

## Exploration of Jovian Trojan asteroids by Solar Power Sail

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Solar Power Sail is a novel concept with hybrid propulsion of large-area solar sail and ion engine driven by thin-film solar panel. It enables us to bring relatively large mission payloads to the outer solar system without nuclear technology. The Solar Power Sail spacecraft is currently planned in Japan to explore Jovian Trojan asteroids. There exist two competing hypotheses on their origin. The classic model suggests that Trojan asteroids are mainly survivors of building blocks of the Jupiter system, while NICE model claims that they must be intruders from outer regions after the planetary migration of gas planets settled. This mission will provide invaluable clues to the genesis of the planets, asteroids and comets through remote sensing, in-situ sample analysis and comparison of the results with other small body missions, such as Dawn, Rosetta, Osiris-ReX and Hayabusa-2. Another target of this mission is novel astronomy; measurement of the infrared extragalactic background light without foreground contamination of the zodiacal light thanks to low-density environment at deep space, polarization measurement of the gamma-ray burst and accurate determination of its direction based on the interplanetary network technique. The Solar Power Sail mission will thus develop a new direction of space astronomy and planetary science providing us an interplanetary telescope site and will play an important role to form a new interdisciplinary science field.

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