Abstract Submitted
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Dynamics of the x-ray-emitting region of ICF capsules used for diagnosing radiation-drive asymmetry in ignition hohlraums[1] N.M. HOFFMAN, D.C. WILSON, N.D. DELAMATER, S.R. GOLDMAN, G.A. KYRALA, Los Alamos National Laboratory — The shape of the x-ray self-emission image of an imploded ICF capsule has been used for many years to diagnose hohlraum radiation-drive asymmetry, because such asymmetry is manifested in a corresponding easily seen distortion of the x-ray-emitting region of the capsule at the time of peak x-ray brightness $t_{max,x}$. The shape of the capsule's x-ray-emitting region may be highly dynamic near $t_{max,x}$, making it desirable to record a time sequence of images. The temporal behavior of this shape can be quite different depending on whether the capsule shell is relatively thick or thin. For thin shells and constant drive asymmetry, the distortion of the shape increases monotonically near $t_{max,x}$. For thick shells, the distortion reaches a peak near $t_{max,x}$ and then decreases. In addition, for constant drive asymmetry, the shape of the x-ray-emitting region can undergo a phase reversal, leading to a non-intuitive and non-unique relationship between the sign of the drive asymmetry and the image shape.

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