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**Evaluation of Polar-Direct-Drive, Contoured-Shell Experiments at the National Ignition Facility**[1] P.W. MCKENTY, M.J. ROSENBERG, F.J MARSHALL, D.R. HARDING, J.A. MAROZAS, P.B. RADHA, E.M. CAMPBELL, University of Rochester, Laboratory for Laser Energetics, S. SCHIAFFINO, B.E. BLUE, C.B. YEAMANS, W.W. HSING, Lawrence Livermore National Laboratory, C. SHULDBERG, M. FARRELL, General Atomics — Current experiments at NIF are investigating the use of room-temperature, large-diameter, thin-shelled plastic ablator targets to produce high neutron fluxes with fusion output approaching 100 kJ. Recent results have produced ˜25 kJ of fusion output using ˜1.1 MJ incident 351 nm light. Work done on the OMEGA laser demonstrated the efficacy of shell contouring to compensate for oblique laser pointings implicit with polar drive. We present the results of experiments performed on the NIF investigating the benefit of contoured shells to compensate for polar-drive pointings. Contours were derived from 2-D *DRACO* simulations accounting for the effects of cross-beam energy transfer between the beams. Target shells implementing these contours were constructed at General Atomics and delivered to the NIF for implosion. We present experimental results and post-shot analysis of the shots with and without shell contours, comparing observables such as yield, burn history, and overall shell morphology with 2-D *DRACO* simulations. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0003856.

[1]F. J. Marshall et al., Phys. Plasmas 23, 012711 (2016).

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