replacing DAMOP17-2017-000992.

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Ultrafast dynamics in photoionized CO_2 studied by XUV-IR pump-probe experiments[1] SEYYED JAVAD ROBATJAZI, SHASHANK PATHAK, PEARSON WRIGHT LEE, KANAKA RAJU PANDIRI, JEFF POWELL, XIANG LI, BALRAM KADERIYA, ITZIK BEN-ITZHAK, DANIEL ROLLES, ARTEM RUDENKO, Kansas State Univ — [1]James R. Macdonald Laboratory, Department of Physics, Kansas State University, Manhattan, KS, USA
We present the results of a pump-probe experiment studying ultrafast dynamics of photo-ionized CO_2 using a combination of broadband XUV pulses and near-infrared (NIR) pulses, ~25 fs duration. The multi-harmonics pulse, which contains the 11^{th} to 45^{th} harmonics of a 790 nm NIR laser, is used to excite molecular wave packets in CO_2^+, which are then probed by near-infrared-induced dissociation. We use a velocity map imaging setup to measure the yields and angle-resolved kinetic energy distributions of all charged fragments as a function of XUV-NIR delay. The delay dependence of O^+ and CO^+ ion production for parallel and perpendicular NIR and XUV polarizations, are compared to the data reported in [1] for a shorter harmonics train, and to data obtained using narrow-band isolated harmonic (11^{th} or 13^{th}) as a pump. [1] H. Timmers et al, Phys. Rev. Lett. 113, 113003 (2014).

[1]Supported by the Chemical science, Geosciences, and Bio-Science division, Office of Basic Energy Science, Office of science, U.S. Department of Energy. K.R.P. and W.L.P. are supported by National Science Foundation (NSF-EPSCOR) Award No. IIA-1430493

Seyyed Javad Robatjazi
Kansas State Univ

Date submitted: 06 Feb 2017 Electronic form version 1.4