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### **Preparing for Polar Drive at the National Ignition Facility**

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Polar drive (PD)<sup>1</sup> 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. A PD-ignition design has been developed that achieves high gain in simulations including single- and multiple-beam nonuniformities, and ice and outer-surface roughness. Target robustness has been studied by examining the sensitivity of this target to target and drive nonuniformities. The choice of laser pointing, spot shape, and ablator material will also be discussed. This design requires both single-beam UV polarization smoothing and one-dimensional Multi-FM single-beam smoothing to achieve the required laser uniformity. The Multi-FM smoothing is employed only during the pickets, allowing use of sufficient smoothing-by-spectral-dispersion bandwidth while maintaining safe laser operations. Finally, recent experiments on both OMEGA and the NIF using PD will also be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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<sup>1</sup>S. Skupsky *et al.*, Phys. Plasmas **11**, 2763 (2004).