

Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Nondipole interactions in outer-shell photoionization S.H. SOUTHWORTH, E.P. KANTER, B. KRAESSIG, L. YOUNG¹, Argonne National Laboratory, R. WEHLITZ, SRC, University of Wisconsin, B.A. DEHARAK, N.L.S. MARTIN², University of Kentucky — New aspects of photoionization are being investigated through measurements and theoretical calculations of nondipole interactions. Interference of electric-dipole amplitudes with electric-quadrupole and magnetic-dipole amplitudes give rise to asymmetries between the intensities of photoelectrons emitted in the forward- and backward-hemispheres with respect to the photon propagation direction. Nondipole asymmetries are sensitive to variations in the magnitudes and phases of photoionization amplitudes such as due to discrete-continuum and continuum-continuum channel coupling. We have developed an electron spectrometer system designed to efficiently measure nondipole asymmetries in photoelectron angular distributions. Using 10-160 eV radiation at Wisconsin's Synchrotron Radiation Center, we are studying nondipole interactions in direct- and resonant-photoionization of the outer shells of atomic rare gases and small molecules. Recent results will be presented.

¹Work supported by DOE-BES: W-31-109-Eng-38

²Work supported by NSF: PHY 99878617

S.H. Southworth
Argonne National Laboratory

Date submitted: 28 Jan 2005

Electronic form version 1.4