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36th Fall Workshop on Mass Spectrometry
Fundamentals of Instrumentation

November 3 - 4, 2025

Arctic Bay Hotel, Seattle, WA

Co-Organizers

Matthew Bush, *University of Washington*

Nick Riley, *University of Washington*

ASMS Education Committee

Elyssia Gallagher

*ASMS Board Member-at-Large for Education
Baylor University*

Georgia Charkofktaki
Yale University

Will Fondrie
Talus Bio

Shunhai Wang
Regeneron

Zhibo Yang
University of Oklahoma

Monday, November 3

7:30-8:30 **Continental Breakfast & Badge Pick-Up**, *Northern Lights Dome Room*

8:30-9:00 **01 Overview and Figures of Merit**, *Northern Lights Dome Room*

Matt Bush, *University of Washington*

Nick Riley, *University of Washington*

9:10-9:40 **02 Detecting Charges and Digitizing Signals**

Evan Williams, *University of California, Berkeley*

9:50-10:20 **03 Vacuum Systems and Pressure Differentials**

Matt Bush, *University of Washington*

10:30-10:45 **AM Break**

10:45-11:15 **04 Ion Motion in the Free-Molecular Regime and Basics of Time of Flight**

William Johnson, *Waters Corporation*

11:25-11:50 **05 Electrodynamic Fields, Mathieu Stability Diagrams, and the Mass Filter**

Scott McLuckey, *Purdue University*

12:00-1:00 **Group Photo & Lunch**, provided by ASMS

Monday, November 3

- 1:00-1:30 **06 Ion Guides, Drift Tubes, and Ion Funnels**
Brian Clowers, *Washington State University*
- 1:40-2:10 **07 Instrumentation for Targeted Quantitation**
Mike MacCoss, *University of Washington*
- 2:20-2:35 **PM Break**
- 2:35-3:15 **Demos (Part 1 of 2)**
- **Time of Flight Demonstration**
Emmajay Sutherland, *University of Washington*
 - **Simulation of Ion Stability in a Quadrupole Field Using a Rotating Saddle**
Haley Schramm, *University of Washington*
 - **Deconstructed Instruments to Provide Hands-On Access to Instrument Parts**
Katie Kothlow, *University of Washington*
 - **Developing Mass Spectrometry Technologies**
AnneClaire Wagemen, *University of Washington*
- 3:15-3:45 **08 3-D and 2-D (linear) Electrodynamic Ion Traps**
Scott McLuckey, *Purdue University*
- 3:55-4:15 **09 Instrumentation for Imaging**
Ljiljana Paša-Tolić, *Pacific Northwest National Laboratory*
- 4:25-4:45 **10 Practical Aspects of Targeted Analysis**
Dan Raftery, *University of Washington*
- 5:00-6:00 **Happy Hour**

Tuesday, November 4

7:30-8:30 **Continental Breakfast**, Northern Lights Dome Room

8:30-9:00 **11 Advanced Concepts in Time-of-Flight**
William Johnson, *Waters Corporation*

9:10-9:40 **12 FT-ICR**
Ljiljana Paša-Tolić, *Pacific Northwest National Laboratory*

9:50-10:20 **13 Orbitraps**
John Syka, *Thermo Fisher Scientific*

10:30-10:45 **AM Break**

10:45-11:15 **14 Charge Detection Mass Spectrometry**
Evan Williams, *University of California, Berkeley*

11:25-11:55 **Panel Figures of Merit and Comparing Mass Analyzers**
All speakers

12:00-1:00 **Lunch**, provided by ASMS

Tuesday, November 4

- 1:00-1:15 **15 Quadrupole Time-of-Flight**
Matt Bush, *University of Washington*
- 1:15-1:30 **16 Ion Mobility Time-of-Flight**
Brian Clowers, *Washington State University*
- 1:30-1:45 **17 Hybrid Orbitrap**
John Syka, *Thermo Fisher Scientific*
- 1:45-2:05 **18 Pipelining Resources of Hybrid Instruments**
Mike MacCoss, *University of Washington*
- 2:05-2:35 **Discussion of Time Scales and Hybrid Instruments**
Panel with MacCoss, Bush, Clowers, and Syka
- 2:35-2:50 **PM Break**
- 2:50-3:30 **Demos (Part 2 of 2)**
- **Time of Flight Demonstration**
Emmajay Sutherland, *University of Washington*
 - **Simulation of Ion Stability in a Quadrupole Field Using a Rotating Saddle**
Haley Schramm, *University of Washington*
 - **Deconstructed Instruments to Provide Hands-On Access to Instrument Parts**
Katie Kothlow, *University of Washington*
 - **Developing Mass Spectrometry Technologies**
AnneClaire Wagemen, *University of Washington*
- 3:30-3:50 **19 Instrumentation for Shared-Use Facilities**
Dale Whittington, *University of Washington*
- 4:00-4:20 **20 Instrumentation for Quantitation of Large Numbers of Analytes**
Lindsay Pino, *Talus Biosciences*
- 4:30-5:00 **Panel Discussion on the Future of Instrumentation for MS**
All instructors