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# Lake Louise Tandem MS Workshop Program

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December 3 – 6, 2025

Fairmont Chateau Lake Louise  
111 Lake Louise Drive  
Lake Louise, AB, Canada

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# Welcome to the Lake Louise Tandem MS Workshop

Dear Colleagues,

Welcome to the 37th edition of the Tandem MS Workshop. We hope that you will enjoy the presentations and the social events we have organized for you this year. Held annually at the Fairmont Chateau Lake Louise, Lake Louise, Alberta, the Workshop focuses on scientific exchange and dissemination of technical aspects of tandem mass spectrometry.



## 37th Annual Tandem Mass Spectrometry Workshop

### General Information

#### Registration

Registration Opens on Wednesday, December 3 at 16:00 in the Victoria Ballroom Foyer. Please come to pick up your packages and badges.

#### Posters

Poster presenters should have their posters up by 20:00, Wednesday, December 3. Posters must be taken down by noon on Friday, December 5.

#### Meals

Please note: If you order beverages other than tea or coffee at ANY meal, you will be charged. If anyone has special dietary requirements, please contact Janette Champ, if you have not already done so. Vouchers are available for lunches on Friday and Saturday for those wishing to ski or hike. Please obtain the Lunch-to-Go Vouchers at dinner the night before. Vouchers are to be used at the Chateau Deli located in the Lobby of the Hotel. If you take a voucher, you may NOT join in the sit-down lunch as well.

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## Wednesday, December 3

- 16:00 to 18:30    Meet & Greet  
Pick up program package, name tags, drink tickets.  
**Victoria Ballroom Foyer**
- 17:00            Networking Reception  
**Victoria Ballroom Foyer**
- 18:00 to 20:00    Buffet Dinner  
**Victoria Ballroom**
- 19:00            Introductory Remarks: **David Schriemer**, The University of Calgary, Calgary, AB, Canada  
**Victoria Ballroom**
- 19:05 to 19:50    **Plenary Lecture - Victoria Ballroom**  
**Neil Kelleher**, Northwestern University, Evanston, IL, USA  
*A Proteoform Revolution is Coming*

## Thursday, December 4

- 07:00            Breakfast  
**Louiza, Lower Level**
- 07:30            Registration Opens for Late Badge Pickup  
**Victoria Ballroom Foyer**
- Metabolomics  
Chair: **Erin Baker**, University of North Carolina, Chapel Hill, NC, USA
- 08:00            **Emma Schymanski**, LCSB, University of Luxembourg, LUX  
*Open Science Approaches for Mass Spectrometry-Based Exposomics*
- 08:25            **Vincent Charron-Lamoureux**, Marta Sala-Climent, Abubaker Patan, Shipei Xing, Ipsita Mohanty, Yasin El Albiead, Maribeth R. Nicholson, Mindy Engevik, Thomas Horvath, Monica Guma, Andrew Patterson, Pieter C. Dorrestein, University of California-San Diego, CA, USA  
*Reverse metabolomics enables public data mining and reveals a drug/bile acid conjugate in inflammatory diseases*
- 08:50            **Roger Linington**, Simon Fraser University, Vancouver, BC, CAN  
*The Impact of Mass Analyzer Advancements on Natural Products Metabolomics*  
**WATERS Sponsored Talk**
- 09:15            **Liang Li**, University of Alberta, Edmonton, AB, CAN  
*Recent advances in tandem mass spectrometry for deep metabolomics*
- 09:40            Discussion & Coffee Break  
**Victoria Ballroom**

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## Thursday, December 4, cont.

