Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 201,346 (2025)	21-Jan-2025

Q(β^-)=−1840 *9*; S(n)=7034 *9*; S(p)=3547 *8*; Q(α)=3527 *8* 2021Wa16
S(2n)=15525 *12*, S(2p)=10260 *8*, Q(ε)=3757 *8* (2021Wa16).

^{206}Bi Levels

Cross Reference (XREF) Flags

A ^{206}Po ε decay
B ^{210}At α decay
C ^{205}Tl(α,3nγ)
D ^{204}Pb(α,d)
E ^{208}Pb(^{76}Ge,Xγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0@	6$^+$	6.243 d *3*	ABCDE	%ε+%β^+=100 μ=+4.361 *8*; Q=−0.39 *4* J$^\pi$: Atomic beam (1969Fu11); μ. $T_{1/2}$: From 1961Br19 and 1962Pe08. Other: 6.3 d *6* (1959Li50). μ: LASER spectroscopy (1997Ki15,2000Pe30). Others: +4.56 *6* (1959Li50) and 4.48 *22* (1988Wo12). Note that 2019StZV gives +4.341 *8*, based on 1997Ki15. Q: LASER spectroscopy (1997Ki15,2000Pe30). Other: −0.43 *4* (1959Li50). Note that 2021StZZ gives −0.54 *4*, based on 2000Pe30. For isotope shift data see 1995Ca11 and 2000Pe30.
59.897@ *17*	4$^+$	7.7 μs *2*	AB	J$^\pi$: 59.908γ E2 to 6$^+$; non observation in ^{205}Tl(α,3nγ) and ^{208}Pb(^{76}Ge,xγ) favors 4$^+$ rather than 8$^+$. $T_{1/2}$: Weighted average of 7.6 μs *2* (1975Ka13) and 7.8 μs *3* (1957Ar61) in ^{206}Po ε decay.
70.741@ *22*	3$^+$		AB	J$^\pi$: 10.836γ M1(+E2) to 4$^+$; absence of γ-ray transition to J^π=6$^+$ favors 3$^+$ rather than 4$^+$ or 5$^+$.
82.819@ *19*	5$^+$		AB D	J$^\pi$: 82.802γ M1(+E2) to 6$^+$; non observation in ^{205}Tl(α,3nγ) and ^{208}Pb(^{76}Ge,xγ) favors 5$^+$ rather than 6$^+$ or 7$^+$.
141.2@ *5*	7$^+$		BCDE	J$^\pi$: 141.2γ M1+E2 to 6$^+$; observation in ^{205}Tl(α,3nγ) and ^{208}Pb(^{76}Ge,xγ) favors 7$^+$ rather than 5$^+$ or 6$^+$.
166.1& *9*	5$^+$		B D	XREF: D(164.0) J$^\pi$: 106γ (M1) to 4$^+$; HF in ^{210}At α decay (J^π=(5)$^+$).
200.381& *21*	4$^+$		A	J$^\pi$: 117.536γ M1(+E2) to 5$^+$; 129.644γ M1+E2 to 3$^+$.
282 *4*			B	E(level),J$^\pi$: From ^{210}At α decay.
352.691a *23*	(3,4)$^+$		AB	J$^\pi$: 292.799γ M1(+E2) to 4$^+$; 281.923γ M1(+E2) to 3$^+$.
409.17 *3*	(2)$^+$		A	J$^\pi$: 338.441γ M1(+E2) to 3$^+$.
523.211 *24*	3$^+$		A	J$^\pi$: 463.381γ M1(+E2) to 4$^+$; 866.23γ E2 from (1$^+$).
733.91 *3*	(3)$^+$		A	J$^\pi$: 324.728γ M1+E2 to (2)$^+$; 533.557γ M1(+E2) to 4$^+$.
815.8 *7*	8$^+$		C	J$^\pi$: 674.6γ M1+E2 to 7$^+$; 229.0γ M2 from 10$^-$.
878.09 *3*	2$^+$		A	J$^\pi$: 818.231γ E2 to 4$^+$; 468.983γ M1(+E2) to (2)$^+$; non observation in ^{205}Tl(α,3nγ) and ^{208}Pb(^{76}Ge,xγ) would argue against J^π=6$^+$.
897.08 *3*	(3,4)$^+$		A	J$^\pi$: 837.235γ M1(+E2) to 4$^+$; 205.936γ from 2$^+$.
931.67 *3*	1$^+$		A	J$^\pi$: 53.610γ [M1] to 2$^+$; 522.469γ M1(+E2) to (2)$^+$; 860.933γ E2 to 3$^+$.
1044.8 *7*	10$^-$	0.89 ms *1*	C E	%IT=100 μ=2.644 *14*; Q=0.049 *9* J$^\pi$: 903.6γ E3 to 7$^+$. $T_{1/2}$: From ce(t) in 1974Ra25. Other: 1.0 ms *1* using 141γ(t), 229.4γ(t) and x-ray(t) in 1973Co30. μ: From g-factor=0.2644 *14* in 1985No09, based on g-factor=0.2623 *13*

