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Abstract for an Invited Paper for the DPP10 Meeting of the American Physical Society

Point design targets, specifications, and requirements for the 2010 NIF ignition campaign¹ STEVEN HAAN, Lawrence Livermore National Laboratory

A set of point design targets has been specified for the initial ignition campaign on the National Ignition Facility [G. Miller, E. Moses, and C. Wuest, Opt. Eng. 443, 2841 (2004)]. The targets use an ablator of either Be(Cu) or CH(Ge). They are imploded in a U or Au hohlraum at peak radiation temperature 270 to 300eV. Considerations determining the point design include laser-plasma interactions, hydro stability, laser operations, and target fabrication. Simulations were used to evaluate choices, to define requirements, and to estimate sensitivity to uncertainties. Designs were updated to account for 2009 experimental results. We describe a formalism to evaluate the margin for ignition, in a parameter the Ignition Threshold Factor (ITF). Uncertainty and shot-to-shot variability can be evaluated, as well as sensitivity to systematic uncertainties. The formalism is used to estimate the probability of ignition for each target. In collaboration with J Lindl, D Callahan, D Clark, J Salmonson, B Hammel, L Atherton, R Cook, J Edwards, S Glenzer, A Hamza, S Hatchett, D Hinkel, D Ho, O Jones, O Landen, B MacGowan, M Marinak, E Moses, D Munro, S Pollaine, B Spears, P Springer, L Suter, C Thomas, R Town, S Weber, D Wilson, G Kyrala, M Herrmann, R Olson, R Vesey, A Nikroo, H Huang, and K Moreno.

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