ASSIGNMENT OF ROTATIONAL TRANSITIONS OF TORSIONALLY EXCITED STATES OF ACETONE, CH_3COCH_3

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Rotational transitions of one torsionally excited state of acetone have been assigned in the spectrum from 260 to 350 GHz recorded with the FASSST spectrometer.[a] The transitions were predicted and analyzed with an effective rotational Hamiltonian for molecules with two periodic internal motions.[b] It was possible to fit 205 components from all four torsional substates of 62 R-transitions (J = 19 - 34) to 27 spectroscopic parameters (dimensionless standard deviation 1.92). The following internal energy tunneling parameters were obtained: $\epsilon_{01} = 5684(16)$ MHz, $\epsilon_{1-1} = 99.22(61)$ MHz, $\epsilon_{11} = 63.81(53)$ MHz. The EE components of another vibrationally excited state have been identified, and it is hoped that more definite results on this state will be available by the time of the meeting.

[a] D. T. Petkie, T. M. Goyette, R. A. P. Bettens, S. P. Belov, S. Albert, P. Helminger and F. C. De Lucia, Rev. Sci. Instr. 68, 1675 (1997).
[b] P. Groner, J. Chem. Phys. 107, 4483 (1997).