

Abstract Submitted  
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**Photodetachment Spectroscopy of  $\text{Ce}^{-1}$**  C.W. WALTER, N.D. GIBSON, K.A. STARR, C.M. JANCZAK, D.A. RICHARDSON, Denison University, Granville, OH, P. ANDERSSON, Gothenburg University, Sweden — Tunable infrared and visible laser photodetachment spectroscopy has been performed on  $\text{Ce}^{-}$  using a crossed laser-ion beam apparatus. The relative photodetachment cross section for neutral production was measured over the photon energy range 0.5 eV – 2.6 eV. The spectrum shows several continuum threshold features and reveals five narrow peaks associated with negative ion resonances. The present measurements 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  $\text{Ce}^{-}$ . [1] S.M. O'Malley and D.R. Beck, Phys. Rev. A **61**, 034501 (2000); 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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