41st International Symposium on Microscale Separations and Bioanalysis

May 18 - 21st

Arizona State University

Tempe Arizona

WELCOME MESSAGE

Welcome to the 41st International Symposium on Microscale Separations and Bioanalysis!

MSB 2025 will take place May 18-21, 2025 at the Memorial Union at Arizona State University, Tempe, Arizona. The scientific committee is working to create an exciting forum where researchers from around the world will discuss their latest findings in areas of microscale separations and bioanalysis. Many exciting session topics and networking opportunities are being developed, so please check back with us often!

The Society for Microscale Separations and Bioanalysis 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 are thrilled to welcome MSB 2025 attendees to the beautiful Arizona State University Tempe campus. It is situated in the heart of Tempe, close to several hotels and restaurants, just a few minutes from the Phoenix Sky Harbor international airport. You may also take advantage to explore the beautiful Arizona Desert including other nature's wonders such as the Grand Canyon!

MSB GUIDING PHILOSOPHY

Philosophy of MSB symposia

The MSB symposia are intended to be a forum for the discussion of fundamental and application-driven aspects of microscale separations and bioanalysis within an international community composed of thought-leaders and emerging scientists from both the academic and industrial sides.

In order to guarantee the presentation of new, current, controversial and/or unpublished work and foster active discussions during the oral and poster sessions, the Society has developed a seven--point plan that serves as guidelines for Conference Chairs.

- **Discussion of unpublished work**
  An environment is provided that helps protect unpublished work through a series of confidentiality measures to be abided by conference attendees, an approach used successfully by the Gordon Conferences.

- **Fostering diversity while maintaining high quality**
  The number of invited speakers is reduced, building most of the oral program (70%) from submitted abstracts. The abstracts will be comprehensive overviews of the scientific work, including data and figures. They will be scored by double-blind peer review, blind of title, name or affiliation for the session. This whole process is done with transparency, to encourage maximum participation.

- **Encouraging vigorous scientific debate and discussion**
  Presentations are limited to 2/3 of the allotted time for the lecture, leaving 1/3 of the allotted time for discussion. This approach is also applied during the poster pitch presentations. .

- **Committed and engaged session chairs**
  Who build the oral program for the session topic by proposing the keynote speaker, select contributed oral presentation (blind of title, name or affiliation of the author) from the submitted abstracts, who introduce the session topic to the delegates in a short-oral presentation and who will pro-actively foster debate, engaging and challenging the audience to participate in the discussions.

- **Selecting an inspiring location**
  A venue will be sought allowing an environment integrating science and leisure, creating an atmosphere that is conducive to the task.

- **Engaging industry partners**
  A forum called Science Café is included in the program. This is a daily luncheon that provides the opportunity to hear about new applications, products and solutions by the companies commercializing these products.

- **Paying homage to excellence**
  The symposium includes a presentation of the Arnold O. Beckman Medal for *Outstanding Achievements in the Field of Electrodriven Separation Science*. Since 2018, this Award has be continued as the SCIEX Microscale Separations Innovation Medal awardee for *Current and Breakthrough Research in the Field of Electro-Driven Separations.*

PROGRAM CHAIRS

Alexandra Ros
Arizona State University

Alexandra Ros is professor in the School of Molecular Sciences at Arizona State University. She is known for her work on microfluidic platforms and their bioanalytical applications. Throughout her career at the interface between chemistry, biophysics and engineering, Dr. Ros has developed microfluidic separations systems using electrokinetic approaches for biomolecules, organelles and cells and advanced hyphenated analytical systems. She also contributed microfluidic techniques for protein crystallography, including crystallization screening devices, and innovative sample delivery systems for XFELs and novel serial crystallography approaches.

Chris Harrison
San Diego State University

Chris Harrison is a professor in the Department of Chemistry and Biochemistry at San Diego State University. Dr. Harrison is know for his work in capillary electrophoresis, largely focused on the development and modification of capillary surface coatings for the control and optimization of separations of biomolecules. He is also known for his development of materials and teaching approaches in analytical chemistry.

Mark A. Hayes
Arizona State University

Mark A. Hayes is a professor in the School of Molecular Science at Arizona State University, where his research centers on exploiting gradients in novel configurations for separations. He graduated from Penn State University, studying under Professor Andrew G. Ewing, and postdoc'd with Dr. Werner Kuhr at the University of California. He held the W. W. Clyde Visiting Chair at University of Utah and is the recipient of the A.A. Benedetti-Pichler and FACSS Distinguished Service Awards, and was a finalist for the SciX Conference Innovation Award. He currently is founder and interim CEO of Hayes Diagnostics, Inc., a startup company based on technology developed at ASU. He has served as Program, Governing Board, Long Range Planning and Marketing Chair for FACSS and Councilor, Vice-President and President of the AES Electrophoresis Society and Chair of the ACS ANYL Division. He has mentored over one hundred twenty-five undergraduate and graduate students, producing thirty doctorates, supporting them towards prestigious fellowships (NSF, Kirkbright, ACS, Fulbright, FLAS and local awards).

