*Room 303*)	Innovations from Manufacturers (*Old Stones Room*)
			Spectroscopy of emerging photonic materials I (*Room 204*)
12:00-13:20	Lunch (*Ballroom*)	Lunch (*Ballroom*)	**CSASS lunch & AGM** (*Old Stones Room*) Non-CSASS lunch (*Ballroom*)
13:40-15:00	Forensic analysis (*British American)*	Electrochemical & surface analysis II (*Room 303*)	Environmental analysis II (*Room 303*)
	Industrial applications (*Room 303*)	Nanomaterials and their analysis (*British American)*	Sample introduction systems for the ICP (*Old Stones Room*)
	NMR I (*Room 204*)	NMR III (*Room 204*)	Separations and MS V (*Gibraltar*)
			Speciation analysis (*British American)*
	Separation & MS I (*Gibraltar*)	Separations and MS III (*Gibraltar*)	Spectroscopy of emerging photonic materials (*Room 204*)
15:00-15:40	**Exhibition opening** & Coffee break (*Ballroom*)	Coffee break (*Ballroom*)	Coffee break (*Ballroom*)
15:40-17:00	Forensic analysis (*British American)*	Electrochemical & surface analysis II (*Room 303*)	Environmental analysis II (*Room 303*)
	Industrial applications (*Room 303*)	Nanomaterials and their analysis (*British American)*	Sample introduction systems for the ICP (*Old Stones Room*)
	NMR I (*Room 204*)	NMR III (*Room 204*)	Separations and MS V (*Gibraltar*)
			Speciation analysis (*British American)*
	Separations & MS I (*Gibraltar*)	Separations and MS III (*Gibraltar*)	Spectroscopy of emerging photonic materials (*Room 204*)
17:00-18:00	Poster session (*Old Stones*)	Reception (*Ballroom*)	End of 64th ICASS
18:00-22:00	**Sunset dinner cruise** (ticket required)	**Banquet with magic show** (ticket required) (*Ballroom*)	

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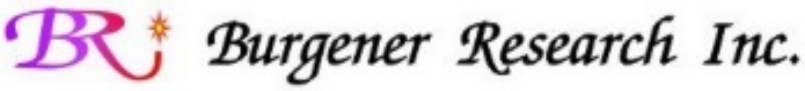
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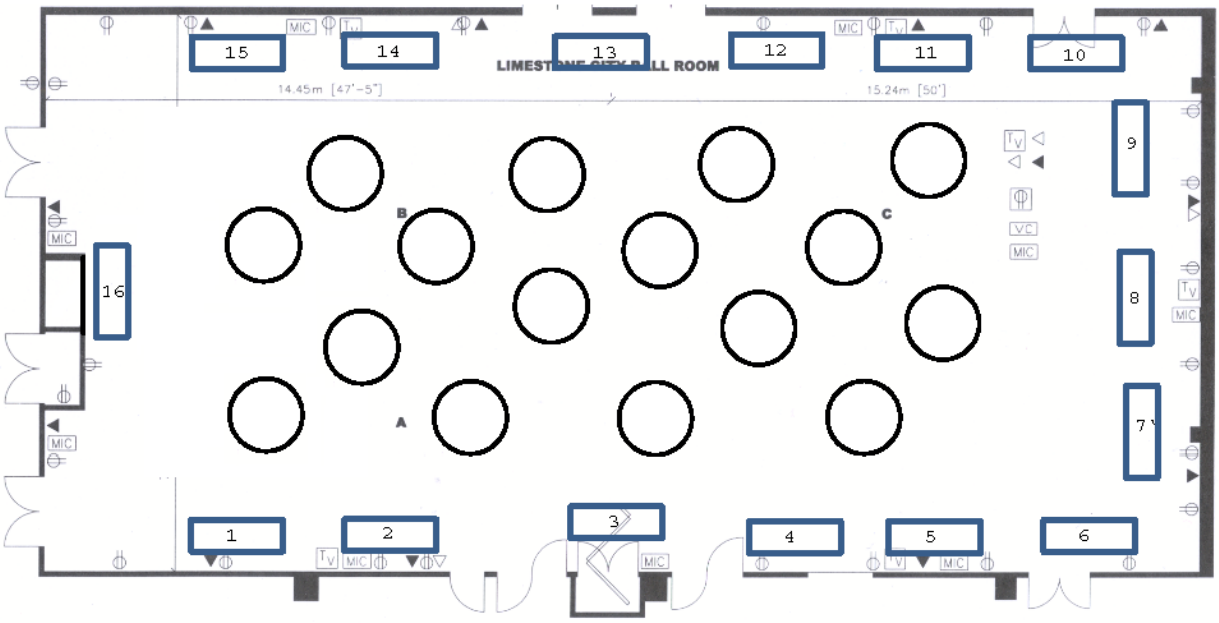
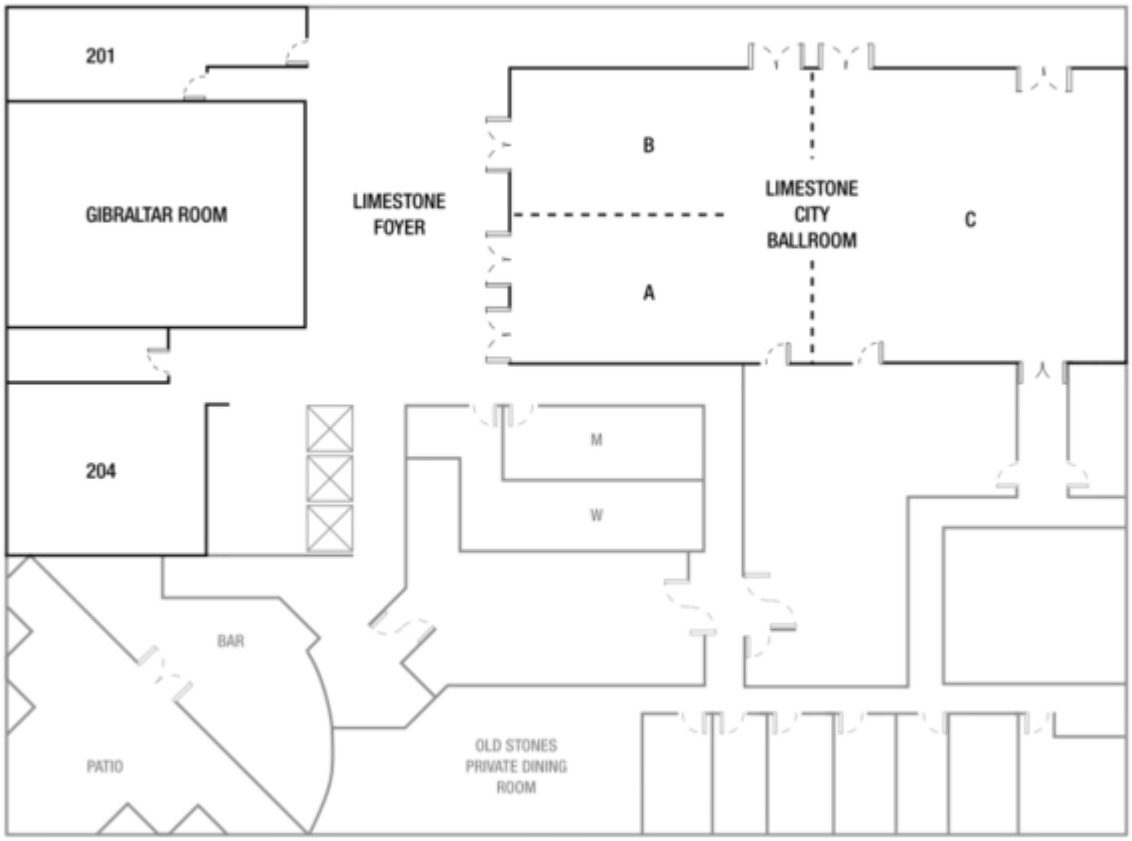
EXHIBITION (*Limestone City Ballroom*)



MEETING ROOMS



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EXHIBITORS

(*Limestone City Ballroom*)

