Abstract Submitted
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Controlling strong-field isomerization of acetylene ions[1] BETHANY JOCHIM, BEN BERRY, T. SEVERT, PEYMAN FEIZOLLAH, M. ZOHRABI, K. J. BETSCH, KANAKA RAJU P., K. D. CARNES, I. BEN-ITZHAK, J. R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, KS 66506 USA, E. WELLS, Department of Physics, Augustana University, Sioux Falls, SD 57197 USA — The topic of hydrogen migration in hydrocarbons has garnered considerable attention in recent years in the strong-field community and beyond. Employing coincidence 3D momentum imaging, we study the intense ultrafast laser-induced isomerization and dissociation dynamics of keV ion beams of acetylene, one of the simplest hydrocarbons. Targets of interest include $C_2H_2^-$, $C_2H_2^+$, and $C_2H_2^{2+}$, for which we focus on two-body acetylene (CH^{q_1}+CH^{q_2}) and vinylidene (C^{q_1}+$CH_2^{q_2}$) breakup. Laser parameters such as intensity, wavelength, pulse duration, etc., that serve as control knobs for manipulating outcomes such as the kinetic energy release (KER), angular distributions, and branching ratios will be discussed. Moreover, the dependence of these outcomes on the initial ion species will be explored.

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