Photodetachment Spectroscopy of Ce$^{-*1}$

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The lanthanide series of negative ions provides interesting challenges and rich spectroscopic results for experiment and theory alike. A 12keV Ce$^-$ beam has been used in perpendicular arrangement with tunable radiation from an Nd:YAG pumped OPPO laser to perform laser photodetachment spectroscopy. The quantity of photodetached neutrals has been measured as a function of photon energy in order to determine the relative cross section for neutral production. Within the range 0.5eV – 0.75eV, the spectrum exhibits five sharp peaks in addition to broad threshold behavior. The energies and widths of these resonances will be used to further explain the discrepancies between standing theoretical [1] and experimental [2] values for the electron affinity.


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