Carbonaceous matter: from ISM to protoplanetary disks.

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The interstellar medium carbonaceous dust grains and their observed spectral signatures reveal a great diversity of allotropes. Astronomical observations give access to the molecular functionality of these solids, setting constraints on the composition of organic solids and molecules in the cycling of matter in the Galaxy. Some of them can be reproduced in the laboratory. Other signatures still await for their carriers definitive identifications and laboratory analogues help in constraining their physico-chemical composition and evolution under the harsh radiation environments.

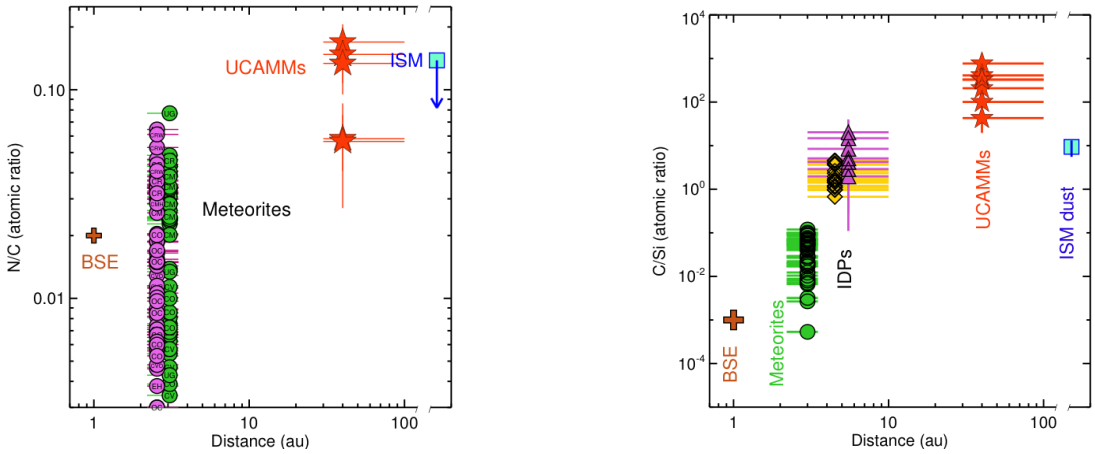

Figure 1: *Left, Nitrogen abundances relative to carbon (atomic ratio) are compared to solar system solids (Earth-BSE, meteorites, Ultracarbonaceous micrometeorites, ISM), in function of heliocentric distance. Right, same for carbon abundances relative to silicon, including Interplanetary dust particles (IDPs) (atomic ratio), compared to solar system solids (Dartois et al., A&A 609, A65, 2018).*

This talk will particularly focus on carbonaceous dust materials from the far space environments, from diffuse ISM to protoplanetary disks and in our neighbourhood (Solar System) extraterrestrial collected dust. One objective will be to draft some commonalities and differences between materials found in the Solar System, protoplanetary disks and Interstellar dust.