

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Study on Octahedral Spherical Hohlräum KE LAN, JIE LIU, WENYI HUO, Institute of Applied Physics and Computational Mathematics, ZHICHAO LI, DONG YANG, SANWEI LI, Research Center of Laser Fusion, Chinese Academy of Engineering Physics, GUOLI REN, YAOHUA CHEN, Institute of Applied Physics and Computational Mathematics, SHAOEN JIANG, Research Center of Laser Fusion, Chinese Academy of Engineering Physics, XIAN-TU HE, Institute of Applied Physics and Computational Mathematics, WEIYAN ZHANG, Chinese Academy of Engineering Physics — In this talk, we report our recent study on octahedral spherical hohlraum which has six laser entrance holes (LEHs). First, our study shows that the octahedral hohlraums have robust high symmetry during the capsule implosion at hohlraum-to-capsule radius ratio larger than 3.7 and have potential superiority on low backscatter without supplementary technology. Second, we study the laser arrangement and constraints of the octahedral hohlraums and give their laser arrangement design for ignition facility. Third, we propose a novel octahedral hohlraum with LEH shields and cylindrical LEHs, in order to increase the laser coupling efficiency and improve the capsule symmetry and to mitigate the influence of the wall blowoff on laser transport. Fourth, we study the sensitivity of capsule symmetry inside the octahedral hohlraums to laser power balance, pointing accuracy, deviations from the optimal position and target fabrication accuracy, and compare the results with that of tridirectional cylinders and rugby hohlraums. Finally, we present our recent experimental studies on the octahedral hohlraums on SGIII prototype laser facility.

Huo Wenyi
Institute of Applied Physics and Computational Mathematics

Date submitted: 15 Jul 2015

Electronic form version 1.4