^{204}Bi IT decay (1.07 ms)   1973Ra22,1974Ra25

| | History | | |
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. J. Chiara and F. G. Kondev	NDS 111,141 (2010)	1-Oct-2009

Parent: ^{204}Bi: E=2833.4 *11*; J$^\pi$=17$^+$; T$_{1/2}$=1.07 ms *3*; %IT decay=100.0

^{198}Pt(^{11}B,5nγ), ^{203}Tl(α,3nγ);Ge(Li), s ce (1973Ra22,1974Ra25); other: 1975GoZB.

^{204}Bi Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	Comments
0	6$^+$		
53.40 *20*	7$^+$		
805.5 *3*	10$^-$	13.0 ms *1*	T$_{1/2}$: From 1974Ra25.
			Configuration=((π h$_{9/2}$)(ν i$_{13/2}$)$^{-1}$).
1413.6 *4*	11$^-$		
1454.6 *11*	12$^-$		
1821.6 *11*	13$^-$		
1915.3 *11*	14$^-$		
2651.7 *11*	15$^-$		
2833.4 *11*	17$^+$	1.07 ms *3*	T$_{1/2}$: From 1974Ra25.
			Configuration=((π h$_{9/2}$)(ν f$_{5/2}$)$^{-1}$(ν i$_{13/2}$)$^{-2}$).

[†] From a least-squares fit to Eγ.

[‡] From Adopted Levels.

γ(^{204}Bi)

Iγ normalization: Assuming Ti(752.1γ)=100 %.

E$_\gamma$[‡]	I$_\gamma$[#&]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[@]	α[†]	Comments
41 *1*	3.7 *3*	1454.6	12$^-$	1413.6	11$^-$	M1	25.9 *20*	α(L)=19.8 *16*; α(M)=4.7 *4*; α(N+..)=1.47 *12*
								α(N)=1.19 *10*; α(O)=0.244 *19*; α(P)=0.0290 *23*
								Placement from Adopted Levels, gammas.
53.4 *2*	7.74 *14*	53.40	7$^+$	0	6$^+$	M1	11.92 *22*	α(L)=9.10 *17*; α(M)=2.14 *4*; α(N+..)=0.674 *12*
								α(N)=0.548 *10*; α(O)=0.1120 *20*; α(P)=0.01333 *24*
								Mult.: L:M:N+=100:71 *11*:21 *4* (1974Ra25).
93.7 *2*	8.6 *14*	1915.3	14$^-$	1821.6	13$^-$	M1+E2	10.6 *17*	α(K)=5 *5*; α(L)=4.1 *23*; α(M)=1.1 *7*; α(N+..)=0.32 *20*
								α(N)=0.27 *17*; α(O)=0.05 *3*; α(P)=0.0043 *18*
								I$_\gamma$: 10 *2* in 1973Ra22.
								Mult.: α(L)exp≈2.4 (1973Ra22).
								Placement from Adopted Levels, gammas.
181.8 *2*	≈8.1	2833.4	17$^+$	2651.7	15$^-$	M2	9.52	α(K)=6.75 *10*; α(L)=2.07 *3*; α(M)=0.524 *8*; α(N+..)=0.1663 *25*
								α(N)=0.1358 *20*; α(O)=0.0274 *4*; α(P)=0.00310 *5*
								I$_\gamma$: From Iγ(181.8γ)/Iγ(918.1γ)=0.56 in adopted gammas and Ti(181.8γ) + Ti(918.1γ)= 100. Iγ=13 *2* in 1973Ra22.
								Mult.: α(K)exp=7.2 *14* (1973Ra22).
367.0 *2*	78.9 *12*	1821.6	13$^-$	1454.6	12$^-$	M1	0.268	α(K)=0.219 *3*; α(L)=0.0376 *6*; α(M)=0.00884 *13*; α(N+..)=0.00278 *4*
								α(N)=0.00226 *4*; α(O)=0.000462 *7*; α(P)=5.50×10^{-5} *8*

Continued on next page (footnotes at end of table)

^{204}**Bi IT decay (1.07 ms)   1973Ra22,1974Ra25 (continued)**

$\gamma(^{204}\text{Bi})$ (continued)

