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A Simple Model for Estimating Drive in ICF Hohlraums[1] DEBRA CALLAHAN, MORDY ROSEN, LLNL, MICHAEL RUBERY, AWE, KEVIN BAKER, DANIEL CASEY, HUI CHEN, DENISE HINKEL, OMAR HURRICANE, JOSEPH RALPH, ANDREA KRITCHER, KATHY OPACHICH, LLNL, HARRY ROBEY, LANL, JAMES ROSS, DOUGLAS WOODS, CHRIS YOUNG, ALEX ZYLSTRA, LLNL — Reaching high radiation temperatures (300 eV) is important in indirect-drive, ICF hohlraums because the capsule absorbed energy scales as radiation temperature to the fourth power. Simulating drive in a hohlraum using a radiation-hydrodynamics code is complicated because of the variety of physics processes that go into determining the drive x-ray conversion, wall opacity (LTE and NLTE), heat transport, laser-plasma-instabilities, and hydrodynamic motion of the wall and laser entrance hole. While progress continues in improving our hohlraum simulations, we have developed a simpler model that can be used to estimate the radiation temperature in the hohlraum, based on the laser pulse shape and hohlraum geometry. This model, while simple, can capture the drive in many of ICF experiments on NIF. In this talk, we will describe the model and its applicability, and compare with NIF data.

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