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Analysis of Absorption Time Delays in Streaking of Resonant and Nonresonant Two-Photon Ionization[1] CORY GOLDSMITH, JILA, Department of Chemistry and Biochemistry, University of Colorado Boulder, JING SU, AGNIESZKA JARON-BECKER, ANDREAS BECKER, JILA, Department of Physics, University of Colorado Boulder — The development of attosecond pulses has allowed for probing fundamental processes, such as photoionization, at the natural timescale of the electron. One of the techniques is the attosecond streaking method, in which the momentum of the photoelectron is measured as a function of the time delay between the ionizing attosecond XUV pulse and a weak femtosecond infrared pulse which streaks the momentum of the photoelectron. TDSE simulations show that for one-photon ionization the transition in the continuum is instantaneous whereas for resonant two-photon ionization there exists an absorption delay. We present results that show that the absorption delay varies with the central frequency of the ionizing pulse in the vicinity of an isolated resonance. A perturbative model formula captures the main features of the numerical results for the absorption delay. This work was primarily supported by a grant from the Department of Energy.

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