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Simulation on recent hohlraum physics experiments on SGIII prototype KE LAN, WENYI HUO, YONGSHENG LI, GUOLI REN, XIN LI, SIYANG ZOU, XIUMEI QIAO, WUDI ZHENG, PEIJUN GU, WENBIN PEI, Institute of Applied Physics and Computational Mathematics, GROUP OF HOHLRAUM PHYSICS TEAM — Recent hohlraum physics experiments on SGIII prototype using eight laser beams from angle of incidence cone, four per side, measured radiation flux and radiation spectrum by an array of x-ray diodes (XRDs) and peak radiation temperature by shock wave method. We present the simulation results from our 2D hydrodynamic code LARED-H with post-processed, which agree with the observations. From the simulation results from our one-dimensional multigroups radiation transfer code RDMG, it showed that the scaling relation of the peak temperatures of the x-ray sources with the shock velocities depends on the temporal profile and the length of the x-ray sources, and more, the shock velocities produced in Al sample strongly depends on M-band fraction. A shock scaling of the peak temperature with M-band fraction was given for Al sample. Finally, we discuss the laser x-ray coupling efficiency on SGIII prototyp.

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