

## **From extraterrestrial ices to organics in our Solar System: a general approach**

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Extraterrestrial ices are observed in the infrared spectra of protostars embedded in molecular clouds out of which stars, protoplanetary disks, planets and all sorts of debris, form. From a reasonable knowledge of the ice composition, ice mixtures can be used in the laboratory as templates to understand their possible role in the formation of organics that may then find their way into the solar system. Experiments involving the photo and the thermochemical evolution of such ices lead to a rich organic molecular diversity that is studied via infrared spectroscopy and by methods of analytical chemistry such as gas chromatography coupled to mass spectrometry (GC-MS) for detecting specific molecules or High resolution Mass Spectrometry (HRMS) which provides a general photograph of the full organic variety. Two classes of materials are produced: a low UV dose homogeneously given to the ice leads to a fully soluble organic material. Further irradiation in vacuum at room temperature, thus a much higher UV dose, leads to the formation of an insoluble organic material that resemble the well-known insoluble matter, the IOM from carbonaceous meteorites. Recent results concerning these SOM and IOM laboratory products and their possible connection with meteoritic materials will be presented.