

2021 Preliminary Technical Oral Program

Here is the preliminary list of oral invited and contributed sessions. The Poster Sessions are on the pages 16-19

MONDAY MORNING, NOVEMBER 15

Time	Title, Author(s)
EAS Young Investigator Award Honoring Jacob Shelley, Rensselaer Polytechnic Institute Chair: Gary M. Hieftje, Indiana University	
9:00am	Presentation of the EAS Young Investigator Award
9:05am	<i>Plasmas and Droplets and Mass Spectrometers, Oh My: New Analytical Uses for Century-Old Tools</i> , <u>Jacob Shelley</u> , Montwaun Young, Brian Molnar, Garett MacLean, Sunil Badal, Courtney Walton, Rensselaer Polytechnic Institute
9:30am	<i>Alternative Ionization Sources for Mass Spectrometry: Bridging the Gap Between the Sample and the Mass Spectrometer</i> , <u>Steven Ray</u> , Kelsey Williams, Khue Hguyen, Eric Jensen, Christopher Brais, State University of New York - Buffalo
10:00am	Break
10:30am	<i>Chemical Analysis and Diagnosis In-Vivo with the MasSpec Pen Technology</i> , <u>Livia Eberlin</u> , State University of Texas - Austin
11:00am	<i>Accelerated Droplet Chemistry: The Capture of Fleeting Intermediates and Analytical Applications</i> , <u>Abraham Badu-Tawiah</u> , The Ohio State University

POWERHOUSE SESSION Cannabis Testing: Challenges in Developing Applications for Product Analysis, Quality Control and Development Chair: Anthony Provas, University of Connecticut	
9:00am	<i>Know Your Grow: Cannabis Phenotyping with Mass Spectrometry</i> , <u>Robert Di Lorenzo</u> , SCIEX
9:30am	<i>How Cannabis Regulations are often Counter-Productive to Ensuring Consumer Safety</i> , <u>Susan Audino</u> , S Audino & Associates
10:00am	Break
10:30am	<i>To Be Announced</i> , <u>Jose Zavaleta</u> , AltaSci Labs
11:00am	Panel Discussion

Handheld Spectrometers 1: Safety and Quality Control, sponsored by Rigaku Analytical Devices, Inc. Chair: Suzanne Schreyer, Rigaku Analytical Devices	
9:00am	<i>Use of the Progeny HH Raman for Identity and Polymorphic Form Testing of Lyndra Therapeutics Novel Extended Release Dosage Form</i> , <u>Michelle O'Connor</u> , Lyndra Therapeutics
9:30am	<i>Utilization of Portable Diffuse Reflectance and Raman Spectrometers to Characterize Pharmaceuticals for Public Health Programs</i> , <u>Christopher Harmon</u> , Matthew Eady, Ed Bethea, Steve Sortijas, David Jenkins, FHI360
10:00am	Break
10:30am	<i>Portable Sensor and Spectroscopic Devices for Evaluating Seafood Decomposition</i> , <u>Betsy Jean Yakes</u> , United States Food & Drug Administration
11:00am	<i>Safety and Security Dependence on Ion Mobility Spectrometry and other Portable Spectrometers</i> , <u>Pauline Leary</u> , Federal Resources

Improving Efficiency in Separation Technology, sponsored by the Chromatography Forum of the Delaware Valley Chair: Mary Ellen McNally, FMC Agricultural Solutions	
9:00am	<i>Simulations and Selected Applications of Sequential Elution Liquid Chromatography for Improved Resolution via Enhanced Peak Capacity and Reduced Separation Disorder</i> , <u>Joe Foley</u> , Lauren Kline, Zhiyang Liu, Drexel University
9:30am	<i>The Impact of Gas Chromatography in Odor Analysis on Household Care and Textiles Applications</i> , <u>Marcelo Filgueira</u> , IFF Health and Biosciences
10:00am	Break
10:30am	<i>Effective Applications of Supercritical Fluid Chromatography for Difficult Pharmaceutical Challenges</i> , <u>Michael Hicks</u> , Erik Regalado, Jimmy DaSilva, Paul Walsh, Yong Liu, Justin Pennington, Merck & Co., Liam Corcoran, MSD
11:00am	<i>Using Various Chromatographic and Mass Spectrometric Techniques to Obtain the Best Possible Information on High-Molecular Weight Analytes</i> , <u>Peter Schoenmakers</u> , Jessica Desport, Leon Niezen, Ron Peters, University of Amsterdam

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Monday Morning continued

Pharmaceutical Characterization and Quantitation Using Advanced Separation and Spectroscopy	
Chair: Oscar Liu, Silver Spring Scientific LLC	
9:00am	<i>High-Throughput and Wide Range Protein Concentration Determination of Monoclonal Antibodies</i> , <u>Erin Wilson</u> , <u>Mohammad Zahid Khan</u> , <u>Byron DiPaolo</u> , GlaxoSmithKline
9:30am	<i>Characterization of Zwitterionic HILIC Columns Based on Hybrid Organic/Inorganic Particles</i> , <u>Thomas Walter</u> , <u>Kenneth Berthelette</u> , <u>Jessica Field</u> , <u>Nicole Lawrence</u> , <u>Amit Patel</u> , <u>Stephen Shiner</u> , <u>Kerri Smith</u> , Waters Corp.
10:00am	Break
10:30am	<i>Dynamic Mixing Modulation (DMM), a Simple, Novel Approach for Addressing Mobile Phase Incompatibility in 2D-LC (RPLC-HILIC)</i> , <u>CJ Venkatramani</u> , Genentech
11:00am	<i>Complete Site-Specific Deuteration Analysis with Molecular Rotational Resonance Spectroscopy</i> , <u>Reilly Sonstrom</u> , <u>Justin Neill</u> , <u>BrightSpec</u> , <u>Martin Holdren</u> , <u>Channing West</u> , <u>Haley Scolati</u> , <u>Brooks Pat</u> , University of Virginia, <u>Zoua Pa Vang</u> , <u>Albert Reyes</u> , <u>Samantha Sloane</u> , <u>Isabella Alansari</u> , <u>Mitchell Mills</u> , <u>Joseph Clark</u> , Marquette University

