

Abstract Submitted  
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**Advances in Modeling Direct-Drive Ignition at the National Ignition Facility** T.J.B. COLLINS, J.A. MAROZAS, Laboratory for Laser Energetics, U. of Rochester — Polar direct drive (PDD) makes it possible to perform direct-drive-ignition experiments at the National Ignition Facility (NIF) while the facility is configured for indirect drive. We present for the first time PDD ignition-relevant target designs with decreased laser intensities. These designs include the physical effects of cross-beam energy transfer (CBET) and nonlocal heat transport, both of which substantially affect the target drive. In the PDD configuration, a multiwavelength detuning strategy was found to be effective in mitigating the loss of coupling caused by CBET, allowing for implosion speeds comparable to those of previous designs. Target designs will be presented that span the region from alpha-particle heating to ignition. In addition, ignition-relevant designs will also be discussed for use in symmetric direct drive on the NIF. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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