

Abstract Submitted  
for the DPP08 Meeting of  
The American Physical Society

**First measurements of the down-scattered and primary neutron spectrum using the Magnetic Recoil Spectrometer (MRS) at OMEGA**  
JOHAN FRENJE, D. CASEY, C. LI, J. RYGG, F.H. SEGUIN, R. PETRASSO, MIT, V. GLEBOV, T.C. SANGSTER, D. MEYERHOFER, LLE, K. FLETCHER, Geneseo — A new type of neutron spectrometer, called a Magnetic Recoil Spectrometer (MRS), has been built and activated at OMEGA for measurements of the absolute neutron spectrum in the range 6 to 28 MeV, from which  $\rho R$ ,  $T_i$ , and  $Y_n$  can be determined. The entire spectrum is measured simultaneously, so the different types of information from the low-energy part (downscattered neutrons), the central part (primary neutrons), and the high-energy part (tertiary neutrons) are available for their critical diagnostic use. Results from the first measurements of the absolute spectrum of down-scattered and primary neutrons will be presented. Measuring  $\rho R$  at the National Ignition Facility (NIF) will be essential for assessing implosion performance during all stages of development, from surrogate implosions to cryogenic fizzes and to ignited implosions. To accomplish this, we are also developing an MRS for the NIF. As the optimal design of the NIF MRS depends on the resulting neutron data and the experience gained at OMEGA, an overview of the OMEGA MRS R&D experience will also be presented. This work was supported in part by DOE, LLE and LLNL.

Johan Frenje  
MIT

Date submitted: 17 Jul 2008

Electronic form version 1.4