

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Role of quantum trajectory in high-order harmonic generation in the Keldysh multiphoton regime¹ PENG-CHENG LI, SHIH-I CHU, Department of Chemistry, University of Kansas, Lawrence, Kansas 66045, USA — We present a systematic study of quantum-trajectory analysis of high-order harmonic generation (HHG) by solving accurately the time-dependent Schrödinger equation for a hydrogen atom in the multiphoton regime where the Keldysh parameter is greater unity. We perform the time-frequency transform to explore the spectral characteristics of the HHG. We find that the time-frequency spectra exhibit a broken distribution at above-threshold HHG due to the competition associated with the short- and long-trajectories when the ionization process is pushed from the multiphoton regime into the tunneling regime, it implies that the harmonic emission in the broken regions of time-frequency spectra are suppressed. In addition, we present a time-dependent density-functional theory approach for an ab initio study of the effect of correlated multielectron responses on the harmonic emission of Ar atom associated with the quantum trajectories in the multiphoton regime.

¹This work is partially supported by DOE.

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Date submitted: 28 Jan 2016

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