

Abstract Submitted  
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**Assessing target design robustness for Shock Ignition using 3D laser raytracing** ANGELO SCHIAVI, STEFANO ATZENI, ALBERTO MAROCCHINO, Dipartimento SBAI, Università di Roma “La Sapienza” — Shock ignition (SI)[1] is a laser direct-drive Inertial Confinement Fusion scheme in which fuel compression and hot spot formation are separated. Shock ignition shows potential for high gain at laser energy below 1 MJ (see review Ref.[2]), and could be tested on present large scale facilities. We produced an analytical model for SI which allows rescaling of target and laser drive parameters starting from a given point design [3]. The goal is to redefine a laser-target configuration increasing the robustness while preserving its performance. We developed a metric for ignition margins specific to SI [4]. We report on simulations of rescaled targets using 2D hydrodynamic fluid model with 3D laser raytracing. The robustness with respect to target fabrication parameters and laser facility fluctuations will be assessed for an original reference design as well as for a rescaled target, testing the accuracy of the ignition margin predictor just developed. Work supported by the Italian MIUR project PRIN2012AY5LEL.

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[2] S. Atzeni, X. Ribeyre et al, Nucl. Fusion 14, 054008 (2014)

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[4] S. Atzeni, A. Marocchino, A. Schiavi, EPS Conf. proc. submitted to PPCF (2014)

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