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Absolute Photoionization of Se and Xe Ions for the Determination of Elemental Abundances in Astrophysical Nebulae DAVID ESTEVES, University of Nevada, Reno, NICHOLAS STERLING, Michigan State University, A.L.D. KILCOYNE, ALS, Lawrence Berkeley National Laboratory, RENE BILODEAU, Western Michigan University, EDDIE RED, ALS, Lawrence Berkeley National Laboratory, GHASSAN ALNA'WASHI, Hashemite University, Jordan, RONALD PHANEUF, University of Nevada, Reno, BRENDAN MCLAUGHLIN, Centre for Atomic, Molecular and Optical Physics, Belfast, UK, CONNOR BALLANCE, Auburn University, ALEX AGUILAR, ALS, Lawrence Berkeley National Laboratory — The determination of elemental abundances in astrophysical nebulae is highly dependent on the accuracy of atomic data. Absolute single photoionization cross sections for Se^+, Se^{2+}, Se^{3+}, Se^{5+}, Xe^+ and Xe^{2+} have been measured at the ALS at Lawrence Berkeley National Laboratory using the merged-beams technique. All ions except Se^{5+} were measured from the metastable region to at least 10 eV above the direct ionization threshold. Theoretical calculations for Se^{5+} indicated strong resonances above 100 eV would dominate, therefore this region was explored for this ion. Rydberg series are identified for each ion and the experimental results are compared to theoretical photoionization cross section calculations using fully relativistic Dirac R-matrix code (DARC). This research was supported by both the DOE and NASA.

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