### Spatial MS

Chair: **Peter Verhaert**, Leuven University, Leuven, BEL

- 10:10 **Livia Schiavinato Eberlin**, Baylor College of Medicine, Huston, TX, USA  
*Medical Mass Spectrometry to Advance Patient Care*
- 10:35 **Nikolai Slavov**, Northeastern University and Parallel Squared Technology Institute, Cambridge, MA, USA,  
*Increasing proteomics throughput by multiplexing in the mass and time domains*
- 11:00 **Bernhard Spengler**, Carolin Morawietz, David Luh, Karl Christian Schaefer, Stefanie Gerbig, Max A. Mueller, Alina Schindler, Carmen Paschke, Kerstin Strupat, Justus Liebig University, Giessen, DEU  
*New data acquisition and analysis approaches in high-resolution MS2 and MS3 imaging of biological samples*
- 11:25 **Pierre Chaurand**, Samarth Gangoo, Université de Montréal, Montreal, QC, CAN  
*Mass spectrometry imaging of the gut microbiome*  
**INGENIO/Phytronics Sponsored Talk**
- 11:50 **Gilles Frache**, Luxembourg Institute for Science & Technology, LUX  
*TBA*

- 12:10 Discussion & Group Photo  
Meet at top of stairs for Group Photo

- 12:30 - 14:00 Lunch  
**Louiza, Lower Level**

### Computational MS

Chair: **Lars Konermann**, University of Western Ontario, London, ON, CAN

- 14:00 **Cailum Stienstra**, Emir Nazdraji, Tao Huan, W. Scott Hopkins, University of Waterloo, Waterloo, ON, CAN  
*From RP to HILIC: Graph Transformers Power Method-Independent Prediction of Retention Times for Metabolomics Annotation*  
**Winner of the Bill Davidson Award, Sponsored by the Davidson Family**
- 14:20 **Hannes Röst**, Adamo Young, Fei Wang, David S Wishart, Bo Wang, Russell Greiner, University of Toronto, Toronto, ON, CAN  
*FraGNNNet: A Deep Probabilistic Model for Tandem Mass Spectrum Prediction*
- 14:40 **David Weil**, Agilent, Santa Clara, CA, USA  
*Best Practices in Nontargeted Data Analysis Workflows and Compound Identification*  
**AGILENT Sponsored Talk**
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## Thursday, December 4, cont.

- 15:00 **Steffen Lindert**, University of California, Los Angeles, CA, USA  
*In silico assessment of potential protein structural distortion by covalent labeling reagents*
- 15:20 **Mathieu Lavallée-Adam**, Maram El-Azouni, Giorgio Freije, Jonathan Krieger, Tharan Srikumar, University of Ottawa, Ottawa, ON, CAN  
*A Novel Machine Learning Approach for Real-Time Assessment of Precursor Ion Identifiability in Mass Spectrometry-Based Proteomics*
- 15:40 Discussion & Coffee Break  
**Victoria Ballroom**  
  
Environmental  
Chair: **Jeff Smith**, Carleton University, Ottawa, ON, CAN
- 16:10 **Sébastien Sauvé**, Université de Montréal, Montreal, QC, CAN  
*PFAS are everywhere in our water, food, soils, sewage sludge and air? what's next?*
- 16:30 **Erin Baker**, Kara Joseph, Ashlee Falls, James Dodds, Michael Powers, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA  
*Is There a Correct Way to Milk a Dolphin? Examining Maternal Contaminant Transfer*
- 16:50 **Matthew D. Stone**, SCIEX, Concord, ON, CAN  
*New Technology to Transform Your Translational Research: Introducing the ZenoTOF 8600 System*  
**SCIEX Sponsored Talk**
- 17:10 **Elliot Wright**, Daniel G. Beach, Pearse McCarron, National Research Council of Canada  
*Increasing Confidence and Comparability in LC-HRMS Non-Target Analysis of Marine Algal Toxins*
- 17:30 Discussion
- 18:00 to 19:15 Dinner  
**Mount Temple AB**  
  
**PICK UP LUNCH-TO-GO VOUCHERS.** Please ask a server  
  
Proteomics  
Chair: **Dave Schriemer**, University of Calgary, Calgary, AB, CAN
- 19:30 **Daniel Figeys**, Leyuan Li, Kai Cheng, Janice Mayne, Zhibin Ning, Xu Zhang, Alain Stintzi, Quadram Institute, Norwich, GBR  
*Drug-microbiome interactions by metaproteomics*  
**Winner of the CSMS Fred Lossing Award, Sponsored by Agilent**
- 19:55 **Qiaomu Li**, Xin Liu, Mohana Talasila, R. Glen Uhrig, University of Alberta, Edmonton, AB, CAN  
*Using Integrated Proteomics Analysis to Characterize Roles of Splicing Kinase I (SK1) in Arabidopsis thaliana*  
**Winner of a CSMS Travel Award, Sponsored by Waters**
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## Thursday, December 4, cont.