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{206}Bi Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
				(1973Sc21) using the in-beam NMR-PAC technique, but corrected for diamagnetic and Knight shifts in 1985No09. Value also recommended in 2020StZV. Q: Using the level mixing spectroscopy technique (1991Sc14,2021StZZ). Other: 0.043 *7* (1989Ra17). Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(i^{-1}_{13/2})$.
1067[#] *2*			D	
1077.87 *3*	2^+		A	J$^{\pi}$: 146.180γ M1(+E2) to 1^+; 1017.93γ E2 to 4^+.
1080.9 *7*	8^-		C	J$^{\pi}$: 939.7γ E1 to 7^+. Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(i^{-1}_{13/2})$.
1103.00 *3*	2^+		A	J$^{\pi}$: 171.340γ M1+E2 to 1^+; 1043.17γ E2 to 4^+.
1258.3	(9)		C	J$^{\pi}$: 213.5γ to 10^-; 442.5γ to (8^+).
1265.31 *4*	$(2)^+$		A	J$^{\pi}$: 162.621γ (E2) to 2^+; 1193.89γ M1(+E2) to 3^+.
1266.9 *9*	9^+		C	J$^{\pi}$: 451.1γ M1+E2 to 8^+.
1389.42[b] *3*	1^+		A	J$^{\pi}$: 457.765γ M1(+E2) to 1^+; 1318.68γ E2 to 3^+.
1523.65 *6*	1^+		A	J$^{\pi}$: 645.583γ M(+E2) to 2^+; 1452.74γ E2 to 3^+; direct feeding in ^{206}Po ε+β^+ decay ($J^{\pi}=0^+$).
1567.62 *4*	1^+		A	J$^{\pi}$: 178.203 M1(+E2) to 1^+; 1496.90γ E2 to 3^+.
1600.15 *4*	$(1)^+$		A	J$^{\pi}$: 32.532 M1+E2 to 1^+; population in ^{206}Po ε decay ($J^{\pi}=0^+$) would argue against $J^{\pi}=2^+$ assignment.
1639.6 *7*	11^-		C E	J$^{\pi}$: 594.8γ M1+E2 to 10^-.
1789.3 *7*	12^-		C E	J$^{\pi}$: 149.8γ M1+E2 to 11^-; 744.5γ E2 to 10^-.
2055.8 *7*	13^-		C E	J$^{\pi}$: 266.4γ M1(+E2) to 12^-.
2500.3 *7*	13^-		C E	J$^{\pi}$: 711.0γ M1(+E2) to 12^-.
2542[#] *5*	9^-		D	J$^{\pi}$: L(α,d)=9. Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(g^{+1}_{9/2})$.
2604.0 *7*	14^-		C E	J$^{\pi}$: 548.0γ M1+E2 to 13^-.
2838[#] *6*			D	
2860[#] *6*	$(10)^-$		D	J$^{\pi}$: L(α,d)=11. Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(i^{+1}_{11/2})$.
2951.5 *7*	(14^-)		E	J$^{\pi}$: 451.2γ to 13^-; 1161.8γ to 12^-.
3147.5 *7*	15^+	15.6 ns *3*	C E	$T_{1/2}$: Weighted average of 16.3 ns *4* (543.5γ(t)), 15.9 ns *3* (548.0γ(t)), 15.5 ns *3* (266.4γ(t)), 15.1 ns *5* (149.9γ(t)) and 14.3 ns *5* (594.6γ(t)) in 1978Lo09. configuration: $\pi(h^{+1}_{9/2})\otimes\nu(p^{-1}_{1/2},i^{-2}_{13/2})$.
3170[#] *6*	$(8)^-$		D	J$^{\pi}$: L(α,d)=7. Configuration=$\pi(f^{+1}_{7/2})\otimes\nu(g^{+1}_{9/2})$.
3568[#] *7*	$(11)^+$		D	J$^{\pi}$: L(α,d)=10. Configuration=$\pi(i^{+1}_{13/2})\otimes\nu(g^{+1}_{9/2})$.
3606.0 *7*	17^+		C E	XREF: C(3603.5) J$^{\pi}$: 458.4γ E2 to 15^+.
3632[#] *7*	(12^+)		D	J$^{\pi}$: L(α,d)=(12). Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(j^{+1}_{15/2})$.
3652.6 *7*	16^+		C E	J$^{\pi}$: 505.1γ M1+E2 to 15^+.
4023[#] *8*			D	
4076[#] *8*			D	
4307.5 *7*	18^+		C E	XREF: C(4305.2) J$^{\pi}$: 701.5γ M1+E2 to 17^+.
4687.2 *7*	(16^-)		E	J$^{\pi}$: 2083.4γ to 14^-.
4774.5 *7*	(16^-)		E	J$^{\pi}$: 1121.9γ to 16^+.
4805.0 *7*	(17^-)		E	J$^{\pi}$: 118.5γ M1 to (16^-), 1152.4γ to 16^+.
4843[#] *10*	(14^-)		D	J$^{\pi}$: L(α,d)=(13). Configuration=$\pi(i^{+1}_{13/2})\otimes\nu(j^{+1}_{15/2})$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{206}Bi Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$	XREF	Comments
4981.9 *7*	(19$^+$)		E	J$^{\pi}$: 674.5γ to 18$^+$.
4993.9 *7*	(18$^-$)		E	J$^{\pi}$: 188.6γ to (17$^-$), 1387.9γ to 17$^+$.
5096.9 *7*	(18$^-$)		E	J$^{\pi}$: 292.0γ to (17$^-$), 788.9γ to 18$^+$.
5110?[#] *10*			D	
5207.8 *7*	(19$^-$)		E	J$^{\pi}$: 213.7γ to (18$^-$).
5277.9 *7*	(18$^-$)		E	J$^{\pi}$: 970.4γ to 18$^+$.
5378.2 *7*	(18$^-$)		E	J$^{\pi}$: 1772.2γ to 17$^+$.
5402.1 *10*	(19$^-$)		E	J$^{\pi}$: 124γ to (18$^-$).
5512.2 *7*	(20$^-$)		E	J$^{\pi}$: 304.3γ to (19$^-$).
5610.0 *7*	(19$^-$)		E	J$^{\pi}$: 513.1γ to (18$^-$).
5793.0 *7*	(19$^-$)		E	J$^{\pi}$: 1485.4γ to 18$^+$.
5881.6 *7*	(19$^-$)		E	J$^{\pi}$: 503.4γ to (18$^-$).
5929.9 *7*	(21$^-$)		E	J$^{\pi}$: 417.0γ to (20$^-$).
5941.2 *7*	(20$^-$)		E	J$^{\pi}$: 331.6γ to (19$^-$).
6348.5 *7*	(20$^-$)		E	J$^{\pi}$: 466.8γ to (19$^-$).
6579.7 *8*	(19$^+$)		E	J$^{\pi}$: 1370.7γ to (19$^-$).
6746.5 *8*	(19$^+$)		E	J$^{\pi}$: 166.6γ to (19$^+$), 1234.5γ to (20$^-$).
6888.2 *7*	(20$^+$)		E	J$^{\pi}$: 1277.9γ to (19$^-$), 1906.2γ to (19$^+$), 2580.8γ to 18$^+$.
6895.0 *7*	(20$^+$)		E	J$^{\pi}$: 1102.0γ to (19$^-$), 1913.4γ to (19$^+$), 2586.6γ to 18$^+$.
6990.0 *7*	(20$^+$)		E	J$^{\pi}$: 1059.7γ to (21$^-$), 2683.3γ to 18$^+$.
7015.1 *8*	(21$^+$)		E	J$^{\pi}$: 1073.8γ (20$^-$), 1085.2γ to (21$^-$).
7125.8 *7*	(22$^+$)		E	J$^{\pi}$: 111γ to (21$^+$), 230.8γ to (20$^+$).
7201.3 *7*	(23$^+$)		E	J$^{\pi}$: 75.5γ to (22$^+$).
7678.7 *7*	(24$^+$)		E	J$^{\pi}$: 477.4γ to (23$^+$), 552.9γ E2 to (22$^+$).
7769.6 *8*			E	
8116.0 *8*			E	
8158.9 *7*	(25$^+$)		E	J$^{\pi}$: 480.2γ M1+E2 to (24$^+$).
8520.1 *8*	(26$^+$)		E	J$^{\pi}$: 361.2γ M1+E2 to (25$^+$). configuration: Likely a core-excited $\pi(h^{+1}_{9/2})\otimes\nu(i^{-3}_{13/2},p^{-1}_{1/2},g^{+1}_{9/2})$ configuration (2022Wa20).
9233.3 *8*	(28$^-$)	155 ns *15*	E	J$^{\pi}$: 713.2γ M2(+E3) to (26$^+$). $T_{1/2}$: From $\gamma\gamma$(t) in 2012Ci05, by summing time difference spectra gated by 937-keV γ ray (above the isomer) and any of the 361, 480, or 458-keV γ rays (below the isomer). configuration: Likely a core-excited $\pi(i^{+1}_{13/2})\otimes\nu(i^{-3}_{13/2},p^{-1}_{1/2},g^{+1}_{9/2})$ configuration (2022Wa20).
10170.5 *8*	(31$^+$)	27 μs *2*	E	J$^{\pi}$: 937.2 [E3] to (28$^-$). $T_{1/2}$: From γ(t) in 2022Wa20. Other: >2 μs from γ(t) in 2012Ci05. configuration: Likely a core-excited $\pi(i^{+1}_{13/2},h^{-1}_{11/2},h^{+1}_{9/2})\otimes\nu(i^{-3}_{13/2})$ configuration (2022Wa20).

[†] From a least-squares fit to Eγ, unless otherwise stated.

[‡] Specific arguments are presented in the comments. Assignments to the 4687.2-keV level and higher-lying levels from 2012Ci05 in ^{208}Pb(^{76}Ge,xγ) which are guided by shell-model calculations.

[#] From ^{204}Pb(α,d).

[@] Dominant configuration=$\pi(h^{+1}_{9/2})\otimes\nu(f^{-1}_{5/2})$.

[&] Dominant configuration=$\pi(h^{+1}_{9/2})\otimes\nu(p^{-1}_{1/2})$.

[a] Dominant configuration=$\pi(h^{+1}_{9/2})\otimes\nu(p^{-1}_{3/2})$.

[b] Dominant configuration=$\pi(f^{+1}_{7/2})\otimes\nu(f^{-1}_{5/2})$.

Adopted Levels, Gammas (continued)

