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MOON-BASED PLANETARY DEFENSE CAMPAIGN

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Draconis Aerospace Limited Liability Company, USA

The Moon is an ideal location to launch intercepting missions to life-threatening and catastrophic asteroids. The effectiveness of the interception greatly depends on the weight of the spacecraft. Unfortunately, interceptors launched from the Earth lose more than 98% of their weight by burning the majority of their onboard fuel and by jettisoning their lower stage structures before entering a heliocentric orbit. However, if interceptors are launched from the Moon by a lunar surface accelerator, they can enter a heliocentric orbit without consuming any onboard fuel or jettisoning any part of the spacecraft. A 5-ton construction package, which consists of robots and industrial production equipment, would enable mining on the moon and construction of a 3.5 km-long, 5,000-ton accelerator.

Large asteroid impacts have and will inevitably occur, and it is important to be prepared to avoid catastrophes, but they may not happen immediately or even within the next fifty years. The future planetary defense system must be a dual-use system, which continuously provides a secondary benefit to justify its operation and maintenance costs. When it is not defending the planet, the Lunar Electromagnetic Interceptor Launch System (LEILAS) can send over a thousand tons of construction material and fuel annually to the Low Earth Orbit (LEO) or Earth-Moon Lagrange Point Two (EML-2) to build space stations and to construct large spacecraft for deep space missions. The paper has been published via Journal of Space Safety Engineering and available via <https://www.sciencedirect.com/science/article/pii/S2468896717300617>.

BIOGRAPHY

Thomas Drake Miyano has completed his Masters of Aerospace Engineering Degree from the Ohio State University, USA, and received additional education in space systems operation from the Naval Postgraduate School. He is the officer in charge of CFWP Det AIMD Iwakuni, commands 140 personnel and direct intermediate Level aerospace maintenance for Carrier Air Wing Five. He is a member of the department of Defense's acquisition professional community and certified in the field engineering, manufacturing, contracting and program management.

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