FTMS Interest Group Workshop Report

ASMS 2026, San Diego

Title: Beyond Accurate Mass: Mobility Separation and Ultrahigh-Resolution FTMS

Presiders: Martha Aguilera (National High Magnetic Field Laboratory / Florida State University) and Christopher Rüger (University of Rostock)

Date: Monday, June 1, 2026

Time: 5:45–7:00 PM

Attendance: Approximately 125

Overview

The 2026 FTMS Interest Group Workshop examined the integration of ion mobility separations with ultrahigh-resolution Fourier transform mass spectrometry (FTMS). Approximately 125 people attended. The program consisted of two sessions covering trapped ion mobility spectrometry (TIMS) coupled to FT-ICR MS and differential ion mobility approaches used with high-resolution mass spectrometry. Six presentations addressed instrumentation, data acquisition and processing, and applications to dissolved organic matter (DOM), imaging mass spectrometry, lithium-ion batteries, top-down proteomics, and isotopic measurements.

1. TIMS and FT-ICR MS: From Fundamentals to Emerging Applications (5:50–6:35 PM)

The first session covered analytical applications of TIMS–FT-ICR MS as well as the acquisition and processing demands of mobility-resolved, ultrahigh-resolution datasets.

Francisco Fernandez-Lima (Florida International University) described the combination of TIMS–FT-ICR MS/MS, Graph-DOM, and machine learning for the analysis of dissolved organic matter.

Christopher Wootton (Bruker Daltonics) reviewed recent advances in TIMS–FT-ICR MS acquisition and data analysis, together with remaining technical challenges.

Madeline Colley (Vanderbilt University) discussed imaging mass spectrometry with high spectral and spatial resolution.

Theo Sombret (University of Rouen) delivered the Young Scientist Short Talk on recent developments in lithium-ion battery analysis by TIMS–FT-ICR MS.

2. FAIMS and FTMS: Technology, Separation, and Isotopic Resolution (6:35–6:50 PM)

The second session focused on differential ion mobility methods and their use alongside high-resolution mass spectrometry.

Alex Shvartsburg (Wichita State University) presented the first use of low-field differential ion mobility spectrometry in top-down proteomics.

Steven DeFiglia (National High Magnetic Field Laboratory) described high-definition differential ion mobility spectrometry coupled with FT-ICR MS for isotopic shift measurements involving isotopologues separated by 0.9 mDa.

3. Discussion and Q&A (6:50–7:00 PM)

Audience questions addressed three practical issues: whether mass difference analysis (MDA) could be adapted to process TIMS-resolved imaging datasets; how FAIMS combined with high-resolution Orbitrap MS might improve selectivity for halogenated species; and how TIMS acquisition methods could be standardized across instrument platforms. The questions emphasized data interpretation and comparability of mobility-resolved measurements across laboratories.

4. Workshop Survey Feedback

The ASMS post-conference survey included 34 respondents who identified this workshop. On a five-point scale, mean ratings were 4.16 for quality, 4.22 for topics, and 3.91 for format (32 numerical ratings per category; two respondents selected “no opinion”).

The written feedback (13 comments) was more critical of the session format. Several respondents found the program too presentation-heavy, with insufficient time for questions and discussion. Some also perceived a strong emphasis on commercial instrumentation and requested a broader range of approaches and perspectives. Suggestions for future workshops included fewer scheduled presentations and more time for a moderated discussion.

Conclusions

The presiders thank the speakers and attendees for their contributions. The scientific questions raised during the workshop and the post-conference feedback provide useful direction for future FTMS Interest Group meetings.