Managing your Laboratory throughout the Pandemic	
Chair: Dennis Swijter, Association of Laboratory Managers (ALMA)	
9:00am	<i>Remote Working: Making the Best of It</i> , <u>Veronica Godley</u> , San Antonio Water System
9:30am	<i>Effective Performance Reviews</i> , <u>Tammy Germini</u> , Geisinger
10:00am	Break
10:30am	<i>Managing Changes</i> , <u>Pascal Wambua</u> , Pwani Oil Products
11:00am	<i>Our New Normal: How to Help our Staff Thrive while Working from Home</i> , <u>Tracy Wieder</u> , Uhealth Sylvester Comprehensive Cancer Center

Environmental Challenges in 2021	
Chair: Shelby Coleman, SUNY College of Environmental Science and Forestry	
9:00am	<i>Population Health and Environmental Justice Based Prioritization of Electric Generating Unit Displacement in the Carbon Neutral Energy Transition</i> , <u>Michael Petroni</u> , SUNY College of Environmental Science and Forestry
9:30am	<i>COVID-19 Pandemic Environmental Impact: Risk Assessment Challenges</i> , <u>Babasheb Sonawane</u> , Georgetown University, <u>Abdel Kadry</u> , University of Maryland
10:00am	Break
10:30am	<i>Preliminary Treatments to Combat cHABs Using UV-C, Sonication, Ozone, and Aeration on cyanobacterial Cultures and Lake Water</i> , <u>Dominique Derminio</u> , <u>Jason Dean</u> , <u>Eget Liber</u> , <u>Andrew Bishuk</u> , Keuka College, <u>Gregory Boyer</u> , SUNY College of Environmental Science and Forestry
11:00am	<i>Assessing Systemic Exposure Following Inhalation Exposure in Rodents: A Tale of Alkylbenzenes</i> , <u>Esra Mutlu</u> , National Institute of Health

High Performance Thin Layer Chromatography (HPTLC)	
Chair: Leonel Santos	
9:00am	<i>A Validated High-Performance Thin-Layer Chromatography Method for Monitoring Glucose and Malto Oligosaccharides with Multiple Degree of Polymerization During Bioethanol Production from Corn Biomass</i> , <u>Wilmer Perera</u> , <u>Mckenzie Britt</u> , CAMAG Scientific, Inc.
9:30am	<i>HPTLC/MS Analysis of Banisteriopsis caapi and Psychotria viridis for the Purpose of Determining Variability Among Different Accessions of the Active Compounds with the Intention of Predicting the Quality and Potential Efficacy of the Ancient Amazonian Therapeutic Botanical Medicine Admixture, Ayahuasca</i> . <u>Sidney Sudberg</u> , Alkemist Labs
10:00am	Break
10:30am	<i>Identification of Elderberry (S. nigra) Using HPTLC, HPLC and UV-Vis and Detection of its Adulterants in the World of Dietary Supplements</i> , <u>Brittany Brodziski</u> , <u>Erica Deprey</u> , <u>Adam Hoffman</u> , Nature's Way
11:00am	<i>Separation of Tryptamine Based Hallucinogens Using HPTLC</i> , <u>Kelsey Patterson</u> , <u>Jeanne Berk</u> , <u>Thomas Brettell</u> , Cedar Crest College, <u>Matthew Wood</u> , Ocean County Sheriff's Department

MONDAY AFTERNOON, NOVEMBER 15

Time	Title, Author(s)
EAS Award for Outstanding Achievements in the Fields of Analytical Chemistry	
Honoring Kenneth Suslick, University of Illinois at Urbana-Champaign	
Chair: Jonathan Sweedler, University of Illinois at Urbana-Champaign	
1:30pm	Presentation of the EAS Award for Outstanding Achievements in the Fields of Analytical Chemistry
1:35pm	<i>The Optoelectronic Nose: An Adventure in Molecular Recognition</i> , <u>Kenneth Suslick</u> , University of Illinois at Urbana-Champaign
2:00pm	<i>Mechanisms for Selectivity in Chemiresistive Gas Sensors</i> , <u>Timothy Swager</u> , Massachusetts Institute of Technology
2:30pm	<i>New Ideas for Optical Detection in Droplet Microfluidic-Based Analysis</i> , <u>Ryan Bailey</u> , University of Michigan
3:00pm	<i>Mass Spectrometry-Based Chemical Characterization of the Cells in the Brain</i> , <u>Jonathan Sweedler</u> , University of Illinois at Urbana-Champaign

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POWERHOUSE SESSION: Space and Atmospheric Instruments and Analysis Chair: James Rydzak, Specere Consulting	
1:30pm	<i>Miniaturization of Instruments for Planetary Exploration</i> , Nikzad Toomarian, NASA Jet Propulsion Lab
2:00pm	<i>Water on the Moon: MEMS Based NIR Spectrometers on the 2009 LCROSS Mission</i> , <u>David Day</u> , SCIAPS
2:30pm	<i>Visible to Infrared Imaging Spectroscopy for Earth Science and Discovery Through the Solar System</i> , <u>Robert O. Green</u> , Jet Propulsion Lab
3:00pm	Panel Discussion

Novel Surface Chemistry to Solve Analytical Challenges Related to COVID-19 Chair: Fabrice Gritti, Waters Corporation	
1:30pm	<i>Application of Polymeric Anion-Exchange and Polymeric Reversed-Phase Media for the Analysis of mRNA and Viral Vectors Relevant to Covid-19 Therapeutics</i> , <u>Christopher Pohl</u> , Thermo Fisher Scientific
2:00pm	<i>Critical Role of Mobile Phase pH in LC-MS of Oligonucleotides</i> , <u>Guilherme Guimaraes</u> , Michael Bartlett, University of Georgia
2:30pm	<i>Tailoring Surface Properties of Microextraction Devices for COVID-19 Diagnostics</i> , <u>Jared Anderson</u> , Derek Eitzmann, Marcelino Varona, Iowa State University
3:00pm	<i>A Polyphenylene-Like Stationary Phase for HPLC</i> , <u>Luis Colón</u> , Brandon Salazar, University at Buffalo-SUNY

Handheld Spectrometers II: Cultural Heritage, XRF and LIBS, sponsored by Rigaku Analytical Devices, Inc. Chair: Suzanne Schreyer, Rigaku Analytical Devices, Richard Crocombe, Crocombe Spectroscopic Consulting	
1:30pm	<i>Handheld LIBS and XRF; Friends or Foes?</i> , Stanislaw Piorek, Rigaku Analytical Devices
2:00pm	<i>Integration of Portable Spectroscopy into Undergraduate Teaching and Research</i> , <u>Mary Kate Donais</u> , Saint Anselm College
2:30pm	<i>Taking the Lab to the Field - The Trials and Tribulations of Performing in-Field XRF and LIBS Analysis</i> , <u>Debbie Griggs</u> , Rigaku Analytical Devices
3:00pm	<i>State-of-the-Art Portable XRF in the Archaeological Sciences</i> , <u>Ellery Frahm</u> , Yale University

