^{212}Tl β^- decay (30.9 s) 2014Mo02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	K. Auranen and E. A. Mccutchan	NDS 168, 117 (2020)	1-Aug-2020

Parent: ^{212}Tl: E=0.0; $J^\pi=(5^+)$; $T_{1/2}$=30.9 s *80*; Q(β^-)=6.0×10^3 *SY*; %β^- decay=100.0

2014Mo02: ^{212}Tl activity produced in the ^{9}Be(^{238}U,F) reaction with E(^{238}U)=1 GeV/nucleon. Recoils were separated and identified using the FRagment Separator (FRS) using the Bρ-ΔE-Bρ technique. Recoils were implanted into a stack of three double-sided silicon strip detectors. Measured Eγ, Iγ, $\gamma\gamma$, implant-$\beta\gamma$, implant-$\beta\gamma$(t) using the RISING array consisting of 105 HPGe crystals arranged in seven element clusters.

α: Additional information 1.

^{212}Pb Levels

Level scheme given by 2014Mo02 is tentative and likely incomplete.

E(level)†	J^π‡	$T_{1/2}$‡
0.0	0^+	10.622 h *7*
805	(2^+)	
1121	(4^+)	
1279	(6^+)	

† From Eγ.
‡ From the Adopted Levels.

β^- radiations

The 805, 2^+ level has non-zero feeding, although with large uncertainty, Iβ^-=13 *40*. No feeding is expected to a 2^+ level, thus it is omitted from the table below.

E(decay)	E(level)	Iβ^-†‡	Log *ft*
(4721 *SY*)	1279	22 *9*	6.8 *SY*
(4879 *SY*)	1121	60 *30*	6.5 *SY*

† From an intensity balance at each level.
‡ Absolute intensity per 100 decays.

$\gamma(^{212}Pb)$

Iγ normalization: from Iγ(804γ+ce)(to g.s.)=98.2 % *18*, considering that %Iβ to the g.s. is negligible (ΔJ=5) and %β^-n of ^{212}Tl=1.8 *18*.

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α	Comments
157	11 *4*	1279	(6^+)	1121	(4^+)	[E2]	1.028	α(K)=0.287 *4*; α(L)=0.552 *8*; α(M)=0.1452 *21*; α(N)=0.0367 *6*; α(O)=0.00658 *10* α(P)=0.000298 *5* I$_\gamma$: deduced from coincidence data.
315	79 *18*	1121	(4^+)	805	(2^+)	[E2]	0.1001	α(K)=0.0580 *9*; α(L)=0.0315 *5*; α(M)=0.00807 *12*;

Continued on next page (footnotes at end of table)

^{212}Tl β^- decay (30.9 s) 2014Mo02 (continued)

$\gamma(^{212}Pb)$ (continued)

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α	Comments
								α(N)=0.00204 *3*; α(O)=0.000376 *6* α(P)=2.36×10^{-5} *4*
804	100 *23*	805	(2$^+$)	0.0	0$^+$	[E2]	0.01029	α(K)=0.00801 *12*; α(L)=0.001737 *25*; α(M)=0.000418 *6*; α(N)=0.0001060 *15* α(O)=2.05×10^{-5} *3*; α(P)=1.88×10^{-6} *3*

† For absolute intensity per 100 decays, multiply by 0.97 *23*.

^{212}Tl β^- decay (30.9 s) 2014Mo02

Decay Scheme

Intensities: Relative I_γ