JUICE in Japan and its science goals

*Yasuhito Sekine[1], Yoshifumi Saito[2], Kazushi Asamura[2], Keigo Enya[2], Yasumasa Kasaba[3], YASUKO KASAI[4], Junichi Haruyama[2], Ayako Matsuoka[5]

1. Earth-Life Science Insitute, Tokyo Institute of Technology, 2. ISAS, JAXA, 3. Tohoku University, 4. NICT, 5. Kyoto University

JUICE is ESA's first L-class mission to Jupiter and its satellites, in which Japan will participate as a junior partner. In this talk, we will discuss the roles of JUICE in Japan and its science goals. In particular, we discuss how observations by the JUICE mission can stimulate science communities of Solar System exploration, planetary formation, astronomical observations, and astrobiology. A particular strength of Japan could be its linkage with planetary formation theory and geochemistry, which has not been examined in depth in Europe. Estimating the temperature and mass influx of the circum-Jovian disk based on the interior structure and surface materials of the Galilean satellites could be an important Japanese contribution. Another important science that Japan could lead is the chemical characterization of the subsurface ocean using a high-pressure water-rock reaction system that simulates the subsurface ocean of an ice satellite in combination with a theoretical model. These science goals directly relate to understanding of the origin of habitability around Jupiter and other gas giants in the Solar System and beyond.

Keywords: JUICE, Solar System exploration

