

Abstract Submitted
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First experimental observations of the magnetic field effects on the nonlocal electron energy transport at the inertial fusion conditions PHILIPPE NICOLAI, GUY SCHURTZ, JEAN-LUC FEUGEAS, CLAUDE FOURMENT, JEROME BREIL, PIERRE-HENRI MAIRE, VLADIMIR TIKHONCHUK, CELIA, Universite Bordeaux, CLAUDE CHENAIS-POPOVICS, LULI, SEBASTIEN HULLIN, SYLVIE GARY, CHARLES REVERDIN, F. DURUT, CEA — A correct modelling of the electron energy transport is essential for the simulation of laser-matter interaction and for the Inertial Confinement Fusion (ICF) target design. The classical Spitzer-Härm model does not reproduce experimental results. The nonlocality of the electron transport combined with the self-generated magnetic fields is often suggested as an appropriate model. In the recent experiment carried out on the LIL facility, the prototype of the Laser Mega Joule under construction in France, the effects of nonlocal transport combined with the self-generated magnetic fields were observed for the first time for the ICF conditions. The experimental results are interpreted by 2D numerical simulations including our new electron transport model [1]. We show that the model correctly reproduces the experimental results and affirms the role of the magnetic field on the nonlocal transport.

[1] Ph. Nicolai, J.-L. Feugeas and G. Schurtz, Phys. Plasmas 13, 032701 (2006)

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