

Abstract Submitted
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Systematic Decomposition of Strong Field Spectra using Optical Phase Matching¹ ZACHARY B. WALTERS, University of California at Davis, DANIEL J. HAXTON, Lawrence Berkeley Natl Lab, C. WILLIAM MCCURDY, University of California at Davis — Strong field transient absorption experiments measure the absorption or emission of energy from a broadband excitation laser pulse in the presence of an intense second pulse. Varying the time delay between the two pulses allows the effects of the intense field to be measured, yielding an experimental observable which may have a highly nonlinear dependence upon the parameters of the two fields. We apply optical phase matching conditions to decompose transient absorption spectra calculated using a nonperturbative multi configuration time dependent Hartree Fock (MCTDHF) code into a sum of multiphoton components, clarifying the role of recently identified light induced states in strong field photoabsorption. These results give a straightforward means of interpreting nonperturbative time dependent calculations, and suggest experimental methods for achieving these and similar goals.

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Zachary Walters
Lawrence Berkeley Natl Lab

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