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Using Symcaps as Ignition Capsule Replicas for Diagnosing Symmetry at NIF[1] I.L. TREGILLIS, N.M. HOFFMAN, N.D. DELAMATER, Los Alamos National Laboratory — Achieving ignition at NIF will require a high degree of symmetry in the imploded capsule cores. Ignition capsule symmetry specifications are stated in terms of the hotspot shape. "Symcaps" (symmetry capsules), which can be used to replicate the ignition capsule during different stages of implosion, show promise in revealing the hotspot shape. Here we present an analysis of the correlation between ignition capsule and symcap core shapes under a wide variety of beam phasing conditions. Using image galleries and a metric developed for quantifying the correspondence between capsule shapes, we find that a well-designed symcap can mimic the response of an ignition capsule to beam phasing changes in highly symmetric and highly asymmetric situations. Symcaps are a viable method of predictiing the level of P_2 and P_4 asymmetry in an ignition capsule implosion. We will also describe an effort to optimize the correspondence by refining the symcap design.

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