

MSB2023

FLORIDA STATE UNIVERSITY
TALLAHASSEE, FL

MAY 21-24, 2023



39TH INTERNATIONAL SYMPOSIUM ON
MICROSCALE SEPARATIONS AND BIOANALYSIS

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Contents

Welcome	2
Committees	3
Timetable	4
Sunday, May 21 th	4
Monday, May 22 th	5
Tuesday, May 23 th	7
Wednesday, May 24 th	9
MSB 2023	12
.	12
Conference Format & Important Information	13
Short Courses	14
1. Introduction to Capillary Liquid Chromatography	14
2. Fundamentals and Applications of Ion Mobility Spectrometry	15
3. Capillary Electrophoresis-Mass Spectrometry for Metabolomics: Principles and Applications	16
SCIEX Microscale Separations Innovation Medal & Award	17
SCIEX Microscale Separations Innovations Medal and Award (previously the Arnold O. Beckman Award)	17
Trainee Awards (formerly Young Scientist Award) & DEI Awards	18
History of MSB	19
Previous HPCE & MSB Meetings	20
Tallahassee	21
Posters	22
Monday 22 nd	22
Tuesday 23 rd	24

Welcome

Welcome to the 39th International Symposium on Microscale Separations and Bioanalysis, MSB 2023! We are delighted to host you on the Florida State University campus in the heart of Tallahassee, Florida's state capital since 1824.

MSB began as the HPCE symposium in 1989, focused tightly on the emerging technology – High Performance Capillary Electrophoresis – that ultimately sequenced the human genome and enabled a revolution in molecular biology. The conference has evolved into an annual interactive forum for the discussion of research on the frontiers of microscale separation science and bioanalysis. That was accompanied by a format change that has made this meeting more dynamic and inclusive, having a double-blind abstract review process that ensures the best science is presented. In keeping with this theme, MSB 2023 encompasses a range of microscale separations research, from fundamental technology development to high-impact applications in the fields of health, medicine, and the environment. The meeting begins with a series of short courses, which lead to an opening plenary session. Each day will commence with an opening plenary before breakout subgroup sessions. We include oral presentations from young scientists and poster sessions to ensure that no research topic is left wanting for conversation.

In addition to our invited plenary and keynote presenters, we welcome our 44 oral presentations selected via the double-blind review process. Our goal is to set the stage for the future of microscale science. 25% of allocated presentation time is reserved for questions, leaving ample opportunity for discussion of each presentation prior to advancing to the next talk.

Before the science begins, we want to thank YOU for your valued contribution and your full participation. We also thank our sponsors, who's generous support enables the continued growth of the MSB conference. It is all of you who make this event special and rewarding.

MSB 2023 CHAIRS



Michael Roper
Florida State University



Rebecca Pompano
University of Virginia



James Edwards
Saint Louis University

Committees

Local Organizing Committee

Michael Roper, Florida State University

Fanny Caroline Liu, Florida State University

Robert Lazenby, Florida State University

Christopher Easley, Auburn University

Yong Zeng, University of Florida

Robert Lazenby, Florida State University

Fanny Caroline Liu, Florida State University

Matthew Lockett, University of North Carolina at Chapel Hill

R. Scott Martin, St. Louis University

Jarrold Marto, Dana-Farber Cancer Institute

Scientific Committee

Dosil Pereira de Jesus, University of Campinas

Christopher Easley, Auburn University

Emanuel Gionfriddo, University of Toledo

Christopher Harrison, San Diego State University

Michelle Kovarik, Trinity College

Rawi Ramautar, Leiden University

Adriana San Miguel, North Carolina State University

Claire Smadja, Université Paris-Saclay

Tian (Autumn) Qiu, Michigan State University

Yong Zeng, University of Florida

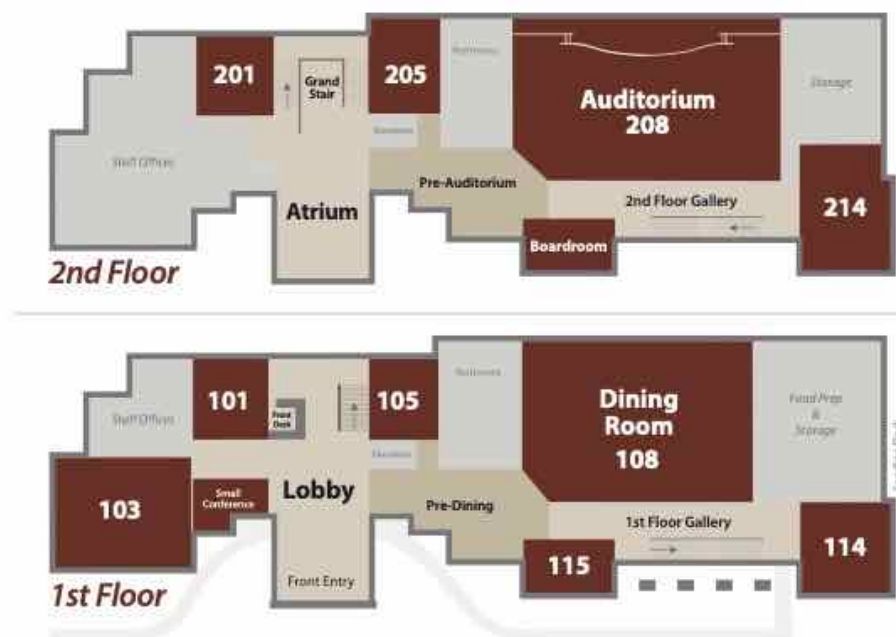


St Mark's Wildlife Refuge is about 35 minutes south of Tallahassee and encompasses more than 83,000 acres. The refuge includes coastal marshes, islands, tidal creeks, and estuaries of seven north Florida rivers, and is home to a diverse community of plant and animal life. Find more at <https://www.fws.gov/refuge/st-marks>

Timetable

Sunday, May 21th

1:00 pm	Registration Desk Opens, Turnbull Conference Center
2:00 – 5:00 pm	SHORT COURSES, registration required Introduction to Capillary Liquid Chromatography, Room 214 Capillary Electrophoresis-Mass Spectrometry for Metabolomics, Room 103
5:00 – 5:45 pm	"Making the most of the conference": Orientation Session for Students and Early Career Scientists, Room 214 Isabelle Kohler, PhD, Vrije Universiteit Amsterdam, Tian (Autumn) Qiu, PhD, Michigan State University, Matthew Lockett, PhD, University of North Carolina, Rebecca Pompano, PhD, University of Virginia <i>For trainees and early career scientists: If this is one of your first in-person conferences, you may be feeling a little unsure of how to navigate it. Join this pre-meeting session for tips and suggestions on how to get the most out of the meeting -- scientifically and socially!</i>
6:00 pm	Conference Opening, Room 208
6:30 – 7:30 pm	Plenary: Robert T. Kennedy, University of Michigan Droplet Microfluidics Combined Chromatography, Electrophoresis, and Mass Spectrometry as an Enabling Technology
7:30 – 9:00 pm	Opening Reception sponsored by VICI Valco Instruments, Atrium (light hors d'oeuvres and drinks) 



