

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Overview of ultra-intense laser interactions with plasmas for fast ignition KAZUO A. TANAKA, Grad.School of Eng. & Inst. Laser Eng., Osaka University — Ultra-intense laser interactions with plasmas play an important role in fast ignition experiments. The interactions will include stimulated Raman scattering and relativistic self-focusing. The level of SRS was measured to be 3% at laser intensities mid. 10^{18} W/cm² using 0.5 psec laser pulse. The detuning of plasma wave due to the relativistic effect is considered to interpret the level. The sensitivity of the refractive effect is measured using oblique incidence on pre-plasmas of self-focused ultra-intense laser light. Relativistic laser self-focusing has been proven to penetrate up to 10 critical density. This penetration mode could be used to help guiding the rest of the fast heating laser energy and this concept is introduced. Both gold cone and non-gold cone approaches may have several issues to be studied before introducing a 10 psec level pulse duration at a relativistic laser intensity which will be discussed at the talk.

Kazuo A. Tanaka
Grad.School of Eng. & Inst. Laser Eng., Osaka University

Date submitted: 02 Aug 2005

Electronic form version 1.4