^{155}Tm α decay (45 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=41 *6*; $J^\pi=1/2^+$; $T_{1/2}$=45 s *3*; Q(α)=4572 *5*; %α decay<2.0

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

^{155}Tm-E: from the inability to resolve the 4462-keV α peak into the expected two components from the two activities in ^{155}Tm to the corresponding two states (separated by 41 keV) in ^{151}Ho, 1990Po13 conclude that the ^{155}Tm isomer lies 41 *6* keV above the ^{155}Tm g.s.

^{155}Tm-J^π: favored α transition to the 41, $J^\pi=1/2^+$, state in ^{151}Ho. Assignment supported by the level systematics in this region.

^{155}Tm-$T_{1/2}$: weighted average of 44 s *4* (1991To08), γ(t), and 47 s *6* (1990Po13), α(t).

^{155}Tm-%α decay: %A<2, deduced by the evaluator of A=155 (2005Re01) from the calculated α half-life for HF>1.

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, $T_{1/2}$.

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.

$T_{1/2}$(^{155}Tm isomer): from weighted average of 44 s *4* (1991To08) and 47 s *6* (1990Po13).

E(^{155}Tm isomer)≈41 (1991To08), 41 *6* (1990Po13).

^{151}Ho Levels

E(level)	J^π	Comments
41.0 *2*	$(1/2^+)$	E(level): the α group is thought to feed the low-spin ^{151}Ho isomer on the basis that the 4.60-MeV α line from the decay of the low-spin ^{151}Ho isomer showed an appreciably longer half-life than 47 s due to the feeding from a parent which has approximately the same half-life.

α radiations

Eα	E(level)	Comments
4450 *10*	41.0	Eα: from 1971To10. Other: 4462 (1990Po13). This group is considered (1991To08) to be a doublet, the other component is from the 21.6-s ^{155}Tm g.s.