

Abstract Submitted
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Proposal for unfolding single biomolecules in an ion trap¹ ERIK STREED, Griffith University, Australia — The functionality of biological molecules such as nucleic acids, proteins, and carbohydrates are driven by both their chemical composition and conformation. Ion trap mass spectrometry of large biomolecules is a well-established technique for primary sequence determination (composition) and is finding increasing use in investigating higher-order structure (conformation). Confining single isolated biomolecules in an ion trap provides a uniquely adaptable environment in which to investigate higher-order structure through manipulation of the surrounding solvent cage, temperature, and net charge at the single quantum level. We propose continuously observing these conformational changes in-trap through optical fluorescence techniques developed for in-vitro and in-vivo studies including Förster Resonance Energy Transfer (FRET) and super-resolution microscopy.

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