INFRARED SPECTROSCOPY OF N_2O CLUSTERS

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Following our observation of the polar dimer of OCS, we searched the region of the N-N stretching fundamental of N_2O using a tunable diode laser to probe a pulsed supersonic slit jet. In addition to the relatively strong ν_3 band of the centrosymmetric lowest energy isomer of N_2O dimer, we observed a weak band at around 2226.45 cm-1 which we have assigned to the higher energy polar isomer of N_2O dimer. 140 transitions from an a/b type hybrid band were assigned and fitted to a planar asymmetric top structure. Our lower state parameters should enable the observation of the microwave spectrum of polar $(N_2O)_2$. A trimer band of N_2O has also been assigned based on lower state combination differences from previously published works. In contrast to OCS where we have observed four tetramer bands, only one tetramer band around 2237.4 cm-1 has been found to date. This band is best described as an asymmetric top with an accidental spherical top structure. Isotopic studies of these bands are presently underway.