presents:

The 66th International Conference on Analytical Sciences and Spectroscopy

June 26-28, 2024

ICASS 2024

Final Program

Sheraton Fallsview

5875 Falls Avenue, Niagara Falls, ON L2G 3K7, Canada

Welcome to the 66th ICASS

The 66th ICASS organizing committee has the pleasure of welcoming you to the Sheraton Fallsview hotel and the Crown Plaza Niagara Falls hotel in Niagara Falls, ON. This venue was selected because of its proximity to the US border and its breathtaking view of Niagara Falls, an international attraction. The event was scheduled on June 26th-June 28th to allow folks combining business and pleasure to extend their stay to partake in the Canada Day (July 1st) festivities and visit other attractions.

An outstanding program awaits you, which will start with a plenary session on Wednesday morning featuring three award presentations, two of which are sponsored by **PerkinElmer** and **Burgener Research**. Four parallel sessions will be held on Monday afternoon, with five parallel session in the morning and the afternoon for the rest of the conference. The exhibition will open at noon with lunch on June 26th. The afternoon coffee break is sponsored by **Isospark Analytical Solutions.** On Monday afternoon, the parallel sessions will be followed by a dedicated poster session, after which attendees will walk to the nearby Greg Frewin Theatre for a dinner followed by a family-friendly 90-minute magic show. Tickets are required for this event. On Thursday, the afternoon sessions will be followed by the banquet, which will start with a reception. Student poster prizes sponsored by **Elemental Scientific** will be announced during the banquet, which will also include at least one joke of the day. Tickets are required for the banquet.

To maximize networking in a relaxing atmosphere, all meals are included in the full registration (including hot buffet breakfast and lunch each day) and 40-minute coffee breaks are scheduled, Our hope is that the program, featuring numerous high-quality presentations and an impressive exhibition in combination with relaxing events, will make the 66th ICASS an unforgettable conference. May you enjoy many fruitful discussions and make several new acquaintances!

66th ICASS Conference Chair
Diane Beauchemin (Queen's University, Canada)

Web Master
Madison Langley (Queen's University, Canada)

Organizing committee
Maxim Berezovski (University of Ottawa, Canada)
Andrei Drabovich (University of Alberta, Canada)
Vassili Karanassios (University of Waterloo, Canada)
Iris Koch (Royal Military College of Canada)
Helen Lord (Queen's University, Canada)
Sanela Martic (Trent University, Canada)
Katie Moghadam (Queen's University, Canada)
Mohamad Sabsabi (National Research Council of Canada)
Nausheen Sadiq (Mount Royal University, Canada)
Gang Wu (Queen's University, Canada)
Zichao Zhou (Queen's University, Canada)

PROGRAM AT A GLANCE

Time	Wednesday June 26, 2024	Thursday June 27, 2024	Friday June 28, 2024
8:00-8:40 or 9:00	Hot buffet breakfast (*Great C*)	Hot buffet breakfast (*Great B*)	Hot buffet breakfast (*Great B*)
8:40 or 9:00-10:00	Gerhard Herzberg Award presentation (*Great C*)	Chemical & isotopic speciation II (*Upper Fallsview A*)	Agricultural & food safety I (*Great A*)
		LIBS/LA-ICPMS (*Strategy 7*)	Electrochemical & surface analysis II (*Upper Fallsview B)*
		Nanomaterials & their analysis (*Upper Fallsview B)*	Environmental analysis I (*Strategy 7*)
		NMR II (*Great A*)	Forensic analysis II (*Upper Fallsview A*)
		Separations & MS I (*Great C*)	Separations & MS III (*Great C*)
10:00-10:40	Coffee break & posters (*Great C*)	Coffee break (*Great B*)	Coffee break (*Great B*)
10:40-12:00	Burgener Research Graduate Student Award presentation & PerkinElmer Analytical Science and Spectroscopy Award presentation (*Great C*)	Chemical & isotopic speciation II (*Upper Fallsview A*)	Agricultural & food safety I (*Great A*)
		LIBS/LA-ICPMS (*Strategy 7*)	Electrochemical & surface analysis II (*Upper Fallsview B)*
		Nanomaterials & their analysis (*Upper Fallsview B)*	Environmental analysis I (*Strategy 7*)
		NMR II (*Great A*)	Forensic analysis II (*Upper Fallsview A*)
		Separations & MS I (*Great C*)	Separations & MS III (*Great C*)
12:00-13:20	**Exhibition opening,** lunch buffet (*Great B*)	Lunch buffet (*Great B*)	Lunch buffet (*Great B*)
13:40-15:00	Chemical & isotopic speciation I (*Great C*)	Electrochemical & surface analysis I (*Upper Fallsview B)*	Agricultural & food safety II (*Great A*)
	Forensic analysis I (*Upper Fallsview A*)	LIBS/LA-ICPMS (*Strategy 7*)	Electrochemical & surface analysis III (*Upper Fallsview B)*
	NMR I (*Great A*)	Miniaturatization & micro-plasmas (*Upper Fallsview A*)	Environmental analysis II (*Strategy 7*)
	Sample prep & intro for ICP (*Upper Fallsview B)*	NMR III (*Great A*)	Forensic analysis III (*Upper Fallsview A*)
		Separations & MS II (*Great C*)	Separations & MS IV (*Great C*)
15:00-15:40	Coffee break (*Great B*)	Coffee break (*Great B*)	Coffee break (*Great C*)
15:40-17:00	Chemical & isotopic speciation (*Great C*)	Electrochemical & surface analysis I (*Upper Fallsview B)*	Electrochemical & surface analysis III (*Upper Fallsview B)*
	Forensic analysis I (*Upper Fallsview A*)	LIBS/LA-ICPMS (*Strategy 7*)	Environmental analysis II (*Strategy 7*)
	NMR I (*Great A*)	Miniaturatization & micro-plasmas (*Upper Fallsview A)*	Separations & MS IV (*Great C*)
		NMR III (*Great A*)	
	Sample prep & intro for ICP (*Upper Fallsview B)*	Separations & MS II (*Great C*)	
17:00-17:40	Poster session (*Great C*)	Break (*Great B*)	End of 66th ICASS
17:40-18:00	Walk to Greg Frewin Theatre	Reception (*Great C foyer*)	
18:00-21:30	**Magical dinner** (ticket required)	**Banquet** (ticket required) (*Great C*)	

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EXHIBITORS – *Great B*

Booth	Vendor	Booth	Vendor
1	**CEM Corporation** 3100 Smith Farm Road Matthews, NC 28104, USA Tel: 704-821-7015 www.cem.com	11	**PerkinElmer Canada Inc.** 501 Rowntree Dairy Rd, Unit 6, Woodbridge, ON L4L 8H1, Canada **Tel:** 438-223-1445 www.perkinelmer.com
3	**Infinite Scientific** 4665 Yonge Street Unit 309 Toronto, ON M2N 0B4, Canada Tel.: 647- 819-2670 www.infi-sci.com	13	**LECO Instruments ULC** 2205 Dunwin Dr., Mississauga, ON L5L 1X1, Canada Tel: 514-442-5464 www.leco.com
4	**Anton Paar Canada** 2920 Rue de Miniac, Montreal, QC H4S 1N5, Canada Tel: 514-788-4862 www.anton-paar.com	14	**Brooks Rand Instruments/ Brooks Applied Labs**, 3257 16th Ave W, Seattle, WA 98119, USA Tel: 206-596-8474 www.brooksrandinc.com
5	**Analytik Jena** 3 Highwood Drive, Suite 103E, Tewksbury, MA 1876, USA Tel: 781-376-9899 www.analytik-jena.us	15	**ATS Scientific Inc.** 4030 Mainway, Burlington, ON L7M 4B9, Canada Tel.: 800-661-6700 www.ats-scientific.com
6	**Elemental Scientific Inc.** 7277 World Communications Dr. Omaha, NE 68122, USA Tel: 402-991-7800 www.icpms.com	16	**AnalytiChem** 21800 Clark Graham, Baie D'Urfé, QC H9X 4B6, Canada **Tel:** 514-457-0701 www.scpscience.com
7	**Metrohm Canada Inc** 60 - 4160 Sladeview Crescent Mississauga, ON L5L 0A1, Canada Tel: 905-569-4211 www.metrohm.com	17	**ThermoFisher Scientific Inc.** 2845 Argentia Road, Unit 4 Mississauga, ON L5N 8G6, Canada Tel: 905-330-0668 www.thermofisher.com
8	**Agilent Technologies Inc.** 6705 Millcreek Drive, Unit 5 Mississauga, ON L5N 8B3, Canada Tel: 343-304-6251 www.agilent.com	18	**Mandel Scientific Company Inc. – Shimadzu**, 2 Admiral Place, Guelph, ON N1G 4N4, Canada Tel: 519-830-6732 www.mandel.ca
9	**Isomass Scientifc Inc.** #140, 57100 1st Street SW Calgary, AB T2H 3A9, Canada Tel: 403-255-6631 www.isomass.com	19	**9416595 Canada Inc (Isospark)** 1601 Boul Saint-Régis, Dollard-des-Ormeaux, QC H9B 3H7, Canada Tel: 514-282-2181 www.isospark.com
10	**Burgener Research Inc.** 1680 Lakeshore Rd. W., Unit #2 Mississauga, ON L5J 1J5, Canada Tel.: 905-823-3535 www.burgener.com	20	**Bruker Scientific** 2800 High Point Dr Suite #110 Milton, ON L9T 6P4, Canada Tel: 905-876-4641 www.bruker.com/ftir

66th ICASS INFORMATION

Registration desk

All attendees, speakers and exhibitors are requested to sign in at the registration desk, located in the foyer of Great C (on June 26th) or Great B (on June 27th and 28th), to pick up the delegate pack.

High Speed Internet in Meeting Rooms

Wi-Fi Username: science
Wi-Fi Password: Conference

Parking at Sheraton Fallsview

Conference attendees staying at the hotel are entitled to $10 off self-parking. This is coded in the room reservation system and will be automatically applied to the parking fee.

Oral presentations

LCD (for PowerPoint presentations) projectors will be available. Unless otherwise indicated, presentations are 20 or 40 minutes in length, including questions.

Posters

Posters will be placed on the walls in Great C using the provided sticky tack or masking tape. No duct tape or tacks should be used. Poster spots will be numbered corresponding to the program.