Booth	Exposant/Exhibitor	Booth	Exposant/Exhibitor
1	**Isomass Scientific Inc.** 140, 5700 - 1 Street S. W., Calgary, AB T2H 3A9, Canada. Tel.: 800-363-7823 www.isomass.com	9	**Elemental Scientific Inc.** 1500 North 24th Street, Omaha, NE 68110, USA. Tel.: 402-590-2919 www.icpms.com
2	**CEM Corporation** 3100 Smith Farm Road, 28104 Matthews, USA. Tel.: 704-821-7015 www.cem.com	10	**Isospark Analytical Solutions** 2298 chemin Saint-François, Dorval, QC H9P 1K2, Canada. Tel.: 514-282-2181 www.isospark.com
3	**Bruker Optics Inc.** 40 Manning Road, Billerica, MA 01821 USA. Tel.: 1-978-439-9899 www.bruker.com/optics	11	**Agilent Technologies Inc.** 6705 Millcreek Drive, Unit 5, Mississauga, ON L5N 5M4, Canada. Tel.: 877-424-4536 www.agilent.com
4	**Burgener Research Inc.** 1680 Lakeshore Rd. W., Unit #2, Mississauga, ON L5J 1J5, Canada. Tel.: 888 867 7223 burgenerresearch.com	12	**Questron Technologies Corp.** 6660 Kennedy Rd, Unit 14A, Mississauga, ON L6S 3E3, Canada. Tel.: 905-362-1225 www.qtechcorp.com
5	**Metrohm Canada** 4160 Sladeview Crescent, #6, Mississauga, ON L5L 0A1, Canada. Tel.: 866-METROHM. www.metrohm.com	13	**Anton Paar Canada Inc.** 4920 Place Olivia, Montreal, QC H4R 2Z8, Canada. Tel.: 1-514-788-4862 www.anton-paar.com
6	**PerkinElmer Inc.** 501 Rowntree Dairy Rd, Unit 6, Woodbridge, ON L4L 8H1, Canada. Tel.: 800-561-4646 www.perkinelmer.ca	14	**Thermo Fisher Scientific** 2845 Argentia Road, Unit 4, Mississauga, ON L5N 8G6, Canada. Tel.: 905-890-1034 www.thermo.com
7	**SCP Science** 21800 Clark Graham, Baie D'Urfé, QC H9X 4B6, Canada. Tel.: 1-800-253-5549 www.scpscience.com	15	**Nanalysis Corp.** Bat 1, 4600 5 Street NE, Calgary, AB T2E 7C3, Canada. Tel.: 403-769-9499 www.nanalysis.com
8	**Analytik Jena US** 100 Cummings Ctr, STE 234-N, Beverly, MA 01915, USA. Tel.: 1-781-376-9899 www.analytik-jena.us	16	**Infinite Scientific Limited** 172 Taysham Crescent, Toronto, ON M9V 1X5, Canada. Tel.: 647-819-2670 www.infi-sci.com

FINAL PROGRAM

Please scan here on any smart device for an electronic version of the program accompanied by their abstracts

MONDAY, AUGUST 8, MORNING

8:00-9:00 Breakfast (provided) – *Limestone City Ballroom*

Plenary Session – *Gibraltar*
Chair: Diane Beauchemin (ICASS Chair)

9:00 Conference opening. Diane Beauchemin
9:15 Gerhard Herzberg Award presentation. Diane Beauchemin, President of CSASS
9:20 (**I019**) ELECTROPHILIC NON-COVALENT INTERACTIONS STUDIED BY SOLID-STATE NMR SPECTROSCOPY. **David L. Bryce**, University of Ottawa, Canada.
10:00 Refreshment break sponsored by **Queen's University Faculty of Arts and Science** and posters – *Old Stones Room*
10:40 Burgener Research Graduate Student Travel Award. Mirah Burgener on behalf of Burgener Research
10:45 (**I110**) THREE-DIMENSIONAL NANOSCALE MORPHOLOGY CHARACTERIZATION OF TERNARY ORGANIC SOLAR CELLS. **Ting Yu**, Wanting He, Ricardo Izquierdo, Dongling Ma. Institut national de la recherche scientifique (INRS-EMT), Canada
11:15 PerkinElmer Analytical Sciences and Spectroscopy Award presentation. Aaron Hineman on behalf of PerkinElmer
11:20 (**I137**) DETERMINING PHYSICOCHEMICAL PROPERTIES WITH DIFFERENTIAL MOBILITY SPECTROMETRY. **W. Scott Hopkins,** University of Waterloo, Canada
12:00 Hot buffet lunch (provided) - *Limestone City Ballroom*

MONDAY, AUGUST 8, AFTERNOON

Forensic Analysis – *British American*
Organizer: Katie Moghadam **Co-chairs:** Margaret MacConnachie and Katie Moghadam

13:20 (**I132**) ADVANCING REPORTING OF SIGNIFICANCE FROM THE ANALYSIS AND COMPARISON OF GLASS EVIDENCE; A GLOBAL COLLABORATION. **José Almirall**, Florida International University, USA

14:00 (**I094**) DEVELOPMENT OF A METHOD FOR THE FORENSIC DISCRIMINATION OF SOLDER BY LASER INDUCED BREAKDOWN SPECTROSCOPY (LIBS). **Katie Moghadam**[1], Diane Beauchemin[1], and Claude Dalpé[2]. [1]Queen's University, Canada; [2]Royal Canadian Mounted Police, Canada.

14:20 (**I013**) DESIGN AND DEVELOPMENT OF CHEMICAL SENSORS AND BIOSENSORS FOR FORENSIC APPLICATIONS. **Sanela Martic,** Trent University, Canada.

15:00 Refreshment break sponsored by **Queen's University Faculty of Arts and Science** and exhibition opening – *Limestone City Ballroom*

15:40 (**I120**) NEW INSIGHTS INTO ESTIMATING THE TIME SINCE DEPOSITION OF BLOODSTAINED EVIDENCE USING APPLIED SPECTROSCOPY AND ELECTROCHEMISTRY. **Theresa Stotesbury**. Ontario Tech University, Canada.

16:20 (**I034**) TRANSFER AND PERSISTENCE ANALYSIS OF GUNSHOT RESIDUE BY MP-AES AND ICP-MS. **Deanna Haas**[1], Kiana Martin[1], Matthew De Vries[1], Shannon Accettone[1], Sanela Martic[1], David Ruddell[2]. [1]Trent University, Canada, [3]Centre of Forensic Sciences, Canada.

16:40 (**I136**) SEX DETERMINATION OF MUMMIES THROUGH MULTI-ELEMENTAL ANALYSIS OF HEAD HAIR. **Margaret MacConnachie**[1], Sarah Lu[1], Yangyang Wang[1], Jocelyn Williams[2], Diane Beauchemin[1]. [1]Queen's University, Canada; [2]Trent University, Canada.

17:00 Poster session and Exhibition – *Old Stones Room* and *Limestone City Ballroom*

18:00 Refresh and walk to Crawford Wharf – 1 Brock St.

18:30 Boarding for sunset dinner cruise **–** ticket required

19:00-22:00 Sunset dinner cruise

Industrial Applications – *Room 303*
Organizer: Diane Beauchemin **Co-Chairs:** Yam Gotame and Yangyang Wang

13:40 (**I140**) ANALYTICAL CHEMISTS SAVING UNIQUE 19TH CENTURY GLASS ARTIFACTS. **Ela Bakowska**, Corning Inc., USA.

14:20 (**I055**) DECISION RULES FOR MULTIANALYTE TESTS. **Edgar F. Paski,** Analytical Innovations, Canada

14:40 (**I090**) QUANTIFICATION OF KEY ELEMENTS IN LITHIUM BRINES BY ICP-OES. Marc-Andre Gagnon, Neli Drvodelic, **Longbo Yang**. Agilent Technologies, Canada.

15:00 Refreshment break sponsored by **Queen's University Faculty of Arts and Science** and exhibition opening – *Limestone City Ballroom*

15:40 (**I100**) A METHOD FOR THE DETERMINATION OF ULTRA-TRACE RARE EARTH METALS IN REFRACTORY MATERIAL USING ETV-ICPOES. **Sophia Kienast**, Yanyang Wang, Diane Beauchemin. Queen's University, Canada

16:00 (**I113**) PRECONCENTRATION OF NOBLE METALS ANALYZED BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY WITH FLOW INJECTION ANALYSIS. **Madison Langley**, Michael Trolio, Diane Beauchemin. Queen's University, Canada.

16:20 (**I111**) FERROFLUID BASED PRECONCENTRATION AND ULTRA-TRACE DETERMINATION OF POTENTIALLY TOXIC INORGANIC ARSENIC, CHROMIUM, AND SELENIUM IN ENVIRONMENTAL WATERS BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY, **Yam Gotame**, Diane Beauchemin, Queen's University, Canada.

16:40 (**I025**) CLEAN SYNTHESIS OF AMIDES BY SELECTIVE HYDRATION OF NITRILES IN WATER CATALYZED BY RECYCLABLE HETEROGENEOUS CATALYST BASED ON MOROCCAN OIL SHALE. **E. Ennesyry**, B. Mounir, M. Elkouali, M. Hamza, F. Bazi. Hassan II University of Casablanca, Morocco.

17:00 Poster session and Exhibition – *Old Stones Room* and *Limestone City Ballroom*

18:00 Refresh and walk to Crawford Wharf – 1 Brock St.

