

Abstract Submitted
for the DAMOP11 Meeting of
The American Physical Society

Carrier-envelope phase control of the dissociation of H_2^+ at long infrared wavelengths (800 – 2000 nm)¹ SHUO ZENG, BRETT ESRY, J.R.Macdonald Laboratory, Department of Physics, Kansas State University — We perform a systematic calculation for H_2^+ in intense, ultrashort laser pulses with wavelength in the range 800 nm \sim 2000 nm. For three-cycle pulses, we found an asymmetric spatial distribution of $p+H$ fragments as is generally anticipated for few cycle pulses. The effects of the longer wavelengths relative to the commonly used 800 nm case are discussed. The calculated carrier-envelope phase (CEP) effects are interpreted as the interference of different multiphoton pathways whose relative phase is CEP-dependent [1,2]. The important pathways are identified and used to explain the observed wavelength dependence.

[1] V. Roudnev and B. D. Esry, Phys. Rev. Lett. 99, 220406 (2007)

[2] J. J. Hua and B. D. Esry, J. Phys. B 42, 085601 (2009)

¹Supported by the Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy.

Shuo Zeng
J.R.Macdonald Laboratory, Dept of Physics, Kansas State University

Date submitted: 04 Feb 2011

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