# $^{135}$Tb

"Proton decay of the highly deformed nucleus $^{135}$Tb" was published in 2004 by Woods et al. documenting the discovery of $^{135}$Tb (2004Wo07). A $^{92}$Mo target was bombarded with a 310 MeV $^{50}$Cr beam from the Argonne ATLAS accelerator system and $^{135}$Tb was formed in the (1p6n) fusion-evaporation reaction. Recoil products were separated with the Fragment Mass Analyzer FMA and protons were measured with a double-sided silicon strip detector. "[The figure], corresponding to decays occurring within 6 ms of implantation, shows clear evidence for a peak around 1.2 MeV, with very little background present. The energy is too low to be from an $\alpha$-decay so we assign this to proton decay. The energy of the peak is found to be $E_p$=1179(7) keV using the known ground-state proton decay of $^{147}$Tm as a calibration. This corresponds to a proton decay Q-value $Q_p$=1188(7) keV. The half-life of the peak is found to be $t_{1/2}=0.94^{+0.33}_{-0.22}$ ms using the method of maximum likelihood, and its production cross-section is $\sim$3 nb."

Adapted from reference (2013Ma01)


2004Wo07 P. J. Woods, P. Munro, D. Seweryniak, C. N. Davids *et al.*, Phys. Rev. C **69**, 051302 (2004).

2013Ma01 E. May and M. Thoennessen, At. Data Nucl. Data Tables **99**, 1 (2013).



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