18:30 Boarding for sunset dinner cruise **–** ticket required

19:00-22:00 Sunset dinner cruise

NMR I – *Room 204*

Organizer: Gang Wu **Chair:** Chris Kirby

13:20 (**I128**) NANODISCS BASED BIOLOGICAL NMR STUDIES. **(Rams) Ayyalusamy Ramamoorthy**, University of Michigan, USA.

14:20 (**I133**) EXPLORING CONFORMATIONAL DYNAMICS OF BIOLOGICAL SUPRAMOLECULAR MACHINES USING METHYL-TROSY NMR SPECTROSCOPY. **Rui Huang**, University of Guelph, Canada.

15:00 Refreshment break sponsored by **Queen's University Faculty of Arts and Science** and exhibition opening – *Limestone City Ballroom*

15:40 (**I129**) OXYGEN-17 LABELING AND OXYGEN EXCHANGE KINETICS IN D-FRUCTOSE COMPOUNDS. **Zhonghao Yu** and Gang Wu, Queen's University, Canada.

16:00 (**I044**) SELENIUM-77 AND TELLURIUM-125 SOLID-STATE NMR AND X-RAY DIFFRACTION STUDY OF CHALCOGEN-BONDED 3,4-DICYANO-1,2,5-CHALCOGENODIAZOLE COCRYSTALS AND POLYMORPHS. **Tamali Nag**, Jeffrey S. Ovens, and David L. Bryce, University of Ottawa, Canada.

16:20 (**I127**) OXYGEN-17 NMR STUDIES OF PROTEINS: OPPORTUNITIES AND CHALLENGES. **Gang Wu**, Queen's University, Canada.

17:00 Poster session and Exhibition – *Old Stones Room and Limestone City Ballroom*

18:00 Refresh and walk to Crawford Wharf – 1 Brock St.

18:30 Boarding for sunset dinner cruise **–** ticket required

19:00-22:00 Sunset dinner cruise

Separations and Mass Spectrometry I: Pharmaceutical / Clinical – *Gibraltar*

Organizers: Richard Oleschuk and Karen Waldron **Chair:** Karen Waldron

13:40 (**I029**) MASS SPECTROMETRY ANALYSIS OF BREAST CANCER-DERIVED EXOSOMES REVEALS DISEASE-SPECIFIC PHOSPHORYLATED ENZYMES. **Maxim Berezovski**, Zoran Minic, Nico Hüttmann, Suttinee Poolsup, Yingxi Li, Vanessa Susevski, Emil Zaripov. University of Ottawa, Canada.

14:20 (**I084**) HYPERSPECTRAL VISUALIZATION BASED REAL-TIME MICROBIAL MASS SPECTROMETRY IMAGING. **Jian Yu**, Haidy Metwally, Jennifer Kolwich, Hailey A. Tomm, Avena C. Ross, Richard D. Oleschuk. Queen's University, Canada.

14:40 (**I070**) MONITORING UPTAKE OF BINDING-MEDIATED PROTEIN CORONA BY LIVING CELLS USING ICP-MS. Jinjun Wu, Hanyong Peng, X. Chris Le, **Hongquan Zhang**. University of Alberta, Canada.

15:00 Refreshment break sponsored by **Queen's University Faculty of Arts and Science** and exhibition opening – *Limestone City Ballroom*

15:40 (**I139**) TRANSIENT INCOMPLETE SEPARATION OF SPECIES WITH CLOSE DIFFUSIVITY TO STUDY STABILITY OF AFFINITY COMPLEXES. Tong Ye Wang,[a] Jean-Luc Rukundo,[a] An T.H. Le,[a] Nikita A. Ivanov,[a] C. Yves Le Blanc,[b] Boris I. Gorin,[c] and **Sergey Krylov[a]**, [a]York University; [b]SCIEX,; [c]Eurofins CDMO Alphora, Canada.

16:20 End of session

17:00 Poster session and Exhibition – *Old Stones Room and Limestone City Ballroom*

18:00 Refresh and walk to Crawford Wharf – 1 Brock St.

18:30 Boarding for sunset dinner cruise **–** ticket required

19:00-22:00 Sunset dinner cruise

Posters – *Old Stones Room* 17:00-18:00

Poster boards will be numbered as indicated below. Posters should be installed by 10:00 on Monday, August 8th in order to be eligible for prizes. They should be removed by 18:30 on Monday, August 8th. Three students will get cash prizes (of $150 to $250). All poster prizes will be handed out during the banquet. Student poster prizes are sponsored by **CEM** and by **Queen's University Faculty of Arts and Science.**

Poster number **Presentation**

1. (**I003**) NOVEL SEPARATIONS USING A MODIFIED WATER STATIONARY PHASE IN SFC. **Emmanuel Nai**, and Kevin Thurbide, University of Calgary, Canada.
2. (**I012**) DESIGN AND DEVELOPMENT OF ELECTROCHEMICAL IMMUNOSENSOR FOR BRAIN-RELATED PROTEIN. **Meaghan Tatobondung**, William Wallace, Sanela Martic. Trent University, Canada.
3. (**I020**) PETROLEUM COKE SOURCED ACTIVATED CARBONS FOR THE ADSORPTION OF ARSENIC (V) IN ACIDIC WATERS. **Kyle Fisher** and Andrew Vreugdenhil, Trent University, Canada.

4. (**I021**) PURSUIT OF J-COUPLINGS ACROSS CHALCOGEN BONDS IN DONOR-ACCEPTOR COMPLEXES WITH 1,2,5-CHALCOGENDIAZOLES AND PSEUDOHALIDES. **Carina Almario** and David L. Bryce, University of Ottawa, Canada.
5. (**I023**) ENGINEERING OF MULTICOMPONENT COCRYSTALS AND ASSESSMENT BY SOLID-STATE NMR SPECTROSCOPY. **Mahée Côté** and David L. Bryce, University of Ottawa, Canada.
6. (**I031**) ESI-MS ANALYSIS OF GUEST-HOST COMPLEXES TOWARDS INHIBITING CRYSTALLIN AGGREGATION AND CATARACTS. **Dev Seneviratne**[1], Dr. Ngong Kodiah Beyeh[2], Sanela Martic[1]. [1]Trent University, Canada. [2]Oakland University, USA.
7. (**I039**) NUCLEAR MAGNETIC RESONANCE STUDY OF A NOVEL TETREL BONDED COCRYSTAL. **Sachin Nivantha Liyanage** and David L. Bryce, University of Ottawa, Canada.
8. (**I041**) IR NANOSPECTROSCOPIC INVESTIGATION ON SOLVATION LAYERS ON NANOSTRUCTURED INTERFACES OF SELF-ASSEMBLED MONOLAYERS. **Nafiseh Samiseresht**, Petra Ebbinghaus, Anne Jakubek, Martin Rabe, Max-Planck-Institut für Eisenforschung GmbH (MPIE), Germany.
9. (**I042**) DO ENANTIOMERS GIVE IDENTICAL SOLID-STATE NMR SPECTRA? **Audrey-Anne Lafrance**, Manon Girard, and David L. Bryce, University of Ottawa, Canada.
10. (**I046**) HALOGEN BONDS CATALYZE METHYL GROUP ROTATIONS. **Teodor Iftemie**, Shubha Gunaga, and David L. Bryce, University of Ottawa, Canada.
11. (**I073**) MONITORING ELECTROCHEMICAL OXIDATION REACTION AND PRODUCT FORMATION FROM BULKY PHENOLS. **Abigail Boon**, Sanela Martic. Trent University, Canada.
12. (**I069**) ROLE OF GUANOSINE ON THE PHOTOPHYSICAL PROPERTIES OF CARBON DOTS. **Nayomi Camilus**[1], Finlay Dingman Peterson[1], Musonda Mitti[1], Rafik Naccache[2], Sanela Martic[1*]. [1]Trent University, Canada. [2]Concordia University, Canada.
13. (**I078**) IDENTIFICATION OF COPPER, IRON AND ZINC METALLOPROTEINS IN ERYTHROCYTE CYTOSOL BY SIZE-EXCLUSION CHROMATOGRAPHY–INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY. **Maryam Doroudian** and Jürgen Gailer, University of Calgary, Canada.
14. (**I063**) COMPARISON OF MICROWAVE DIGESTION AND DRY-ASHING METHODS FOR TOTAL METAL ANALYSIS OF PINE NEEDLES COLLECTED FROM BUTTE, MONTANA. **Catharina Venter**, Kevin Hayes, James Walker, Caleb Marx, Gwen O'Sullivan[2] and Nausheen Sadiq. Mount Royal University, Canada.
15. (**I119**) FORENSIC ANALYSIS FOR SEX IDENTIFICATION OF CHILD HAIR USING ELECTROTHERMAL VAPORIZATION COUPLED TO INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY (ETV-ICP-OES). **Emilie Brossier**, Yangyang Wang, Diane Beauchemin, Queen's University, Canada.

