Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Developing a D^3He exploding-pusher platform to study kinetic effects H. SIO, M. ROSENBERG, H. RINDERKNECHT, D. CASEY, A. ZYLSTRA, C. WAUGH, M. GATU-JOHNSON, F. SEGUIN, C. LI, J. FRENJE, R. PETRASSO, MIT, J. DELETTREZ, V. GLEBOV, T. SANGSTER, C. STOECKL, V. GONCHAROV, LLE, P. AMENDT, C. BELLEI, S. WILKS, LLNL — The yield anomalies recently observed in direct-drive and indirect-drive exploding pushers suggests that the shock dynamics in these implosions is not well-described by 1D fluid models. The results suggest that kinetic effects such as species separation, different types of diffusion, and loss of high-energy ions must be accounted for in the modeling of exploding pushers. D^3He gas-filled exploding pushers are ideal for studying these effects because implosions with varying fuel mixture can be made hydroequivalent, and all D3He reaction products can be measured. In this paper, we discuss the implications of this work as well as steps to develop exploding pusher as a robust platform for study of basic implosion physics in a simple 1D system. This work was supported in part by the U.S. DOE, LLNL and LLE.

F. Seguin
MIT

Date submitted: 11 Jul 2012 Electronic form version 1.4