

60th ICASS and Spectr'Atom 2015

Saint Mary's University
Loyola and Sobey Academic Complex
19-22 May 2015

Programme de Spectr'Atom 2015

(numéros de résumés entre parenthèses)

MARDI 19 MAI

ETAT DE L'ART ET PERSPECTIVES DE LA SPECTROMÉTRIE ATOMIQUE

Salon Dubois

Président: Marc Lamoureux (Université Saint Mary's)

10:00 Accueil par Marc Lamoureux, Diane Beauchemin et Olivier Donard

10:10 (S14) FRONTIÈRES DE L'ICP/MS (Q, HR, ET MC) POUR LA DYNAMIQUE DES MÉTAUX DANS L'ENVIRONNEMENT : DE LA SPÉCIATION À L'IMAGERIE. **O.F.X. Donard**¹, D. Amouroux¹, Z. Pedrero¹, S. Berail¹, E. Tessier¹, C. Pecheyran¹, A. Donard¹, J. Barre¹, M. Monperrus¹, J. Cavalheiro¹, J. Malherbes¹, D. Schaumlöffel¹, ¹Laboratoire de Chimie Analytique Bioinorganique et Environnement, Institut des Sciences Analytiques et de Physicochimie pour l'Environnement et les Matériaux, UMR CNRS 5254 IPREM, Université de Pau et des Pays de l'Adour, Hélioparc, Pau (France)

10:50 (S09) SPECTROSCOPIE ATOMIQUE À PLASMA PAR COUPLAGE INDUCTIF ET L'ÉVOLUTION DU SYSTÈME D'INTRODUCTION D'ÉCHANTILLONS LIQUIDES. **José-Luis Todolí** Département de Chimie Analytique, Nutrition et Bromatologie, Université d'Alicante, E-03080. Alicante, Espagne.

11:20 Table ronde

12:00 Dîner

APPLICATIONS ENVIRONNEMENTALES ET NUCLÉAIRES - Salon Dubois

Organisateur et président: Dominic Larivière (Université Laval)

13:40 (S12) L'EXPLOITATION DES SABLES BITUMINEUX AN ALBERTA REPRÉSENTE-T-ELLE UNE NOUVELLE SOURCE DE CONTAMINATION EN MÉTAUX LOURDS POUR LA RIVIÈRE ATHABASCA ? **Olivier Clarisse**, Université de Moncton, Département de Chimie et Biochimie Moncton, Nouveau-Brunswick, Canada E1A 3E9

14:10 (S01) DÉTERMINATION DE LA COMPOSITION ISOTOPIQUE ET DE LA CONCENTRATION DU ZIRCONIUM DANS DES ÉCHANTILLONS

NUCLÉAIRES À L'AIDE D'UN SPECTROMÈTRE DE MASSE À THERMO-IONISATION. **Alexandre Quémet**, Christophe Maillard et Alexandre Ruas. CEA, Direction de l'Energie Nucléaire, Département de RadioChimie et Procédés, F-30207 Bagnols sur Ceze, France.

- 14:30 (S17) DÉVELOPPEMENT D'UNE MÉTHODE D'ANALYSE DES ÉLÉMENTS DE TERRES RARES PAR SPECTROMÉTRIE À ÉMISSION ATOMIQUE AU PLASMA MICRO-ONDE. **Keven Turgeon**^{1,2}, Laurence Whitty-Léveillé^{1,2}, Claude Bazin¹, Dominic Larivière², ¹Département de génie des mines, de la métallurgie et des matériaux, ²Département de chimie, Université Laval, Québec, QC
- 14:50 Pause-café, exposition et affiches –
- 15:30 (S07) ÉTUDES COMPARATIVE DES MÉTHODES DE DIGESTION D'ÉCHANTILLONS ET D'ANALYSE DES ÉLÉMENTS DE TERRES RARES DANS DIFFÉRENTES MATRICES ENVIRONNEMENTALES ET MINÉRALES. **Laurence Whitty-Léveillé**^{1,2}, Keven Turgeon^{1,2}, Claude Bazin¹, Dominic Larivière², ¹Département de génie des mines, de la métallurgie et des matériaux; ²Département de chimie; Université Laval, Québec
- 15:50 (S11) LA MESURE Pb-210 DANS L'ENVIRONNEMENT. **R. Jack Cornett**, A. Sookdeo, X.L. Zhao, C.J. Charles and W.E. Kieser. Laboratoire SMA Andre E. Lalonde, Départements de Sciences de la Terre et Physique, Université d'Ottawa, Ottawa CA
- 16:10 (S13) EXERCICE D'INTERCOMPARAISON POUR LE SUIVI D'ENVIRONNEMENTS AQUATIQUES D'EUROPE DU SUD (PROJET ORQUE SUDO). **F. Séby**¹, F. Pannier², M. Monperrus², Z. Pedrero², C. Bonnemason-Carrère² et O.F.X. Donard². ¹Ultra-Traces Analyses Aquitaine (UT2A), Pau (France), ²IPREM (LCABIE), UMR CNRS/UPPA 5254, Pau (France).
- 16:30-17:00 Table ronde