16. (**I143**) COMPARISON OF LOW VOLUME INJECTION TO MORE CONVENTIONAL SAMPLE INTRODUCTION IN INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY FOR ITS EFFECT ON OXIDE FORMATION AND MATRIX EFFECTS. **Graham Shearing**, Michael G.A. Trolio, Diane Beauchemin. Queen's University, Canada.
17. (**I054**) PROBING THE FORMATION OF TOXICOLOGICALLY RELEVANT CD-CYSTEINE AND CD-HOMOCYSTEINE COMPLEXES BY HPLC-FAAS, Amanda Gomez, **Astha Gautam**, and Jürgen Gailer, University of Calgary, Canada
18. (**I089**) BIO-ACCESSIBILITY STUDIES OF BLACK SOLDIER FLY LARVAE USING ON-LINE CONTINUOUS LEACHING METHOD COUPLED WITH INDUCTIVELY COUPLD PLASMA MASS SPECTROMETRY. **Qiqi Zhang[1]**, Cameron Pytyck[1], Zoltan Mester[2], Diane Beauchemin[1]. [1]Queen's University, Canada; [2]National Research Council of Canada.
19. (**I147**) NANO-GOLD OF VARIED SIZE AND COMPOSITION: A THEORETICAL X-RAY SPECTROSCOPY ANALYSIS, **Lydia Zhang**, Peng Zhang, Michael Ha, Dalhousie University, Canada
20. (**I061**) POLY-SYNCHRONOUS SOLVENT-BASED SOLID-PHASE NANOEXTRACTION - APPLICATIONS FOR MASS SPECTROMETRY IMAGING. **Malek Hassan**, Jian Yu, Huidong Wang, and Richard Oleschuk. Queen's University, Canada.
21. (**I144**) SINGLE SPOT ANALYSIS OF PARAFFIN-EMBEDDED TISSUE SECTIONS USING LIQUID MICROJUNCTION SAMPLING PROBE (LMJ-SSP) MASS SPECTROMETRY (MS). **Haidy Metwally**, Malek Hassan, Jessie Deng, and Richard Oleschuk, Queen's University, Canada.
22. (**I154**) APPLICATION OF HIGH-REOLUTION ANALYTICAL TECHNIQUES FOR DETECTION OF PFAS IN COMMERCIAL PRODUCTS. **Taylor Vereecken**, David Patch, Natalia O'Connor, Iris Koch, Kela Weber, Royal Military College of Canada.

18:00 Refresh and walk to Crawford Wharf – 1 Brock St.
18:30 Boarding for sunset dinner cruise **–** ticket required
19:00-22:00 Sunset dinner cruise

TUESDAY, AUGUST 9, MORNING

Agricultural and Food Safety I – *British American*
Organizer and chair: Andre Castillo

9:00 (**I108**) HOT TOPICS IN HEAVY METALS TESTING IN FOOD. **Jenny Nelson[1]**, Elaine Hasty[2], Macy Harris[2], Sam Heckle[2], and Leanne Anderson[2]. [1]Agilent Technologies Inc.; [2]CEM Corporation, USA.

9:40 (**I059**) METALS AND FOOD SAFETY, TRENDING TOPICS. **Eve Kroukamp** and Liyan Xing. PerkinElmer Inc. Canada.

10:00 Refreshment break sponsored by **SFR** and exhibition – *Limestone City Ballroom*

10:40 (**I142**) MICROWAVE DIGESTION AND ANALYSIS OF 10 DIFFERENT FOOD SAMPLES PREPARED IN A SINGLE BATCH. **Bob Lockerman**, CEM Corporation, USA.

11:20 (**I095**) RISK ASSESMENT OF SEAWEED AS AN ALTERNATIVE PROTEIN SOURCE. **Helen Lord**, Qiqi Zhang, Andre Castillo, Kelly LeBlanc, Diane Beauchemin, Zoltan Mester. Queen's University, Department of Chemistry, Canada; National Research Council of Canada.

11:40 (**I099**) A BIO-ACCESSIBILITY STUDY OF POTENTIALLY TOXIC ELEMENTS IN INSECT-BASED ALTERNATIVE PROTEINS USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **Cameron Pytyck**[1], Zoltan Mester[2], Diane Beauchemin[1]. [1]Queen's University, Canada; [2]National Research Council of Canada.

12:00 Hot buffet lunch (provided) – *Limestone City Ballroom*

Electrochemical and Surface Analysis I – *Room 303*

Organizer and Chair: Zhe She

09:00 (**I033**) ABSOLUTE ELECTROCHEMILUMINESCENCE QUANTUM EFFICIENCY. Kenneth Chu, Jonathan Adsetts, Liuqing Yang, **Zhifeng Ding.** University of Western Ontario, Canada

09:40 (**I085**) FLOW-THROUGH SUBWAVELENGHT NANOAPERTURES FOR THE DETECTION OF GAS-PHASE ANALYTES. **Juan Gomez-Cruz**[1], Swapnil Daxini[2], Jack A. Barnes[1], Hans-Peter Loock[2], Carlos Escobedo[1], [1] Queen's University, Canada; [2] University of Victoria, Canada.

10:00 Refreshment break sponsored by **SFR** and exhibition – *Limestone City Ballroom*

10:40 (**I015**) ELECTROCHEMISTRY OF NEURONAL PROTEINS AND PEPTIDES. **Sanela Martic,** Trent University, Canada

11:20 (**I018**) ELETROCHEMICAL IMPEDANCE SPECTROSCOPY AND CYCLIC VOLTAMMETRY FOR THE CHARACTERIZATION OF SUPERCAPACITORS. **Dominik P.J. Barz**, Queen's University, Canada.

12:00 Hot buffet lunch (provided) - *Limestone City Ballroom*

NMR II – *Room 204*

Organizer: Gang Wu **Chair:** Frédéric Perras

09:00 (**I126**) HIGH FIELDS, FAST SPINNING AND PULSE SEQUENCES FOR ENHANCING NMR SENSITIVITY AND RESOLUTION OF QUADRUPOLAR NUCLEI. **Zhehong Gan**, National High Magnetic Field Laboratory, USA.

10:00 Refreshment break sponsored by **SFR** and exhibition – *Limestone City Ballroom*

10:40 (**I123**) A COMBINED THEORETICAL AND EXPERIMENTAL CHARACTERIZATION METAL-ORGANIC FRAMEWORKS (MOFS) WITH POTENTIAL APPLICATION TO SUPERCAPACITORS. Carlos M. Hangarter, Boris Dyatkin, Anna Albert, Matthew Laskoski, Mark C. Palenik, Joel B. Miller, Michael W. Swift, John L. Lyons, and **Christopher A. Klug**[1]. [1]U.S. Naval Research Laboratory, USA.

11:20 (**I130**) EXPLORING QUATERNARY CHALCOGENIDE SEMICONDUCTING MATERIALS USING MULTINUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. **Vladimir K. Michaelis** and Amit Bhattacharya, University of Alberta, Canada.

12:00 Hot buffet lunch (provided) - *Limestone City Ballroom*

Separations and Mass Spectrometry II: Biomolecules/ -Omics – *Gibraltar*

Organizers: Richard Oleschuk and Karen Waldron **Co-Chairs:** Jian Yu and Karen Waldron

09:00 (**I135**) ENDING BRUTE FORCE PROTEOMICS DATA ACQUISITION USING MACHINE LEARNING. **Mathieu Lavallée-Adam**. University of Ottawa and Ottawa Institute of Systems Biology, Canada.

09:40 (**I053**) MEASUREMENT ERROR MODELS FOR LC-MS PROTEOMICS MEASUREMENTS. Seketoulie Keretsu and **Tobias Karakach**. Dalhousie University, CANADA.

10:00 Refreshment break sponsored by **SFR** and exhibition – *Limestone City Ballroom*

10:40 (**I056**) A CAPILLARY ELECTROPHORESIS ASSAY TO ASSESS THE PREVALENCE AND RISK FACTORS ASSOCIATED WITH IODINE DEFICIENCY IN CANADA. Stellena Mathiaparanam[1], Adriana Nori de Macedo[1,2], Andrew Mente[3], Paul Poirier[4], Scott A. Lear[5], Andreas Wielgosz[6], Koon Teo[3], Salim Yusuf[3], and **Philip Britz-McKibbin[1]**. [1]McMaster University, Canada; [2], Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; [3]McMaster University and Hamilton Health Sciences, Canada; [4]Université Laval, Canada; [5]Simon Fraser University, Canada; [6]University of Ottawa Heart Institute, Canada.

