Abstract Submitted
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Characterization of Molecular Dynamics in Ultrashort Laser Fields[1] B. FEUERSTEIN, T. ERGLER, A. RUDENKO, R. MOSHAMMER, J. ULLRICH, T. NIEDERHAUSEN, U. THUMM, HD TEAM[2], KS TEAM[3] — Reaction Microscope-based, complete, and time-resolved Coulomb explosion imaging of vibrating and dissociating D_2^2+ molecules with femtosecond time-resolution allowed us to perform an internuclear distance (R-)dependent Fourier analysis of the corresponding wave packets. Our wave packet propagation calculations demonstrate that the obtained two-dimensional R-dependent frequency spectra enable the complete characterization of the wave packet dynamics and directly visualize the field-modified molecular potential curves in intense, ultrashort laser pulses, cf., Phys. Rev. Lett. **99** 153002 (2007).

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