

VIBRATIONAL-ROTATIONAL INTERACTION
IN MOLECULES OF THE SPHERICAL TOP TYPE

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S u m m a r y

We show that, in the Raman spectrum of very low-density gases, the Q branch of the ν_1 band of methane and deuteromethane has asymmetric contour. With increase in the gas density, the band contour becomes more symmetric and broadens. The band shape is described by the Voigt curve. Possible mechanisms of the vibrational broadening of ν_1 – dephasing and intermode exchange of vibrational energy – are analyzed. Both mechanisms may be efficient in the band broadening.