Practical LC in a Regulatory Environment, sponsored by the Chromatography Forum of the Delaware Valley Chair: Erin Ennis Ballinger, FMC Corporation	
1:30pm	<i>Coloring within the Lines. Making Allowed Adjustments to Compendial Methods for Faster Analysis Using Superficially Porous Columns</i> , <u>William Long</u> , Carl Griffin, Agilent Technologies
2:00pm	<i>HPLC in the Ag Regulatory Environment</i> , <u>Steve Hansen</u> , FMC Corporation
2:30pm	<i>Dual-Column Switching with Backflushing to Increase Sample Throughput and Robustness in the UHPLC-MS/MS Analysis of Chemical Residues in Foods</i> , <u>Steven Lehotay</u> , Alan Lightfield, United States Department of Agriculture
3:00pm	<i>Compendial HPLC Harmonization: Latest Proposed Changes in Chapter <621> Chromatography</i> , <u>Horacio Pappa</u> , United States Pharmacopeia

Emerging Environmental Contaminants Chair: Satinder Ahuja, Ahuja Consulting	
1:30pm	<i>Analysis and Treatment of Contaminants of Emerging Concern in Municipal Wastewater</i> , <u>Sukalyan Sengupta</u> , University of Massachusetts-Dartmouth
2:00pm	<i>Successes and Challenges in Determining Absorbable Organic Fluorine as a Surrogate to Total PFASs in Water Samples</i> , <u>Mei Sun</u> , <u>Yuling Han</u> , <u>Vivek Pulikkal</u> , University of North Carolina-Charlotte
2:30pm	<i>Emerging Contaminants: Environmental Fate and Dynamics</i> , <u>Satinder Brar</u> , <u>Rama Pulicharla</u> , York University
3:00pm	<i>Remediation of Emerging Environmental Contaminants through Green Chemistry</i> , <u>Rakesh Kumar Sharma</u> , Delhi University, <u>Satinder Ahuja</u> , Ahuja Consulting

NMR Spectroscopy Instrumentation and Application Chair: Joseph Lubach, Genentech, Inc.	
1:30pm	<i>Molecular Packing in Drug-Rich Domains of Posaconazole and Flutamide Amorphous Solid Dispersions Using 19F Solid-State NMR Spectroscopy</i> , <u>Pyae Phyo</u> , <u>Wei Xu</u> , <u>Yongchao Su</u> , Merck & Co., Inc.
2:00pm	<i>Investigating the Mechanism of Substrate Binding in the Solar Water Oxidation Reaction of Photosystem II Using Two-Dimensional Hyperfine Sub-level Correlation Spectroscopy</i> , <u>K. V. Lakshmi</u> , <u>Vidmantas Kalendra</u> , <u>Rensselaer Polytechnic Institute</u> , <u>Gourab Banerjee</u> , <u>Ipsita Ghosh</u> , <u>Ke Yang</u> , <u>Victor Batista</u> , <u>Gary Brudvig</u> , Yale University
2:30pm	<i>Insights into the Mechanism and Energetics of Chiral Guest Discrimination by Bile Micelles</i> , <u>David Rovnyak</u> , <u>Shelby Valent</u> , <u>Chad Sussman</u> , <u>Timothy Strein</u> , Bucknell University
3:00pm	<i>Screening for Chemical Migration from Adhesive into the Drug Product</i> , <u>Punna Rao Suryadevara</u> , <u>Venu Sunkavalli</u> , <u>Sushmeet Singh</u> , <u>Radha Krishna (RK) Tatini</u> , Akorn Pharmaceuticals

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Forensic Analysis	
Chair: Dave Trimble, Northrop Grumman Corp	
1:30pm	<i>Seeing is Believing: Hyperspectral Imaging in Pharmaceutical Forensics</i> , <u>Ravi Kalyanaraman</u> , Jeremy Peters, Shan Xiao, Bristol-Myers Squibb
2:00pm	<i>Application of Fentanyl Analog Screening Kit Toward the Evaluation of Portable GC-MS for Field Use</i> , <u>Rebecca Chan – Chao</u> , Koby Kizzire, Brooke Kammrath, University of New Haven, Pauline Leary, Federal Resources
2:30pm	<i>Forensic Discrimination of Copper Metal by Laser Induced Breakdown Spectroscopy (LIBS)</i> , <u>Chase Notari</u> , Brooke Kammrath, University of New Haven
3:00pm	<i>Improving the Molecular Indicators of Abrus Precatorius</i> , <u>Christina Robb</u> , The Connecticut Agricultural Experiment Station, Kirk Gaston, Forensic Chemistry Center

Pharmaceutical Analytical Solutions to Meet Patient Needs in a Pandemic	
Chair: Kim Huynh-Ba, Pharmalytik, LLC	
1:30pm	<i>Overview and Highlights of USP <1469> Nitrosamine Impurities</i> , <u>Edmond Biba</u> , United States Pharmacopeial Convention
2:00pm	<i>The Science Behind Hand Sanitizers: Analytical Challenges and Regulations</i> , <u>Brenda Jensen</u> , Compounding Consultants, LLC
2:30pm	<i>Determination of Crystallinity of Active Pharmaceutical Ingredients Using DSC and XRD</i> , <u>Jing Qu</u> , University of Delaware
3:00pm	<i>Investigating Stability of Solid-State Protein Formulations Using Solid-State NMR</i> , <u>Yongchao Su</u> , Merck & Co., Inc.

