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**The League of Extraordinary Machines: A Rapid and Scalable Approach to Planetary Defense Against Asteroid Impactors**

A new approach to mitigate and protect against planetary impactor events is proposed. The primary objective of this systems concept is to apply small perturbations to near-Earth objects (NEOs) in an attempt to divert them from their path toward Earth impact. Unlike past proposals from other individuals or organizations, SEI proposes a rapid and scalable solution consisting of hundreds or thousands of small, nearly identical spacecraft that will intercept the target body and conduct mass driver/ejector operations to perturb the target body's trajectory to the point where an impact with Earth can be avoided. In the nominal configuration, each spacecraft will be independently controlled and powered, but will work in loose coordination with other members of the network. Such Modular Asteroid Deflection Mission Ejector Node (MADMEN) spacecraft will be nuclear powered, be pre-deployed outside of low earth orbit (likely an Earth-Moon or Earth-Sun libration point), and be capable of using chemical propulsive boost to rapidly intercept an incoming target. Upon arrival at the target, each MADMEN spacecraft will begin to eject small amounts of mass from the asteroid that will, over time, have the effect to slightly change the heliocentric orbit of the target so that impact is avoided. SEI's modular approach offers a number of unique mission advantages including: overall mission reliability through massive redundancy, faster production capability due to use of existing spacecraft bus production capability, efficiencies-of-scale of the MADMEN spacecraft during production, flexible and practical launch and transfer to an on-orbit pre-deployment location, a tailorable response depending on the size and nature of the incoming threat, and the production of only small particles of ejecta that will not independently survive Earth atmospheric entry.

