

Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Cone Material Dependence of Fast Ignition Core Heating TOMOYUKI JOHZAKI, ATSUSHI SUNAHARA, Institute for Laser Technology, YASUHIKO SENTOKU, University of Nevada, Reno, HIDEO NAGATOMO, KUNIOKI MIMA, Institute of Laser Engineering, Osaka University, FIREX TEAM — In cone-guiding fast ignition, the cone material affects the heating performance through the fast electron generation and transport processes [1]. In the present paper, we advanced the research on the cone material dependence of core heating properties with a help of the integrated simulations. By assuming Au, Cu and DLC as the cone material, first we evaluate the pre-plasma generation by radiation-hydro simulations. Using those pre-plasma profiles, the fast electron generation is evaluated by PIC simulations including collision and ionization processes. Then, the fast electron transport is calculated by Fokker-Planck code. In addition to the fundamental feature of cone material dependence, we will discuss the fast electron guiding by self-generated and externally-applied magnetic field, and also radiation effects.

[1] T. Johzaki, et al., Plasma Phys. Control. Fusion 51 (2009) 014002.

Tomoyuki Johzaki
Institute for Laser Technology

Date submitted: 27 Jul 2011

Electronic form version 1.4