

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Mapping the fragmentation of acetylene with femtosecond resolution pump probe at LCLS using multi-particle coincidences¹ CHELSEA E. LIEKHUS-SCHMALTZ, IAN TENNEY, Stanford University, TIMUR OSIPOV, SLAC National Accelerator Laboratory, PHILIP H. BUCKSBAUM, VLADIMIR S. PETROVIC, Stanford University, AMO75113 COLLABORATION — A newly commissioned three-layer delay line anode detector has been used in combination with x-ray pump x-ray probe time-resolved measurement at LCLS. We used ~ 10 fs long x-ray pulses to probe by coulomb explosion the x-ray initiated ultrafast dynamics in the dication of acetylene ($C_2H_2^{+2}$), the smallest hydrocarbon that can isomerize. The dynamics are discerned from the temporal evolution of multi-particle coincidences which we identify by momentum conservation. We compare the results to those of deuterated-acetylene, which should have slower dynamics.

¹This work was carried out in the Stanford PULSE Institute through the support of the National Science Foundation.

Chelsea E. Liekhus-Schmaltz
Stanford University

Date submitted: 30 Jan 2014

Electronic form version 1.4