

COMPARISON OF He AND H₂ PRESSURE BROADENING OF NH₃ FROM 15 TO 40 K

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Pressure broadening of the (J, K) = (1, 1), (2, 2) and (3, 3) inversion transitions of NH₃ was measured using normal- H₂ as the broadening agent at kinetic temperatures of 15 to 40 K. Measurements were taken in a quasi equilibrium cell using the collisional cooling technique. H₂ pressure broadening cross sections were compared to low temperature He pressure broadening of the same transitions and found to be from 2.5 to 8 times larger than corresponding He cross sections. Measured normal H₂ and He cross sections were also compared to calculated J = 0, para- H₂ cross sections. Preliminary experimental results for broadening by para- H₂ will also be presented.