

Abstract Submitted
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First measurements of the absolute neutron spectrum using the Magnetic Recoil Spectrometer (MRS) at the NIF J. FRENJE, D. CASEY, C. LI, F. SEGUIN, R. PETRASSO, MIT, R. BIONTA, C. CERJAN, M. ECKART, S. HAAN, S. HATCHETT, H. KHATER, O. LANDEN, A. MACKINNON, M. MORAN, J. RYGG, LLNL, J. KILKENNY, GA, V. GLEBOV, T. SANGSTER, D. MEYERHOFER, J. MAGOON, LLE, K. FLETCHER, Geneseo, R. LEEPER, SNL — Proper assembly of capsule mass, as manifested through evolution of fuel areal density (ρR), is fundamentally important for achieving hot-spot ignition planned at the National Ignition Facility (NIF). Experimental information about ρR and ρR asymmetries, T_i and yield is therefore essential for understanding how this assembly occurs. To obtain this information, a neutron spectrometer, called the Magnetic-Recoil Spectrometer (MRS) has been implemented on the NIF. Its primary objective is to measure the absolute neutron spectrum in the range 5 to 30 MeV, from which ρR , T_i and yield can be directly inferred for both low-yield tritium-hydrogen-deuterium (THD) and high-yield DT implosions. In this talk, the results from the first measurements of the absolute neutron spectrum produced in exploding pusher and THD implosions will be presented. This work was supported in part by the U.S. DOE, LLNL and LLE.

Chikang Li
MIT PSFC

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