KEYNOTE LECTURE

Monday, November 15, 4:00pm

Exploring Mars with Curiosity and Perseverance
Dr. Roger Wiens, Los Alamos National Laboratory

*All registered Conferees, Attendees and Exhibitors are invited to attend.
 A reception will be held immediately following the lecture.*

TUESDAY MORNING, NOVEMBER 16

BREAKFAST LECTURE on MICROPLASTICS

Tuesday, November 16, 8:00am

Identification and Characterization of Microplastics and Nanoplastics Using Raman Spectroscopy
Dr. Bridget A. O'Donnell, HORIBA Scientific

Toxicological Concerns of Microplastics
Prof. Phoebe Stapleton, Environmental and Occupational Health Sciences Institute, Rutgers University

*All registered Full Conferees and Full-Time Student Conferees are invited
 to attend the Breakfast Lecture. A light breakfast will be provided.*

Time	Title, Author(s)
EAS Award for Outstanding Achievements in Separation Sciences	
Honoring Mary Ellen McNally, FMC Corporation	
Chair: Thomas Brettell, Cedar Crest College	
9:00am	<i>Challenges in the Analysis of Emerging Drugs in Crime Labs</i> , Thomas Brettell, Cedar Crest College
9:30am	<i>Why Understanding Fundamentals is Critical in Developing Sample Preparation Devices</i> , <u>Janusz Pawliszyn</u> , University of Waterloo
10:00am	<i>Break</i>
10:30am	<i>Enhanced Fluidity Liquid Chromatography, EFLC: Current Scope and Future Directions</i> , <u>Susan Olesik</u> , O'Donnell Sylvester, The Ohio State University
11:00am	Presentation of the EAS Award for Outstanding Achievements in Separation Sciences
11:05am	<i>Chromatography Providing Anti-Counterfeiting Solutions</i> , <u>Mary Ellen McNally</u> , FMC Corporation

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Time	Title, Author(s)
EAS Award for Outstanding Achievements in Chemometrics Honoring Scott Ramos, Infometrix, Inc. Chair: Peter Wentzell, Dalhousie University	
9:00am	<i>Utilizing Chemometric Tools in Undergraduate Education</i> , Amber Hupp, College of the Holy Cross
9:30am	<i>Maximizing Returns by USING Data in Manufacturing</i> , Mary Beth Seasholtz, Leo Chiang, Ryan Crowley, Anna Zink, Dow Inc.
10:00am	Break
10:30am	<i>Factor Analysis Methods You Don't Know About, But Probably Should</i> , Peter Wentzell, Cannon Giglio, Dalhousie University, Mohsen Kompany-Zareh, Institute for Advanced Studies in Basic Sciences
11:00am	Presentation of the EAS Award for Outstanding Achievements in Chemometrics
11:05am	<i>Multivariate Lessons for the Analytical Chemist</i> , Scott Ramos, Infometrix, Inc.

60 Years of Spectroscopic Innovation: IR, NIR, Raman and Atomic Chair: David Schiering, RedWave Technology	
9:00am	<i>NIR A History of Success</i> , Franklin Barton, Light Light Solutions Instruments, Inc.
9:30am	<i>Mid-IR Spectroscopy - Still Useful after All These Years</i> , David Schiering, RedWave Technology
10:00am	Break
10:30am	<i>Raman Shifts from Instrument Driven Applications to Application Driven Instruments. A 60 Year History and Journey</i> , Andrew Whitley, Bridget O'Donnell, HORIBA Scientific
11:00am	<i>Analytical Atomic and Plasma Spectrometry: Highlights from 1959 (the Birth of EAS) to the Present</i> , Gary Hieftje, Indiana University

3D Printing & Analytical Chemistry Chair: Brooke Kammrath, University of New Haven	
9:00am	<i>SMALL Things can make a BIG Difference: How Particle Characterization can Improve the Quality of 3D Printed Parts</i> , Deborah Huck-Jones, Ben Pattison, Malvern Panalytical Ltd.
9:30am	<i>Additive Manufacturing in Forensic Science</i> , Corey Scott, United States Federal Bureau of Investigation
10:00am	Break
10:30am	<i>Implementing Processing Strategies and Unique Hot Isostatic Pressing Treatments to Control Grain Structure, Defect Content and Mechanical Properties of Additively Manufactured Metals</i> , Jake Benzing, Nik Hrabe, Enrico Lucon, Tim Quinn, National Institute of Standards & Technology, Magnus Ahlfors, Quintus Technologies
11:00am	Panel Discussion: 3D Printing & Analytical Chemistry

NMR as a Versatile and Adaptive Tool in Pharmaceutical Characterizations of Chemical Modalities and Biologics Chairs: Yongchao Su, Merck & Co., Kang Chen, United States Food & Drug Administration	
9:00am	<i>Atomic-Resolution Investigation of Pharmaceuticals and Biomacromolecules by Ultrafast Solid-State NMR Spectroscopy</i> , Ayyalusamy Ramamoorthy, University of Michigan
9:30am	<i>NMR Based Similarity Metrics for Higher Order Structure Assessment among U.S. Marketed Insulin Therapeutics</i> , Deyun Wang, United States Food & Drug Administration
10:00am	Break
10:30am	<i>Investigating Physical and Chemical Stabilities of APIs by Magnetic Resonance Techniques</i> , Shu-Yu Liao, Haihong Chen, Jean-Christophe Hus, Jianwei Li, Yiqing Lin, Rasika Phansalkar, Rupa Sawant, Laura Silvian, Kenny Tran, Bo Wang, Fengmei Zheng, Biogen, Kalina Rangelova, Ivan Sergeev, Jochem Struppe, Bruker
11:00am	<i>Understanding Structure and Spatial Distribution of Multi-component LNP Drug Delivery System using Advanced ssNMR and DNP</i> , Anuji Abraham, Bristol Myers Squibb

Application of Mass Spectrometry for Analysis of New Modalities, organized by the North Jersey Mass Spec Discussion Group Chair: Long Yuan, Biogen	
9:00am	<i>HRMS Applications in Pharma Industry: From Small Molecule to Large Biomolecules</i> , Wendy Zhong, Merck & Co.
9:30am	<i>High-Resolution Mass Spectrometry Assay for Monitoring M-Proteins in Multiple Myeloma</i> , Rasa Santockyte, Jianing Zeng, Bristol Myers Squibb
10:00am	Break
10:30am	<i>Protein LC-MS: Advanced Tools for Next-Generation Assays in Bioanalysis</i> , John Kellie, GlaxoSmithKline
11:00am	<i>Hybridization LC-MS/MS: An Alternative Bioanalytical Method for Antisense Oligonucleotide Quantitation in Plasma and Tissue Samples</i> , Pei Li, Biogen

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New Innovations in ICP-MS, Catalytic Applications and RNA Formulations Chair: Penny Moore	
9:00am	<i>An Innovative Low Maintenance Nebulizer for ICP-MS</i> , <u>Sergei Leikin</u> , Texas Scientific Products
9:30am	<i>Multi-Quadrupole ICP-MS Analysis of the Elemental Composition in Raw Materials and Cell Culture Media</i> , <u>Aaron Hineman</u> , <u>Brady Frill</u> , <u>Andrea Palpini</u> , PerkinElmer Inc.
10:00am	<i>Break</i>
10:30am	<i>Simple Analytical Tools to Understand and Evaluate the Impact of Lewis Acidity on the Catalytic Activity of Metal Oxyhydroxides</i> , <u>Venkata Swaroopa Datta Devulapalli</u> , <u>Melissandre Richard</u> , <u>Eric Borguet</u> , Temple University, <u>Tian-Yi Luo</u> , <u>Mattheus DeSouza</u> , <u>Nathaniel Rosi</u> , University of Pittsburgh
11:00am	<i>Enabling Online Determination of the Size-Dependent RNA Content of Lipid Nanoparticle-Based RNA Formulations</i> , <u>Xiujuan Jia</u> , Merck & Co., Inc.