SCIENTIFIC COMMITTEE MEMBERS

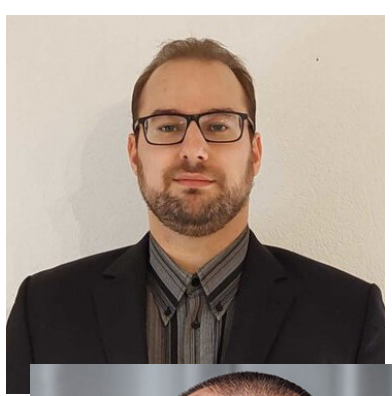
The conference organizers are indebted to the Scientific Committee Members for their advice, assistance, and tireless efforts in helping to ensure that this edition of the MSB meeting series maintains the excellent standards of those that preceded it.

Wenwan Zhong
University of Science and Technology of China

Tom Linz
Wayne State University

Mark A. Hayes
Arizona State University

Carlos D. Garcia
Clemson University



Kevin Jooß
Vrije Universiteit Amsterdam

Detlev Belder
Universität Leipzig

Michael Roper
Florida State University

Ryan Kelly
Brigham Young University

Petra Dittrich
ETH Zürich

Michael Marty
The University of Arizona

Chris Harrison
San Diego State University

Sarah Perry
University of Massachusetts Amherst

Mukul Sonker
ASU Biodesign Institute

Juan G. Santiago
Stanford University

Alexandra Ros
Arizona State University

Lisa Flanagan
UC Irvine

Susan Lunte
The University of Kansas

SPONSORS

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Please take some time during the meeting to visit the booths of our sponsors which will be located in the Ventana B room.

PLENARY AND AWARD SPEAKERS

Federica Caselli
University of Rome Tor Vergata, Italy

Federica Caselli is Associate Professor of Bioengineering at the University of Rome Tor Vergata, where she leads the Laboratory of Biomedical Microdevices. She holds dual M.Sc. degrees in Medical Engineering and Mathematics, as well as a Ph.D. in Biomechanics. She is the author of over 60 peer-reviewed publications and has been invited as a speaker at several international conferences and workshops. Her research focuses on developing innovative lab-on-a-chip devices for diagnostics and life sciences, with a particular emphasis on microfluidic impedance cytometry. She explores advanced approaches for single-cell biophysical phenotyping and manipulation, leveraging model-based device design and cutting-edge signal processing techniques. Her recent work emphasizes all-electrical platforms and the integration of neural-network-based data analytics.

Noo Li Jeon
Seoul National University, Korea

Prof. Noo Li Jeon is a Professor in the School of Mechanical Engineering at the Seoul National University. He has worked at the interface of engineering and biology, developing novel tools for biological research inventing microfluidic gradient generating devices for chemotaxis, primary neuron and stem cell culture. He obtained his Ph.D. degree in Materials Science and Engineering from the University of Illinois, Urbana-Champagne in 1997 under Prof. Ralph G. Nuzzo. After postdoctoral research in Prof. George M. Whitesides' laboratory at Harvard University working on soft lithography related projects and microfluidic devices, he spent a year in Prof. Mehmet Toner's laboratory at Harvard Medical School working on neutrophil chemotaxis in microfluidic devices. From 2001 to 2009, he was an Assistant and Associate Professor in the Department of Biomedical Engineering at University of California, Irvine. He moved to Seoul National University in 2009.

David Weitz
Harvard University

Weitz received his PhD in physics from Harvard University and then joined Exxon Research and Engineering Company, where he worked for nearly 18 years. He then became a professor of physics at the University of Pennsylvania and moved to Harvard at the end of the last millennium as professor of physics and applied physics. He leads a group studying soft matter science with a focus on materials science, biophysics and microfluidics. Several startup companies have come from his lab to commercialize research concepts.

Peter Willis
Jet Propulsion Laboratory

Dr. Peter Willis is a senior researcher and principal technologist at the NASA Jet Propulsion Laboratory at the California Institute of Technology in Pasadena California. In addition to participating in the development and operation of current spaceflight missions including Perseverance, and formulating future planetary astrobiology missions, he serves as the Supervisor of JPL's Chemical Analysis and Life Detection group. His research focuses on the development of methods and instrument technologies to detect chemical signs of life on other planets.

Sciex Award Winner

Robert Kennedy
University of Michigan

Robert Kennedy is the Willard Distinguished University Professor of Chemistry at the University of Michigan. 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 for engineering enzymes, monitoring neurotransmitters in the brain, and studying the secretion of insulin. Key technical areas including ultra-high pressure LC, droplet microfluidics, and mass spectrometry. His work has been recognized by several awards including the ACS Award in Chromatography and the Ralph Adams Award in Bioanalytical Chemistry. He has held several service posts including Department Chair and is presently Associate Editor of Analytical Chemistry and ACS Measurement Science Au.

