



Status of fast ignition researches in LFRC

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In this presentation, the status on fast ignition researches in Laser Fusion Research Center, CAEP, will be reviewed. These works include simulations, experiments, and target fabrication. The Shenguang-II upgraded (SGIIU) laser facility has been brought into operation in 2015. It is designed to deliver totally 24 kJ nanosecond laser (8 beams) for compression and 1kJ at 10 ps heating laser for hot electron generation. Several decomposed and integrated FI experiments have been performed recently on SGIIU laser facility. Pre-compression experiment was carried out to get the density and area density of the cone-in-shell FI target driven by indirect approach. Some flat-target experiments were used to test the capability of the picosecond laser. Based on these decomposed experiments, the integrated experiments were performed and 200-fold neutron enhancement was observed. The results confirmed the heating effect of picoseconds laser and the heating efficiency can reach ~10%, calculated from the measurements of neutron yields, density and spot size. These results will encourage us to continue FI researches in the future.