
Lake Louise Tandem MS Workshop Program



December 3 – 6, 2025

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

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.

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

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
Atmospheric-pressure MALDI (tandem) MS imaging using LC/Orbitrap instruments
Applications and current developments
- 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 Asar¹, Maria Alejandra Oviedo-Ludena², Karina Chimbo Huatatoca², Lipu Wang², Randy Kutcher² and Anas Elanecd¹.

¹College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, SK, CAN

²Department 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

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

Friday, December 5

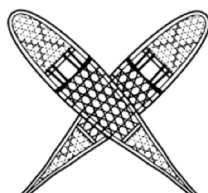
- 07:00 Breakfast
Louiza, Lower Level

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**¹, Quinn W. Currie², Elnaz Aliyari¹, Caroline Cui¹, Siavash Vahidi² and Lars Konermann¹ ¹The University of Western Ontario, London, ON, Canada ²University 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.



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 ***Guillaume Tremintin***, Bruker, San Jose, CA, USA
Powering the Next Era of Precision Mass Spectrometry with timsOmni
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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