Solar-Sail Trajectory Design for Near-Earth Binary Asteroid Flyby Mission

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Abstract

Solar-Sail trajectories to flyby and explore the near-Earth binary and potentially hazardous asteroids such as Moshup, Didymos, Hermes from the perspective of evaluating the risks are focused by researchers recently. A flyby mission to one of these near-Earth binary asteroid missions can reveal useful insights and improve the characterization of these asteroids upon close observation. This thesis examines such a flyby mission utilizing solar-sails and which could be later optimized for transfer cost and transfer times.

Objective:

Main objective of the thesis is to design solar-sail trajectories from LEO or GTO to one of possible candidate near-Earth binary asteroids as a flyby mission. To select an appropriate solar force model and utilizing to compute trajectories for a simple flyby mission.

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