

Abstract Submitted
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Using Half of NIF to Tune Full-Scale Ignition Hohlräume¹ NELSON HOFFMAN, DOUGLAS WILSON, ROBERT GOLDMAN, LANL — If fusion ignition is to be achieved at NIF, the symmetry of drive radiation incident on the ignition capsule must be superb. Thus techniques for diagnosing and verifying drive symmetry are highly important. Here we describe how half of the NIF facility (i.e., only 96 laser beams, expected to be available in 2008) can be used to tune drive symmetry in full-scale ignition hohlraums during the first several steps (the “foot”) of the ignition pulse, in a manner similar to what will be done with full 192-beam NIF. This is possible because the foot requires less than half of the energy and power NIF can deliver, so half the beams each running at twice the power can deliver the full-scale energy during the foot, although not during the final, highest-power step. Only modest compromises are necessary due to the slightly different illumination geometry with 96 beams. We propose a set of symmetry capsules imploding at properly chosen times, allowing foot tuning by beam phasing, thus expediting final foot tuning with 192 beams.

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