

## INFRARED SPECTROSCOPY OF THE MIXED N<sub>2</sub>O-CO<sub>2</sub> DIMER

M. AFSHARI, M. DEHGHANY, N. MOAZZEN-AHMADI, *Department of Physics and Astronomy, 2500 University Drive NW, Calgary, Alberta T2N 1N4, Canada*; A.R.W. MCKELLAR, *Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, Ontario K1A 0R6, Canada*.

High-resolution infrared spectra of the weakly bound N<sub>2</sub>O-CO<sub>2</sub> complex are studied using a tunable diode laser to probe a pulsed supersonic slit jet. The previously known N<sub>2</sub>O-CO<sub>2</sub> dimer band in the region of the  $\nu_3$  CO<sub>2</sub> asymmetric stretch ( $\sim 2350$  cm<sup>-1</sup>) is remeasured and analyzed in improved detail and two new bands in the regions of the N<sub>2</sub>O  $\nu_1$  ( $\sim 2230$  cm<sup>-1</sup>) and  $\nu_3$  ( $\sim 1280$  cm<sup>-1</sup>) stretching fundamentals are observed and assigned to N<sub>2</sub>O-CO<sub>2</sub>. The ground state rotational constants for all three bands are  $A = 0.29498$  cm<sup>-1</sup>,  $B = 0.05801$  cm<sup>-1</sup> and  $C = 0.04837$  cm<sup>-1</sup>. We also observe another band with c-type rotational structure at about  $2251.5$  cm<sup>-1</sup> which is assigned as a combination of the intramolecular N<sub>2</sub>O  $\nu_1$  stretching vibration and the intermolecular out-of-plane torsional vibration. The resulting torsional frequency for the N<sub>2</sub>O-CO<sub>2</sub> dimer is about  $25.7$  cm<sup>-1</sup>.