

# ISAC (Interstellar Astrochemistry Chamber)

## Objectives

Simulation of interstellar and circumstellar ice processes including photo – and thermal processing. The ice structure and composition are monitored in situ during the experiment. Among the ice photo products are prebiotic species which could be present in some comets, and be delivered to the primitive earth.

## Environmental conditions

- Sample temperature range: from 7K to 300K in sample holder computer controlled.
- Atmosphere: vacuum base pressure  $10^{-11}$ mbar by turbo pumps, TSP and NEG.
- Irradiation: vacuum - UV lamp.
- Ice sample contains molecules detected in interstellar and circumstellar ices ( $H_2O$ ,  $CO$ ,  $CO_2$ ,  $CH_3$ ,  $OH$ ,  $NH_3$ ...).

## Analytical Techniques

- **FTIR** (Fourier Transform Infrared).
- **TPD** (Temperature Programmed Desorption).
- **UV** (UV Spectrometry).
- **RAMAN** (Raman Spectroscopy).
- **QMS** (Quadrupole Mass Spectrometer).

## Acknowledgements in scientific papers

- **Soft X-Ray irradiation of methanol ice: Implication for  $H_2O$  formation in Interstellar regions.** A. Ciaravella, G. Muñoz-Caro, A. Jiménez-Escobar, C. Cecchi-Pestellini, S. Giarrusso, M. Barbera and A. Collura. *The Astrophysical Journal Letters*, 722: L45-L48, 2010 October 10. (*the needful technical support to the experiments*)
- **Sulfur depletion in dense clouds and circumstellar regions.** A. Jiménez-Escobar, G.M. Muñoz-Caro. *A&A* 536, A91 (2011). (*Technical support*).

