

Abstract Submitted
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Transition Probabilities for Neutral Cerium from Boltzmann Analysis of Fourier Transform Spectra¹ D.E. NITZ, St. Olaf College, J.J. CURRY, National Institute of Standards and Technology, M.J. BUUCK, N.P. MITCHELL, A.D. DEMANN, W.E. SHULL, St. Olaf College — The recent availability of a large set of absolute transition probabilities for neutral cerium (Lawler *et. al.*, J. Phys. B **43**, 85701 (2010)) makes it possible to investigate the relative populations of the upper levels of these lines in radiometrically-calibrated spectra. In cases where these populations can be characterized by a single effective Boltzmann temperature, applying this temperature enables one to determine additional absolute transition probabilities for observable decay branches of nearby levels. While not as accurate as measurements based on branching fractions and lifetimes, the method can be applied to levels whose lifetimes are not known and does not require accounting for all of the branches. We are analyzing Fourier Transform spectra from NIST and from the National Solar Observatory data archive at Kitt Peak via this technique, seeking to increase the set of known transition probabilities for Ce I by a factor of 2-3. A summary of results obtained to date will be presented.

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