

Abstract Submitted  
for the GEC15 Meeting of  
The American Physical Society

**Coherence parameter measurements for neon and hydrogen**

ROBERT WRIGHT, LEIGH HARGREAVES, MURTADHA KHAKOO, Cal State Univ- Fullerton, OLEG ZATSARINNY, KLAUS BARTSCHAT, Drake University, AL STAUFFER, York University — We present recent coherence parameter measurements for excitation of neon and hydrogen by 50eV electrons. The measurements were made using a crossed electron/gas beam spectrometer, featuring a hemispherically selected electron energy analyzer for detecting scattered electrons and double-reflection VUV polarization analyzer to register fluorescence photons. Time-coincidence counting methods on the electron and photon signals were employed to determine Stokes Parameters at each scattering angle, with data measured at angles between 20 – 115 degrees. The data are compared with calculated results using the B-Spline R-Matrix (BSR) and Relativistic Distorted Wave (RDW) approaches. Measurements were made of both the linear ( $P_{\text{lin}}$  and  $\gamma$ ) and circular ( $L_{\text{perp}}$ ) parameters for the lowest lying excited states in these two targets. We particularly focus on results in the  $L_{\text{perp}}$  parameter, which shows unusual behavior in these particular targets, including strong sign changes implying reversal of the angular momentum transfer. In the case of neon, the unusual behavior is well captured by the BSR, but not by other models.

Leigh Hargreaves  
Cal State Univ- Fullerton

Date submitted: 18 Jun 2015

Electronic form version 1.4