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The ^{3}H(d,γ) Reaction at $E_{\text{c.m.}} \leq 300$ keV[1] C.E. PARKER, C.R. BRUNE, T.N. MASSEY, J.E. O'DONNELL[2], A.L. RICHARD, D.B. SAYRE[3], Ohio University — The ^{3}H$(d,\gamma)^5$He reaction has been measured using a 500-keV pulsed deuteron beam incident on a stopping titanium tritide target at the Edwards Accelerator Laboratory. The time-of-flight technique has been used to distinguish the γ-rays from neutrons in the bismuth germinate (BGO) γ-ray detector. A stilbene scintillator and an NE-213 scintillator have been used to detect the neutrons from the ^{3}H$(d,n)\alpha$ reaction using both the pulse-shape discrimination and time-of-flight techniques. A newly designed target holder with a silicon surface barrier detector to simultaneously measure α-particles to normalize the number of neutrons, along with a new titanium tritide target, was incorporated for subsequent measurements. The γ-rays have been measured at laboratory angles of 0 °, 45 °, 90 °, and 135 °. Information about the γ-ray energy distribution for the unbound ground state and first excited state of ^{5}He can be obtained experimentally by comparing the BGO data to Monte Carlo simulations. The ^{3}H$(d,\gamma)/^3$H(d,n) branching ratio has also been measured. Data analysis is currently underway for the subsequent measurements.

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