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Low-Convergence Magnetized Liner Inertial Fusion¹ STEPHEN SLUTZ, ROGER VESEY, DANIEL SINARS, ADAM SEFKOW, Sandia National Laboratories — Numerical simulations indicate that pulsed-power driven liner-implosions could produce substantial fusion yields if the deuterium-tritium (DT) fuel is first magnetized and preheated [S.A. Slutz et al Phys. Plasmas 17, 056303 (2010)]. As with all inertial fusion, the implosions could be degraded by the Rayleigh-Taylor instability. Since highly convergent implosions are more susceptible to this instability, we have explored the necessary conditions to obtain significant fusion yield with low-convergence liner-implosions. Such low-convergence implosions can be obtained if the fuel is sufficiently preheated and magnetized. We present analytic and numerical studies of laser plasma heating, which indicate that low convergence implosions should be possible with sufficient laser energy.

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