Monday, May 22th

8:00 – 8:45 am	Light snacks and coffee in Atrium	
8:45 am	Opening Remarks, Room 208	
9:00 – 10:00 am	Plenary: Christian Neusüß, Aalen University CE-MS: Past, Presence and Perspectives	
10:00 – 10:30 am	Break & Snacks in Atrium	
10:30 – 10:35 am	Microfluidics and Lab-on-Chip I Room 103 Chair: Yong Zeng Opening Remarks	New Trends in MS and IMS Room 214 Chair: Fanny Liu Opening Remarks
10:35 – 11:05 am	Keynote: Tony Hu , Tulane University IGRA-on-Chip and Lab-in-a-Tube Enable Rapid Tests for TB Detection	Keynote: Si Wu , The University of Oklahoma Top-Down Proteomics of Human Single Cells using Spray-Capillary Based Microsampling and Online CE-MS Analysis
11:05 – 11:25 am	Stephen Weber, Michael T. Rerick and Jun Chen Electroosmotic Perfusion--External Microdialysis for Tissue Sampling and Determination of Reaction Rates in the Extracellular Space	Jusung Lee and Christian Bleiholder Structural Characterization and Differentiation of Isomeric, Non-separable Carbohydrates Using Tandem Trapped Ion Mobility Spectrometry--Mass Spectrometry (tandem-TIMS/MS)
11:25 – 11:45 am	Md Moniruzzaman and Chris Easley High-resolution Sampling from Adipose Tissue with Multiplexed Glycerol and Fatty Acid Quantification Using a Droplet-based Microfluidic Analog-to-digital Converter with On-chip Merging Electrodes	Boone Prentice Separation and Identification of Isomeric and Isobaric Lipids via Gas-phase Ion/ion Reactions
11:45 – 12:05 pm	Larissa Cunha, M. Shane Woolf and James P. Landers A Microfluidic Tool for Automated Forensic Differential Extraction (DE) of DNA-based Sexual Assault Evidence	Ahmed Hamid, Orobola E. Olajide, Yuyan Yi and Jingyi M. Zheng Strain-Level Differentiation of Bacteria Using Liquid Chromatography and Paper Spray Ion Mobility Mass Spectrometry
12:05 – 1:15 pm	Join us for Lunch in Room 108 for the Science Café Agilent Metabolomic Solutions: Discovery, Targeted, Qualitative Flux, Cell Analysis, and Genomics Stephen Baumann, Technical Marketing Manager, Global Applied Markets, Agilent Technologies <i>sponsored by Agilent Technologies</i> 	
1:30 – 1:35 pm	Omics / Systems Biology I Room 103 Chair: Jarrod Marto Opening Remarks	Sample Preparation and Extraction Techniques , Room 214 Chair: Emanuela Gionfriddo Opening Remarks
1:35 – 2:05 pm	Keynote: Beatrix Ueberheide , NYU Grossman School of Medicine Using localized proteomics on human post-mortem tissue to characterize and catalogue protein changes in Alzheimer's disease	Keynote: Robbyn Anand , Iowa State University Electrokinetic Enrichment, Separations and Extraction in Droplet Microfluidics

2:05 – 2:25 pm	Kevin Jooß, Ashley Ives, Antonin Papin, Alexey A. Soshnev, Navid Ayon, Matthew Robey, Ethel Cesarman, Ari M. Melnick, Rafael D. Melani and Neil L. Kelleher Characterization of Linker Histone H1 Proteoforms in Naïve vs. Germinal Center B Cells Using CZE-MS	Md Nazibul Islam and Zachary Gagnon Free-Flow Biomolecular Concentration and Separation Using Conductive-Wall Teichophoresis
2:25 – 2:45 pm	Christian Bleiholder, Thais Pedrete, Jusung Lee and Fanny Liu Towards Deep Top-down Protein Analysis by Tandem-trapped Ion Mobility Spectrometry/mass Spectrometry Coupled with Parallel Accumulation Serial Fragmentation (tandem-TIMS/PASEF)	Raymond Fernando Yu, Jude Prasanna Vaas and Joselito Quirino Cationic Surfactants as Stationary Pseudophases for In-line Sample Concentration in Capillary Electrophoresis
2:45 – 3:05 pm	Michael Armbruster, Scott F. Grady, Christopher K. Arnatt and James L. Edwards High-throughput Metabolic Screening Using Neutron Encoded 96-Plex Tags	Jessica Torres, Karen S. Campos and Christopher Harrison Application of Deep Eutectic Solvents for the Use of Detection of past Life via CE-LIF
3:10 – 4:05 pm	Posters & Snacks, Atrium	
4:10 – 4:15 pm	Micro- and Nanoscale CE and LC I Room 103 Chair: Rawi Ramautar Opening Remarks	Cellular Analysis I Room 214 Chair Matthew Lockett Opening Remarks
4:15 – 4:35 pm	Keynote: David Chen , The University of British Columbia Head to Head Comparison of CEMS and LCMS: The Potential of CE can be Realized with Simple Improvements of the Technology	Keynote: Brian Paegel , University of California, Irvine Translating the Genome into Drugs: Activity-Based DNA-Encoded Library Technology
4:35 – 4:55 pm	Cynthia Nora Nagy, Melinda Andrasi and Attila Gaspar Questioning the Significance of Sample Clean-up Prior to CZE Peptide Mapping Studies	Md Nazibul Islam, Zachary Gagnon, Satchit Nagpal and Bhavya Jaiswal Micro-Particle and Cell Trapping via High-Throughput Continuous Free-Flow Dielectrophoresis on Paper with Locally Non-Uniform Pore Scale-Generated Electric Field Gradients
4:55 – 5:15 pm	Elena Dominguez Vega Understanding the Influence of Antibody Glycosylation in Receptor Binding Using Affinity CE-MS	Leonie Wittmann and Sebastian Patrick Schwaminger Age Dependent Magnetophoretic Fractionation of a Heterogeneous Yeast Population by a 3D-printed Millifluidic Chip
5:15 – 5:35 pm	Govert Somsen, Iro K. Ventouri, Peter J. Schoenmakers, Rob Haselberg and Andrea FG Gargano Characterization of Native Protein Complexes by microSEC-MS	Genoveve Gutierrez, Richard Ortiz and Christopher Baker Development of a 3D Printed Microfluidic Bubble Perfusion Device for Ex Vivo Brain Tissue Slice Culture