MERCREDI 20 MAI

PRÉPARATION ET INTRODUCTION D'ÉCHANTILLONS

Organisatrice et présidente: Diane Beauchemin (Université Queen's)

- 09:00 (S08) LE DOSAGE DE METAUX DANS LES BIO ETHANOLS PAR LES TECHNIQUES A PLASMA PAR COUPLAGE INDUCTIF. **José-Luis Todolí**,¹ Carlos Sánchez,¹ Charles-Philippe Lienemann². ¹Département de Chimie Analytique, Nutrition et Bromatologie, Université d'Alicante, E-03080, Alicante, Espagne; ²IFP Energies Nouvelles, Rond-point de l'échangeur de Solaize, BP 3, F-69360 Solaize – France, Rond-point de l'échangeur de Solaize, Lyon, 69360, France
- 09:30 (S02) APPLICATIONS DE LA VAPORISATION ELECTROTHERMIQUE COUPLEE A LA SPECTROMETRIE ICP-AES POUR LA DETERMINATION ELEMENTAIRE DANS LES VEGETAUX DIRECTEMENT A L'ETAT SOLIDE.

Pierre Masson. INRA-USRAVE, Centre de Recherches de Bordeaux, CS20032, 33882 Villenave d'Ornon Cedex, France.

- 10:00 Pause-café, exposition et affiches – *Borivage et Bar Whisky*
- 10:40 (S03) ANALYSE DE SOLUTIONS ORGANIQUES POUR LA CARACTERISATION DES DECHETS RADIOACTIFS. **A. Masset**, P. Fichet, C. Colin, C. Cruchet, M. Coppo. CEA/DEN/DANS/DPC/SEARS/LASE, CEA Saclay, Bât 459, PC 171, 91191 Gif sur Yvette CEDEX
- 11:00 (S15) LE MINIWAVE : UN SYSTÈME ABORDABLE DE DIGESTION PAR MICROONDES. **John Dykeman**, SCP SCIENCE, 21800 Clark-Graham, Baie D'Urfé, QC H9X 4B6.
- 11:20 (S21) POTENTIEL DU MP-AES 4200 POUR L'ANALYSE DE METAUX DANS LES PRODUITS PETROLIERS. D. Guihéneuf¹, S. Lepiller¹, Y. Abdelnour², J.-L. Todoli³, C. Greatti¹, ¹TOTAL RESEARCH & TECHNOLOGY GONFREVILLE, BP27, 76700 Harfleur, France; ²Agilent Technologies – ZA Courtaboeuf - 3, avenue du Canada - CS 90263 - 91978 LES ULIS CEDEX, France ; ³Département de Chimie Analytique, Nutrition et Bromatologie, Université d'Alicante, E-03080, Alicante, Espagne
- 11:40 Table ronde
- 12:00 Dîner

ANALYSE DE SPÉCIATION -

Organisateur et président: Pierre Dumas (Institut national de santé publique du Québec)

- 13:40 (S10) ANALYSE DE L'ARSENIC INORGANIC TOTAL DANS LES DROGUES PHARCEUTIQUES ET LES PRODUITS DE SANTE NATUREL PAR HPLC ICPMSMS. **S.Bélisle**², L.Dextraze¹, H.Gagnon¹, J-F Paradis², ¹Laboratoire de l'Inspectorat de Longueuil, RPB Québec, Santé Canada, Longueuil, QC ; ²Laboratoire des Aliments de Longueuil, RPB Québec, Santé Canada, Longueuil, QC.
- 14:10 (S19) SPÉCIATION DU SÉLÉNIUM SANGUIN PAR CI-DI-ICP-MS/MS (CHROMATOGRAPHIE IONIQUE –DILUTION ISOTOPIQUE EN LIGNE-SPECTROMÉTRIE DE MASSE EN TANDEM PAR PLASMA D'ARGON INDUCTIF) SUR LES TRACES DE LA SÉLÉNONÉINE. **Pierre Dumas**¹, Adel Achouba², Pierre Ayotte^{1,2}, Mathieu Martinez³, Lisa Gautrin³, ¹Institut national de santé publique du Québec (INSPQ) QC, Canada; ²Département de médecine préventive et sociale, Université Laval , Centre de recherche du CHU, QC Canada, ³Université de Pau et des Pays de l'Adour (UPPA) Pau France
- 14:40 (S05) LA SPÉCIATION EN TOXICOLOGIE CLINIQUE. **Patrick Bélanger**, Institut National de Santé Publique du Québec (INSPQ) Qc, Canada.
- 15:00 Pause-café, exposition et affiches –

15:40 (S20) ANALYSE SIMULTANÉE DE SPÉCIATION DU SE, CR ET AS DANS LES LIXIVIATS DE CÉRÉALES POUR BÉBÉ POUR UNE ÉVALUATION DU RISQUE PLUS RÉALISTE. Nausheen Sadiq et **Diane Beauchemin**, Queen's University, Department of Chemistry, Kingston, ON K7L 3N6, Canada.

