Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Dynamic control of the fragmentation of CO^{q+} excited states generated by high order harmonics[1] W. CAO, S. DE, K.P. SINGH, S. CHEN, I. BEN-ITZHAK, C.L. COCKE, J.R. Macdonald Lab., Physics Dept., Kansas State University, Manhattan, KS, USA, M.F. KLING, Max-Planck Institute of Quantum Optics, Garching, Germany, A.S. ALNASER, Physics Dept., American University of Sharjah, Sharjah, UAE, M.S. SCHOEFFLER, Chemical Sciences Div., Lawrence Berkeley National Lab., Berkeley, CA, USA — The dynamic process of fragmentation of $CO^{q+}$is investigated by using an EUV pump pulse (35-42eV) generated by high-order harmonics. A time-delayed infrared (IR) probe pulse is used to interact with the excited system and trace the wave-packet evolution. The experimental results indicate that two groups of states prepared by the EUV contribute to C^+-O^+ fragmentation: (a) a double ionization with a kinetic energy release (KER) above 6eV and (b) a fragmentation of the cation into C^+-O*, followed by autoionization of the O*. Channel (b) has a KER near 3eV in the absence of IR, increasing to more than 6eV in the presence of IR. This KER increase drops off with EUV/IR time delay and has a lifetime of $\sim$250 fs. A model TDSE solution gives qualitative agreement with experiment.

[1]Supported by Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy, NSF CHE-0822646 and USARO W911NF-07-1-0475.

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Date submitted: 27 Jan 2010 Electronic form version 1.4