11:00 (**I071**) BIOPHYSICAL CHARACTERIZATION OF GELSOLIN PEPTIDES: AGGREGATION AND INHIBITION. **Carlos Quintero Arias**, Sanela Martic. Trent University, Canada.

11:20 (**I048**) RATIONAL DESIGN AND DEVELOPMENT OF SEROLOGICAL DIAGNOSTICS BY IMMUNOPRECIPITATION-TARGETED MASS SPECTROMETRY. Zhiqiang Fu, Yasmine Rais, Delaram Dara and **Andrei Drabovich.** University of Alberta, Canada.

11:40 (**I030**) APPLICATIONS OF MASS SPECTROMETRY FOR THE STUDY OF THE HUMAN GUT MICROBIOME. **Daniel Figeys**. University of Ottawa, Canada.
12:00 Hot buffet lunch (provided) - *Limestone City Ballroom*

TUESDAY, AUGUST 9, AFTERNOON

Electrochemical and Surface Analysis II – *Room 303*

Organizer: Zhe She **Chair:** Kristin Partanen

13:40 (**I027**) QUANTITATIVE ELECTROCHEMISTRY OF SUPRAMOLECULAR HOST-GUEST BINDING ON SURFACES. **Hua-Zhong Yu**, Simon Fraser University, Canada
14:20 (**I060**) ELECTROCHEMICAL HOST-GUEST BIOSENSOR FOR IN BLOOD MEASUREMENTS. **Philippe Dauphin Ducharme,** Université de Sherbrooke, Canada

15:00 Refreshment break sponsored by **FlowJEM** and exhibition – *Limestone City Ballroom*

15:40 (**I028**) SPECTROFLUIDICS: A GENERALIZABLE FABRICATION METHOD OPENS THE DOOR TO A WIDE RANGE OF APPLICATIONS. **Jesse Greener**. Université Laval, Canada.
16:20 (**I009**) LABEL-FREE PATHOGEN DETECTION USING BROAD SPECTRU BIORECOGNITION ELEMENT. **Jennifer F. McLeod**, R. Stephen Brown, Zhe She; Queen's University, Canada.
16:40 (**I001**) MOF-BASED POTENTIOMETRIC PVC MEMBRANE SENSORS FOR THE DETERMINATION OF ACTIVE DRUG SUBSTANCES. **Serkan Tekce,[1]** Gulsah Saydan Kanberoglu,[1] Fatih Coldur[2] and Yaver Subasi,[1] [1]Van Yuzuncu Yıl University, Turkey, [2]Erzincan Binali Yildirim University, Turkey.
17:00 Reception sponsored by **Agilent** and exhibition– *Limestone City Ballroom*
18:00 Banquet with show by Dick Joiner – ticket required – *Limestone City Ballroom*

Nanomaterials and their Analysis – *British American*

Organizer: Zichao Zhou **Co-Chairs**: Zichao Zhou and Michael Trolio

13:20 (**I004**) PROGRESSIVE ANALYSIS OF NANOMATERIALS IN ENVIRONMENTAL MATRICES – SELECTED ASPECTS FROM SAMPLING TO DATA EVALUATION. **Petra Krystek,** Vrije Universiteit (VU), The Netherlands; Andreas Wimmer, Technical University Munich, Germany; Rob Ritsema, RR Quality Consultancy, the Netherlands; Carsten Engelhard, University of Siegen, Germany.
14:00 (**I076**) NANOPARTICLES SIZE ANALYSIS BY SEDIMENTATION AND CHARGE ANALYSIS BY MICROFLUIDIC ELECTROPHORESIS USING A 3D-PRINTING DEVICE. **Edward P.C. Lai**. Carleton University, Canada.
14:20 (**I068**) USING FLUORESCENT CARBON DOTS FOR DETECTION OF NITROTYROSINE. **Nayomi Camilus**[1], Rafik Naccache[2], Sanela Martic[1]. [1]Trent University, Canada. [2]Concordia University, Canada.
14:40 (**I102**) PARSIMONIOUS METHODOLOGY FOR SYNTHESIS OF SILVER AND COPPER FUNCTIONALIZED CELLULOSE. **David Patch[1]**, Natalia O'Connor[1], Debora Meira[2], Jennifer Scott[1], Iris Koch[1], Kela Weber[2]. Royal Military College of Canada, Canada; [2]Argonne National Laboratory, USA.

15:00 Refreshment break sponsored by **FlowJEM** and exhibition – *Limestone City Ballroom*

15:40 (**I148**) STRATEGIES AND APPROACHES FOR PARTICULATE MATTER (PM) ANALYSIS IN AIR. Chady Stephan, **Ruth Merrifield**, Aaron Hineman. PerkinElmer Inc., Canada.

16:20 (**I150**) ANALYTICAL CONSIDERATIONS FOR THE USE OF SP ICP-MS WITH NATURAL SAMPLES. Ibrahim Jreije, Agil Azimzada, Madjid Hadioui, **Kevin J. Wilkinson.** Université de Montréal, Canada.

16:40 (**I010**) GREEN SYNTHESIS AND BIOLOGICAL SCREENING OF SILVER NANOPARTICLES FROM AQUEOUS EXTRACT OF *EUPHORBIA PROSTRATA.* **Vipan Kumar[1]***, Prabhakar Kumar Verma[2], Anupama Setia[1]. [1]JCDM College of Pharmacy, India; [2]Maharshi Dayanand University, India

17:00 Reception sponsored by **Agilent** and exhibition – *Limestone City Ballroom*

18:00 Banquet with show by Dick Joiner – ticket required – *Limestone City Ballroom*

NMR III – *Room 204*

Organizer: Gang Wu **Chair:** Rui Huang

13:20 (**I131**) ISOTOPE EFFECTS IN NMR SPECTROSCOPY – A BRIEF OVERVIEW. **Roderick E. Wasylishen**, University of Alberta, Canada.

14:20 (**I116**) LOOKING INSIDE CANADIAN OILSEEDS – OIL PROFILING BY HRMAS NMR. **Christopher W. Kirby**, Leah K. Gauthier, and Maike B. Fischer, Agriculture and Agri-Food Canada, Canada.

15:00 Refreshment break sponsored by **FlowJEM** and exhibition – *Limestone City Ballroom*

15:40 (**I022**) SOLID-STATE NMR SPECTROSCOPY FOR STRUCTURE CHARACTERIZATION AND ION-DYNAMICS STUDIES IN LITHIUM-ION-BASED SOLID-STATE ELECTROLYTES. **Sandamini H. Alahakoon**, Feipeng Zhao, Xiaona Li, Shumin Zhang, Jiamin Fu, Xueling Sun, Yining Huang. University of Western Ontario, Canada.

16:00 (**I122**) A NEW DIMENSION IN HETEROGENEOUS CATALYSIS. **Frédéric A. Perras**, Alexander L. Paterson, James Cunningham, Guillaume P. Laurent, Scott Southern, Takeshi Kobayashi, Marek Pruski, Aaron D. Sadow, Igor I. Slowing, US DOE Ames Laboratory, USA.

16:40 End of session

17:00 Reception sponsored by **Agilent** and exhibition – *Limestone City Ballroom*

18:00 Banquet with show by Dick Joiner **-** ticket required – *Limestone City Ballroom*

Separations and Mass Spectrometry III: -Omics / Imaging – *Gibraltar*

Organizers: Richard Oleschuk and Karen Waldron

Co-Chairs: Haixia Zhang and Richard Oleschuk

13:20 (**I008**) HIGH THROUGHPUT QUANTIFICATION OF VICINE, CONVICINE AND LEVODOPA FROM FABA BEAN USING FLOW INJECTION ANALYSIS-HIGH FIELD ASYMMETRIC WAVEFORM ION MOBILITY MASS SPECTROMETRY. **Haixia Zhang**, University of Winnipeg, Canada.

13:40 (**I038**) SEPARATION ORTHOGONALITY IN 2D HPLC – CZE APPLICATIONS FOR BOTTOM-UP PROTEOMICS. Darien Yeung, Vic Spicer, **Oleg Krokhin**. University of Manitoba, Canada.

14:00 (**I083**) MASS SPECTROMETRY BASED STRATEGY FOR IMMUNOPEPTIDOME ANALYSIS. Rui Chen, Kelly M. Fulton, Anh Tran, Diana Duque, Susan M. Twine and **Jianjun Li**. National Research Council Canada.

14:20 (**I074**) THE VALIDATION AND ANALYSIS OF DIETARY URINE BIOMARKERS IN RELATION TO CHRONIC DISEASE RISK. Biban Gill, **Vanessa Martinez**, Erick Helmeczi, Stellena Mathiaparanam, Sathish Thirunavukkarasu, Gui Paré, Salim Yusuf, Koon Teo, Philip Britz-McKibbin. McMaster University, Canada.