16:00 Table ronde

17:00-18:00 SESSION D’AFFICHES (auteurs présents) -

Panneau # Présentation

- 1** (S04) DETERMINATION ELEMENTAIRE DANS LES VEGETAUX PAR SPECTROMETRIE DE FLUORESCENCE X A DISPERSION DE LONGUEUR D'ONDE: PREMIERS RESULTATS. **Pierre MASSON**. INRA-USRAVE, Centre de Recherches de Bordeaux, CS 20032, 33882 Villenave d'Ornon Cedex, France
- 2** (S06) PRODUCTION D'UN MATERIAU DE REFERENCE CERTIFIE : ÉTAPES DE PREPARATION ET TEST D'HOMOGENEITE. **Patrice Soulé**¹, Mireille Barbaste¹, Karine Hakim¹, Guillaume Daugey¹, Alison Hewitt¹, Thierry Prunet¹, Manuel Nicolas². 1: USRAVE, Centre de Recherches INRA de Bordeaux, CS20032, 33882 Villenave d'Ornon cedex, France; 2: Office National des Forêts, Département Recherche Développement Innovation, Bd de Constance, 77300 Fontainebleau, France.
- 3** (S16) LE PROJET MARSS (CENTER OF MASS SPECTROMETRY FOR REACTIVITY AND SPECIATION SCIENCES). **Olivier F.X. Donard**, Emmanuel Tessier, Joanna Szpunar, Kashia Bierla, Dirk Schaumlöffel, Julien Malherbe, Hervé Martinez, Cécile Courrèges, Laure Tastet. Center of Mass Spectrometry for Reactivity and Speciation Sciences, Université de pau et des Pays de l'Adour, Hélioparc, 2 Avenue P. Angot, 64000 Pau
- 4** (S05) COMMENT EVALUER LES INCERTITUDES EN ICP? **A. Masset**, P. Fichet, M. Coppo, C. Colin, C. Cruchet, CEA/DEN/DANS/DPC/SEARS/LASE, Cea Saclay, Bât 459 PC171, 91191 Gif sur Yvette, France Table ronde

Le congrès 60e ICASS se poursuit jusqu'à midi, le 22 mai.

60th ICASS Program

TUESDAY, MAY 19, MORNING

ANALYTICAL SEPARATIONS/MASS SPECTROMETRY I

Organizer: Kingsley Donkor

Chair: David Chen

- 10:00 (I28) ANALYSIS OF THE NEUROTOXIN, β -N-METHYLAMINO-L-ALANINE (BMAA), BY HYDROPHILIC INTERACTION LIQUID CHROMATOGRAPHY-DIFFERENTIAL MOBILITY SPECTROMETRY-TANDEM MASS SPECTROMETRY. Elliott Kerrin^{1,2}, **Michael A. Quilliam**^{1,2}, Daniel G. Beach¹.
¹National Research Council Canada, Measurement Science and Standards, Halifax, NS;
²Department of Chemistry, Dalhousie University, Halifax, NS.
- 10:20 (I48) DEVELOPMENT OF PRACTICAL AND EFFECTIVE ANALYTICAL APPROACHES FOR PRODUCT AUTHENTICATION OF HERBAL MEDICINES AND NATURAL HEALTH PRODUCTS. **Rob O'Brien**^{1,2}, Anderson Smith² and Chuck Chang¹, ¹ISURA, ²Supra Research and Development
- 11:00 (I01) OVER 10,000 PEPTIDE IDENTIFICATIONS FROM THE HELA PROTEOME USING SINGLE-SHOT CAPILLARY ZONE ELECTROPHORESIS-TANDEM MASS SPECTROMETRY. **Norman J. Dovichi**, Liangliang Sun, Xiaojing Yan, Yimeng Zhao, Guijie Zhu, Matthew M. Champion. Department of Chemistry and Biochemistry, University of Notre Dame. *Keynote speaker.*

12:00 Lunch (provided) –

BIOMEDICAL SPECTROSCOPY/IMAGING

Organizer: Kevin Hewitt

Co-Chairs: Kevin Hewitt and Laurent Kreplak

- 10:00 (I59) MULTIMODALITY MICROSCOPY GUIDED MICRO-RAMAN SPECTROSCOPY FOR ACCURATE TARGETING AND BIOCHEMICAL ANALYSIS OF MICROSTRUCTURES IN HUMAN SKIN IN VIVO. **Haishan Zeng**, Hequn Wang, Anthony Lee, David I. McLean, Harvey Lui, Imaging Unit – Integrative Oncology Department, British Columbia Cancer Agency Research Centre, Photomedicine Institute – Department of Dermatology and Skin Science, University of British Columbia & Vancouver Coastal Health Research Institute, Vancouver, BC, Canada.
- 10:40 (I60) FTIR SPECTROCHEMICAL IMAGING OF BIOLOGICAL SAMPLES; 2D AND 3D, FROM MILLIMETER TO NANOMETER LENGTH SCALES. **Kathleen M. Gough**, Department of Chemistry, University of Manitoba, Winnipeg, Canada.
- 11:20 (I61) EGFR-SPECIFIC NANOPROBE BIODISTRIBUTION IN MOUSE MODELES. Samia Baroudi¹, Maiara Castilho^{1,2}, Allan Hupman¹, Caroline Wood¹, **Christopher Lee**¹,

Ian Alwayn¹, Kevin C. Hewitt¹. ¹Dalhousie University, ²Universidade do Vale do Paraíba.