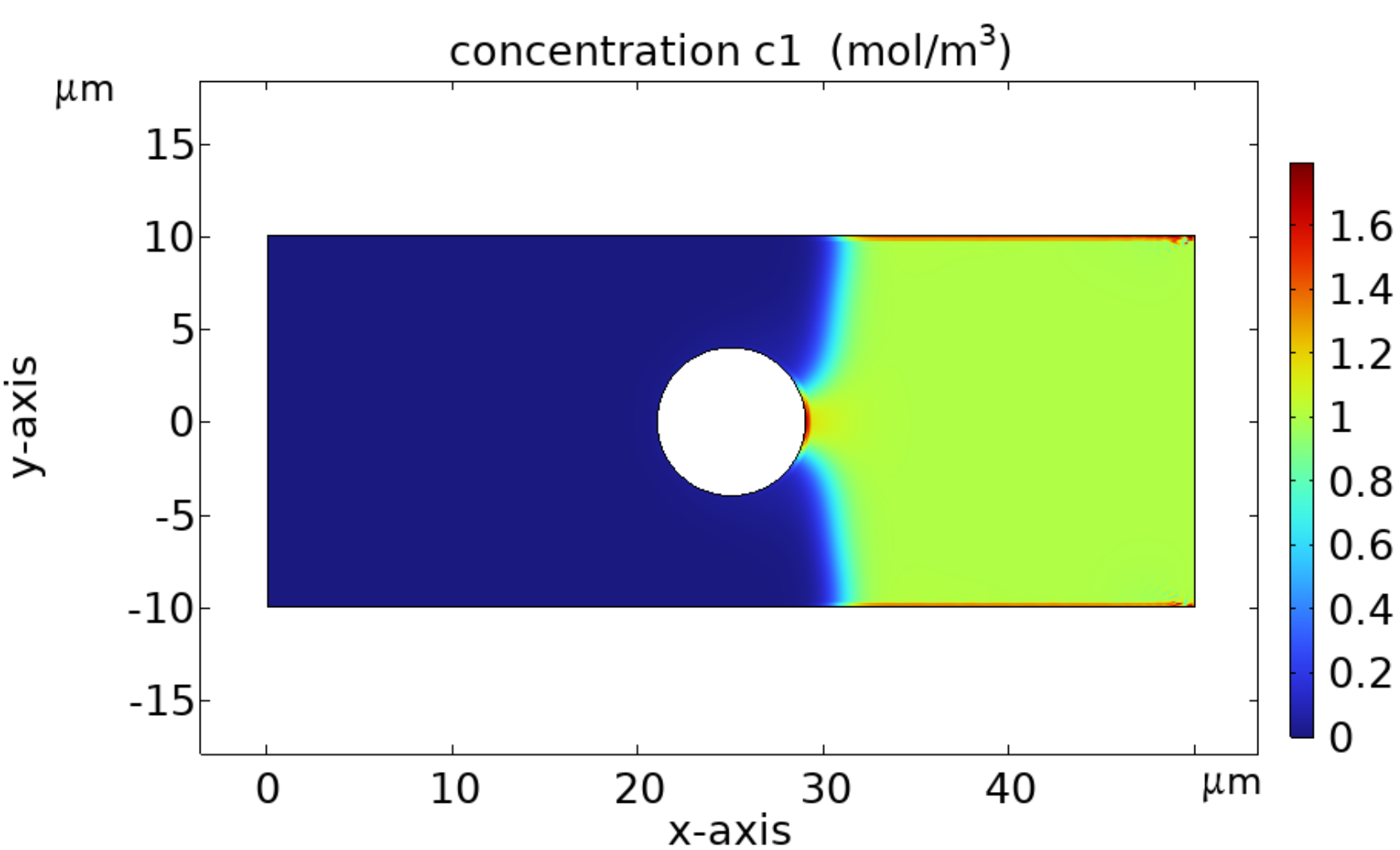
WORKSHOPS

COMPUTATIONAL MODELING OF ELECTROKINETIC SEPARATIONS BY COMSOL SOFTWARE

by Professor Bohuslav Gas

Electrokinetic separations have the advantage over chromatographic methods that they can be described very precisely by continuity equations, which are partial differential equations. Solving these equations using COMSOL software provides a clear picture of the separation process.

