

Abstract Submitted
for the DAMOP14 Meeting of
The American Physical Society

Probing Ultrafast Dynamics of Molecular Systems Using Inner Shell Transient Absorption Spectroscopy ADAM CHATTERLEY, Lawrence Berkeley Natl Lab, DANIEL NEUMARK, Department of Chemistry, UC Berkeley, STEPHEN LEONE, Department of Chemistry and Physics, UC Berkeley, OLIVER GESSNER, Lawrence Berkeley Natl Lab — Femtosecond transient absorption spectroscopy employing extreme ultraviolet (XUV) light pulses can track molecular dynamics by monitoring the evolution of core to valence electronic transitions. Following ultrafast excitation of the system, these transitions offer real-time atomic site specific insight into the transient electronic structure of molecules including the transformation of bonds and the emergence of neutral and ionic fragments. An XUV transient absorption setup is presented that employs femtosecond high harmonic generation to produce photons beyond the sulfur 2p edge with energies up to 180 eV. The technique will be used to explore photo-initiated nonadiabatic dynamics such as photodissociation and ring opening in isolated organosulfur compounds. Preliminary results will be presented on the dynamics of photodissociation in sulfur containing molecules, measured from the perspective of the sulfur atoms.

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Date submitted: 30 Jan 2014

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