12:00 Lunch (provided)

TUESDAY, MAY 19, AFTERNOON

ANALYTICAL SEPARATIONS/MASS SPECTROMETRY II

Organizer: Kingsley Donkor

Chair: Karen Waldron

13:40 (I05) IDENTIFYING EVIDENCE OF AUTOLOGOUS BLOOD TRANSFUSIONS BY CAPILLARY ELECTROPHORESIS. **Christopher R. Harrison**, & Jack Fang. San Diego State University, Department of Chemistry & Biochemistry.

14:00 (I17) PROBING PROTEIN CONFORMATIONAL CHANGES BY USING APTAMERS. Nena Thi Nguyen¹, X. Chris Le^{1,2}, **Hongquan Zhang**², ¹Department of Chemistry and ²Department of Laboratory Medicine and Pathology, Faculty of Medicine and Dentistry, University of Alberta, 10-102 Clinical Sciences Bldg., Edmonton, Alberta, Canada T6G 2G3.

14:20 (I32) EXPLORING SUBCELLULAR COMPLEXITY IN TISSUES BY CAPILLARY ELECTROPHORETIC ANALYSIS OF INDIVIDUAL ORGANELLES. Katherine Muratore*, Deirdre Manion-Fischer*, Manjunatha Shankarappa^o, Ian Lanza^o, K. Sreekumaran Nair^o, **Edgar A. Arriaga***. *University of Minnesota, Minneapolis, MN, USA. ^oMayo Clinic, Rochester, MN, USA.

15:00 Coffee break

15:40 (I16) DEVELOPING SELECTIVE AND ROBUST MOLECULARLY IMPRINTED POLYMER FILMS FOR DIRECT ANALYSIS OF COTININE CONTAMINANTS WITH MASS SPECTROMETRY. **Christina S. Bottaro**, Adam G. Beaton, Stefana N. Egli, Jeremy R. Gauthier. Department of Chemistry, Memorial University, St. John's, NL A1B 3X7.

16:00 (I03) MEASUREMENT OF THE ACTIVITY OF INDIVIDUAL SUBUNITS OF A SINGLE ENZYME MOLECULE AND THE CONVERSION OF A MOLECULE BETWEEN DIFFERENT ACTIVE CONFORMATIONS. **Douglas B. Craig**,¹ Jeremie J Crawford,² Coleen Ong-Justiniano³ and Ellert Nichols.³ ¹Chemistry Department, University of Winnipeg, Winnipeg MB, ²Chemistry Department, University of Manitoba, Winnipeg MB, ³Department of Biochemistry and Medical Genetics, University of Manitoba, Winnipeg MB.

16:40 (I27) SELECTION OF APTAMERS USING QUANTUM DOT-ASSISTED CAPILLARY ELECTROPHORESIS SELEX. **Jeffrey. W. Guthrie** and Michael J. Martin. Eastern Michigan University, Department of Chemistry, Ypsilanti, MI, USA

17:00 Exhibition opening and reception

DATA ANALYSIS AND CHEMOMETRICS

Organizer and Chair: Peter Wentzell

- 13:40 (I53) EMBEDDED CHEMOMETRICS FOR HANDHELD ANALYZERS: EXAMPLES FROM RAMAN, FTIR, AND MS. **Christopher D. Brown**, 908 Devices, Boston, MA.
- 14:20 (I08) APPLICATION OF PARTIAL LEAST SQUARES 2 TO INFRARED SPECTRUM TRANSFER. **S. Hou**, and J T. McClure, Department of Health Management, University of Prince Edward Island, Charlottetown, Canada
- 14:40 (I25) ESTIMATION OF INSTRUMENTAL NOISE MODELS IN THE ABSENCE OF REPLICATED DATA. **Peter D. Wentzell** and Anthony C. Tarasuk. Department of Chemistry, Dalhousie University, PO Box 15000, Halifax, NS, B3H 4R2, Canada
- 15:00 Coffee break
- 15:40 (I26) PROJECTION PURSUIT METHODS FOR EXPLORATORY DATA ANALYSIS. **Chelsi C. Wicks**, Peter D. Wentzell. Department of Chemistry, Dalhousie University, PO Box 15000, Halifax, NS, B3H 4R2.
- 16:00 (I64) ANALYSIS OF FATTY ACID PROFILES OF PACIFIC COD IN THE GULF OF ALASKA USING PRINCIPAL COMPONENT ANALYSIS AND PROJECTION PURSUIT. **Wei Xia**¹, Suzanne M. Budge¹, Peter D. Wentzell², Olav Ormseth³, Shiway Wang⁴, Kim Rand³, ¹Department of Process Engineering and Applied Science, Dalhousie University, Halifax, NS B3H 4R2, Canada; ²Department of Chemistry, Dalhousie University, Halifax, NS B3H 4R2, Canada; ³Alaska Fisheries Science Center, National Oceanic and Atmospheric Administration, Seattle, WA 98115, US; ⁴Sedna Ecological, Fairbanks, AK 99709, US
- 16:20 (I66) ANALYSIS OF RAMAN HYPERSPECTRAL IMAGES OF HELA CELLS. **Tobias K. Karakach**, Li-Lin Tay, National Research Council of Canada, Measurement Science and Standards Portfolio
- 17:00 Exhibition opening and reception

