^{184}Pt IT decay (1.01 ms) 1966Bu08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

Parent: ^{184}Pt: E=1840.3 *8*; J$^{\pi}$=8^{-}; $T_{1/2}$=1.01 ms *5*; %IT decay=100.0

Produced by ^{181}Ta(^{11}B,8n), ^{175}Lu(^{14}N,5n), and ^{169}Tm(^{19}F,4n) reactions. E(^{11}B)=114 MeV; E(^{14}N)=84, 90, 98 MeV; E(^{19}F)=92 MeV.

^{184}Pt Levels

E(level)†	J$^{\pi}$‡	$T_{1/2}$	Comments
0.0	0^{+}		
162.4 *5*	2^{+}		
434.4 *9*	4^{+}	<1.5# ns	
795.0 *14*	6^{+}		
839.4 *17*	2^{+}	<1.5# ns	
1226.0 *17*	8^{+}		
1229.6 *14*	4^{+}	<1.5# ns	
1668.8 *16*	(5)$^{-}$	<1.5# ns	
1724.1 *19*	(7)$^{+}$		
1786.9 *17*	(6^{-})		
1836.0 *17*	8^{-}	1.01 ms *5*	J$^{\pi}$: $\gamma\gamma(\theta)$ is consistent with J=8 and rules out J=7 and J=9. $T_{1/2}$: from $\gamma\gamma$(t).

† From least-squares fit to Eγ.

‡ From Adopted Levels.

From observation of prompt (118γ)(272γ) coin, $T_{1/2}$<1.5 ns. This implies that the 434, 839, 1230, and 1669 levels have $T_{1/2}$<1.5 ns.

$\gamma(^{184}Pt)$

Iγ normalization: from Σ (I(γ+ce) from 1836 level)=100%.

$\gamma\gamma(\theta)$ Data (1966Bu08; θ=90 °,135 °,180 °):

γ1	γ2	A_2	γ1	γ2	A_2
272	162	+0.18 7	610	162	+0.15 10
272	361	+0.13 5	610	272	+0.25 9
272	431	+0.13 5	610	361	+0.11 9
272	610	+0.19 5	610	431	+0.10 9

E_γ[‡]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[†]	$I_{(\gamma+ce)}$[&]	Comments
49 *1*		1836.0	8$^-$	1786.9	(6$^-$)	[E2]	128 *14*	53 *16*	ce(L)/(γ+ce)=0.75 *6*; ce(M)/(γ+ce)=0.19 *3*; ce(N+)/(γ+ce)=0.054 *8* ce(N)/(γ+ce)=0.047 *7*; ce(O)/(γ+ce)=0.0072 *11*; ce(P)/(γ+ce)=6.6×10^{-6} *10* $I_{(\gamma+ce)}$: from intensity balance at the 1787 level.
112 *1*	7.5 *25*	1836.0	8$^-$	1724.1	(7)$^+$	E1	0.305 *9*		α(K)=0.247 *7*; α(L)=0.0451 *13*; α(M)=0.0105 *3*; α(N+..)=0.00299 *9* α(N)=0.00254 *8*; α(O)=0.000429 *12*; α(P)=1.98×10^{-5} *5* Mult.: α(K)exp<1.33, α(L)exp<0.13.
118 *1*	7 *1*	1786.9	(6$^-$)	1668.8	(5)$^-$	(M1+E2)	3.3 *9*		α(K)=2.0 *15*; α(L)=1.0 *5*; α(M)=0.25 *13*; α(N+..)=0.07 *4* α(N)=0.06 *3*; α(O)=0.010 *5*; α(P)=0.00023 *17* Mult.: α(K)exp≈3.7, α(L)exp+α(M)exp=1.50. Assigned As E1+M2 In 1966Bu08 implying δ≈0.44. However, α(K)exp is also consistent with M1 and (α(L)exp)+(α(M)exp) with E2. ADOPTED band structure requires $\Delta\pi$=No.
[x]≈121[a]									
[x]≈126[a]									
162.4 *5*	63 *8*	162.4	2$^+$	0.0	0$^+$	E2	0.747 *14*		α(K)=0.283 *5*; α(L)=0.349 *7*; α(M)=0.0895 *18*; α(N+..)=0.0253 *5* α(N)=0.0219 *5*; α(O)=0.00345 *7*; α(P)=2.68×10^{-5} *5* Mult.: α(L)exp=0.44, K/L=0.75 *10*.
[x]≈224[a]									E_γ: from fig. 6 of 1966Bu08.
272.2 *8*	100 *10*	434.4	4$^+$	162.4	2$^+$	E2	0.1322 *22*		α(K)=0.0779 *13*; α(L)=0.0410 *8*; α(M)=0.01032 *19*; α(N+..)=0.00294 *6* α(N)=0.00253 *5*; α(O)=0.000409 *8*; α(P)=7.75×10^{-6} *13* Mult.: α(K)exp=0.087, K/L=1.8 *3*.
[x]286.5 *17*	1.5[@] *7*					(M1)	0.346 *8*		α(K)=0.286 *7*; α(L)=0.0467 *10*; α(M)=0.01077 *24*; α(N+..)=0.00318 *7* α(N)=0.00267 *6*; α(O)=0.000480 *11*; α(P)=3.24×10^{-5} *7* Mult.: α(K)exp>0.25.
360.8 *11*	71 *10*	795.0	6$^+$	434.4	4$^+$	E2	0.0579 *10*		α(K)=0.0389 *7*; α(L)=0.0144 *3*; α(M)=0.00358 *7*; α(N+..)=0.001028 *19*

