SPECTROSCOPY OF THE FIRST EXCITED ELECTRONIC STATE OF HNCO: THE $A^1A'' \longleftarrow X^1A'$ ELECTRONIC TRANSITION

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The $A^1A'' \longleftarrow X^1A'$ electronic transition of HNCO has been observed by two photon sequential excitation with detection of the fluorescence of the dissociation product (NCO) and by $NH(X^3\Sigma^-)$ photofragment yield spectroscopy. The HNCO was expanded from a supersonic nozzle at 13 K. The excited state vibrational bands have been fit to a Deslandres diagram, and the normal mode frequencies have been determined. The structure of the upper state has been determined from the rotational structure of some of the bands.
The excited state is bent in a *trans* configuration with r(N-C) =3D 1.64 =C5 , r(C-O) =3D 1.16 =C5, and the $\angle H - N - C = 3D110^\circ$ and $= \angle N - C - O = 3D121^\circ$. These results will be compared with the ground state structure and our *ab initio* calculations.