Abstract Submitted
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Exploring the effects of defects on DT burn, the DIME experiment and measuring capsule zero-order hydrodynamics using Polar direct drive G.R. MAGELSSEN, P.A. BRADLEY, I.L. TREGILLIS, M.J. SCHMITT, E.S. DODD, F.J. WYSOCKI, S.C. HSU, J. COBBLE, S.H. BATHA, K.A. DEFRIEND OBREY — Small capsule perturbations may impact our ability to achieve high yields on NIF. Diagnosing the hydrodynamic development and the effect of defects on burn will be difficult. Los Alamos is developing a program to better understand the hydrodynamics of defects and how they influence burn. Our first effort to study the effects of defects was on Omega. Both thin-shelled (exploding pusher) and thick-shelled capsules were shot and the results published [1]. In this work we add experimental shots done recently on Omega. These shots were to complete the study of how the width and depth of the defect affects DT yield. Our AMR code is used to predict the yield. Comparisons between capsule and experimental yields will be given. Experiments are also being designed for Polar direct drive. Our first experiments are being designed to understand the zero-order hydrodynamics with Polar direct drive. Capsules about a millimeter in radius are being designed with one to two dopants in the CH shell for radiograph and MMI usage. Also, to minimize the effect of mix on the radius versus time trajectory, some capsules will replace the DT with Xe.

[1] Magelssen G. R. et al., to be published in the 2009 IFSA proceedings.

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