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# The ionization times of harmonic emission from asymmetric molecules

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We study the ionization times of electrons in high-order harmonic generation from oriented HeH+ through numerical solution of the time-dependent Schrödinger equation. With using orthogonally polarized two-color laser pulses composed of an intense fundamental field and a time-delayed weak second-harmonic field, we probe the sub-cycle electron dynamics as the polarization of the fundamental field is parallel or antiparallel to the internuclear vector pointing from the heavy nucleus to the light nucleus. Our results show that, for low harmonic orders, the ionization time of electrons in the parallel case is tens of attoseconds earlier than the antiparallel case, reflecting a subtle temporal difference between tunneling on the H side versus the He side. From this difference, we can retrieve effective orientation-dependent ionization potentials of the asymmetric system, the interpretation of which is unclear so far.

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