Presenters should install their posters by 10 am on Wednesday, June 26 and remove them before departing. Students must attend their posters from 17:00 to 17:40 on June 26 to be eligible for poster prizes (three prizes, of $150, $200 and $250). Winners of poster prizes will be announced and received their prizes during the banquet.

Attendance certificates

If you wish to receive an attendance certificate, please contact the 66th ICASS Chair, Diane Beauchemin at diane.beauchemin@queensu.ca.

Exhibitors

Exhibitors should set up their booth in Great B between 11:00 and noon on June 26th. The exhibition will open with lunch at noon on Wednesday, June 26th and will close with lunch on Friday, June 28th. Booths should be removed by 17:00 on June 28th.

WEDNESDAY, JUNE 26, MORNING

8:00-9:00 Hot buffet breakfast (provided) – *Great C*

Plenary Session – *Great C*
Chair: Diane Beauchemin (ICASS Chair)

9:00 Conference opening. Diane Beauchemin
9:15 Gerhard Herzberg Award presentation. Liyan Xing (Vice-President of CSASS)
9:20 (**I140**) SURFACE-ENHANCED RAMAN SCATTERING (SERS) APPLICATIONS, QUANTIFICATION AND SINGLE MOLECULE SPECTROSCOPY. **Alexandre G. Brolo**, University of Victoria, Department of Chemistry, Victoria. BC, Canada.

10:00 Refreshment break and posters – *Great C*

10:40 Burgener Research Graduate Student Travel Award. Mirah Burgener on behalf of Burgener Research
10:45 (**I077**) INTERFACIAL INSIGHTS: PROBING POLYMER CONFORMATIONS WITH SFG SPECTROSCOPY. **Bianca Martins de Lima**[1], Paula Wood-Adams[2], Patrick Hayes[3], [1]Concordia University, Department of Chemical and Materials Engineering, Montreal, QC, Canada. [2]University of Northern British Columbia, Prince George, BC, Canada; [3]Université de Montréal, Department of Chemistry, Montreal, QC, Canada.
11:15 PerkinElmer Analytical Sciences and Spectroscopy Award presentation. Aaron Hineman on behalf of PerkinElmer
11:20 (**I152**) LIPIDOMICS ODYSSEY: CURRENT STATUS AND FUTURE HORIZONS. Lise Cougnaud, Reza Maulana, Ana Carolina Dos Santos, Elissa Mariani, Oluwatosin Kuteyi, **Dajana Vuckovic**, Concordia University, Montréal, QC, Canada.

12:00 Exhibition opening with hot buffet lunch (provided) – *Great B*

WEDNESDAY, JUNE 26, AFTERNOON

Chemical and Isotopic Speciation Analysis I – *Great C*
Organizer: Helen Lord **Co-Chairs:** Helen Lord and Andre Castillo

13:20 (**I059**) ADDRESSING THE CHALLENGE OF SMALL MOLECULE SEPARATION IN COMPLEX SAMPLES THROUGH SUSTAINABLE AND HIGH-THROUGHPUT MICROEXTRACTION TECHNIQUES. **Emanuela Gionfriddo**, University at Buffalo, the State University of New York, Department of Chemistry, Buffalo, NY, USA.
14:00 (**I012**) SPECIATION OF NITROGENOUS-COMPOUNDS WITH P-TOLUENESULFONYL CHLORIDE DERIVATIZATION FOLLOWED BY LC-MS. **Ran Zhao**, Xinyang Guo, Kimberly Wong, Department of Chemistry, University of Alberta, Canada.
14:40 (**I046**) ARSENIC SPECIATION IN WASTEWATER, PLANTS AND BIOFILMS AND EFFECTS ON REMOVAL IN LABORATORY-SCALE CONSTRUCTED WETLANDS. **Antoine Hnain**[1], Iris Koch[1], Debora Meira[2] and Kela Weber[1], [1]Royal Military College of Canada, Department of Chemistry and Chemical Engineering, Kingston, ON, Canada; [2]Argonne National Laboratory, Lemont, IL, U.S.A.

15:00 Refreshment break **sponsored by Isospark**, exhibition and posters – *Great B and C*

15:40 (**I056**) SOLID-STATE SPECIATION ANALYSIS USING SYNCHROTRON-BASED X-RAY ABSORPTION SPECTROSCOPIC METHODS. **Iris Koch**, Blaire Coffey, David Patch, Antoine Hnain, Jennifer Scott, Ken Reimer, Kela Weber. Royal Military College of Canada, Department of Chemistry and Chemical Engineering, Kingston, ON, Canada. Andre Castillo. Queen's University, Department of Chemistry, Kingston, ON, Canada. Debora Meira, Zou Finfrock. CLS@APS sector 20, Canadian Light Source Inc., Saskatoon, Saskatchewan, Canada.

16:00 (**I055**) SELECTIVITY OF ARSENOBETAINE USING FIELD PORTABLE X-RAY FLUORESCENCE. **Blaire Coffey**, Jennifer Scott, and Iris Koch. Royal Military College of Canada, Department of Chemistry and Chemical Engineering, Environmental Sciences Group, Kingston, ON, Canada.

16:20 (**I113**) ELEMENTAL SPECIATION BY OPTICAL EMISSION MICROPLASMA SPECTROMETRY: THE CASE FOR CHROMIUM AND ARSENIC. Daniel A. Cebula, Liaba Quadeer, V. Zhou, U. Dayal, M. J. W. Thiessen and **Vassili Karanassios**, University of Waterloo, Waterloo, ON, Canada.

17:00 Poster session and Exhibition – *Great B and C*

17:40 Refresh and walk to Greg Frewin Theatre (see map)

18:15 Dinner **sponsored by Isospark –** *Grand Theatre* **–** ticket required

19:30 WONDERS A Magic Spectacle **–** *Grand Theatre*

21:30 End of magic show

Forensic Analysis I – *Upper Fallsview A*

Organizer: Katie Moghadam **Co-chairs:** Darrian Prendergast and Katie Moghadam

13:20 (**I109**) A NOVEL APPROACH FOR IN SITU DETECTION OF GUNSHOT RESIDUE. Keynote lecture. **Igor K. Lednev.** University at Albany, State University of New York, Albany, NY, USA

14:00 (**I017**) TRANSFER AND PERSISTENCE ANALYSIS OF GUNSHOT RESIDUE BY MP-AES AND ICP-MS. Deanna Haas[1], Shannon Accettone[1,2], David Ruddell[3], **Sanela Martic**[1,4]. [1]Department of Forensic Science, Trent University, Peterborough, ON, Canada, [2]Department of Chemistry, Trent University, Peterborough, ON, Canada, [3]Center of Forensic Sciences, Toronto, ON, Canada, [4]Trent School of Environment, Environmental Life Sciences, Materials Science Program, Water Quality Center, Trent University, Peterborough, ON, Canada.

14:20 (**I033**) CHEMICAL FUNCTIONALIZATION OF SYNTHETIC MELANIN FOR USE IN A FORENSIC SKIN SIMULANT. **Kgalalelo Rampete**[1], Jean-Paul Desaulniers[1,2], Theresa Stotesbury[1,2], [1]Applied Bioscience Graduate Program, Faculty of Science, Ontario Tech University, Oshawa, ON, Canada. [2]Faculty of Science, Ontario Tech University, Oshawa, ON, Canada.

14:40 (**I029**) GRAPHORMER-IR: GRAPH TRANSFORMERS CAN PREDICT EXPERIMENTAL IR AND IRMPD SPECTRA USING HIGHLY SPECIALIZED ATTENTION **Cailum M. K. Stienstra[1]**, Liam Hebert[2], Teun van Wieringen[3], Patrick Thomas[1], Alexander Haack[1], Jason Guo[1], Jonathan Martens[3], W. Scott Hopkins[1,4,5] [1]Department of Chemistry, University of Waterloo, Waterloo, ON, Canada; [2]Cheriton School of Computer Science, University of Waterloo, Waterloo, ON,; Canada [3]Radboud University, Institute for Molecules and Materials, FELIX Laboratory, Nijmegen, The Netherlands; [4]Watermine Innovation, Waterloo, ON, Canada; [5]Centre for Eye and Vision Research, Hong Kong Science Park, New Territories, Hong Kong.

15:00 Refreshment break **sponsored by Isospark**, exhibition and posters – *Great B and C*

15:40 (**I076**) DROPLETS OF JUSTICE – TRACE METAL ANALYSIS OF SWEAT AND SALIVA SAMPLES TO DETERMINE SEX, ETHNICITY, AND AGE IN FORENSIC SCIENCE USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS). **Aimee Williams**, Madison Smith and Nausheen Sadiq. Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada.

16:00 (**I061**) DETECTING VOLATILE ORGANIC COMPOUNDS THAT MIMIC CADAVERIC DECOMPOSITION USING POLYDIACETYLENE-BASED COATINGS. **Deanna Fisher**, Simon Rondeau-Gagne, University of Windsor, Department of Chemistry and Biochemistry, Windsor, ON, Canada.

16:20 (**I008**) INFLUENCE OF ANTICOAGULANT ON THE SPECTROSCOPIC ANALYSIS OF DRYING BLOOD POOLS. **Erin Giroux[1]**, Iraklii I. Ebralidze[2,3], Theresa Stotesbury[1,3], [1]Applied Bioscience Graduate Program, [2]Materials Characterization Facility, [3]Faculty of Science, Ontario Tech University, Oshawa, ON, Canada.

16:40 (**I038**) BIOPHYSICAL ANALYSES OF DISEASE-RELATED PROTEINS: TDP-43, GELSOLIN AND CRYSTALLIN. **Josephine Esposto[1]**, Robert J. Huber[2], Sanela Martic[*1,3] [1]Environmental and Life Sciences Program, Trent University, Peterborough, ON; [2]Department of Biology, Trent University, Peterborough,

ON; [3]Department of Forensic Science, Environmental and Life Sciences Program, Material Science Program, Water Quality Center, Trent University, Peterborough, ON, Canada.

