[EE] Evening Poster | P (Space and Planetary Sciences) | P-PS Planetary Sciences

[P-PS03]Small Bodies in the Solar System: Current Understanding and Future Prospects

convener:Masateru Ishiguro(Department of Physics and Astronomy, Seoul National University), Taishi Nakamoto(Tokyo Institute of Technology), Masahiko Arakawa(神戸大学大学院理学研究科, 共同), Masanao Abe(Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency)
Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
In this session, we welcome presentations regarding small bodies in the Solar System from a variety of approaches (i.e., laboratory experiments, observations, explorations, theoretical modeling, and sample analyses). Especially this year, the Hayabusa2 spacecraft is about to rendezvous with its mission target (Ryugu, C-type asteroid), and ready to make remote-sensing observations for acquiring detailed information of the primordial body. Taking account of the situation, we aim to organize our current understanding of these primordial bodies and further discussing future prospects in this research field.

[PPS03-P15]Experimental Apparatus for Opposition Effect at Seoul National University

*Yoonsoo P. Bach[1], Masateru Ishiguro[1], Jin-Guk Seo[1] (1.Dept of Physics and Astronomy, Seoul National University)
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Opposition effect (OE), which has been known for centuries, is widely known as a steep increase in the brightness of an object as phase angle (the Sun-object- observer angle) approaches zero. After its confirmations outside of the Earth, its mechanisms have been studied both theoretically and experimentally. It is generally accepted that there are two major mechanisms, namely, coherent backscattering OE (CBOE) and shadow hiding OE (SHOE). The in-situ observations of, e.g., Hayabusa, showed that the CBOE is dominant at phase angle smaller than ~ 1.4 deg and SHOE is dominant otherwise (M. Lee &M. Ishiguro, under review). It will then be important to conduct research on the physical parameters of OE as a function of size, composition, and geometry for many more extraterrestrial samples and compare it with remote sensing, so that we can disentangle the OE related parameters such as size and albedo. However, the experiments about the OE in lab is considered to be difficult due to two reasons: the detector will block the light source at the exact opposition, and the high resolution control of incidence and emission angles is required to prevent the blurring of OEs at different phase angles in one measurement. In this presentation, we introduce a new apparatus which is now installed at Seoul National University to investigate the OE in a lab, and summary of primitive results. It will be a valuable starting point to establish infrastructure in Korea, and will shed light on the investigation of OE physics.