$\gamma(^{184}$Pt) (continued)

E_γ‡	I_γ&	E_i(level)	J^π_i	E_f	J^π_f	Mult.#	α†	Comments
								α(N)=0.000879 *16*; α(O)=0.000145 *3*; α(P)=4.00×10^{-6} *7* Mult.: from K/L=2.7 *4*.
≈389.5	7 *3*	1229.6	4$^+$	839.4	2$^+$	E2	0.0470	α(K)≈0.0324; α(L)≈0.01108; α(M)≈0.00274; α(N+..)≈0.000786 α(N)≈0.000671; α(O)≈0.0001114; α(P)≈3.36×10^{-6} Mult.: α(K)exp=0.026.
^{x}424 *3*	5 *3*							
431.0 *13*	67 *10*	1226.0	8$^+$	795.0	6$^+$	E2	0.0360 *6*	α(K)=0.0256 *4*; α(L)=0.00790 *14*; α(M)=0.00194 *4*; α(N+..)=0.000558 *10* α(N)=0.000476 *9*; α(O)=7.95×10^{-5} *14*; α(P)=2.67×10^{-6} *5* Mult.: α(K)exp=0.024, K/L=3.2 *6*.
439 *1*	24 *5*	1668.8	(5)$^-$	1229.6	4$^+$	E1	0.01094 *17*	α(K)=0.00910 *14*; α(L)=0.001419 *22*; α(M)=0.000325 *5*; α(N+..)=9.49×10^{-5} *15* α(N)=8.00×10^{-5} *12*; α(O)=1.411×10^{-5} *21*; α(P)=8.60×10^{-7} *13* Mult.: α(K)exp=0.013, K/L=5.3 *15*.
^{x}486.5 *15*	11 *3*					E2	0.0265 *5*	α(K)=0.0194 *3*; α(L)=0.00538 *10*; α(M)=0.001308 *23*; α(N+..)=0.000378 *7* α(N)=0.000321 *6*; α(O)=5.42×10^{-5} *10*; α(P)=2.04×10^{-6} *4* Mult.: α(K)exp=0.030.
^{x}≈554	5.5 *30*					E1	≈0.00666	α(K)≈0.00556; α(L)≈0.000850; α(M)≈0.000195; α(N+..)≈5.69×10^{-5} α(N)≈4.79×10^{-5}; α(O)≈8.49×10^{-6}; α(P)≈5.33×10^{-7} Mult.: α(K)exp≤0.0091.
610.1 *20*	64 *10*	1836.0	8$^-$	1226.0	8$^+$	E1	0.00547 *9*	α=0.00547 *9*; α(K)=0.00457 *7*; α(L)=0.000694 *11*; α(M)=0.0001586 *25*; α(N+..)=4.64×10^{-5} *8* α(N)=3.90×10^{-5} *6*; α(O)=6.93×10^{-6} *11*; α(P)=4.40×10^{-7} *7* Mult.: α(K)exp=0.0037, K/L=1.8 *3*.
676 *4*	≤1.5	839.4	2$^+$	162.4	2$^+$	M1+E2+E0		Mult.: α(K)exp≥0.16. δ(M1,E2)=−1.2 *+5−35* from Adopted Gammas.
^{x}≈775	1.9 *10*					E2	≈0.00920	α≈0.00920; α(K)≈0.00728; α(L)≈0.001466; α(M)≈0.000347; α(N+..)≈0.0001 α(N)≈8.55×10^{-5}; α(O)≈1.486×10^{-5}; α(P)≈7.71×10^{-7} Mult.: α(K)exp≈0.01.
796 *5*	7.3 *20*	1229.6	4$^+$	434.4	4$^+$	E0+M1+E2	0.059 *8*	α: approximate value from Adopted Gammas. Mult.: α(K)exp=0.045.
839 *5*	4.3 *20*	839.4	2$^+$	0.0	0$^+$	E2	0.00780 *15*	α=0.00780 *15*; α(K)=0.00622 *12*; α(L)=0.001206 *25*; α(M)=0.000284 *6*; α(N+..)=8.29×10^{-5} *17* α(N)=7.00×10^{-5} *15*; α(O)=1.222×10^{-5} *25*; α(P)=6.58×10^{-7} *12* Mult.: α(K)exp=0.0042.
^{x}867 *5*	5.8 *20*					E1	0.00276 *5*	α=0.00276 *5*; α(K)=0.00231 *4*; α(L)=0.000343 *7*; α(M)=7.81×10^{-5} *14*; α(N+..)=2.29×10^{-5} *5* α(N)=1.92×10^{-5} *4*; α(O)=3.44×10^{-6} *7*; α(P)=2.26×10^{-7} *4* Mult.: α(K)exp=0.0031.
930 *6*	7.4 *20*	1724.1	(7)$^+$	795.0	6$^+$	E2	0.00632 *13*	α=0.00632 *13*; α(K)=0.00509 *10*; α(L)=0.000944 *20*; α(M)=0.000221 *5*; α(N+..)=6.47×10^{-5} *14* α(N)=5.46×10^{-5} *12*; α(O)=9.57×10^{-6} *20*; α(P)=5.38×10^{-7} *11* Mult.: α(K)exp=0.0050.

