

New strategies for extraterrestrial life exploration compatible to planetary protection

*Yohey Suzuki¹

1. Graduate School of Science, The University of Tokyo

It is critical to obtain samples returned from Martian biosphere for demonstrating the existence of extant life and life's signatures by high-sensitivity and high-resolution analytical procedures. Rovers named Mars2020 and ExoMars equipped with drilling devices and life-detection instruments will be launched this year. National Aeronautics and Space Administration (NASA) and European Space Agency (ESA) are planning to start Mars Sample Return Mission (MSR) from 2026. From the circumstances, the MSR Science Planning Group (MSPG) is internationalizing the planning for the Returned Sample Science component of MSR, whereas Committee on Space Research (COSPAR) is responsible for establishing analytical protocols with best available technology to determine whether returned materials are biohazard or not.

The presenter is currently serving as a sole non-US and non-EU member of COSPAR Sample Safety Assessment Protocol Working Group (SSAP WG). In this presentation, it is attempted to share information about the current status of MSR and backward planetary protection. More importantly, scientific and technological advances achieved by the presenter will be presented to convince the necessity of new strategies for extraterrestrial life exploration compatible to planetary protection.