X-Ray Spectral Measurements of Cryogenic Capsules Imploded by OMEGA
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oratory for Laser Energetics, U. of Rochester — A set of absolutely calibrated, 
x-ray imaging systems have been used to measure the emergent x-ray spectra from 
cryogenic D$_2$- and DT-filled capsules imploded by the OMEGA UV Laser System. 
The imaging systems include both pinholes and Kirkpatrick–Baez microscopes, all 
dispersed by transmission gratings. The shapes of the observed spectra allow for in-
ference of the core electron temperature ($kT_e$) and in selected cases the surrounding 
main-fuel-layer areal density ($\rho R_{fuel}$). The latter determination is dependent on the 
assumed temperature and density in the fuel layer and hence can only place bounds 
on the quantity $\rho R_{fuel}$. Comparisons of these measurements with both one- and two-
dimensional hydrocode simulations are used in part to evaluate the performance of 
these implosions. This work was supported by the U.S. Department of Energy Office 
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