

Abstract Submitted
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Understanding Intense Field Two-Color and Carrier-Envelope Phase Control¹ D. URSREY, B.D. ESRY, J.R. Macdonald Laboratory — The use of light to manipulate molecular dynamics and chemical reactions has become an increasingly important area of study in the past few decades. As intense laser pulses become more readily available, the ability to take advantage of multiphoton processes to enhance this control has become possible. Using tailored laser pulses, intense field control has already been demonstrated on a large number of physical observables including branching ratios, isomerization, and the alignment and orientation of molecules. Although there has been much success in achieving intense field control, there is still some ambiguity in understanding the physical mechanisms responsible. We present a recently developed non-perturbative method for interpreting two-color and carrier-envelope phase control in terms of interfering photon pathways [J. Phys. B **42**, 085601]. We will explain our method and demonstrate its utility in understanding and predicting control by extracting the relevant multiphoton pathways from both theoretical and experimental results.

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