

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Photoionization of Au^+ , Au^{2+} , and Au^{3+} ions and developments in the synthesis of the metallofullerene $\text{Au}@C_{60}$ A.L. DAVID KILCOYNE, The Advanced Light Source, Lawrence Berkeley National Laboratory, ALFRED MULLER, STEFAN SCHIPPERS, JONAS HELLHUND, ALEXANDER BOROVNIK, Justus Liebig University, Giessen, Germany, ALLISON MUELLER, DYLAN GROSS, ANDREA JOHNSON, DAVID MACALUSO, University of Montana, A.L.D. KILCOYNE COLLABORATION — Absolute single photoionization of Au^+ , Au^{2+} , and Au^{3+} ions was investigated via the merged-beams technique at AMO Beamline 10.0.1.2 of the Advanced Light Source at Lawrence Berkeley National Laboratory. The absolute single photoionization yield was measured as a function of photon energy for each species from the metastable state ionization threshold region to well above the ground state ionization potential. Additional high-resolution measurements were performed for Au^+ and Au^{2+} ions in the region of the ground and metastable state ionization thresholds to better resolve the detailed resonant structure found therein. This structure was used, along with the reported excited state energy levels of Au^+ , to preliminarily identify previously unreported excitation levels in all three ions. In addition and as a component of the same program, photoionization studies of the endohedral metallofullerene $\text{Au}@C_{60}^+$ were performed using endohedral fullerene samples synthesized on-site at Beamline 10.0.1.2 of the ALS.

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Date submitted: 30 Jan 2015

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