FTMW SPECTRUM OF THE VAN DER WAALS COMPLEX OF DIMETHYLETHER-NITROUS OXIDE

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Microwave spectrum of the van der Waals complex of dimethylether(DME) and nitrous oxide(N_2O) has been investigated by using Balle-Flygare type Fourier transform microwave spectrometer from 6 to 18 GHz. The rotational spectrum exhibited many hyper-fine structure due to the two nitrogen nuclei ^{14}N(I =1). However, no internal rotation splitting due to the two methyl groups in DME was observed.

The rotational, centrifugal distortion, and nuclear quadrupole coupling constants for two nitrogen have been determined. The molecular structure of the complex is planer except for the methyl hydrogen. DME and N_2O are triply van der Waals bonded between H$\cdots$N, O$\cdots$N, and H$\cdots$O with the H$\cdots$O distance slightly shorter than H$\cdots$N. The molecular properties of the complex are compared with those of the isoelectronic complexes DME$\cdots$OCS, DME$\cdots$$CO_2$, and DME$\cdots$$CS_2$.