WEDNESDAY, MAY 20, MORNING

ANALYTICAL SEPARATIONS/MASS SPECTROMETRY III

Organizer: Kingsley Donkor

Chair: Christina Bottaro

- 9:00 (I19) HIGH PEAK CAPACITY, TWO DIMENSIONAL SEPARATIONS USING MICRO FREE FLOW ELECTROPHORESIS. **Michael T. Bowser**, Matthew Geiger, Alexander Johnson, Sarah Anciaux and Nicholas Frost. University of Minnesota, Department of Chemistry.
- 9:40 (I02) DEVELOPMENT AND VALIDATION OF A RAPID LC-MS/MS METHOD FOR SCREENING ILLEGAL AND COUNTERFEIT DRUGS: FROM 24 CANNABINOIDS TO 82 ERECTILE DYSFUNCTION REMEDIES AND ADULTERATED PRODUCTS. **Karen C. Waldron**, Philippe Lebel and Alexandra Furtos. Département de chimie, Université de Montréal.

10:00 Coffee break, exhibition and posters

10:40 (I51) CAPILLARY ELECTROPHORETIC DETERMINATION OF CHLORIDE AND SULFATE IN HIGHLY SALINE OILFIELD WATER USING BILAYER-COATED CAPILLARIES AND INDIRECT ABSORPTION DETECTION. **Kingsley K. Donkor**¹, Zhi C. Guo¹, Laiel C. Soliman¹, Yuen Ting Law¹, Jessica M. Risley², Kenneth J. Schmidt³, H. John Crabtree⁴, Neil A. Warrender³, ¹Department of Physical Sciences, Thompson Rivers University, Kamloops, BC; ²Department of Chemistry, UBC, Vancouver; ³Wilson Analytical Services, Sherwood Park, AB; ⁴HJC Consulting Inc., Edmonton, AB. 9:40

11:00 (I62) PROTEOMIC AND METABOLOMIC ANALYSIS OF CHINESE HAMSTER OVARY CELLS – PEERING INTO THE BIOLOGICS BLACK BOX. **Devanand M. Pinto**, Kenneth Chisholm, Andrew Leslie, Susanne Penny, Patrick Murphy, Phuong Lan Pham, National Research Council, Human Health Therapeutics, Halifax, Nova Scotia.

11:20 (I40) CAPILLARY ELECTROPHORESIS MASS SPECTROMETRY FOR UNLABELED SERUM GLYCANS. Roxana G. Jayo and **David D. Y. Chen**, Department of Chemistry, University of British Columbia, Vancouver, BC, Canada.

12:00 Lunch (provided)

MICRO/NANO IMAGING AND ANALYTICAL MEASUREMENTS OF CELLS AND BIOMATERIALS

Organizer and Chair: Jesse Greener

09:00 (I29) MICROSENSORS FOR STUDY OF MICROBIALLY STRATIFIED ENVIRONMENT: APPLICATIONS AND CHALLENGES. **Tong Yu**, Department of Civil and Environmental Engineering, University of Alberta, Canada

09:40 (I20) FABRICATION AND EVALUATION OF A METHANE MICROBIOSENSOR. **Yijun Chen**, Yan Zhang and Tong Yu, Department of Civil and Environmental Engineering, University of Alberta, Edmonton, AB T6G 2W2, Canada

10:00 Coffee break, exhibition and posters

10:40 (I06) MAPPING THE STRUCTURE AND CHEMICAL PROPERTIES OF SINGLE COLLAGEN FIBRILS. **Laurent Kreplak**, Department of Physics and Atmospheric Science, Dalhousie University, Halifax, NS, Canada. School of Biomedical Engineering, Dalhousie University, Halifax, NS, Canada.

11:20 (I13) VOLUME IMAGING AND QUANTITATIVE PHASE MEASUREMENTS WITH DIGITAL IN-LINE HOLOGRAPHIC MICROSCOPY. **M.H. Jericho**, Department of Physics and Atmospheric Science, Dalhousie University, Halifax N.S.

12:00 Lunch (provided)

