

## Newly discovered interstellar molecules

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The continuous improvement in the sensitivity of radiotelescopes is allowing to unveil the chemical composition of molecular clouds with an unprecedented level of detail. In the current year we have discovered six new interstellar molecules, all of them observed in the dense core L483 thanks to the sensitivity of a 3 mm line survey carried out with the IRAM 30m telescope. Some of them have been also observed in other dense cores. The discovered species are the cation  $\text{NS}^+$ , which seems to be ubiquitous in assorted types of interstellar environments [1], the radical HCS and its metastable isomer HSC, which provide new observational constraints on the chemistry of sulfur in dark clouds [2], the radical NCO and the ion  $\text{H}_2\text{NCO}^+$ , which are key precursors in the synthesis of the widespread HNCO molecule and its related isomers [3], and CNCN, a metastable isomer of the non polar and thus radio invisible molecule cyanogen (NCCN), a species which is the simplest member of the family of dicyanopolynes and is inferred to be fairly abundant in interstellar clouds [4]. All these discoveries have provided a wealth of observational constraints for chemical models and ultimately are allowing to better understand the chemical richness and the chemical processes at work in dense interstellar clouds.

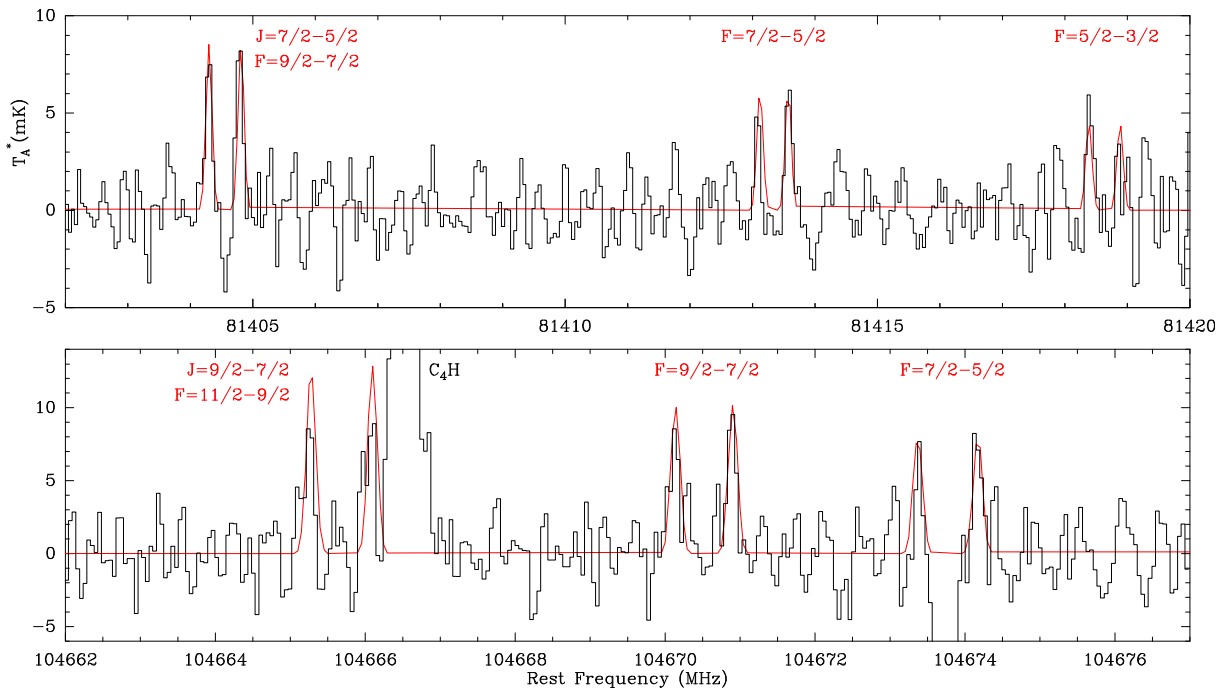


Figure 1: As an example we show the weak lines observed towards L483 with the IRAM 30m telescope that led to the detection of the NCO radical [3].

### References

- [1] J. Cernicharo, B. Lefloch, M. Agúndez, et al. 2018, ApJ, 853, L22
- [2] M. Agúndez, N. Marcelino, J. Cernicharo, and M. Tafalla 2018, A&A, 611, L1
- [3] N. Marcelino, M. Agúndez, J. Cernicharo, et al. 2018, A&A, 612, L10
- [4] M. Agúndez, N. Marcelino, and J. Cernicharo 2018, ApJ, 861, L22