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Experimental study of features on burn for direct-drive capsules G.R. MAGELSSSEN, J.A. COBBLE, I.L. TREGILLIS, M.J. SCHMITT, S.H. BATHA, P.A. BRADLEY, K.A. DEFRIEND OBREY, H.W. HERRMANN, M.D. WILKE, Los Alamos National Laboratory — The effect of small localized perturbations, such as fill tubes and mounting tents, on the NIF ignition capsule and the effect of hemi-joints on high gain double shell capsules are an important issue in achieving ignition on NIF. To begin the study of defects on yield, an exploding pusher has been designed. In this presentation experimental results and simulations will be presented. Exploding pushers with defect rings 15-17 microns wide and 2.2-2.7 microns deep were shot on the OMEGA laser. The capsules were CH shells 431-436 microns in radius and 8.1-8.5 microns thick. They were filled with a 50-50 ratio of 5 atm DT and were directly driven. These results were compared to thicker shell CH targets. These targets were 440-445 microns in radius and 15.1-15.2 microns thick. The defects were similar to those for the exploding pusher. Calculations with both Eulerian AMR and Lagrangian codes were done and compared to the experimental results. For the exploding pushers, the codes predict and the experiments gave about a factor of 2 decrease in the neutron yield over the unperturbed results. The yield for the thicker targets showed at most a factor of 2 loss in yield much higher than predicted.

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