

Abstract Submitted
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Two-Color Coherent Control of D_2^{+1} D. URSREY, J.V. HERNÁNDEZ, F. ANIS, J. MCKENNA, M.A. ZOHRABI, B. GAIRE, D. RAY, K.D. CARNES, C.L. COCKE, I. BEN-ITZHAK, B.D. ESRY, J.R. Macdonald Laboratory, Department of Physics, Kansas State University — It has long been known that adjusting the delay between the colors in an intense two-color field can be used to coherently control molecular dynamics [1]. Because of this access to control, the study of two-color dissociation has become increasingly important. We present theoretical and experimental results for the dissociation of D_2^+ in an intense two-color laser field. We have studied the nuclear kinetic energy release and the asymmetry of the dissociated fragments as a function of the delay between ~ 40 fs long ultraviolet (395 nm) and infrared (790 nm) pulses. We solved the time-dependent Schrodinger equation in the Born-Oppenheimer representation including all degrees of freedom except ionization.

[1] P. Brumer and M. Shapiro, Annu. Rev. of Phys. Chem. 43, 257 (1992)

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Dustin Ursrey
J.R. Macdonald Laboratory, Dept of Physics, Kansas State University

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