

Exploration of Near Earth Asteroids (06)  
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## MULTI-TIERED IMPLEMENTATION FOR NEAR-EARTH ASTEROID MITIGATION

**Abstract**

The close approach of the near earth asteroid Apophis in 2029 presents an opportunity to test mitigation techniques. A mission launched at least six years prior to the asteroid arrival can test an innovative slow push technique using the spacecraft's surface albedo treatment system (SATS). This albedo modification is implemented through painting the surface of the asteroid with albedo changing powders (ACPs) via a triboelectric dispenser, hence directly changing the Yarkovsky effect. This paper addresses the design of such a mission platform from a multi-tiered comprehensive perspective including details of the actual mitigation platform, the necessary preliminary LEO flight tests, and ground experiments for the design of SATS.