17:00 Poster session and Exhibition – *Great B and C*
17:40 Refresh and walk to Greg Frewin Theatre (see map)
18:15 Dinner **sponsored by Isospark –** *Grand Theatre* **–** ticket required
19:30 WONDERS A Magic Spectacle **–** *Grand Theatre*
21:30 End of magic show

NMR I – *Great A*
Organizer and Chair: Gang Wu

13:20 (**I107**) ION DYNAMICS IN LITHIUM and ZINC ION CELLS REVEALED BY MAGNETIC RESONANCE SPECTROSCOPY and RELAXOMETRY. **Gillian R. Goward**, Department of Chemistry & Chemical Biology, McMaster University, Hamilton, Canada.
14:20 (**I049**) ELUCIDATION OF DYNAMICS AND ENERGY LANDSCAPE OF MEMBRANE PROTEINS BY SOLID STATE NMR. Daryl Good, Peng Xiao, Philip Drewniak, Dylan Dingwell, Leonid Brown, Rachel Brown, Meaghan Ward, **Vlad Ladizhansky,** Department of Physics and Biophysics Interdepartmental Group, University of Guelph, Guelph, ON, Canada.

15:00 Refreshment break **sponsored by Isospark**, exhibition and posters – *Great B and C*

15:40 (**I138**) UNVEILING THE ROLE OF INTRINSICALLY DISORDERED MOTIFS IN P97-P47 COMPLEX USING SOLUTION NMR SPECTROSCOPY. **Rui Huang,** University of Guelph, Guelph, ON, Canada.
16:20 (**I023**) INTRODUCING OXYGEN-17 LABELS ONTO L-THREONINE SIDECHAIN. **Yuying Huang** and Gang Wu. Department of Chemistry, Queen's University, Kingston, ON, Canada.
17:00 Poster session and Exhibition – *Great B and C*
17:40 Refresh and walk to Greg Frewin Theatre (see map)
18:15 Dinner **sponsored by Isospark –** *Grand Theatre* **–** ticket required
19:30 WONDERS A Magic Spectacle **–** *Grand Theatre*
21:30 End of magic show

Sample preparation and introduction for the ICP – *Upper Fallsview B*
Organizer and Chair: Diane Beauchemin

13:20 (**I115**) ELEMENTAL ANALYSIS IN YEAST CELLS AND MICROPLASTICS BY ICP-MS WITH AUTOMATED MICRO-FLOW SAMPLE INTRODUCTION. **Yan Cheung**, Emmett Soffey, and Bastian Georg, Agilent Technologies.
13:40 (**I130**) STATE-OF-THE-ART ICPMS SAMPLE INTRODUCTION SYSTEMS FOR NANOPARTICLE, SINGLE CELL, AND ELEMENTAL SPECIATION. **C Derrick Quarles Jr.**,[1] Patrick Sullivan,[2] Benjamin T. Manard,[2] Paula Menero Valdes,[3] Beatriz Fernandez[3], [1]Elemental Scientific, Inc., Omaha, NE, USA; [2]Oak Ridge National Laboratory, Oak Ridge, TN, USA; [3]University of Oviedo, Oviedo, Spain.
14:00 (**I028**) DUAL PORT CHAMBER FOR ICP-MS IN RADIONUCLIDE ANALYSIS. **Kayo Yanagisawa**[1,2], Makoto Matsueda[2,3], Makoto Furukawa[2,4] and Yoshitaka Takagai[2] (1) Japan Atomic Energy Agency, Nuclear Science and Engineering Center, Research Group for Nuclear Chemistry, Tokai, Ibaraki, Japan. (2) Fukushima University, Cluster of Science and Technology, Fukushima, Japan. (3) Japan Atomic Energy Agency, Collaborative Laboratories for Advanced Decommissioning Science, Miharu, Fukushima, Japan. (4) PerkinElmer Japan G.K., Hodogaya, Yokohama, Kanagawa, Japan.
14:20 (**I127**) IR-HEATED TOTAL CONSUMPTION SAMPLE INTRODUCTION SYSTEM FOR THE ANALYSIS OF COMPLEX GEOLOGICAL SAMPLES BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **William Hachey** and Diane Beauchemin. Queen's University, Department of Chemistry, Kingston, ON, Canada.
14:40 (**I081**) MAXIMIZING ICP-OES WORKFLOW EFFICIENCY WITH THE ALL-NEW AGILENT ADVANCED DILUTION SYSTEM (ADS2). **Longbo Yang**. Agilent Technologies, Mississauga, ON, Canada.

15:00 Refreshment break **sponsored by Isospark**, posters, and exhibition – *Great B and C*

15:40 (**I124**) ANALYTICAL SOLUTIONS FOR THE LITHIUM-ION BATTERY VALUE CHAIN. Bernd Bletzinger, Nora Engel, and Florian Schuart. Analytik Jena. Presenter: **Bartosz Jasiak**.

16:00 (**I116**) COMPARING SAMPLE PREPARATION STRATEGIES FOR THE DETERMINATION OF MAJOR COMPONENTS IN BLACK MASS WITH THE AVIO® 550 MAX ICP-OES. Ken Neubauer, **Aaron Hineman**, PerkinElmer, Shelton, CT, USA.

16:20 (**I122**) OVERVIEW OF A "TOTAL WORKFLOW" APPROACH TO SAMPLE PREPARATION AND WHY IT MATTERS. **Geoff Williams** and Luca Bertoli, ATS Scientific, Burlington, ON, Canada.

16:40 (**I141**) SNRG BLOCK SYSTEM: THE MOST VERSATILE ACID DIGESTION BLOCK FOR METALS ANALYSIS. **Rachid Choudar**, Analytichem, Baie d'Urfé, QC, Canada.

17:00 Poster session and Exhibition – *Great B and C*

17:40 Refresh and walk to Greg Frewin Theatre (see map)

18:15 Dinner **sponsored by Isospark –** *Grand Theatre* **–** ticket required

19:30 WONDERS A Magic Spectacle **–** *Grand Theatre*

21:30 End of magic show

Posters (authors present)– *Great C* 17:00-17:40
Student poster prizes **sponsored by ESI.**

Poster number **Title**

1. (**I019**) EXPLORING THE CHEMICAL COMPOSITION OF AEROSOLIZED eLIQUID THROUGHOUT THE LIFETIME OF ELECTRONIC NICOTINE DELIVERY SYSTEMS. **Tyra Lewis**[1], Mehdi El Hassani[2], Olivier Bourbonnais[2], Christelle Luce[2], Sanela Martic[1]. [1]Department of Forensic Science, Environmental and Life Sciences, Material Sciences Program, Trent University, Peterborough, ON, Canada, [2]Ditch Labs, Montreal, QC, Canada.
2. (**I037**) DETERMINATION OF CANNABIDIOL IN VARIOUS FLOWER BUDS USING LIQUID CHROMATOGRAPHY – MASS SPECTROMETRY. **Nicole Hanna**, Kingsley Donkor, Thompson Rivers University, Department of Physical Sciences (Chemistry), Kamloops, BC, Canada.
3. (**I048**) MATERIAL CLASSIFICATION METHOD FOR STAINLESS STEEL SERIES USING MULTI-ELEMENT COMPONENT DATA OBTAINED BY ICP-MS IN PARTIALLY DISSOLVING MATERIALS. **Tamao Tanji**[1], Makoto Furukawa[1,2], Katsushige Fujimoto[1],and Yoshitaka Takagai*[1,3] [1]Faculty of Symbiotic Systems Science, Fukushima University, Fukushima, Japan; [2]PerkinElmer Japan G.K., Yokohama, Kanagawa, Japan; [3]Institute of Environmental Radioactivity, Fukushima University, Fukushima, Japan.
4. (**I050**) RAMAN SPECTROMETRY OF DNA ISOLATED FROM FRUIT JAMS. **Carla Figueroa**, Kingsley Donkor, Thompson Rivers University, Department of Chemistry, Kamloops, BC, Canada.
5. (**I071**) NORMALIZATION OF VIRAL LEVELS IN WASTEWATER THROUGH THE USE OF HUMAN BIOMARKERS. **Jordan Rensing**[1], Stephen Brown[1], Simon van der Plas[1], Sarah Jane Payne[2], Hridaynath Bhattacharjee[2], Julie Jia[2], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]Queen's University, Department of Civil Engineering, Kingston, ON, Canada.
6. (**I117**) BIS(2-ETHYLHEXYL)-2,3,4,5-TETRABROMOPHTHALATE ENHANCES *FOXO1*-MEDIATED LIPOPHAGY TO REMODEL LIPID METABOLISM IN ZEBRAFISH LIVER. **Jian Han**, University of Alberta, Division of Analytical and Environmental Toxicology, Edmonton, AB, Canada.
7. (**I120**) CRISPR/CAS13A-RESPONSIVE AND RNA-BRIDGEED DNA HYDROGEL CAPILLARY SENSOR FOR POINT-OF-CARE DETECTION OF RNA. **Hui Wang,** Honghong Wang and X. Chris Le. University of Alberta, Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, Edmonton, AB, Canada.
8. (**I118**) DETECTION OF SARS-COV-2 RNA IN NASOPHARYNGEAL SWAB AND SALIVA USING AN RNA-BRIDGED DNA HYDROGEL CAPILLARY SENSOR. **Honghong Wang,** X. Chris Le, Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada.