- 20:15      **Nestor Solis**, Thermo Fisher Scientific  
*Increased flexibility in proteomics analysis: the Thermo Fisher Scientific Orbitrap Astral Zoom Mass Spectrometer*  
**THERMO FISHER SCIENTIFIC Sponsored Talk**
- 20:35      **Leonard Foster**, University of British Columbia, Vancouver, BC, CAN  
*Simultaneous single-cell proteomics and lipidomics to understand astrocyte biology*

## Thursday, Dec. 4 Poster Session

20:55 to 23:00    Authors are asked to be present until 23:00

**Lucas Abruzzi**, Jack Gillies, Erik T. Krogh, Daniel G. Beach, Chris G. Gill, Centre for Health and Environmental Mass Spectrometry (CHEMS), Vancouver Island University, Nanaimo,  
*Quantitative Multiclass Cyanotoxin Screening by Paper Spray Mass Spectrometry*

**Radwa Asar**<sup>1</sup>, Maria Alejandra Oviedo-Ludena<sup>2</sup>, Karina Chimbo Huatatoca<sup>2</sup>, Lipu Wang<sup>2</sup>, Randy Kutcher<sup>2</sup> and Anas Elanecd<sup>1</sup>.

<sup>1</sup>College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, SK, CAN

<sup>2</sup>Department of Plant Sciences, University of Saskatchewan, Saskatoon, SK, CAN

*Improving Canadian Cereal Grains, Detecting and Quantifying Toxic Deoxynivalenol Derivatives*

**Joseph Corstvet**, David Lewis, Carter Asef, Dmitry Leontyev, Xin Ma, Rebecca Arnold, John A. Petros, Facundo M. Fernández, Georgia Institute of Technology, Atlanta, GA, USA  
*Triboelectric Nanogenerator-Powered Laser Ablation/Nanoelectrospray Ionization (TENG LAESI) Mass Spectrometry Ion Source*

**Mahsa Dolatkhanh Ouch Bolagh**, Lars Konermann, University of Western Ontario, London, ON, CAN  
*Modelling Electrospray Operation in a Charged Emitter Using Molecular Dynamics Simulations*

**Jérémie Doiron**, Annie-Pier Beaugard, Marc E. Surette, David A. Barnett, Gabriel Girouard, Université de Moncton, Atlantic Cancer Research Institute, Moncton, NB, CAN  
*Untargeted LC-MS of Lipid A for Predicting Polymyxin Resistance in Gram-Negative Bacteria*

**Broc Glover**, Waters Corporation, Mississauga, ON, CAN  
*Leveraging High Speed MRT Analyzers for Faster MS Imaging Without Sacrificing Sensitivity*

**Kasra Hanifi**, Lars Konermann, University of Western Ontario, London, ON, CAN  
*Protein Release from Ammonium Acetate-Containing Droplets during Native Electrospray Ionization: Insights from Mobile-Proton Molecular Dynamics Simulations*

**John Headley**, Erin Pederson, Rio Bouwers, Ian J. Vander Meulen, Dena W. McMartin, Cassidy VanderSchee, Environment and Climate Change Canada, Saskatoon, SK, CAN  
*Orbitrap mass spectrometry of oil sands metal naphthenates*

**Angelina Jaeger**, Haley Tomlin, Joseph Monaghan, Chris G. Gill, Erik T. Krogh, Centre for Health and Environmental Mass Spectrometry, Nanaimo, BC, CAN  
*Driven by Data: Mobile Tandem Mass Spectrometry for In-field Monitoring of Tire-Derived Aquatic Toxicant*

**Haley Jostes**, University of North Carolina – Chapel Hill, Chapel Hill, NC, USA  
*Understanding the Lipidome of Human Plasma Extracellular Vesicles / Emerging Particles of Interest for Clinical Applications*

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## Thursday, Dec. 4 Poster Session, cont.

