Abstract Submitted
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Progress toward development of a platform for studying burn in the presence of mix on the National Ignition Facility[1] T.J. MURPHY, G.A. KYRALA, P.A. BRADLEY, N.S. KRASHENINNIKOVA, J.A. COBBLE, I.L. TREGILLIS, K.A.D. OBREY, S.C. HSU, R.C. SHAH, P. HAKEL, J.L. KLINE, G.P. GRIM, J.A. BAUMGAERTEL, M.J. SCHMITT, R.J. KANZLEITER, S.H. BATHA, Los Alamos National Laboratory — Mix of shell material into ICF capsule fuel can degrade implosion performance through a number of mechanisms. One way is by dilution of the fusion fuel, which affects performance by an amount that is dependent on the degree of mix at the atomic level. Experiments are underway to quantify the mix of shell material into fuel using directly driven capsules on the National Ignition Facility. Deuterated plastic shells will be utilized with tritium fill so that the production of DT neutrons is indicative of mix at the atomic level. Neutron imaging will locate the burn region and spectroscopic imaging of the doped layers will reveal the location, temperature, and density of the shell material. Correlation of the two will be used to determine the degree of atomic mixing of the shell into the fuel and will be compared to models. This talk will review progress toward the development of an experimental platform to measure burn in the presence of measured mix.

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