Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Recent results of full-spatial scale modeling of fast ignition and shock ignition J. TONGE, J. MAY, UCLA, W.B. MORI, F. FIUZA, M. MARTI, R.A. FONSECA, J.R. DAVIES, L.O. SILVA, IST, Lisbon Portugal — We show recent results of full-spatial scale modeling of fast ignition and shock ignition, from both full-PIC and the recently developed hybrid-PIC capability of OSIRIS 2.0. Our results show full-scale modeling of fast ignition over full density and time scales, where laser absorption, electron beam divergence, and energy deposition in the compressed core will be addressed in a self-consistent manner. Full-PIC and hybrid-PIC simulations of isolated targets will be presented, illustrating the importance of this type of modeling in order to accurately infer the beam divergence and transport properties. We will also demonstrate the possibility of performing full-scale simulations of shock ignition with the new hybrid-PIC capability, using compressed target profiles from hydrodynamic simulations, and studying the self-consistent laser absorption, electron transport, and energy deposition that can lead to the generation of the shock required for ignition. Work supported by DOE under DE-FC02-04-ER54789 and DE-FG52-09NA29552, and NSF under NSF-Phy-0904039, FCT (Portugal), and the HiPER project. Simulations performed on Hoffman at UCLA, Thresher at SDSC, and Intrepid at ANL supported by Incite grant FastIgnitionPIC.

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Date submitted: 17 Jul 2010 Electronic form version 1.4