

Abstract Submitted  
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**Correlation-induced time delay in atomic photoionization** D. K. KEATING, S. T. MANSON, Georgia State U., V. K. DOLMATOV, U. North Alabama, P. C. DESHMUKH, IISER-Tirupati, F. NASEEM, A. S. KHEIFETS, Australian National U. — A study of attosecond time delay of the outer shells of noble gas atoms in the vicinity of inner-shell thresholds using both relativistic-random-phase approximation (RRPA) and random-phase approximation with exchange (RPAE) methodologies has been performed. The results show that correlation in the form of interchannel coupling engenders significant time delays in the outer-shell photoemission above each inner-shell threshold which demonstrates the importance of many-body interactions and wave functions in the understanding of photoelectron dynamics. Without the interchannel coupling, the outer-shell time delays are essentially zero at the inner shell thresholds, but the coupling induces delays as large as 30 as. Furthermore, while the delays decrease in magnitude above the inner-shell thresholds, they persist for tens of eV above the thresholds. In addition, a lowest-order perturbation theory model is introduced to help understand the phenomenology.

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