

Abstract Submitted
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Fragmentation pathways of ethylene after core ionization¹ B. GAIRE, I. BOCHAROVA, F.P. STURM, N. GEHRKEN, D. J. HAXTON, A. BELKACEM, TH. WEBER, Lawrence Berkeley National Laboratory, M. ZOHRABI, I. BEN-ITZHAK, J.R. Macdonald Laboratory, Kansas State University, A. GATTON, J. WILLIAMS, D. REEDY, C. NOOK, A. LANDERS, Department of Physics, Auburn University, H. GASSERT, S. ZELLER, J. VOIGTSBERGER, T. JAHNKE, R. DOERNER, University of Frankfurt — We have measured the Auger electrons in coincidence with the recoil ions, resulting from the core ionization of ethylene molecules, by employing the COLd Target Recoil Ion Momentum Spectroscopy (COLTRIMS) method. The Auger-electron and recoil-ion energy maps are used to identify the fragmentation pathways and they are compared to the valence photo-double-ionization of ethylene. The dicationic electronic states favored by the propensity rules are identified and their role on the fragmentation pathways is discussed. The molecular-frame Auger electron angular distribution provides further insight into the breakup of this molecule after core ionization.

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B. Gaire
Lawrence Berkeley National Laboratory

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