THE ASSYMETRIC N-O STRETCH FUNDAMENTAL BAND OF NITROMETHANE: FTIR JET SPECTRA AND ASSIGNMENTS OF THE LOWEST 3 INTERNAL ROTOR STATES

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The rotationally resolved spectrum of the *b*-type band near 1584 cm^{-1} of nitromethane has been recorded using the Bruker-120HR FTIR coupled to a continuous slit-jet expansion at PNNL. The rotational temperature of the spectrum is approximately 15K with a spectral resolution of 0.0025 cm^{-1}. Assignments have been made for 649 transitions using ground state combination differences. For the $m' = 0$ internal rotor state, 370 transitions reaching $J' \leq 18$ and $K'_a \leq 5$ have been assigned. For the $m' = 1$ state, 232 transitions with $J' \leq 15$ and $K'_a \leq 4$ have been assigned. For the $m' = 2$ state, 47 transitions with $J' \leq 12$ and $K'_a = 1$ have been assigned. The J'-levels in the $K'_a = 5$ in the $m' = 0$ state are split by a perturbation.