

ABSORPTION SPECTROSCOPY OF $\Sigma_{0_0} \rightarrow \Pi_{1_0}$ BAND IN $\text{Rg}\cdot\text{ND}_3$ ($\text{Rg} = \text{Ne, Ar, Kr}$)

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Previously, we have reported the $\Sigma_{0_0} \rightarrow \Pi_{1_0}$ vibrational-tunneling-rotational (VTR) transition in the $\text{Ar}\cdot\text{ND}_3$ complex.^a Here we report the first observation of the corresponding transition in the $\text{Ne}\cdot\text{ND}_3$ and $\text{Kr}\cdot\text{ND}_3$ complexes using a pulsed jet FASSST spectrometer operating in the 195-298 GHz region. The inversion components of the VTR band corresponding to different nuclear spin states, are observed for all complexes $\text{Rg}\cdot\text{ND}_3$ ($\text{Rg} = \text{Ne, Ar, Kr}$). The experimental data were fit to a pseudo-diatomic Hamiltonian,^b yielding molecular constants, including the value of the inversion splitting, Δ , in the complexes. A semiquantitative model of the (moderate) quenching of the inversion splitting in the complex is proposed.

^aD.Melnik, S.Gopalakrishnan, T.A.Miller, and F.C.De Lucia, 54th International Symposium on Molecular Spectroscopy

^bY. Xu and A. R. W. McKellar, *Mol.Physics* 88, 859 (1996)