γ(^{206}Bi)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
59.897	4+	59.908 *18*	100	0.0	6+	E2		72.4 *10*	α(L)=53.8 *8*; α(M)=14.25 *20* α(N)=3.62 *5*; α(O)=0.663 *9*; α(P)=0.0500 *7* B(E2)(W.u.)=0.0179 *6* Mult.: L1:L2:L3:M1:M2:M3:M4:M5:N:O=120 *5*:5290 *16*: 4870 *14*: 40.4 *36*: 1320 *40*: 1330 *30*: 19.9 *17*: 18.6 *14*:756 *31*:208 *8* (1975Ka13).
70.741	3+	10.836 *22*	100	59.897	4+	M1(+E2)	<0.0031	319 *5*	α(M)=242 *4* α(N)=62.1 *10*; α(O)=12.67 *19*; α(P)=1.506 *23* Mult.: M1:M2:M3:M4:M5:N1:N2:N3:O1:O2:P1=9400 *80*: 1050 *20*: 98 *8*:≤2.7: ≤1.9: 2300 *30*: 245 *9*:27.6 *31*:476 *16*: 32 *10*: 83 *29* (1975Ka13). Other: M1:N2:N3:O1:O23:O45P=1.00:0.0285 *11*:0.00277 *63*:0.0584 *17*: 0.00645 *47*: 0.00933 *34* (1975Ka13); N1:N2:N3:O1:O23:O45P=1.00:0.116 *4*:0.0113 *30*:0.239 *4*:0.0264 *18*:0.0381 *11* (1981Fu06) and O1:O23:O45P=1.00:0.110 *8*:0.160 *5* (1981Fu06). δ: From M2/M1=0.112 *3*, M3/M1=0.0105 *9*, N1/M1=0.245 *12* (1975Ka13) and N2/N1=0.116 *4*, N3/N1=0.0113 *30* (1981Fu06).
82.819	5+	82.802 *22*	100	0.0	6+	M1(+E2)	<0.05	3.32 *5*	α(L)=2.54 *4*; α(M)=0.598 *9* α(N)=0.1529 *23*; α(O)=0.0312 *5*; α(P)=0.00371 *5* Mult.: L1:L2:M:N:O=54.4 *25*: 5.5 *5*: 18.9 *17*: 2.3 *8*: 1.9 *13* (1975Ka13). δ: From L2/L1=0.101 *10* (1975Ka13).
141.2	7+	141.2[‡] *5*	100[‡]	0.0	6+	M1+E2	−0.13 *3*	3.77 *7*	α(K)=3.05 *6*; α(L)=0.549 *10*; α(M)=0.1297 *25* α(N)=0.0332 *6*; α(O)=0.00676 *13*; α(P)=0.000796 *14* Mult.,δ: A_2=−0.02 *3*, A_4=0.02 *7* (1978Lo09); Others: K/L=5.4 *5* (1974Ra25); α(exp)>3.3 (1973Co30).
166.1	5+	106[#] *1*	100[#] *20*	59.897	4+	(M1)		8.63 *27*	α(K)=7.01 *22*; α(L)=1.24 *4*; α(M)=0.291 *9* α(N)=0.0744 *23*; α(O)=0.0152 *5*; α(P)=0.00181 *6* Mult.: From intensity balance determined in αγ coincidences (1975Ja09).
		167[#] *2*	64[#] *13*	0.0	6+	(M1)		2.37 *9*	α(K)=1.93 *7*; α(L)=0.336 *13*; α(M)=0.0791 *30* α(N)=0.0202 *8*; α(O)=0.00413 *16*; α(P)=0.000492 *18* Mult.: From intensity balance determined in αγ coincidences (1975Ja09).
200.381	4+	117.536 *28*	92 *14*	82.819	5+	M1(+E2)	0.11 *11*	6.39 *14*	α(K)=5.16 *18*; α(L)=0.93 *5*; α(M)=0.220 *13* α(N)=0.0564 *33*; α(O)=0.0115 *6*; α(P)=0.001352 *33* Mult.: K:L1:L2:M:N:O=101 *29*: 18.2 *7*: 2.04 *17*: 3.91 *22*: 11.1 *3*: 0.43 *16*; α(K)exp=5.0 *+9−7* (1975Ka13). δ: From L1/K=0.18 *5*, L2/K=0.020 *6* and M/K=0.039 *11* (1975Ka13).
		129.644 *22*	25 *4*	70.741	3+	M1+E2	0.26 *+4−5*	4.69 *9*	α(K)=3.72 *9*; α(L)=0.738 *18*; α(M)=0.176 *5*

$^{206}_{83}Bi_{123}$-4

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=0.0451 *13*; α(O)=0.00909 *23*; α(P)=0.001036 *16* Mult.: K:L1:L2:L3:M:N=26 *3*: 6.0 *3*: 0.77 *7*: 0.16 *7*: 0.79 *11*: 0.37 *12*; α(K)exp=4.7 *+15−11* (1975Ka13). δ: From L1/K=0.231 *29* and L2/K=0.0296 *24* (1975Ka13).
200.381	4^+	140.486 *28*	100 *22*	59.897	4^+	M1(+E2)	<0.07	3.86 *5*	α(K)=3.14 *4*; α(L)=0.551 *8*; α(M)=0.1297 *18* α(N)=0.0332 *5*; α(O)=0.00678 *10*; α(P)=0.000806 *11* Mult.: K:L1:L2:L3:M=78 *5*: 10.5 *5*: 1.19 *12*: 0.21 *7*: 2.81 *18*; α(K)exp=3.6 *+12−7* (1975Ka13). δ: From L1/K=0.135 *11* and L2/K=0.0153 *18* (1975Ka13).
352.691	$(3,4)^+$	152.308 *50*	5.2 *8*	200.381	4^+	M1(+E2)	<0.17	3.05 *5*	α(K)=2.47 *5*; α(L)=0.440 *7*; α(M)=0.1039 *18* α(N)=0.0266 *5*; α(O)=0.00542 *9*; α(P)=0.000640 *9* Mult.,δ: K:L1:L2=18 *3*: 3.1 *3*: 0.29 *9* (1975Ka13).
		281.923 *23*	100 *3*	70.741	3^+	M1(+E2)	<0.10	0.548 *8*	α(K)=0.447 *7*; α(L)=0.0775 *11*; α(M)=0.01821 *26* α(N)=0.00466 *7*; α(O)=0.000951 *13*; α(P)=0.0001132 *16* Mult.: K:L1:L2:M:N=62.9 *18*: 11.5 *6*: 1.2 *4*: 1.29 *12*: 0.26 *10*; α(K)exp=0.49 *3* (1975Ka13). δ: From L1/K=0.183*11*, L2/K=0.0205 *20* and α(K)exp=0.49 *3* (1975Ka13).
		292.799 *30*	5.1 *3*	59.897	4^+	M1(+E2)	<0.4	0.471 *26*	α(K)=0.381 *24*; α(L)=0.0682 *20*; α(M)=0.0161 *4* α(N)=0.00411 *10*; α(O)=0.000838 *24*; α(P)=9.9×10^{-5} *4* Mult.,δ: K:L1:M=3.46 *24*: 0.70 *8*: 0.12 *5*; α(K)exp=0.53 *+8−7* (1975Ka13).
409.17	$(2)^+$	338.441 *34*	100	70.741	3^+	M1(+E2)	−0.01 *8*	0.334 *5*	α(K)=0.273 *4*; α(L)=0.0470 *7*; α(M)=0.01103 *16* α(N)=0.00282 *4*; α(O)=0.000576 *8*; α(P)=6.87×10^{-5} *10* Mult.: K:L1:L2:L3:M:N:O=819 *21*: 135 *5*: 15.0 *22*: 0.78 *9*: 34.2 *13*: 10.3 *5*: 4.15 *21*; α(K)exp=0.280 *+13−12* (1975Ka13). δ: From $\gamma\gamma(\theta)$ in 1981El07. Other: δ=0.13 *18* from L1/K=0.165 *7*, L2/K=0.0183 *27*, M/K=0.0418 *19* and α(K)exp=0.53 *8* (1975Ka13).
523.211	3^+	170.501 *21*	17.7 *17*	352.691	$(3,4)^+$	M1(+E2)	<0.14	2.219 *34*	α(K)=1.803 *29*; α(L)=0.318 *5*; α(M)=0.0749 *11* α(N)=0.01916 *28*; α(O)=0.00391 *6*; α(P)=0.000464 *7* Mult.: K:L1:L2:M:N:O=74.5 *23*: 11.6 *5*: 1.20 *19*: 2.46 *20*: 0.39 *10*: 0.20 *9*; α(K)exp=1.5 *+3−2* (1975Ka13). δ: From L1/K=0.156 *8*, L2/K=0.0161 *26*, M/K=0.0330 *29* and α(K)exp=1.5 *+3−2* (1975Ka13).
		322.809 *33*	6.8 *4*	200.381	4^+	M1(+E2)	<0.5	0.352 *29*	α(K)=0.285 *26*; α(L)=0.0512 *24*; α(M)=0.0121 *5* α(N)=0.00309 *13*; α(O)=0.000629 *28*; α(P)=7.4×10^{-5} *4* Mult.,δ: K:L1:M=6.0 *3*: 0.95 *9*: 0.21 *8*; α(K)exp=0.32 *+4−3* (1975Ka13).
		452.472 *48*	18.00 *8*	70.741	3^+	M1(+E2)	<0.26	0.149 *4*	α(K)=0.122 *4*; α(L)=0.0210 *5*; α(M)=0.00493 *11*