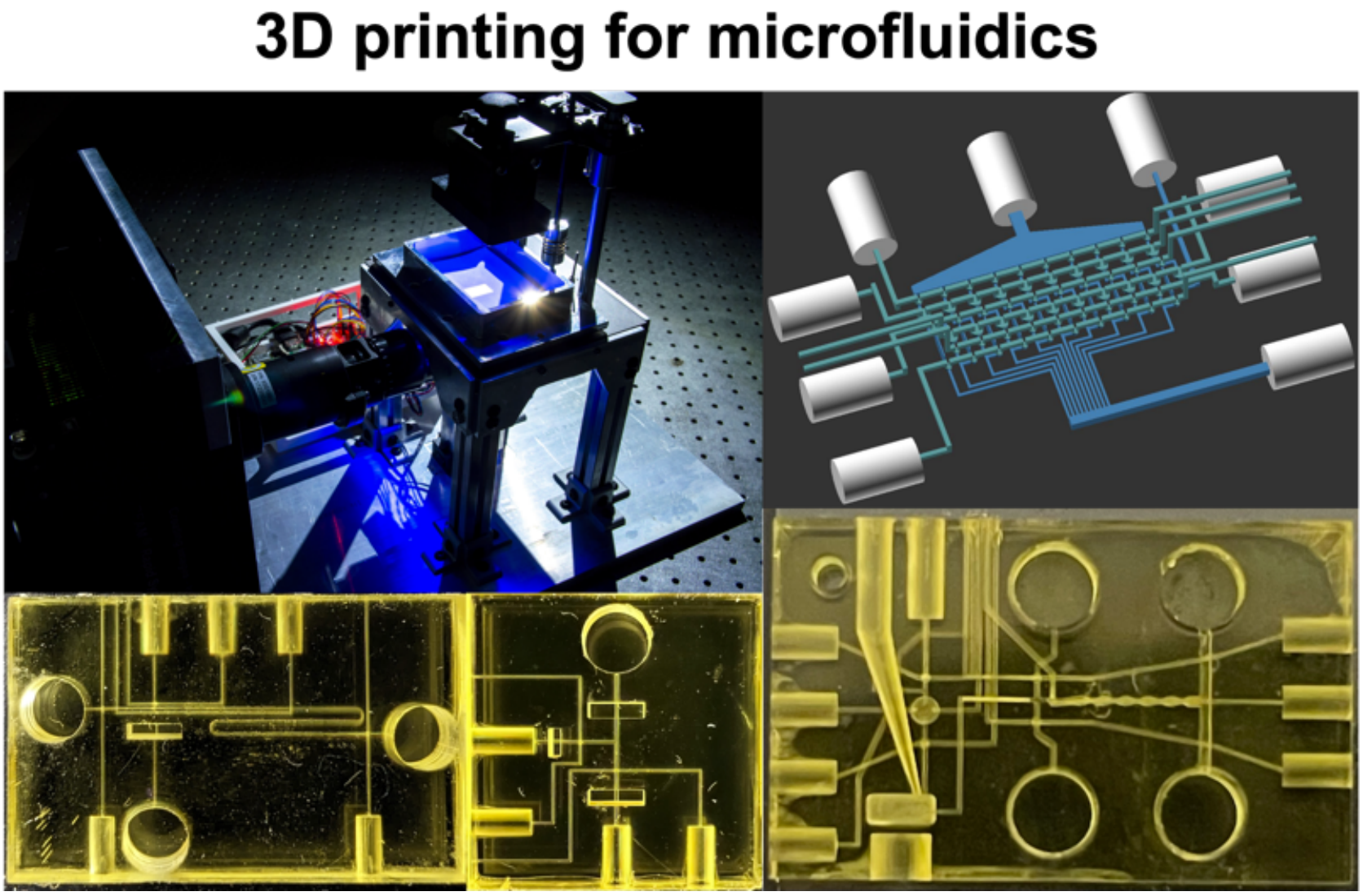
Course participants will learn to:
- Formulate differential equations of electromigration,
- Handle the COMSOL environment,
- Solve equations in the COMSOL environment,
- Understand electromigration. Those who are not afraid of beautiful equations and the elegant COMSOL software are welcome!



3D PRINTING FOR MICROFLUIDICS

by Professor Adam Woolley

The workshop will introduce the technique of 3D printing, describe different types of 3D printers, and detail how these printers can be used to create microfluidic devices, providing a comparison to traditional microfluidic fabrication methods. Based on extensive experience, the presenter will then discuss the current state-of-the art for component miniaturization and integration of 3D printed active elements such as channels, columns, valves, and pumps into more complex device designs. Attendees will leave with an understanding of advantages and limitations of 3D printing for microfluidic device fabrication, an appreciation of the challenges and opportunities in making 3D printed microfluidic devices, and guidance on whether 3D printing can advance their intended microfluidics applications.



PROGRAM SUMMARY

SUNDAY

Time	May 18th 2025	
13:00	**Registration Opens in Memorial Union Building**	
13:00 - 14:30	**Workshop 1** Computational Modeling of Electrokinetic Separations by COMSOL Software MU 206 - Copper Room	**Workshop 2** 3D Printing for Microfluidics MU 209 - Chrysocolla Room
14:30 - 15:00	Coffee Break	
15:00 - 16:30	**Workshop 1** Computational Modeling of Electrokinetic Separations by COMSOL Software MU 206 - Copper Room	**Workshop 2** 3D Printing for Microfluidics MU 209 - Chrysocolla Room
17:00 - 17:15	**Conference Opening Presentation** - Alexandra Ros MU 220 - Turquoise Room	
17:15 - 18:00	**Plenary:** Federica Caselli, University of Rome Tor Vergata, Italy Cutting-Edge Trends in Microfluidic Impedance Cytometry MU 220 - Turquoise Room	
18:00 - 18:45	**Plenary:** David Weitz, Harvard University Droplet Microfluids for Ultrahigh Throughput Analysis and Detection MU 220 - Turquoise Room	
18:45 - 20:00	Welcome Reception (MU 220, Turquoise)	

MONDAY

Note that Young Scientists are denoted with a 🌵 symbol next to their name.

