

Abstract Submitted  
for the DPP15 Meeting of  
The American Physical Society

**A New Neutron Time-of-Flight Detector for DT Yield and Ion-Temperature Measurements on OMEGA** V.YU. GLEBOV, C.J. FORREST, J.P. KNAUER, S.P. REGAN, T.C. SANGSTER, C. STOECKL, Laboratory for Laser Energetics, U. of Rochester — A new neutron time-of-flight (nTOF) detector for DT yield and ion-temperature measurements in DT implosions on the OMEGA Laser System was designed, fabricated, tested, and calibrated. The goal of this detector is to provide a second line of sight for DT yield and ion-temperature measurements in the  $1 \times 10^{12}$  to  $10^{14}$  yield range. The nTOF detector consists of a 40-mm-diam, 20-mm-thick BC-422Q(1%) scintillator coupled with a one-stage Photek PMT-140 photomultiplier tube. To avoid PMT saturation at high yields a neutral density filter ND1 is inserted between the scintillator and PMT. Both the scintillator and PMT are shielded from hard x rays by 5 mm of lead on all sides and 10 mm in the direction of the target. The nTOF detector is located at 15.8 m from target chamber center in the OMEGA Target Bay. The design details and calibration results of this nTOF detector in DT implosions on OMEGA will be presented. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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Date submitted: 23 Jul 2015

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