Abstract Submitted
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Two-photon double ionization of helium by chirped attosecond XUV pulses[1] R. PAZOUREK, S. NAGELE, G. SCHOISSENGEIER, E. PERSSON, J. BURGDÖRFER, Inst. for Theor. Phys., Vienna Univ. of Tech., Austria, EU, B.I. SCHNEIDER, Office of Cyberinfrastructure, NSF, USA, L.A. COLLINS, Theoretical Division, LANL, USA, J. FEIST, ITAMP, Harvard-Smithonian CfA, USA — Above a photon energy of 54.4 eV, two-photon double ionization (TPDI) of helium occurs sequentially in two temporally separated steps, where each electron independently absorbs one photon. The temporal structure of this process can be controlled by the use of chirped laser pulses, in which the instantaneous frequency changes with time. The photoelectron energies therefore depend on the time of photoabsorption. For photon energies well above the sequential threshold, this leads to a shift of the sequential peaks in the electron spectra (cf. [1]). In addition, interference patterns become visible. For photon energies near the sequential threshold even the totally integrated TPDI yield becomes a function of the chirp, as the sign and strength of the chirp shifts the onset of sequentiality. We perform fully correlated *ab initio* calculations to investigate the influence of different chirp parameters on the spectral and angular distributions of the ejected electrons. [1] T.G. Lee et al., *PRA* **79**, 053420 (2009)

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