

**ASMS Conference Workshop:
Applying Ion Mobility-Mass Spectrometry to Challenges in Proteomics and Systems Biology
Ion Mobility Interest Group
Presiding: Brandon T. Ruotolo & Matthew F. Bush**

The ion mobility-related material at this year's ASMS started with the ion mobility-mass spectrometry two-day short course given by Prof. Herbert H. Hill and Prof. William Siems (Washington State University), which remains very well attended in its third year with 40 participants. The short course was divided into 8 sections: 1) History and types of ion mobility spectrometers; 2) The motion of ions in gases; 3) Analytical figures of merit for IMS instruments; 4) Collision cross sections in IMS; 5) Operation and Applications of standalone instruments; 6) Operation and application of Drift tube ion mobility spectrometers coupled to mass spectrometers; 7) Operation and application of FAIMS, DMS and DMA coupled to mass spectrometers; and 8) Operation and applications of the travelling wave IMS. The organizers intend to offer this short course again next year.

The interest group was very pleased with the inclusion of three ion mobility focused oral sessions for the 2012 conference. "FAIMS and DMS: New Developments and Applications" (chaired by Pierre Thibault) was held Tuesday morning and attended by >300 people. "Ion Mobility: Fundamentals" (chaired by Perdita Barran) and "Ion Mobility: Applications" (chaired by Matthew F. Bush), were both attended by >200 people, despite both being scheduled on Thursday. Beyond those in the three dedicated sessions, 15 additional presentations during the conference featured ion mobility techniques, data, or instrumentation. Of particular note is that these presentations were included in a diverse range of sessions, including "Fundamentals: Ion Spectroscopy", "Ion Traps and Hybrid Instruments: New Developments", "Imaging MS: Pharmaceutical Applications", "Advances in Nano-scale Separations for MS Analysis", and "Polymer MS: Materials, Medical Devices, and Pharmaceuticals". There were 179 ion mobility related posters at this year's ASMS, a 34 % increase over last year, 64 of which were presented in the three dedicated ion mobility poster sessions.

The workshop this year focused on applying ion mobility MS to challenges in proteomics and systems biology. More than 200 people attended the workshop, including many beyond the core ion mobility user community. One short tutorial lecture was followed by three brief research presentations. In-depth discussions followed each talk and the attendees took advantage of the opportunity to offer opinions or suggestions about the topics presented. The workshop went from 5:45 to 7:00 on Wednesday, May 23rd.

Workshop Presenting Participants

Utilizing IMS-MS Separations in Proteomic Studies

Erin Baker, Pacific Northwest National Labs

Strategies and Challenges in Dynamic Systems Biology Analysis Using Structural Mass Spectrometry

Jeffrey R. Enders, Christina C. Marasco, Kevin T. Seale, John P. Wikswo, John A. McLean
Vanderbilt University

Realization of the Promise of IM-MS in Differential Expression Proteomics

Erik J. Soderblom, J. Will Thompson, Matt W. Foster, Meredith E. Turner, M. Arthur Moseley
Duke University

Quantitative IM-MS^{AE} Proteomics

Brent Martin, University of Michigan

Respectfully,
Prof. Brandon T. Ruotolo
Assistant Professor, University of Michigan
IM-MS Interest Group Coordinator ('10-'12)

Prof. Matthew F. Bush
Assistant Professor, University of Washington
IM-MS Interest Group Coordinator ('12-'14)