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Spherical hohlraum energetics studies on the SG series laser facility WENYI HUO, Institute of Applied Physics and Computational Mathematics, ZHICHAO LI, XUFEI XIE, Research Center of Laser Fusion, China Academy of Engineering Physics, YAOHUA CHEN, GUOLI REN, JIE LIU, KE LAN, Institute of Applied Physics and Computational Mathematics — The integrated experiments at the National Ignition Facility indicates that the radiation asymmetry control in the cylindrical hohlraums is an extremely challenging problem in achieving ignition by using indirect drive. Recently, Lan et al. proposed the octahedral spherical hohlraum which has the natural superiority in providing high radiation symmetry. As new and promising hohlraums, the performance of spherical hohlraum attracts much research interests. Hohlraum energetics is one of the fundamental problems in indirect drive inertial confinement study. We report on the spherical hohlraum experiments performed at the SG series laser facility. At the SGIII-prototype laser facility, we performed the first spherical energetics experiment. The radiation temperature is measured by using an array of flat-response x-ray detectors through a laser entrance hole at different angles. The radiation temperature and M-ban fraction inside the hohlraum are determined by the shock wave technique. At the SGIII laser facility, we performed the first octahedral spherical hohlraum energetics experiment. The 32 of 48 laser beams enter the hohlraum through six laser entrance holes. The radiation flux is measured by 5 FXRDs at different angles. And the radiation temperature inside the hohlraum is determined by the shock wave technique. The repetition of the experimental results is excellent.

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