**Time delay in photoionization in Ne: Effect of different types of correlation** ANKUR MANDAL, SOUMYAJIT SAHA, NARENDA NATH DUTTA, Indian Institute of Technology-Madras, AARTHI GANESAN, Jain University, Bangalore, P.C. DESHMUKH, Indian Institute of Technology-Madras and Jain University, Bangalore, V.K. DOLMATOV, University of North Alabama, A.S. KHEIFETS, Australian National University, S.T. MANSON, Georgia State University — Various effects on time delay in photoionization, such as many body correlations, relativity, Cooper minima, autoionizing resonances, etc., [1-6] have been studied. Here we investigate the effects of correlation on time delay using relativistic randon phase approximation (RRPA) [7], RRPA with relaxation (RRPA-R) [8] muticonfiguration Tamm Dancoff (MCTD) [9] (configuration interaction) and many-body perturbation theory (MBPT) [10]. Ne is chosen since it has been studied extensively. In an earlier study [5] a truncated RRPA calculation on Ne showed an increase in time delay near the 2s threshold as compared to a nonrelativistic calculation. In the present work, a full RRPA calculation is studied to explore the interchannel coupling effects in the vicinity of the 1s threshold. [1] M. Schultze, *et al*, Science **328**, 1658 (2010). [2] K. Klünder, *et al*, Phys. Rev. Lett. **106**, 143002 (2011). [3] A. S. Kheifets, Phys. Rev. A **87**, 063404 (2013). [4] P. C. Deshmukh, *et al*, Phys. Rev. A **89**, 053424 (2014). [5] S. Saha, *et al*, Phys. Rev. A **90**, 053406 (2014). [6] J. M. Dahlström, *et al*, Phys. Rev. A **86**, 061402 (2012). [7] W. R. Johnson and C. D. Lin., Phys. Rev. A **20**, 964 (1979). [8] V Radojevic, *et al*, Phys. Rev. A **40** 727 (1989). [9] V Radojevic and W. R. Johnson, Phys. Rev. A **31**, 2991 (1985). [10] B. K. Mani, *et al*, Phys. Rev. A **80**, 062505 (2009).

Steven T. Manson
Georgia State University