International Session (Oral) | Symbol B (Biogeosciences) | B-AO Astrobiology & the Origin of Life

[B-AO01_28AM2]Astrobiology: Origins, Evolution, Distribution of Life

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Mon. Apr 28, 2014 11:00 AM - 12:41 PM 502 (5F)

Astrobiology is a new interdisciplinary science field that intends to address the origins, evolution, distribution and destiny of life on Earth and elsewhere in the universe. In this session, every topic of Astrobiology will be discussed, including cosmic evolution, primitive Earth environments and origins of life, coevolution of life and Earth, life in extreme environments, etc.

12:20 PM - 12:35 PM

[BAO01-P03_PG]Possibility of production of amino acids by impact reaction using a light-gas gun as a simulation of asteroid impacts

3-min talk in an oral session

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Keywords:impact reaction, gas gun, Titan, asteroid, amino acid, HPLC

We are interested in the production process of amino acids in space. Especially, asteroids coming to Titan satellite have made impact reaction on the surface including nitrogen gas, water ice and methane. On the Titan surface, various material, produced by the impact reactions, have been stored under low temperature and dark condition. To do the simulation experiment, a JAXA 2-stage light-gas gun has been used. A projectile with 6.5km/s of speed hits a water + iron target in 1 atm of nitrogen gas, causing an impact reaction. Figure 1 shows a crater on the target. Figure 2 shows produced black soot which deposited onto the aluminum sheet. The samples produced are carefully collected and analyzed by HPLC, FTIR, TOF-MS. As a result of HPLC, peaks suggesting the existence of glycine and alanine in the samples produced were confirmed.

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