

DESTINY+: A Technology Demonstrator for Deep Space Exploration

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DESTINY+, which stands for "Demonstration and Experiment of Space Technology for INterplanetary voYage," is a mission candidate for the next space science small program.

DESTINY+ is a high performance deep space transportation system whose maximum delta-v capacity is 5km/s, and maximum payload mass is 200kg. DESTINY is based on the previously developed small scientific standard satellite bus system, and extended by five novel technologies. The key technologies to realize DESTINY+ are, the large scale ion engine, the ultra-light weight solar panel, advanced thermal control devices, novel mission & orbit design, and small & high specification newly developed bus components.

DESTINY+ also demonstrate multiple fly-by explorations of near earth objects (NEO) by using instruments on DESTINY+ mother ship and its daughter probe "PROCYON mini". The first target NEO is one of the most unusual comet-asteroid transition bodies, 3200 Phaethon, which has dust tails. In this paper, we present the outline of mission plan, the system design, and key technologies of DESTINY+.

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