14:40 (**I066**) ANALYTICAL CHALLENGES AND ADVANCES IN LONGITUDINAL LC-MS LIPIDOMICS STUDIES. Lise Cougnaud, Oluwatosin Kuteyi, **Dajana Vuckovic**. Concordia University, Canada.

15:00 Refreshment break sponsored by **FlowJEM** and exhibition – *Limestone City Ballroom*

15:40 (**I062**) THE SERUM METABOLOME BY MULTISEGMENT INJECTION-CAPILLARY ELECTROPHORESIS-MASS SPECTROMETRY: A HIGH THROUGHPUT PLATFORM AND STANDARDIZED DATA WORKFLOW FOR LARGE-SCALE EPIDEMIOLOGICAL STUDIES. **Zachary Kroezen**, Meera Shanmuganathan, Eric Fries, Na-Yung Seoh, Natasia Kurysko, Navneet Kang, Hani Choksi, Philip Britz-McKibbin. McMaster University, Canada.

16:00 (**I075**) A HIGH-THROUGHOUT PLATFORM FOR THE RAPID SCREENING OF VITAMIN D STATUS BY DIRECT INFUSION-MS/MS. **Erick Helmeczi[1]**, Eric Fries[1], Lauren Perry[1], Karen Choong[1], Katie O'Hearn[2], Dayre McNally[2], and Philip Britz-McKibbin[1], McMaster University, Canada; [2]Children's Hospital of Eastern Ontario Research Institute, Canada.

16:20 (**I032**) MALDI MASS SPECTROMETRY IMAGING – CHALLENGES AND OPPORTUNITIES IN QUANTITIVE ANALYSIS. **Ken Yeung**. Western University, Canada.

16:40 (**I052**) EFFECT OF STORAGE CONDITIONS ON ACTIVITY OF GLUTARALDEHYDE-CROSSLINKED TRYPSIN USING DESIGN OF EXPERIMENTS (DOE) AND CE-BASED PEPTIDE MAPPING WITH TWO-MARKER MIGRATION TIME CORRECTION. Marie-Pier Ouellet, Meriem Boudhina and **Karen Waldron**. University of Montreal, Canada.

17:00 Reception sponsored by **Agilent** and exhibition – *Limestone City Ballroom*

18:00 Banquet with show by Dick Joiner **-** ticket required – *Limestone City Ballroom*

WEDNESDAY, AUGUST 10, MORNING

Agricultural and Food Safety II – *British American*
Organizer: Andre Castillo **Chair**: Cameron Pytyck

09:00 EXPLORATION OF BONE CALCIUM METABOLISM IN ANIMALS AND HUMANS USING MASS SPECTROMETRIC TECHNIQUES. **Thomas Walczyk**, National University of Singapore, Singapore

09:40 (**I065**) FOOD THERMAL LABELS AS A PATHWAY OF EXPOSURE TO BISPHENOLS AND ANALOGUES. **Ziyun Xu**, Lei Tian, Lan Liu, Cindy Gates Goodyer, Barbara Hales, Stéphane Bayen, McGill University, Canada

10:00 Refreshment break sponsored by **CEM** and exhibition – *Limestone City Ballroom*

10:40 (**I081**) USING SPECTROSCOPY TO MANAGE PHOSPHORUS IN AGRICULTURAL SOILS **Barbara J. Cade-Menun**. Agriculture & Agri-Food Canada, Canada.

11:20 (**I047**) METRICS AND MODELING FOR PORTABLE ANALYTICAL INSTRUMENTS. **Suzanne Schreyer**, Rigaku Analytical Devices, USA

11:40 (**I098**) COMPARISON OF THE MAXIMUM BIOACCESSIBILITY OF AS, CD, AND PB IN PEELED AND UNPEELED VERSIONS OF GARDEN PRODUCE FOUND IN YELLOWKNIFE, NORTHWEST TERRITORIES. **Andre Castillo[1]**, Selena Domanski[1], Ashley Meness[1], Iris Koch[2], Mike Palmer[3], Diane Beauchemin[1]. [1]Queen's University, Canada; [2]Royal Military College of Canada; [3]Aurora College, Canada.

12:00 Hot buffet lunch (provided) for non-CSASS members – *Limestone City Ballroom*

12:00 Hot buffet lunch (provided) and CSASS AGM for CSASS members (if you checked the CSASS section on the registration form, you are a CSASS member) – *Old Stone Room*

Electrochemical and Surface Analysis III – *Room 303*

Organizer: Zhe She **Chair:** Jennifer McLeod

08:40 (**I067**) ELECTROCHEMICAL AND IN SITU FTIR SPECTROSCOPIC STUDY OF CO_2 REDUCTION. **Aicheng Chen**, University of Guelph, Canada.

09:20 (**I051**) ELECTROCHEMILUMINESCENCE AND SPECTROSCOPIC INSIGHTS INTO METALLIC NANOCLUSTERS. **Kenneth Chu**, Mahdi Hesari, Zhifeng Ding, University of Western Ontario, Canada.

09:40 (**I040**) SELECTIVE DETECTION OF SARS-COV-2 USING LOCALIZED SURFACE PLASMON RESONANCE APTASENSOR. **Amanda Oake**,[1] Tyra Lewis,[2] Erin Giroux,[2] Sanela Martic*[2] [1]Fleming College, [2]Trent University, Canada.

10:00 Refreshment break sponsored by **CEM** and exhibition – *Limestone City Ballroom*

10:40 (**I026**) DEVELOPING PORTABLE ANALYTICAL METHODS USING FUNCTIONALIZED SURFACES AND ELECTROCHEMISTRY, **Zhe She**, Queen's University, Canada.

11:20 (**I103**) CYCLIC VOLTAMETRIC AND ELECTROCHEMICAL IMPEDANCE SPECTROSCOPIC ANALYSIS OF ICE FORMATION ON SURFACE COATINGS TOWARD PREVENTION OF SAFETY HAZARDS IN THE AEROSPACE

INDUSTRY. **Kate Yeadon**[1,2], Naiheng Song[2], Xiao Huang[1], Edward P.C. Lai[1], Kailai Wang[1]. [1] Carleton University; [2] National Research Council of Canada.

11:40 (**I035**) GENERATING ELECTRODES USING 3-D PRINTING TECHNOLOGY FOR BIO-ANALYTICAL APPLICATIONS. **Kristin Partanen**, Phillip Hillen, Kevin McEleney, Richard Oleschuk, Zhe She. Queen's University, Canada.

12:00 Hot buffet lunch (provided) for non-CSASS members – *Limestone City Ballroom*

12:00 Hot buffet lunch (provided) and CSASS AGM for CSASS members (if you checked the CSASS section on the registration form, you are a CSASS member) – *Old Stones Room*

JOINT SESSION: Environmental Analysis I & Separations and Mass Spectrometry IV – *Gibraltar*

Organizers: Eve Kroukamp, Richard Oleschuk and Karen Waldron

Co-Chairs: Eve Kroukamp and Karen Waldron

09:00 (**I049**) ARSENIC SPECIATION IN THE ENVIRONMENT. Qingqing Liu, Xiufen Lu, Tetiana Davydiuk, Xiaojian Chen, Karen S. Hoy, Chester Lau, Jordan R.M. Schofield and **Chris Le**. University of Alberta, Canada.

09:20 (**I064**) ANALYSIS OF ZINC PEROXIDE NANOPARTICLES DOPED WITH OTHER TRANSITION METALS BY CAPILLARY ELECTROPHORESIS, ELECTROCHEMISTRY AND SPECTROFLUORIMETRY. **Edward P.C. Lai**, Sarah Elab, Eman Elmorsi, Kailai Wang and Kate Yeadon. Carleton University, Canada.

09:40 (**I058**) NON-TARGETED SCREENING OF PESTICIDES IN HONEY FROM CANADA USING LC-QTOF-MS. **Shaghig Bilamjian[1]**, Lei TIAN[1], Caren AKIKI[1], Tarun ANUMOL[2], Daniel CUTHBERTSON[2], Stéphane BAYEN[1]. [1]McGill University, Montreal, QC, Canada; [2]Agilent Technologies, USA.

10:00 Refreshment break sponsored by **CEM** and exhibition – *Limestone City Ballroom*

10:40 (**I114**) ASSESSING OUR EXPOSURE TO ENVIRONMENTAL CONTAMINANTS IN URINE BY TARGETED AND UNTARGETED LC-MS/MS METHODS. **Lekha Sleno**, Ons Ousji, Ikram Benhadji Serradj. Université du Québec à Montréal, Canada.

11:00 (**I050**) SEPARATION AND MASS SPECTROMETRY TECHNIQUES IN WATER RESEARCH. Caley Craven, Nicholas Wawryk, Kristin Carroll and **Xing-Fang Li**. University of Alberta, Canada.

