

Abstract Submitted  
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**Laser-plasma interactions in 2010 ignition targets<sup>1</sup>** D.E. HINKEL, E.A. WILLIAMS, C.H. STILL, R.L. BERGER, D.A. CALLAHAN, L. DIVOL, J.A. HITTINGER, A.B. LANGDON, S.M. POLLAINÉ, Lawrence Livermore National Laboratory — Ignition targets designed for the 2010 ignition campaign at the National Ignition Facility (NIF) have undergone re-design to not only provide good symmetry, but to also reduce the levels of stimulated Brillouin and Raman backscatter, where laser light resonantly scatters off ion acoustic and electron plasma waves, respectively. These high-Z cylinders, which contain a DT capsule coated with a beryllium ablator, are filled with He at 1.3 mg/cc. Both the beryllium ablator and the He gas fill have the potential to promote laser backscatter above previous design levels. To compensate for such effects, the laser focal spot has been increased in area, thereby reducing the laser intensity and hence the propensity to backscatter. Gain exponents for Brillouin and Raman backscatter have been significantly reduced in these new designs. Simulations of beam scatter and propagation have been performed, and show low levels of scatter and spray with fully conditioned beams. Gain exponents, beam spray, and reflectivity as a function of beam conditioning will be presented for these new designs.

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