

ANALYSIS OF $3\nu_2$ AND $\nu_2+\nu_4$ OF $^{14}\text{NH}_3$ NEAR 4 MICRONS

L. R. Brown, G. Tarrago, and I. Kleiner, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, Ca 91109 and Laboratoire de Spectroscopie Moléculaire et Applications, Université de Paris-Sud, Orsay, France

To support remote sensing of the outer planets, transitions in the 2100-3100 cm^{-1} region are being analyzed. Laboratory spectra have been recorded at 0.011 cm^{-1} resolution with signal to noise ratios of 900:1 or better using the Fourier transform spectrometer (FTS) located at the McMath telescope at Kitt Peak Nat'l Obs./ Nat'l Solar Obs. Multiple pressures and optical path lengths from 1.5 to 433 meters have been used to observe intensities through four orders of magnitude. Experimental positions and intensities are being retrieved from the spectra using line-by-line curve-fitting software. The measurement accuracy of an isolated spectral line is $\pm 0.00020 \text{ cm}^{-1}$ for the positions and $\pm 3\%$ for intensities.

Thus far, some 900 of the 2500 observed line positions have been assigned to the $3\nu_2$ and $\nu_2+\nu_4$ bands of $^{14}\text{NH}_3$ and modeled by quantum mechanics to produce a preliminary prediction of the region. The analysis of measured intensities is underway.

† The paper represents the results of one phase of research carried out at the Jet Propulsion Laboratory, under contract with the National Aeronautics and Space Administration.