11:20 (**I105**) EXPANDING THE USABILITY OF SEDIMENT CERTIFIED REFERENCE MATERIALS WITH SEQUENTIAL EXTRACTION DATA. **Kelly Leblanc**, INDU PIHILLAGAWA GEDARA, OVI MIHAI, PARAMEE KUMKRONG, AND ZOLTAN MESTER. National Research Council of Canada.

11:40 **(I091)** SUCCESSFUL SCALE-UP AND DESTRUCTION OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) IN SOIL VIA BALL MILLING. Nicholas J. Battye[1], **Oliver J. Allshire[1]**, David Patch[1], Dylan Roberts[1], Lauren Turner[2], Bernard H. Keuper[2], Kela P. Weber[1]. Royal Military College of Canada.

12:00 Hot buffet lunch (provided) for non-CSASS members – *Limestone City Ballroom*

12:00 Hot buffet lunch (provided) and CSASS AGM for CSASS members (if you checked the CSASS section on the registration form, you are a CSASS member) – *Old Stones Room*

Innovations from Manufacturers – *Old Stones Room*
Organizer and Chair: Diane Beauchemin

08:40 (**I157**) THERMO SCIENTIFIC VANQUISH SYSTEMS - SEE PRODUCTIVITY IN A NEW LIGHT. **Vikas Chander**. Thermo Fisher Scientific, Canada.
09:00 (**I002**) BATTERY RESEARCH USING VIBRATIONAL SPECTROSCOPY. **Sergey Shilov**, Bruker Optics, USA.
09:20 (**I156**) DEMOCRATIZING NMR SPECTROSCOPY: INTRODUCTION TO NANALYSIS BENCHTOP NMR AND APPLICATIONS. **Matthew T. Zamora**. Nanalysis, Canada.
09:40 (**I152**) INNOVATIVE AND MODERN SOLUTIONS FOR SAMPLE PREPARATION PRIOR TO ICP ANALYSIS. **Adam Abdelrehim**, Anton Paar Canada.

10:00 Refreshment break sponsored by **CEM** and exhibition – *Limestone City Ballroom*

10:40 (**I107**) DETERMINATION OF CHROMIUM SPECIES IN DRINKING WATER BY ION CHROMATOGRAPHY (IC)–ICP-MS (FAST, SENSITIVE, AND ACCURATE MEASUREMENT OF CR(VI) USING A METROHM IC COUPLED TO AGILENT ICP-MS). **Parviz Shahbazikhah**[1], Jayesh Gandhi[2], Yan Cheung[3]. [1]Metrohm Canada; [2]Metrohm USA, [3]Agilent Technologies, USA
11:00 (**I150**) RECENT ADVANCEMENT IN QUADRUPOLE-BASED ICP-MS. **Aaron Hineman**, PerkinElmer, Canada.
11:20 (**I109**) 10 YEARS OF ICP-MS/MS: HOW AGILENT REVOLUTIONIZED ICPMS. **R. Bastian Georg,** Clint Walker, Ed McCurdy, Glenn Woods and Jean-Louis Cabral. Agilent Technologies, Canada
11:40 (**I149**) ILLUMINATING THE EDGE OF DISCOVERY, NEOMA MULTICOLLECTOR ICP-MS. **Peter Stow**, Isomass, Canada.
12:00 Hot buffet lunch (provided) for non-CSASS members – *Limestone City Ballroom*
12:00 Hot buffet lunch (provided) and CSASS AGM for CSASS members (if you checked the CSASS section on the registration form, you are a CSASS member) – *Old Stones Room*

Spectroscopy of Emerging Photonic Materials I – *Room 204*

Organizer and Chair: Kevin Stamplecoskie **Co-Chair:** Emily Steele

09:00 (**I118**) SPIN-POLARIZED EMISSION IN NOBLE METAL NANOCLUSTERS. Patrick J. Herbert and **Kenneth L. Knappenberger, Jr.** Pennsylvania State University, U.S.A.
09:40 (**I151**) CUSTOMIZABLE SILVER NANOPARTICLE SERS FILMS: OPTIMIZATION AND PESTICIDE SENSING. **Graham Beaton**, Yazan Bdour, Carlos Escobedo, Kevin Stamplecoskie., Queen's University, Canada

10:00 Refreshment break sponsored by **CEM** and exhibition – *Limestone City Ballroom*

10:40 (**I117**) ACCELERATED SIZE-FOCUSING PHOTOCHEMICAL SYNTHESIS OF NOVEL FLUORESCENT PEPTIDE-PROTECTED GOLD NANOCLUSTERS FOR BIOMEDICAL APPLICATIONS, **Parimah Aminfar**, Kevin Stamplecoskie**,** Queen's University, Canada.
11:00 (**I125**) ASSESSING THE PROPERTIES OF NANOCLUSTERS FOR PHOTODYNAMIC THERAPY **Kristen Harrington** and Kevin Stamplecoskie. Queen's University, Canada.

11:20 (**I155**) N-HETEROCYCLIC CARBENES AS LIGANDS FOR METAL SURFACES AND NANOCLUSTERS. **Cathleen Crudden**[1,2.] Queen's University, Canada; [2]Nagoya University, Japan.

12:00 Hot buffet lunch (provided) for non-CSASS members – *Limestone City Ballroom*

12:00 Hot buffet lunch (provided) and CSASS AGM for CSASS members (if you checked the CSASS section on the registration form, you are a CSASS member) – *Old Stones Room*

WEDNESDAY, AUGUST 10, AFTERNOON

Environmental Analysis II – *Room 303*

Organizer and Chair: Eve Kroukamp

13:40 (**I037**) APPLICATION OF ANALYTICAL TOOLS TO PROBE THE BIONORGANIC CHEMISTRY OF TOXIC METAL(LOID)S IN MAMMALS. M. DOROUDIAN, A. GAUTAM, T.G. Bridle and **J. Gailer**, University of Calgary, Canada.

14:00 (**I024**) EFFECT OF NITROGEN FERTILIZER APPLICATION ON PLANT USABLE NITROGEN SPECIES IN SOIL DURING SORGHUM GROWING SEASON ON MARGINAL LANDS IN ONTARIO. **Zhongwei Shi**, Hongbin Dong, Julia Lu. Toronto Metropolitan University, Canada.

14:20 (**I082**) DEVELOPMENT OF A RAPID UV-ACTIVATED TOTAL OXIDIZABLE PRECURSOR (TOP) ASSAY FOR IMPROVED QUANTIFICATION OF PER - AND POLYFLUOROALKYL SUBSTANCES (PFAS) IN AQUEOUS FILM FORMING FOAM (AFFF). **Natalia O'Connor**[1], David Patch[1], Iris Koch[1], Kela Weber[1], Jinxia Liu[2], [1]Royal Military College of Canada, [2]McGill University, Canada.

14:40 (I**101**) ELUCIDATING DEGRADATION MECHANISMS FOR A RANGE OF PFAS VIA CONTROLLED IRRADIATION STUDIES. **David Patch[1]**, Natalia O'Connor[1], Iris Koch[1], Tom Cresswell[2], Cath Hughes[2], Justin B. Davies[2], Jennifer Scott[1], Denis O'carroll[1,3], Kela Weber[1,3]**. [1]**Royal Military College of Canada; [2]Australian Nuclear Science and Technology Organisation, Australia; [3]University of New South Wales, Australia.

15:00 Refreshment break sponsored by **ISOSPARK** – *Limestone City Ballroom*

15:40 (**I077**) DIRECT ANALYSIS OF TRACE ELEMENTS IN SEAWATER USING ICP-MS WITH VERSATILE REACTION MODES. Liyan Xing, Chady Stephan. PerkinElmer Inc. Canada

16:00 (**I043**) WHAT THE ELK?! BIOMONITORING OF ENVIRONMENTAL SAMPLES IN BUTTE, MONTANA TO DETERMINE THE IMPACT FROM A LOCAL SUPERFUND SITE. **Nausheen Sadiq**, Catharina Venter, Kevin Hayes, James Walker, Caleb Marx, Gwen O'Sullivan. Mount Royal University, Canada.

16:20 (**I016**) QUANTIFICATION OF SURFACE TOPOGRAPHY OF TREATMENT WETLAND BIOFILM. Anbareen J. Farooq[1], **Mhari Chamberlain**[1], Arman Poonja[1], Kevin G. Mumford[2], Kela P. Weber[1], Royal Military College of Canada.

16:40 (**I112**) AIR QUALITY MONITORING, SCIENCE, AND OUTREACH IN WATERLOO REGION, ONTARIO. **Yara Khalaf**[1], Carol Salama[1], Brenda Kurorwaho[1], Jessica Deon[2], Hind A. Al-Abadleh[1]. [1]Wilfrid Laurier University, Canada; [2]University of Toronto, Canada.