**Amir Khajavinia**, Amir Khajavinia, Deborah Michel, Jordan Reekie, Udoka C. Ezeaka, Randy W. Purves, Robert B. Laprairie, Anas El-Aneed, University of Saskatchewan, Saskatoon, SK, CAN  
*Analysis of Psilocin Using Quantitative LC-MS/MS and Qualitative Nanodiamond-based MALDI-MS*

**Chris Le**, Tetiana Davydiuk, Juanjuan Fu, Xiufen Lu, Jagdeesh Uppal, University of Alberta, Edmonton, AB, CAN  
*Biomarker of susceptibility for arsenic-induced health effects*

**Xing-Fang Li**, Di Zhang, Qiming Shen, Tingting Zhao, Khac Ngoc Minh, Tongtong Xiang, University of Alberta, Edmonton, AB, CAN  
*Nontargeted analysis of water contaminants*

**Evelyn Mackay-Barr**, Lars Konermann, University of Western Ontario, London, ON, CAN  
*Probing the Effects of Covalent Oxidative Modifications on Protein Stability and Dynamics*

**Jocelyn Menard**, Joshua A. Roberts, Jacob Clarke, Karlye Rudd, Jeffrey C. Smith, Carleton University, Ottawa, ON, CAN  
*Liquid Chromatography Mass Spectrometry Fatty Acid Data Extraction (LC-MS FADE): Leveraging Untargeted Lipidomics Data for Fatty Acid Profiling*

**Joseph Monaghan**, Tian Zhao, Kiera Nguyen, Madison Schiyuk, Helena Petrosova, Dave Goodlett, Julian Lum, Kyle Duncan, Vancouver Island University, Nanaimo, BC, CAN  
*Multimodal Imaging of Methionine Cycle Metabolites and Immune Cell Markers in Ovarian Tumors by nanospray-Desorption Electrospray Ionization (nano-DESI)*

**Feng Qin**, Holly Lee, Phenomenex, Torrance, CA, USA  
*Practical Strategies for Analysis Short Chain PFAS with LC-MS/MS*

**Samuel Shields**, Kathrine Daniel, Izabella A Pena, Children's Hospital of Eastern Ontario, Ottawa, ON, CAN  
*Targeted LC-MS Profiling of Vitamin B6 Metabolism in SLC19A1 Knockout K562 Cells*

**Peter Verhaert**, Gilles Frache, Marco Giampà Raf Sciot, Bart Ghesquière, Leuven University, Leuven, BEL  
*AP/MALDI and DESI high-resolution MS histochemistry for FFPE biobank tissue analysis aligned with pathology practice*

**Emily Vincent**, James N. Dodds; Haley C. Jostes; Allison N. Fry; Erin S. Baker, University of North Carolina - Chapel Hill, Durham, NC, USA  
*Mood-Altering Waters: A Multidimensional Investigation of Antidepressant Contamination in Surface Water*

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## Friday, December 5

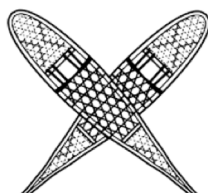
- 07:00 Breakfast  
**Louiza, Lower Level**  
  
