LOW TEMPERATURE HELIUM PRESSURE BROADENING OF AMMONIA INVERSION TRANSITIONS, 10 - 35K

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We report low temperature helium pressure broadening cross sections of NH_3 inversion transitions from a collisionally cooled experiment. Helium pressure broadening data was obtained for the three microwave inversion transitions of the (J, K) rotational levels, $(1, 1)$, $(2, 2)$ and $(3, 3)$, over a temperature range of 10 - 35 K. Pressure broadening cross sections were also calculated for comparison with the experimental data using three existing NH_3-He potential surfaces. The agreement between experiment and theory is not particularily good, especially for the ortho-NH_3 level, $(3, 3)$, and appears to point out the need for further work in either the description of the potential surface or the modeling of the collision dynamics.