$^{206}_{83}Bi_{123}$-5

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=0.001261 *28*; α(O)=0.000257 *6*; α(P)=3.06×10^{-5} *8*
523.211	3$^+$	463.381 *48*	100 *4*	59.897	4$^+$	M1(+E2)	<0.27	0.140 *4*	Mult.,δ: K:L1=6.5 *3*: 1.34 *9*; α(K)exp=0.133 *12* (1975Ka13). α(K)=0.1142 *35*; α(L)=0.0197 *5*; α(M)=0.00462 *11* α(N)=0.001181 *27*; α(O)=0.000241 *6*; α(P)=2.87×10^{-5} *7* Mult.: K:L1:M:N=33.4 *12*: 6.4 *3* :1.81 *10*: 0.42 *6*; α(K)exp=0.122 *10* (1975Ka13). δ: From L1/K=0.192 *11* and α(K)exp=0.122 *10* (1975Ka13).
733.91	(3)$^+$	210.672 *51*	23 *8*	523.211	3$^+$	M1(+E2)	<0.4	1.17 *6*	α(K)=0.95 *6*; α(L)=0.1742 *25*; α(M)=0.0413 *6* α(N)=0.01055 *16*; α(O)=0.002143 *30*; α(P)=0.000250 *7* Mult.,δ: α(K)exp=1.0 *+8−4* (1975Ka13).
		324.728 *40*	55 *4*	409.17	(2)$^+$	M1+E2	0.53 *20*	0.31 *4*	α(K)=0.250 *32*; α(L)=0.0477 *29*; α(M)=0.0114 *6* α(N)=0.00290 *16*; α(O)=0.000587 *35*; α(P)=6.7×10^{-5} *6* Mult.,δ: From α(K)exp=0.25 *3* (1975Ka13).
		381.220 *41*	100 *6*	352.691	(3,4)$^+$	M1(+E2)	<0.4	0.230 *13*	α(K)=0.187 *11*; α(L)=0.0328 *13*; α(M)=0.00772 *27* α(N)=0.00197 *7*; α(O)=0.000402 *15*; α(P)=4.76×10^{-5} *22* Mult.: K:L1:N=5.7 *3*: 1.09 *9*: 0.08 *3*; α(K)exp=0.21 *3* (1975Ka13). δ: From L1/K=0.191 *19* and α(K)exp=0.21 *3* (1975Ka13).
		533.557 *63*	48 *4*	200.381	4$^+$	M1(+E2)	<0.29	0.0959 *31*	α(K)=0.0783 *26*; α(L)=0.0134 *4*; α(M)=0.00315 *8* α(N)=0.000806 *21*; α(O)=0.000165 *4*; α(P)=1.96×10^{-5} *6* Mult.,δ: From α(K)exp=0.105 *+16−13* (1975Ka13).
815.8	8$^+$	674.6[‡] *5*	100[‡]	141.2	7$^+$	M1+E2	0.08 *3*	0.0531 *8*	α(K)=0.0435 *6*; α(L)=0.00735 *11*; α(M)=0.001721 *25* α(N)=0.000440 *6*; α(O)=9.00×10^{-5} *13*; α(P)=1.074×10^{-5} *16* Mult.: K/L=4.7 *3* and $\gamma(\theta)$ in ^{205}Tl(α,3nγ). δ: From $\gamma(\theta)$ in ^{205}Tl(α,3nγ).
878.09	2$^+$	144.166 *28*	0.24 *4*	733.91	(3)$^+$	M1(+E2)	<0.44	3.42 *18*	α(K)=2.71 *21*; α(L)=0.540 *30*; α(M)=0.129 *9* α(N)=0.0330 *23*; α(O)=0.0067 *4*; α(P)=0.000757 *14* Mult.: K:L1=24 *12*: 2.36 *17*; α(K)exp=2.9 *+4−3* (1975Ka13). δ: From α(K)exp=2.9 *+4−3* (1975Ka13).
		354.866 *37*	1.74 *7*	523.211	3$^+$	M1(+E2)	<0.25	0.287 *8*	α(K)=0.234 *7*; α(L)=0.0407 *8*; α(M)=0.00957 *18* α(N)=0.00245 *5*; α(O)=0.000500 *10*; α(P)=5.93×10^{-5} *13* Mult.: K:M=15.3 *6*: 0.47 *6*; α(K)exp=0.254 *+21−19* (1975Ka13). δ: From α(K)exp=0.254 *+21−19* (1975Ka13).
		468.983 *52*	1.14 *5*	409.17	(2)$^+$	M1(+E2)	<0.28	0.135 *4*	α(K)=0.110 *4*; α(L)=0.0190 *5*; α(M)=0.00446 *11* α(N)=0.001141 *28*; α(O)=0.000233 *6*; α(P)=2.77×10^{-5} *8* Mult.: K:L1:M:N=5.0 *3*: 1.07 *8*: 0.28 *4*: 0.063 *23*; α(K)exp=0.127 *+13−9* (1975Ka13). δ: From M/K=0.056 *9* and α(K)exp=0.127 *+13−9* (1975Ka13).
		677.709 *73*	6.49 *26*	200.381	4$^+$	E2		0.01543 *22*	α(K)=0.01161 *16*; α(L)=0.00289 *4*; α(M)=0.000707 *10*

$^{206}_{83}Bi_{123}$-6

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=0.0001804 *25*; α(O)=3.56×10^{-5} *5*; α(P)=3.74×10^{-6} *5* Mult.: K:L1:L2:M=2.82 *13*: 0.69 *5*: 0.31 *3*: 0.193 *25*; α(K)exp=0.0126 *11* (1975Ka13).
878.09	2$^+$	807.385 *82*	100 *2*	70.741	3$^+$	M1(+E2)	<0.23	0.0328 *7*	α(K)=0.0269 *6*; α(L)=0.00453 *9*; α(M)=0.001061 *22* α(N)=0.000271 *6*; α(O)=5.55×10^{-5} *12*; α(P)=6.62×10^{-6} *14* Mult.: K:L:M=100 *3*: 19.9 *7*: 5.06 *19*; α(K)exp=0.0289 *+15−14* (1975Ka13). δ: From L/K=0.199 *9* and α(K)exp=0.0289 *+15−14* (1975Ka13); Other: −0.056<δ<0.210 from $\gamma\gamma(\theta)$ in 1981El07.
		818.231 *84*	4.60 *18*	59.897	4$^+$	E2		0.01042 *15*	α(K)=0.00808 *11*; α(L)=0.001777 *25*; α(M)=0.000430 *6* α(N)=0.0001096 *15*; α(O)=2.181×10^{-5} *31*; α(P)=2.364×10^{-6} *33* Mult.: K:M=1.38 *7*: 0.085 *9*; α(K)exp=0.0086 *+8−7* (1975Ka13).
897.08	(3,4)$^+$	544.393 *70*	24 *9*	352.691	(3,4)$^+$	M1(+E2)	<1.1	0.075 *19*	α(K)=0.061 *16*; α(L)=0.0109 *21*; α(M)=0.0026 *5* α(N)=0.00066 *12*; α(O)=0.000134 *26*; α(P)=1.57×10^{-5} *34*
		826.442 *94*	<100	70.741	3$^+$				
		837.235 *87*	66 *5*	59.897	4$^+$	M1(+E2)	<0.4	0.0290 *15*	α(K)=0.0237 *12*; α(L)=0.00401 *18*; α(M)=0.00094 *4* α(N)=0.000240 *11*; α(O)=4.91×10^{-5} *22*; α(P)=5.85×10^{-6} *28*
931.67	1$^+$	53.610 *43*	0.10 *1*	878.09	2$^+$	[M1]		11.78 *17*	α(L)=9.00 *13*; α(M)=2.119 *30* α(N)=0.542 *8*; α(O)=0.1107 *16*; α(P)=0.01318 *19*
		522.469 *52*	100 *2*	409.17	(2)$^+$	M1(+E2)	−0.16 *+8−11*	0.1024 *27*	α(K)=0.0837 *23*; α(L)=0.01432 *32*; α(M)=0.00336 *7* α(N)=0.000859 *19*; α(O)=0.000176 *4*; α(P)=2.09×10^{-5} *5* Mult.: K:L1:L2:L3:M:N=214 *6*: 37.1 *13*: 3.87 *24*: 0.26 *3*: 10.2 *4*: 2.72 *20*; α(K)exp=0.089 *4* (1975Ka13). δ: From δ=−0.16 *6* using $\gamma\gamma(\theta)$ in 1981El07 and L1/K=0.173 *8*, L2/K=0.0181 *12*, L3/K=0.00121 *14*, M/K=0.0477 *23*, N/K=0.0127 *10* and α(K)exp=0.089 *4* (1975Ka13). Sign is from 1981El07.
		860.933 *89*	22.5 *9*	70.741	3$^+$	E2		0.00940 *13*	α(K)=0.00734 *10*; α(L)=0.001569 *22*; α(M)=0.000378 *5* α(N)=9.65×10^{-5} *14*; α(O)=1.923×10^{-5} *27*; α(P)=2.101×10^{-6} *29*

