

# SMS (Spectroscopy and Microscopy on Surfaces)

## Objectives

Studying the surfaces of different materials, such as: Pyrite, Gold, SiC, etc..., and their interaction with deposited organic molecules to model the prebiotic reactions that occurred during the origin and first stages of evolution of the life.

## Environmental conditions

- Sample temperature range: From 300K to 1200K in sample holder computer controlled (different sampler's holders; thermal contact and field emission).
- Atmosphere: vacuum base pressure  $10^{-10}$  mbar by Turbo pumps, Ionic pumps, TSP and NEG.
- Irradiation: He I-II discharge lamp, electrons (5KV), ions (5 KV), X-Ray ( $K_{\alpha}$  and  $Al_{\alpha}$ ).
- Evaporation with different types of evaporators, (solid, powder)

## Analytical Techniques

- XPS (X-Ray Photoelectron Spectroscopy)
- UPS (UV Spectroscopy)
- LEED (Low Electron Energy Diffraction)
- AES (Auger Electron Spectroscopy)
- TPD (Thermal Programmed Desorption)
- STM (Scanning Tunneling Spectroscopy)

