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Study of Attosecond Electron Dynamics in the Presence of Strong Fields NIRANJAN SHIVARAM, HENRY TIMMERS, ADAM ROBERTS, ARVINDER SANDHU, University of Arizona — Two-color ionization of simple atoms in the simultaneous presence of strong near-IR and high frequency Extreme-Ultraviolet (XUV) fields is an excellent starting point for study of attosecond electron dynamics. XUV attosecond pulses obtained from high harmonic generation create electron wave-packets by exciting the atom and serve as a time marker for the evolution of electron dynamics. A strong IR pulse with controllable time delay dynamically modifies the atomic states by "dressing" the atom. The same field also probes the electron dynamics by ionizing the atom from such an excited state. Interferences between multiple ionization channels play a significant role in such processes. Here we study the ionization of He in the presence of XUV and two IR pulses, one of which is phase locked to the XUV pulse train and the other serves as a time-delayed probe. He^+ yield shows asymmetric oscillations as a function of delay between the XUV and the probe IR field. This asymmetry can provide information about the phase of the electron wave packet created by the XUV and the Stark shift of atomic states as a function of IR intensity.

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