Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Valence-shell photoionization of the Cℓ like Ar^+ ion A.M. COVINGTON, University of Nevada, Reno, USA, A. AGUILAR, ALS, LBNL, USA, I.R. COVINGTON, University of Nevada, Reno, USA, G. HINJOSA, UNAM, Mexico, C.A. SHIRLEY, R.A. PHANEUF, University of Nevada, Reno, USA, I. ALVAREZ, C. CISNEROS, I. DOMINGUEZ-LOPEZ, UNAM, Mexico, M.M. SANT'ANNA, Universidade Federal do Rio de Janerio, Brazil, A.S. SCHLACHTER, ALS, LBNL, USA, C.P. BALLANCE, Auburn University, AL, USA, B.M. MCLAUGHLIN, Queen's University, UK — The properties of Argon ions are of importance in atmospheric and astrophysical plasmas where abundances are required in the modeling of B-type stars in the Orion nebula, and the interstellar medium. Absolute cross-section measurements made at the Advanced Light Source in Berkeley California, for M-shell photoionization of Ar^+ are reported on for discrete photon energies ranging from 27.4 eV to 60.0 eV. The high-resolution spectroscopic absolute photoionization cross-section measurements indicate the target ion beam is a statistical admixture of the $^2P^o_{3/2}$ ground state and the $^2P^o_{1/2}$ metastable state of Ar^+. At all of the photon energies considered, the experimental photoionization cross sections are in excellent agreement with the predictions made from theoretical calculations performed using a parallel version of the R-matrix codes in intermediate coupling within the semi-relativistic Breit-Pauli approximation. Further details and a comprehensive set of results will be presented at the meeting.

Brendan M. McLaughlin
Queen's University of Belfast

Date submitted: 22 Jan 2009 Electronic form version 1.4