

Fundamentals Interest Group Workshop

ASMS 2019, Atlanta, GA

Workshop Title: Structural Elucidation of Proteins

Organizers:

Christian Bleiholder (FSU), 2019 workshop chair,

Alexandre Shvartsburg (WSU), 2020 workshop chair

Meeting Date: Wednesday, June 5, 2019

Attendance: ~150

Our workshop has focused on mass-spectrometric approaches to the elucidation of protein structure from the primary to tertiary and quaternary levels. Alan Marshall (Florida State) taught the determination of primary structure of intact proteins via top-down workflows using Fourier-transform ion cyclotron resonance (FTICR) with CID and ECD fragmentation. Neil Kelleher (Northwestern) talked about the characterization of proteoform diversity employing bottom-up and top-down sequencing. The higher-order structure came next. David Russell (Texas A&M) presented the elucidation of protein conformations utilizing a novel high-resolution ion mobility (IM) method. James Prell (Oregon) discussed how the gas-phase geometries of proteins and their complexes derived from electrospray ionization relate to the native solution structures. Finally, Stephan Warnke (Rizzo Lab, EPFL, Switzerland) reported on the identification of carbohydrate isomers via laser spectroscopy preceded by IMS implemented in the structures for lossless ion manipulation (SLIM). The workshop closed late (7.20 PM) because of substantial number and diversity of questions and discussion topics. The small room size (some 90 seats) was a real problem: over 1/3 of the attendees had to stand or sit on the floor while others were unable to enter at all.