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Excited State Molecular Dynamics in Intense Laser Fields LUCAS ZIPP, ADI NATAN, PHILIP BUCKSBAUM, Stanford Pulse Institue/SLAC — We investigate the dynamics of excited electronic states in molecules created through strong field, multiphoton excitation. Several excited states can come into multiphoton resonance with the ground state during an intense laser pulse due to large AC stark shifts, and while most of the excited state population is subsequently ionized, a fraction of the population remains in these excited states. We probe this excited state population in N_2 with a time delayed weak field and collect the angle-resolved photoelectron spectrum. By varying the pump intensity and the probe delay, we gain insight into bound state electron dynamics in molecules in intense laser fields, and the ensuing field free dynamics.

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