

Abstract Submitted
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Wavelength Scaling of High-Harmonic Yield: Threshold Phenomena and Bound State Symmetry Dependence¹ ANTHONY F. STARACE, U. of Nebraska-Lincoln, M.V. FROLOV, N.L. MANAKOV, Voronezh State U., Voronezh, Russia — Using our recent description of harmonic generation (HG) in terms of a system's complex quasienergy [1], we analyze the harmonic power $P_{\Delta E}(\lambda)$ (over a fixed interval, ΔE , of harmonic energies) as a function of wavelength and show that it reproduces the wavelength scaling predicted recently by two groups of authors [2, 3] based on solutions of the time-dependent Schrödinger equation: $P_{\Delta E}(\lambda) \sim \lambda^{-x}$, where $x \approx 5 - 6$. Furthermore, the oscillations of $P_{\Delta E}(\lambda)$ on a fine λ scale found in Ref. [3] are then shown to have a quantum origin, involving threshold phenomena within a system of interacting ionization and HG channels. Our results are also shown to be sensitive to the bound state wave function's symmetry. [1] M.V. Frolov, A.V. Flegel, N.L. Manakov, and A.F. Starace, Phys. Rev. A **75**, 063407 (2007). [2] J. Tate, T. Augustine, H.G. Muller, P. Salières, P. Agostini, and L.F. DiMauro, Phys. Rev. Lett. **98**, 013901 (2007). [3] K. Schiessl, K.L. Ishikawa, E. Persson, and J. Burgdörfer, Phys. Rev. Lett. **99**, 253903 (2007).

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