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Analysis of Using Absolute X-Ray Emission to Infer Hot-Spot Mix for OMEGA Direct-Drive Layered Implosions DUC CAO, RAHUL SHAH, REUBEN EPSTEIN, ALISON CHRISTOPHERSON, VARCHAS GOPALASWAMY, SEAN REGAN, CHUCK SORCE, WOLFGANG THEOBALD, TIM COLLINS, VALERI GONCHAROV, Laboratory for Laser Energetics, U. of Rochester — A general approach for estimating hot-spot mix is being pursued for direct-drive layered implosions on OMEGA. Previously, ablator mix was estimated at the National Ignition Facility by comparing the ratio of measured x-ray over neutron yield to an initially no-mix, ice-block model estimate [T. Ma *et al.*, Phys. Rev. Lett. **111**, 085004 (2013)]. However, tests with the 1-D LILAC code show that mix can be overestimated because temperature nonequilibrium in OMEGA-scale hot spots causes a breakdown of the ice-block model assumption of equal neutron and x-ray emission volumes. Crucially, this overestimation can be of the order considered important. We explore using a spatially varying hot-spot profile model [R. Betti *et al.*, Phys. Plasmas **8**, 5257 (2001)] that allows for differing emission volumes to ameliorate mix discrepancies associated with the ice-block assumption. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

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