

## EXPERIMENTAL DETERMINATION OF THE ROTATIONAL PARTITION FUNCTION BY A PASSIVE SPECTROMETER

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We have developed a radiometer-type spectrometer. The method is suitable for absolute spectral line measurement so that the information on the rotational partition function can be directly obtained. In our systems for 375-490 GHz band a spectral image of 600 MHz bandwidth can be obtained as 10000 spectral channel data, with being calibrated along frequency and intensity axis.

Well known interstellar molecule, methyl formate has a number of low-lying states and many transitions are left unassigned. We recorded rotational spectrum of this molecule in emission by our spectrometer, with changing pressure and temperature of the sample in order to facilitate the assignment. Our experimental results are compared to the ab initio MO calculations.