Time	Monday - May 19th 2025	
9:00 - 9:15	**Conference Opening Presentation** MU 220 - Turquoise Room	
9:15 - 10:00	**Plenary**: Peter Willis, NASA/JPL Climbing the TRL Ladder to Space for the Next Generation of Astrobiology Missions MU 220 - Turquoise Room	
10:00 - 10:25	Coffee Break - Ventana B - MU241 B	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Dielectrophoresis And Electrokinetics In Bioanalysis And Separations	**Sensors, Biomarkers, And Bioanalysis**
10:25 - 10:30	Introduction by session chair Lisa Flanagan	Introduction by session chair Tom Linz
10:30 - 11:00	Keynote - Carlotta Guiducci Integration of Electrokinetic and Hydrodynamic Forces in Microfluidic Platforms for Bioanalytical Applications	Keynote - Daniel Chiu - Digital Flow Cytometry
11:00 - 11:20	Delaney Shea 🌵 Applying Dielectrophoresis to Recover and Analyze Bacteria-Derived Nanoparticle Biomarkers from Human Plasma	Jason Fiering Continuous Flow Acoustic Cytometry With Automated Data Analysis
11:20 - 11:40	Sai Deepika Reddy Yaram 🌵 Label-Free Dielectrophoretic Characterization of HL-60 Cells - Infected with Anaplasma spp.	Rebecca Whelan A New Picture Of An Ovarian Cancer Biomarker Enabled By Long-Read Sequencing
11:40 - 12:00	Wout Mens 🌵 Polarizability Characterization Using Steady-State Concentration Profiles: A Continuum Model For Dielectrophoresis Transport	Sarah Mitchell Using Dielectrophoresis to Separate Tumor-Derived Nanoparticles from Biological Fluids to Determine Biomarker Point of Origin
12:00 - 13:00 	**LUNCH** (Provided by VICI) Lunch Talk by Dr. Cai In situ covalent labeling mass spectrometry for profiling proteome-wide structural changes in live cells	

Time	Monday - May 19th 2025	
	Program continued on next page	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Microscale Approaches /Microfluidics In Space Exploration	**Environmental Microfluidics**
13:00 - 13:05	Introduction by session chair Sue Lunte	Introduction by session chair Ashley Ross & co-chair Sai Deepika Reddy
13:05 - 13:35	Keynote - Mara Mirasoli Microfluidic Devices for Luminescence-Based Biosensors in Space Life Science Investigations	Keynote - Long Luo Bubble-Based Separation Techniques for PFAS Analysis: Inspired by a Natural Phenomenon
13:35 - 13:55	Alexandra Ros Vacuum Compatible Fixed-target Devices for Protein X-ray Crystallography at the Compact X-ray Light Source	Rawi Ramautar Characterization of the Metabolite Corona Acquired by Nanomaterials by Capillary Electrophoresis-Mass Spectrometry: A New Approach in Nanoscience
13:55 - 14:15	Christopher Harrison Applying Deep Eutectic Solvents for the Collection and Analysis of Chemical Biosignatures	Ebuka Anizoba 🌵 Determining the Hydrodynamic Diameters of Dissimilar Nanoparticles via Capillary Zone Electrophoresis - Taylor Dispersion Analysis (CZE-TDA).
14: 15 - 14:35	Joe DuBois Breaking the Bottleneck: Democratizing Access to Spaceflight	Matthew Lockett A screening pipeline for organ-specific responses to acute and prolonged PFAS exposures
14:35 - 16:00	**Coffee Break & Poster Session 1** Ventana B	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Microscale Sample Preparation For Bioanalysis (1)	**3D Printing And Materials**
16:00 - 16:05	Introduction by session chair Stuart Ibsen	Introduction by session chair Fracassi Da Silva

Time	Monday - May 19th 2025	
16:05 - 16:35	Keynote - Doo Soo Chung Non-destructive Forensic Document Examination of Ballpoint Cationic Inks by Blotting-Capillary Electrophoresis	Keynote - Severine Le Gac Studying and Improving the Cytocompatibility of Stereolithography (SLA) Resins
16:35 - 16:55	Chenchen Liu Online salty impurity removal of 8-Aminopyrene-1,3,6-trisulfonic acid labeled glycans via temporary normal polarity capillary electrophoresis	Adam Woolley Integrated 3D printed microfluidics for combined immunoaffinity extraction, solid phase extraction and electrophoresis of preterm birth biomarkers
16:55 - 17:15	Andrea Capuano 🌵 Isotachophoretic Concentration And Separation Of Extracellular Vesicles Enhanced By Lipid-Based Spacers	Dosil de Jesus Photopolymerization 3D Printing of Electromembrane Microextraction Devices with Integrated Porous Membrane
17:15 - 17:35	Takayuki Kawai Quantitation of Single Cell Drug Uptake by Suction-to-Clog Sampling and Dual Stacking Capillary Electrophoresis-Mass Spectrometry	Leyllanne Souza 🌵 Wearable Electrochemical Sensor Using Laser-Induced Graphene on Adhesive Bandages for Uric and Ascorbic Acid Detection
17:35 - 17:55	Wei Wei 🌵 Three-Dimensional Electrokinetic Separation of DNA from Plasma Using a Novel Cylindrical Electrophoresis System	Mukul Sonker 🌵 Segmented Droplet Injection Facilitates Minimized Sample Consumption for Time-Resolved Serial Femtosecond Crystallography at X-ray Free-Electron Lasers
18:00 - 19:00	**CXFEL Tour #1 (advanced signup required)**	

