^{206}Tl IT decay (3.74 min) 1978Ur01,1976Ha44,1976Be44

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 109, 1527 (2008)	31-Jan-2008

Parent: ^{206}Tl: E=2643.3 *3*; J^π=(12^-); $T_{1/2}$=3.74 min *3*; %IT decay=100.0

1976Be44: produced by ^{204}Hg(α,pn) reaction on enriched (99.7%) target with E(α)=39-55 MeV. γ's measured with Ge detector.

1976Ha44: produced by ^{204}Hg(^{7}Li,αn) reaction on enriched (92.5% target with E(^{7}Li)=36 MeV. measured: γ singles, $\gamma\gamma$ coincidences, perturbed $\gamma\gamma(\theta)$ and γ(t) withGe(Li) detectors.

1978Ur01: produced by ^{209}Bi(n,α) reaction with E(n)=14 MeV. Measured γ singles and $\gamma\gamma$ coincidences with Ge detectors.

Others: 1976HaXT, 1976HaYV, 1976HaYY, 1977UrZY, 1978Bo16, and 1982BoZN.

^{206}Tl Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	0^-	4.202 min *14*	$T_{1/2}$: From Adopted Levels.
265.70 *10*	2^-		
801.22 *20*	$(3)^-$		
952.22 *20*	4^-		
1405.53 *20*	$(5)^+$	78 ns *1*	$T_{1/2}$: From 1976Ha44. g-factor=0.853 *12* in 1976Ha44 using the time-differential, perturbed-angular distribution technique. This value is corrected for diamagnetism and Knight shift.
1621.88 *22*	$(7)^+$	10.1 ns *6*	$T_{1/2}$: From 1976Ha44. g-factor<0.35 in 1976Ha44 using the time-differential, perturbed-angular distribution technique.
1710.6 *3*	$(5,6)^+$		
2079.1 *3*	(8^+)		
2326.3 *3*	$(8^+,9^+)$		
2643.3 *3*	(12^-)	3.74 min *3*	$T_{1/2}$: Weighted average of 3.6 min *2* (1976Be44), 3.76 min *4* (1976Ha44), and 3.73 min *4* (1978Ur01). Other: 3.77 min *2* in 1977UrZY, superseded by the value in 1978Ur01.

† From a least-squares fit to Eγ.

‡ From ^{206}Tl Adopted Levels.

$\gamma(^{206}$Tl)

Iγ normalization: From Ti(265.7γ)=100%.

E_γ[†]	I_γ[‡@]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[&]	Comments
88.5[a] *5*	≈0.12	1710.6	$(5,6)^+$	1621.88	$(7)^+$	[M1]	12.12 *25*	α(K)=9.87 *21*; α(L)=1.72 *4*; α(M)=0.403 *9*; α(N+..)=0.123 *3* α(N)=0.1017 *22*; α(O)=0.0197 *5*; α(P)=0.00186 *4* I_γ: From intensity balance at the 1710.6 keV level.
216.4 *1*	86 *4*	1621.88	$(7)^+$	1405.53	$(5)^+$	[E2]	0.312	α(K)=0.1401 *20*; α(L)=0.1288 *19*; α(M)=0.0334 *5*; α(N+..)=0.00989 *14* α(N)=0.00836 *12*; α(O)=0.001467 *21*; α(P)=6.34×10^{-5} *9*
247.2 *1*	9.8 *21*	2326.3	$(8^+,9^+)$	2079.1	(8^+)	[M1]	0.667	α(K)=0.546 *8*; α(L)=0.0926 *13*; α(M)=0.0216 *3*; α(N+..)=0.00662 *10* α(N)=0.00546 *8*; α(O)=0.001060 *15*; α(P)=0.0001002 *14*
265.7 *1*	100	265.70	2^-	0.0	0^-	E2	0.1605	α(K)=0.0856 *12*; α(L)=0.0562 *8*;

