

Abstract Submitted
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Intensity Dependent Interference Structures in High Harmonic Generation¹ BRIAN MCFARLAND, JOSEPH FARRELL, PHILIP BUCKSBAUM, MARKUS GUEHR, Stanford PULSE Center — The electronic structure of the highest occupied molecular orbital (HOMO) modulates the amplitude and phase of molecular high harmonic generation (HHG) via interferences in the HHG recombination step. Destructive interference between the recombining electron wave and the HOMO lead to reduced HHG amplitude and phase jumps at spectral positions determined by the electron de Broglie wavelength. We identify the spectral minima for the N₂ molecule. In contrast to the predictions of commonly used models, we see an intensity dependent shift of the destructive features. We present two possible interpretations of that shift that include intensity effects on the electron de Broglie wavelength and intensity dependent co-mixing of other orbitals apart from the HOMO.

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