^{184}Pt IT decay (1.01 ms) 1966Bu08 (continued)

γ(^{184}Pt) (continued)

E_γ[‡]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[†]	Comments
1065 *6*	8.1 *20*	1229.6	4^+	162.4	2^+	E2	0.00484 *9*	α=0.00484 *9*; α(K)=0.00393 *7*; α(L)=0.000694 *13*; α(M)=0.000162 *3*; α(N+..)=4.73×10^{-5} *9* α(N)=3.99×10^{-5} *8*; α(O)=7.04×10^{-6} *14*; α(P)=4.14×10^{-7} *8* Mult.: α(K)exp=0.0051.
1235 *4*	20 *3*	1668.8	$(5)^-$	434.4	4^+	E1	0.001483 *22*	α=0.001483 *22*; α(K)=0.001223 *19*; α(L)=0.000178 *3*; α(M)=4.04×10^{-5} *7*; α(N+..)=4.15×10^{-5} *16* α(N)=9.96×10^{-6} *16*; α(O)=1.79×10^{-6} *3*; α(P)=1.207×10^{-7} *19*; α(IPF)=2.96×10^{-5} *16* Mult.: α(K)exp=0.0013.

† Additional information 1.

‡ Authors estimate uncertainty to be 0.3% for strong peaks, rising to twice that for weak peaks.

Based on α(K)exp and K/L values, except As noted. α(K)exp values are from relative photon and relative ce intensities normalized so that α(K)(361γ)=0.0389 (E2 theory).

