Abstract Submitted
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Photoionization of Kr^{5+} Ions using Synchrotron Radiation[1] M. LU, M.F. GHARAIBEH, G. ALNA'WASHI, R.A. PHANEUF, University of Nevada, Reno, A.L.D. KILCOYNE, A.S. SCHLACHTER, E. LEVENSON, Advanced Light Source, LBNL, A. MUELLER, S. SCHIPPERS, J. JACOBI, University of Giessen, Germany, S.W.J. SCULLY, Queen's University, Belfast, U.K., C. CISNEROS, UNAM Cuernavaca, Mexico — Absolute measurements of cross sections for photoionization of Kr^{5+} are reported in the photon energy range 74 – 175 eV at spectral resolutions of 50 meV and 100 meV. The experiments were performed using synchrotron radiation from an undulator beamline of the Advanced Light Source with an ion-photon merged-beams endstation. The Flexible Atomic Code (FAC) and Cowan atomic structure code were used to calculate energy levels, excitation energies and oscillator strengths for autoionizing transitions from the ground and metastable states of Kr^{5+}. The results show that the photoion yield spectrum in the photon energy range 88 – 175 eV is dominated by excitation of an inner-shell $3d$ electron into np and nf orbitals, and in the energy range 74 – 88 eV by excitation of a $4s$ electron into np orbitals. Continuum photoionization is negligible by comparison. When their energy scales are shifted by several eV, the resonance energies and oscillator strengths calculated using both atomic structure codes agree well with the measurements.

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