Abstract Submitted
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Tradeoffs of efficiency and symmetry control for z-pinch driven ICF hohlraums[1] R.A. VESEY, M.C. HERRMANN, S.A. SLUTZ, M.E. CUNEO, J.L. PORTER, Sandia National Laboratories — Time-dependent symmetry control for a double z-pinch driven hohlraum using only structures within the hohlraum has allowed the symmetric implosion and ignition of a 500 MJ inertial fusion capsule in detailed two-dimensional simulations [1]. The secondary hohlraum surrounding the capsule has a case-to-capsule radius ratio of 3.8, which provides geometric averaging of modes P_6 and higher, while mode-selective burnthrough shields provide time-dependent control of modes P_2 and P_4. The clearest path to improving the hohlraum efficiency and increasing the system energy gain is to decrease the amount of x-ray energy deposited in the hohlraums that surround the imploding z-pinches, which may be achieved by reducing the wall area. This computational study quantifies the tradeoffs between system efficiency and symmetry control for the 500 MJ capsule in reduced case-to-capsule ratio hohlraums and in single-ended (1-pinch) and double-ended (2-pinch) hohlraums. [1] R. A. Vesey *et al.*, Phys. Plasmas **14**, 056302 (2007).

[1]Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

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