

Abstract Submitted
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Monte Carlo Simulations of Neutron Scattering in Current-Mode Neutron Time-of-Flight Detectors C. STOECKL, D.H. EDGELL, C. FORREST, V.YU. GLEBOV, J.P. KNAUER, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester — Current-mode neutron time-of-flight detectors are used in inertial confinement fusion experiments to measure the neutron yield and neutron-averaged ion temperature. The neutron-averaged ion temperature can be inferred from the temporal broadening of the neutron signal. Neutron scattering in the detector housing and nearby structures can significantly modify the temporal structure of the neutrons arriving at the detector. Monte Carlo neutron-transport simulations that assess the influence of neutron scattering on the detector signals as a function of detector geometry and location will be presented. This work is supported by the U.S. Department of Energy Office of Inertial Confinement No. DE-FC52-08NA28302.

T.C. Sangster
Laboratory for Laser Energetics, U. of Rochester

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