HELIUM PRESSURE BROADENING OF HDO BETWEEN 2 AND 80 K

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Below 80 K the pressure broadening cross section for HDO-He collisions is predicted to be less than 10 $\mathring{A}^2$. This is quite small for a microwave transition and suggests that the line may, at low pressures, narrow with increasing pressure (Dicke narrowing). We have employed collisional cooling to measure the lineshape of the HDO $1_{01} - 1_{11}$ transition between 2 and 80 K. Initial results for the high pressure data indicate that the theoretical predictions for the cross section are valid. A more detailed analysis that investigates non-Lorentzian contributions to the lineshape will be discussed.