

Abstract Submitted  
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**Orientation effects in high-order harmonic generation of  $\text{H}_2^+$  subject to strong laser fields**<sup>1</sup> DMITRY A. TELNOV, St.Petersburg State University, Russia, SHIH-I CHU, University of Kansas — We present *ab initio* 3D calculations of the orientation-dependent high-order harmonic generation (HHG) of the hydrogen molecular ion  $\text{H}_2^+$  subject to intense linearly polarized laser pulses with the wavelength 800nm [1]. The nuclei are kept at the equilibrium separation of 2 a.u., and the initial electronic state can be either  $1\sigma_g$  (ground) or  $1\sigma_u$  (first excited) state. Split-operator technique in the energy representation and generalized pseudospectral discretization in prolate spheroidal coordinates are used to solve the time-dependent Schrödinger equation. HHG power spectra show strong dependence on the orientation angle between the molecular axis and the polarization direction of the laser field. Particularly, orientation-selected resonances with other electronic states are well pronounced. Two-center interference effects in the HHG spectra are also analyzed.

1. D. A. Telnov and S. I. Chu, Phys. Rev. A **76**, 043412 (2007).

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