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High-order Harmonic Generation from Molecular Hydrogen

MICHAEL CHINI, XIAOWEI WANG, QI ZHANG, KUN ZHAO, YI WU, ZENGHU CHANG, CREOL and Department of Physics, University of Central Florida — High-order harmonics generated in molecular hydrogen gas by an 800 nm driving laser are compared to those generated in argon gas under the same driving laser intensity and gas pressure. We find that the yield of HHG from hydrogen gas is approximately an order of magnitude less than that of argon HHG although the ionization probabilities of the two gases are equal at intensities above 3×10^{14} W/cm². We propose that the reduced HHG yield results from the low recombination cross-section of hydrogen.

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