REVISED MOLECULAR LINE PARAMETERS OF AMMONIA

L. R. BROWN and V. NEMTCHINOV, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109, USA and C. COTTAZ, I. KLEINER, G. TARRAGO, Laboratoire de Photophysique Moleculaire, Universite Paris Sud, Orsay, France.

The line parameters of ammonia for the HITRAN and GEISA databases have been revised using new laboratory studies of line positions and intensities measured at 0.0056 and 0.011 cm\(^{-1}\) resolution with the McMath Fourier transform spectrometer located at Kitt Peak National Observatory. The vibrational bands analyzed recently are 2nu_2 and nu_4 between 5 and 8 micron and 2nu_4, nu_1 and nu_3 near 3 micron. To characterize the 5 micron window, several hot bands have also been studied; these include 3nu_2 (s) - nu_2 (a), 3nu_2 (a) - nu_2 (s), nu_2 + nu_4 (s) - nu_2 (s) and nu_2 + nu_4 (a) - nu_2 (a) located at 1416., 1963., 1608. and 1618.cm\(^{-1}\), respectively. For this longer wavelength region, more than 1600 line intensity measurements have been modeled to 5% for the cold bands and 8% for the hot bands so that a complete spectrum can be predicted from theoretical models. To complete the database, empirical expressions for foreign-broadened line widths (derived by Nemtchinov from measurements at 10 micron) have been applied to all ammonia transitions up to 2 microns.

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