

## THZ SPECTROSCOPY OF SULFUR DERIVATIVES OF ASTROPHYSICAL INTEREST

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About 200 molecules have thus far been detected in the interstellar medium. Twenty-two are sulfur-bearing chemical compounds (and analogues of oxygenated species), making sulfur the tenth most abundant element in the galaxy. We report here the sub-THz spectroscopic observations of two reactive species: thioacetaldehyde ( $\text{CH}_3\text{CHS}$ ) and  $\text{NS}^+$ .<sup>a</sup> The latter new cation has been firmly detected for the first time towards many interstellar sources (cold molecular clouds, pre-stellar cores and shocks) using the IRAM-30m radiotelescope. Although a recent study of the chemistry of sulfur in cold dense clouds has been carried out<sup>b</sup> the formation pathways of the sulfur species are still misunderstood. The rotational spectrum of  $\text{CH}_3\text{CHS}$  was previously recorded up to 40 GHz.<sup>c</sup> New measurements performed up to 660 GHz represent a significant extension in terms of frequency range and analysis. The final spectroscopic analysis, including the internal rotation treatment, and searches for it towards SgrB2 and other sources will be presented.

Acknowledgements: These results were supported by the Programme National PCMI of CNRS/INSU, the French National Research Agency (ANR-13-BS05-0008 "IMOLABS"), the CaPPA project (ANR-11-LABX-0005-01), the spanish MINECO (grants AYA2012-32032, AYA2016-75066-C2-1-P, CSD2009-00038 and RyC-2014-16277) and the European Research Council (grant ERC- 2013-SyG 610256, NANOCOSMOS). Kharkov group acknowledge support of the Volkswagen foundation and assistance of the Science and Technology Center in Ukraine (STCU partner project P686).

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<sup>a</sup>Cernicharo J.; *et al.*, 2018, *ApJL* **L22**, 852

<sup>b</sup>Fuente A.; *et al.* *A&A* **593**, (2016) A94

<sup>c</sup>H. Kroto; *et al.*, 1976, *J. Mol. Spectrosc.* **62**, 346