Abstract Submitted
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Asymmetries in Production of He^+(n=2) with an Intense Few-Cycle Attosecond Pulse[1] JEAN MARCEL NGOKO DJIOKAP, The University of Nebraska-Lincoln, SUXING X. HU, The University of Rochester, ANTHONY F. STARACE, The University of Nebraska-Lincoln — By solving the two-active-electron time-dependent Schrödinger equation (in its full dimensionality) in an intense few-cycle attosecond pulse, we investigate the carrier-envelope-phase (CEP) induced asymmetries in the differential probability for ionization plus excitation of He to the $He^+(n = 2)$ states. Owing to the broad bandwidth of the intense pulse, substantial asymmetries in the differential probability for ionization of an electron along the positive and negative polarization direction of the pulse are found. Such asymmetry involves prominent interference between direct and indirect ionization pathways seen simultaneously in the partial photoelectron spectra. Electron correlations are probed by comparing projections of the wave packet onto the field-free highly correlated Jacobi matrix wave function [E. Foumouo et al., Phys. Rev. A **74**, 063409 (2006)] and uncorrelated Coulomb states. The CEP-effect found along the z-axis in the total asymmetry seems to be consistent with perturbation theory [E. A. Pronin et al., Phys. Rev. A **80**, 063403 (2009)].

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