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$\gamma(^{206}Tl)$ (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[&]	Comments
								α(M)=0.01443 *21*; α(N+..)=0.00429 *6* α(N)=0.00362 *5*; α(O)=0.000640 *9*; α(P)=3.10×10^{-5} *5* Mult.: based on α(K)exp and K/L/M (1968Wo08) from ^{206}Hg β^- decay.
304.9 *2*	1.5 *8*	1710.6	(5,6)$^+$	1405.53	(5)$^+$	[M1]	0.375	α(K)=0.307 *5*; α(L)=0.0519 *8*; α(M)=0.01210 *17*; α(N+..)=0.00371 *6* α(N)=0.00306 *5*; α(O)=0.000594 *9*; α(P)=5.62×10^{-5} *8*
316.8 *2*	0.9 *3*	2643.3	(12$^-$)	2326.3	(8$^+$,9$^+$)	[M4]	13.63	α(K)=6.90 *10*; α(L)=4.93 *7*; α(M)=1.376 *20*; α(N+..)=0.424 *7* α(N)=0.355 *6*; α(O)=0.0649 *10*; α(P)=0.00381 *6*
368.2 *2*	1.2 *9*	2079.1	(8$^+$)	1710.6	(5,6)$^+$	[E2]	0.0617	α(K)=0.0397 *6*; α(L)=0.01664 *24*; α(M)=0.00420 *6*; α(N+..)=0.001254 *18* α(N)=0.001053 *15*; α(O)=0.000190 *3*; α(P)=1.100×10^{-5} *16*
453.3 *2*	108 *6*	1405.53	(5)$^+$	952.22	4$^-$	[E1]	0.01136	α(K)=0.00939 *14*; α(L)=0.001507 *22*; α(M)=0.000349 *5*; α(N+..)=0.0001058 *15* α(N)=8.76×10^{-5} *13*; α(O)=1.672×10^{-5} *24*; α(P)=1.438×10^{-6} *21*
457.2 *5*	26 *3*	2079.1	(8$^+$)	1621.88	(7)$^+$	[M1]	0.1261	α(K)=0.1035 *15*; α(L)=0.01728 *25*; α(M)=0.00403 *6*; α(N+..)=0.001233 *18* α(N)=0.001017 *15*; α(O)=0.000198 *3*; α(P)=1.87×10^{-5} *3*
535.5 *2*	1.6 *11*	801.22	(3)$^-$	265.70	2$^-$	[M1]	0.0830	α(K)=0.0682 *10*; α(L)=0.01133 *16*; α(M)=0.00264 *4*; α(N+..)=0.000808 *12* α(N)=0.000666 *10*; α(O)=0.0001295 *19*; α(P)=1.228×10^{-5} *18*
564.2 *1*	6.4 *11*	2643.3	(12$^-$)	2079.1	(8$^+$)	M4	1.164	α(K)=0.775 *11*; α(L)=0.290 *4*; α(M)=0.0756 *11*; α(N+..)=0.0232 *4* α(N)=0.0193 *3*; α(O)=0.00363 *5*; α(P)=0.000268 *4* Mult.: α(exp)=1.2 in 1976Ha44.
604.3 *2*	1.2 *8*	1405.53	(5)$^+$	801.22	(3)$^-$	[M2]	0.1663	α(K)=0.1318 *19*; α(L)=0.0263 *4*; α(M)=0.00629 *9*; α(N+..)=0.00193 *3* α(N)=0.001595 *23*; α(O)=0.000309 *5*; α(P)=2.83×10^{-5} *4*
616.3[a] *2*	≈0.6	2326.3	(8$^+$,9$^+$)	1710.6	(5,6)$^+$	[E2]	0.01732	α(K)=0.01300 *19*; α(L)=0.00328 *5*; α(M)=0.000798 *12*; α(N+..)=0.000241 *4* α(N)=0.000201 *3*; α(O)=3.73×10^{-5} *6*; α(P)=2.75×10^{-6} *4*
686.5 *2*	106 *6*	952.22	4$^-$	265.70	2$^-$	[E2]	0.01367	α(K)=0.01046 *15*; α(L)=0.00244 *4*; α(M)=0.000590 *9*; α(N+..)=0.000178 *3* α(N)=0.0001485 *21*; α(O)=2.78×10^{-5} *4*; α(P)=2.13×10^{-6} *3*
704.6 *3*	1.7 *11*	2326.3	(8$^+$,9$^+$)	1621.88	(7)$^+$	[M1]	0.0405	α(K)=0.0334 *5*; α(L)=0.00550 *8*; α(M)=0.001279 *18*; α(N+..)=0.000391 *6* α(N)=0.000323 *5*; α(O)=6.28×10^{-5} *9*; α(P)=5.96×10^{-6} *9*
1021.5 *2*	80 *7*	2643.3	(12$^-$)	1621.88	(7)$^+$	[E5]	0.0617	α(K)=0.0383 *6*; α(L)=0.01753 *25*; α(M)=0.00452 *7*; α(N+..)=0.001372 *20* α(N)=0.001146 *16*; α(O)=0.000211 *3*; α(P)=1.488×10^{-5} *21*

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^{206}Tl IT decay (3.74 min) 1978Ur01,1976Ha44,1976Be44 (continued)

$\gamma(^{206}Tl)$ (continued)

E_γ [†]	I_γ [‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [&]	Comments
1139.9 *3*	6.9 *23*	1405.53	(5)$^+$	265.70	2$^-$	[E3]	0.01089	α(K)=0.00831 *12*; α(L)=0.00196 *3*; α(M)=0.000476 *7*; α(N+..)=0.0001447 *21* α(N)=0.0001200 *17*; α(O)=2.26×10^{-5} *4*; α(P)=1.85×10^{-6} *3*; α(IPF)=1.95×10^{-7} *4*

[†] From 1978Ur01. Others: 1976Be44 and 1976Ha44, both without uncertainties.

[‡] From I(γ+ce) of 1978Ur01, but converted to Iγ values by the evaluator using the theoretical α values. The 1978Ur01 values are in agreement with those of 1976Be44 (incomplete data set) and 1976Ha44 (no uncertainties given).

[#] From Adopted Levels.

[@] For absolute intensity per 100 decays, multiply by 0.86.

[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

[a] Placement of transition in the level scheme is uncertain.

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