

Abstract Submitted
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High-Order Harmonic-Generation Spectroscopy with an Elliptically Polarized Laser Field¹ M.V. FROLOV, N.L. MANAKOV, T.S. SARANTSEVA, Voronezh State U., Russia, ANTHONY F. STARACE, U. of Nebraska-Lincoln — Analytic formulas describing high-order harmonic generation (HHG) by atoms in an intense laser field with small ellipticity are obtained quantum mechanically in the tunneling limit [1]. The results show that factorization of the HHG yield in terms of an electron wavepacket and the photorecombination cross section (PRCS) is valid only for s states of a bound atomic electron, whereas the HHG yield for p states involves two different atomic parameters. For the latter case, elliptic HHG spectroscopy enables one to retrieve both the energy and angular dependence of the PRCS of the target atom, as we illustrate for the case of HHG by Xe in a mid-infrared laser field.

[1] M.V. Frolov, N.L. Manakov, T.S. Sarantseva, and A.F. Starace, Phys. Rev. A **86**, 063406 (2012).

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