

Abstract Submitted
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A New Platform for Calibrating nTOF Detectors on OMEGA and the NIF using CR39-based Proton Detectors C. WAUGH, M. ROSENBERG, J. FRENJE, F. SEGUIN, R. PETRASSO, MIT, V. GLEBOV, T. SANGSTER, C. STOECKL, D. MEYERHOFER, J. KNAUER, LLE, R. BIONTA, O. LANDEN, A. MACKINNON, LLNL, J. KILKENNY, GA — Neutron time of flight (nTOF) detectors routinely measure neutron yields on OMEGA and the NIF. Though originally calibrated using the indium-activation method, an alternative nTOF calibration technique involving CR-39 proton detectors has successfully been developed on OMEGA and verified using the MIT Linear Electrostatic Ion Accelerator (LEIA). Inferring a neutron yield from the CR-39 can be done since the branching ratio for the DDp and DDn channels are known and close to unity. Using DD and D³He exploding pushers on OMEGA, excellent calibration of the nTOF detectors was obtained. Data confirm the calibration of nTOF to CR-39 to be 0.95 +/- 0.1 and shows that yield anisotropies are significantly reduced when bang time occurs significantly after the end of the laser pulse. These results indicate that CR-39 detectors can serve as a valuable new platform for calibrating nTOF detectors on OMEGA and the NIF. This work was supported in part by LLE, the NLUF, the FSC, the US DOE, LLNL, and GA.

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