Abstract Submitted
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An Important Measure for NIF Ignition Capsules[1] BAOLIAN CHENG, Los Alamos Natl Lab — The performance of fusion capsules on the National Ignition Facility (NIF) is strongly affected by the physical properties of the hot deuterium-tritium fuel, such as the mass, areal density, pressure and neutron yield of the hot spot at the stagnation time. All of these critical quantities depend on one measured quantity, which is the ratio of the specific peak implosion energy to the specific internal energy of the hot spot. This unique physical quantity not only could measure the incremental progress of the ignition capsules towards ignition but also measures the efficiency of converting the implosion kinetic energy of the pusher shell into the internal energy of the hot fuel in each capsule. Analysis to existing NIF shots to date are performed. Distances to ignition from various ignition designs are quantified. Results provide a new look to the NIF experiments from another dimension that helps to improve future designs (LA-UR 20-24613).

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