

Abstract Submitted
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R-dependent strong field ionization from a neutral ground state diatomic molecule¹ GEORGE GIBSON, VINCENT TAGLIAMONTI, HUI CHEN, University of Connecticut — Strong-field ionization of molecules is significantly more complicated than for atoms, due to the rotational and vibrational degrees of freedom and the closer energy spacing of different orbitals. However, a complete understanding of strong field ionization may lead to new techniques for understanding the electronic structure of molecules. Especially interesting would be a way to probe how the orbital structure changes as a function of internuclear separation. To this end, we have begun a series of experiments on I₂ molecules in which we create a coherent vibrational wavepacket centered on v=33 of the ground state of the neutral molecule. This allows us to probe ionization as a function of internuclear separation in the neutral ground state, for the first time.

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