

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Ionization of alkaline earth atoms in intense femtosecond laser fields BRADFORD TALBERT, YU HANG LAI, XIAOWEI GONG, JUNLIANG XU, COSMIN BLAGA, PIERRE AGOSTINI, LOUIS DIMAURO, The Ohio State University — Electron correlation effects in the ionization of He in the presence of strong laser fields has been extensively studied. As an alternative to He, the alkaline earth atoms are good two-electron-like systems for studying how electron correlation effects in strong fields depend on ionization potential and atomic structure. We investigate the yields of single and double ionization of Mg and Ca as a function of intensity, and ellipticity at 0.8, 1 and 3.6 m. Of particular interest to our research is the failure of PPT to predict the double ionization yield seen in both Mg and Ca, and the apparent enhancement structure in the double ionization yield of Mg under a circularly polarized (CP) field at 0.8 m [1]. Classical trajectory simulations suggest the enhancement under a CP field is due to electron recollision [2, 3]; as a comparison to Mg, we target Ca to investigate how this phenomenon depends on ionization potential and atomic structure. [1] *G. D. Gillen, et al., Phys. Rev. A 64, 043413 (1994)*. [2] *F. Mauger, et al., Phys. Rev. Lett. 105, 083002 (2010)*. [3] *L. B. Fu, et al., Phys. Rev. Lett. 108, 103601 (2012)*.

Bradford Talbert
Ohio State Univ - Columbus

Date submitted: 02 Feb 2017

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