

Exploration of Trojan asteroids and interplanetary dust complex by a solar sail mission

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”Asteroids couldn’t grow up to be planets. Why?” This is one of the most fundamental and important question in planetary science. In order to answer this question, we need to study two problems, i.e.;

- * Why did the collisional growth of planetesimals turn into disruption? Jupiter formation caused the transition?
- * The effect of compositional variation of the planetesimal across the ”snow line”

Therefore, Trojan asteroids are key objects, but traditional spacecraft cannot reach them without onboard radioisotope thermoelectric generators. In this presentation, we propose a solar sail mission to Trojan asteroids. In-situ and remote sensing observations of Interplanetary dust particles (IDPs) will be made en route. The ”clear sky” free from IDPs beyond the asteroid main belt would enable us to observe the cosmic infrared background emission from early universe. This mission provides an ideal synergy of planetary science and astronomy.

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