$^{206}_{83}Bi_{123}$-7

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									Mult.: K:L1:L2:M:N=4.36 *17*: 0.91 *4*: 0.049 *7*: 0.329 *22*: 0.077 *10*; α(K)exp=0.0081 *+7−6* (1975Ka13).
1044.8	10^-	229.0[‡] *5*	100[‡]	815.8	8^+	M2		4.26 *7*	α(K)=3.11 *5*; α(L)=0.863 *14*; α(M)=0.2159 *35* α(N)=0.0558 *9*; α(O)=0.01129 *18*; α(P)=0.001287 *21* B(M2)(W.u.)=2.63×10^{-4} *11* Mult.: K/L=3.5 1 and K/(L+M)=2.79 9 (1974Ra25).
		903.6[‡] *5*	75[‡]	141.2	7^+	E3		0.02072 *29*	B(E3)(W.u.)=1.37×10^{-4} *34* α(K)=0.01476 *21*; α(L)=0.00448 *6*; α(M)=0.001119 *16* α(N)=0.000286 *4*; α(O)=5.64×10^{-5} *8*; α(P)=5.87×10^{-6} *8* Mult.: K/LM=2.9 *2* (1974Ra25); α(K)exp=0.011 *3* (1978Lo09).
1077.87	2^+	146.180 *26*	3.6 *10*	931.67	1^+	M1(+E2)	<0.11	3.44 *5*	α(K)=2.79 *4*; α(L)=0.493 *7*; α(M)=0.1161 *17* α(N)=0.0297 *4*; α(O)=0.00606 *9*; α(P)=0.000719 *10* Mult.,δ: K:L1:L2=41 *3*: 5.7 *3*: 0.65 *9*: α(K)exp=2.5 *+9−6* (1975Ka13).
		180.791 *19*	3.3 *4*	897.08	$(3,4)^+$	M1+E2	0.33 *29*	1.77 *23*	α(K)=1.41 *24*; α(L)=0.274 *10*; α(M)=0.065 *4* α(N)=0.0167 *10*; α(O)=0.00337 *14*; α(P)=0.000386 *13* Mult.: K:L1:L2=21.5 *11*: 3.33 *23*: 0.35 *12*; α(K)exp=1.41 *+24−13* (1975Ka13). δ: From L1/K=0.155 *13* and α(K)exp=1.41 *+24−13* (1975Ka13).
		343.968 *41*	1.9 *6*	733.91	$(3)^+$	M1		0.320 *4*	α(K)=0.261 *4*; α(L)=0.0449 *6*; α(M)=0.01055 *15* α(N)=0.00270 *4*; α(O)=0.000551 *8*; α(P)=6.57×10^{-5} *9* Mult.: α(K)exp=0.21 *+12−6* (1975Ka13).
		554.636 *56*	51 *2*	523.211	3^+	M1(+E2)	<0.25	0.0872 *23*	α(K)=0.0713 *19*; α(L)=0.01217 *27*; α(M)=0.00286 *6* α(N)=0.000730 *16*; α(O)=0.0001492 *33*; α(P)=1.78×10^{-5} *4* Mult.: K:L1:M:N=19.4 *7*: 3.27 *15*: 0.75 *5*: 0.083 *22*; α(K)exp=0.0817 *+64−59* (1975Ka13). δ: From L1/K=0.169 *10*, M/K=0.0387 *29* and α(K)exp=0.0817 *+64−59* (1975Ka13).
		668.750 *71*	28.0 *11*	409.17	$(2)^+$	M1+E2	0.271 *22*	0.0519 *8*	α(K)=0.0424 *7*; α(L)=0.00724 *11*; α(M)=0.001697 *26* α(N)=0.000434 *7*; α(O)=8.86×10^{-5} *14*; α(P)=1.055×10^{-5} *17* Mult.,δ: K:L=5.80 *24*: 1.16 *7*; α(K)exp=0.0443 *+38−34* (1975Ka13).
		877.9	0.67 *10*	200.381	4^+				
		1007.146 *97*	100 *4*	70.741	3^+	M1(+E2)	<0.19	0.01866 *33*	α(K)=0.01532 *28*; α(L)=0.00256 *4*; α(M)=0.000599 *10* α(N)=0.0001531 *26*; α(O)=3.13×10^{-5} *5*; α(P)=3.74×10^{-6} *7* Mult.: K:L=8.5 *3*: 1.5 *7*; α(K)exp=0.0181 *14* (1975Ka13). δ: From α(K)exp=0.0181 *14* (1975Ka13); Other: 0.105≤δ<0.447 from $\gamma\gamma(\theta)$ in 1981El07.
		1017.93 *13*	12 *4*	59.897	4^+	E2		0.00676 *9*	α(K)=0.00537 *8*; α(L)=0.001058 *15*; α(M)=0.0002528 *35*

$^{206}_{83}Bi_{123}$-8

Adopted Levels, Gammas (continued)

γ(^{206}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=6.45×10^{-5} *9*; α(O)=1.294×10^{-5} *18*; α(P)=1.445×10^{-6} *20* Mult.: α(K)exp=0.0054 *+28−15* (1975Ka13).
1080.9	8$^-$	939.7[‡] *5*	100[‡]	141.2	7$^+$	E1+M2	0.04 *3*	0.00300 *18*	α(K)=0.00249 *14*; α(L)=0.000388 *27*; α(M)=9.0×10^{-5} *6* α(N)=2.29×10^{-5} *16*; α(O)=4.65×10^{-6} *33*; α(P)=5.5×10^{-7} *4* Mult.: A_2=−0.20 *3*, A_4=−0.01 *7* and α(K)exp=0.0034 *30* (1978Lo09).
1103.00	2$^+$	171.340 *24*	0.30 *3*	931.67	1$^+$	M1+E2	0.36 *+16−27*	2.04 *15*	α(K)=1.61 *17*; α(L)=0.324 *11*; α(M)=0.077 *4* α(N)=0.0198 *9*; α(O)=0.00399 *14*; α(P)=0.000452 *8* Mult.: K:L1:L2:M:O=22.3 *9*: 4.8 *3*: 0.50 *21*: 1.02 *12*: 0.10 *7*; α(K)exp=1.52 *+19−15* (1975Ka13). δ: From L1/K=0.215 *16*, M/K=0.046 *6* and α(K)exp=1.52 *+19−15* (1975Ka13).
		205.936 *50*		897.08	(3,4)$^+$				
		224.853 *43*	0.08 *5*	878.09	2$^+$	M1+E2	1.92 *+28−22*	0.456 *32*	α(K)=0.280 *31*; α(L)=0.1319 *20*; α(M)=0.0337 *5* α(N)=0.00859 *12*; α(O)=0.001640 *24*; α(P)=0.000150 *4* Mult.,δ: α(K)exp=0.28 (1975Ka13).
		369.077 *37*	0.52 *3*	733.91	(3)$^+$	M1(+E2)	<0.20	0.260 *5*	α(K)=0.212 *4*; α(L)=0.0367 *6*; α(M)=0.00863 *14* α(N)=0.00221 *4*; α(O)=0.000451 *8*; α(P)=5.36×10^{-5} *10* Mult.,δ: K:L1=7.4 *4*:0.94 *8*; α(K)exp=0.278 *+32−28* (1975Ka13).
		579.778 *60*	3.21 *13*	523.211	3$^+$	M1(+E2)	<0.4	0.075 *4*	α(K)=0.0615 *35*; α(L)=0.0106 *5*; α(M)=0.00248 *11* α(N)=0.000634 *28*; α(O)=0.000129 *6*; α(P)=1.54×10^{-5} *8* Mult.,δ: K:L:M=11.3 *4*: 1.93 *10*: 0.61 *5*; α(K)exp=0.0701 *+55−51* (1975Ka13).
		693.812 *75*	0.62 *3*	409.17	(2)$^+$	M1(+E2)	<0.48	0.0463 *33*	α(K)=0.0378 *28*; α(L)=0.0065 *4*; α(M)=0.00152 *9* α(N)=0.000388 *23*; α(O)=7.9×10^{-5} *5*; α(P)=9.4×10^{-6} *6* Mult.,δ: K:L=1.24 *7*: 0.23 *3*; α(K)exp=0.0397 *+48−42* (1975Ka13).
		902.531 *91*	0.75 *3*	200.381	4$^+$	E2		0.00856 *12*	α(K)=0.00672 *9*; α(L)=0.001400 *20*; α(M)=0.000337 *5* α(N)=8.59×10^{-5} *12*; α(O)=1.716×10^{-5} *24*; α(P)=1.887×10^{-6} *26* Mult.: K:L:M=0.24 *4*: 0.09 *3*: 0.026 *7* (1975Ka13).
		1032.26 *10*	100.0 *21*	70.741	3$^+$	M1(+E2)	<0.35	0.0171 *7*	α(K)=0.0140 *5*; α(L)=0.00235 *8*; α(M)=0.000550 *19* α(N)=0.000141 *5*; α(O)=2.87×10^{-5} *10*; α(P)=3.43×10^{-6} *13* Mult.,δ: K:L:M:N=80.4 *24*: 15.4 *6*: 3.82 *14*: 1.15 *15*; α(K)exp=0.016 *9* (1975Ka13); Other: −0.076<δ<−0.027 from γγ(θ) in 1981El07.
		1043.17 *13*	0.88 *3*	59.897	4$^+$	E2		0.00645 *9*	α(K)=0.00513 *7*; α(L)=0.001001 *14*; α(M)=0.0002389 *33*

