

Abstract Submitted
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Control of threshold enhancements in harmonic generation by atoms in a two-color laser field with orthogonal polarizations¹ ANTHONY F. STARACE, The University of Nebraska - Lincoln, M.V. FROLOV², N.L. MANAKOV, T.S. SARANTSEVA, Voronezh State University, Russia, A.A. SILAEV, N.V. VVEDENSKII, Institute of Applied Physics, Nizhny Novgorod, Russia — Threshold phenomena (or channel-closing effects) are analyzed in high-order harmonic generation (HHG) by atoms in a two-color laser field with orthogonal linearly polarized components of a fundamental field and its second harmonic [1]. We show that the threshold behavior of HHG rates for the case of a weak second harmonic component is sensitive to the parity of a closing multiphoton ionization channel and the spatial symmetry of the initial bound state of the target atom, while for the case of comparable intensities of both components, suppression of threshold phenomena is observed as the relative phase between the components of a two-color field varies. A quantum orbit analysis as well as phenomenological considerations in terms of Baz' theory of threshold phenomena [2] are presented in order to describe and explain the major features of threshold phenomena in HHG by a two-color field. [1] M.V. Frolov *et al.*, Phys. Rev. A **93**, 023430 (2016). [2] A.I. Baz', Zh. Eksp. Teor. Fiz. **33**, 923 (1957) [Sov. Phys. JETP **6**, 709 (1958)].

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