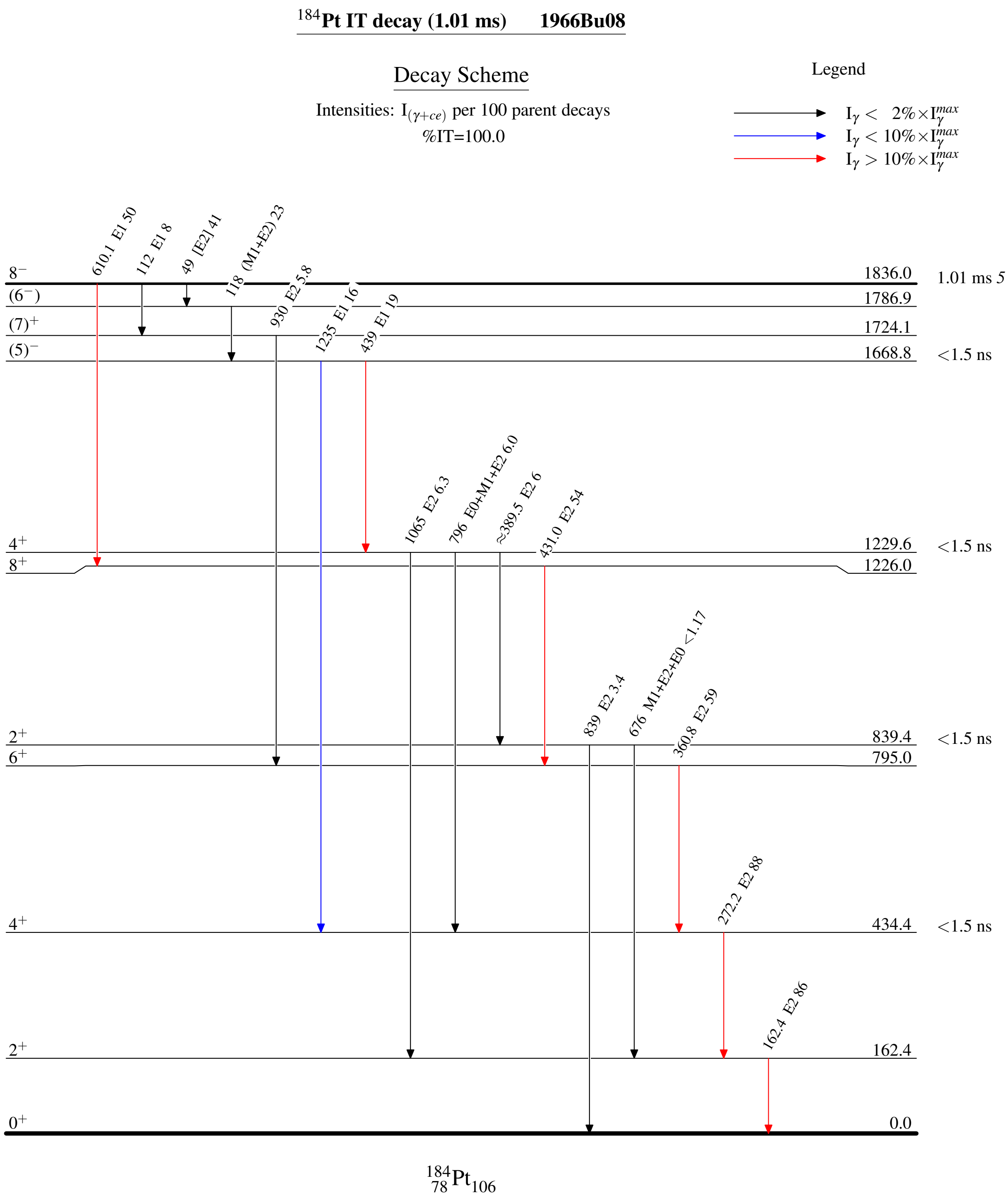
@ Calculated from authors′ values for I(γ+ce) and α(theory).

& For absolute intensity per 100 decays, multiply by 0.78 *13*.

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

[x] γ ray not placed in level scheme.

$^{184}_{78}$Pt$_{106}$-4


184Pt IT decay (1.01 ms) 1966Bu08
Decay Scheme
Intensities: I(γ+ce) per 100 parent decays
%IT=100.0
Legend
Iγ < 2%×Iγmax
Iγ < 10%×Iγmax
Iγ > 10%×Iγmax
610.1 E1 50
112 E1 8
49 [E2] 41
118 (M1+E2) 23
930 E2 5.8
1235 E1 16
439 E1 19
1065 E2 6.3
796 E0+M1+E2 6.0
≈389.5 E2 6
431.0 E2 54
839 E2 3.4
676 M1+E2+E0 <1.17
360.8 E2 59
272.2 E2 88
162.4 E2 86
8− 1836.0 1.01 ms 5
(6−) 1786.9
(7)+ 1724.1
(5)− 1668.8 <1.5 ns
4+ 1229.6 <1.5 ns
8+ 1226.0
2+ 839.4 <1.5 ns
6+ 795.0
4+ 434.4 <1.5 ns
2+ 162.4
0+ 0.0
184 78 Pt 106