The impact of capsule “tent” thickness on interpreting low mode shape


— The performance of ICF targets relies on the symmetric implosion of highly compressed fuel. X-ray area-backlit imaging is used to assess in-flight low mode 2D asymmetries of the shell. These time-resolved images of the shell exhibit features that can be related to the lift-off position of the membranes used to hold the capsule within the hohlraum. Here we describe a systematic study of this membrane or “tent” thickness and its impact on the measured low modes seen in in-flight and self-emission images. While the low mode amplitudes (particularly P2 and P4) are weakly affected by the tent in time-resolved, backlit data, we observe areal density variations consistent with the membrane. By contrast, time integrated self-emission images along the same axis exhibit a reversal in perceived P4 mode due to the growth of the tent seeded feature, which could explain prior inconsistencies between the in-flight P4 and core P4, leading to a reevaluation of optimum hohlraum length.

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