

Abstract Submitted
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Chirp control of the formation of excited neutral D fragments in intense ultrafast laser pulses¹ PEYMAN FEIZOLLAH, BEN BERRY, T. SEVERT, BETHANY JOCHIM, M. ZOHRABI, KANAKA RAJU P., 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 ($n \geq 2$) are formed by the interaction of intense laser pulses with D₂ molecules [1]. One of the suggested interpretations of this process is that one (or both) of the electrons that were ejected recombine with the parent ion(s) and form the excited neutral fragment(s) [1]. In the present study, 400 nm laser pulses were used, and a single-prism pulse compressor [2] was implemented, which allows the generation of both positively- and negatively-chirped laser pulses. The kinetic energy release spectrum of neutral D fragments is observed to be extremely sensitive to the laser parameters. In particular, we report control of this spectrum using the chirp of the laser pulses.

[1] T. Nubbemeyer *et al.*, Phys. Rev. Lett **101**, 233001 (2008).

[2] Selcuk Akturk *et al.*, Opt. Express **14**, 10101 (2006).

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