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

S.P. BELOV and G.WINNEWISSER, *I. Physikalisches Institut, Unversitaet zu Koeln, D-509 37 Koeln, Germany*; S.URBAN, *J. Heyrovsky Institute of Physical Chemistry, Dolejskova 3, 182 23 Praha 8 and Institute of Chemical Technology, Technicka 5, 166 28, Praha 6, Czech Republic*.

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.