Fundamentals and Ion Chemistry  
Chair: **Gary Glish**, University of North Carolina, Chapel Hill, NC, USA
- 08:00 **Peter Armentrout**, Samantha K. Walker, Tobias Dijkhuis, Marissa Keeler, Brandon C. Stevenson, Giel Berden, Jonathan Martens, Jos Oomens, University of Utah, Salt Lake City, UT, USA  
*Influence of Methylating the Serine Side-chain on the Decomposition of Protonated Asparaginylnyl Serinen using GIBMS, IRMPD, and Theoretical Modeling*
- 08:20 **Robert Rider**, Carter Lantz, David H. Russell, Texas A & M University, College Station, TX, USA  
*Hydration-Dependent Conformational Landscape of CI-2 Measured with vT-IM-MS*  
**Winner of the Margaret Northcott Lake Louise Travel Award**
- 08:40 **Victor Ryzhov**, Northern Illinois University, DeKalb, IL, USA  
*Structure and reactivity of radical ions*
- 09:00 **Kirsty Yuen Ki Ng**<sup>1</sup>, Quinn W. Currie<sup>2</sup>, Elnaz Aliyari<sup>1</sup>, Caroline Cui<sup>1</sup>, Siavash Vahidi<sup>2</sup> and Lars Konermann<sup>1</sup> <sup>1</sup>The University of Western Ontario, London, ON, Canada <sup>2</sup>University of Guelph, Guelph, ON, Canada  
*Can Enzymes Retain Catalytic Activity in the Gas Phase? Insights from ESI-IMS/MS/MS and Mobile-Proton Molecular Dynamics Simulations*  
**Legends of Lake Louise Travel Award Winner**
- 09:20 **Kristina Hakansson**, Menatallah M. Youssef, Neven N. Mikawy, Kuan-Lu Wu, Lissa C. Anderson, NHMFL/Florida State University, Tallahassee, FL, USA  
*Improved Annotation of Atypical Fragment Ions: From Sulfotyrosine to Antibodies*
- 09:40 Discussion & Coffee Break  
**Victoria Ballroom**  
  
Methods and Instrumentation  
Chair: **Kicki Hakansson**, NHMFL/Florida State University, Tallahassee, FL, USA
- 10:10 **Francisco Fernandez-Lima**, Florida International University, Miami, FL, USA  
*Characterization of linker and core histones using TIMS-UVPD-FT-ICR MS/MS*
- 10:30 **Houssain El Aribi**, Zef Scientific Inc., Laval, QC, CAN  
*Practical Use of LC-MS/MS for Routine Screening, Confirmation and Quantitation: The Good, The Bad, and The Ugly*  
**ZEF SCIENTIFIC Sponsored Talk**
- 10:50 **Chris Gill**, Taelor M. Zarkovic, Lucas R. Abruzzi, Jindar N.S. Sboto, Jack Gilles, Jason L. Robinson, Daniel G. Beach, Centre for Health and Environmental Mass Spectrometry - Vancouver Island University, Nanaimo, BC, CAN  
*Recent Advances in Clinical, Environmental and Forensic Paper Spray Mass Spectrometry*
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## Friday, December 5, cont.

- 11:10      **Lydia Zamlynny**, Elliott J. Wright, Rob C. Jamieson, Daniel G. Beach, Dalhousie University, Wolfville, NS, CAN  
*Non-Target Tandem Mass Spectrometry Methods for Analysis of Cyanobacterial Secondary Metabolites*  
**Winner of a CSMS Travel Award, Sponsored by SCIEX**
- 11:30      **Benjamin Muselius**, Bruno Amaral, Christina Pan, Spencer Funk, Pauline Douglas, David Schriemer, University of Calgary, Calgary, AB, CAN  
*Development of a Spatial Proteomics Platform with Sub-cellular Resolution.*  
**Winner of a CSMS Travel Award, Sponsored by Thermo Fisher Scientific**
- 11:50      Discussion
- 12:00 to 13:30    Lunch  
**Louiza, Lower Level**
- FRIDAY AFTERNOON - FREE TIME - ENJOY THE GREAT OUTDOORS!**
- 18:00      Cocktails  
**Victoria Foyer/Victoria Ballroom**
- 19:00 to 23:00    Banquet Dinner  
**Victoria Ballroom**
- PICK UP LUNCH-TO-GO-VOUCHERS.** Please ask a server.



