Abstract Submitted
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Obtaining the neutron time-of-flight instrument response function for a single D-T neutron utilizing n-alpha coincidence from the d(t, α)n nuclear reaction .[1] JEDEDIAH STYRON, Univ of New Mexico, CARLOS RUIZ, KELLY HAHN, Sandia National Laboratories, GARY COOPER, Univ of New Mexico, GORDON CHANDLER, BRENT JONES, BRUCE MCWATTERS, JENNY SMITH, Sandia National Laboratories, JEREMY VAUGHAN, Univ of New Mexico — A measured neutron time-of-flight (nTOF) signal is a convolution of the neutron reaction history and the instrument response function (IRF). For this work, the IRF was obtained by measuring single, D-T neutron events by utilizing n-alpha coincidence. The d(t, α)n nuclear reaction was produced at Sandia National Laboratories' Ion Beam Laboratory using a 300-keV Cockroft-Walton generator to accelerate a 2-μA beam, of 175-keV D+ ions, into a stationary, 2.6-μm, ErT2 target. Comparison of these results to those obtained using cosmic-rays and photons will be discussed. Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA-0003525.

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