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NIF Ignition Hohlräum Designs With and Without Laser Entrance Hole Liners¹ DEBRA CALLAHAN, DENISE HINKEL, SIEGFRIED GLENZER, JOHN LINDL, NATHAN MEEZAN, PIERRE MICHEL, RICHARD TOWN, LARRY SUTER, Lawrence Livermore National Laboratory — The laser entrance hole (LEH) of the NIF ignition hohlraum has typically been lined with a thin (~ 30 micron) plastic liner. The purpose of this liner is to tamp the motion of the gold blow-off from the LEH lip. This simplifies symmetry optimization but increases the LEH plasma density. Single beam calculations of the expected laser-plasma interactions (LPI) show little gain in this region. However, multiple beam effects may amplify the single beam backscatter in the LEH. Reducing LEH plasma density by removing the liner reduces the multiple beam effects. To compensate for the LEH closure, the initial LEH is larger without the liner. This results in an increase in the laser power and energy required to drive the same capsule. In this talk, we will discuss designs with and without an LEH liner and how we will optimize the design based on the early hohlraum experiments on NIF.

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Debra Callahan
Lawrence Livermore National Laboratory

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