

HYPERFINE STRUCTURE OF ROTATION-INVERSION LEVELS IN THE EXCITED ν_2 STATE OF AMMONIA

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Hyperfine structures of the rotation-inversion transitions with $J = 3 - 2$, $s - a$, and $K = 0, 1, 2$, and with $J = 0 - 1$, $a - s$, and $K = 0$ in the excited ν_2 vibrational state have been resolved and measured by sub-Doppler saturation spectroscopy using the Cologne terahertz spectrometer with an accuracy of about 1 kHz. The line frequencies of the hyperfine structures of the rotation inversion transitions (at 466, 769, 742, and 763 GHz) have been simultaneously analyzed with the previously published ν_2 transition $J = 2 - 1$, $s - a$, $K = 1$ in terms of effective nuclear quadrupole and spin-rotation parameters. In addition to those, the corresponding purely rotation-inversion frequencies deperturbed from the hyperfine effects have been derived.