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4P30 - Improvement of Heaven-I high power excimer laser facility for ICF study

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Improvement of Heaven-I high power excimer laser facility for ICF study Zhixing Gao, Jing .Li, Zhao Wang, Fengming Hu, Baoxian Tian, Ze Lu China Institute of Atomic Energy, Beijing 102413, China

The recent works on Heaven-I KrF laser facility was introduced to improve the performance of E-beam pumped laser for ICF study. The technique of EFISI had been used to improve the irradiation uniformity on target and the uniformity with six beam irradiation is near to 2% in our facility. To eliminate the dependence on uniform discharging of the front-end, it was attempted to homogenize the amplified self-emission from the discharge pumping KrF Laser with a light pipe. Meanwhile, the efforts have been made to compress the pulse with from 21ns to less than 10 ns with gain switch. A scheme to generate the shaped pulses for shock ignition was developed, which based on gain depletion and pulse overlapping. The ability for spatial and temporal shaping was taken into account in the future upgrade of Heaven-I at tens Kilo-Joule level for fusion study.

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