

Abstract Submitted
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Study of electron diffraction structure of atomic targets from laser-induced photoelectron momentum spectra¹ D. RAY, S. DE, Z. CHEN, A.T. LE, C.D. LIN, C.L. COCKE, J. R. Macdonald Laboratory, Dept. of Physics, Kansas State University, Manhattan, KS USA, M.F. KLING, Max-Planck Institute of Quantum Optics, Garching, Germany — We measure the full vector momentum spectra of high energy photoelectrons from atomic targets (Xe, Ar and Ne) generated by intense laser pulses. Prior experimental investigations and comparison with Quantitative Rescattering Theory^[1] had confirmed that accurate elastic differential scattering cross-sections can be retrieved from electrons rescattered with maximum energy of 10Up at different peak intensities. Present studies show that information about the target structure, namely elastic differential cross-sections for the scattering of free electrons from the corresponding ionic core, can be retrieved over a range of energies, from 4Up up to 10Up, independent of the peak intensity at which the photoelectron spectra have been measured.

[1] Z. Chen, A.T. Le, T. Morishita, and C.D. Lin, PRA 79, 033409 (2009)

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