9. (**I034**) L-CYSTEINE-DRIVEN ANION-EXCHANGE HPLC SEPARATION OF Hg^{2+} AND $MeHg^{+}$: BIOINORGANIC AND ANALYTICAL PROSPECTS. **Negar Pourzadi** and Jürgen Gailer, Department of Chemistry, University of Calgary, AB, Canada.
10. (**I032**) ASHES TO ASHES, DUST TO LUNGS: EXAMINING ELEMENTAL DISSOLUTION IN THE ATMOSPHERIC AGING OF DUST AND COAL FLY ASH USING ICP-MS. **Madison Smith**[1], Arden Oglivie[1], Hind A. Al-Abadleh[2], and Nausheen Sadiq[1]. Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada. [2]Wilfrid Laurier University, Department of Chemistry and Biochemistry, Waterloo, ON, Canada.
11. (**I119**) CHEMICAL CONTAMINANTS IN TRADITION FOODS: BEFORE AND AFTER THE WILDFIRES. **Xiufen Lu**[1] and X. Chris Le[1,2], [1]Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, AB, Canada; [2]Department of Chemistry, Faculty of Science, University of Alberta, Edmonton, AB, Canada.
12. (**I058**) UNDERSTANDING THE CORRELATIONS BETWEEN HEAVY METALS AND MICROPLASTICS IN PLASTIC PACKAGED FOOD PRODUCTS. **Eliana Samara** and Nausheen Sadiq. Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada.
13. (**I062**) IS THIS WHY I'M HAVING A BAD HAIR DAY? INVESTIGATING SCALP TRANSDERMAL DIFFUSION IN POPULAR HAIR PRODUCTS USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS). **Syrine Belaïd** and Nausheen Sadiq. Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada.
14. (**I051**) WAIT! IS THAT HUMAN SKIN? OPTIMIZATION OF ARTIFICIAL SKIN BY REFLECTING AGE AND ETHNICITY TO DETERMINE ELEMENTAL RISK ASSOCIATED WITH COSMETICS USING ICP-MS. **Lisa Tritz** and Nausheen Sadiq, Mount Royal University, Department of Chemistry, 4825 Mount Royal Gate SW, Calgary, ABT3E6K6, Canada.
15. (**I063**) CHITOSAN-BASED MEMBRANES FOR IN VITRO PERMEABILITY ANALYSIS OF TRACE ELEMENTS FROM COSMETIC AND PERSONAL CARE PRODUCTS USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS). **Birhan Gezahegn** and Nausheen Sadiq. Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada.
16. (**I075**) GIVE ME A BREAK - TRACE ELEMENTAL ANALYSIS OF KITKAT CHOCOLATE BARS AND WRAPPERS USING INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (ICP-MS). **Aimee Williams**[1], Adya Karthikeyan[2] and Nausheen Sadiq[1]. [1]Mount Royal University, Department of Chemistry and Physics, Calgary AB, Canada. [2]University of Ottawa, Department of Chemical and Biological Engineering, Ottawa, ON, Canada.
17. (**I125**) CONTINUOUS ON-LINE LEACHING BIO-ACCESSIBILITY STUDIES OF BLACK SOLDIER FLY LARVAE USING INDUCTIVELY COUPLD PLASMA MASS SPECTROMETRY. **Qiqi Zhang**[1], Zoltan Mester[2], Diane Beauchemin[1], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]National Research Council of Canada, Metrology Research Centre, Ottawa, ON, Canada.
18. (**I083**) MULTI-ELEMENT ANALYSIS OF DRINKING WATER FOLLOWING ISO 17294-2 USING THE NEXION 1000 ICP-MS. **Liyan Xing**, Chady Stephan, and Aaron Hineman, PerkinElmer U.S. LLC.
19. (**I136**) ACCURATE ULTRA-TRACE MEASUREMENTS OF ^{236}U USING THE NEXION 5000 ICP-MS. **Liyan Xing**[1], Karl Andreas Jensen[2], Chady Stephan[1], and Aaron Hineman[1],[1]PerkinElmer U.S. LLC; [2]Norwegian University of Life Sciences.
20. (**I065**) ANALYSIS OF TRACE ELEMENTS IN COASTAL SEAWATER USING THE NEXION 2200 ICP-MS. **Sandeep Kumar,** Liyan Xing, Chady Stephan, and Aaron Hineman, Perkin Elmer Scientific Canada ULC, Woodbridge, ON, Canada.
21. (**I132**) OPTIMIZATION OF A METHOD FOR THE PRECONCENTRATION OF NOBLE METALS ANALYZED BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY WITH FLOW INJECTION. **Madison Langley**, Sarah Meston, Diane Beauchemin, Queen's University, Department of Chemistry, Kingston, ON, Canada.

22. (**I036**) EVALUATIONS OF TANDEM ELECTROSPRAY IONIZATION MASS SPECTROMETRY (ESI-MS/MS) OF NEURODEGENERATIVE-LINKED PEPTIDES. **Josephine Esposto**[1], Robert J. Huber[2], Sanela Martic[*1,3], [1]Environmental and Life Sciences Program, Trent University, Peterborough, ON; [2]Department of Biology, Trent University, Peterborough, ON; [3]Department of Forensic Science, Environmental and Life Sciences Program, Material Science Program, Water Quality Center, Trent University, Peterborough, ON, Canada.

17:40 Refresh and walk to Greg Frewin Theatre (see map)
18:15 Dinner **sponsored by Isospark –** *Grand Theatre* **–** ticket required
19:30 WONDERS A Magic Spectacle **–** *Grand Theatre*
21:30 End of magic show

THURSDAY, JUNE 27, MORNING

8:00-8:40 or 9:00 (depending on the session) Hot buffet breakfast (provided) – *Great B*

Chemical and Isotopic Speciation Analysis II – *Upper Fallsview A*
Organizer: Helen Lord **Chair:** Qiqi Zhang

9:00 (**I070**) COPPER ISOTOPIC COMPOSITION OF ISOLATED CERULOPLASMIN FROM HUMAN SERUM **Kerri A. Miller**[1], Arnie Charbonneau[1] Patrick L. Day[2], Anthony Maus[2], Paul J. Jannetto[2], Sunil Q. Mehta[3], Mukesh K. Pandey[2], Michael E. Wieser[1], [1]Cancer Institute, University of Calgary, Calgary, AB, Canada; [2]Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN, USA; [3]PrairieCare Medical Group, Rochester, MN, USA.

9:20 (**I078**) LATEST ADVANCES IN NEOMA MC-ICP-MS/MS ISOTOPIC ANALYSIS, **Peter Stow**, Isomass Scientific Inc., Calgary, AB, Canada.

9:40 (**I147**) CHARACTERIZATION OF ARSENIC METABOLIC PROFILES USING SIMULTANEOUS ELEMENTAL AND MOLECULAR MASS SPECTROMETRY (HPLC-ICPMS/ESIMS). **Tetiana Davydiuk,** Jagdeesh S. Uppal, Xiufen Lu, Habibul Ahsan, Brandon L. Pierce, Jennifer A. Graydon, Megan Reichert, X. Chris Le. Department of Chemistry, University of Alberta, Edmonton, AB, Canada.

10:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** and exhibition – *Great B*

10:40 (**I027**) MERCURY DYNAMICS IN CONTAMINATED RIVER SYSTEMS AND THERMOKARST LAKES. **Holger Hintelmann**, Trent University, Peterborough, ON, Canada.

11:20 (**I003**) VITAMIN B_{12} DETERMINATION IN NUTRITIONAL PRODUCTS AND DIETARY SUPPLEMENTS BY HPLC-ICP-MS. **Mesay M. Wolle**,[1] Jordan Escavage[2] and Patrick Gray[1] [1]Office of Regulatory Science, Center for Food Safety and Applied Nutrition, Food and Drug Administration, College Park, MD, USA; [2]Joint Institute for Food Safety and Applied Nutrition, University of Maryland, College Park, MD, USA.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

LIBS and LA-ICPMS I – *Strategy 7*
Organizer and Chair: Mohammad Sabsabi

9:00 (**I092**) AN OVERVIEW OF THE LIBS DEVELOPMENT AND THE FUTURE OF IMPROVING ITS SENSITIVITY BY COMBINATION WITH OTHER TECHNIQUES. **M. Sabsabi**[1], E. Soares de Lima Filho[1], P. Bouchard[1], A. Harhira[1], J. El Haddad[1], F. Vanier[1], D. Gagnon[1], I. ElHamdaoui[2], A. Adame[2], F. Vidal[2], M. Constantin[3]. [1]Clean Energy Innovations Research Center, National Research Council Canada, Boucherville, QC, Canada; [2]Institut national de la recherche scientifique, Centre Énergie Matériaux Télécommunications, Varennes, QC, Canada; [3]Université Laval, Département de géologie et de génie géologique, Québec, QC, Canada.

9:40 (**I072**) GOLD ANALYSIS BY PORTABLE LASER-INDUCED BREAKDOWN SPECTROSCOPY AND THE CHALLENGE OF THE NUGGET EFFECT. **Leo Barbosa**[1]. Marc Constantin[1]. Jocelyn Bouchard[2]. Marcel Laflamme[3]. Paul Bouchard[4]. Mohamad Sabsabi[4]. [1]Université Laval, Department of Geology and Geological Engineering, Québec, QC, Canada. [2]Université Laval, Department of Chemical Engineering, QC, Canada. [3]InnovExplo Inc., Val-d'Or, QC, Canada. [4]National Research Council Canada, Boucherville, QC, Canada.

10:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** and exhibition – *Great B*

10:40 (**I150**) IDENTIFYING BLOOD PLASMA BIOMARKERS OF ALZHEIMER'S DISEASE THROUGH LASER SPECTRAL ELEMENTAL SIGNATURES AND PROTEOMIC PROFILES. **Nourredine Melikechi**, University of Massachusetts, Kennedy College of Sciences, Olney Science Center 524, Lowell, MA, USA.

11:20 (**I082**) ADVANCING LASER-INDUCED BREAKDOWN SPECTROSCOPY FOR SOIL MONITORING. **Amina E. Hussein**[1], Shubho Mohajan[1], Yingchao Huang[2], Nicholas Beier[1], Miles Dyck[3], Frank Hegmann[4], Abdul Bais[2], [1]Department of Electrical and Computer Engineering, University of Alberta, Edmonton, AB; [2]Department of Electronics Systems Engineering, University of Regina, SK; [3]Department of Renewable Resources, University of Alberta, Edmonton, AB; [4]Department of Physics, University of Alberta, AB, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

Nanoparticles, nanomaterials, and their Analysis – *Upper Fallsview B*
Organizer: Zichao Zhou **Co-Chairs:** Zichao Zhou and William Hachey

9:00 (**I102**) INVESTIGATING THE BINDING PROPERTIES OF METAL OXIDE NANOPARTICLES, NANOPLASTICS, CASEIN MICELLES, AND LIPOSOMES WITH FLUORESCENT ORGANIC DYE AND SALT. **Edward P.C. Lai**, Amos Onomhante. Carleton University, Department of Chemistry, Ottawa, ON, Canada.

9:20 (**I026**) ELECTROCHEMICAL DETECTION OF SILVER NANOPARTICLES IN FRESHWATER: DEVELOPMENT OF A HIGHLY SENSITIVE METHOD. **Saheda Tamanna**[1], Zhe She[1], Louise Meunier[2], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]Queen's University, Department of Chemical Engineering, Kingston, ON, Canada.

9:40 (**I005**) CONJUGATED POLYMER NANOPARTICLES AS A UNIVERSAL HIGH-AFFINITY PROBE FOR THE SELECTIVE DETECTION OF MICROPLASTICS IN THE ENVIRONMENT. **Mark Potter**, Angela Awada, Dananjana Wijerathne, James W. Gauld, Bulent Mutus, and Simon Rondeau-Gagné. Department of Chemistry & Biochemistry, University of Windsor, Windsor, ON, Canada.

10:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** and exhibition – *Great B*

10:40 (**I111**) DETERMINATION OF ATMOSPHERIC PARTICLES USING SINGLE PARTICLE TOF-ICP-MS. Yannick Tardif, Katia Iatariene, Houssame-Eddine Ahabchane, Madjid Hadioui, Patrick Hayes and **Kevin J. Wilkinson,** Biophysical environmental chemistry, University of Montreal, Campus MIL, Montréal, QC, Canada.

11:00 (**I106**) APPROACHES AND STRATEGIES FOR THE DETECTION AND QUANTIFICATION OF NANO – MICROPLASTICS BY SINGLE PARTICLE INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY. **Chady Stephan**, Ruth Merrifield, Liyan Xing and Aaron Hineman. PerkinElmer, Woodbridge, ON, Canada.

11:20 (**I126**) ENHANCING SINGLE PARTICLE ICPMS PERFORMANCE WITH AN OPTIMIZED INFRARED HEATED SAMPLE INTRODUCTION SYSTEM FOR TOTAL CONSUMPTION, **Zichao Zhou**[1], Mirah J. Burgener[2], John Burgener[2] and Diane Beauchemin[1], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]Burgener Research Inc, Canada.

11:40 (**I151**) STRATEGIES FOR IMPROVING THE DETECTION LIMITS OF SELENIUM NANOPARTICLES BY SINGLE PARTICLE ICP-MS ANALYSIS. **Ruth Merrifield**, PerkinElmer, Woodbridge, ON, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

NMR II – *Great A*
Organizer and Chair: Gang Wu

09:00 (**I137**) NMR AT ULTRA HIGH MAGNETIC FIELD: OPPORTUNITIES AND CHALLENGES FOR BIOLOGICAL AND MATERIALS SOLIDS. **Chad M. Rienstra**, University of Wisconsin-Madison, Department of Biochemistry and National Magnetic Resonance Facility at Madison (NMRFAM), Madison, WI, United States.

10:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** and exhibition – *Great B*

10:40 (**I041**) AN NMR PERSPECTIVE ON THE MODULATION OF STRUCTURE AND DYNAMICS IN SOLIDS VIA DIRECTIONAL NON-COVALENT INTERACTIONS. **David L. Bryce**, University of Ottawa, Ottawa, ON, Canada.

11:20 (**I091**) HIGH PRECISION STRUCTURES OF CELLULOSE POLYMORPHS OBTAINED WITH AN NMR CRYSTALLOGRAPHIC APPROACH. **Darren Brouwer**, Department of Chemistry, Redeemer University, Ancaster ON, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) - *Great B*

Separations and Mass Spectrometry I – *Great C*
Organizers and Chairs: Andrei Drabovich and Maxim Berezovski

08:40 (**I094**) DEVELOPMENT OF LC-FAIMS-MS/MS FOR THE CHARACTERIZATION OF ACINETOBACTER BAUMANNII. Jacek Stupak[1], Harris Greg[1], Sam Williamson[1], Rui Chen[1], H. Howard Xu[2], Wangxue Chen[1] and **Jianjun Li[1]**. [1]Human Health Therapeutics Research Centre, National Research Council Canada, Ottawa, ON, Canada. [2]Department of Biological Sciences, California State University Los Angeles, Los Angeles, CA, USA.

09:20 (**I087**) DO SURFACTANTS REALLY ASSIST TRYPSIN DIGESTION? AN ASSESSMENT OF CUMULATIVE ENZYME ACTIVITY SAYS OTHERWISE. **Alan Doucette**[1], & Jessica Nickerson[2], [1]Department of Chemistry, Dalhousie University, Halifax, Nova Scotia; [2]Allumiqs Corporation, Halifax, Nova Scotia, Canada.

10:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** and exhibition – *Great B*

10:40 (**I105**) 10-SECOND LIPIDOMIC ANALYSIS WITH PICOSECOND INFRARED LASER MASS SPECTROMETRY TO DIAGNOSE BRAIN CANCER TYPES. Alexa Fiorante [1], Michael Woolman[1], David Munoz[2], Gelareh Zadeh[3,4], Sunit Das[2,4], Contributors to the Unity Health Brain Biobank[2], Taira Kiyota[5], Ahmed Aman[5], Howard Ginsberg[2,4] and **Arash Zarrine-Afsar[1,3,4]** , [1]Department of medical biophysics, University of Toronto; [2]Unity Health Toronto; [3]Princess Margaret Cancer Centre; [4]Department of Surgery, University of Toronto; [5] Ontario Institute for Cancer Research, Canada.

11:20 (**I103**) MONITORING PROTEIN-PROTEIN INTERACTIONS IN LIVING, DYING, AND INFECTED CELLS. **Olivier Julien**, University of Alberta, Department of Biochemistry, Edmonton, AB, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

THURSDAY, JUNE 27, AFTERNOON

Electrochemical and Surface Analysis I – *Upper Fallsview B*
Organizer: Sanela Martic **Co-Chairs:** Sanela Martic and Josephine Esposto

13:20 (**I015**) PROBING ELECTROCHROMIC DEVICE STABILITY USING ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY.Rana Ahmad, Vittoria Di-Palo, Marjan Saeidi, Olena V. Zenkina, **E. Bradley Easton,** Ontario Tech. University, Oshawa, Ontario, Canada.

14:00 (**I013**) LOCALIZED SURFACE PLASMON RESONANCE SPECTROSCOPY: APTAMER AND PROTEIN INTERACTIONS. **Tyra Lewis**[1], Erin Giroux[1], Amanada Oake[2], Sanela Martic[1]. [1]Department of Forensic Science, Environmental and Life Sciences, Material Sciences Program, Trent University, Peterborough, ON, Canada. [2]Flemming College, Peterborough, ON, Canada.

14:20 (**I011**) X-RAY PHOTOELECTRON SPECTROSCOPY (XPS) FOR IN-DEPTH STUDY OF METAL COMPLEXES. **Iraklii I. Ebralidze**, E. Bradley Easton. Ontario Tech. University, Faculty of Science, Materials Characterization Facility, Oshawa, ON, Canada.

15:00 Refreshment break and exhibition – *Great B*

15:40 (**I039**) DESIGN AND ELECTROCHEMICAL STUDIES OF NANOMATERIALS AND NANOCOMPOSITES FOR CLEAN ENERGY APPLICATIONS. **Aicheng Chen**, University of Guelph, Electrochemical Technology Centre, Department of Chemistry, Guelph, ON, Canada.

16:20 (**I074**) TOWARDS A NO-WASH ELECTROCHEMICAL IMMUNOASSAY FOR 25-OH VITAMIN D_3. **Aaliya Pathan**, Darius Rackus, Department of Chemistry and Biology, Toronto Metropolitan University, Toronto, ON, Canada; Institute for Biomedical Engineering, Science, and Technology, St. Michael's Hospital, Toronto, ON Canada; Keenan Research Centre for Biomedical Science at St. Michael's Hospital, Toronto, ON, Canada; Graduate Program in Molecular Science, Toronto Metropolitan University, Toronto, ON, Canada.

16:40 (**I025**) DETECTION OF *ESCHERICHIA COLI* AND ANTIBIOTIC-RESISTANT BACTERIA BY MONITORING BIOMOLECULES USING ELECTROCHEMISTRY; **Rebecca X. Y. Chen**, Zhe She, R. Stephen Brown; Queen's University Chemistry Department, Kingston, ON, Canada.

17:00 Break

17:40 Reception – *Great C foyer*

18:30 Banquet with poster prizes – ticket required – *Great C*

LIBS and LA-ICPMS II – *Strategy 7*
Organizer and Chair: Mohammad Sabsabi

13:20 (**I128**) EXPLORING THE CAPABILITIES OF LIBS AND LA-ICP-MS FOR HIGH-SPEED IMAGING. **C Derrick Quarles Jr.**,[1] Benjamin T. Manard,[2] Joe Petrus,[3] Lisa Balke[4], Uwe Karst[4], [1]Elemental Scientific, Inc., Omaha, NE, USA; [2]Oak Ridge National Laboratory, Oak Ridge, TN, USA; [3]Elemental Scientific Lasers, Bozeman, MT, USA; [4]University of Münster, Münster, Germany.

14:00 (**I006**) LASER-INDUCED BREAKDOWN SPECTROSCOPY FOR THE DETECTION AND DIAGNOSIS OF BACTERIAL PATHOGENS IN BLOOD, URINE, AND CEREBROSPINAL FLUID. Emma Blanchette[1], Emily Tracey[1], Caroline Alionte[1], Hadia Malik[1], August Baughan[1], Isabella Arthur[2], Jasmine Saad[1], Rachel Chevalier[2], Nicholas Bolton[1], Matteo Pontoni[1], Lauren Dmytrow[1], Abdullah Mustafa[1], Mila Vasquez[1], and **Steven J. Rehse**[1]. University of Windsor, [1]Department of Physics and [2]Department of Biomedical Sciences, Windsor, ON, Canada.

14:40 (**I104**) QUANTITATIVE ANALYSIS OF CHLORINE IN CEMENT STANDARD SAMPLES WITH LASER INDUCED BREAKDOWN SPECTROSCOPY**. I. Elhamdaoui[1],** S. Selmani[1], M. Sabsabi[2], M. Constantin[3], P. Bouchard[2], F. Vidal[1], [1]Institut National de la Recherche Scientifique, Centre Énergie Matériaux Télécommunications, Varennes, QC, Canada; [2]National Research Council Canada, Boucherville, QC, Canada; [3]Université Laval, Département de géologie et de génie géologique, Québec, QC, Canada.

15:00 Refreshment break and exhibition – *Great B*

15:40 (**I090**) DEVELOPMENT OF A NEW METHOD TO DETERMINE MACRO- AND MICRONUTRIENTS IN BARLEY FORAGE SAMPLES USING LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS). **Andressa Adame**[1,2], Francis Vanier[2], Allan Fuertado[3], Mohamad Sabsabi[2], François Vidal[1], [1]Institut National de la Recherche Scientifique, Centre Energie Matériaux Télécommunications, Varennes, QC, Canada; [2]National Research Council of Canada, Clean Energy Innovation Research Center, Boucherville, QC, Canada; [3]National Research Council of Canada, Aquatic & Crops Resource Development, Saskatoon, SK, Canada.