TUESDAY

Time	Tuesday - May 20th 2025	
8:00 - 9:00	**CXFEL Tour #2 (advanced signup required)**	
9:00 - 9:15	**Sciex Award Introduction - Karen Waldron, Steve Weber , Susan Darling** MU 220 - Turquoise Room	
9:15 - 10:00 SCIEX	**Sciex Award Winner**: Robert Kennedy University of Michigan New Tools for Exploring Brain Chemistry MU 220 - Turquoise Room	
10:00 - 10:25	Coffee Break - Ventana B - MU241 B	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C

Time	Tuesday - May 20th 2025	
	Microscale Sample Preparation For Bioanalysis (2)	**Organ-On-A-Chip**
10:25 - 10:30	Introduction by session chair Wenwan Zhong	Introduction by session chair Severine Le Gac
10:30 - 11:00	Keynote - Nathan Swami Inline Optimization of Dielectrophoreitc Separations on Multiple Cellular Biophysical Metrics Through On-chip Impedance Cytometry	Keynote - Ashley Ross New Organ-on-Chip Tissue Culture Platforms for Subsecond Detection Along the Gut-Brain-Immune Axis
11:00 - 11:20	Mark Hayes Deterministic High Resolution Separations of Bioparticles, Cells, Viruses, Exosomes, and Proteins	Ami Mehta-Doshi 🌵 Fabrication and Development of a Biomimetic Blood-Brain Barrier-on-Chip using a Lithography-Less Approach
11:20 - 11:40	Roman Řemínek Epitachophoresis - High-Efficiency Method For Concentration And Separation Of Ionic Compounds From Large-Volume Samples	Genoveve Gutierrez 🌵 Bubble Perfusion Brain Slice Culture With Single-Droplet Stimulus Delivery In A 3D Printed Microfluidic Device
11:40 - 12:00	Ana Sanches Silva 🌵 Challenges Of Methods' Miniaturization For Evaluation Of Contaminants In Fruit By-Products Extracts	Michael Roper Fluorescence Lifetime Assay For Glucagon On A Microfluidic Device
12:00 - 13:00 ASU The College of Liberal Arts and Sciences Arizona State University	**LUNCH** (Provided by ASU) Lunch Talk by Philippa Ross, Matthew Lockett & Severine Le Gac How to publish your research	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Point-Of-Care Applications	**Omics**
13:00 - 13:05	Introduction by session chair Chris Harrison & co-chair Chenchen Liu	Introduction by session chair Kevin Jooß
13:05 - 13:35	Keynote - Marya Lieberman Paper Analytical Device and Machine Vision for Screening the Quality of Anticancer Medications at Clinical Care Settings in Sub-Saharan Africa	Keynote - Neil Kelleher Proteomics for Precision Medicine: New Technologies for Improved Understanding of Human Health and Disease
13:35 - 13:55	Christian Ross 🌵 Single Microfluidic Device Designed for both ON-Chip DNA Recovery and PCR-Based Amplification for Cancer Mutation Detection	Xue Hu 🌵 Uncovering Molecular Mechanisms Underlying Impaired Islet Functionality Induced by Glucolipotoxicity Using ScRNA-Seq

Time	Tuesday - May 20th 2025	
13:55 - 14:15	Chao Wang Nanoparticle-Supported, Rapid, Electronic Detecting System for Accessible Infectious Disease Diagnosis	Jana Lavicka 🌵 Increasing Detection Sensitivity Of Capillary Electrophoresis Based Analysis Of Fluorescently Labeled Glycans
14: 15 - 14:35	Giacomo Musile 🌵 A Portable Capillary Electrophoresis Instrument for On-site Applications	Yehia Mechref Mesoporous Graphitized Carbon Columns for Comprehensive, High-Resolution Isomeric Separation of Permethylated Glycans and Glycopeptides
14:35 - 16:00	**Coffee Break & Poster Session 2** Ventana B	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Bio-/Nanoparticle Analysis	**Topic: Microfluidic Platforms For Integrated Separation And Detection**
16:00 - 16:05	Introduction by session chair Christopher Baker	Introduction by session chair Michael Roper
16:05 - 16:35	Keynote - Kenneth Marcus High Purity And High Throughput Isolations Of Extracellular Vesicles With Capillary-Channeled Polymer (C-CP) Fiber Columns And Spin-down Tips	Keynote - Fracassi da Silva Integration of potentiometric and fluorescence detectors to 3D-printed microfluidic devices
16:35 - 16:55	Ella Stimson 🌵 Extracellular Vesicle-Associated Protease Activity for Blood-Based Cancer Detection by Electrokinetic Methods	Uddipta Singha 🌵 On the Re-circulating Flow of a Particle-Laden Droplet for Integrated Separation and Detection
16:55 - 17:15	Govert Somsen Resolving Surface-Charge Density Distributions Of Polymeric Nanoparticles	Najamuddin Naveed Khaja 🌵 An Integrated Porous Polyimide Manifold-Based Microfluidic Channel With Non-Planar Micro-Electrodes For Bioanalysis
17:15 - 17:35	Laura Casto-Boggess Erasable Plasmonic Nanocomposites for Surface-Enhanced Raman Scattering Detection on Microfluidic Platforms	Javad Jarmoshti Single-Cell Multiparametric Biophysical Cytometry Through Tunable Viscoelastic Extensional Flows For Classification Of T-Cell Lymphomas

