

HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)

Poster Session (P)

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SAVING THE EARTH FROM THE THREATEN OF NEAS: STRENGTHEN THE YARKOVSKY
EFFECTS USING PARABOLIC MIRROR TO DEORBIT THEM**Abstract**

Near-Earth Asteroids (NEA) are asteroids whose orbits bring them into proximity with the Earth. As of May 2012, 8,880 near-Earth asteroids are known, ranging in size from 1 meter up to 32 kilometers. While some scientists are confident that, the extinction of dinosaurs was caused by a large asteroid crashed into the Earth approximately 65 million years ago. Nowadays, NEAs still play a threaten to modern civilization continuously. The most resent event is that, a meteor crashed into Russia's Ural region on February 13, 2013, causing damage and panics and over 1,100 people injured. Although several NEA survey programs have been undertaken, little has been done to answer the question 'what should we do if someday a NEA crash into our Earth again?' Yarkovsky effect, a force acting on the asteroids caused by the anisotropic emission of sunlight, maybe can help us to answer this question. If we use parabolic mirror to reflect sunlight and strength the Yarkovsky effects of the NEAs, then their spin status and orbits could be influenced and de-orbited to avoid collision with our Earth. In this paper, a brief review of NEAs and the Yarkovsky effects will be presented firstly. Then primarily calculation will be given to demonstrate the possibility of this method, and key techniques required for this method will also be discussed in detail.