$^{206}_{83}Bi_{123}$-9

Adopted Levels, Gammas (continued)

γ(^{206}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=6.10×10^{-5} *9*; α(O)=1.224×10^{-5} *17*; α(P)=1.371×10^{-6} *19* Mult.: K:L=0.231 *17*: 0.021 *3*; α(K)exp=0.00526 *+61−57* (1975Ka13).
1258.3	(9)	213.5[‡b] *10*	100[‡]	1044.8	10$^-$				
		442.5[‡b] *10*	75[‡]	815.8	8$^+$				
1265.31	(2)$^+$	162.31[b] *5*	100 *15*	1103.00	2$^+$	(E2)		0.950 *13*	α(K)=0.262 *4*; α(L)=0.512 *7*; α(M)=0.1352 *19* α(N)=0.0344 *5*; α(O)=0.00639 *9*; α(P)=0.000510 *7* E_γ: From a level-energy difference. Eγ=162.621 keV *30* in 1975Ka13. Mult.: K:L1=4.8 *6*:0.69 *29* (1975Ka13).
		1194.57[b] *5*	38 *8*	70.741	3$^+$	M1(+E2)		0.009 *4*	α(K)=0.0070 *30*; α(L)=0.0012 *5*; α(M)=2.8×10^{-4} *11* α(N)=7.2×10^{-5} *27*; α(O)=1.5×10^{-5} *6*; α(P)=1.7×10^{-6} *7*; α(IPF)=4.7×10^{-6} *14* E_γ: From a level-energy difference. Eγ=1193.89 keV *16* in 1975Ka13. Mult.: α(K)exp=0.017 *+8−5* (1975Ka13).
1266.9	9$^+$	451.1[‡] *5*	100[‡]	815.8	8$^+$	M1+E2	0.15 *3*	0.1516 *24*	α(K)=0.1238 *20*; α(L)=0.02128 *32*; α(M)=0.00500 *8* α(N)=0.001277 *19*; α(O)=0.000261 *4*; α(P)=3.11×10^{-5} *5* Mult.,δ: From γ(θ) in ^{205}Tl(α,3nγ).
1389.42	1$^+$	124.11[b] *5*	0.15 *4*	1265.31	(2)$^+$	(E2)		2.69 *4*	α(K)=0.415 *6*; α(L)=1.688 *24*; α(M)=0.448 *6* α(N)=0.1139 *16*; α(O)=0.02103 *30*; α(P)=0.001638 *23* E_γ: From a level energy difference. Eγ=124.669 keV *43* in 1975Ka13. Mult.: K:L1:L2=2.52 *58*:0.44 *9*:0.35 *19* (1975Ka13).
		286.410 *26*	99.1 *19*	1103.00	2$^+$	M1(+E2)	<0.06	0.526 *7*	α(K)=0.429 *6*; α(L)=0.0742 *10*; α(M)=0.01744 *24* α(N)=0.00446 *6*; α(O)=0.000912 *13*; α(P)=0.0001085 *15* Mult.,δ: K:L1:L2:L3:M:N:O=1630 *40*: 286 *14*: 32 *4*: 1.64 *12*: 64.5 *23*: 17.3 *7*: 3.01 *17*; α(K)exp=0.464 *+22−18* (1975Ka13). δ: Other: −0.077<δ<0.077 from γγ(θ) in 1981El07.
		311.558 *30*	17.6 *4*	1077.87	2$^+$	M1(+E2)	<0.16	0.415 *7*	α(K)=0.338 *6*; α(L)=0.0586 *9*; α(M)=0.01378 *20* α(N)=0.00352 *5*; α(O)=0.000720 *11*; α(P)=8.56×10^{-5} *13* Mult.: K:L1:L2:L3:M:N:O=224 *7*: 39.4 *15*: 4.2 *3*: 0.25 *5*: 9.5 *4*: 2.6 *3*: 0.51 *6*; α(K)exp=0.346 *+19−18* (1975Ka13). δ: From L2/K=0.0188 *15*, L3/K=0.00112 *23*, M/K=0.0424 *22*, N/K=0.0116 *14*, O/K=0.00228 *28* and α(K)exp=0.346 *+19−18* (1975Ka13); Other: −0.070<δ<0.170 from γγ(θ) in 1981El07.
		457.765 *49*	0.64 *4*	931.67	1$^+$	M1(+E2)	<0.4	0.141 *8*	α(K)=0.115 *7*; α(L)=0.0199 *8*; α(M)=0.00468 *19* α(N)=0.00120 *5*; α(O)=0.000244 *10*; α(P)=2.89×10^{-5} *14*

