

Abstract Submitted
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Fusion-Yield Enhancement in Magnetized Laser-Driven Implosions G. FIKSEL, P.-Y. CHANG, M. HOHENBERGER, J.P. KNAUER, R. BETTI, F.J. MARSHALL, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, F.H. SÉGUIN, R.D. PETRASSO, PSFC, MIT — We have successfully demonstrated an enhancement of the fusion performance of a magnetized, laser-compressed inertial confinement fusion target. A spherical CH target with a 10-atm D₂-gas fill was imploded using the OMEGA laser in a polar-drive configuration. A seed magnetic field of 80 kG was embedded in the target, and was subsequently trapped and compressed by the imploding conductive plasma. As a result of the target hot-spot magnetization, the electron-radial heat losses were suppressed and the observed ion temperature and neutron yield were enhanced by 15% and 30%, respectively. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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