

Abstract Submitted
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Molecular dissociation of HD⁺ by broad bandwidth chirped laser pulses: a molecular bandwidth filter¹ M. ZOHRABI, U. ABLIKIM, K.D. CARNES, B.D. ESRY, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, KS 66506 — We employ a coincidence 3D momentum imaging method to study the fragmentation of HD⁺ following interaction with an intense, 800 nm, 25 fs Fourier transform-limited (FTL) laser pulse. The broad bandwidth of our FTL pulse prevents us from observing vibrational peaks that one would expect to see using longer FTL laser pulses ~ 100 fs. However, by chirping the pulse either positively or negatively, while maintaining a fixed bandwidth, we were able to measure vibrational structure. The kinetic energy release of these vibrational peaks are shifted up or down depending on the sign of the chirp.² We will address the question of why the vibrational structure is observed in spite of the broad bandwidth of the chirped laser pulses.

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²V. S. Prabhudesai *et al.*, *Phys. Rev. A* **81**, 023401 (2010).

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