WEDNESDAY, MAY 20, AFTERNOON

ANALYTICAL SEPARATIONS/MASS SPECTROMETRY IV

Organizer: Kingsley Donkor

Chair: Christopher Harrison

- 13:40 (I49) DIRECT MEASUREMENT AND ON-LINE MONITORING OF PHARMACEUTICALS AND NAPHTHENIC ACIDS USING MEMBRANE INTRODUCTION MASS SPECTROMETRY. Kyle D. Duncan, Dane R. Letourneau, Greg W. Vandergrift, Chris G. Gill, **Erik T. Krogh**, Applied Environmental Research Laboratories (AERL), Department of Chemistry, Vancouver Island University, Nanaimo, BC and Chemistry Department, University of Victoria, Victoria, BC.
- 14:20 (I10) KINETIC SIZE-EXCLUSION CHROMATOGRAPHY WITH MASS SPECTROMETRY DETECTION (KSEC-MS): AN APPROACH FOR SOLUTION-BASED LABEL-FREE KINETIC ANALYSIS OF PROTEIN-DRUG INTERACTIONS. **Sergey N. Krylov** and Svetlana M. Krylova, Department of Chemistry and Centre for Research on Biomolecular Interactions, York University, Toronto, ON M3J 1P3, Canada.
- 15:00 Coffee break, exhibition and posters
- 15:40 (I44) COMMERCIAL AND CUSTOM MADE MICROSTRUCTURED FIBRE BASED EMITTERS FOR (MULTI) ELECTROSPRAY IONIZATION MASS SPECTROMETRY ON A MICROFLUIDIC DEVICE. **Lili Mats**, Yueqiao Fu, Kyle Bachus, Graham Gibson and Richard Oleschuk, Queen's University, Kingston, ON.
- 16:00 (I21) USING APTAMERS IN CAPILLARY ELECTROPHORESIS (CE)-BASED ASSAYS FOR DETECTION OF PROTEINS. **Svetlana M. Krylova**, Roman Yufa, Michael Musheev, Mirzo Kanoatov, Leonid T. Cherney, Victor A. Galievsky, Sergey N. Krylov. Department of Chemistry and Centre for Research on Biomolecular Interactions, York University, Toronto, Ontario, Canada M3J 1P3
- 16:20 (I47) ELECTROPHORESIS IN CHITOSAN-COATED CAPILLARY: SEPARATION OF DIETHYLENTRIAMINEPENTAACETIC ACID FROM VARIOUS PHARMACEUTICALS IN WATER. **Edward P.C. Lai**, Manal Almalki and Zafar Iqbal. Department of Chemistry, Carleton University.
- 16:40 (I04) CLOUD POINT EXTRACTION AND PRECONCENTRATION OF TRACE AMOUNT OF IRON IN WATER AND ENVIRONMENTAL SAMPLES PRIOR TO SPECTROPHOTOMETRIC DETERMINATION. Ragaa El Sheikh, **Ayman A. Gouda**. Chemistry Department, Faculty of Science, Zagazig University, Zagazig, 44519, Egypt.

MICRO/NANO IMAGING AND ANALYTICAL MEASUREMENTS OF CELLS AND BIOMATERIALS

Organizer and Chair: Jesse Greener

- 13:40 (I54) BIOFILM STREAMER FORMATION IN LOW REYNOLDS NUMBER FLOWS. **Aloke Kumar**, Department of Mechanical Engineering, University of Alberta.

14:20 (I24) TOWARD A NEW HIGH-THROUGHPUT ELECTROCHEMICAL IMAGING SYSTEM FOR DISSOLVED BIOMATERIALS. Adnane Kara^{1,2}, Jessy Mathault^{1,2}, **Amine Miled**¹, Jesse Greener², ¹LABioTRON Bioeng. Res. Lab., Elect. Compt. Eng. Dept. Laval University, Québec City, QC, Canada ²Dept. of Chemistry, Laval University, Québec city, QC, Canada

15:00 Coffee break, exhibition and posters

15:40 (I42) PROBING NANOSCOPIC STRUCTURAL ALTERATIONS OF OVERLOADED COLLAGEN FIBRILS WITH ATOMIC FORCE MICROSCOPY. **Samuel J Baldwin**¹, Laurent Kreplak^{1,2}, J. Michael Lee² ¹Department of Physics and Atmospheric Science, Dalhousie University, Halifax, NS, Canada ²School of Biomedical Engineering, Dalhousie University, Halifax, NS, Canada

16:00 (I23) A LOW-COST AUTOMATED SYSTEM FOR LINEAR SPECTRAL IMAGING IN MICROCHANNELS F. Paquet-Mercier, M. Pousti and **J. Greener**, Department of chemistry, CERMA, CQMF, Université Laval.

Poster session (Authors present from 17:00-18:00) -

Board # Poster

- 1 (I12) DETERMINING LANTHANIDE SPECIATION IN NATURAL WATERS. **Alexandra Carvajal**, Jim McGeer and D. Scott Smith. Wilfrid Laurier University.
- 2 (I35) BENEFICIAL EFFECT OF SEGMENTED FLOW INJECTION ON THE INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY MEASUREMENT OF PT ELECTRO DISSOLUTION IN SIMULATED FUEL CELL. **Ram P. Lamsal**, Gregory Jerkiewicz and Diane Beauchemin, Queen's University, Department of Chemistry, Kingston, ON K7L 3N6, Canada.
- 3 (I37) OPTIMIZATION OF SAMPLE INTRODUCTION TO ICP-OES USING AN ULTRASONIC NEBULIZER WITH PRE-EVAPORATION TUBE. **Tia Anderlini** and Diane Beauchemin Queen's University, Department of Chemistry, Kingston, ON K7L 3N6, Canada.
- 4 (I39) CERTIFIED REFERENCE MATERIALS AVAILABLE FROM THE NRC BIOTOXIN METROLOGY PROGRAM. Pearse McCarron, Krista Thomas, Sheila Crain, Sabrina Giddings, Daniel Beach, Pat LeBlanc, Ruth Perez Calderon, Nancy Lewis, Kelley Reeves, William Hardstaff and **Michael Quilliam**, National Research Council Canada, Measurement Science and Standards, Biotoxin Metrology, 1411 Oxford Street, Halifax, Nova Scotia, B3H 3Z1, Canada.
- 5 (I43) ADVENTURES IN MICROWAVE DIGESTION. **Andrew Dalton**, SCP SCIENCE, 21800 Clark-Graham, Baie D'Urfé, QC H9X 4B6
- 6 (I50) ANALYSIS OF POTENTIALLY TOXIC AND ESSENTIAL ELEMENTS IN COUSCOUS SAMPLES FROM LIBYA USING ICP-MS AND ICP-OES. **Mabrok Salem** and Diane Beauchemin, Queen's University, Department of Chemistry, 90 Bader Lane, Kingston, ON K7L 3N6, Canada.
- 7 (I55) ENHANCED SELECTIVITY OF A MOLECULARLY IMPRINTED POLYMER TOWARD ITS TARGET MOLECULE VIA ESTERIFICATION OF NON-SPECIFIC