Analytical Environmental Chemistry Addressing Climate Control and More Chair: Anthony Provas, University of Connecticut	
9:00am	<i>Analysis of the Elemental Composition of Fine Particulate Matter (PM_{2.5}) Using ICP-MS</i> , <u>Tomoko Vincent</u> , <u>Daniel Kutscher</u> , <u>Sabrina Antonio</u> , Thermo Fisher Scientific
9:30am	<i>Solvent-Induced Degradation of Aqueous Per-Fluorocarbon Surfactants</i> , <u>Jason Runyon</u> , David Orescan, The Chemours Company
10:00am	<i>Break</i>
10:30am	<i>Analytical Chemistry is Providing Key Information about Climate, Past and Present, and is Enabling Progress in Modeling Future Climate</i> , <u>Roland Hirsch</u> , Retired
11:00am	<i>Noncovalent Binding of Ciprofloxacin with Sodium Dodecyl Sulfate and Perfluorooctanesulfonic Acid Molecular Pseudophase: Fluorescence and pH Studies</i> , <u>Carol Ajjan</u> , <u>Abul Hussam</u> , George Mason University

TUESDAY AFTERNOON, NOVEMBER 16

Time	Title, Author(s)
EAS Award for Outstanding Achievements in Mass Spectrometry Honoring Joseph Loo, University of California-Los Angeles Sponsored by Journal of the American Society for Mass Spectrometry Chair: Ying Ge, University of Wisconsin-Madison	
1:30pm	Presentation of the EAS Award for Outstanding Achievements in Mass Spectrometry
1:35pm	<i>Mass Spectrometry Au Naturel: A Tool for Structural Biology</i> , <u>Joseph Loo</u> , University of California-Los Angeles
2:00pm	<i>Using Mass Spectrometry to Probe Interactions at the Cell Surface</i> , <u>Catherine E. Costello</u> , Boston University School of Medicine
2:30pm	<i>Chemical Footprinting of Membrane Proteins</i> , <u>Michael Gross</u> , Washington University-St. Louis
3:00pm	<i>Top-Down MS of CEACAM-1 Glycoforms</i> , <u>Jonathan Amster</u> , University of Georgia

60 Years of Analytical Innovation: GC, LC, MS and NMR Chair: Cecil Dybowski, University of Delaware	
1:30pm	<i>Sixty Years of NMR Spectroscopy</i> , <u>Cecil Dybowski</u> , University of Delaware
2:00pm	<i>Sixty Years of Development in Mass Spectrometry</i> , <u>Barbara Larsen</u> , International Flavors & Fragrances (retired)
2:30pm	<i>Sixty Years of Gas Chromatography, EAS, and Harold McNair</i> , <u>Nicholas Snow</u> , Seton Hall University
3:00pm	<i>Sixty Years of Liquid Chromatography: Instrumentation and Columns</i> , <u>Ron Majors</u> , ChromPrep Consulting

Spectrometric Calibration and Applications Chair: Shirley Fischer-Drowos, Widener University	
1:30pm	<i>Automating Calibrations for Optical Spectroscopy</i> , <u>Brian Rohrback</u> , Infometrix, Inc.
2:00pm	<i>Field Analysis of Low-Dose Fentanyl Mixtures by Portable IR</i> , <u>Kaitlin Farrell</u> , <u>Brooke W. Kamrath</u> , <u>Koby Kizzire</u> , University of New Haven, <u>Anthony DiDomenico</u> , <u>David W. Schiering</u> , RedWave Technology, <u>Pauline E. Leary</u> , Federal Resources
2:30pm	<i>Targeted Raman Analysis of Nasal Sprays</i> , <u>Sarah Shidler</u> , <u>Lucy Grainger</u> , <u>Tim Prusnick</u> , Renishaw Inc.
3:00pm	<i>UVVIS Simplification in Regulated Environments</i> , <u>Neil Schaefer</u> , Mettler Toledo

Applications of Atomic Spectroscopy: From ICP to XRF and Everything in Between Chair: Lydia Breckenridge, Bristol Myers Squibb	
1:30pm	<i>Exciting Moments of Science in ICP-OES</i> , <u>Erica Cahoon</u> , PerkinElmer
2:00pm	<i>Pushing the Boundaries of Pharmaceutical XRF</i> , <u>Sharla Wood</u> , <u>Lydia Breckenridge</u> , Bristol Myers Squibb
2:30pm	<i>Looking for Laser-Induced Breakdown Spectroscopy Signatures of Cancers and Neurological in Biomedical Fluids: Progress and Challenges</i> , <u>Noureddine Melikechi</u> , University of Massachusetts-Lowell
3:00pm	<i>Exposure to Geogenic Arsenic by Ancient Andeans: Determination of Hair Arsenic in Mummies Using LA-ICP-MS</i> , <u>Dulasiri Amarasiriwardena</u> , <u>Moheeb Ahmed</u> , Hampshire College, <u>Bernardo Arriaza</u> , University of Tarapacá

2021 Preliminary Technical Oral Program

Tuesday Afternoon continued

Characterization of Counterfeit, Adulterated, or Misbranded Dietary Supplements by HRMS	
Chair: Gene Hall, Rutgers University	
1:30pm	<i>Characterization of Counterfeit, Adulterated, or Misbranded Dietary Supplements by Atmospheric Solids Analysis Probe (ASAP) Mass Spectrometry, Gene Hall, Yizhen Chen, Alexi Ermakov, Rutgers University</i>
2:00pm	<i>"What You Don't Know CAN Hurt You!" High Resolution Mass Spectrometry with DART and Ambient Ionization to Identify Counterfeit and Adulterated Products, Robert Cody, JEOL</i>
2:30pm	<i>Analysis of Active Pharmaceutical Ingredients Found in Botanical Dietary Supplements by LC-MS/MS and HRMS, Alex Krynitky, Symbiotic Research</i>
3:00pm	<i>PDE-5 Inhibitor Analogs by LC-TIMS-MS/MS Reveal Structural Character, Artem Filipenko, Bruker Daltonics</i>

