Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Controlling the formation of excited neutral D^* fragments of D_2 using intense ultrashort laser pulses[1] PEYMAN FEIZOLLAH, BEN BERRY, T. SEVERT , BETHANY JOCHIM, M. ZOHRABI, KANAKA RAJU P., JYOTI RAJPUT, K.D. CARNES, B.D. ESRY, I. BEN-ITZHAK, J. R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, KS 66506 USA
— Excited neutral D^* fragments ($n \gg 1$) are produced by the interaction of strong-field laser pulses with D_2 molecules. In this work, we focus on the formation of low kinetic energy release (KER) D^* fragments, which are relatively unstudied, using NIR (800-nm) and UV (400-nm) laser pulses. The KER spectrum is found to be very sensitive to the laser parameters, including laser chirp. By changing the chirp of the UV laser pulses, two separate low-KER peaks are generated instead of a single peak. Moreover, the ratio between these peaks can be controlled with the chirp. Similarly, by chirping the NIR pulses, the low-KER peak is attenuated and shifted to lower energy.

[1]This work was supported by the Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U. S. Department of Energy. BJ was also supported in part by DOE-SCGF (DE-AC05-06OR23100).

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Date submitted: 29 Jan 2016 Electronic form version 1.4