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【723】Embedding biomolecules in helium nanodroplets –Development of an experimental setup

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In this contribution, a new experimental setup will be discussed which enables mass spectrometry and laser spectroscopy of (bio)molecular ions in a well-defined and ultracold environment. The setup consists of a helium nanodroplet (HND) source and an electrospray ionization (ESI) source in combination with a time-of-flight mass spectrometer. The ESI enables the transfer of fragile molecules from the solution into the gas phase. These molecules are then picked-up by traversing HNDs, which are transparent from the deep UV to the far IR and serve as gentle matrices to provide a cryogenic environment, reducing the number of populated quantum states and freezing out structural fluctuations of the embedded (bio)molecules.

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