THZ SPECTROSCOPY OF ACETALDEHYDE AND SEARCH OF ^{13}C SPECIES IN ORION

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Acetaldehyde (CH_3CHO) is one of the high priority complex organic molecules for the astrophysical community. There is a lack of data concerning the ^{13}C species since the measurements are limited to 40 GHz[a] up to date. This molecule displays a large amplitude motion: the hindered rotation of the methyl group with respect to the rest of the molecule. The analysis is performed with RAM36 code[b] which used the Rho Axis Method. Last year we presented the analysis of the millimeterwave spectra of the $^{13}CH_3CHO$ species[c]. We extended the analysis to the THz range of the vibrational ground state for both species. We are also analyzing the first torsional state ($\approx$140 cm^{-1}) for two reasons: first, this permits to remove correlation between parameters. Second, this state contribute to the partition function even at ISM temperature (100–150 K) since there is an influence on the column density determined in case of detection. The searches of these isotopomers are in progress in ORION.

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