

Abstract Submitted
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New Data and Analysis of Available Data on the $A^1\Sigma_u^+$ and $b^3\Pi_{u0}$ States of Cs_2 ¹ T. BERGEMAN, SUNY Stony Brook, H. SALAMI, SUNY Stony Brook, O. DULIEU, Lab. Aimé Cotton, CNRS, U. Paris-Sud, Orsay, France, D. LI, F. XIE, L. LI, Tsinghua U., Beijing, China — The lowest excited states of alkali dimers are of interest as intermediaries in the excitation of higher levels and in the production of ultracold ground state molecules. For the heavier alkali dimers, there are large spin-orbit interactions that complicate the analysis. For Cs_2 , recently medium-resolution spectroscopy at Tsinghua U. has provided information on levels of the $b^3\Pi_{0u\pm}$ states below the $v=0$ level of the A state. These data yield the b state vibrational numbering and a value for T_e accurate to $\pm 1.5 \text{ cm}^{-1}$, and have permitted us to analyze and fit previously obtained data [1,2] on the A state. Our model includes spin-orbit coupling for which we use a Morse-type function with an R -dependent correction factor. Currently, the rms residual of our fit to the new data is 1.65 cm^{-1} , and 0.14 cm^{-1} for the older Fourier transform spectroscopy data, which has experimental uncertainties of 0.003 cm^{-1} . Additional data on regions with few observed b state levels would undoubtedly improve the fit results.

1. J. Vergés and C. Amiot, J. Mol. Spectrosc. **126**, 393 (1987).

2. C. Amiot and O. Dulieu, J. Chem. Phys. **117**, 5155 (2002).

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