Tuesday, May 23th

8:00 – 8:45 am	Light snacks & coffee in Atrium	
8:45 am	Opening Remarks, Room 208	
9:00 – 10:00 am	Plenary: Facundo Fernández, Georgia Institute of Technology Next Gen Technologies in Metabolomics: AI/ML, Triboelectric Nanogenerators, Ion Mobility and Imaging	
10:00 – 10:30 am	Break & Snacks in Atrium	
10:30 – 10:35 am	Micro- and Nanoscale CE & LC II Room 103 Chair: Christopher Harrison Opening Remarks	Sensors and Biomarker Analysis Room 214 Chair: Robert Lazenby Opening Remarks
10:35 – 11:05 am	Keynote: Jana Lavicka , Institute of Analytical Chemistry of the Czech Academy of Sciences Development of Novel Fluorescent Tags for Glycosylation Analysis by CE/LIF and CE-MS”	Keynote: Jill Venton , University of Virginia Multiplexed Electrochemical and Fluorescent Measurements of Neurotransmitters
11:05 – 11:25 am	Christopher Baker and Claire Smith Development of an Epifluorescence Detection System with Cylindrical Optics to Enable Fourier Transform Capillary Electrophoresis	He Yan, Yunjie Wen, Zimu Tian, Nathan Hart, Song Han, Steven Hughes and Yong Zeng One-Pot Endonucleolytically Exponentiated Rolling Circle Amplification by CRISPR-Cas12a Affords Sensitive, Expedited Isothermal Detection of MicroRNAs
11:25 – 11:45 am	Shulin Bu and Alexandra Ros Towards an Understanding of AC-electrokinetic Effects in the Separation of Nanoplastics	Hoai Nguyen and Mark Hayes Differentiation of Bacteria Isolates as Determined by Insulator-Based Dielectrophoresis
11:45 – 12:05 pm	Laura Casto-Boggess and Lisa Holland High Throughput Quantitative Analysis of Enzyme Inhibitor Performance Using a Multi-capillary Array with Thermally Tunable Phospholipid Gel for In-line Nano-volume Reaction Zones and Capillary Electrophoresis	Elain Fu, Khadijeh Khederlou, Noel Lefevre, Lael Wentland, Jacob M. Cook, Matthew L. Johnston and Stephen A. Ramsey Signal-to-noise Enhancement for Carbamazepine Detection in Saliva: Progress in the Development of a Field-use Device for the Monitoring of Epilepsy Therapy Drugs
12:05 – 1:15 pm	Lunch, Room 108 MSB Inclusion Lunch: Navigating diverse personal and professional lives <i>This session invites conference participants to join for a discussion about actions we can take as students, faculty, and researchers to promote diversity, equity, and inclusion in our scientific communities. The session will be modelled after a GRC Power Hour and is designed to be engaging and stimulating of further conversation throughout the remainder of the meeting.</i> Discussion led by: Rebecca Whelan, PhD, The University of Kansas Tian (Autumn) Qiu, PhD, Michigan State University Ana Valéria Colnaghi Simionato, State University of Campinas Matthew Lockett, PhD, University of North Carolina Rebecca Pompano, PhD, University of Virginia Sponsored by Society for Microscale Separations and Bioanalysis	



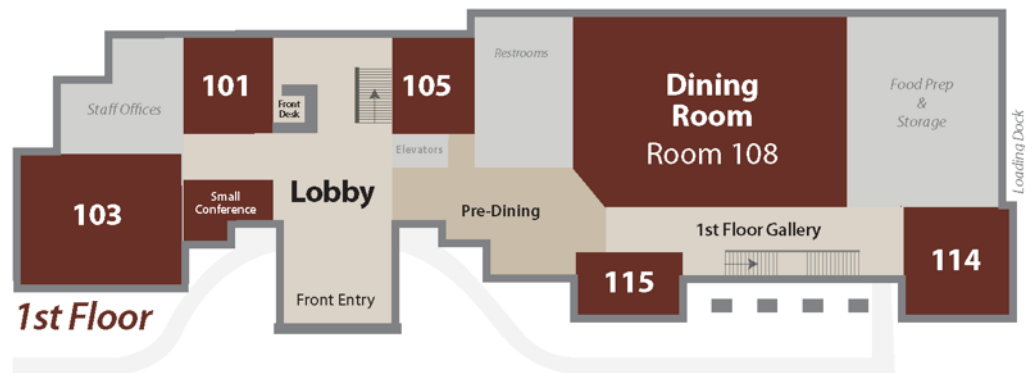
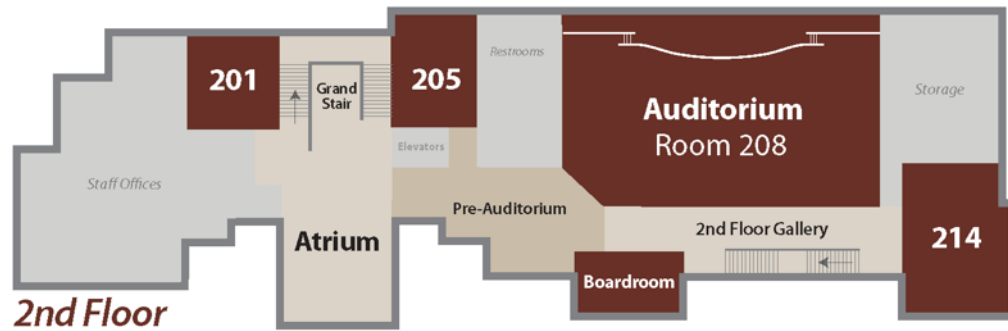
1:30 – 1:35 pm	Microfluidics and Lab-on-Chip II Room 103 Chair: Michelle Kovarik Opening Remarks	Advances Instrumentation / Detection Room 214 Chair: Christopher Easley Opening Remarks
1:35 – 2:05 pm	Keynote: Jose L. Garcia-Cordero , Roche Institute of Human Biology “Practical Platforms for Covid-19 Point-of-care Diagnostics”	Keynote: Rawi Ramautar , Leiden University CE-MS-based Metabolomics Methodologies for Volume-Restricted Biomedical Studies
2:05 – 2:25 pm	Cecilia C. Douma and Michael T. Bowser Surface Adsorption and Micro Free-flow Electrophoresis Assay Development in Cyclic Olefin Copolymer Devices	Debashis Sen and Robert A. Lazenby Localized Detection of Analyte Concentration Using a Microelectrode Aptamer-based Sensor
2:25 – 2:45 pm	Yunjie Wen, Vikalp Vishwakarma, Andrew K. Godwin and Yong Zeng Topographic Modulation of Enzymatic Reaction Affords Ultrasensitive Compartment-Free Digital Phenotyping of Tumor-derived Exosomes	Lisa Holland, Makenzie T. Witzel, Yousef S. Elshamy and Laura Casto-Boggess Capillary Nanogel Electrophoresis for Analyses of Proteins and Protein Activity under Native Conditions
2:45 – 3:05 pm	Md Mohibullah, Chris Easley and Yen Ru Joanne Seow 3D-printed Pneumatic Logic Computations for Droplet-based Sampling Automation	Yue Xin and Robert Kennedy High-Throughput LC System Achieving 5s Cycle Time of Separation for Nanoscale Samples
3:05 – 3:25 pm	Dana Spence From Microfluidic Systems to Small-scale Clinical Trials at Academic Institutions: C-peptide as an Auxiliary Therapeutic for Type 1 Diabetes	M Selim Ünlü and Mete Aslan Pixel-diversity Interferometric Imaging: A New Paradigm in Digital Biosensing
3:25 – 4:20 pm	Posters & Snacks, Atrium	
4:25 – 5:40 pm	3-min Research Showcase, Room 208 <i>Join the trainees and early career scientists to cheer them on as they summarize their research program in just three short minutes and compete for cash prizes!</i> Judges: Anderson R. M. de Oliveira, University of Sao Paulo Janet Freshwater, Royal Society of Chemistry Elaine Fu, Oregon State University Claude Dufresne, axiVEND	
6:00 – 9:00 pm	Conference Dinner, FSU Alumni Center Ballroom <i>Ticket included with your registration. Tickets required for guests.</i> Buses depart the Conference Center every 15 min beginning at 6 pm. Last bus departs Conference Center at 6:45 pm. Buses depart from the Alumni Center back to the Conference Center every 20 min beginning at 8 pm. Last bus departs Alumni Center at 9 pm.	

