HIGH RESOLUTION FITR SPECTROSCOPY IN C_2H_4 USING A SLIT-JET: OVERTONE IN THE 5000cm^1 REGION

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A Fourier transform interferometer was used to record the slit jet cooled overtone absorption spectrum [a] of $^{12}C_2H_4$ between 3900 and 7900cm^{-1} at a spectral resolution of 0.02cm^1 and a rotational temperature of 53K. In this high frequency range, we perform the analysis of 17 combination bands. For some of them located at 4206, 4322, 4328, 4515, 4730, 5995, and 6150cm^{-1} the analysis was complicated by the existence of A-type B-type and C-type Coriolis -type resonances with dark states. For each analysed spectral region, a preliminary calculation of the energy levels was performed taking into account the observed resonances.

[a] R. Georges, M. Bach, and M. Herman, Mol. Phys. 90, 381 (1997).