

PRINT ONLY: EARLY SOLAR SYSTEM

Cordier D. Mousis O. Lunine J. I. Moudens A.

A Dual Origin for the Deuterium Enrichment in the Atmosphere of Titan [#1691]

The recent determination of D/H derived from Cassini/CIRS spectra indicates values on the order of $1.32 + 0.15-0.11 \times 10^{-4}$. The D/H enhancement would then result from consequent isotopic fractionation; we reinvestigate this scenario.

Horner J. Mousis O. Jones B. W.

Differences Between the Impact Regimes of the Terrestrial Planets: Implications for Isotopic Abundances [#1738]

We provide results on the relative impact flux experienced by the planets Venus, Earth and Mars from populations of asteroids and comets, in the context of a discussion of the relative deuteration of the water reservoirs on each world.

Kortenkamp S.

Trapping of Quasi-Satellites and Their Possible Transition to Irregular Satellites During the Late Stages of Planetary Migration [#2520]

During the late stages of planetary migration Trojan-type objects can become trapped as resonant quasi-satellites of the giant planets and potentially transition to irregular satellites.

Mousis O. Lunine J. I. Thomas C. Pasek M. Marboeuf U. Alibert Y. Ballenegger V. Ellinger Y. Pazuat F. Picaud S.

A Partial Sublimation of the Planetesimals that Formed Titan [#1425]

We describe a scenario of Titan's formation matching the observational constraints. We argue that Titan was formed from solids initially produced in Saturn's feeding zone and that were partially vaporized during their migration/accretion in the subdisk.

Sahijpal S. Gupta G.

Irradiation Production of ^{26}Al and the Canonical Value of $^{26}\text{Al}/^{27}\text{Al}$? [#1325]

Detailed numerical simulations of the X-wind irradiation scenario suggest that the irradiation scenario cannot produce the observed confined spread in the canonical value of $^{26}\text{Al}/^{27}\text{Al}$.

Thomas C. Picaud S. Mousis O. Ballenegger V.

Efficient Trapping of Noble Gases by Clathrates on Titan [#1630]

We propose that the deficiency of Titan's atmosphere in Xe and Kr observed by Huygens results from their efficient and simultaneous trapping in clathrates located on the surface.

Wasson J. T.

Episodic Heterogeneous Accretion of the Solar Nebula [#2470]

Chondritic isotopic and chemical anomalies correlate. These may have been inherited from the incompletely mixed molecular cloud. Compositional hiatus between chondrite groups imply episodic rather than continuous formation of chondritic planetesimals.