INFRARED SPECTROSCOPY OF THE MIXED N_2O-CO_2 DIMER

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High-resolusion infrared spectra of the weakly bound N_2O-CO_2 complex are studied using a tunable diode laser to probe a pulsed supersonic slit jet. The previously known N_2O-CO_2 dimer band in the region of the ν_3 CO_2 asymmetric strtch (~ 2350 cm^{-1}) is remeasured and analyzed in improved detail and two new bands in the regions of the N_2O ν_1 (~ 2230 cm^{-1}) and ν_3 (~ 1280 cm^{-1}) stretching fundamentals are observed and assigned to N_2O-CO_2. The ground state rotational constants for all three bands are $A = 0.29498$ cm^{-1}, $B = 0.05801$ cm^{-1} and $C = 0.04837$ cm^{-1}. We also observe another band with c-type rotational structure at about 2251.5 cm^{-1} which is assigned as a combination of the intramolecular N_2O ν_1 stretching vibration and the intermolecular out-of-plane torsional vibration. The resulting torsional frequency for the N_2O-CO_2 dimer is about 25.7 cm^{-1}.