Abstract Submitted
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Few-cycle strong-field ionization of atomic hydrogen with elliptically polarized light.[1] NICOLAS DOUGUET, KLAUS BARTSCHAT, Drake University — We consider strong-field ionization of atomic hydrogen by elliptically polarized light in the long-wavelength regime (800 nm). By solving the time-dependent Schrödinger equation, we analyze the ionization spectra at various peak intensities up to $4 \times 10^{14}\,\mathrm{W/cm^2}$. The calculations are performed with the length and velocity forms of the electric dipole operator. In particular, we compare the extreme cases of circularly and linearly (studied in [1]) polarized light. Starting from an oriented atomic state, we also consider the dynamics responsible for circular dichroism [2], from the multiphoton to the tunneling regime. A model based on the strong-field approximation is employed in an attempt to predict the variation of the dichroism as a function of the laser peak intensity. Finally, we analyze the tunneling time for photo-ionization in the strong-field regime. [1] A. N. Grum-Grzhimailo, B. Abeln, K. Bartschat, D. Weflen, and T. Urness, Phys. Rev. A **81** (2010) 043408. [2] M. Ilchen *et al.*, Phys. Rev. Lett. **118** (2017) 013002.

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