16:20 (**I093**) LASER-INDUCED BREAKDOWN SPECTROSCOPY AND INFRARED SPECTROSCOPY FOR THE RAPID AND ACCURATE ANALYSIS OF THE COMPOSITION OF PLANTS. Jinan Sabsabi[1], **Andressa Adame**[1], Mohammad Sabsabi[2], François Vidal[1], Francis Vanier[2], Aissa Harhira[2], [1]Institut National de la Recherche Scientifique, Energy, Materials and Telecommunications Centre, Varennes, QC, Canada ; [2]National Research Council of Canada, Boucherville, QC, Canada.

16:40 (**I095**) ANALYSIS OF PALLADIUM IN ROCK ORE BY LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS) AND CHARACTERIZATION OF THE MORPHOLOGY OF LASER-PRODUCED CRATERS. **S. Selmani[1]**, I. Elhamdaoui[1]**,** M. Sabsabi[2], M. Constantin[3], P. Bouchard[2], F. Vidal[1], [1]Institut national de la recherche scientifique, Centre Énergie Matériaux Télécommunications, Varennes, QC, Canada; [2]National Research Council Canada, Boucherville, QC Canada; [3]Université Laval, Département de géologie et de génie géologique, Québec, QC, Canada.

17:00 Break

17:40 Reception – *Great C foyer*

18:30 Banquet with poster prizes – ticket required – *Great C*

Miniaturization and microplasmas – *Upper Fallsview A*

Organizer: Vassili Karanassios **Co-Chairs**: Vassili Karanassios and Terje Nissen Farup

13:20 (**I142**) TOWARD A MINIATURIZED INSTRUMENT FOR DETERMINATIONS USING QUANTUM DOTS AND SELECTED ENVIRONMENTAL SAMPLES. **Vassili Karanassios**, U. Dayal and M. J. W. Thiessen, University of Waterloo, Waterloo, ON, Canada.

14:00 (**I148**) DEVELOPMENT OF LIQUID-BASED AMBIENT ATMOSPHERIC-PRESSURE GLOW DISCHARGES FOR ATOMIC EMISSION SPECTROMETRY, Mitchell Stry, Budhikka Kumara, Yidi Xiao and **Steven Ray**, State University of New York, University at Buffalo, Department of Chemistry, Buffalo NY, USA.

14:40 (**I144**) OVERVIEW OF NANOTECHNOLOGY-BASED BIOANALYTICAL PLATFORMS. **Jung-Ho Yu**, University of Waterloo, Waterloo, ON, Canada.

15:00 Refreshment break and exhibition – *Great B*

15:40 (**I143**) ARTIFICIAL INTELLIGENCE (AI) APPLICATIONS: FROM MATERIAL ANALYSIS USING MICROPLASMAS TO AI DRIVEN MATERIALS SYNTHESIS. **Terje Nissen Farup** and Vassili Karanassios, University of Waterloo, Waterloo, ON, Canada.

16:20 (**I149**) CHALLENGES ON SAMPLE PREPARATION PROCEDURES DUE TO MINIATURIZATION OF INSTRUMENTATION, **Suhas Narkhede**, Questron Technologies Corp., Mississauga, ON, Canada.

17:00 Break

17:40 Reception – *Great C foyer*

18:30 Banquet with poster prizes – ticket required – *Great C*

NMR III – *Great A*

Organizer and Chair: Gang Wu

13:20 (**I080**) EXPLORING THE MICROSCOPIC LANDSCAPE OF MOFS: INSIGHTS INTO METAL CENTERS, ORGANIC LINKERS, AND GUEST MOLECULES FROM SOLID-STATE NMR. **Yining Huang**, Western University, Department of Chemistry, London, ON, Canada.

14:20 (**I096**) AN NMR-GUIDED METHOD FOR REFINING AND CORRECTING CRYSTAL STRUCTURES. **James K. Harper**, Ryan Toomey, Brigham Young University, Department of Chemistry and Biochemistry, Provo, UT, USA.

15:00 Refreshment break and exhibition – *Great B*

15:40 (**I085**) PROBING HYDROGEN BONDING INTERACTIONS BY SOLID-STATE ^{17}O NMR. **Gang Wu**. Department of Chemistry, Queen's University, Kingston, ON, Canada.

16:20 (**I045**) EXPLORING QUADRUPOLE-CENTRAL-TRANSITION NMR SPECTROSCOPY FOR INVESTIGATING ALKALI METAL IONS IN SLOW-TUMBLING ENVIRONMENTS. **Ziyao Peng** and Gang Wu, Department of Chemistry, Queen's University, Kingston, ON, Canada.

17:00 Break

17:40 Reception – *Great C foyer*

18:30 Banquet with poster prizes – ticket required – *Great C*

Separations and Mass Spectrometry II – *Great C*

Organizers and Chairs: Andrei Drabovich and Maxim Berezovski

13:20 (**I084**) PROSTATE CANCER RESHAPES THE SECRETED AND EXTRACELLULAR VESICLE URINARY PROTEOMES. Amanda Khoo[1,2], Meinusha Govindarajan[1,2], Zhuyu Qiu[3], Lydia Y. Liu[1,2], Vladimir Ignatchenko[2], Matthew Waas[2], Andrew Macklin[2], Alexander Keszei[2], Brian P. Main[4], Lifang Yang[4], Raymond S. Lance[5], Michelle R. Downes[6], O. John Semmes[4], Danny Vesprini[7], Stanley K. Liu[1,7], Julius O. Nyalwidhe[4], Paul C. Boutros[1,3], **Thomas Kislinger**[1,2], [1]Department of Medical Biophysics, University of Toronto, Canada; [2]Princess Margaret Cancer Centre, University Health Network, Canada; [3]Jonsson Comprehensive Cancer Center, David Geffen School of Medicine, University of California, Los Angeles, USA; [4]Leroy T. Canoles Jr. Cancer Research Center, Eastern Virginia Medical School, Norfolk, USA; [5]Spokane Urology, Spokane, USA; [6]Division of Anatomic Pathology, Laboratory Medicine and Molecular Diagnostics, Sunnybrook Health Sciences Centre, Canada; [7]Department of Radiation Oncology, University of Toronto, ON, Canada.

14:00 (**I100**) CAPILLARY ELECTROPHORESIS-MASS SPECTROMETRY FOR TOP-DOWN PROTEOMICS. **Liangliang Sun,** Department of Chemistry, Michigan State University, East Lansing, MI, USA.

14:40 (**I066**) AMBIENT MASS SPECTROMETRIC ANALYSIS OF ARCHIVED CLINICAL SAMPLES. **Malek Hassan**[1], Rachel Wood[1], Maura Crossley[1], Rachel Theriault[2], Randy Ellis[2,3], Kevin Ren[4], Martin Kaufmann[3], John Rudan[3], Richard Oleschuk[1]. Queen's University, [1]Department of Chemistry, [2]School of Computing, [3]Department of Surgery, and [4] Department of Pathology and Molecular Medicine, Kingston, ON, Canada.

15:00 Refreshment break and exhibition – *Great B*

15:40 (**I099**) DETECTING PROTEIN INTERACTIONS BY CO-FRACTIONATION-MASS SPECTROMETRY: PUSHING SENSITIVITY AND CROSS INTO NON-MODEL SPECIES. **Leonard Foster**, University of British Columbia, Vancouver, BC, Canada.

16:20 (**I098**) IDENTIFICATION, QUANTIFICATION, AND CHARACTERIZATION OF HUMAN POLYCLONAL ANTIBODIES. Zoe Turner, Yasmine Rais, Weize Tang, Zhiqiang Fu, and **Andrei P. Drabovich**, Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, University of Alberta, Edmonton, AB, Canada.

17:00 Break

17:40 Reception – *Great C foyer*

18:30 Banquet with poster prizes – ticket required – *Great C*

FRIDAY, JUNE 28, MORNING

8:00-8:40 or 9:00 (depending on the session) Hot buffet breakfast (provided) – *Great B*

Agricultural and Food Safety I – *Great A*
Organizer and Chair: Nausheen Sadiq

09:00 (**I086**) ANALYSIS OF FORTIFIED FOODS USING ICP-MS. **Jenny Nelson**, Agilent Technologies

09:20 (**I031**) DETERMINATION OF RARE EARTH ELEMENTS (REES) AND PLATINUM GROUP METALS (PGM) IN FOODSTUFFS AT ULTRA-TRACE LEVELS BY ICP-MS/MS USING A HIGH EFFICIENCY SAMPLE INTRODUCTION SYSTEM. **R. Chekri** and P. Jitaru Université Paris Est, Anses, Laboratory for Food Safety, F-94700 Maisons-Alfort, France

09:40 (**I030**) HETEROGENEITY OF DELTA-8-TETRAHYDROCANNABINOL IN COMMERCIAL HEMP PRODUCTS. Christina Awwad and **Alison Holliday**, Moravian University, Department of Chemistry, Bethlehem, PA, USA.

10:00 Refreshment break and exhibition – *Great B*

10:40 (**I020**) RAPID, EFFICEINT MICROWAVE-ASSISTED DIGESTION OF PLANT-BASED MILKS FOR TRACE METALS ANALYSIS. **Bob Lockerman**, Samuel Heckle, Marcy Harris, CEM Corporation, Matthews, NC, USA.

11:20 (**I064**) THE DETERMINATION OF NUTRITIONAL AND TOXIC ELEMENTS IN PLANT-BASED FOODS USING THE NEXION 2200 ICP-MS. **Sandeep Kumar,** Liyan Xing, Chady Stephan, and Aaron Hinemann, Perkin Elmer Scientific Canada ULC, Woodbridge, ON, Canada.

11:40 (**I044**) COMPLEMENTARITY OF LC- AND GC-ICP-MS FOR STUDYING TRACE ELEMENT CYCLING. Hakan Gürleyük and **Ben Wozniak**, Brooks Applied Labs, LLC, Seattle, WA, USA.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

Electrochemical and Surface Analysis II – *Upper Fallsview B*
Organizer: Sanela Martic **Co-Chairs:** Sanela Martic and Tyra Lewis

09:00 (**I123**) HIGH ENTROPY ALLOYS FOR ELECTROCHEMICAL BIOSENSING APPLICATIONS Mohamed Okasha, **Vivek Maheshwari**, Waterloo Institute for Nanotechnology, University of Waterloo, Waterloo ON, Canada.