Wednesday, May 24th

8:00 – 8:45 am	Light snacks & coffee in Atrium	
8:45 am	Opening Remarks, Room 208	
9:00 – 10:00 am	Plenary: Cherie Stabler, University of Florida Engineering Organ-on-Chip Models and Additive Manufacturing for Type 1 Diabetes	
10:00 – 10:30 am	Break, Snacks in Atrium	
10:30 – 10:35 am	Cellular Analysis II Room 103 Chair: Rebecca Pompano Opening Remarks	Pharma and Biopharma Applications Room 214 Chair: Scott Martin Opening Remarks
10:35 – 11:05 am	Keynote: Megan McCain , University of Southern California Engineering Functional Microtissues to Model Cardiac, Skeletal, and Uterine Muscle Disorders	Keynote: Amanda Hummon , The Ohio State University Spatial SILAC – Developing Isotopic Zip Codes
11:05 – 11:25 am	Ashley E. Lenhart and Robert T. Kennedy Microfluidic Platform for Monitoring Hormone and Small Molecule Secretion Dynamics from Islets	Cecile Tardif, Emmanuel Jaccoulet, Myriam Taverna and Claire Smadja Imaged Capillary Isoelectric Focusing (icIEF) Combined with Principal Component Analysis: A Powerful Tool to Detect Degraded Therapeutic Monoclonal Antibodies
11:25 – 11:45 am	Claire D. Cook, Brittany Rupp, Emma Purcell, Nico Mesyngier, Ryan C. Bailey and Sunitha Nagrath CellMag-CARWash: A Droplet Microfluidic, Isolation Technique for Highly Pure, Single-cell Populations	Christoph Gstöettner IP-RP-LC as a New Tool for AAV Genome Integrity Assessment
11:45 – 12:05 pm	Michelle L. Kovarik, Tyler J. Allcroft and Per Sebastian Skardal Single-cell Analysis of Heterogeneous Oxidative Stress Response by Microfluidic Chemical Cytometry	Rebecca Whelan, Naviya Schuster-Little, Roberta Fritz-Klaus, Mark Etzel, Niharika Patankar, Saahil Javeri and Manish Patankar Reinventing the CA125 Blood Test for More Sensitive Detection of Recurrent Ovarian Cancer
12:05 – 1:15 pm	Lunch, Room 108	
1:30 – 1:35 pm	Omics / Systems Biology II Room 114 Chair: Autumn Qiu Opening Remarks	3D Printing Room 214 Chair: Dosil Pereira de Jesus Opening Remarks
1:35 – 2:05 pm	Keynote: Emanuela Gionfriddo , University of Toledo Microextraction: a versatile asset in the analytical toolbox for characterization of complex systems”	Keynote: Scott Martin , St. Louis University New Approaches for Using 3D Printed Devices for Cell Culture and Analysis”

2:05 – 2:25 pm	Cindy Nix, Federica Ciregia, Gael Cobraiville, Dominique de Seny and Marianne Fillet Microfluidic Liquid Chromatography Coupled to Drift-tube Ion Mobility and High-resolution Mass Spectrometry for the Analysis of Fibroblast-like Synoviocytes Stimulated with SAA Variants	Yen Ru Joanne Seow, Md Mohibullah and Chris Easley Plug-and-play 3D-printed Pneumatic Logic Gates and Oscillators Characterized by Smartphone Audio and Video Analysis
2:25 – 2:45 pm	André Luiz Melo Camelo, Hans Rolando Zamora Obando, Aline Cristina Dias, Thaís de Assis Lopes, Regina Vincenzi Oliveira, Marina Franco Maggi Tavares, André Matos de Oliveira, Alberto Azoubel Antunes and Ana Valéria Simionato Plasma Metabolomic Profiling of Patients with Benign Prostatic Hyperplasia by LC-HRMS	Michelle T. Tran and Vincent T. Remcho 3D-printed Microfluidic Interface for Hybrid Microchip Capillary Electrophoresis
2:45 – 3:05 pm	Alexandra Ros, Jorvani Cruz Villarreal, Ana Egatz-Gomez, Brian Pham, Keegan Kow, Todd Sandrin and Paul Coleman Amyloid- β Species Detection from Human Brain Sections Assessed with a Microfluidic Immunoassay in Tandem with MALDI-MS	Hannah Musgrove, Sophie R. Cook and Rebecca Pompano Evaluation of Parylene-C Coated, Resin 3D Printed Devices for Use with Primary Immune Cell Culture
3:15 – 4:00 pm	Closing Remarks / MSB 2024 Announcement / Award Ceremony, Room 208	
4:00 – 5:00 pm	Closing Reception, Atrium	

Turnbull Conference Centre, Florida State University, 555 W Pensacola St, Tallahassee, FL 32306



Session Locations

- The registration desk will be open daily and is located in the foyer of the conference centre.
- Plenary Lectures will take place in Room 208.
- Parallel sessions will take place in Rooms 103 & 214.
- Posters and refreshments will be in the Atrium.
- Lunch will be located in Room 108.

Delegate Badge Badges will be required for entry to all events, rooms, halls and venues. Please wear your badge at all times.

Wireless Access WiFi will be made available to all delegates (Wireless Name: FSUEvent)

Airport Information Tallahassee international airport (TLH) is the only one within an hours drive of the conference center. TLH is a 15 minute drive from downtown Tallahassee where the majority of hotels are located. Uber and Lyft provide taxi services throughout Tallahassee, and most hotels provide complimentary shuttle services upon request.

MSB 2023



Professor Robert T. Kennedy is the Hobart H. Willard Distinguished University Professor of Chemistry and Professor of Pharmacology at the University of Michigan. He earned a PhD at University of North Carolina in 1988 where his work focused on using open tubular LC to analyze single cells. After a post-doc in neuroscience he started his own research program at University of Florida in 1991 before moving to University of Michigan as the Hobart H. Willard Professor of Chemistry in 2002. His research has combined his interest in biology with chemical analysis, separations, and microfluidics. A theme of his group has been development of new chemical analysis tools that can be used at the nanoscale for several applications including screening of drugs, engineering enzymes, monitoring neurotransmitters in the brain, and studying the secretion of insulin and other hormones. His work has been recognized by several awards including the American Chemical Society Award in Chromatography, the Ralph Adams Award in Bioanalytical Chemistry, and two NIH MERIT awards. He has held several service posts including Department Chair and is presently Associate Editor of Analytical Chemistry.

Professor Kennedy is presenting on Sunday, May 21, 2023.



Christian Neusüß is Professor in the Faculty of Chemistry at Aalen University. He received his diploma from University of Heidelberg and his PhD from University of Leipzig. His research interests include coupling and application of (electromigrative) separation techniques with mass spectrometry. He is focusing on technical developments such as nanoESI interfaces and miniaturized two-dimensional separations in combination with high resolution mass spectrometry as well as method development and applications for the analysis of proteins, metabolites and contaminants. He is co-author of more than 110 peer-reviewed publications (h-Index=41).

Professor Neusüß is the winner of the 2023 SCIEX Microscale Separations Innovations Medal and Award.

