

Colloquium

SFB 956

Conditions and Impact of Star Formation

10 July 2017

Monday 3:00 pm

Physikalische Institute Köln

Lecture Hall III

Zùlpicher Straße 77 | 50937 Köln

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Interstellar and Interplanetary Solids – From Observations to Laboratory Simulations for Dust Models

The interstellar medium is a physico-chemical laboratory where extreme conditions are encountered, and whose environmental parameters (e.g. density, reactant nature, radiations, temperature, time scales) define the composition of matter. Whereas cosmochemists can spectroscopically examine collected extraterrestrial material in the laboratory or via space probes, astrochemists must rely on remote observations to monitor and analyze the physico-chemical composition of interstellar solids.

The observations give essentially access to the molecular functionality of these solids, rarely to elemental composition constraints and isotopic fractionation only in the gas phase. Astrochemists bring additional information from the study of analogs produced in the laboratory, placed in simulated space environments.

In this presentation, recent advances from laboratory experiments will be presented, setting constraints on the composition of organic solids and molecules in the cycling of matter in the Galaxy. One objective will be to draw some commonalities and differences between materials found in the Solar System and Interstellar dust.

This talk will particularly focus on carbonaceous dust materials from the far (ISM) and near (Solar System) space environments, small species released by the VUV irradiation of interstellar analogues and their influence on PDR regions compositions, and extraterrestrial collected dust, Ultracarbonaceous Antarctic Micrometeorites (UCAMMs), associated with the outer Solar System icy bodies.

