^{179}Tl α decay (0.23 s) 2002Ro17,1998To14,1996Pa01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 102, 719 (2004)	1-Jun-2004

Parent: ^{179}Tl: E=0.0; J^π=(1/2$^+$); $T_{1/2}$=0.23 s *4*; Q(α)=6718 *8*; %α decay≈100.0

^{179}Tl-%α decay: Only α decay has been observed. Theory predicts a partial $T_{1/2}$ of 0.7 s (1997Mo25), implying %α=70.

Other: 1983Sc24.

2002Ro17: Target: 90.4% enriched ^{202}Pb; Projectile: ^{78}Kr, E=355 MeV (340 MeV at midtarget); gas-filled separator, parallel-plate avalanche counters, Si strip detector, HPGe detector; deduced $T_{1/2}$, corrected for random correlation rates.

1998To14: Target: ^{90}Zr; Projectile: ^{92}Mo, E=420 MeV (404 MeV at midtarget); fragmented mass analyzer, gas-filled parallel grid avalanche counter, double sided Si strip detector with 40 horizontal and 40 vertical strips; measured: Eα, t, Iα.

1996Pa01: Sources from heavy-ion fusion-evaporation reactions; recoil mass separator, double-sided Si strip detector (FWHM ≤ 20 keV); measured Eα, parent and daughter $T_{1/2}$.

1983Sc24: Target: enriched (>95%) Rb-Mo isotopes; Projectile: ^{92}Mo, E=414-497 MeV; An array of seven position sensitive surface barrier detectors, HPGe detector; measured Eα, Iα.

Parent (^{179}Tl) $T_{1/2}$: 0.23 s *4* from 1998To14. Others: 0.42 s *6* (2002Ro17), 0.43 s *35* (1996Pa01), 0.16 s *+9–4* (1983Sc24). J^π: From J^π(g.s.) systematics for heavier odd-A Tl isotopes.

^{175}Au Levels

E(level)	J^π	Comments
0.0	(1/2$^+$)	J^π: From Adopted Levels. E(level): From a suspected doublet of 6438α and 6412α of ^{175}Au α decay (2002Ro17), it seems that 6568α is a g.s. to g.s. transition from ^{179}Tl (0.23 s) to ^{175}Au, and the observed 7069α and 7213α 's are from 0.0+x to 0.0+x state transitions between ^{179}Tl(1.5 ms) and ^{175}Au (1998To14).

α radiations

Eα	E(level)	Iα[‡]	HF	Comments
6567 *8*	0.0	100	0.9[†]	Eα: Weighted average of 6569 *10* (1998To14), 6568 *18* (1996Pa01), and 6560 *20* (1983Sc24). Other: 6568 (2002Ro17).

[†] Using r_0=1.537; average of r_0(^{174}Pt)=1.545 *10*, and r_0(^{176}Hg)=1.53 *4* (1998Ak04).

[‡] For absolute intensity per 100 decays, multiply by ≈1.0.