Professor Neusüß is presenting on Monday, May 22, 2023



Professor Facundo M. Fernández holds the position of Associate Chair for Research and Graduate Training, Regents' Professor and Vasser-Woolley Chair in Bioanalytical Chemistry at the School of Chemistry and Biochemistry, Georgia Institute of Technology. He is the author of 200+ peer-reviewed publications and numerous invited presentations at national and international conferences in the field of mass spectrometry, metabolomics, and analytical chemistry. He is also the academic director for the mass spectrometry cores at Georgia Tech where he oversees a portfolio of numerous mass spectrometers from most major vendors, together with the instruments in his research group. He has received the NSF CAREER award, the CETL/BP Teaching award, the Ron A. Hites best paper award from the American Society for Mass Spectrometry, and the Beynon award from Rapid Communications in Mass Spectrometry, among others. He serves on the editorial board of The Analyst and as an Associate editor for the Journal of the American Society for Mass Spectrometry and Frontiers in Chemistry. His current research interests include the field of metabolomics and the development of new ionization, imaging, machine learning and ion mobility spectrometry tools for probing composition and structure in complex molecular mixtures.

Professor Fernández is presenting on Tuesday, May 23, 2023.



Professor Cherie Stabler is the Integra LifeSciences Term Professor in the Department of Biomedical Engineering, College of Engineering at the University of Florida. She is also an Affiliate Member of the UF Diabetes Institute. She served as the Director of the Tissue Engineering laboratory at the Diabetes Research Institute at the University of Miami (2006-2014). Dr. Stabler has established an internationally recognized research and educational program focused on the generation of translational biomaterial platforms for cellular implants, with a particular emphasis on cell-based therapies Type 1 diabetes. Her novel bioactive materials are targeted at enhancing islet graft survival and utilizing local and translational approaches to dampen host immunological responses. Her work spans from designing new biomaterials to seeking FDA clearance for combinatory products. She is an elected fellow of the American Institute for Medical and Biological Engineering, as well as the Biomedical Engineering Society, a recipient of the 2008 NIH NIDDK Type 1 Diabetes Pathfinder DP2 Award, a UF Term Professor (2019-2022), and the UF College of Engineering Teacher/Scholar of the Year (2019). In 2022, she was awarded the University of Florida Foundation Term Professorship award, which reflects her university-wide research impact. She has served as a member of the BTSS NIH study section, the ADA Grant Review Committee, the JDRF Encapsulation Consortium, and the NIH Human Islet Research Network (HIRN).

Professor Stabler is presenting on Wednesday, May 24, 2023.

Conference Format & Important Information

The conference will begin on Sunday. Short courses run by renowned researchers will be held for those wishing to gain hands on experience of analytical techniques. Our first plenary lecture will precede the opening reception in the atrium sponsored by VICI.

Over the rest of the conference, days will start with further plenary lectures and opening remarks. The following break will provide opportunity of conversation and refreshment in the atrium before the commencement of subgroup sessions, each of which features a keynote talk. Lunch and refreshments will be provided in room 108 with structured discussions. Further parallel sessions throughout the afternoon will be broken by refreshments.

Science Café sponsored by Agilent Technologies: On Monday, join us in 108 for a lunchtime demonstration of the latest from Agilent Technologies.

Supporting Inclusion in Analytical Chemistry: Supporting Inclusion in Analytical Chemistry: This lunch session on Tuesday in 108 invites conference participants to join for a discussion about actions we can take as students, faculty, and researchers to promote diversity, equity, and inclusion in our scientific communities.

3-Minute Research Showcase: Adapted from the 3-Minute Thesis (“3MT”) program, in the 3-minute Research Showcase competition, early career researchers showcase their work in a single static slide as a compelling summary of their research and its broader impacts, targeted to a non-technical audience. The scope may include a current or recent project, or a set of related projects that form a dissertation or equivalent. We are deliberately broadening the scope of the program to be inclusive to graduate students, postdoctoral scholars, and early career industry researchers at various stages of their work.

Conference Dinner: The social highlight of MSB 2023, experience the beauty of the Florida State University campus as we dine together at the FSU Alumni Center Grand Ballroom. Ticket included with your registration. Tickets required for guests. Buses depart the Conference Center every 15 min beginning at 6 pm. Last bus departs Conference Center at 6:45 pm. Buses depart from the Alumni Center back to the Conference Center every 20 min beginning at 8 pm. Last bus departs Alumni Center at 9 pm.

Short Courses

Half day short courses are offered for an additional fee of \$45 per person and will be held on Sunday afternoon, May 21, 2023, 2:00 - 5:00 p.m.

1. Introduction to Capillary Liquid Chromatography

Justin Godinho, Glaxo-Smith Kline

James Grinias, Rowan University

Course Description:

This course is designed to introduce those familiar with analytical scale HPLC to capillary (or “nano”) liquid chromatography. Although both techniques are based on the same fundamental principles, capillary LC has a number of distinct advantages and challenges that will be detailed. Commercial instrument options, as well as the basics of preparing your own capillary LC columns, will be described. Because one of the most prominent uses of capillary LC is its coupling to mass spectrometry for complex biological sample analysis, special attention will be given to this important area. Both academic and industrial researchers will be able to apply the information gained through this course to overcome the challenges faced when using this essential technique. After completing this course, participants will be able to understand the differences between analytical and capillary scale LC and describe the fundamentals of capillary LC column preparation. They will also be able to determine the best detection modes for a given application and explain the advantages of coupling capillary LC with mass spectrometry and how to approach method development using capillary LC-MS. Finally, they will be able to identify best practices for the use of capillary LC to solve analytical challenges.

Instructors:

James Grinias is an Associate Professor in the Department of Chemistry & Biochemistry at Rowan University in Glassboro, NJ. Dr. Grinias has a number of research interests focused on chemical separations and microfluidics, both at the fundamental level and for the analysis of biological systems. He is the recipient of the 2021 American Chemical Society Satinder Ahuja Award for Young Investigators in Separation Science and the 2022 LCGC Emerging Leader in Chromatography. At Rowan, he teaches courses in general, analytical, and bioanalytical chemistry while also conducting research on UHPLC column performance and instrument miniaturization.

Justin Godinho is an Investigator at GlaxoSmithKline in Upper Merion, PA. Dr. Godinho’s research interests largely focus on the fundamentals of chromatographic separations in capillary ultrahigh pressure liquid chromatography columns. His research has explored methods of capillary column packing, column characterization and column implementation. He has been involved in collaborations studying the microstructure of the packed bed and how it relates to column performance. During his

postdoctoral research at the University of North Carolina at Chapel Hill he studied electrophoretic separations in microfluidic devices. These devices were coupled with mass spectrometry for analyte detection.

2. Fundamentals and Applications of Ion Mobility Spectrometry

Christian Bleiholder, Florida State University

Fanny Caroline Liu, Florida State University

Course Description:

This course is designed to describe the fundamental and applied aspects of ion mobility spectrometry / mass spectrometry (IMS/MS). The course will start with fundamentals of the separation process in IMS and the coupling with MS. This will be followed by a discussion of the various IMS/MS technologies currently commercially available. Subsequently, the course will discuss case studies that apply these IMS/MS technologies to challenging analytical problems. Academic and industrial researchers will be able to apply the information gained from this course to realize the potential of this powerful separation dimension. After completing this course, participants will be able to understand the difference between several types of ion mobility instruments, describe the fundamentals of ion mobility separations, and identify best practices for the use of IMS/MS to solve analytical challenges.

Instructors:

Christian Bleiholder is an Associate Professor of Chemistry and Biochemistry at the Florida State University. He pursued his D.Sc. degree in Chemistry with Profs Rolf Gleiter and Sandor Suhai (University of Heidelberg & German Cancer Research Center, 2007) and his post-doctoral research with Michael T. Bowers (University of California, Santa Barbara, 2013). Current research focuses on trapped ion mobility spectrometry and analysis of ion mobility data to elucidate protein structures. His awards include a fellowship from the Alexander-von-Humboldt Foundation (2008–2010), a Postdoctoral Research Award from the American Chemical Society (2011), and a CAREER award from the National Science Foundation (2017).

