^{155}Tm α decay (21.6 s)   1971To10,1991To08,1990Po13

| | | History | |
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Parent: ^{155}Tm: E=0; J^π=11/2$^-$; $T_{1/2}$=21.6 s *2*; Q(α)=4572 *5*; %α decay=0.89 *24*

^{155}Tm-J^π, $T_{1/2}$ and related comments are mostly from evaluation of A=155 (2005Re01).

^{155}Tm-J^π: favored α transition to the ^{151}Ho g.s. (J^π=11/2$^-$). Probable Gamow-Teller transition to the 226 level establishes J^π=11/2$^-$ and 9/2$^-$, respectively, for the parent and daughter states in this transition, as well as configurations=π h$_{11/2}$ and ν h$_{9/2}$ for the two states. This assignment is also supported by the level systematics in this region.

^{155}Tm-$T_{1/2}$: from 1991To08, α(t). Others: 26 s *3* (1992Ha10); 23 s *3* (1990Po13), γ(t); 25 s *4* (1977Ag01), γ(t). Note that the value 39 s *3* as reported by 1971To10 from α(t) is not correct, since it included a contribution from the 45-s ^{155}Tm isomer.

^{155}Tm-%α decay: %A=0.89 *24* from weighted average of 1.2 *6* (1990Po13) and 0.84 *26* (1992Ha10), both from the ratio of α-particle to γ-ray intensities in this decay. 1990Po13 do not state what γ's were used in their analysis. 1992Ha10 report %α=2.1 *3*, assuming that Iγ(226γ) represents 100% of the ε decays. This Iγ value was corrected to 40% *11* by the evaluator, based on the present decay scheme (see the comment in the ^{155}Tm ε Decay (21.6 s) dataset). From the calculated α-decay half-life, %$\alpha \approx$0.9 is deduced. The α decay of this level is also discussed by 1994To10. Others: $\approx$ 1 (1991To08), <4 (systematics of Eα vs $T_{1/2}$).

1991To08: ^{95}Mo(^{64}Zn,xnyp) E=291 MeV. Mass separated α=155 products. ^{155}Tm produced mainly by ε decay of ^{155}Yb. Measured a, %α, $T_{1/2}$. See 1994To10 for a detailed discussion of results.

1990Po13: W(p,X) E=600 MeV. ^{155}Tm produced by spallation reaction with subsequent mass separation. Measured a, %α, $T_{1/2}$.

1971To10: produced in ^{144}Sm(^{14}N,3n) reaction. Isotope identification on the basis of excitation functions, cross bombardment and parent-daughter relationship.

1992Ha10: measured Eα, %α, $T_{1/2}$.

$T_{1/2}$(^{155}Tm g.s.): from 1991To08. Others: 26 s *3* (1992Ha10), 23 s *3* (1990Po13), 25 s *4* (1977Ag02). $T_{1/2}$=39 s *3* (1971To10) from α(t) includes a contribution from 45-s ^{155}Tm isomer.

^{151}Ho Levels

E(level)	J^π
0.0	(11/2$^-$)

α radiations

Eα	E(level)	Comments
4452 *8*	0.0	Eα: from 1992Ha10. Others: 4450 *10* (1971To10), 4462 (1990Po13). This group is considered (1991To08) to be a doublet, the other component is from the 44-s ^{155}Tm isomer.