$^{206}_{83}Bi_{123}$-10

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									Mult.: K:L1:M=2.95 *17*: 0.66 *6*: 0.20 *6*; α(K)exp=0.125 *15* (1975Ka13).
									δ: From α(K)exp=0.125 *15* (1975Ka13).
1389.42	1+	511.359 *52*	100.0 *19*	878.09	2+	M1(+E2)	<0.20	0.1089 *22*	α(K)=0.0890 *18*; α(L)=0.01522 *27*; α(M)=0.00357 *6* α(N)=0.000913 *16*; α(O)=0.0001866 *33*; α(P)=2.22×10^{-5} *4* Mult.: K:L1:L2:L3:M:N=336 *9*: 60.1 *19*: 6.07 *24*: 0.36 *5*: 15.7 *6*: 4.99 *21*; α(K)exp=0.0916 *+43−41* (1975Ka13). δ: From L1/K=0.179 *7*, L3/K=0.00107 *15*, M/K=0.0467 *22*, N/K=0.0149 *8*, and α(K)exp=0.346 *+19−18* (1975Ka13); Other: −0.152<δ<0.152 from $\gamma\gamma(\theta)$ in 1981El07.
		866.22 *10*	0.15 *1*	523.211	3+	E2		0.00929 *13*	α(K)=0.00725 *10*; α(L)=0.001545 *22*; α(M)=0.000372 *5* α(N)=9.50×10^{-5} *13*; α(O)=1.895×10^{-5} *27*; α(P)=2.072×10^{-6} *29* Mult.: α(K)exp=0.0087 *+29−24* (1975Ka13).
		980.225 *92*	29.4 *6*	409.17	(2)+	M1+E2	0.34 *+14−16*	0.0189 *11*	α(K)=0.0155 *9*; α(L)=0.00261 *14*; α(M)=0.000610 *32* α(N)=0.000156 *8*; α(O)=3.19×10^{-5} *17*; α(P)=3.80×10^{-6} *21* Mult.: K:L:M:N=17.2 *6*: 3.06 *12*: 0.75 *3*: 0.230 *16*; α(K)exp=0.0159 *9* (1975Ka13). δ: From L/K=0.178 *8* and α(K)exp=0.0159 *9* (1975Ka13), and δ=0.38*15* using $\gamma\gamma(\theta)$ in 1981El07.
		1318.68 *13*	2.7 *1*	70.741	3+	E2		0.00415 *6*	δ: from $\gamma\gamma(\theta)$ (1981El07). α(K)=0.00335 *5*; α(L)=0.000601 *8*; α(M)=0.0001420 *20* α(N)=3.62×10^{-5} *5*; α(O)=7.32×10^{-6} *10*; α(P)=8.39×10^{-7} *12*; α(IPF)=1.840×10^{-5} *26* Mult.: K:L=0.328 *23*: 0.065 *6*; α(K)exp=0.00331 *+42−38* (1975Ka13).
1523.65	1+	591.8	12.7 *16*	931.67	1+	[M1,E2]		0.048 *27*	α(K)=0.038 *23*; α(L)=0.0073 *31*; α(M)=0.0017 *7* α(N)=4.5×10^{-4} *18*; α(O)=9; α(P)=1.0×10^{-5} *5*
		645.583 *67*	100 *4*	878.09	2+	M1(+E2)	<0.25	0.0585 *15*	α(K)=0.0479 *13*; α(L)=0.00814 *19*; α(M)=0.00191 *4* α(N)=0.000488 *11*; α(O)=9.97×10^{-5} *23*; α(P)=1.188×10^{-5} *29* Mult.,δ: K:L=3.01 *14*: 0.65 *5*; α(K)exp=0.0561 *+50−46* (1975Ka13).
		1114.49 *14*	84 *5*	409.17	(2)+	M1(+E2)	<0.4	0.0139 *6*	α(K)=0.0114 *5*; α(L)=0.00191 *8*; α(M)=0.000447 *19* α(N)=0.000114 *5*; α(O)=2.34×10^{-5} *10*; α(P)=2.79×10^{-6} *12*; α(IPF)=4.82×10^{-7} *18* Mult.,δ: K:L=0.58 *4*: 0.103 *22*; α(K)exp=0.0124 *13* (1975Ka13).
		1452.74 *15*	16.5 *10*	70.741	3+	E2		0.00350 *5*	α(K)=0.00281 *4*; α(L)=0.000491 *7*; α(M)=0.0001157 *16* α(N)=2.95×10^{-5} *4*; α(O)=5.98×10^{-6} *8*; α(P)=6.91×10^{-7} *10*; α(IPF)=4.93×10^{-5} *7* Mult.: α(K)exp=0.00316 *+77−69* (1975Ka13).

$^{206}_{83}Bi_{123}$-11

Adopted Levels, Gammas (continued)

γ(^{206}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
1567.62	1+	178.203 *20*	17 *4*	1389.42	1+	M1(+E2)	<0.5	1.84 *13*	α(K)=1.47 *14*; α(L)=0.286 *7*; α(M)=0.0683 *26* α(N)=0.0175 *7*; α(O)=0.00352 *10*; α(P)=0.000403 *9* Mult.: K:L1:L2=13.9 *10*: 2.17 *19*: 0.24 *8*; α(K)exp=2.07 *+55−37* (1975Ka13). δ: From L1/K(exp)=0.156 *18* and α(K)exp=2.07 *+55−37* (1975Ka13).
		1496.90 *18*	100 *4*	70.741	3+	E2		0.00333 *5*	α(K)=0.00266 *4*; α(L)=0.000462 *6*; α(M)=0.0001088 *15* α(N)=2.77×10^{-5} *4*; α(O)=5.62×10^{-6} *8*; α(P)=6.51×10^{-7} *9*; α(IPF)=6.21×10^{-5} *9* Mult.: α(K)exp=0.00204 *+42−22* (1975Ka13).
1600.15	(1)+	32.532 *19*	1.61 *12*	1567.62	1+	M1+E2	0.095 *9*	63.7 *26*	α(L)=46.2 *9*; α(M)=11.09 *24* α(N)=2.83 *6*; α(O)=0.568 *12*; α(P)=0.0637 *11* Mult.: L1:L2:L3=44.2 *24*: 10.5 *9*: 18 *3* (1975Ka13). δ: From L2/L1(exp)=0.238 *24* (1975Ka13).
		722.034 *75*	14.4 *24*	878.09	2+	(E2)		0.01349 *19*	α(K)=0.01027 *14*; α(L)=0.002443 *34*; α(M)=0.000595 *8* α(N)=0.0001519 *21*; α(O)=3.01×10^{-5} *4*; α(P)=3.19×10^{-6} *4* Mult.: α(K)exp=0.0128 *+42−36* (1975Ka13).
		1190.92 *14*	100 *4*	409.17	(2)+	E2		0.00501 *7*	α(K)=0.00403 *6*; α(L)=0.000747 *10*; α(M)=0.0001772 *25* α(N)=4.52×10^{-5} *6*; α(O)=9.11×10^{-6} *13*; α(P)=1.035×10^{-6} *14*; α(IPF)=3.07×10^{-6} *4* Mult.: K:L:M:N=0.285 *15*: 0.042 *4*: 0.014 *4*; α(K)exp=0.00396 *34* (1975Ka13).
1639.6	11−	594.8[@] *1*	100[@]	1044.8	10−	M1+E2	0.16 *3*	0.0728 *11*	α(K)=0.0595 *9*; α(L)=0.01014 *15*; α(M)=0.00238 *4* α(N)=0.000608 *9*; α(O)=0.0001242 *19*; α(P)=1.480×10^{-5} *23* Mult.,δ: A_2=−0.42 *3*, A_4=−0.03 *8* and α(K)exp=0.031 (1978Lo09).
1789.3	12−	149.8[@] *1*	75[@] *13*	1639.6	11−	M1+E2	−0.05 *2*	3.22 *5*	α(K)=2.61 *4*; α(L)=0.459 *7*; α(M)=0.1080 *15* α(N)=0.0276 *4*; α(O)=0.00564 *8*; α(P)=0.000671 *9* Mult.,δ: A_2=−0.19 *4*, A_4=0.08 *7* and α(K)exp=0.25 *19* (1978Lo09).
		744.5[@] *1*	100[@] *6*	1044.8	10−	E2		0.01265 *18*	α(K)=0.00968 *14*; α(L)=0.002256 *32*; α(M)=0.000549 *8* α(N)=0.0001400 *20*; α(O)=2.77×10^{-5} *4*; α(P)=2.96×10^{-6} *4* Mult.: A_2=0.22 *3*, A_4=−0.09 *5* and α(K)exp=0.0067 *23* (1978Lo09).
2055.8	13−	266.4[@] *1*	100[@]	1789.3	12−	M1(+E2)	−0.01 *1*	0.643 *9*	α(K)=0.524 *7*; α(L)=0.0908 *13*; α(M)=0.02133 *30* α(N)=0.00545 *8*; α(O)=0.001115 *16*; α(P)=0.0001327 *19* Mult.,δ: A_2=−0.21 *2*, A_4=0.07 *5* and α(K)exp=0.40 *16* (1978Lo09).
2500.3	13−	711.0[@] *1*	100[@]	1789.3	12−	M1(+E2)	0.00 *3*	0.0465 *7*	α(K)=0.0381 *5*; α(L)=0.00642 *9*; α(M)=0.001504 *21*

$^{206}_{83}Bi_{123}$-12

Adopted Levels, Gammas (continued)

