Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Theoretical study of valence and k shell double photoionization of Magnesium atoms using affective charge approximation. HARIPADA SAHA, University of Central Florida, Orlando — We plan to report the results of our investigation on theoretical study of electron correlation in the double photoionization of valence and K-shell electrons from Magnesium atoms. We will present the results of triple differential cross sections using our recently extended MCHF method [1]. We will use multiconfiguration Hartree Fock bound state method to calculate the wave functions for the initial state., which includes the electron correlation effect completely ab-initio. The final state continuum wave functions will be calculated using the angle depended Effective Charge approximation [2-4] which accounts for electron correlation between the two final state continuum electrons. We will discuss the effect of core electron correlation on the double valence shell ionization and valence electrons correlation on the double k-shell ionization in the triple differential cross section. The results will be compared with the available accurate theoretical calculations and experimental findings. [1] Hari P. Saha, Phys. Rev. A 87, 042703 (2013); Phys. Rev. A 95, 063423 (2017) [2] M.R.H. Rudge, Rev. Mod. Phys. 40, 564 (1968). [3] D. Proulox and R. Shakeshaft,, Phys. Rev A 48, R875 (1993). [4]; M. Pont and R. Shakeshaft, Phys. Rev. A51, R2676 (1995).

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Date submitted: 02 Jan 2019 Electronic form version 1.4