

Adopted Levels

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli		NDS 112,1949 (2011)	1-Jun-2010

$Q(\beta^-) = -9.4 \times 10^3$ syst; $S(n) = 1.10 \times 10^4$ syst; $S(p) = -8. \times 10^2$ syst; $Q(\alpha) = 4.0 \times 10^3$ syst [2012Wa38](#)

Note: Current evaluation has used the following Q record $-9.2\text{E}+3$ SY1.11E+4 syst-700 SY3.8E+3 syst [2011AuZZ](#).

Uncertainties associated with these Q values are: $\Delta Q(\beta^-) = 7$, $\Delta S(n) = 7$, $\Delta S(p) = 6$, $\Delta Q(\alpha) = 6$.

$Q(\epsilon p) = 1.00 \times 10^4$ 5 (syst.) [2011AuZZ](#).

Values in [2003Au03](#): $S(n) = 1.12 \times 10^4$ 7 (syst.), $S(p) = -6. \times 10^2$ 6 (syst.), $Q(\alpha) = 3.7 \times 10^3$ 6 (syst.), $Q(\epsilon p) = 9.8 \times 10^3$ 5 (syst.).

Experimental works:

[2001Xu02](#): $^{106}\text{Cd}(^{40}\text{Ca}, p3n)$ E=242 MeV, measured proton- $\gamma\gamma$ coincidence, He-jet plus tape transport system. ^{142}Ho identified following coincidences between protons and ^{141}Tb γ rays. This work was then compared with statistical model calculations in [2002Xu11](#) and reviewed and discussed in [2005Xu04](#) with experimental results for other isotopes.

[2000So11](#): $^{90}\text{Zr}(^{197}\text{Au}, x)$, E=30 MeV/A. Identification using A1200 mass separator at Michigan State University.

[1993Li40](#): $^{106}\text{Cd}(^{40}\text{Ca}, p3n)$, E=198 MeV, measured proton spectra following evaporation residue Mass/Charge separation. No evidence for direct proton radioactivity found.

[2003Au03](#) value: $S(n) = 1.12 \times 10^4$ syst, $S(p) = -600$ syst, $Q(\alpha) = 3.7 \times 10^3$ syst.

 ^{142}Ho Levels

E(level)	J $^\pi$	T $_{1/2}$	Comments
0.0	(7 $^-$, 8 $^+$)	0.4 s <i>I</i>	$\% \epsilon + \% \beta^+ \approx 100$; $\% \epsilon p > 0$; $\% p \approx 0$ J$^\pi$: From 2001Xu01 the strongest observed γ line in ^{141}Tb is the 307 keV (15/2$^-$) to (11/2$^-$). Based on relative branching ratios to other final states in ^{141}Tb, it is suggested that the ground state J assignment could be 6, 7, or 8. Based on the same experimental data, this suggestion was later modified to 5, 6, or 7. It is further mentioned that the energy spectrum of β-delayed protons is fit by 7$^-$ and 8$^+$ with potential energy surface calculations favoring 7$^-$. Conf=($\pi h_{7/2} - [523] \otimes \nu h_{11/2} - [404]$) is suggested (2002Xu11). However, branching ratios are also consistent (2002Xu11) with 8$^+$, conf=($\pi h_{7/2} - [525] \otimes \nu h_{9/2} - [514]$) suggested in 1995Mo29. Direct proton radioactivity from ^{142}Ho was searched for but not found (1993Li40), which is explained because of the small value of the proton separation energy. As a consequence, we adopt $\% p \approx 0$. T$_{1/2}$: from 307 $\gamma(t)$(^{141}Tb) (2001Xu02).