Abstract Submitted
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A multicolor interferometric method for extracting phase information on continuum-continuum couplings.[1] KATHRYN HAMILTON, THOMAS PAULY, KLAUS BARTSCHAT, Drake University, NICOLAS DOUGUET, Kennesaw State University, DIVYA BHARTI, ANNE HARTH, Max-Planck-Institute for Nuclear Physics — The reconstruction of attosecond beating by interference of two-photon transitions (RABBITT) [1] method is a widely employed technique to measure attosecond time delays of photoionization processes. One consequence of this technique is the introduction of an additional component to the time delay, the continuum-continuum (CC) time delay [2], caused by the interaction of the probe field with the photoelectron. While well studied theoretically, this CC time delay is difficult to observe experimentally [3]. Following up on the method outlined in [4] for atomic hydrogen, we describe an approach capable of isolating this CC delay for Ar, which is experimentally easier to access. We show theoretical predictions obtained by the multielectron R-matrix with time dependence method (RMT) [5] for two RABBITT measurements of the $3p$ photoionization delay in argon with different orders of CC transitions. The results will be compared with data from experiments currently in progress. [1] P. Paul et al., Science **292** (2001) 1689. [2] J. Dahlström et al., Chem. Phys. **414** (2013) 53. [3] J. Fuchs et al., Optica **7** (2020) 154-161. [4] A. Harth et al., Phys. Rev. A **99** (2019) 023410. [5] A. C. Brown et al., Comput. Phys. Comm. (2019) 107062.

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