

Abstract Submitted
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High-accuracy measurements of yield and areal density (ρR) using the Magnetic Recoil Spectrometer (MRS) at the National Ignition Facility (NIF) J. FRENJE, D. CASEY, M. GATU JOHNSON, C. LI, F. SEGUIN, R. PETRASSO, MIT, R. BIONTA, C. CERJAN, J. EDWARDS, S. GLENZER, S. HATCHETT, O. LANDEN, A. MACKINNON, D. MUNRO, P. SPRINGER, LLNL, J. KILKENNY, R. PAGUIO, GA, V. GLEBOV, T. SANGSTER, LLE — Proper assembly of capsule mass, as manifested through the evolution of ρR , is essential for achieving hot-spot ignition planned at the NIF. Experimental information about ρR and ρR asymmetries, ion temperature (T_i) and yield (Y_n) are therefore critical for understanding how the assembly of the fuel occurs. To obtain this information, a neutron spectrometer, called the MRS, was commissioned on the NIF in the fall of 2010 for measurements of the absolute neutron spectrum. From measured down-scattered ratios (d_{sr}) in the range 2.4-4.9%, ρR s in the range 600-1300 mg/cm² have been inferred. The accuracy of these measurements was as good as 6%, a value that will improve as Y_n and d_{sr} increase. From measurements of the primary neutron spectrum, Y_n has also been determined to an accuracy of 5%. This work was supported in part by the U.S. DOE, LLNL and LLE.

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