BINDING SITES WITH DIAZOMETHANE. **Noof A. Alenazi**, Edward P.C. Lai and Jeffrey M. Manthorpe. Department of Chemistry, Carleton University.

- 8 (I57) BLOOD ANALYSIS THROUGH ICP-MS EMPLOYING A TOTAL SAMPLE CONSUMPTION SYSTEM. Águeda Cañabate,¹ Esperanza García-Ruiz,² Charo Flórez,² Martín Resano,² Maite Aramendia,^{2,3} **José-Luis Todolí**¹, ¹Department of Analytical Chemistry, Nutrition and Food Science, University of Alicante, Carreta San Vicente del Raspeig s/n, 03690 San Vicente del Raspeig, Alicante, Spain; ²Department of Analytical Chemistry, University of Zaragoza, Pedro Cerbuna 12, E-50009, Zaragoza, Spain; ³Centro Universitario de la Defensa, Academia General Militar, University of Zaragoza, Carretera de Huesca s/n, 50090, Zaragoza, Spain.

THURSDAY, MAY 21, MORNING

NANOPARTICLES - AIR QUALITY, WATER CHEMISTRY AND ENGINEERED MATERIALS

Organizer and Chair: Ed Lai

- 09:00 SIMPLIFIED METHOD TO MEASURE PARTICLE SIZE BY SINGLE PARTICLE INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY AND ITS APPLICATION TO THE ANALYSIS OF PT NANOPARTICLES USED AS CATALYST IN FUEL CELLS, Ram P. Lamsal¹, Stève Baranton², Gregory Jerkiewicz¹ and **Diane Beauchemin**¹, ¹Queen's University, Department of Chemistry, 90 Bader Lane, Kingston, ON K7L 3N6, Canada; ²Institut de Chimie des Milieux et Matériaux de Poitiers, Université de Poitiers, Poitiers, France.
- 09:40 (I34) CHARACTERIZATION OF NANOMATERIALS BY DIFFERENT TECHNIQUES SUCH AS DLS, AF4-MALLS(-ICP-MS) AND SP-ICP-MS IN CONSUMER PRODUCTS. **Inmaculada DE LA CALLE**^{1,2}, Mathieu MENTA², Marlène KLEIN², Fabienne SÉBY². ¹Departamento de Química Analítica y Alimentaria, Área de Química Analítica, Facultad de Química, Universidad de Vigo, Campus As Lagoas-Marcosende s/n, 36310 Vigo, Spain. ²Ultra Trace Analyses Aquitaine UT2A/ADERA. Hélioparc Pau-Pyrénées, 2 avenue du Président Angot, 64053 PAU cedex 9, Pau, France.
- 10:00 Refreshment break and exhibition
- 10:40 (I52) POLYMER COATINGS FOR SENSITIVE ANALYSIS OF COLLOIDAL SILICA NANOPARTICLES IN WATER. **Edward P.C. Lai**, Samar Alsudir, Department of Chemistry, Carleton University, Ottawa, ON.
- 11:00 (I45) FURTHER INVESTIGATION OF POLYDOPAMINE GROWTH ON NANOPARTICLES IN WATER - ELECTROPHORESIS IN CHITOSAN-COATED CAPILLARY. **Zafar Iqbal** and Edward P.C. Lai, Department of Chemistry, Carleton University, Carleton University, Ottawa, ON.
- 11:20 (I63) AIRBORNE SILICA AND TITANIUM DIOXIDE NANOPARTICLES: COLLECTION WITH AQUEOUS SURFACTANT OR CHEMICAL REAGENT. **Olaitan Edu** and Edward Lai. Department of Chemistry, Carleton University.
- 11:40 End of session

12:00 Lunch (provided)

09:00-noon IMAGE ANALYSIS WORKSHOP

Instructor: Jesse Greener

12:00 Lunch (provided)

NEW DEVELOPMENTS AND APPLICATIONS IN OPTICAL AND ATOMIC MASS SPECTROMETRY I

Organizer: Diane Beauchemin

Chair: José Luis Todolí

09:00 (I07) TACKLING CHALLENGING SAMPLE MATRICES AND DEMYSTIFYING INTERFERENCE REMOVAL DURING ICP-OES ANALYSIS. Christoph Wehe, **Matthew Cassap**. Thermo Fisher Scientific, Hanna-Kunath-Straße 11, Bremen, Germany 28199.

