SPECTROSCOPY OF ISOCYANIDES AND THEIR SEARCH IN INTERSTELLAR MEDIUM

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Isocyanides are isomers of the corresponding nitriles and some have already been observed in the ISM (HNC, CH3NC, HCCNC). There are few spectroscopic studies of these molecules. This is mainly due to the difficulty to synthesize this kind of molecule. In addition their kinetic stability is poor, making the recording of the spectra delicate.

Following our recent work about diisocyanomethane ($CNCH_2NC$), the first microwave study of a bis-isocyanide derivative[a], we decided to investigate the spectra of the cyano-isocyanomethane ($CNCH_2CN$) up to 660 GHz. These two molecules are isomer of the more stable malonitrile ($NCCH_2CN$). In order to have homogeneous data set, we decided to extend the range of the measurements of malonitrile which was studied only up to 240 GHz[b].

This molecule is only 7 atoms, even if this is not detected in the ISM, the increase of sensitivity of ALMA may permit to detect this molecule and its isocyanides derivatives. We will present also here results about ethylisocyanide, the isomer of one of the most abundant complex organic molecule in the ISM. Its spectra was investigate up to 1THz. Its non detections may be due to inaccurate prediction, it was studied only up to 33 GHz[c].

All these molecules will be search in the IRAM 30-m line survey of Orion KL and in in the PRIMOS survey towards TMC-1 and B1. In case of non detection, we will provide upper limits to their column density.

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

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[c] Kruger, M. et al.*Z. Naturforsch.* **A47**, (1992) 1067