Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Angular dependence of Photoelectrons in Species-Relative Time Delay S. SAHA, S. BANERJEE, IIT-Madras, A. MANDAL, P. C. DESHMUKH, IISER-Tirupati, A. S. KHEIFETS, Australian National U., V. K. DOLMATOV, U. North Alabama, S. T. MANSON, Georgia State U. — Time resolved photoemission of atoms enables us to see real time quantum dynamics [1]. The relative time delay in photoionization from Ne, Ar, Kr have been measured with respect to He [2]. Species-Relative Time Delay (SRTD) from different atoms and its angle dependence are important for a variety of reasons. Hence this line of study is indicated in terms of understanding the correlated electron dynamics. It is also possible to measure other SRTD's such as Ar-Kr, Ar-Xe which can reveal some aspects of photoionization dynamics which is otherwise suppressed in the extraction of time delay from individual species by a pump-probe experiment. In this work we present and analyze photoionization SRTD for the following combinations: He-Ne, He-Ar, He-Kr, He-Xe; Ne-Ar, Ne-Kr, Ne-Xe; Ar-Kr, Ar-Xe; Kr-Xe. The angle dependent SRTD are computed in DHF-RRPA [3-5] methodology and the weighted averages are also made for the comparison with the available experimental observations. Calculations are done at different levels of truncation for understanding of the Spin Orbit Interaction Activated Interchannel Coupling (SOIAIC) effects [5] which cause large excursions of the time delay near thresholds. [1] M. Schultze *et al.*, Science **328**, 1658 (2010); [2] C. Palatchi *et al.* J. Phys. B **47**, 245003 (2014); [3] W. R. Johnson and C. D. Lin, Phys. Rev. A **20,** 964 (1979); [4] A. Kheifets *et al.*, Phys. Rev. A, **94**, 013423 (2016); [5] A. Mandal *et al.*, Phys. Rev. A **96**, 053407 (2017).

Steven Manson
Georgia State University

Date submitted: 06 Feb 2018 Electronic form version 1.4