Abstract Submitted
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Strong-field ionization and fragmentation of acetylene, ethylene, and ethane[1] E. WELLS, A. VOZNYUK, D.G. SCHMITZ, J.B. MAHOWALD, S.N. TEGEGN, J.L. NAPIERALA, T.G. BURWITZ, Department of Physics, Augustana University, Sioux Falls, SD 57197 USA, BETHANY JOCHIM, M. ZOHRABI, T. SEVERT, N.G. KLING, K.J. BETSCH, BEN BERRY, M.F. KLING[2], K.D. CARNES, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, Kansas 66506 USA — Velocity-map-imaging is used to examine the momentum distributions of photofragments arising from strong-field ionization of deuterated acetylene, ethylene, and ethane. The kinetic energy release and photofragment angular distributions of several dissociation processes are examined as a function of laser intensity and pulse duration. Notably, we examine elimination of one or two neutral hydrogen atoms following single ionization, the bond-rearrangement processes that lead to D_3^+ fragments from ethane and CD_3^+ from ethylene, and the transition of the angular distribution of symmetric and near-symmetric dissociation channels from alignment with the laser polarization at high laser intensity to more complex angular distributions at lower laser intensity.

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