Nanoparticles and Nanobubbles Detection and Applications	
Chair: Dana Garcia, Arkema, Inc.	
1:30pm	<i>Analysis of Electromagnetic Adsorption of Novel Microwave Responsive Catalysts for Water Treatment, Fangzhou Liu, Wen Zhang, New Jersey Institute of Technology</i>
2:00pm	<i>Formation Detection and Stability Assessment of Nanobubble at Solid-Liquid Interface during Membrane Bubbling, Shan Xue, Taha Marhaba, Wen Zhang, New Jersey Institute of Technology</i>
2:30pm	<i>Ozone Nanobubble Generation and Detection in Water, Yihan Zhang, Wen Zhang, New Jersey Institute of Technology</i>
3:00pm	<i>Inductive Simulations: A Theoretical Analysis of Three Nanoparticle Systems, Brittany Rapp, George Mason University</i>

Ensuring Quality Measurements in Pharmaceutical Analysis	
Chair: Isabelle Vu Trieu, Waters Corp.	
1:30pm	<i>Assessment of 250-mL Volume Vessels for Use in Biorelevant Dissolution, Angela Hu, Wei Chen, Xujin Lu, Bristol Myers Squibb</i>
2:00pm	<i>Simultaneous Estimation of Acetaminophen, Chlorpheniramine Maleate, Methyl Paraben, Propyl Paraben, Sodium Benzoate and Their Related Impurities in Over-the-Counter Syrup Formulation, Ashok Kumar Palakurthi, Thirupathi Dongala, Aurex Laboratories LLC</i>
2:30pm	<i>The Importance of Titrations in Pharmaceutical Analysis: From the Basics to the Modern Method, Kerri-Ann Blake, Metrohm USA</i>
3:00pm	<i>Accurate Moisture Determination in Pharmaceutical Products, Kerri-Ann Blake, Metrohm USA</i>

Biopharmaceuticals & Essential Oils	
Chair: Satinder Ahuja, Ahuja Consulting	
1:30pm	<i>Application of Molecular Rotational Resonance for Rapid and Direct Authenticity Analyses of Essential Oils, Alexander Mikhonin, Donald Cannon, Reilly Sonstrom, Justin Neill, BrightSpec, Inc.</i>
2:00pm	<i>Effect of Detection Mode and Draw-Out Lens Diameter on GC-MS Analysis of Essential Oils Using Hydrogen Carrier Gas, Sara Japoni, Ed Connor, Iain Carrick, Peak Scientific Inc., Carlos Fidelis, UNICAMP</i>
2:30pm	<i>Software-Assisted Chromatographic Method Development for Characterization of Therapeutic Proteins, Szabolcs Fekete, Waters Corporation</i>
3:00pm	<i>Chemical Residual Analytical Method Development in Biopharmaceutical R&D, Lee Oliver, Katie Carnes, Kaitie Grinias, GlaxoSmithKline</i>

WEDNESDAY MORNING, NOVEMBER 17

POWERHOUSE PLENARY LECTURE
Advances in Vaccine Development to Fight against a Global Pandemic
Wednesday, November 17, 11:30am – 1:15pm
All registered Attendees are invited to attend.

Chair: Zhucheng (Susan) Yang, WuXi Biologics	
11:30am	<i>An Embarrassment of Riches: Developing Potency Assays for a Diverse Biologics Portfolio, Scott Umlauf, AstraZeneca</i>
11:55am	<i>Use of Novel and Platform Analytical Technologies for Rapid COVID-19 Vaccine Development, David Cirelli, Justin Sperry, Pfizer</i>
12:20pm	<i>Characterization of mRNA Based Vaccines, Huijuan Li, Moderna</i>
12:45pm	<i>Panel Discussion</i>

2021 Preliminary Technical Oral Program

Wednesday Morning continued

Time	Title, Author(s)
EAS Award for Outstanding Achievements in Magnetic Resonance Honoring Songi Han, University of California - Santa Barbara Sponsored by Bruker BioSpin and New Era Enterprises Chair: Alexej Jerschow, New York University	
9:00am	<i>Studies of Excited Protein Conformational States by Solution NMR</i> , <u>Lewis Kay</u> , University of Toronto
9:30am	<i>The Nitrogen-Vacancy Center in Diamond: A Magnifying Glass to See the Invisible</i> , <u>Carlos Meriles</u> , City College of New York
10:00am	Break
10:15am	<i>Electron Spin Control for Improving the Spatial Specificity and Sensitivity of NMR</i> , <u>Claudia Avalos</u> , New York University
10:45am	Presentation of the EAS Award for Outstanding Achievements in Magnetic Resonance
10:50am	<i>Enhancing the 'Vision' of NMR Spectroscopy by Dynamic Nuclear Polarization</i> , <u>Songi Han</u> , University of California - Santa Barbara

New York/New Jersey Sections of the Society for Applied Spectroscopy Gold Medal Award Honoring: Fran Adar, HORIBA Scientific Chairs: Dana Garcia, Arkema, Inc., Deborah Peru, DP Spectroscopy and Training	
9:00am	<i>Still Looking for Ways to Make Raman Spectroscopy Relevant</i> , <u>Fran Adar</u> , HORIBA Scientific
9:30am	<i>Extracting More Information from Spectra Using Two-Dimensional Correlation Analysis</i> , <u>Isao Noda</u> , University of Delaware
10:00am	Break
10:30am	<i>Forensic Sample Analysis Using Optical Microscopy and Raman Spectroscopy</i> , <u>Mark Witkowski</u> , United States Food & Drug Administration
11:00am	<i>Application of Raman Spectroscopy for Advanced Materials</i> , <u>Sergey Mamedov</u> , HORIBA Scientific

