

Abstract Submitted
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GEANT4 and TART modeling of the Magnetic Recoil Spectrometer (MRS) response function for down-scattered and primary neutron measurements at OMEGA D. CASEY, J. FRENJE, C.K. LI, F.H. SEGUIN, M. MANUEL, R. PETRASSO, MIT, V. GLEBOV, D. MEYERHOFER, S. ROBERTS, T.C. SANGSTER, LLE — A Magnetic Recoil Spectrometer (MRS) has been installed and activated on OMEGA for measurements of down-scattered and primary neutrons, from which areal density, ion temperature, and yield of cryogenic DT implosions can be inferred. To correctly interpret these measurements, the MRS response function must be well characterized. The Monte Carlo code GEANT4 and MRS activation experiments, which utilized 14.1 MeV DT neutrons and ~ 15 MeV D^3He protons, were used for this purpose. Through the use the neutron transport code TART and DT experiments, the MRS background was also characterized. As the detector response is a crucial part of the MRS response function, the newly developed triple coincidence counting technique, which was developed and implemented to reduce the background, is presented. This work was supported in part by DOE, LLE and LLNL.

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