09:40 (**I016**) BIOELECTROCHEMISTRY: WHAT CAN WE LEARN ABOUT BRAIN PROTEINS **Sanela Martic,** Department of Forensic Science, Environmental and Life Sciences Program, Trent School of Environment, Materials Science Program, Water Quality Center, Trent University, Peterborough, ON, Canada.

10:00 Refreshment break and exhibition – *Great B*

10:40 (**I052**) DETECTION OF SMALL POLARONS IN ELECTROCHEMICAL MODULATED ELECTROCHROMIC TUNGSTEN OXIDE THIN FILMS. **B. Subramanian[1],** M. MacCallum,[1] G. Gibson,[2] R. Irvine,[1] E. Steel,[1] [1]Department of Physics and Astronomy, Trent University, Peterborough, ON, Canada; [2]Nanofabrication Kingston, Department of Chemistry, Queens University, Kingston, ON, Canada.

11:20 (**I002**) EXPLORING NEW ELECTRODES AND CHANNEL CELL DESIGNS FOR ELECTROANALYTICAL STUDIES UNDER HYDROTHERMAL CONDITIONS. **Liliana Trevani[1],** Muna Abdulaziz[1], Tony George[1], Germán Sciaini[2]**.** [1]Ontario Tech University, Faculty of Science, Oshawa, ON, Canada; [2]University of Waterloo, Department of Chemistry, Waterloo, ON, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

Environmental Analysis I – *Strategy 7*
Organizer and Chair: Iris Koch

08:40 (**I069**) MICROPLASTICS ANALYSIS AND CHARACTERIZATION IN ENVIRONMENTAL SAMPLES. **Sandy Zhao**, Shimadzu (Mandel), Guelph, ON, Canada
09:00 (**I021**) FLUORINE AND FLUORINATED COMPOUNDS – METHODS FOR DETERMINATION (OVERVIEW). **Andrea Raab** and TESLA (trace element speciation lab Graz), University of Graz, Austria.
09:20 (**I108**) DEVELOPING REMEDIATION METHODS FOR PFAS IN SOIL AND WATER: ANALYSIS CONSIDERATIONS AND CURRENT PROGRESS. D. Patch, I. Koch, **K.P. Weber**, Environmental Sciences Group – Royal Military College of Canada, Kingston, ON, Canada.
09:40 (**I135**) EMERGING DRINKING WATER DISINFECTION BYPRODUCTS: ANALYTICAL AND TOXICOLOGICAL RESEARCH. Qiming Shen, K.N. Minh Chau, Emma Jing, and **Xing-Fang Li**, Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB. Canada.

10:00 Refreshment break and exhibition – *Great B*

10:40 (**I121**) END-TO-END AUTOMATED HIGH THROUGHPUT CHEMICAL ANALYSIS OF TIRE DERIVED PARA-PHENYLENE DIAMINE QUINONES (PPDQs) USING ONLINE MEMBRANE INTRODUCTION ESI-MS/MS. Joseph Monaghan, Angelina Jaeger, Chris G. Gill, **Erik T. Krogh**, Applied Environmental Research Laboratories, Department of Chemistry, Vancouver Island University, Nanaimo, BC, Canada; Department of Chemistry, University of Victoria, Victoria, BC, Canada.
11:20 (**I079**) THE MOLECULAR RELATIONSHIP BETWEEN SOIL POREWATER CARBON, VEGETATION COVERAGE, AND GREENHOUSE GAS PRODUCTION IN THAWING NORTHERN PEATLANDS. **Vaughn Mangal[1],** Lauren Thompson[2], Lorna Harris[3], David Olefeldt[2] [1]Department of Chemistry, Brock University, ON, Canada; [2]Department of Renewable Resources, University of Alberta, Edmonton, AB, Canada; [3]WCS Canada, Toronto, ON, Canada.
12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

Forensic Analysis II – *Upper Fallsview A*
Organizer: Katie Moghadam **Co-Chairs:** Katie Moghadam and Darrian Prendergast

09:00 (**I145**) APPLICATIONS OF IR AND RAMAN SPECTROSCOPY TO FORENSIC SCIENCE. Marten Seeba[1], Di Yan[1], Antonia Franziska Eckert[1], Felix Fromm[1], and **Peter Krygsman**[2], [1]Bruker Optics Ettlingen, Germany; [2]Bruker td., Milton, ON, Canada.
09:40 (**I089**) AI INTEGRATION IN FTIR SPECTROSCOPY: ENHANCING QUANTIFICATION, **Daniel Vetter**, Anton Paar GmbH.

10:00 Refreshment break and exhibition – *Great B*

10:40 (**I112**) EXPANSION AND VALIDATION OF A SELF-REFERENCING ALGORITHM TO DISCRIMINATE BETWEEN HUMAN AND ANIMAL BLOOD FOR FORENSIC PURPOSES. **Alexis R. Weber [1],** Harrison Dickler[2], and Igor K. Lednev[2], [1]SupreMEtric LLC; [2]Department of Chemistry, University at Albany, SUNY, Albany, NY, USA
11:20 (**I035**) EVALUATION OF SHORT OLIGONUCLEOTIDE BOUND ALGINATE HYDROGELS USING CIRCULAR DICHROISM SPECTROSCOPY. **Daisee K. Lubrin**[1], Jean-Paul Desaulniers[1,2], Theresa Stotesbury[1,2], [1]Applied Bioscience Graduate Program, Faculty of Science, Ontario Tech University, Oshawa, ON, Canada. [2]Faculty of Science, Ontario Tech University, Oshawa, ON, Canada.
11:40 (**I131**) DEVELOPMENT OF A DIRECT ANALYSIS METHOD TO INFER SEX FROM CHILD HEAD HAIR USING ETV-ICPOES. **Darrian Prendergast**, Yangyang Wang and Diane Beauchemin. Queen's University, Department of Chemistry, Kingston, ON, Canada.
12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

Separations and Mass Spectrometry III – *Great C*
Organizers and Chairs: Andrei Drabovich and Maxim Berezovski

08:40 (**I043**) PROTEOMICS APPROACHES IN DISCOVERY OF POTENTIAL ENZYMATIC BIOMARKERS FOR EARLY DIAGNOSIS OF BREAST CANCER. **Yingxi Li**[1, 2], Zoran Minic[1], Nico Hüttmann[1, 2], Suttinee Poolsup[1, 2], Rochelle D'Mello [1, 2], Maxim V. Berezovski[1, 2], [1] John L. Holmes Mass Spectrometry Facility, Faculty of Science, University of Ottawa, Ottawa, ON, Canada; [2] Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, ON, Canada.

09:00 (**I110**) IDENTIFYING PFAS CHEMICALS IN CONSUMER ANTI-FOG PRODUCT SOLUTIONS USING GC-TOFMS. **Stephan Laperriere[1]**, David E. Alonso[2] and Joe Binkley[2], [1]LECO Instruments ULC, Mississauga, ON, Canada; [2]LECO Corporation, Saint Joseph, MI, USA.

09:40 (I**073**) INVESTIGATING AN ANALYTICAL METHOD FOR QUANTIFYING TETRAHYDROZOLINE FOUND IN EYE DROPS USING CAPILLARY ELECTROPHORESIS. **Malika Sharma**, Thompson Rivers University. Kingsley Donkor, Thompson Rivers University, Department of Chemistry, Kamloops, BC, Canada.

10:00 Refreshment break and exhibition – *Great B*

10:40 (**I047**) PROFILING POLYPHENOLS IN HONEYBEE PROPOLIS BY LC-MS. **Karen C. Waldron**, Gladice C. Tchintchui, Marc-Antoine Vaudreuil, Alexandra Furtos, Thanh Ngan Thang, Department of Chemistry, Université de Montréal, Montréal, QC, Canada.

11:20 (**I040**) INTEGRATION OF A CAS12A-MEDIATED DNAZYME ACTUATOR WITH EFFICIENT RNA EXTRACTION FOR ULTRASENSITIVE COLORIMETRIC DETECTION OF VIRAL RNA. Huyan Xiao, JingYang Xu, Yanming Liu, Wei Feng, Bo Pang, Jeffery Tao, **Hongquan Zhang** Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, Alberta, Canada.

11:40 (**I101**) SEPARATION OF FLUORESCENT ORGANIC DYES AND SALTS BY CAPILLARY ELECTROPHORESIS TO INVESTIGATE THEIR BINDING PROPERTIES WITH METAL OXIDE NANOPARTICLES, NANOPLASTICS, CASEIN MICELLES, AND LIPOSOMES. **Edward P.C. Lai**, Amos Onomhante. Carleton University, Department of Chemistry, Ottawa, ON, Canada.

12:00 Hot buffet lunch **sponsored by Queen's University Faculty of Arts and Science** (provided) – *Great B*

FRIDAY, JUNE 28, AFTERNOON

Agricultural and Food Safety II – *Great A*
Organizer and Chair: Nausheen Sadiq

13:20 (**I114**) ARSENIC SPECIATION IN CHICKEN AND FISH. Xiufen Lu, Chester Lau, Karen S. Hoy, Tetiana Davydiuk, Haixia Yu, Emma Jing, Kayla LaPorte, Gursevak Uppal, Hanyong Peng, and **X. Chris Le**. Division of Analytical and Environmental Toxicology, Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada.

14:00 (**I053**) NEW INSIGHT FROM MEASUREMENTS OF THE BIO-ACCESSIBILITY OF ELEMENTS IN RICE USING THE CONTINUOUS ONLINE LEACHING METHOD WITH DETECTION BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY**.** Nausheen Sadiq and **Diane Beauchemin**, Queen's University, Department of Chemistry, Kingston, ON, Canada.

14:40 (**I134**) ANALYSIS OF NUTRITIONAL ELEMENTS IN YELLOWKNIFE GARDEN VEGETABLES. **Andre Castillo**[1], Diane Beauchemin[1], Iris Koch[2], Mike Palmer[3], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]Environmental Sciences Group, Royal Military College of Canada, Kingston, ON, Canada; [3]North Slave Research Centre, Aurora Research Institute, Aurora College, Yellowknife, NWT, Canada.

