

Abstract Submitted
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Irradiation of intense laser on the inner surface of CD shell to generate the hot spark in the fast ignition ATSUSHI SUNAHARA, Institute of Laser Engineering, Osaka Univ., TAKAHIRO NAGAI, YUKI ABE, SEUNG HO LEE, YASUNOBU ARIKAWA, SHINSUKE FUJIOKA, ILE Osaka Univ., TOMOYUKI TOHZAKI, Hiroshima Univ., KUNIOKI MIMA, HIROYUKI SHIRAGA, HIROSHI AZECHI, ILE Osaka Univ., FIREX PROJECT TEAM — We propose the new heating scheme of the fast ignition. In this scheme, the inner surface of CD shell is irradiated by the relatively longer 100ps pulse with the intensity ranging from $10^{16}W/cm^2$ to $10^{17}W/cm^2$. In this laser intensity region, the laser absorption fraction is relatively low and most of the laser light reflects many times, and heats of the inner surface of the shell. Also, fast electrons with moderate energy ranging from 50keV to 100keV are generated and contribute the shell heating. Then, the heated shell expands toward the center of the target and generates the high temperature hot spark. In order to confirm this concept, we conducted the preliminary experiment by using 1.06 micron wavelength and 100ps duration beams of GXII laser system. We observed that high temperature region was formed at the center of the shell. We will show the concept and its possibility as a alternative method of spark formation in the inertial confinement fusion.

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