

Abstract Submitted
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Characterizing Scintillator Response with Neutron Time-of-Flight¹ KEVIN PALMISANO, HANNAH VISCA, LOUIS CAVES, COREY WILKINSON, HANNAH MCCLOW, STEPHEN PADALINO, State Univ of NY - Geneseo, CHAD FORREST, JOE KATZ, CRAIG SANGSTER, SEAN REGAN, Laboratory of Laser Energetics — Neutron scintillator diagnostics for ICF can be characterized using the neutron time-of-flight (nTOF) line on Geneseo's 1.7 MV Tandem Pelletron Accelerator. Neutron signals can be differentiated from gamma signals by employing a coincidence method called the associated particle technique (APT). In this measurement, a 2.1 MeV beam of deuterons incident on a deuterated polyethylene target produces neutrons via the $d(d,n)^3\text{He}$ reaction. A BC-412 plastic scintillator, placed at a scattering angle of 152° , detects 1.76 MeV neutrons in coincidence with the 2.56 MeV ^3He ions at an associated angle of 10° . The APT is used to identify the 1.76 MeV neutron while the nTOF line determines its energy. By gating only mono-energetic neutrons, the instrument response function of the scintillator can be determined free from background scattered neutrons and gamma rays.

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