Abstract Submitted
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Few cycle (<10fs) intense laser-induced ionization and dissociation of simple diatomic molecules probed by coincidence 3D momentum imaging[1] A. MAX SAYLER, PENGQIAN WANG, JARLATH MCKENNA, FATIMA ANIS, BISHWANATH GAIRE, NORA G. JOHNSON, ELI PARKE, MAT LEONARD, KEVIN D. CARNES, B.D. ESRY, ITZIK BEN-ITZHAK, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — Laser-induced ionization and dissociation of H_2^+, HD^+, and D_2^+ by sub-10 fs 790 nm pulses with intensities up to 10^{15} W/cm^2 have been studied using coincidence 3D momentum imaging. Since the hydrogen molecular-ion (and its isotopes) is the simplest molecule, it provides an excellent testing ground for the understanding of molecular behavior in intense few-cycle laser pulses. The experimental findings are contrasted with both existing experimental studies of these molecular ions in longer laser pulses and theoretical calculations, which include all possible physical processes except ionization.

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