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Strategies for Rapid Implementation of Interstellar Missions: Precursors and Beyond (4)

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MASSIVE VELOCITIES FOR LARGE SPACECRAFT TOWARDS THE STARS

Abstract

Apex Anchor research has determined that high velocity releases from Space Elevators, and the ability to assemble large space system missions above the gravity well, is revolutionary in their ability to support the scientific community. When a massive science satellite departs from the Apex Anchor, it has the ability to reach Mars in as little as 40 days and Neptune in as little as 200 days as the solar system and beyond opens up. These travel times are arrived at by leveraging the height of Space Elevators and their inherent rotational velocity. In addition, mechanical advantages are designed that enhance the release velocity (and direction towards the solar ecliptic). When one adds velocity to flight with two additional factors, of gravity assists and nuclear propulsion, the ability to reach throughout our solar system and more distant locations such as the Oord Cloud dramatically increases our scientific reach. Once the speed of departure is recognized, a dominant characteristic of Apex Anchors takes science missions to another level. This remarkable realization is that any size space system can now be assembled above the gravity well by raising segments at 79+ tonnes per lift on tether climbers. When these space system segments reach the Apex Anchor they can be assembled into a large space system equipped with massive science payloads and large propulsion capabilities [think nuclear propulsion assembled beyond GEO]. The current approach to research within our solar system requires scientists to think small (payloads) with restricted capabilities. When building any size payload with any size support (comm's, power, propulsion, etc) scientists will be able to accomplish much much more. As an example, 700 tonne science satellites could be released at high speeds with propulsion units to rendezvous or land at desired locations throughout our solar system and beyond. These inherent strengths of Space Elevators, as permanent infrastructures lifting payloads to space, will revolutionize the future of scientific reach beyond Earth.