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Fast ignition studies with an improved transport model implemented in a 2D radiation hydrodynamic code PHILIPPE NICOLAI, JEAN-LUC FEUGEAS, CYRIL REGAN, JEROME BREIL, Celia, University of Bordeaux, ARNAUD DEBAYLE, Technical University of Madrid, BRUNO DUBROCA, LUDOVIC HALLO, Celia, University of Bordeaux, JAVIER HONRUBIA, Technical University of Madrid, MARINA OLAZABAL, JOAO SANTOS, BENJAMEN VAUZOUR, VLADIMIR TIKHONCHUK, Celia, University of Bordeaux — A two dimensional (2D) radiation hydrodynamic code is a powerful tool to study the relativistic electron or energetic ion transport in the frame work of the Inertial Confinement Fusion (ICF). However, it needs to be complemented with a sufficiently precise and robust model of electron transport. The radiation hydrodynamic code CHIC [1] has been combined with a new efficient fast electron transport model, M1 [2]. We use this tool to address several issues related to recent studies of the fast ignition scheme. Experiment related to the energetic particle transport through a warm dense matter and recent direct drive fast ignition target designs will be presented in this talk and the energy deposition and plasma heating effects induced by energetic particle beam will be discussed.

[1] Breil et al, J.Co.Ph. 224, 785 (2007)
[2] Dubroca et al, to be published in Eu.J.Ph.D

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