ROTATIONAL SPECTROSCOPY AND MOLECULAR STRUCTURE OF $^{15}\text{N}_2-{^{14}}\text{N}_2\text{O}$

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The rotational spectrum of $^{15}\text{N}_2-{^{14}}\text{N}_2\text{O}$ has been recorded in the 7-19 GHz region using a pulsed molecular beam, Fourier transform microwave spectrometer. Both $a$- and $b$-type transitions have been observed. The analysis of the hyperfine structure due to the two $^{14}\text{N}$ nuclei in the $\text{N}_2\text{O}$ subunit reveals that the energy levels are doubled, owing to a tunneling motion of the $^{15}\text{N}_2$ subunit. The rotational constants support a planar, T-shaped structure, with $^{15}\text{N}_2$ forming the leg of the T. This geometry is consistent with that obtained using infrared spectroscopy. $^a$ The nuclear quadrupole coupling constants of the two $^{14}\text{N}$ nuclei indicate that the $b$-axis of the complex forms an angle between 10-12° with the $\text{N}_2\text{O}$ axis.