Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

A novel three-axis cylindrical hohlraum designed for inertial confinement fusion ignition SHAOEN JIANG, LONGYU KUANG, HANG LI, LONGFEI JING, ZHIWEI LIN, LU ZHANG, LILIN LI, YONGKUN DING, Research Center of Laser Fusion, China Academy of Engineering Physics, JIAN ZHENG, CAS Key Laboratory of Basic Plasma Physics and Department of Modern Physics, University of Science and Technology of China, JIE LIU, Institute of Applied Physics and Computational Mathematics — A novel ignition hohlraum for indirect-drive inertial confinement fusion is proposed, which is named as three-axis cylindrical hohlraum (TACH). TACH is a kind of 6 laser entrance holes (LEHs) hohlraum, which is made of three cylindrical hohlraums orthogonally jointed. Laser beams are injected through every entrance hole with the same incident angle of 55. The view-factor simulation result shows that the time-varying drive asymmetry of TACH is no more than 1.0% in the whole drive pulse period without any supplementary technology such as beam phasing etc. Its coupling efficiency of TACH is close to that of 6 LEHs spherical hohlraum with corresponding size. Its plasma-filling time is close to typical cylindrical ignition hohlraum. Its laser plasma interaction has as low backscattering as the outer cone of the cylindrical ignition hohlraum. Therefore, the proposed hohlraum provides a competitive candidate for ignition hohlraum.

Shaoen Jiang
Research Center of Laser Fusion, China Academy of Engineering Physics

Date submitted: 12 Jul 2016 Electronic form version 1.4