Time	Tuesday - May 20th 2025
18:00 - 22:00	**Conference Dinner @ Culinary Dropout Tempe** https://www.culinarydropout.com/locations/tempe-az/ 18:00-18:30 pm Buses leave near MU (Return from restaurant starting @ 21:30 pm)

WEDNESDAY

Time	Wednesday - May 21st 2025	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	Pharma And Biopharma Applications	**Digital, Droplet And Centrifugal Microfluidics**
9:00 - 9:05	Introduction by session chair Lisa Holland	Introduction by session chair Alexandra Ros
9:05 - 9:35	Keynote - Stephen Groskreutz Continuous Manufacturing of Tirzepatide Using Online UHPLC-Based PAT: An Enabling Technology for Commercialization of a Synthetic Peptide	Keynote - Tom Linz Multiplexed Protein and miRNA Analysis in Digital Microfluidic Arrays
9:35 - 9:55	Andras Guttman In Migratio Noncovalent Fluorophore Labeling Of Proteins In Sodium Dodecyl Sulfate Capillary Gel Electrophoresis	Chi-Phong Ly 🌵 Digital Capillary Electrophoresis With Dual Preconcentration For Sub-Microliter Glycan Sample Analysis
9:55 - 10:15	MacRyan Biever 🌵 Characterization Of The Biophysical Properties Of Human Papillomavirus-Like Particles With Resistive-Pulse Sensing	Diandra Doppler 🌵 Time-Resolved Mix and Inject Macromolecular Crystallography Enabled with Droplet Injection
10:15 - 10:35	Aaron Timperman Measuring electrophoretic mobility and size of single particles and real-time detection of particle-particle binding events with transverse AC electrophoresis (TrACE)	Hyesun Hwang 🌵 A Universal Way to Manipulate Droplet via Light-fueled Thermocapillary Convection
10:35 - 12:05	**Coffee Break** **&** ***Flash Talks*** Ventana B	

Time	Wednesday - May 21st 2025	
12:00 - 13:00 Lilly A MEDICINE COMPANY	**LUNCH** (Provided by Lilly) Lunch Talk by Dr. Groskreutz Job opportunities at Lilly	
13:00 - 13:05	**Plenary Introduction** MU 220 - Turquoise Room	
13:05 - 13:50	**Plenary**: Noo Li Jeon, Seoul National University, Korea Proteomic, Genomic, and Phenotypic Analysis of Angiogenesis in an Open Microfluidic Microphysiological System (MPS) MU 220 - Turquoise Room	
13:50 - 14:15	Coffee Break - Ventana B - MU241 B	
	Parallel Session I Turquoise Room - MU 220	**Parallel Session II** Ventana C - MU 241 C
	MS-Coupling, Hyphenation And New Trends	**LC/CE Novel Approaches**
14:15 - 14:20	Introduction by session chair Rawi Ramautar	Introduction by session chair Ken Marcus
14:20 - 14: 50	Keynote - Ryan Kelly Separations Platform for Single-Cell Proteome Profiling in 5 Minutes or Less	Keynote - Jim Edwards Capillary LC-MS/MS to Shed Light on the Dark Metabolome: Structural Identification of Novel Metabolites
14:50 - 15:10	Laura Penabad 🌵 High throughput screening of isomeric biaryl products from engineered Cyp450 by droplet microfluidics coupled to cyclic ion mobility mass spectrometry	Susan Lunte Microchip Electrophoresis with Bipolar Electrochemistry Facilitated Electrochemiluminescence as Method for the Analysis of Nitrated PeptidesNitrated Peptides
15:10 - 15:30	Kevin Jooß CZE-IM-MS: Integrating Liquid- And Gas-Phase Mobility For Enhanced Peptide Structural Analysis	Christopher Baker Capillary Electrophoresis-Taylor Dispersion Analysis Combined With Computational And Generative AI Predictions To Resolve Structure And Dynamics Of Proteins And Oligonucleotides
15:30 - 15:50	Idara Akpan 🌵 Microfluidic Immunoassay in Tandem with MALDI-MS for the Analysis of Soluble Amyloid Beta Oligomer Species	Lisa Holland Native Electrophoresis Assay Of Inhibitors Of Neuraminidases Derived From H1N1 And H5N1 Influenza A Pandemics
16:00 - 17:00	Turquoise Room - MU 220 **Young Scientist Awards**	

Time	Wednesday - May 21st 2025
	MSB 2026 Presentation
	MSB 2025 Closing
17:00 - 18:00	**CXFEL Tour #2 (advanced signup required)**

