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PIC Simulation of Fast Ignition Targets with OSIRIS[1] J. TONGE, M. TZOUFRAS, F.S. TSUNG, W.B. MORI, UCLA, C. REN, University of Rochester — Understanding transport of fast electrons generated by the ignition laser pulse at the critical surface to the target core is essential to the success of fast ignitor concept. Results of 2.5D PIC simulations of scaled fast ignition targets along with code modifications made to the massively parallel PIC code OSIRIS for fast ignition relevant regimes are presented. We look at the effect of target density profiles on the laser envelope and how it affects electron transport. We also look at how feedback from a resistive core affects electron transport. Diagnostics show electron energy flux as a function of position and particle energy. Code modifications include deposition and interpolation schemes that have significantly better energy conservation, a mock up of target (resistive) core, and specialized diagnostics. The improved energy conservation is particularly important for the large range of densities necessary for simulation of fast ignition targets.

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