

Abstract Submitted
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The Pure Inversion-Tunneling Transition of Ammonia in Helium Droplets RUDOLF LEHNIG, WOLFGANG JÄGER, University of Alberta, Department of Chemistry — The pure inversion tunneling transition of ammonia embedded in superfluid helium droplets has been measured for the two isotopomers $^{14}\text{NH}_3$ and $^{15}\text{NH}_3$. The transitions were found at 21.72 GHz for $^{14}\text{NH}_3$ and at 20.68 GHz for $^{15}\text{NH}_3$ and are therefore shifted by 1.97 GHz and 1.94 GHz to the red compared to the gas phase values of the two isotopomers, respectively [Pickett *et al.*, J. Quant. Spectrosc. Radiat. Transfer **60**, 883 (1998)]. The measured peaks consist of a broad background with a width at half maximum of 1.5 GHz and an unexpectedly sharp peak with a width at half maximum of only 15 MHz sitting on top of the broad background. The difference between gas phase and droplet spectra will be discussed and a interpretation of the complex line shape will be given.

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