

Abstract Submitted
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Strong field Molecular ionization and control viewed with Velocity Map Imaging DOMINIK GEISSLER, SUNY Stony Brook, TAMÁS ROZGONYI, Chemical Research Center of the Hungarian Academy of Sciences, JESÚS GONZÁLEZ-VÁZQUEZ, Instituto de Química Física Rocasolano, CSIC, PÉTER SANDOR, SUNY Stony Brook, LETICIA GONZÁLEZ, PHILIPP MARQUETAND, Institute of Theoretical Chemistry, University of Vienna, THOMAS C. WEINACHT, SUNY Stony Brook — We employ velocity map imaging of electrons and fragment ions to characterize molecular wave packets after interaction with a strong field ultrashort laser pulse (central wavelength 780nm). Our measurements reveal superpositions of electronic states created by strong field ionization. They also demonstrate how dynamic Stark shifts can alter the PESs for a given electronic state sufficiently to change the propagation of a vibrational wavepacket. In the experiment, we prepare the molecules in an excited state and apply a strong IR pulse, whose basic parameters (intensity, time delay and chirp) are systematically varied. The results of the measurements are compared with ab-initio structure and dynamics calculations in order to verify our interpretation.

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