Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Absolute Single Photoionization Cross Sections of Se^{3+} For the Determination of Elemental Abundances in Planetary Nebulae DAVID ESTEVES, University of Nevada, Reno and the Advanced Light Source, NICHOLAS STERLING, NASA Goddard Space Flight Center, ALEX AGUILAR, A.L. DAVID KILCOYNE, The Advanced Light Source, RONALD PHANEUF, University of Nevada, Reno, RENE BILODEAU, EDDIE RED, The Advanced Light Source, BRENDAN MCLAUGHLIN, PATRICK NORRINGTON, Queen's University, Belfast, UK, CONNOR BALANCE, Rollins College, Winter Park, FL — Numerical simulations show that derived elemental abundances in astrophysical nebulae can be uncertain by factors of two or more due to atomic data uncertainties alone, and of these uncertainties, absolute photoionization cross sections are the most important. Absolute single photoionization cross sections for Se^{3+} ions have been measured from 42 eV to 56 eV at the ALS using the merged beams photo-ion technique. Theoretical photoionization cross section calculations were also performed for these ions using the state-of-the-art fully relativistic Dirac R-matrix code (DARC). The calculations show encouraging agreement with the experimental measurements.

David Esteves
University of Nevada, Reno and the Advanced Light Source

Date submitted: 23 Jan 2009 Electronic form version 1.4