17:00 End of 64th ICASS

Sample Introduction Systems for the Inductively Coupled Plasma – *Old Stones Room*
Organizer: Michael Trolio **Co-Chairs**: Zichao Zhou and Michael Trolio

13:20 (**I115**) PHOTOCHEMICAL VAPOR GENERATION FOR ELEMENTAL ANALYSIS: THE ROAD SO FAR… **Daniel L. G. Borges**, Universidade Federal de Santa Catarina, Brazil
14:00 (**I138**) ICP-MS FOR SINGLE CELLS ANALYSIS. **Bin Hu**. Wuhan University, China
14:40 (**I096**) TOTAL CONSUMPTION INFRARED-HEATED SAMPLE INTRODUCTION SYSTEM TO IMPROVE INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **Zichao Zhou**, Ahmed Al Hejami and Diane Beauchemin, Queen's University, Canada

15:00 Refreshment break sponsored by **ISOSPARK** – *Limestone City Ballroom*

15:40 (**I093**) OPTIMIZATION OF INFRARED-HEATED SAMPLE INTRODUCTION SYSTEM FOR INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **Darrian Prendergast**, Zichao Zhou, Diane Beauchemin Queen's University, Department of Chemistry, 90 Bader Lane, Kingston, ON K7L 3N6, Canada.
16:00 (**I097**) DEVELOPMENT OF A SIMPLE METHOD FOR THE DIRECT DETERMINATION OF RARE EARTH ELEMENTS IN SLAG USING ELECTROTHERMAL VAPORIZATION INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY. **Yangyang Wang,** D. Beauchemin. Queen's University, Canada.
16:20 (**I080**) DIRECT ANALYSIS OF INSECT-BASED PROTEINS USING ELECTROTHERMAL VAPORIZATION COUPLED WITH INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY. **Yulianna Holowaty**[1]**,** Diane Beauchemin[1], Kelly Leblanc[2], and Zoltan Mester[2], [1]Queen's University, Canada; [2]National Research Council of Canada.
16:40 (**I134**) REDUCTION OF MATRIX EFFECTS AND OXIDE INTERFERENCES USING NOVEL LIQUID-LIQUID JUNCTION INTRODUCTION SYSTEM FOR INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **Michael Trolio**, Diane Beauchemin. Queen's University, Canada
17:00 End of the 64th ICASS

Separations and Mass Spectrometry V: Nutrition & Food / Instrumentation / Microfluidics – *Gibraltar*

Organizers: Richard Oleschuk and Karen Waldron
Co-Chairs: Jiaxi Peng and Andrei Drabovich
13:40 (**I014**) FAST GC-MS METHOD FOR IDENTIFICATION AND QUANTIFICATION OF TERPENES FROM CANNABIS SAMPLES. Abdul Qudeer Ahmed[1], Yoonjo Park[1], David Noshad[2], and **Paul Li[1].** [1]Simon Fraser University, Canada; [2]Medcan Biotechnologies Inc., Canada.
14:00 (**I045**) STEREOSELECTIVE ANALYSIS OF TARTARIC ACID USING COMPLEXATION WITH EUROPIUM-TETRACYCLINE AND SEPARATION BY

CAPILLARY ELECTROPHORESIS. **Doug Craig**, Joshua W Hollett, Sumaiya Abas, Brynne K Riehl. University of Winnipeg, Canada.

14:20 (**I079**) MAKING 3D PAPER-BASED ANALYTICAL DEVICE ON A SINGLE-SHEET OF 2D FILTER PAPER. **Lishen Zhang**, Daniel O. Reddy; Timothy T. Salomons; Richard Oleschuk. Queen's University, Canada.

14:40 (**I017**) A SIMPLE LOW-COST 3D PRINTED SHEATH FLOW CUVETTE FOR SENSITIVE FLUORESCENCE DETECTION IN CAPILLARY ELECTROPHORESIS. **Cameron Skinner**, Concordia University, Canada.

15:00 Refreshment break sponsored by **ISOSPARK** – *Limestone City Ballroom*

15:40 (**I036**) DIGITAL MICROFLUIDICS COMBINED WITH MASS SPECTROMETRY FOR SINGLE-CELL PROTEOME ANALYSIS. **Jiaxi Peng**, Erica Y. Scott, Calvin Chan, Maxwell E. Olson and Aaron R. Wheeler. University of Toronto, Canada.

16:00 (**I124**) GOING AGAINST THE FLOW: A RETURN TO A MEMBRANE APPROACH FOR MICROFLUIDIC MICROBIAL FUEL CELLS YIELDS NEW BENCHMARKS. L. Gong, M. A. Amirdehi, J. M. Sonawane, N. Jia, L. Torres de Oliveira and **Jesse Greener**. Université Laval, Canada.

16:20 (**I072**) PATTERNED WETTABILITY AND CONDUCTIVE TOUCH FOR IMPROVED TISSUE PROFILING WITH LIQUID MICROJUNCTION SURFACE SAMPLING. **Richard Oleschuk**, Matthias Hermann, Haidy Metwally, Jian Yu, Rory McEwan, Phillip Hillen, Ben Tucker, Kasia Donovan, Jess Deng, Queen's University, Canada.

16:40 End of session

Speciation Analysis – *British American*
Organizer and chair: Helen Lord

13:20 (**I088**) HOW DO YOU CONDUCT ARSENIC SPECIATION ANALYSIS WHEN YOUR ICP-MS ISN'T WORKING? **Iris Koch**, Blaire Coffey, David Patch, Natalia O'Connor, Jennifer Scott, Kela Weber. Royal Military College of Canada, Canada.

14:00 (**I086**) ARSENIC SPECIATION IN CANADIAN PEAT POGS. **Isabelle Hébert,** Iris Koch, Blaire Coffey, David Patch. Royal Military College of Canada.

14:20 (**I106**) ARSENOBETAINE: SYNTHESIS AND SELECTIVITY. **Blaire Coffey**, Jennifer Scott, and Iris Koch. Royal Military College of Canada, Department of Chemistry and Chemical Engineering, Environmental Sciences Group, PO Box 17000, Station Forces, Kingston, ON K7K 7B4, Canada.

14:40 (**I092**) ^{82}Se-ENRICHED SELENIZED YEAST: A PERFECTLY MATRIX-MATCHED STANDARD FOR ISOTOPE DILUTION ANALYSIS OF SELENIZED YEAST. **Kelly LeBlanc** and Zoltan Mester. National Research Council Canada.

15:00 Refreshment break sponsored by **ISOSPARK** – *Limestone City Ballroom*

15:40 (**I141**) RAPID AND AUTOMATED ELEMENTAL SPECIATION FOR CLINICAL, ENVIRONMENTAL, AND FOOD APPLICATIONS. **C. Derrick Quarles Jr**., Elemental Scientific, USA

16:20 (**I104**) CHALLENGES IN ATMOSPHERIC MERCURY SPECIATION ANALYSIS. **Julia Lu**, Toronto Metropolitan University, Canada.

16:40 (**I057**) AN IMPROVED METHOD FOR METHYLMERCURY SPECIATION WITH HPLC-ICP-MS. Kenneth Ong, Caroline Ling and **Aaron Hineman**, PerkinElmer Inc., Canada.
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Spectroscopy of Emerging Photonic Materials II – *Room 204*
Organizer: Kevin Stamplecoskie
Co-Chairs: Goonay Yousefalizadeh and Kristen Harrington

13:40 (**I146**) SYNCHROTRON X-RAY SPECTROSCOPY OF SOME METAL NANOCLUSTERS, **Peng Zhang,** Dalhousie University, Canada.
14:20 (**I121**) PHOTOLUMINESCENCE ENHANCEMENT AND PRESERVATION IN MONOLAYER MOLYBDENUM DISULFIDE VIA SUPERACID TREATMENT AND 2D ENCAPSULATION. Kurt H. Tyson, James R. Godfrey, Robert. G. Knobel, and **James M. Fraser.** Queen's University, Canada.
15:00 Refreshment break sponsored by **ISOSPARK** – *Limestone City Ballroom*
15:40 (**I153**) TWO PHOTON ABSORBANCE AND ACTION SPECTRUM OF SILVER CLUSTERS FOR PHTODYNAMIC THERAPY. **Emily Steele**, Rachel Odell, James Fraser, Kevin Stamplecoskie, Queen's University, Canada.
16:00 (**I145**) ATOMICALLY PRECISE METAL CLUSTERS: SYNTHESIS, UNIQUE PHOTOPHYSICAL PROPERTIES, AND THEIR ADVANTAGES IN BIOMEDICAL APPLICATIONS. **Goonay Yousefalizadeh**, Queen's University, Canada.
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