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Precision calculations of high-order harmonic generation of H_2^+: time-dependent non-Hermitian Floquet approach DMITRY A. TELNOV, Department of Physics, St. Petersburg State University, SHIH-I CHU, Department of Chemistry, University of Kansas — Precision 3D calculations of high-order harmonic generation (HHG) rates of H_2^+ in intense 532 nm laser fields are performed [1] using the *time-dependent non-Hermitian Floquet* approach recently developed [2]. The procedure involves the extension of the *complex-scaling generalized pseudospectral* method for non-uniform spatial discretization of the Hamiltonian and non-Hermitian time propagation of the time-evolution operator. The HHG rates are computed at the equilibrium internuclear separation ($R = 2.0$ a.u.) and several laser intensities, as well as at the laser intensity 5×10^{13} W/cm^2 and various internuclear distances in the range between 3.0 and 17.5 a.u. At some internuclear separations R, the HHG productions are strongly enhanced and this phenomenon can be attributed to the resonantly enhanced multiphoton ionization at these R.
[1] D. A. Telnov and S. I. Chu, Phys. Rev. A **71**, 013408 (2005).
[2] D. A. Telnov and S. I. Chu, J. Phys. B **37**, 1489 (2004).

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