Abstract Submitted for the DAMOP10 Meeting of The American Physical Society

Hydrocarbon Bond Rearrangement Following Ionization by a Single Attosecond Pulse from a Fast Ion¹ M.P. JONES, J.B. WILLIAMS, J. WAT-SON, A. FISHER, M. FOGLE, A.L. LANDERS, Auburn University, T. AUSTIN, Lagrange College — When a polyatomic molecule is doubly ionized to form a dication that then dissociates, there can be some probability that the molecule rearranges to form new bonds in the resulting fragment ions. We have used a COLTRIMS arrangement to image in coincidence multiple ionic fragments ejected following the interaction of a fast (\sim few au) ion and molecules with fields and time scales similar to (or shorter than) current pulsed lasers. In addition to the branching ratio for final-state fragment pairs, we have measured the kinetic energy release and dissociation axis relative to the incident ion beam for two-body breakup channels. An overview of the program and particularly interesting results for small hydrocarbons (e.g. methane) will be highlighted.

¹Supported by AMOS Program, Office of BES, Division of Chemical Sciences, U.S. Dept. of Energy.

Allen Landers Auburn University

Date submitted: 26 Jan 2010

Electronic form version 1.4