ASMS Fall Workshop Atmospheric Pressure Ionization: Fundamentals and Applications

November 14 – 15, 2019

Sonesta Philadelphia Rittenhouse Square

Organizers
Rachel O. Loo, *University of California, Los Angeles*
& Andre Venter, *Western Michigan University*

THURSDAY, NOVEMBER 14

8:00 – 8:30 **Continental Breakfast & Badge pick-up**, *Wyeth Ballroom Foyer (2nd Floor)*

8:30 – 8:35 **FUNDAMENTALS** - Opening Remarks

SESSION 1: UNDERSTANDING IONIZATION
All talks include 5 minutes of discussion

8:35 – 9:25 **01 History of Atmospheric Pressure Spray Ionization,**
Richard B. Cole**,** *Sorbonne Université*

9:25 – 10:15 **02 Fundamentals of Gas-Phase Analyte Ion Formation through Charged Liquid or Solid Particles for Analysis by Mass Spectrometry**,
Charles N. McEwen, *University of the Sciences*

10:15 – 10:45 **Coffee Break**

SESSION 2: AMBIENT IONIZATION SOURCES & NATIVE MS
All talks include 5 minutes of discussion

10:45 - 11:35 **03 What are Direct and Ambient Ionization Methods?**,
Andre Venter, *Western Michigan University*

11:35 - 12:25 **04 Introduction to Native Mass Spectrometry: Concepts & Applications**,
Joseph A. Loo, *University of California, Los Angeles*

12:25 - 1:45 **Group Photo & Lunch hosted by ASMS**, *Whistler Ballroom (2nd Floor)*

SESSION 3: ESI EMITTERS AND CHARGE & STRUCTURE, SOLUTION & GAS PHASE
All talks include 5 minutes of discussion

1:45 – 2:35 **05 Charging in Electrospray Ionization**,
Evan R. Williams, *University of California, Berkeley*

2:35 – 3:25 **06 Gas Phase vs. Solution Phase Contributions to Charging, Structure and Folding**, Rachel O. Loo, *University of California, Los Angeles*

3:25 – 3:55 **Coffee Break**

SESSION 4: CHARGE & STRUCTURE, SOLUTION & GAS PHASE II
All talks include 5 minutes of discussion

3:55 – 4:55 **07 Uncovering Electrospray Mechanisms through Experiments and Molecular Dynamics Simulations**,
Lars Konermann, *University of Western Ontario*

4:55 – 5:30 **08 Deconvolution of Electrospray Mass Spectra: A Hands-On Workshop**,
Michael Marty, *University of Arizona*

5:30 – 6:30 **Happy Hour**

6:30 **Dinner on your own**

FRIDAY, NOVEMBER 15

8:00 – 8:30 **Continental Breakfast**

8:30 – 8:35 **APPLICATIONS** - Opening Remarks

SESSION 5: UNDERSTANDING IONIZATION II
All talks include 5 minutes of discussion

8:35 – 9:25 **09 Negative Ion Electrospray: Anion Attachment and the "Best Match" Model,** Richard B. Cole, *Sorbonne Université*

9:25 - 10:10 **10 Manipulating Analyte Charge State Distributions**, Rachel O. Loo, *University of California, Los Angeles*

10:10 - 10:35 **Coffee Break**

SESSION 6: DESI AND DESI IMAGING
All talks include 5 minutes of discussion

10:35 - 11:25 **11 Imaging of Lipids and Metabolites Using Liquid Extraction-Based Ionization Techniques**, Julia Laskin, *Purdue University*

11:25 – 12:15 **12 Improving the Detection of Proteins by DESI-MS**, Andre Venter, *Western Michigan University*

12:15 - 1:15 **Group Lunch hosted by ASMS**, *Whistler Ballroom (2nd Floor)*

SESSION 7: STUDY OF ELECTROCHEMISTRY
All talks include 5 minutes of discussion

1:15 – 2:05 **13 Development and Applications of Electrochemical Mass Spectrometry**, Hao Chen, *New Jersey Institute of Technology*

2:05 – 2:55 **14 Reactive Ambient Ionization for Quantitative Mass Spectrometry**, Abraham K. Badu-Tawiah, *Ohio State University*

2:55 - 3:20 **Coffee Break**

SESSION 8: STRUCTURAL ANALYSIS
All talks include 5 minutes of discussion

3:20 - 4:10 **15 Native Mass Spectrometry Analysis of Membrane Proteins and Lipids**, Michael Marty, *University of Arizona*

4:10 – 5:00 **16 Sample Prep and nESI Conditions Tailored to Meet Specific Needs, from Glycolipids to Glycoproteins**, Catherine E. Costello, *Boston University, School of Medicine*

5:00 – 5:15 **Closing Remarks**

These posters will be on display in the back of the workshop room. This is an informal poster session so there is not a set presentation time. The presenters have been instructed to be near their posters during the breaks.

