



2021 AWARDS

JOHN B. FENN AWARD FOR DISTINGUISHED CONTRIBUTION IN MASS SPECTROMETRY

The ASMS Award for Distinguished Contribution in Mass Spectrometry honors the memory of John B. Fenn who shared the 2002 Nobel Prize for the development of electrospray ionization. The award is conferred at the ASMS Annual Conference with the presentation of a \$10,000 cash award, a recognition plaque, and the award lecture.



Dr. Peter B. Armentrout is the 2021 recipient of the ASMS John B. Fenn Award for a Distinguished Contribution in Mass Spectrometry, for the development of robust experimental and statistical techniques for the determination of accurate thermochemistry. He developed the guided ion beam threshold dissociation approach to provide insights into the thermochemistry, kinetics, and dynamics of simple and complex chemical reactions. In addition, he developed a suite of software programs for statistically modeling the energy dependence of product formation for most reactive processes. He shared both the instrumentation designs and the software with labs around the world to enable the greater scientific community to study thermochemical processes.

These developments have allowed nearly 2500 distinct bond energies to be measured during his career. The impact of these fundamental measurements have been felt over many fields, including catalysis, biochemistry, surface chemistry, organometallic chemistry, and plasma chemistry.

Dr. Armentrout is the Henry Eyring Presidential Endowed Chair of Chemistry, University of Utah.

BIEMANN MEDAL

The Biemann Medal is awarded to an individual early in his or her career to recognize significant achievement in basic or applied mass spectrometry. The Biemann Medal was established by contributions to honor Professor Klaus Biemann. The Medal is conferred at the ASMS Annual Conference with the presentation of a \$5,000 cash award, engraved medal, and the award lecture.



Dr. Nuno Bandeira is the 2021 recipient of the ASMS Biemann Medal for significant contributions regarding the development of spectral alignment to connect the world's mass spectrometry data that is leading to the development of a data driven Google-type search engine for mass spectrometry data. Dr. Bandeira realized that similar to the alignment of protein sequences, unidentified MS/MS spectra can be aligned for the identification of modified and unmodified variants of the same peptide. It can also be applied to small molecules to identify drug-related metabolites or analogs.

In order to improve the efficiency of searching these data repositories, Dr. Bandeira created the foundation of a Google search network by precomputing the large-scale network of all available MS/MS data in the MassIVE public mass spectrometry data repository. The master spectral network can now be searched using data instead of text. These molecular networks have been used in hundreds of papers and have been key to understanding mechanisms of metabolic exchange and charting the molecular diversity in human food and habitats, across kingdoms and many microbial species.

Dr. Bandeira is Associate Professor of Computer Science and Engineering at the Skaggs School of Pharmacy and Pharmaceutical Sciences, University of California at San Diego.