Abstract Submitted
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Photodetachment Cross Sections of Ce^{-}[1] LIN PAN, DONALD R. BECK — The photodetachment cross section of Ce^{-} on the energy range 0.57-0.75 eV has been calculated using the relativistic version of Configuration Interaction in the Continuum formalism by Fano [1] and Mies [2]. Our results are able to interpret all the features in the tunable infrared photodetachment spectroscopy on the same energy range [3,4]. These include two bound to bound transitions and eight transitions to low-lying resonance states. By matching the calculated plot for cross section to the neutral production signal from the experiment, the electron affinity of Ce^{-} is further defined to be around 0.628 eV, which agrees with the measurement [3]. The binding energy of the first excited state of Ce^{-} $4f5d^26s^2$ can also be reliably extracted. The details of the calculation and the identity of each feature will be presented in our poster at the conference.

[1] U. Fano, *Phys. Rev.* **124**, 1866 (1961).
[2] F. H. Mies, *Phys. Rev.* **175**, 164 (1968).
[3] C. W. Walter *et al*, *Phys. Rev. A* **76**, 052702 (2007).
[4] C. W. Walter, private communication.

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