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Room:301A

Time:May 27 16:30-16:45

Tanpopo: Astrobiology Exposure and Micrometeoroid Capture Experiments

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Terrestrial microbes may be ejected to outer space by natural events such as volcanic eruption, meteorite impact and electrostatic interactions. Microbes have been collected at high altitude up to several tens km using balloons and aircrafts. Some of the sampled microbes showed the high UV-resistance. To test the possible interplanetary migration of terrestrial life, we propose the microbe sampling experiments on International Space Station (ISS) at low Earth orbit (400 km). Ultra low-density aerogel will be exposed to space to capture micro-particles. After the curation of tracks and particles on the aerogel, the samples will be distributed to scientists to examine mineralogical, organo-chemical and microbiological characteristic of the particles. For the microbiological analysis, samples will be stained with DNA-specific fluorescence-pigment, and will be inspected with a fluorescence microscope. The fluorescent particles will be used for PCR amplification of the rRNA sequence followed by cloning and DNA sequencing. The sequence will be used to estimate the origin and properties of the captured microbes.

Keywords: microbe, IPD, organic compounds, Panspermia hypothesis, space debris