09:20 (I14) IMPLICATIONS OF PERFORMANCE METRICS ON THE QUALITY OF ICP-MS ANALYSIS. **Pamela Wee**, Agilent Technologies Canada Inc.

10:00 Coffee break and exhibition

10:40 (I11) ANALYSIS OF LITHIUM-ION BATTERY DEGRADATION PRODUCTS USING IC-ICP-MS. **Daniel Kutscher**¹, Antonella Guzzonato¹, Paul Voelker², Shona McSheehy Ducos¹. ¹Thermo Fisher Scientific, Hanna-Kunath-Straße 11, Bremen, Germany 28199. ²Thermo Fisher Scientific, 490 Lakeside Dr, Sunnyvale, CA 94085

11:00 (I30) DETERMINATION OF ARSENIC COMPOUNDS IN RICE: A STATUS REPORT. **Julian Tyson**, Department of Chemistry, University of Massachusetts Amherst, MA 01003 USA.

11:40 (I09) TRACE ELEMENT SPECIATION SOLUTIONS FOR FOOD SAFETY APPLICATIONS. Kristan Bahten¹, **Shona McSheehy Ducos**². ²Thermo Fisher Scientific, 490 Lakeside Dr, Sunnyvale, CA 94085. ²Thermo Fisher Scientific, Hanna-Kunath-Straße 11, Bremen, Germany 28199.

12:00 Lunch (provided) –

THURSDAY, MAY 21, AFTERNOON

VENDORS SHOWCASE

Organizer and Chair: Diane Beauchemin

13:10 (I18) THE DIRECT ANALYSIS OF MULTIPLE ELEMENTS IN 25% BRINES USING AN AGILENT 7900 ICP-MS WITH AN ULTRA HIGH MATRIX INTERFACE. **Pamela Wee**, Agilent Technologies Canada Inc.

13:30 (I46) RECENT INNOVATIONS IN LIQUID SAMPLE INTRODUCTION FOR ICPMS AND ICPOES. **Andrew Toms** and Paul Field; Elemental Scientific Inc., Omaha NE

- 13:50 (I31) DUAL VIEW MINUS THE WAIT - INTRODUCING THE AGILENT 5100 ICP-OES WITH SYNCHRONOUS DUAL VIEW TECHNOLOGY. **Wayne Blonski**; Agilent Technologies;
- 14:10 (I33) NEW MULTIVIEW ARCOS 2 ICP-OES FROM SPECTRO **John Dykeman**, SCP SCIENCE, 21800 Clark-Graham, Baie D'Urfé, QC H9X 4B6
- 14:30 Conference event
- 17:00 Tear down of exhibition
- 18:00 Banquet–

FRIDAY, MAY 22, MORNING

NEW DEVELOPMENTS AND APPLICATIONS IN OPTICAL AND ATOMIC MASS SPECTROMETRY II

Organizer and Chair: Diane Beauchemin

- 09:00 (I38) STRATEGIES FOR PLUTONIUM AND AMERICIUM MEASUREMENTS. **R. J. Cornett**, Z.H. Kazi, X.L. Zhao, R.J. Charles, W.E. Kieser. Andre. E. Lalonde AMS Laboratory, Departments of Earth Sciences and Physics, University of Ottawa, Ottawa, ON.
- 09:20 (I58) INCREASING THE SAMPLE INTRODUCTION EFFICIENCY INTO INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY USING INFRARED HEATING OF SCOTT DOUBLE-PASS SPRAY CHAMBER. **Ahmed Al Hejami** and Diane Beauchemin, Queen's University, Department of Chemistry, 90 Bader Lane, Kingston, ON K7L 3N6, Canada.
- 9:40 (I36) ENHANCEMENT OF ELECTROTHERMAL VAPORIZATION COUPLED TO INDUCTIVELY COUPLED PLASMA OPTICAL EMISSION SPECTROMETRY USING NEBULIZATION/PRE-EVAPORATION FOR THE DIRECT ANALYSIS OF GLUTINOUS RICE FLOUR. **Nausheen Sadiq**, Farhad Kaveh, Lily Huang and Diane Beauchemin, Queen's University, Department of Chemistry, Kingston, ON K7L 3N6, Canada
- 10:00 Refreshment break –
- 10:40 (I41) FORENSIC ANALYSIS OF AUTOMOTIVE PAINT CHIPS BY SOLID SAMPLING ETV-ICP-OES USING LDA AND PCA. **L. Huang** and D. Beauchemin. Queen's University, Department of Chemistry, 90 Bader Lane, Kingston, ON K7L 3N6, Canada.
- 11:00 (I56) LASER ABLATION COUPLED TO ICP TECHNIQUES FOR THE ANALYSIS OF CATALYSTS. **José-Luis Todolí**,¹ Ángela Villaseñor,² Caroline Greatti¹,
¹Department of Analytical Chemistry, Nutrition and Food Science, University of Alicante, 03080 Alicante, Spain, ²Total Research & Technology Gonfreville, Harfleur , 76700, France.
- 11:20 End of the 60th ICASS