

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Numerical Simulation of Pre-formed Plasma Generated by Low Intensity Pre-Pulse Before Main Heating Laser in Fast-Ignition ATSUSHI SUNAHARA, CAI HONGBO, TOMOYUKI JOHZAKI, HIDEO NAGATOMO, KUNIOKI MIMA, Institute of Laser Engineering Osaka Univ. — We investigated the plasma expansion of the inner surface of the cone used for the fast-ignition scheme of the inertial confinement fusion (ICF). LFEX laser [1] in Osaka University is high intense and short pulse laser system, which has $10^{19}\text{W}/\text{cm}^2$ to $10^{20}\text{W}/\text{cm}^2$, and ps pulse duration. However, it has also low intense pre-pulse with the contrast ranging from 10^5 to 10^8 . It is high enough to ablate the inner surface of the cone wall used for fast ignition target. We developed the two-dimensional simulation code (Star-2D) [2], and simulate plasma expansion of the inner surface of the cone. We will discuss our simulation results, and also effects of the pre-plasma expansion on fast electron production. On the other hand, our code has been applied to simulate the laser-produced plasmas for Extreme-Ultraviolet research, and its accuracy has been tested with various experiments. We will also discuss the accuracy of our simulations.

[1] H. Azechi et al., in EPS.

[2] A. Sunahara et al., *Journal of Physics: Conference Series* 112(2008) 042048-1-4.

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Date submitted: 20 Jul 2009

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