Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Inferring The Effective Single-Electron Dynamics in High Harmonic Generation from Time Dependent *ab initio* Studies CHEN ZHANG, Chemical Sciences and Ultrafast X-ray Science Laboratory, Lawrence Berkeley National Laboratory, WEI CAO, Chemical Science Division, Lawrence Berkeley National Lab, DAN HAXTON, Chemical Sciences and Ultrafast X-ray Science Laboratory, Lawrence Berkeley National Laboratory, WILLIAM MCCURDY, Chemical Sciences and Ultrafast X-ray Science Laboratory, Lawrence Berkeley National Laboratory, Departments of Applied Science and Chemistry, Davis — We explore the spectrum and dynamics of the atomic and molecular HHG processes using the multiconfiguration time dependent Hartree-Fock (MCTDHF) method in the context of noble gas atoms and homo-nuclear diatomic molecules. This multi-electron calculation reproduces experimentally observed spectra, and can be used to produce an effective single-electron time-dependent potential. This reduced effective potential in a many-electron system shows the effect of many-body dynamics in the presence of a strong field causes the system to depart from a single electron approximation.

Chen Zhang
Chemical Sciences and Ultrafast X-ray Science Laboratory,
Lawrence Berkeley National Laboratory

Date submitted: 30 Jan 2015 Electronic form version 1.4