

---

 Oral | Symbol U (Union) | Union

## [U-06\_28AM1]New Progress toward the Understanding of Small Solar System Bodies

Convener:\*Masahiko Arakawa(Graduate School of Science, Kobe University), Taishi Nakamoto(Tokyo Institute of Technology), Sei-ichiro WATANABE(Division of Earth and Planetary Sciences, Graduate School of Science, Nagoya University), Masanao Abe(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency), MASATERU ISHIGURO(Department of Physics and Astronomy, Seoul National University), Chair:Masahiko Arakawa(Graduate School of Science, Kobe University)

Mon. Apr 28, 2014 9:00 AM - 10:45 AM 503 (5F)

This session is aimed at setting up a forum to discuss how we can make progresses in our understanding of the solar system evolution with our hands on data. Presentations related to the science of the small bodies in the solar system (satellites, asteroids, comets, interplanetary dust particles, trans-Neptunian objects, and planetesimals) are invited. In addition to the extensive astronomical/remote-sensing observations and theoretical works, Hayabusa has brought us samples back from Itokawa (S-type asteroid) for unprecedentedly detailed analysis. The results of the Hayabusa sample initial analysis do prove that analysis of returned samples will play a key role in our future study of the solar system evolution. While the mission preparation of Hayabusa2, which is targeted at a more primordial asteroid than Itokawa (1999JU3, C-type), is being matured, expectation of building a new gateway to biology-flavored topics via organic material and aqueous alteration analysis is ramping up. In this session, after summarizing the cutting-edge results obtained by various studies, including the impact physics important for the asteroid evolution, we will discuss the future shape of the study of the solar system evolution.

---

10:30 AM - 10:45 AM

### [U06-P07\_PG]Hayabusa 2/SCI: calibration impact experiments

3-min talk in an oral session

\*Toshihiko KADONO<sup>1</sup>, Masahiko ARAKAWA<sup>2</sup>, Sayaka TSUJIDO<sup>2</sup>, Minami YASUI<sup>3</sup>, Sunao HASEGAWA<sup>4</sup>, Kosuke KUROSAWA<sup>5</sup>, Kei SHIRAI<sup>4</sup>, Masahiko HAYAKAWA<sup>4</sup>, Chisato OKAMOTO<sup>4</sup>, Takanao SAIKI<sup>4</sup>, Hiroshi IMAMURA<sup>4</sup>, Hajime YANO<sup>4</sup>, Satoru NAKAZAWA<sup>4</sup>, Kazunori OGAWA<sup>4</sup>, Yuichi IJIMA<sup>4</sup>, Naru HIRATA<sup>6</sup>, Yasuhiko TAKAGI<sup>7</sup>, Koji WADA<sup>5</sup> (1.University of Occupational and Environmental Health, 2.Graduate School of Science, Kobe University, 3.Organization of Advanced Science and Technology, Kobe University, 4.Japan Aerospace Exploration Agency, 5.Planetary Exploration Research Center, Chiba Institute of Technology, 6.Dep. of Computer Science and Engineering, Univ. of Aizu, 7.Aichi Toho University)

Keywords:Hayabusa 2, Small Carryon Impactor, Impact experiments

SCI (Small Carryon Impactor" boarded on "Hayabusa 2" is a hollow Cu sphere with a mass of 15 kg, a diameter of 15 cm, which will impact a surface of asteroid 1999JU3. To estimate the conditions of the surface of the asteroid, such as composition and structure, we should investigate the results of the impact experiments with similar projectiles and various targets. We carried out impact experiments with gypsum and basalt targets and small hollow projectiles accelerated by a two-state light-gas gun at ISAS/JAXA, and sand targets and real scale projectiles at Kamioka. We report a summary of the results of these experiments.