Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Determining energy coupling parameters for use in NEO interdiction J.C. SANDERS, A.R. MILES, Lawrence Livermore National Laboratory — The large population of 2r>100m near earth objects (NEOs) presents a certain hazard to life on the earth. It has been proposed that a nuclear device may be used to alter the course of such objects, thereby averting a catastrophic collision with the earth. The asteroid interdiction problem includes a number of parameters. Many can potentially be determined by observation; these include size, composition, trajectory, and required deflection velocity. However, the yield of the nuclear device necessary to provide sufficient impulse to the NEO to avoid a collision must be calculated. Two coupling parameters are needed for this: η_Y, which gives the explosive yield deposited in the object as a fraction of the intercepted yield, and η_K, which gives a conversion efficiency between the energy deposited in the object and the total change in the object's kinetic energy. The Monte Carlo code TART is used to calculate η_Y, and the hydrodynamics code CALE is used to calculate η_K. This work was performed under the auspices of the US Department of Energy by the University of California, Lawrence Livermore National Laboratory under contract No. W-7405-Eng-48. UCRL-ABS-213611

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Date submitted: 18 Jul 2005 Electronic form version 1.4