

Development report of the microsatellite MAEBASHI-SAT for planetary exploration

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In the next generation of planetary exploration, remote exploration by mother ship and direct exploration by lander are considered to be the mainstream. Since landing on an unknown planet is dangerous, preliminary surveys by small handcraft are effective as scouts. Maebashi Institute of Technology is developing the microsatellite MAEBASHI-SAT, which lands on microgravity objects and performs scientific observations. MAEBASHI-SAT aims to control the influence of solar radiation pressure with a two-blade rotating sail and to land pinpoint in the desired area. In addition, we aim to perform laser heating and spectroscopic imaging, measure the temperature in the ground with a thermal probe, and conduct scientific exploration independent of the mother ship. Currently, an automatic satellite tracking function using an equatorial mount equipped with an amateur radio band antenna is installed on campus, and telecoma communication with the satellite is possible. In this presentation, we report the mission design of MAEBASHI-SAT and the development status of breadboard model.