

Abstract Submitted
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Electron correlation effects on photoionization time delay in atomic Ar and Xe A. GANESAN, Jane University, Bagalore, S. SAHA, P. C. DECSHMUKH, IIT-Madras, S. T. MANSON, Georgia State U., A. S. KHEIFETS, Australian National U. — Time delay studies in photoionization processes [1] have stimulated much interest as they provide valuable dynamical information about electron correlation and relativistic effects. In a recent work [2] on Wigner time delay [3] in the photoionization of noble gas atoms, it was found that correlations resulting from interchannel coupling involving shells with different principal quantum numbers have significant effects on 2s and 2p photoionization of Ne, 3s photoionization of Ar, and 3d photoionization of Kr. In the present work, photoionization time delay in inner and outer subshells of the noble gases Ar and Xe are examined by including electron correlations using different many body techniques: (i) the relativistic-random-phase approximation (RRPA) [4], (ii) RRPA with *relaxation*, to include relaxation effects of the residual ion [5] and (iii) the relativistic multiconfiguration Tamm-Dancoff (RMCTD) approximation [6]. The (sometimes substantial) effects of the inclusion of non-RPA correlations on the photoionization Wigner time delay are reported. Work supported by DOE, Office of Chemical Sciences and DST (India). [1] R. Pazourek, S. Nagele and J. Burgdörfer, *Rev. Mod. Phys.* **87**, 765 (2015) and references therein; [2] A.S. Kheifets *et al* *Phys. Rev. A* **92**, 063422 (2015); [3] E.P. Wigner, *Phys. Rev.* **98**, 145 (1955); [4] W. R. Johnson and C. D. Lin, *Phys. Rev. A* **20**, 964 (1979); [5] V. Radojevic, M. Kutzner and H. P. Kelly, *Phys. Rev. A* **40** 727 (1989); [6] V.Radojevic and W. R. Johnson, *Phys. Rev. A* **31**, 2991 (1985).

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