Fanny Caroline Liu received her PhD in Applied Physical Chemistry from the University of Heidelberg in Heidelberg/Germany, studying optical biosensors. Dr. Liu joined the Bleiholder Laboratory at Florida State University in 2014 as a postdoctoral researcher to develop a tandem-trapped ion mobility spectrometer / mass spectrometer (tandem-TIMS/MS). Currently, she is a research faculty in the Bleiholder Laboratory. Dr. Liu is co-inventor of the tandem-TIMS technology (US patent 10794861, 2020/10/6). Her current research interests involve the native MS applications of tandem-TIMS/MS and implementation of ion activation methods in tandem-TIMS/MS such as collisional-induced dissociation (CID) and UV photodissociation (UVPD) for top-down protein analysis.

3. Capillary Electrophoresis-Mass Spectrometry for Metabolomics: Principles and Applications

Rawi Ramautar, Leiden University, the Netherlands

Course Description:

The main objective of this short course is to provide an overview of the main capillary electrophoresis-mass spectrometry (CE-MS) approaches used in metabolomics, including their working/separation mechanisms. The course shows in particular the applicability of CE-MS for volume-restricted biological samples and for compound classes that are (still) difficult to analyze with chromatographic-based separation techniques. Ample attention is devoted to the coupling of CE to MS using both the classical and the recently developed interfacing designs. The reproducibility of CE-MS for metabolomics studies is also considered by highlighting the Metabo-Ring trial. Advances and utility of CE-MS-based metabolomics is demonstrated by discussing a few recent studies in detail. For example, it is shown that neurotransmitters can be directly analyzed in rat microdialysis samples without using derivatization and sample pretreatment. Highly polar metabolites, such as ATP, ADP and AMP, can be analyzed in extracts from just a limited number of mammalian cells, opening up the possibility to assess the adenylate energy charge in studies dealing with microscale cell cultures. This course is given in an interactive way by using tools such as for example the Mentimeter.

Instructor:

Rawi Ramautar obtained his PhD on the development of capillary electrophoresis-mass spectrometry methods for metabolomics from Utrecht University, the Netherlands, in 2010. Intrigued by metabolomics for disease prediction and diagnosis, Rawi switched to the Leiden University Medical Center to broaden his horizon on this topic. In 2013 and 2017, he received the prestigious Veni and Vidi research grants from the Netherlands Organization for Scientific Research for the development of CE-MS approaches for volume-restricted metabolomics. Currently, he is an associate professor at the Leiden University where his group is developing microscale analytical workflows for sample-restricted biomedical problems. Rawi Ramautar was recently selected for the Top 40 under 40 Power List of the Analytical Scientist. He is editor of Microchemical Journal (Elsevier).

SCIEX Microscale Separations Innovation Medal & Award

SCIEX Microscale Separations Innovations Medal and Award (previously the Arnold O. Beckman Award)

The SCIEX Microscale Separations Innovations Medal and Award (previously the Arnold O. Beckman Award) is an annual award given to an individual for remarkable career achievements, with particular consideration being given to the development of new methods, techniques and high-impact applications in the field of electrodriven separations. The award is supported by SCIEX, a key driver in capillary electrophoresis technology and comprises a medal, a diploma and a monetary prize. The award is focused on a capstone achievement in the preceding 12 months, but also recognizes that this key achievement is often built on a foundation of prior efforts.

The 2023 SCIEX Microscale Separations Innovations Medal and Award will be presented to:



Professor Christian Neusüß
Aalen University, Germany

Christian Neusüß is Professor in the Faculty of Chemistry at Aalen University. He received his diploma from University of Heidelberg and his PhD from University of Leipzig. His research interests include coupling and application of (electromigrative) separation techniques with mass spectrometry. He is focusing on technical developments such as nanoESI interfaces and miniaturized two-dimensional separations in combination with high resolution mass spectrometry as well as method development and applications for the analysis of proteins, metabolites and contaminants. He is co-author of more than 110 peer-reviewed publications (h-Index=41).

Previous Award Winners

2022	James Landers
2021	Peter Willis
2020	Detlev Belder
2019	Aaron Wheeler
2018	Amy Herr
2017	Shigeru Terabe
2016	Bohuslav Gaš
2015	Gyula Vigh
2014	Barry Karger
2013	Stellan Hjertén
2012	Pier Giorgio Righetti

Trainee Awards (formerly Young Scientist Award) & DEI Awards

The MSB Trainee Award(s) are intended to give talented trainees extra encouragement. Depending on availability, the award(s) will be presented to a graduate student(s) or postdoctoral fellow(s) whose outstanding work sets an example for other scientists. All presenters who are graduate students or postdocs at the end date of the meeting are eligible for consideration (proof of status as will be required). An international jury of scientists will judge the qualified presentations and choose a winner. Check the MSB Website for eligibility criteria.

A limited number of DEI (diversity, equity, and inclusion) Awards are available to strengthen the community at MSB 2023. All trainees who identify as a member of a group that is underrepresented in the scientific workforce are eligible for financial support, as long as funds are available. For more details on underrepresentation in STEM, please refer to the definition provided by the National Institutes of Health (NIH). Briefly, this definition includes those from historically underrepresented racial and ethnic groups, those with disabilities, and those from disadvantaged backgrounds, including low socioeconomic status. Consideration for this award must be selected during the abstract submission process.

The Society for Microscale Separations and Bioanalysis (SMSB) is striving to build a diverse, inclusive and respected community of scientists. We are working to ensure the opportunity for these scientists, regardless of age, gender, sexual orientation, geographic location, ethnicity, race, or other identifier, to participate at the annual MSB meeting and through SMSB leadership.

We notably seek to engage and include scientists from all parts of the globe, both on the Board of Directors and at each MSB conference. Our goal is to hold the conference in venues around the world, in settings that facilitate and enable broad participation. With this, we aim to be citizen scientists for the world.

History of MSB

Originally established as the International Symposium on High Performance Capillary Electrophoresis (HPCE), the first event was held April 10-12, 1989, at the Park Plaza Hotel in Boston, MA. The meeting was founded by Professor Barry Karger from Northeastern University. This first meeting featured presentations discussing the principles of separation in capillaries under high electrical fields, including instrumentation development and applications, particularly in biotechnology.

The HPCE symposium was introduced at the moment when capillary electrophoresis (CE) branched off from the HPLC community, giving the technology the necessary focus at a time when CE instrumentation was first being commercialized. The symposium series was driven by the Scientific Advisory Board (SAB) under its diligent chairman Barry Karger until 2000, followed by Frantisek Svec. The series was organized world-wide by Prof. Karger until 2000, and after that by CASSS in the USA, and by separate bodies in Europe and Asia.

At HPCE 2004 in Salzburg, the SAB changed the symposium name to MicroScale Bioseparations (MSB), since the attendees' interests expanded into the related techniques of micro- and nano-HPLC, microfluidic separations, and Lab-on-a-Chip applications, while the fascination with CE slowly decreased.

The stylized logo was created at the same time, and captured the acronym MSB in a DNA helix motif given the prominent role that electrical driven microseparations have played in DNA sequencing and the early completion of the Human Genome Project. At MSB 2012 in Geneva, Switzerland, Beckman-Coulter established the prestigious Arnold O. Beckman Medal and Award for Outstanding Scientific Achievements in The Field of Electrodriven Separations Techniques which has become an essential element of the MSB series.