Innovative Approaches to Liquid Chromatography in Drug Development, sponsored by Chinese American Chromatography Association Chair: Yi He, John Jay College of Criminal Justice	
9:00am	<i>A Novel Multi-Segment Gradient Generic HPLC Method Strategy for New Chemical Entities</i> , <u>Michael Dong</u> , MWD Consulting
9:30am	<i>New Chromatographic Approaches to Small Molecule Pharmaceutical Analysis</i> , <u>James Grinias</u> , Samuel Foster, Sangeeta Kurre, Michelle Pham, Deklin Parker, John Boughton, Joshua Davis, Christopher Piccolo, Kyle Morrow, Dylan Winkens, Rowan University
10:00am	Break
10:15am	<i>Ultra-High-Throughput Analysis in Drug Discovery Using Acoustic Ejection Mass Spectrometry</i> , <u>Wilson Shou</u> , Bristol Myers Squibb
10:45am	<i>Micro Sampling Applications for THC: Multi-Dimensional LC/MS/MS Analysis of Dried Plasma Spots vs. LC/MS Screening of Breath Samples</i> , <u>Jack Henion</u> , Henion Enterprises, Changtong Hao, Advion, Peter Stambeck, Breath Explor, Olof Beck, Karolinska Institute

PAT: Continuous and Flow Chemistry Analysis Chair: James Rydzak, Specere Consulting	
9:00am	<i>On-Line UHPLC as PAT for Continuous Process Development and Manufacturing</i> , <u>Grace Russell</u> , Snapdragon Chemistry
9:30am	<i>Road to Laboratory of the Future with Integration of PAT into Modular Flow Platform</i> , <u>Frederic Buono</u> , Boehringer-Ingelheim Pharmaceuticals
10:00am	Break
10:15am	<i>Deep Dive into Optimization of PAT for a Continuous Direct Compression Platform</i> , <u>Elyse DiMaso</u> , Dongsheng Bu, Kevin Macias, Bristol Myers Squibb
10:45am	<i>Sampling Optimization for Blend Monitoring of a Low Dose Formulation in a Tablet Press Feed Frame Using Spatially Resolved Near-Infrared Spectroscopy</i> , <u>Andreas Roman</u> , Rutgers University

Forensic DNA Analysis: Technological Advances in Action, organized by the New Jersey Association of Forensic Scientists Chair: Tom Brettell, Cedar Crest College	
9:00am	<i>The Use of Synthetic DNA in Forensic Science</i> , <u>Jillian Conte</u> , MicroGEM
9:30am	<i>Achieving Total Weights of Evidence by Relieving Reliances on Boundaries and Assumptions</i> , <u>Catherine Grgicak</u> , Desmond Lun, Rutgers University
10:00am	Break
10:15am	<i>A Forensic DNA Case Study - Past, Present, and Future?</i> , <u>Amber Carr</u> , Federal Bureau of Investigation Laboratory
10:45am	<i>The Role of Analytical Chemistry in Forensic DNA Analysis</i> , <u>John Butler</u> , National Institute of Standards and Technology

2021 Preliminary Technical Oral Program

Wednesday Morning continued

Proteomics & Metabolomics Chair: Neil Jespersen	
9:00am	<i>Proteomics Investigation of Ugandan Mothers for the Presence of Plasmodium and Viral Proteins in Breast Milk</i> , <u>Panashe Mutsengi</u> , Danielle Whitham, Costel C. Darie, Clarkson University, Thomas Egwang, Tonny Jimmy Owalla, Med Biotech Laboratories
9:30am	<i>Optimization of the In-Gel Trypsin Digestion for Proteomics Applications</i> , <u>Hannah Yorkey</u> , Danielle Whitham, Madhuri Jayathirtha, Costel Darie, Clarkson University
10:00am	Break
10:15am	<i>Investigation and Characterization of the Jumping Translocation Breakpoint (JTB) Protein Using Mass Spectrometry Based Proteomics</i> , <u>Madhuri Jayathirtha</u> , Danielle Whitham, Devika Channaveerappa, Costel Darie, Clarkson University
10:45am	<i>Proteomic Analysis of Human Breast Milk to Reveal Potential Protein Biomarkers for Breast Cancer</i> , <u>Danielle Whitham</u> , Roshanak Aslebagh, Devika Channaveerappa, Costel C. Darie, Clarkson University, Brian Pentecost, Kathleen F. Arcaro, University of Massachusetts-Amherst

Optical Technologies for Disease Screening and Diagnostics Session Chair: Fay Nicolson, Dana-Farber Cancer Institute	
9:00am	<i>SERS-Based Biosensing at the Point-of-Care</i> , <u>Samuel Mabbott</u> , Texas A&M University
9:30am	<i>Targeting the Oncogene HPV16 E7 with Affibody Molecules in Head and Neck Cancer</i> , <u>Sheryl Roberts</u> , Cien Huang, Tara Viray, Thomas Reiner, Kishore Naga Vara Pillarsetty, Memorial Sloan Kettering Cancer Center
10:00am	Break
10:15am	<i>Stimulated Raman Scattering (SRS) Imaging: The Next Frontier of Light Microscopy</i> , <u>Wei Min</u> , Columbia University
10:45am	<i>Phosphorescent Metalloporphyrins for Monitoring Skin Oxygenation during Hyaluronic Acid Induced Vascular Occlusion</i> , <u>Haley Marks</u> , Joshua Glahn, Juan Pedro Cascales, Xiaolei Li, Michael Wang-Evers, Emmanuel Roussakis, Conor Evans, Dieter Manstein, Massachusetts General Hospital Harvard Medical School

Chemometric Applications: A Subset of Machine Learning Chair: Brandy Smith-Goettler, Merck & Co., Inc.	
9:00am	<i>Realtime and Retrospective Applications of MVDA/Empirical Modelling</i> , <u>Cheryl Morris</u> , Merck & Co., Inc.
9:30am	<i>Visualizing UMAP for Data Compression and Classification</i> , <u>Barry Wise</u> , Eigenvector Research, Inc.
10:00am	Break
10:15am	ChemMLometrics. Perform. Repeat., <u>Brian Rohrback</u> , Infometrix, Inc.
10:45am	<i>Perspectives on the Interdisciplinary Nature of Chemometrics and the Future of its Identity as a Discipline</i> , <u>Paul Gemperline</u> , East Carolina University, Maryanne Cuellar, Kaiser Optical Systems, Paul Trevorrow, Wiley

