

Abstract Submitted
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Strong reduction of nonlocal electron heat transport in magnetized laser produced plasma¹ LAURENT DIVOL, D.H. FROULA, J.S. ROSS, P. DAVIS, B.B. POLLOCK, M.J. EDWARDS, R.P.J. TOWN, D. PRICE, S.H. GLENZER, LLNL, A.A. OFFENBERGER, U. Alberta, A.N. JAMES, G.R. TYNAN, UCSD — We present a direct measurement of the reduction of nonlocal heat transport in laser-produced plasma by applying large external magnetic fields (> 10 T). Imaging Thomson scattering measurements of the electron temperature profile show confinement of the heat wave transverse to a high-power laser beam resulting in strong local heating. The electron temperature increases from 200 eV to 800 eV when a 12 Tesla magnetic field is applied. We find agreement with hydrodynamic modeling (using LASNEX) when including a magnetic field model that self-consistently evolves the fields in the plasma.

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