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Angular and Ellipticity Dependence of Cesium Photoelectrons in a Strong Field EMILY SISTRUNK[1], ANTHONY DICHIARA, URSZULA SZAFRUGA, PIERRE AGOSTINI, LOUIS DIMAURO, Department of Physics, The Ohio State University, Columubs, OH 43210 — The ionization of atoms driven by a strong infrared (IR) laser has yielded many interesting results in noble gases in the near IR (NIR). The Keldysh parameter, γ, provides a useful metric for ionization dynamics. Utilizing the scaling of γ, experiments in cesium (Cs) in the mid-IR (MIR) can be compared to noble gases in the NIR to evaluate the effect of the atoms' electronic structure on the strong field dynamics. Cs is an attractive atomic system for strong field studies since it has only one valence electron. In conditions such that $\gamma \sim 1$, resonant-like enhancements have been observed in the plateau of the photoelectron energy spectrum. These enhancements have been attributed to a combination of multiphoton excitation and rescattering dynamics. In the strong field regime, rescattering effects are expected to change rapidly with ellipticity. These plateau enhancements are present in Cs driven in the MIR and are relatively insensitive to ellipticity. Understanding this unusual insensitivity to ellipticity could yield clues as to the origin of the enhancements.

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