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## Saturday, December 7

- 07:00 Breakfast  
**Louiza, Lower Level**  
  
Biomarkers and Disease  
Chair: **Xing-Fang Li**, University of Alberta, Edmonton, AB, CAN
- 08:00 **Christoph Borchers**, McGill University / Lady Davis Institute, Montreal, QC, CAN  
*SysQuan: democratize absolute quantitative analysis of the human proteome*
- 08:20 **Margret Thorsteinsdottir**, Kristrun Y. Holm, Kari Arnarsson, Valdis Gunnarsdottir Thormar, Sigridur K. Bodvarsdottir, Yassene Mohammed, Christoph H. Borchers and Finnur F. Eiriksson, Faculty of Pharmaceutical Sciences, University of Iceland, Reykjavik, ISL  
*High-throughput tandem mass spectrometry assay for absolute quantification of protein biomarkers of human diseases*
- 08:40 **Lekha Sleno**, Nathan Ghafari, Sherin Nawaito, Danielle Berber, Charlotte Usselman, Nicolas Pilon, UQAM, Montreal, QC, CAN  
*High coverage metabolomics applied to investigating perturbations related to polycystic ovary syndrome*
- 09:00 **Fabio Garofolo**, BRI Frontage, Vancouver, BC, CAN  
*Addressing Challenges in LC-MS-Based Bioanalysis of multiplexing biomarkers: Insights and Case Study*
- 09:20 **TBA**  
  
**Bruker Sponsored Talk**
- 09:40 Discussion & Coffee Break  
**Victoria Ballroom**  
  
Methods and Instrumentation – 2  
Chair: **Jeff Smith**, Carleton University, Ottawa, ON, CAN
- 10:10 **Jon Amster**, Jonathan Choi, University of Georgia, Athens, GA, USA  
*Glycosaminoglycan Analysis by Capillary Zone Electrophoresis and Tandem MS*
- 10:30 **Yehia Mechref**, Texas Tech University, Lubbock, TX, USA  
*Automated and Accurate Glycan and Glycopeptide Quantitation by Parallel Reaction Monitoring Based LC-MS/MS*
- 10:50 **Kyle Duncan**, Nicholas Woytowich, Catherine Roberts, Phillip Ankley, Markus Brinkmann, Erik Krogh, Vancouver Island University, Nanaimo, BC, CAN  
*Uncovering Spatially Resolved 6PPDQ Metabolism in Rainbow Trout Fry with Nano-DESI Mass Spectrometry Imaging*
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## Saturday, December 7, cont.

- 11:10      **Ziqin Ni**, Konstantin Ayzikov, Alexander Makarov, Kyle Fort, Facundo M. Fernandez, Georgia Institute of Technology, Atlanta, GA, USA  
*LC-Orbitrap Collision Cross Section Measurements to Improve Annotation in Non-Targeted Lipidomics*
- 11:30      **Richard Oleschuk**, Jess Deng, Jennifer Klowich, Jian Yu, Kyla Toshack, Mina Alidoust, Rachel Wood, Malek Hassan, Avena Ross, Queen's University, Kingston, ON, CAN  
*An ambient ionization approach to monitor spatiotemporal dynamics of microbial metabolites*
- 11:50      **Gary Glish**, Cameron D. Worthington, Tyler S. Larson, University of North Carolina, Chapel Hill, NC, USA  
*Is What Comes Out of Your ESI Source What You See in Your Mass Spectrum?*
- 12:10      Discussion and Adjournment
- 12:15 to 13:30      Lunch  
**Louiza, Lower Level**
- FOR INDIVIDUAL STAYING ON:
- SATURDAY AFTERNOON - FREE TIME - ENJOY THE GREAT OUTDOORS!
- 18:00      Dinner  
**Victoria Foyer/Victoria Ballroom**

## Sunday, December 8

- 07:00 to 10:30      Breakfast  
**Louiza, Lower Level**

Thank you for joining us at the 37th Annual Lake Louise Tandem MS Workshop. We hope you will join us next year!

## Our Sponsors

We gratefully acknowledge financial support for the Lake Louise Workshop.  
Sponsorship levels are ranked in accordance with the Lake Louise downhill ski runs.



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