POSTER PRESENTATIONS

MONDAY

Poster Number	Presenter	Title
1	Sasanpour, Mehrzad 🌵	Enhancing The Efficiency Of Distinguishing Pdac From Healthy Samples Using Internal Standard Protocol On Dep-Based Recovery Of Nanoparticles From Plasma Samples
3	Farhang Doost, Negar 🌵	Dielectrophoresis-Based Microfluidic Detection Of Freshwater Harmful Algal Blooms
5	Micaela, Siria Cristofori 🌵	Multi-Fraction Cell Sorting Using Fluid Dynamics And Electrokinetics
7	Christensen, Patricia 🌵	Development Of A Capillary-Based Electrophoresis Method To Measure Intact Monomer And Purity In Process Intermediates For A Multivalent Recombinant Vaccine
9	Knecht, G. Thomas 🌵	Automation Of Droplet-Injection And Ultrafast Gradients For High-Throughput Capillary Liquid Chromatography
11	Biever, MacRyan 🌵	Characterization Of The Biophysical Properties Of Human Papillomavirus-Like Particles With Resistive-Pulse Sensing
13	Ware, Jason 🌵	Liquid Biopsy Detection Of Pancreatic Cancer From Benign Pancreatic Disease Via Dielectrophoresis Isolation And Electrochemical Analysis Of Extracellular Vesicles
15	Deng, Yuxin 🌵	Ultrasensitive Nanopatterned Plasmonic-Fluor Microfluidic Chip For Extracellular Vesicles Profiling In Early Diagnosis Of Ovarian Cancer
17	Khan, Nasir 🌵	Low Input, High Efficiency: An In-House Customized “One In All” Polymeric Matrix Of ‘Pvcap-Co-Aam’ For Long-Term Sample Storage And Extraction Of Analytes From Biological Samples
19	Shi, Leilei	Derivative-Based Signal Processing For Real-Time Impedance Flow Cytometry
21	Biagioni, Valentina 🌵	Enhancing The Separation Performance Of Hydrodynamic Chromatography Through Deterministic Lateral Displacement
23	Mai, Thanh Duc	New Strategies For High Performance Electrokinetic Separation And Characterization Of Magnetic Nanoparticles Towards Nanomedicine And Diagnostic Applications
25	Wang, Xuemei	Ultrasensitive Bioimaging / Bioanalysis Of Cancer Cells / Exosomes Via Bio-Responsive Self-Assembly Nano-Platform
27	Cermakova, Paula 🌵	Capillary Zone Electrophoresis With Repeated Sample Injection In The Quality Control Of Therapeutic Peptides
29	Alenicheva, Vera 🌵	A Microfluidic Paper-Based Assay For The Quantification Of CBD and THC

Poster Number	Presenter	Title
31	Smithers, Jared 🌵	Automation Integration Of Dielectrophoresis
33	Nguyen, Vi 🌵	Multiplexing Lab-On-A-Chip For Viral Disease Detection

TUESDAY

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2	Rasel, A K M Fazlul Karim 🌵	Assessing Microscale Marine Sediments By Insulator-Based Dielectrophoresis
4	Atsar, felix 🌵	Online Integration Of Capillary Electrophoresis And Dual Detector Taylor Dispersion Analysis (CE-TDA) Via A 3D Printed Instrument For Peak Identification In Antibody And Protein Digestion
6	Flanagan, Lisa	Glioma Chemotherapeutic Resistance Is Tied To Membrane Electrophysiological Properties And Glycosylation
8	Naghdi, Elahe 🌵	Cation-Exchange Hemoglobin Variant Separation At Low Salt Concentration
10	Santos, Hellen	Effects Of Dextroamphetamine On The Urinary Excretion Of Catecholamines And Their Metabolites: A Capillary Electrophoresis Study
12	Bourger, Hillary	Development Of A Multi-Detector Approach To Taylor Dispersion Analysis : High Precision Molecular Sizing
14	Lopez, Ana	Characterization Of Surface Coatings For Use In Droplet Microfluidics
16	Brown, Quintin	In-Plane Nanofluidic Devices With Asymmetrically Spaced Nanopores For Bidirectional Electrophoresis Of Single Particles
18	Enriquez, Sarahi	A Multivariate Calibration Model For Quantifying Short Oligonucleotides Based On Real-Time Observations Of Rolling Circle Amplification
20	Sanches Silva, Ana	Challenges Of Methods' Miniaturization For Evaluation Of Contaminants In Fruit By-Products Extracts
22	Acácio de Souza, Layla	Analysis Of Dextroamphetamine And Its Metabolites By Capillary Electrophoresis With Diode Array (Dad) And Capacitively Coupled Contactless Conductivity Detection
24	Bu, Shulin	Development Of Reference Materials And Dielectrophoretic Characterization Of Micro- And Nanoplastics In Biomedical Contexts
26	Prout, Ashley	Capillary Electrophoresis For Multivalent Recombinant Virus-Like Particle Vaccine Purity Determination

Poster Number	Presenter	Title
28	Ibsen, Stuart	Pancreatic Cancer Detection Using Cancer-Derived Nanoparticles Containing Orthogonal Biomarkers Recovered From Plasma By Dielectrophoresis
30	Cain, Caitlin	A Peak Shape-Based Metric To Identify And Reduce Feature Degeneracy In Untargeted Lc-Ms Metabolomics Data
32	Cruz Villarreal, Jorvani	Colorimetric Time-Temperature Indicators Of Biospecimen Exposure To Thawed Conditions
34	Jackuliaková, Patrícia	Preparation And Quality Control Of Modern Dosage Forms For Alternative Administration Rout Of Monoclonal Antibody Tocilizumab By Inhalation