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

DAVID S. PERRY, LOU DEGLIUMBERTO, University of Akron, Akron, OH 44325; WENDY HEISER-MAN, REBECCA COOK, HOWARD D. METTEE, Youngstown State University, Youngstown, OH 44555; ROBERT L. SAMS, Pacific Northwest National Laboratory, Richland, WA 99352; GEORG O. SORENSEN, University of Copenhagen, DK-2100, Copenhagen, Denmark.

The rotationally resolved spectrum of the $b$-type band near 1584 cm$^{-1}$ of nitromethane has been recorded using theBruker-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 $n' = 0$ internal rotor state, 370 transitions reaching $J \leq 18$ and $K'_{\alpha} \leq 5$ have been assigned. For the $m' = 1$ state, 232 transitions with $J \leq 15$ and $K'_{\alpha} \leq 4$ have been assigned. For the $m' = 2$ state, 47 transitions with $J \leq 12$ and $K'_{\alpha} = 1$ have been assigned. The $J'$-levels in the $K'_{\alpha} = 5$ in the $m' = 0$ state are split by a perturbation.