

Abstract Submitted
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Chirp effect on the kinetic energy release upon dissociation of H_2^+ in intense ultrashort laser pulses¹ M. ZOHRABI, J.J. HUA, J. MCKENNA, A.M. SAYLER, B. GAIRE, NORA G. JOHNSON, P.Q. WANG, K.D. CARNES, B.D. ESRY, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — The effect of chirp on the kinetic energy release (KER) of the vibrational states of H_2^+ was measured using a coincidence 3D momentum imaging technique. The data shows significant shifts of the KER peaks associated with the dissociating vibrational levels in intense 70 and 120 fs pulses chirped positively/negatively from the 30 fs transform limited pulses. Our calculations show that this energy shift is due to the dissociation of the H_2^+ early in the pulse – when the photon energy is shifted to either higher or lower energy depending on the chirp. This effect is reduced by intensity averaging, but it is still a measurable effect.

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