66th International Astronautical Congress 2015

13th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Space Elevator Tether and Space Mineral Resources (3)

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ASTEROID CAPTURING TECHNIQUE USING RINGED ION THRUSTER ASSEMBLY

Abstract

High amount of refinery grade platinum group metals and rare metals like gold were found to be present in the composition of asteroids. Asteroids were the last class of objects to be discovered in the space. This is the reason why most of the parameters about the composition and atmospheric behaviour on the surface of asteroid are unknown at present. Out of M-class, C-class and S-class asteroids, M-class are rich in metals, which economically speaking will be the long term metal supply in future. Based on current technology status it is possible for a spacecraft to reach the asteroid and collect sample from it and get it back. But to maximize the outcomes, thorough study of asteroid should be done. The idea is to capture an asteroid and make it revolve around the moon so that the detailed examination of it can be done. Asteroids rotate about a fixed axis while moving. In order to bring it to the rest so that it can be easily propelled towards the moon, ion thruster mechanism is used. Once the spacecraft reaches the asteroid it will trace an orbital path around it. On its way it will keep deploying number of units after equal intervals which will then transform into poles having ion thrusters at one end and the other end will fix inside the asteroid surface. Then ion thrusters will be fired opposite to the spin of asteroid to make it stationary. Ultimately thrusters will be angled according to direction of moon in order for the final proceeding. Finally the asteroid will be brought under the influence of moon's gravity so that it can orbit around moon. Due to enormous demand of industrial metals, naturally occurring metals are going to be rare so this idea will lead to fulfil the demand. The challenge in implementing this idea would be to make the poles structurally capable of bearing high loads. Initially this project seems like an expensive one but concentrating on its priceless benefits and the fact that detailed study of asteroid can be done, this project can be economically justified.