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Compact Fast Ignition experiments using Joule-class tailored drive pulses under counterbeam configuration YOSHITAKA MORI, RYOHEI HANAYAMA, KATSUHIRO ISHII, YONEYOSHI KITAGAWA, GPI, TAKASHI SEKINE, YASUKI TAKEUCHI, TAKASHI KURITA, YOSHINORI KATOH, NAKAHIRO SATOH, NORIO KURITA, TOSHIYUKI KAWASHIMA, Hamamatsu Photonics K. K., OSAMU KOMEDA, Toyota motor Corp., TATSUMI HIOKI, TOMOYOSHI MOTOHIRO, Nagoya Univ., ATSUSHI SUNAHARA, Purdue Univ., YASUHIKO SENTOKU, Osaka Univ., EISUKE MIURA, AIST, AKIFUMI IWAMOTO, HITOSHI SAKAGAMI, NIFS — Fast ignition (FI) is a form of inertial confinement fusion in which the ignition step and the compression step are separate processes resulting in a reduction of the symmetry requirement for hot spot generation. One of the problems of FI so far are the accessibility of an ignition laser pulse into the assembled core in which the driver energy is converted into relativistic electrons produced in the laser-plasma interaction. We have experimentally demonstrated that a tailored-pulse-assembled core with a diameter of 70 mum, originally a deuterated polystyrene spherical shell of 500 mum diameter, is flashed by directly counter irradiating 0.8 J/110 fs laser pulses [Y. MORI et al., PRL 2016]. This result indicates that once the assembled core is squeezed into the target center, the heating lasers can access the cores edges and deposit their energy into the core. In this talk, we will discuss the heating effects in relation to formation of the assembled core.

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