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Mitigate the tent-induced perturbation in ignition capsules by supersonic radiation propagation ZHENSHENG DAI, JIANFA GU, WUDI ZHENG, Institute of Applied Physics and Computational Mathematics — In the inertial confinement fusion (ICF) scheme, to trap the alpha particle products of the D-T reaction, the capsules needs to be imploded and compressed with high symmetry In the laser indirect drive scheme, the capsules are held at the center of high-Z hohlraums by thin membranes (tents). However, the tents are recognized as one of the most important contributors to hot spot asymmetries, areal density perturbations and reduced performance. To improve the capsule implosion performance, various alternatives such as the micro-scale rods, a larger fill-tube and a low-density foam layer around the capsule have been presented. Our simulations show that the radiation propagates supersonically in the low-density foam layer and starts to ablate the capsule before the perturbations induced by the tents reach the ablating fronts. The tent induced perturbations are remarkably weakened when they are propagating in the blow-off plasma.

Zhensheng Dai
Institute of Applied Physics and Computational Mathematics

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