15:00 End of session and refreshment break **sponsored by Queen's University Faculty of Arts and Science** – *Great C*

Electrochemical and Surface Analysis III – *Upper Fallsview B*
Organizer and Chair: Sanela Martic

13:20 (**I009**) ION CONDUCTING MEMBRANES FOR CLEAN ENERGY SYSTEMS. **Jasneet Kaur,** Brock University, Department of Physics and Yousef Haj Department of Engineering, St. Catharines, ON, Canada and Hadis Zarrin, Department of Chemical Engineering, Toronto Metropolitan University, Toronto, ON, Canada.
14:00 (**I060**) TRANSDERMAL WEARABLE SENSORS FOR MENTAL HEALTH ANALYTICS. **S. M. Mugo**, W. Lu, S. Robertson, MacEwan University, Edmonton, AB, Canada.
14:20 (**I024**) SEQUESTERING POLONIUM FROM COPPER USING RESIN-BOUND CROWN ETHER. **Heather M^{c}Callum**[1,2], Emily Corcoran[2], Fiona Kelly[2], Zhe She[1]. [1]Queen's University, Department of Chemistry, Kingston, ON, Canada. [2]Royal Military College of Canada, Department of Chemistry and Chemical Engineering, Kingston, ON K7K 7B4.

15:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** – *Great C*

15:40 (**I004**) SELF-ASSEMBLING MONOLAYERS OF LATE TRANSITION COMPLEXES FOR ULTRA-STABLE ELECTROCHROMIC MATERIALS AND DEVICES. Rana Ahmad, Vittoria Di-Palo, E. Bradley Easton, **Olena V. Zenkina.** Ontario Tech. University, Oshawa, ON, Canada.
16:20 (**I022**) DEVELOPING MULTIPLEXED ELECTROCHEMICAL DETECTION METHODS FOR MONITORING MANGANESE (Mn) IN DRINKING WATER. **Kayla Elliott**, Zhe She, and Sarah Jane Payne, Queen's University, Department of Chemistry and Department of Civil Engineering, Kingston, ON, Canada.
16:40 (**I054**) VOLTAMMETRIC MEASUREMENTS IN A ROOM TEMPERATURE IONIC LIQUID USING SCANNING ELECTROCHEMICAL CELL MICROSCOPY. **Joshua C. Byers**, Samaneh Salek, Département de Chimie, Université du Québec à Montréal, Montréal, QC, Canada.
17:00 End of 66th ICASS

Environmental Analysis II – *Strategy 7*
Organizer and Chair: Iris Koch

13:20 (**I007**) ENVIRONMENTAL CHEMISTRY: CHALLENGES AND POSSIBLE IMPACT OF ELEMENTS AND SMALLEST PARTICLES. **Petra Krystek,** Deltares, Utrecht, The Netherlands.
14:00 (**I139**) WHY AND WHERE IS THERE ARSENIC IN SIFTON BOG? METAL CONTAMINANTS IN SOUTHERN ONTARIO PEAT BOGS. **Helen Lord**,[1] Iris Koch[2] and Diane Beauchemin[1], [1]Queen's University, Department of Chemistry, Kingston, ON, Canada; [2]Royal Military College of Canada, Kingston, ON, Canada.
14:20 (**I001**) ANALYSIS OF CLAYS BY ICP-MS AND UNCONVENTIONAL APPROACH TO DATA INTERPRETATION**. Ela Bakowska** and Alind J. Barany, Corning RDC, SP-DV-D2W69C, Corning, NY, USA.

15:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** – *Great C*

15:40 (**I068**) HAKUNA MATATA: HOW MICROPLASTICS, SUPERFUND SITES, AND COAL FLY ASH MAY MEAN SOME ELEMENTAL WORRIES. **Nausheen W. Sadiq**[1], Matthew Ross[2], Gwen O'Sullivan[3] and Hind A. Al-Abadleh[4]. [1]Mount Royal University, Department of Chemistry and Physics, Calgary, AB, Canada. [2]5-138P, City Centre Campus, 10700-104 Avenue, Edmonton, AB, Canada. [3]Mount Royal University, Department of Earth and Environmental Science, Calgary, AB, Canada. [4]Wilfrid Laurier University, Department of Chemistry and Biochemistry, Waterloo, ON, Canada.
16:00 (**I057**) EMISSION FACTORS OF KEY AIR POLLUTANTS ARISING FROM BIOMASS BURNING. **Amanda Hanashiro Moraes,** Shakiba Talebian, Rowshon Afroz, Kerry Chen, Jason Olfert, Ran Zhao, University of Alberta, Chemistry Department, Edmonton, AB, Canada.
16:20 (**I018**) CHARACTERIZING THE SPATIO-TEMPORAL VARIABILITY OF DISSOLVED ORGANIC MATTER MOLECULAR COMPOSITION AND METAL TRANSPORT IN AN AGRICUTRUALLY IMPACTED WATERSHED. **Mary Chris Lagumen**, Lisa Harris, Taryn Petrovsky, Aaron Kizel, Vaughn Mangal Department of Chemistry, Brock University, St. Catharines, ON, Canada.

16:40 (**I133**) MODIFIED SYNTHETIC PRECIPITATION LEACHING PROCEDURE (MSPLP) FOR ASSESSING THE MOBILITY OF ORGANIC AND METALLIC CONTAMINANTS FROM LAND APPLICATION OF RELOCATED SOILS IN ONTARIO. **Taddese Godeto**,[1] Chunyan Hao,[1] Peter Drouin,[1] Ralph Ruffolo, and Andrew McDonough[2], [1]Laboratory Services Branch and [2]Environmental Monitoring and Reporting Branch, Ministry of the Environment, Conservation and Parks, Toronto, ON, Canada.

17:00 End of 66th ICASS

Forensic Analysis III – *Upper Fallsview A*
Organizer: Katie Moghadam **Chair:** Darrian Prendergast

13:20 (**I014**) RCMP TRACE EVIDENCE SERVICES: WHAT WE DO, WHAT WE DON'T. **Claude Dalpé**, RCMP-GRC National Forensic Laboratory Services, NPS Building, Ottawa, ON, Canada.

14:00 (**I129**) VALIDATION OF A GREENER METHOD OF SEX DETERMINATION THROUGH THE MULTI-ELEMENTAL ANALYSIS OF HAIR USING ELECTROTHERMAL VAPORIZATION COUPLED TO INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY. **Chloe Wheeler** and Diane Beauchemin, Queen's University, Department of Chemistry, Kingston, ON, Canada.

14:20 (**I146**) PRELIMINARY RESULTS OF 3D PRINTED POLYMERS BY LASER INDUCED BREAKDOWN SPECTROSCOPY (LIBS). **Katie Moghadam**[1], Claude Dalpé[2], Denis Laflèche[2], Nigel Hearns[2], Diane Beauchemin[1], [1]Department of Chemistry, Queen's University, Kingston, ON; [2]RCMP-GRC National Forensic Laboratory Services, Ottawa, ON, Canada.

14:40 (**I153**) RADON DEATH CLOCK: A NOVEL METHOD FOR ASSESSING THE POSTMORTEM INTERVAL WITH RADON. **Behnam Ashrafkhani**[1], Armin Tabesh[1], Fredrik Tamsen[2], Aaron Goodarzi[1], Martin Tondel[3,4], Robert Ian Thompson[1] and Michael Wieser[1], [1]Department of Physics and Astronomy, University of Calgary, Canada; [2]Robson DNA Science Centre, Charbonneau Cancer Institute, Department of Biochemistry & Molecular Biology, Department of Oncology, Cumming School of Medicine, University of Calgary, Calgary, Canada; [3]Department of Surgical Sciences, Forensic Medicine, Uppsala Universitet, Sweden; [4]Occupational and Environmental Medicine, Department of Medical Sciences, Uppsala University, Sweden; [5]Occupational and Environmental Medicine, Uppsala University Hospital, Uppsala, Sweden.

15:00 End of session and refreshment break **sponsored by Queen's University Faculty of Arts and Science** – *Great C*

Separations and Mass Spectrometry IV – *Great C*
Organizers and Chairs: Andrei Drabovich and Maxim Berezovski

13:20 (**I088**) QUANTITATIVE ASSESSMENT OF EQUILIBRIUM-CONSTANT ACCURACY. Tong Ye Wang,[1] Jessica Latimer,[1] Isaac Kogan,[1] Svetlana M. Krylova,[1] Sebastian Schreiber,[2] Philip Kohlman,[2] Joachim Jose,[2] and **Sergey N. Krylov**[1], [1]Department of Chemistry, York University, Toronto, ON, Canada; [2]Institute of Pharmaceutical and Medicinal Chemistry, University of Münster, Münster, Germany.

14:00 (**I042**) TARGETED LC-MS/MS WORKFLOW FOR MEASURING QUANTITATIVE CHANGES IN THE TEAR PROTEOME. **Lekha Sleno**[1*,] Maggy Lépine[1], Marie-Claude Robert[2], [1] University of Quebec in Montreal (UQAM), Chemistry department, Montreal, QC, Canada. [2] Hospital Research Center of the University of Montreal, Ophthalmology department, Montréal, QC, Canada.

14:40 (**I067**) GOING AGAINST THE FLOW: COMPUTATIONAL AND EXPERIMENTAL INSIGHTS OF COUNTERFLOW SOLUTION FOR ADDRESSING CLOGGING CHALLENGES IN CONTINUOUS LIQUID MICROJUNCTION SURFACE SAMPLING PROBE. **Mina Alidoust**, Jian Yu, Richard D. Oleschuk. Department of Chemistry, Queen's University, Kingston, ON, Canada.

15:00 Refreshment break **sponsored by Queen's University Faculty of Arts and Science** – *Great C*

15:40 (**I010**) HIGHLY SENSITIVE MULTIPLEXED PROTEIN ANALYSIS IN PLASMA AND EXTRACELLULAR VESICLES. Rebecca Goodrum, **Huiyan Li**, School of Engineering, University of Guelph, Guelph, ON, Canada.

16:20 (**I097**) FULL AND SURFACE PROTEOMICS OF EXTRACELLULAR VESICLES. Nico Hüttmann, Yingxi Li, Suttinee Poolsup, Emil Zaripov, Rochelle D'Mello, Vanessa Susevski, Zoran Minic and **Maxim V.**

Berezovski, Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, ON, Canada.

17:00 End of the 66th ICASS

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