

Abstract Submitted
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Origins of the high flux hohlraum model¹ M.D. ROSEN, D.E. HINKEL, E.A. WILLIAMS, D.A. CALLAHAN, R.P.J. TOWN, H.A. SCOTT, W.L. KRUER, L.J. SUTER, LLNL — We review how the “high flux model” (HFM) helped clarify the performance of the Autumn 09 National Ignition Campaign (NIC) gas filled/capsule imploding hohlraum energetics campaign. This campaign showed good laser-hohlraum coupling, reasonably high drive, and implosion symmetry control via cross beam transfer. Mysteries that remained included the level and spectrum of the Stimulated Raman light, the tendency towards pancaked implosions, and drive that exceeded (standard model) predictions early in the campaign, and lagged those predictions late in the campaign. The HFM uses a detailed configuration accounting (DCA) atomic physics and a generous flux limiter ($f=0.2$) both of which contribute to predicting a hohlraum plasma that is cooler than the standard, XSN average atom, $f=0.05$ model. This cooler plasma proved to be key in solving all of those mysteries. Despite past successes of the HFM in correctly modeling Omega Laser Au sphere data and NIC empty hohlraum drive, the model lacked some credibility for this energetics campaign, because it predicted too much hohlraum drive. Its credibility was then boosted by a re-evaluation of the initially reported SRS levels.

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