WEDNESDAY AFTERNOON, NOVEMBER 17

Technology Advancements in HPLC/UHPLC Chair: Bill Barber, Chromatography Forum of the DE Valley	
1:15pm	<i>Racing Through Separations Unhindered: The Use of Monolithic UHPLC Columns for High-Throughput and Robust Analyses</i> , <u>Cory Muraco</u> , MilliporeSigma, Petra Lewits, Benjamin Peters, Merck KGaA
1:45pm	<i>Evaluating the Adsorbed Water Layer and Relative Retention of Polar Stationary Phases in Hydrophilic Interaction Chromatography (HILIC)</i> , <u>Yong Guo</u> , Fairleigh Dickinson University
2:15pm	<i>High-Throughput Chiral Screening Using HPLC and SFC with 3- and sub-2-μm Fully Porous Particles and 2.7-μm Superficially Porous Particles</i> , <u>Edward Franklin</u> , Melissa Wilcox, Scott Anderson, Regis Technologies, Inc.
2:45pm	<i>Streamlined Online/Offline Two-Dimensional Liquid Chromatography for Facile Selection of Stationary Phases and Mobile Phases in Both Dimensions</i> , <u>Heather Wang</u> , Miraslava Potapenko, Imad Haidar Ahmad, Erik Regalado, Merck & Co., Inc., Hayley Lhotka, University of Michigan

The Research from our Emerging Forensic Scientists, sponsored by New Jersey Association of Forensic Scientists Chair: Monica Joshi, West Chester University of PA	
1:15pm	<i>Development of a Rapid Drug Detection Method for Insects Using Paper Spray Ionization Mass Spectrometry (PSI-MS)</i> , <u>Alexandria Plyler</u> , Michael Van Stipdonk, Duquesne University
1:45pm	<i>Microscopic and Elemental Analysis of Archaeological and Modern Buried Hair Compared to Soil Composition: A Case Study of a Male Child and Adult Female from the Arch Street Project, PA</i> , <u>Gabrielle DiEmma</u> , Karen Scott, Arcadia University, Jillian Conte, MicroGem, Kimberlee Moran, Rutgers University
2:15pm	<i>Exploring Bodily Fluid Stain Identification Using Raman and IR Microspectroscopy</i> , <u>Morgan Maddock</u> , Megan Dunkle, Lawrence Quarino, Marianne Staretz, Cedar Crest College, Lisa Mertz, NY Office of Chief Medical Examiner
2:45pm	<i>Metabolic Profile Determination of 2F-Viminol – A Novel Synthetic Opioid (NSO) Identified in Forensic Investigations</i> , <u>Aracelis Velez</u> , Karen Scott, Arcadia University, Alex Krotulski, Center for Forensic Science Research and Education, Donna Papsun, NMS Labs

2021 Preliminary Technical Oral Program

Wednesday Afternoon continued

PAT in the Biopharmaceutical Industry Chair: Edita Botonjic, Pall	
1:15pm	<i>Non-Invasive, Continuous, Quantitative Detection of Powder Level, Mass Holdup and Moisture Fraction in Pharmaceutical GMP Vessels</i> , <u>William Blincoe</u> , Jasdeep Mandur, Anthony Tantuccio, Robert Meyer, Merck & Co., Inc., Michel Louge, Cornell University
1:45pm	Edita Botonjic, Pall
2:15pm	<i>In-Situ Machine Learning and Chemical Imaging to Elucidate Enzyme Immobilization for Biocatalysis</i> , Nicole Ralbovsky, Merck & Co.

New York Microscopical Society Ernst Abbe Award
Honoring: Professor Manu Prakash, Stanford University
Chairs: John Reffner, John Jay College of Criminal Justice, Brooke Kamrath, University of New Haven

Chemometrics and Related Applications Chair: Dave Russell	
1:15pm	<i>Comparison of Common Spatial Filtering Methods in Hyperspectral Imaging – Comparison of MAF, MNF, MDF and PCA with Implications for Global Anomaly Detection</i> , Neal Gallagher, Eigenvector Research, Inc.
1:45pm	<i>Evaluation of Classification Algorithms for Speciation of <i>Dalbergia</i> spp. Using Handheld Laser Induced Breakdown Spectroscopy (LIBS)</i> , <u>Caelin Celani</u> , Rachel McCormick, Amelia Speed, Karl Booksh, University of Delaware, William Johnston, Fairmont State University, James Jordan, United States Geological Survey

Sample Preparation Technologies: Leading Edge Advances and Developments Chair: Mary Ellen McNally, FMC Corporation	
1:15pm	<i>Microextraction Methodologies for the Analysis of Perfluoroalkyl Substances</i> , <u>Emanuela Gionfriddo</u> , Aghogho A. Olomukoro, Ronald V. Emmons, Nipunika H. Godage, The University of Toledo, Erasmus Cudjoe, PerkinElmer Inc.
1:45pm	<i>A New Rapid, Simple, and Efficient Extraction Method of PFAS from Soil</i> , <u>Benedict Liu</u> , Alicia Stell, Candice Cashman, CEM Corporation
2:15pm	<i>High-Throughput BioSPME Method for Determination of Plasma Protein Binding</i> , <u>Martin Ross</u> , Olga Shimelis, Hugh Cramer, Teresa Marsala, Yong Chen, Candace Price, MilliporeSigma
2:45pm	<i>Strategies for Modality Agnostic MALDI-MS Method Development</i> , <u>Debopreeti Mukherjee</u> , Timothy Nowak, Vladimir Shchurik, Gregory Pirrone, Benjamin Mann, Alexey Makarov, Merck & Co., Inc.

Bioanalysis & Biotechnology Chair: Mariann Neverovitch, Bristol Myers Squibb	
1:15pm	<i>Metal Ion Leaching of Stainless Steel, Titanium, MP35N and Hastelloy in Pure HPLC Solvents (Water, Methanol, and Acetonitrile) and its Potential Impact on HPLC Analysis</i> , <u>Jesse Bischof</u> , SilcoTek Corporation
1:45pm	<i>Direct Analysis of Native N-Linked Glycans by Infrared Matrix-Assisted Laser Desorption Electrospray Ionization (IR-MALDESI)</i> , <u>Crystal Pace</u> , Peggi M. Angel, Richard R. Drake, David Muddiman, North Carolina State University
2:15pm	<i>Microdroplet Ultrafast Reactions Speed Antibody Characterization</i> , <u>Hao Chen</u> , New Jersey Institute of Technology
2:45pm	<i>Simultaneous Monitoring Multiple Product Quality Attributes for Cell Culture Processes Using a LC/MS Based Multi-Attribute Method</i> , <u>JC Chen</u> , Chi Zhang, Yang Liu, Justin Shearer, GlaxoSmithKline

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