After the MSB 2012 symposium, the SAB changed. Not just by including new members, but especially by introducing new key concepts by which future meetings of the series will be organized. The symposium aims to create a confidential ambience with significant room for discussion and with over seventy percent of the program built from contributed abstracts using a blind review process. The board also changed its name to Strategic Program Committee (SPC). In order to further broaden the scope of the series to a wider range of scientists, the SPC approved the acronym of MSB to refer to Microscale Separations and Bioanalysis. The new official conference name was used for the first time at MSB 2016 in Niagara-on-the-Lake, Canada, and has been used since.

In January 2018, the SPC took the bold step of creating an official, incorporated society with the goal of ensuring the longevity of the MSB symposium series. Previous members of the SPC now form the Board of Directors of the Society for Microscale Separations and Bioanalysis (SMSB).

Previous HPCE & MSB Meetings

Date	Location	Chairperson/s
1989	Boston	Barry L. Karger
1990	San Francisco	Barry L. Karger
1991	San Diego	James W. Jorgenson
1992	Amsterdam	Frans Everaerts
1993	Orlando	Barry L. Karger
1994	San Diego	Shigeru Terabe
1995	Würzburg	Heinz Engelhardt
1996	Orlando	Barry L. Karger
1997	Anaheim	William S. Hancock
1997	Kyoto	Shigeru Terabe
1998	Orlando	Barry L. Karger, S. Fanali
1999	Palm Springs	Edward S. Yeung
2000	Saarbrücken	Heinz Engelhardt
2001	Boston	Barry L. Karger, William S. Hancock
2002	Stockholm	Douglas Westerlund
2003	San Diego	Aran Paulus, Andras Guttman
2004	Salzburg	Wolfgang Lindner
2005	New Orleans	Michael Ramsey
2005	Kobe	Y. Baba, K. Otsuka
2006	Amsterdam	Gerard Rozing
2007	Vancouver	Robert Kennedy
2008	Berlin	Andreas Manz
2009	Boston	Jonathan V. Sweedler
2009	Dalian	Hanfa Zou
2010	Prague	Frantisek Foret
2011	San Diego	Annelise E. Barron
2012	Geneva	F. Kalman, G. Rozing, J-L Veuthey
2012	Shanghai	Rong Zeng
2013	Charlottesville	Jeff D Chapman, James P Landers
2014	Pécs	Ferenc Kilár, Attila Felinger, András Guttman
2015	Shanghai	Fukui Zhang, Pengyuan Yang, Norman Dovichi, Amy Y. Guo
2016	Niagara-on-the-Lake	Philip Britz-McKibbin, Karen Waldron, Sergey Krylov
2017	Noordwijkerhout	Rawi Ramautar, Govert Somsen
2018	Rio de Janeiro	Marina Tavares, Emanuel Carrilho
2019	Corvallis	Vincent Remcho, Karen Waldron
2020	Saint-Malo (Virtual)	Myriam Taverna, Serge Rudaz
2021	Boston (Virtual)	Alexander Ivanov, Kimberly Hamad-Schifferli, Jarrod Marto
2022	Liège	Marianne Fillet, Heidi Ottevaere
2023	Tallahassee	Michael Roper, Rebecca Pompano, James Edwards

Tallahassee

Tallahassee is home to lively arts and culinary scenes, natural beauty, and vibrant nightlife. It is home to two world-class universities, Florida State University and Florida A&M University, and the National High Magnetic Field Laboratory. It is also the capital of Florida!]

It is easy to fly to Tallahassee (TLH) with direct flights from ATL, DFW, DCA, CLT, MIA, and more. We are also close enough to drive from major cities; Jacksonville is 2.5 hours, and Atlanta and Orlando are both about 4 hours.

While you are here, explore over 700 miles of trails and waterways, the Alfred B. Maclay Gardens State Park is full of beautiful ornamental gardens and nature trails; zipline through the Tallahassee Museum, see the Railroad Square Art District or explore the John G. Riley Center & Museum of African American History & Culture. There's so much more to do; please see the Visit Tallahassee website for more ideas.

Just outside of Tallahassee is the world's largest and deepest freshwater springs, Wakulla Springs. The natural beauty of Wakulla is highlighted by the diverse wildlife that can be seen, from alligators to turtles to manatees. About 1.5 hours from Tallahassee, you'll come to St. George State Park and the beginning of the white sand beaches of northwest Florida. A little further on is the "Emerald Coast" of Florida, named because of the turquoise waters of the gulf. Cities like Destin and Panama City Beach have consistently been named the top beaches of Florida and are worth taking a few days to explore.

Please note, beginning May 3, 2023, every air traveler 18 years of age and older will need a REAL ID-compliant driver's license, state-issued enhanced driver's license, or another acceptable form of ID to fly within the United States.

Take a look at some of the things Tallahassee and the surrounding area have to offer!



Posters

Monday 22nd

- 1010 Barry Zee, Hayley Peckham, Alissa Nelson, Charles Farnsworth and Matthew Stokes
Improved Immunoaffinity Enrichment Methods for Arginine Methylated Peptides
- 1012 Dosil P. de Jesus, William R. de Araujo, Lucas F. de Lima and Reversion F. Quero
Using High-Resolution 3D Printing to Fabricate Microneedles for Analytical Chemistry Applications
- 1015 Icaro Salgado Perovani, Anderson Rodrigo Moraes de Oliveira and Charles S. Henry
Integrating a Cyp3a4 Inhibition Assay in a Capillary-flow Driven Microfluidic Device
- 1020 Klaudia Horompoly, Eniko Gebri, Adrienne Szabo, Gabor Jarvas, Silvia Wuertenberger, Zuzana Demianova and Andras Guttman
N-glycosylation Analysis of Homogenized Oral Squamous Cell Carcinoma Soft Tissue Samples
- 1025 Daniel Arismendi, Ivan Vera and Ines Ahumada
A Thin Biofilm of Chitosan as a Sorptive Phase in the Rotating Disk Sorptive Extraction of Triclosan and Methyl Triclosan from Water Samples
- 1026 Marianne Fillet, Cindy Nix, Elise Pierson and Johan Wouters
Identification of a Morpheein - like Behavior of a Phosphoserine Phosphatase through Biophysical Characterization of Its Oligomerization States
- 1034 Marie-Jia Gou, Gael Cobraiville, Jo Caers and Marianne Fillet
Improvement of the Performance of a Cell-surface Untargeted Proteomics Workflow and Its Monitoring through the Implementation of Quality Controls
- 1038 Marie-Pier Ouellet and Karen Waldron
Optimizing the Preparation and Use of Immobilized Enzymes for Proteomics Using Design of Experiments and CE-DAD Peptide Mapping to Assay Activity
- 1051 Anderson Moraes de Oliveira, Icaro S. Perovani, Priscila A. Yamamoto and Natalia V. de Moraes
Scaling up in Vitro Metabolism Data to Predict CYP450 Interaction with the Chiral Pesticide Prothioconazole Using Physiologically Based Pharmacokinetic (PBPK) Modeling
- 1052 Alec Valenta, Christopher Pynn, Dominic Hoch, Manuel Matzinger, Rupert Mayer, Karl Mechtler and Runsheng Zheng
High-throughput Nano LC-MS for Sample-limited Proteomics
- 1066 Juia Wang
Sex Differences in the Molecular Programs of Pancreatic Cells Contribute to the Sex Differential Risks of Type 2 Diabetes
- 1070 Sarahi Enriquez and Christopher Baker
A Calibration Model for Quantifying Short Oligonucleotides Based on Principal Component Analysis and Real-time Observations of Rolling Circle Amplification
- 1073 Abigail F. Kreznor and Christopher T. Culbertson
Utilizing Resin 3D Printing to Mold Gradient-forming PDMS Devices for Analysis of Glioblastoma Migration

