

Abstract Submitted
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Photoionization Cross Section for Ce^{4+} in the 4d Giant Resonance Energy Range: Experimental Measurements and Theoretical Interpretations¹ MUSTAPHA HABIBI, RONALD A. PHANEUF, DAVID E. ESTEVES, ULYANA I. SAFRONOVA, University of Nevada, Reno, ARTHUR L.D. KILCOYNE, ALS, LBNL, ALEJANDRO AGUILAR, CARMEN CISNEROS, UNAM, Mexico — Absolute measurements of single and double photoionization cross sections for Ce^{4+} ion were performed in the 4d excitation energy range using the ion-photon merged-beams endstation at undulator beamline 10.0.1 of the Advanced Light Source. Comparison of the results to multi-configuration Hartree-Fock calculations indicate a 25% population of metastable states in the primary ion beam. The cross sections are dominated by 4d - 4f transitions. Resonances in the cross section arising from excitations of 4d electrons to 4f, 5f, 6p, and 7p were identified. Integrating the cross sections over the experimental energy range gives a total oscillator strength of 10.32, consistent with the sum-rule value of 10 for a filled 4d shell.

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