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Spectral splitting and quantum path identification of high harmonic generation from a semi-infinite gas-cell WEI CAO, GUILLAUME LAURENT, HUI LI, ITZIK BEN-ITZHAK, LEW COCKE, J.R. Macdonald Laboratory, Physics Dept, Kansas State University, J.R. MACDONALD LABORATORY, PHYSICS DEPT, KANSAS STATE UNIVERSITY TEAM — High Harmonic Generation (HHG) from a semi-infinite gas-cell is investigated. By properly tuning the phase matching condition, a double-peak structure in each harmonic order is observed. Using a SFA model calculation, we are able to identify the two peaks as due short and long electronic trajectories. In order to characterize the HHG field, a delayed IR pulse is synchronized to the harmonic field to perform an XUV-IR cross-correlated experiment on a second gas target. The resulting photoelectron spectrum is analyzed to yield the relative phases of the harmonics for each peak separately. This work is supported by Chemical Sciences, Geosciences, and Biosciences Division, Office of Basic Energy Sciences, Office of Science, U.S. Department of Energy; The U.S. Army Research Office under grant number W911NF-07-1-0475 and the National Science Foundation under CHE-0822646.

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