

Abstract Submitted  
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**High-Yield Magnetized Liner Fusion Explosions and Blast Mitigation**<sup>1</sup> STEPHEN SLUTZ, ROGER VESEY, MICHAEL CUNEO, Sandia National Laboratories — Cylindrical liner implosions with preheated and magnetized deuterium-tritium (DT) are predicted to reach fusion conditions on present pulsed power machines [S.A. Slutz et al Phys. Plasmas 17, 056303 (2010)]. We present simulations indicating that high yields (1-10 GJ) and gains (100-1000) may be possible at currents of about 60-70 MA if a cryogenic layer of solid DT is provided on the inside surface of the metal liner. A hot spot is formed from the central preheated magnetized low-density gas and a burn wave propagates radially into the surrounding cold dense fuel. These yields and gains are more than adequate for inertial fusion energy. However, the pulsed-power driver must be protected from the blast of these high-yield explosions. Numerical simulations are presented which show that the blast can be deflected and the fusion neutrons absorbed by a blanket that partially surrounds the liner. Thus a modest length transmission line can be used to deliver power to the liner.

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