Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Photoionization energy and angle differential probabilities of He under chirped attosecond x-ray pulses[1] TECK-GHEE LEE, MITCH PINDZOLA, FRANCIS ROBICHEAUX, Auburn University — The time-dependent close-coupling (TDCC) method is used to investigate the energy and angular differential probabilities for various ionization processes of He atoms under chirped attosecond soft x-ray pulses with a photon energy of 91.6 eV and a peak intensity of 10^{15} W/cm^2. It is shown that the ejected electrons probability density for two-photon double ionization is very sensitive to the chirp. We find a weakly chirped pulse modifies the electron energy distribution from an elliptical to an oval shape, whereas a slightly stronger chirp causes the oval distribution not only to grow, but broaden and stretch along the ejected-electron equal energy sharing direction. As a result, the total two-photon double ionization probabilities are enhanced relative to the zero chirp case. We also analyze their corresponding energy and angular differential probabilities in order to better understand the chirp effects on correlated electron emission.

[1]This work is supported in part by the NSF.

Teck-Ghee Lee
Auburn University

Date submitted: 20 Jan 2009 Electronic form version 1.4