Analytical Seminar

by

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"Native Ion Mobility Mass Spectrometry: New Insights from Ion Mobility, Unfolding and Folding of Protein Ions in the Gas Phase"

Native-like ions are generated using electrospray ionization of proteins, nucleic acids, lipids, and other biological molecules in aqueous solutions. These gas-phase ions can retain noncovalent interactions that were present in the original solution, and as a consequence, native ion mobility mass spectrometry (IM-MS) is now used to answer many questions in structural biology and biophysics that have eluded condensed-phased strategies. However, concerns about the fidelity of structures in solution and structures in the gas phase continue to inhibit the broader adoption of IM-MS technologies and reduce the confidence in structural models that are based on IM-MS measurements. Therefore, an accurate understanding of this fidelity is critical to advancing this field. I will report recent experiments in my lab that made use of ion mobility, ion chemistry, energy-dependent activation, and time-dependent kinetics in order to probe the structures and structural evolution of protein ions in the gas phase. I will then discuss the implications of these results to the interpretation of native IM-MS data and the resulting structural models.

Thursday, April 19 at 12:15 p.m. in Room 1315 Chemistry