Abstract Submitted
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Photodetachment of Ce^{-1} K.A. STARR, C.M. JANCZAK, D.A. RICHARDSON, N.D. GIBSON, C.W. WALTER, Denison University, P. ANDERSSON, Gothenburg University, Sweden — Infrared laser photodetachment spectroscopy has been performed on Ce^- using a crossed ion-laser beam apparatus. Negative ions were created in a Cs sputtered negative ion source, mass selected with a 90^o mass analyzing magnet, and then sent into a UHV interaction region. The relative photodetachment cross section was measured by counting the number of photodetached neutrals as a function of photon energy after the ion beam was intersected with a tunable pulsed OPPO infrared/visible laser. The relative cross section was measured from 0.5eV to 2.6eV. The results will be compared to recent theoretical[1] and experimental[2] results which are in significant disagreement on fundamental physical quantities such as the electron affinity of Ce and the ground state configuration of Ce^-. [1]X. Cao and M. Dolg, Phys. Rev. A **69**, 042508 (2004). [2]V.T. Davis and J.S. Thompson, Phys. Rev. Lett. **88**, 073003 (2002).

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