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Robust Direct-Drive Implosions on OMEGA Scaled from Polar-Direct-Drive National Ignition Facility Implosions RADHA BAHUKUTUMBI, University of Rochester, MIKE ROSENBERG, RICCARDO BETTI, MIKE CAMPBELL, STEVE CRAXTON, VALERI GONCHAROV, JOHN MAROZAS, FRED MARSHALL, PATRICK MCKENTY, SEAN REGAN, University of Rochester, Laboratory for Laser Energetics, BRENT BLUE, WARREN HSING, CHARLES YEAMANS, Lawrence Livermore National Laboratory — High-yield polar-direct-drive National Ignition Facility (NIF) implosions are hydrodynamically scaled to OMEGA energies. The goal is to study the energetics and performance scaling between OMEGA and the NIF. For the high temperatures obtained in these types of implosions, neutron yield should hydrodynamically scale as $Y \tilde{} E^{4/3}$, where E is the laser energy. Deviations from this scaling can arise from several effects resulting from the larger NIF corona including different laser–target coupling and differing laser−plasma interactions such as cross-beam energy transfer. Spherical and polardrive designs will be presented including the effects of nonuniformity for OMEGA implosions. Kinetic effects on these types of implosions and their role in the scalability of these implosions will also be discussed. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DENA0003856.

Radha Bahukutumbi
University of Rochester

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