- 1075 Marlien Admiraal-van Mever, Maricruz Mamani-Huanca, Erin Faught, Ángeles López-González, Thomas Hankemeier, Coral Barbas, Marcel J.M. Schaaf and Rawi Ramautar
Probing the Effects of Cortisol and Specific Receptor Involvement in Zebrafish Larvae Using a CE-MS Metabolomics Workflow
- 1082 Chienwei Wang, Simon Weaver and Rebecca Whelan
A New Model of Ovarian Cancer Biomarker CA125 (MUC16) by Nanopore Sequencing
- 1083 Yusuf Muhammed and Robert Lazenby
Developing pH-sensitive Scanning Ion Conductance Microscopy Probes for the Simultaneous Mapping of Topography and pH at Single Cells
- 1085 Eliza Hanson, Chienwei Wang, Caitlin McEntee, Lisa Minkoff and Rebecca Whelan
Individual Recombinant Repeats of MUC16 Display Variable Binding to CA125 Antibodies
- 1090 Rhea Caldwell, Michael Armbruster, Mahmoud Elhusseiny Mostafa, Scott F. Grady, Christopher K. Arnatt and Jim Edwards
Isobaric 6-Plex and Dual Tagging for the Determination and Quantitation of Monounsaturated Fatty Acids Using UHPLC-MS/MS
- 1098 Julia Bonney and Boone Prentice
Structural Elucidation and Relative Quantification of Fatty Acid Double Bond Positional Isomers in Biological Tissues Using Gas-phase Charge Inversion Ion/ion Reactions
- 1102 Narjes Dridi, Zhicheng Jin, Valle Palomo, Phillip E. Dawson, Qing-Xiang Sang and Hedi Mattoussi
Quantifying the Catalytic Efficiency of Membrane-Type 1 Matrix Metalloproteinase (MMP-14) Using AuNP-Peptide-dye Assemblies
- 1113 Xue Hu, Maria Toledo, Michael Roper and Yue J. Wang
Single-cell RNA Sequencing Reveals the Mechanism of Lipo-glucotoxicity at the Molecular Level
- 1116 Autumn Qiu
Mass Spectrometry Imaging of *Caenorhabditis Elegans*
- 1119 Sornanathan Meyyappan and Fabrice Gritti
Modeling and Visualizing Mass Transfer of Monoclonal Antibodies (mAb) in Size Exclusion Chromatography (SEC) Columns

Tuesday 23rd

- 1017 Joshua Davis, Matthew J. Donohue, Emmanuel O. Ogunkunle, Wesley J. Eaton, Daniel J. Steyer and Michael Roper
Solid-Phase Extraction - Mass Spectrometry Assay for Glucose Regulating Hormones
- 1019 Emmanuel Ogunkunle and Michael Roper
Chiral Liquid Chromatography-mass Spectrometry Method for Measuring D-amino Acids in Biological Samples
- 1021 Mahmoud Elhusseiny Mostafa, James J. Grinias and James L. Edwards
Nanospray Supercritical Fluid Chromatography Mass Spectrometry (nSFC-MS)
- 1022 Julius Agongo, James Edwards, Christopher Arnatt, Benjamin Bythell and Scott Grady
Structure Identification of Novel Metabolites Using Chemical Derivatization and LC-MS/MS
- 1023 Damilola Adeoye, Yao Wang, Joshua Davis and Michael Roper
Automated Cellular Stimulation with Integrated Pneumatic Valves and Fluidic Capacitors
- 1033 Jordy D. Kruijswijk, Billy van Zanten, Tijmen S. Bos, Ton Brooijmans, Ron A.H. Peters and Govert W. Somsen
Assessment of the Surface Charge Density of Nanoparticles by Capillary Electrophoresis
- 1035 Andres E. Rodriguez, Sharon Sango and Michelle L. Kovarik
Simultaneous Determination of ROS in Dictyostelium Discoideum by CE-LIF
- 1036 Kyle Brown
Surface Activating Agents and Their Impacts on Cell Recovery in Microfluidic Devices
- 1041 Emily L. Skinner, Joshua Joseph Davis, Emmanuel O. Ogunkunle and Michael Roper
Monitoring Pancreatic Hormones by Solid-phase Extraction - Mass Spectrometry
- 1046 Jakub Novotny and Anna Tycova
Acoustofluidic Focusing in Capillaries
- 1047 Mohammad-Hussein Baz, Coralie Sengenès and Anne-Marie Gue
Lab-on-a-chip for Isolating Circulating Adipose Stem Cells: Pre-processing Module
- 1055 Ana Rita Mateus and Ana Sanches Silva
Fruits By-products Intended to Prepare Natural Extracts for Active Packaging: Evaluation of Mycotoxins and Pesticides Residues by Liquid Chromatography with Mass Spectrometry
- 1059 Naviya Schuster-Little, Anubhuti Srivastava and Rebecca Whelan
Selection of Aptamers for Oxytocin Using Capillary Electrophoresis
- 1063 Ridi Barua, Kyle S. Kinskie, Hajar Chokhmane, Katherine E. Degen, Dean E. Thomas, Kyle M. Brown, Devin M. Keck and Alexandra R. Hyler
Exploration of Electrode Materials and Chip Interfacing Systems to Optimize DEP-Based Sorting and Enrichment
- 1071 Hillary Bourger and Christopher Baker
Accurate Molecular Sizing at Reduced Analysis Times via Capillary Taylor Dispersion Analysis with Two-point Laser-induced Fluorescence Detection
- 1076 Saichon Sumantakul, William E. Harley, Michelle T. Tran, Sophia Vanessa Gomez and Vincent T. Remcho
Laser Ablated Porous-media Analytical Devices for Clinical Assays

- 1077 Briana Mwinkom Tengan, Micheal Armbruster and James Edwards
Dual Tagging for Multiplex Quantitative Metabolomics Using LC-HRMS
- 1087 Andresa Bresler Bezerra and Chris Easley
Customized Valve Control and Droplet Merging Systems for Cheaper, Flexible, and More Portable Droplet-based Microfluidic Control
- 1092 Djuro Raskovic, Andrew Kinman and Rebecca Pompano
Optimizing a Size-exclusion Matrix for Use in Diffusive Separation on a Microchip
- 1094 Christopher Harrison, Juliette Gonzales, Jessica Torres and Phoebe Spilotro
Stabilizing Phospholipid Bilayer Coatings for Electrophoretic Separations
- 1114 Rukiye Tuna and Z. Leonardo Liu
Cell Separation in Concentrated Blood Suspensions
- 1117 Nicole Bruce, I-Anne Wei, James Thornham, Weijia Leng, Oh Yeuran, Y-C. Chiu, Michael Roper and Richard Bertram
Coordination of Pancreatic Islet Rhythmic Activity by Delayed Negative Feedback