

Sampling, Ionization, and Energy Transfer Phenomena in Mass Spectrometry

- **Purpose:**

- Because mass spectrometry (MS) plays a critical role in various areas of interest to DOE, our research seeks to further the understanding of fundamental energetic processes influencing diverse and complex chemistries with and within MS.
- These investigations involve research aimed at elucidating a fundamental understanding of the processes comprising the framework of MS - analyte chemistry, ionization phenomena, and physicochemical ion processes - and exploiting mass spectrometry's multidimensional capabilities for chemical analysis, characterization, and investigation of diverse chemical systems.
- Both existing MS techniques and new MS tools, generated from the enhanced basic understanding gained from our studies, are applied to advancing fundamental knowledge of chemical systems important to DOE. Furthermore, pushing forward new analytical investigative tools enables the ability to derive more and different types of basic chemical knowledge from their application to chemical, biological, or material science, etc. issues.

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- **Sponsor:** DOE Office of Basic Energy Sciences