1 **An Emerging Technology for Hit Discovery and Compound Profiling: Comparing Acoustic Mist Ionization-Mass Spectrometry to Conventional High-Throughput Screening Technology**; Arseniy M Belov[1]; Joseph Kozole[1]; Carl A Machutta[2]; Guofeng Zhang[2]; Melanie V Leveridge[2]; Luke Ghislain[3]; Sammy S Datwani[3]; Roland S Annan[1]; *[1]GlaxoSmithKline, Discovery Analytical, Collegeville, PA; [2]GlaxoSmithKline, Screening, Profiling and Mechanistic Biology, Collegeville, PA; [3]Labcyte, San Jose, CA*

2 **Induction Based Fluidics: A Decade of Applications with Discussion of Fundamentals**; Ron Shomo[1]; Andrew D Sauter, III[2]; Drew Sauter[2]; *[1]Adaptas Solutions, Palmer, MA; [2]Nanoliter LLC, Henderson, NV*

3 **Mass Spectrometry-Based Study of Diverse Metabolome from Overexpressed Type III Polyketide Synthase and Modifying Enzymes**; Gorkha Raj Giri; *South Asian University, New Delhi, India*

4 **Effects of Interfacial Surface Interactions on Cone-Jet Mode Electrospray Ionization**; Sau Lan Staats[1]; Anna Stolzfus[1]; Eliana Mccray[1]; Andris Suna[1]; *[1]Phoenix S & T, Inc, Chadds Ford, PA*

5 **Versatile (applications with) Metalspray in Mass Spectrometry Using an Omniphobic Surface**; Michael C Godwin[1]; William D. Hoffmann[1]; *[1]Texas State University, San Marcos, TX*

6 **A Comparison of Electrospray Ionization (ESI) and Paper Spray (PS) Ionization for the Analysis of Polyfluoroalkyl Substances (PFAS)**; Tavleen K. Kochar[1]; Megan R. Ogorchock[1]; Gary L. Glish[1]; *[1]University of North Carolina, Chapel Hill, NC*

7 **Addition of Serine Improves Protein Analysis during DESI-MS**; Roshan Javanshad; *Western Michigan University, Kalamazoo, MI*

8 **Assessment of Complimentary Atmospheric Pressure Ionization Techniques in Multi-Class Mycotoxin Analysis by LC-HRMS**; Julio Cesar C Espana[1]; Jairo Arturo Guerrero Dallos[1]; *[1]Universidad Nacional de Colombia, Bogota, Colombia*

9 **Delayed Desorption Improves Protein Analysis by DESI-MS**; Tara L Maser[1]; Elahe Honarvar[1]; Andre Venter[1]; *[1]Western Michigan University, Kalamazoo, MI*

10 **An Inexpensive Ultrasonic Desorption-Atmospheric Pressure Chemical Ionization for Broadband Liquid Sampling**; Linxia Song[1]; Yi You[2]; Nelson Rapalo Perdomo[1]; Theresa Evans-Nguyen[1]; *[1]University of South Florida, Tampa; [2]Federal Institute for Materials Research and Testing, Berlin, Germany*

11 **Solution Composition Effects on Charge State Distributions of Protein Ions Formed by Negative or Positive Mode Electrospray Ionization Mass Spectrometry**; Muhammad A Zenaidee[1]; Carter Lantz[1]; Rachel Ogorzalek Loo[1]; Joseph A Loo[1]; *[1]University of California, Los Angeles, Los Angeles, CA*

12 **Differential Analysis of Lipid Signal with Grounded and Charged DESI Emitter Potentials by FT-ICR MS**; Kevin J Zemaitis[1]; Troy D Wood[1]; *[1]University at Buffalo, Buffalo, NY*

13 **Deinococcus Radiodurans Transfer RNA Modified Nucleosides are Minimally Impacted UV Radiation**; Ruoxia Zhao[1]; Spencer Parrish[1]; Robert Ross[1]; Balasubrahmanyam Addepalli[1]; Patrick A Limbach[1]; *[1]University of Cincinnati, Cincinnati, OH*