Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Preparing for Polar Drive at the National Ignition Facility T.J.B. COLLINS, J.A. MAROZAS, S. SKUPSKY, P.W. MCKENTY, V.N. GONCHAROV, A. SHVYDKY, P.B. RADHA, R.S. CRAXTON, F.J. MARSHALL, T.C. SANGSTER, R. EPSTEIN, D.W. JACOBS-PERKINS, Laboratory for Laser Energetics, U. of Rochester — Polar drive (PD)[1] will make it possible to conduct direct-drive-ignition experiments at the National Ignition Facility (NIF) while the facility is configured for x-ray drive. Recent experiments on both OMEGA and the NIF have successfully employed PD. *DRACO* simulations of these experiments reproduce the important features of the time-resolved xray emission and, in the case of the NIF experiments, the overall neutron yield. Drawing from the success of these experiments, a PD-ignition design that employs a wetted-foam ablator (for higher laser-energy coupling) and a single decaying-shock picket-pulse shape for adiabat shaping will be shown. This design has a 2-D predicted gain of 17. In addition, the application of PD to our latest ignition-scale design, employing a solid-CH ablator and three relaxation pickets to facilitate experimental shock timing, will be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement Nos. DE-FC52-08NA28302, DE-FC02-04ER54789, and DE-FG02-05ER54839.

[1]S. Skupsky *et al.*, Phys. Plasmas **11**, 2763 (2004).

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Date submitted: 07 Jul 2010 Electronic form version 1.4