

Abstract Submitted  
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**Neutron diagnostics in Fast Ignition experiments with GEKKO-XII and LFEX lasers** YASUNOBU ARIKAWA, HIROKAZU HOSODA, TAKAHIRO NAGAI, MITSUO NAKAI, TAKESHI WATARI, HIROTAKA NAKAMURA, SHINSUKE FUJIOKA, HIROYUKI SHIRAGA, HIDEO NAGATOMO, ATSUSHI SUNAHARA, TOMOYUKI JOHZAKI, TAKAYOSHI NORIMATSU, HIROSHI AZECHI, Institute of Laser Engineering, Osaka University, TETSUO OZAKI, HITOSHI SAKAGAMI, National Institute for Fusion Science — The fast ignition integrated experiment was conducted on GEKKO-XII laser facility by using LFEX laser with the energy up to 1.4 kJ in a 1.2 ps pulse in 2010. Neutron yield enhancement was observed by a developed liquid scintillation detector [1]. DD fusion neutron signal was correctly separated from intense background signals originated from 1)  $\gamma$  rays from the targets and scattered by experimental bay wall, and 2) neutrons by ( $\gamma$ -n) reaction in the target vacuum chamber or diagnostics instruments. The DD fusion neutron yield up to  $(3.5 \pm 1.3) \times 10^7$  was obtained with 300J of the additional heating laser energy, whereas  $1 \times 10^6$  was obtained in without heating case. The neutron yield was higher than that reported in the previous work [2].

[1] T. Nagai, et. al., Japanese Journals of Applied Physics, (to be published)

[2] R. Kodama, et. al., Nature, **418**, 933-934 (2002)

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