

SPACE EXPLORATION SYMPOSIUM (A3)  
Solar System Exploration (5)

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A SOLAR SAIL SYSTEM DESIGN FOR THE MAGNETOTAIL DETECTION MISSION

**Abstract**

A solar sail system was proposed for the Earth's magnetotail detection mission in this paper, in order to keep the semi-major of the detector's orbit always in the area of magnetotail. The orbit and process of the solar-sailed magnetotail mission was designed and the feasibility was analyzed. The compositions of the satellite platform and the solar sail system were introduced. The unfolding system and the attitude control system of the solar sail were designed, and a digital prototype of the sail was built. The results of the unfolding tests carried out with the digital prototype proved the availability of the system.