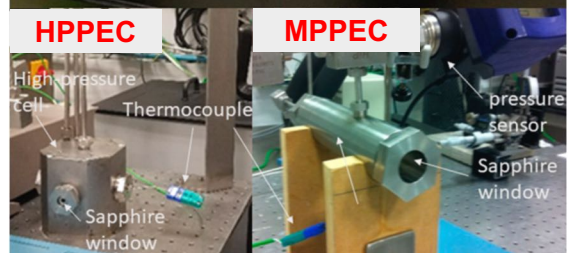
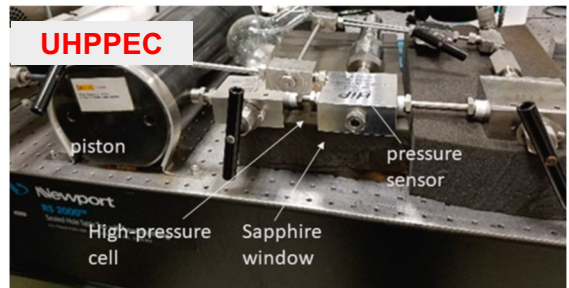
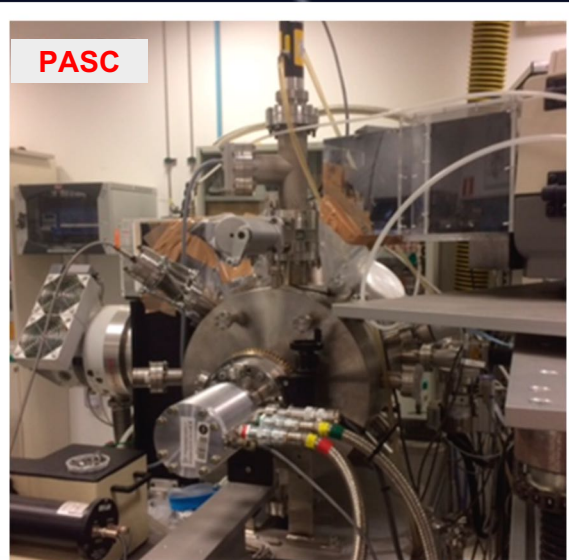
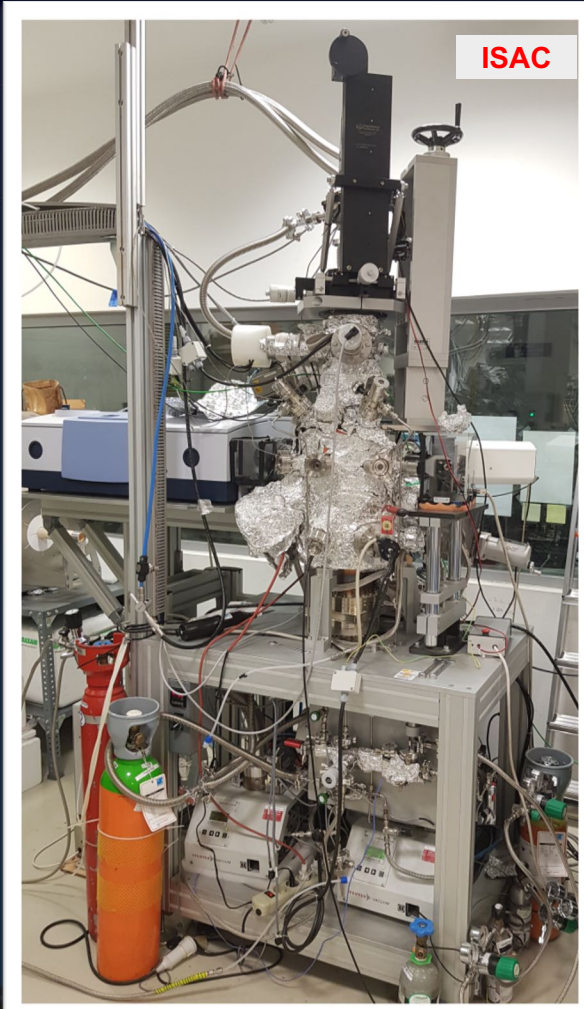


# Simulation Chambers at CAB: Characterizing Interstellar Medium, Planetary Surface and Deep Environments by Spectroscopic Techniques



Laboratory simulations are one of the most feasible research options to make advances both in several astrobiologically interesting environments and in developing a consistent description of the origin of life.

We applied vacuum and high pressure technology to the design of versatile simulation chambers: ISAC was specifically designed to grow a thin ice film of composition analog to interstellar ice mantles; PASC is capable of reproducing atmospheric compositions and surface temperatures that are representative of most planetary objects and MPPEC, HPPEC and UHPPEC open the possibility to study aqueous reservoirs that are concealed under or within the icy crusts in the outer solar system moons.

The implementation of several spectroscopies, such as infrared, Raman, ultraviolet, etc.; to study solids, and mass spectrometry to monitor the gas phase, in our simulation chambers, provides specific tools for the in situ physico-chemical characterization of analogues of astrobiological interest.

Simulation chamber facilities are an ideal and accurate tool for planetary exploration of habitable environments. Furthermore, different multidisciplinary astrobiological studies can be assessed, which could contribute to evaluate the potential habitability of different environments towards the origin of life.