

## SUBMILLIMETER WAVE SPECTROSCOPY FOR ISM: IMINES WITH INTERNAL ROTATION

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The aldimines are important to understand amino acids formation process as they appear in reaction scheme of Strecker-type synthesis. It seems reasonable to propose syntheses in the solid phase but the formation process is not clearly established. The number of imines and amines detected in the interstellar medium is limited, mainly due to lack of spectroscopic data. We present here the studies of ethanimine ( $\text{CH}_3\text{CHNH}$ ) and methylimino-acetonitrile ( $\text{CH}_3\text{N}=\text{CHCN}$ ). Both of them have two isomers E and Z with E one being the most stable. These molecules represent a particular case where a quite high ( $570$  and  $714\text{ cm}^{-1}$  respectively) internal rotation barrier is combined with relatively a high  $\rho$  value (close to  $0.3$ ) making analysis of the spectra rather delicate. The fits were performed using a version of RAM36 code<sup>a</sup> which includes the treatment of the nuclear quadrupole hyperfine structure. Ethanimine was detected already in ISM<sup>b</sup>, but the spectroscopic analyses were limited to low  $K_a$  values<sup>c,d</sup>. In the current study we significantly extend the rotational quantum number coverage for this molecule.

The spectroscopic results for both molecules and searches of methylimino-acetonitrile in ISM will be presented.

*This work was supported by the CNES and the Action sur Projets de l'INSU, PCMI.*

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<sup>a</sup>Ilyushin, V.V. et al.; *J. Mol. Spectrosc.* **259**, (2010) 26

<sup>b</sup>Loomis, R. A.; et al. *ApJ. Lett.* **765**,(2013) L9

<sup>c</sup>Lovas, F. J.; et al. *J. Chem. Phys.* **72**, (1980) 4964

<sup>d</sup>Melli A.; et al. *ApJ* **855**, (2018) 123