E_γ[‡]	I_γ[#&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
608.1 *2*	93.5 *14*	1413.6	11^-	805.5	10^-	M1	0.0699	I_γ: 95 *5* in 1973Ra22. Mult.: α(K)exp=0.28 *3* (1973Ra22). α(K)=0.0573 *8*; α(L)=0.00970 *14*; α(M)=0.00227 *4*; α(N+..)=0.000715 *10* α(N)=0.000581 *9*; α(O)=0.0001189 *17*; α(P)=1.419×10^{-5} *20*
736.4 *2*	≈82.9	2651.7	15^-	1915.3	14^-	M1+E2	0.028 *15*	I_γ: 100 *5* in 1973Ra22. Mult.: α(K)exp=0.071 *7* (1973Ra22). α(K)=0.022 *13*; α(L)=0.0041 *18*; α(M)=0.0010 *4*; α(N+..)=0.00030 *13* α(N)=0.00025 *11*; α(O)=5.0×10^{-5} *22*; α(P)=6.E−6 *3*
752.1 *2*	96.8	805.5	10^-	53.40	7^+	E3	0.0326	I_γ: 91 *5* in 1973Ra22. Mult.: α(K)exp=0.037 *19* (1973Ra22). α(K)=0.0217 *3*; α(L)=0.00811 *12*; α(M)=0.00205 *3*; α(N+..)=0.000639 *9* α(N)=0.000526 *8*; α(O)=0.0001028 *15*; α(P)=1.030×10^{-5} *15* Mult.: K/LM+=2.06 *5* (1974Ra25).
918.1 *2*	≈14.5	2833.4	17^+	1915.3	14^-	E3	0.0199	α(K)=0.01428 *20*; α(L)=0.00427 *6*; α(M)=0.001064 *15*; α(N+..)=0.000332 *5* α(N)=0.000272 *4*; α(O)=5.37×10^{-5} *8*; α(P)=5.60×10^{-6} *8* I_γ: From $I\gamma(181.8\gamma)/I\gamma(918.1\gamma)$=0.56 in adopted gammas and $I\gamma(181.8\gamma)$=8.1. Mult.: From adopted gammas.

[†] Additional information 1.
[‡] From adopted gammas.
[#] From intensity balances and α(exp).
[@] From α(K)exp, α(L)exp, and sub-shell ratios in 1973Ra22 and 1974Ra25, unless otherwise specified.
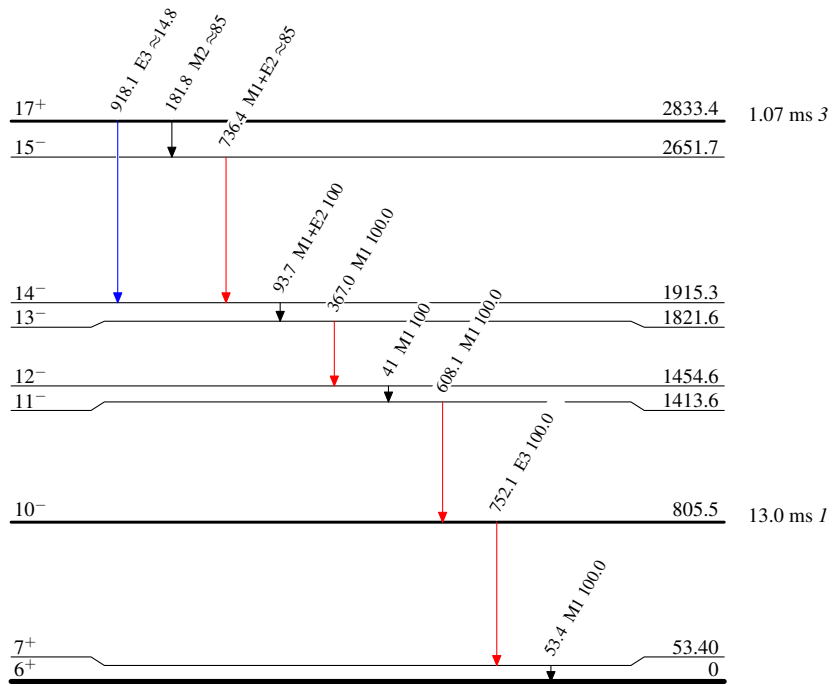[&] Absolute intensity per 100 decays.

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Decay Scheme

Intensities: I$_{(\gamma+ce)}$ per 100 parent decays
%IT=100.0

Legend

I$_\gamma <$ 2%$\times$I$_\gamma^{max}$
I$_\gamma <$ 10%$\times$I$_\gamma^{max}$
I$_\gamma >$ 10%$\times$I$_\gamma^{max}$

918.1 E3 ≈14.8
181.8 M2 ≈85
736.4 M1+E2 ≈85

17$^+$ 2833.4   1.07 ms *3*
15$^-$ 2651.7

93.7 M1+E2 100
357.0 M1 100.0

14$^-$ 1915.3
13$^-$ 1821.6

41 M1 100
608.1 M1 100.0

12$^-$ 1454.6
11$^-$ 1413.6

752.1 E3 100.0

10$^-$ 805.5   13.0 ms *1*

53.4 M1 100.0

7$^+$ 53.40
6$^+$ 0

$^{204}_{83}$Bi$_{121}$