

Experimental progress of pulse shape integrated implosion on SGIII facility

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The ShenGuang III(SGIII) laser facility was completed in 2015 which has 48 beams with wavelength $\lambda=0.35 \mu\text{m}$, at peak power 40-60TW. From 2016 pulse shaped implosion experiment was carried out on SGIII facility with gas filled cylindrical hohlraum. Implosion performance with DD filled capsule was investigated by varying the trough width. Several integrated implosion tuning platforms were implemented and several technical and engineering problems were emerged. Many efforts were engaged in the improvement of the capsule also the assembling arts of the hohlraum last year. In 2017, 2D backlit imaging technique was used for the measurement of the driven symmetry. Both of the backlit imploded thin shell and thick shell methods were performed. Symmetry tuning was demonstrated by varying the fraction of the power on the inner versus outer beams. The ratio of shell shape P2/P0 asymmetry to the cone fraction is coincided with the view-factor simulation. The pulse shaped integrated implosion was also demonstrated after the symmetry tuning by varying the power of picket pulse. The highest neutron yield $8.8\text{E}9$ was obtained corresponding to nearly 30% YoC. In the presentation, we will introduce the recently experimental progress on SGIII facility. Treated as the substituted target of the cryogenic capsule, a good comprehension on the consequence of the recently experiments will be helpful for the cryogenic capsule implosion experiments which would be carried out in the next two years on SG-III facility.