

Development and ground calibration strategy of DESTINY⁺ Dust Analyzer

*Takayuki Hirai¹, Masanori Kobayashi¹, Tomoko Arai¹, Hiroshi Kimura¹, Ralf Srama², Harald Krueger³, Hikaru Yabuta⁵, Motoo Ito⁶, Mario Trieloff⁴, Sho Sasaki⁷, Tomoki Nakamura⁸, Hajime Yano⁹

1. Chiba Institute of Technology, Planetary Exploration Research Center, 2. University of Stuttgart, 3. Max Planck Institute for Solar System Research, 4. Heidelberg University, 5. Hiroshima University, 6. Japan Agency for Marine-Earth Science and Technology, 7. Osaka University, 8. Tohoku University, 9. Japan Aerospace Exploration Agency

DESTINY⁺ mission aims to perform fast flyby observation of an active asteroid, 3200 Phaethon, dust observation during the interplanetary cruising and Phaethon flyby phases. DESTINY⁺ Dust Analyzer (DDA) for the dust observation is the successor to the Cosmic Dust Analyser (CDA) onboard the Cassini spacecraft, using impact ionization time-of-flight mass spectrometry. The development of DDA has been led by University of Stuttgart, Germany, while the interface adjustment between the spacecraft and DDA, the ground calibration, and so on are conducted in coordination between Japanese and German research team. In this presentation, the latest instrument design reflected the restriction of mass resource and the strategy of ground calibration utilizing secondary ion mass spectrometry (SIMS) will be reported.

Keywords: Cosmic dust, 3200 Phaethon, Dust mass analyzer, SIMS