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2D-simulation Design of An Ignition Hohlraum XIN LI, CHANG-SHU WU, YIQING ZHAO, SHIYANG ZOU, WUDI ZHENG, Institute of Applied Physics and Computational Mathematics, Beijing, China — Based on two-dimensinal (2D) calculations, this article describes the method by which we can design an ignition hohlraum under the conditions of capsule drive and laser energy and power limit. We use JC Code (3T Version) to simulate the coupling between laser and hohlraum and use the improved post code to obtain the x-ray drive on capsule. The study focuses onsome key problems, which do not appear in the 0D design. These problems include how to choose hohlraum gas fill density and capsule drive pulse length, how to describe the main pulse temporal behavior of laser drive, and how to tune the P2 drive asymmetry on capsule in the main pulse to zero. Laser plasma interaction (LPI) is not considered in the study because of the lack of analysis ability. But we leave sufficient margin for it. The final ignition hohlraum 2D design requires 1.4 MJ and 416 TW of laser energy and peak power, to achieve a drive temperature of 300 eV with 14% M-band photon (hv>2keV) ratio in an cylindrical target and gives a yield of about 16 MJ. The ratio of the outer beam energy over the inner beam energy is 3. About 85% laser energy converts to x-rays.

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