THE MICROWAVE SPECTRUM AND STRUCTURE OF HNO_3-HCl

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The microwave spectrum of HNO_3-HCl has been obtained via pulsed nozzle Fourier transform microwave spectroscopy. The spectrum is consistent with a planer or near-planer structure in which the HNO_3 hydrogen bonds to the chlorine and the O-H vector is nearly perpendicular to the H-Cl bond. Preliminary analysis indicates a hydrogen bond length of about 2.3 A, which is similiar to that in HCl–HF. The structure is compared with those of HNO_3-NH_3 and HNO_3-H_2O, both of which have been previously studied in our laboratory.