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Hydrodynamic simulation of Irradiation of ultra-intense laser on the inner surface of shell ATSUSHI SUNAHARA, Insitute of Laser Engineering, TOMOYUKI JOHZAKI, Hiroshima Univ., YUKI ABE, Insitute of Laser Engineering Osaka University, HITOSHI SAKAGAMI, National Insitute of Fusion Science, SEUNGHO LEE, YASUNOBU ARIKAWA, SHINSUKE FUJIOKA, Institute of Laser engiineering Osaka University, HIDEO NAGATOMO, Insitute of Laser Engineering Osaka University, HIROYUKI SHIRAGA, HIROSHI AZECHI, Institute of Laser engiineering Osaka University, FIREX TEAM — We have conducted the hydrodynamic simulation of irradiation of ultra-intense laser on the inner surface of imploding CD shell to generate the high temperature hot spark. In spite of the conventional core heating by the fast electrons in the fast ignition,we propose to use relatively longer pulse of 100ps, and it directly irradiates the inner surface of imploding shell. The laser intensity is ranging from 10^{17} W/cm^2 to 10^{18} W/cm^2. In this irradiation. In this intensity region, the laser absorption fraction is relatively low and most of the irradiated laser light reflects multiply, and heats of the inner surface of the shell. Also, fast electrons with moderate energy ranging from 50keV to 100keV are generated and preheats the inner part of imploding shell. Then, the preheated shell generates the hot spark.In order to confirm this concept, we have conducted the preliminary experiment by using 1.06 micron wavelength and 100ps duration beams of GXII laser system. We observed that high temperature region of keV in the central part of the target.Also we have conducted the hydrodynamic simulations to confirm this concept. We will show the preliminary calculated results and possibility as a alternative heating method in the fast ignition.

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