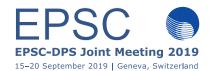
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## Nano-probe concept design for CAST's small-body exploration mission

Jiangchuan Huang (1,2), Peijian Ye (2), Linzhi Meng (1), Huixi Liao (1), Tong Wang (1), Fan Guo (1) and Xiaoyu Jia (1) (1) Beijing Institute of Spacecraft System Engineering, Beijing, China, (2) China Academy of Space Technology, Beijing, China (liaohuixi@yahoo.com)

## **Abstract**

The mission concept for small-body exploration proposed by China Academy of Space Technology (CAST) will realize multi-objective on the NEA sample collection and MBC investigation, returning one NEA in approximately 3 years, followed by a detailed investigation of MBC in the next 7 years. Though the main probe will be equipped with multiple scientific payloads for remote sensing, in-situ characterization and sample return, still Nano-probes are needed to get accurate field and internal structure gravity characterization for NEA target and longterm in-situ research for MBC target. In this presentation, CAST's small-body mission concept is briefly introduced, and what is missing is discussed if only the main-probe is served for the NEA and MBC target surgery. After that, one Nano-orbiter is proposed for the near-earth asteroid target and one Nano-lander is proposed for the main-belt comet target, the scientific goals of which are complementary to that of the instruments on the main-probe. scientific objectives and possible payloads for the Nano-probes are given and the top requirements for Nano-probes summarized in the end.