Abstract Submitted
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Circularly Polarized Laser Field-Induced Rescattering Plateaus in Electron-Atom Scattering[1] ANTHONY F. STARACE, University of Nebraska-Lincoln, A.V. FLEGEL, M.V. FROLOV, N.L. MANAKOV, Voronezh State University, Russia — Using effective range theory within a quasienergy state approach, we extend our recent analysis of the energy spectrum of electrons scattered from atoms in the presence of an intense, elliptically polarized laser field [1] to the case of atoms supporting negative ions having weakly bound p-electrons. Numerical results for $e - H$ and $e - F$ scattering are presented. In both cases there are two (i.e., low- and high-energy) plateau structures in the electron spectrum for any laser polarization, including for the case of circular polarization. The high-energy plateau is shown to originate from rescattering effects, thus providing the first example of the importance of recattering in the case of circular laser polarization. Basic equations of the rescattering scenario are deduced from our *ab initio* quantum results for the scattering amplitude in the quasiclassical limit. [1] A.V. Flegel et al., Phys. Lett. A **334**, 197 (2005); J. Phys. B **38**, L27 (2005).

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