

LABORATORY INVESTIGATION OF CARBON-SULFUR SPECIES FOR ASTROCHEMISTRY

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Carbon-Sulfur species represent a good fraction of the chemical content of interstellar gas and dust. The electronic properties of these compounds generate peculiar molecular structure and chemical reactivity. Detected C-S molecules in space span from the simplest diatomic carbon monosulfide to long carbon chain (e.g. C_5S^a) and complex organic (e.g. $CH_3CH_2SH^b$). Sulfur chemistry is also particularly interesting due to the still puzzling “missing sulfur” behaviour away from diffuse interstellar regions^c.

In this talk we review some of the current projects undergoing in our laboratories, involving the characterisation of rotational spectra of carbon-sulfur species. Techniques adopted for our study, and here briefly reviewed, comprise absorption spectroscopy in cells and in microwave/millimeter supersonic jet, chirped-pulse broadband and frequency modulation spectroscopy.

^aCernicharo, J. et al. A&A 648, L3 (2021)

^bKolesniková L. et al. ApJ 784, L7,(2014)

^cLaas J.C. and Caselli P. A&A 624, A108 (2019)