

Isotope fractionation during the formation of organic materials in space

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To understand the origin and evolution of comets and asteroids, we must know the isotopic composition of organic materials which will be obtained by sample-return missions from comets and asteroids. Some laboratory experiments have been performed to simulate the formation of organics in the molecular cloud and the solar nebula. However, there is no isotopic analysis obtained by such experiments. It is therefore highly desirable to analyze isotopic compositions of organics obtained by laboratory experiment, to understand the formation mechanism of organics in comets and asteroids.