Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Carrier-envelope phase effect on the asymmetric H_2^+ dissociation in an ultrashort pulse using Floquet theory[1] SHUO ZENG, B.D. ESRY, J.R.Macdonald Laboratory, Department of Physics, Kansas State University — The tilted structure of the asymmetry pattern of H_2^+ dissociation as a function of carrier-envelope phase (CEP) and nuclear kinetic energy release (KER) at low energies (0 $\sim$3eV) has been seen both theoretically [1] and experimentally [2, 3]. We present a method to interpret this tilted structure using a Floquet-like theory [1]. In this formalism, it is convenient to rewrite the contribution of a given Floquet channel n to the KER spectrum in polar form with phase $\delta_n(E)$, where E is the KER, which enables us to explain the tilt as a result of the interference between different channels. Our calculations demonstrate the dependence of the asymmetry pattern on wavelength, duration and CEP.

[1] J.J.Hua *et al.*, J. Phys. B 42 085601 (2009)
[2] Manuel Kremer *et al.*, Phys. Rev. Lett. 103.213003 (2009)
[3] M.F.Kling *et al.*, Mol. Phys. (2008)

[1]Supported 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, Department of Physics,
Kansas State University

Date submitted: 27 Jan 2010 Electronic form version 1.4