

^{185}Tl α decay (1.93 s) [1980Sc09](#),[1976To06](#),[1980ToZZ](#)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106,367 (2005)	31-Aug-2005

Parent: ^{185}Tl : E=454.8 15; $J^\pi=(9/2^-)$; $T_{1/2}=1.93$ s 8; $Q(\alpha)=5690$ 50; % α decay=?

[Additional information 1.](#)

Sources produced by mass separation of products following $^{142}\text{Nd}(^{48}\text{Ti},p4n)$, E=5.1 MeV/nucleon ([1980Sc09](#)) or $^{180}\text{W}(^{14}\text{N},9n)$, E=168 MeV ([1976To06](#)).

 ^{181}Au Levels

E(level) [†]	Comments
0.0+x	
35+x 6	E(level): from energy difference for α groups.

[†] It is unclear which levels in ^{181}Au are fed by α decay from the 454-keV ($9/2^-$) isomer of ^{185}Tl . Based on systematics of $9/2^-$ isomer α decays from heavier odd-A Tl isotopes, the strongest branch is expected to feed the lowest-energy $9/2^-$ level in ^{181}Au . The level fed by the 6010 α (35 keV 6 below the latter level) could be the ($3/2^-$) g.s. or an unobserved $5/2^-$ level which forms the g.s. in neighboring odd-A Au isotopes. In this case, the 35+x level would be the ($9/2^-$) state.

 α radiations

If $r_0=1.505$ 20 (based on $r_0(^{180}\text{Pt})=1.512$ 11 and $r_0(^{182}\text{Hg})=1.50$ 2 from [1998Ak04](#)), $T_{1/2}(^{185}\text{Tl})=1.93$ s 8, $Q(\alpha)=5744$ 50 (based on E α =5976 4 to ^{181}Au (90 50) from ^{185}Tl (454.8 15)), then HF(5976 α) between 1 and 4 implies % $\alpha(^{185}\text{Tl})$ is of the order of 2 1. However, the $Q(\alpha)$ assumed here differs from $Q(\alpha)=5690$ 50 ([2003Au03](#)).

E α	E(level)	I α [†]	Comments
5976 4	35+x	82 4	E α : value recommended in 1991Ry01 ; it is the weighted average of 5975 5 (1976To06), 5970 15 (1980Sc09), 5980 7 (unpublished datum cited in 1991Ry01). I α : weighted average of 77 7 (1980Sc09) and 84 5 (1980ToZZ).
6010 5	0.0+x	18 4	E α : value recommended in 1991Ry01 ; it is the weighted average of 6010 5 (1980ToZZ) (this is the unassigned A=185 peak in 1976To06), 6012 15 (1980Sc09). I α : weighted average of 23 7 (1980Sc09) and 16 5 (1980ToZZ).

[†] From [1980ToZZ](#).