

Abstract Submitted
for the DAMOP17 Meeting of
The American Physical Society

Single photoionization cross section measurements of Au⁺ ions and first determinations of excited state levels in Au²⁺ DAVID MACALUSO, University of Montana, ALFRED MUELLER, STEFAN SCHIPPERS, Justus Liebig University, Giessen, A.L. DAVID KILCOYNE, The Advanced Light Source, LBNL — Single photoionization cross-section measurements of Au⁺ ions were performed using synchrotron radiation and the photo-ion, merged-beams technique at the Advanced Light Source at Lawrence Berkeley National Laboratory. Measurements were made at a photon energy resolution of 18 meV from 18.06 to 25.57 eV spanning the ¹S₀ ground state and ³D₃ metastable state ionization thresholds. Multiple autoionizing resonance series are identified using quantum defect theory. These series identifications were used to make preliminary determinations of low-lying excited state energy levels in the product Au²⁺ ion, representing the first experimental determination of these levels.

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Date submitted: 27 Jan 2017

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