γ(^{206}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
									α(N)=0.000385 *5*; α(O)=7.87×10^{-5} *11*; α(P)=9.39×10^{-6} *13* Mult.,δ: A_2=−0.44 *4*, A_4=−0.28 *7* (1978Lo09).
2604.0	14$^-$	548.1[@] *1*	100[@] *7*	2055.8	13$^-$	M1+E2	−0.14 *3*	0.0906 *14*	α(K)=0.0741 *12*; α(L)=0.01264 *19*; α(M)=0.00297 *4* α(N)=0.000758 *11*; α(O)=0.0001550 *23*; α(P)=1.846×10^{-5} *28* Mult.,δ: A_2=−0.33 *3*, A_4=0.02 *4* (2012Ci05). Other: A_2=−0.35 *2*, A_4=0.05 *5*, α(K)exp=0.036 *3* and δ=−0.07 *1* (1978Lo09).
		814.8[@] *1*	11.0[@] *14*	1789.3	12$^-$				α(K)=0.0750 *11*; α(L)=0.01276 *19*; α(M)=0.00299 *5*; α(N+..)=0.000940 *14* α(N)=0.000765 *11*; α(O)=0.0001564 *23*; α(P)=1.86×10^{-5} *3*
2951.5	(14$^-$)	451.2 *1*	100 *17*	2500.3	13$^-$				
		1161.8 *2*	75 *17*	1789.3	12$^-$				
3147.5	15$^+$	196.0[@] *1*	25.0[@] *24*	2951.5	(14$^-$)	[E1]		0.0840 *12*	α(K)=0.0680 *10*; α(L)=0.01225 *17*; α(M)=0.00288 *4* α(N)=0.000729 *10*; α(O)=0.0001438 *20*; α(P)=1.539×10^{-5} *22* B(E1)(W.u.)=3.2×10^{-7} *4*
		543.5[@] *1*	100[@] *8*	2604.0	14$^-$	E1		0.00835 *12*	α(K)=0.00690 *10*; α(L)=0.001112 *16*; α(M)=0.000259 *4* α(N)=6.58×10^{-5} *9*; α(O)=1.327×10^{-5} *19*; α(P)=1.521×10^{-6} *21* B(E1)(W.u.)=6.05×10^{-8} *20* Mult.: A_2=−0.12 *2*, A_4=0.09 *4* and α(K)exp=0.0035 *15* (1978Lo09) and A_2=−0.18 *4*, A_4=−0.02 *5* (2012Ci05).
3606.0	17$^+$	458.4[@] *1*	100[@]	3147.5	15$^+$	E2		0.0379 *5*	α(K)=0.0258 *4*; α(L)=0.00917 *13*; α(M)=0.002306 *32* α(N)=0.000588 *8*; α(O)=0.0001137 *16*; α(P)=1.100×10^{-5} *15* Mult.: A_2=0.21 *6*, A_4=−0.03 *8* (2012Ci05).
3652.6	16$^+$	505.1[@] *1*	100[@]	3147.5	15$^+$	M1+E2	0.14 *2*	0.1125 *16*	α(K)=0.0919 *14*; α(L)=0.01573 *23*; α(M)=0.00369 *5* α(N)=0.000944 *14*; α(O)=0.0001928 *28*; α(P)=2.296×10^{-5} *33* Mult.: A_2=−0.46 *7*, A_4=0.10 *9* and α(K)exp>0.037 *7* (1978Lo09).
4307.5	18$^+$	701.5[@] *1*	100[@]	3606.0	17$^+$	M1+E2	−0.15 *5*	0.0474 *9*	α(K)=0.0388 *7*; α(L)=0.00657 *11*; α(M)=0.001538 *26* α(N)=0.000393 *7*; α(O)=8.04×10^{-5} *14*; α(P)=9.59×10^{-6} *17* Mult.,δ: From A_2=−0.34 *5*, A_4=0.00 *6* (2012Ci05); Other: A_2=−0.19 *5*, A_4=0.25 *11*, α(K)exp=0.025 *6* and δ=−0.01 *3* (1978Lo09).
4687.2	(16$^-$)	1735.7[@] *3*	100[@] *20*	2951.5	(14$^-$)				
		2083.4[@] *2*	40[@] *20*	2604.0	14$^-$				
4774.5	(16$^-$)	1121.9[@] *1*	100[@]	3652.6	16$^+$				
4805.0	(17$^-$)	(30.5 *10*)		4774.5	(16$^-$)				E_γ: From level energies difference.
		118.5[@] *4*	<9.1[@]	4687.2	(16$^-$)	M1		6.27 *11*	α(K)=5.10 *9*; α(L)=0.896 *15*; α(M)=0.211 *4* α(N)=0.0539 *9*; α(O)=0.01102 *19*; α(P)=0.001312 *22* Mult.: α(exp)=8 *4* (2012Ci05).
		1152.4[@] *2*	100[@] *18*	3652.6	16$^+$				

$^{206}_{83}Bi_{123}$-13

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
4981.9	(19^+)	674.5@ *1*	100@	4307.5	18^+
4993.9	(18^-)	188.6@ *2*	100@ *31*	4805.0	(17^-)
		1387.9@ *1*	39@ *8*	3606.0	17^+
5096.9	(18^-)	292.0@ *1*	75@ *8*	4805.0	(17^-)
		788.9@ *2*	100@ *25*	4307.5	18^+
5207.8	(19^-)	213.7@ *2*	100@	4993.9	(18^-)
5277.9	(18^-)	970.4@ *2*	100@	4307.5	18^+
5378.2	(18^-)	1772.2@ *2*	100@	3606.0	17^+
5402.1	(19^-)	124@	100@	5277.9	(18^-)
5512.2	(20^-)	110		5402.1	(19^-)
		304.3@ *2*	100@	5207.8	(19^-)
5610.0	(19^-)	513.1@ *1*	100@	5096.9	(18^-)
5793.0	(19^-)	1485.4@ *2*	100@	4307.5	18^+
5881.6	(19^-)	503.4@ *1*	100@	5378.2	(18^-)
5929.9	(21^-)	417.0@ *3*	100@	5512.2	(20^-)
5941.2	(20^-)	331.6@ *4*	100@	5610.0	(19^-)
6348.5	(20^-)	466.8@ *5*	100@	5881.6	(19^-)
6579.7	(19^+)	1370.7@ *5*	100@	5207.8	(19^-)
6746.5	(19^+)	166.6@ *2*	100@ *33*	6579.7	(19^+)
		1234.5@ *2*	100@ *33*	5512.2	(20^-)
6888.2	(20^+)	1277.9@ *5*	100@ *50*	5610.0	(19^-)
		1906.2@ *2*	100@ *50*	4981.9	(19^+)
		2580.8@ *3*	<50@	4307.5	18^+
6895.0	(20^+)	1102.0@ *1*	100@ *20*	5793.0	(19^-)
		1913.4@ *2*	30@ *10*	4981.9	(19^+)
		2586.6@ *4*	20@ *10*	4307.5	18^+
6990.0	(20^+)	245@	@	6746.5	(19^+)
		1049.0@ *2*	67@ *33*	5941.2	(20^-)
		1059.7@ *2*	67@ *33*	5929.9	(21^-)
		2683.3@ *4*	100@ *33*	4307.5	18^+
7015.1	(21^+)	1073.8@ *2*	100@ *25*	5941.2	(20^-)
		1085.2@ *1*	50@ *25*	5929.9	(21^-)

$^{206}_{83}Bi_{123}$-14

Adopted Levels, Gammas (continued)

γ(^{206}Bi) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[&]	δ[&]	α[a]	Comments
7125.8	(22$^+$)	111[@]	[@]	7015.1	(21$^+$)				
		136[@]	[@]	6990.0	(20$^+$)				
		230.8[@] *2*	100[@] *18*	6895.0	(20$^+$)				
		237.5[@] *2*	47[@] *12*	6888.2	(20$^+$)				
		777.3[@] *2*	<6[@]	6348.5	(20$^-$)				
7201.3	(23$^+$)	(75.5[@] *10*)	100[@]	7125.8	(22$^+$)				E_γ: From level energies difference.
7678.7	(24$^+$)	477.4[@] *1*	11.3[@] *14*	7201.3	(23$^+$)				
		552.9[@] *1*	100[@] *14*	7125.8	(22$^+$)	E2		0.02424 *34*	α(K)=0.01743 *24*; α(L)=0.00514 *7*; α(M)=0.001275 *18* α(N)=0.000325 *5*; α(O)=6.35×10^{-5} *9*; α(P)=6.40×10^{-6} *9* Mult.: α(exp)=0.03 *4* and A_2=0.13 *1*, A_4=−0.05 *1* (2012Ci05).
7769.6		568.3[@] *2*	100[@]	7201.3	(23$^+$)				
8116.0		346.4[@] *2*	100[@]	7769.6					
8158.9	(25$^+$)	(42.9[@] *10*)	[@]	8116.0					E_γ: From level energies difference.
		480.2[@] *1*	100[@] *9*	7678.7	(24$^+$)	M1+E2	−0.20 *9*	0.127 *4*	α(K)=0.103 *4*; α(L)=0.0178 *5*; α(M)=0.00418 *11* α(N)=0.001070 *27*; α(O)=0.000218 *6*; α(P)=2.60×10^{-5} *8* Mult.,δ: α(exp)=0.18 *4* and A_2=−0.22 *5*, A_4=0.06 *7* (2012Ci05).
8520.1	(26$^+$)	361.2[@] *1*	100[@]	8158.9	(25$^+$)	M1+E2	−0.08 *2*	0.279 *4*	α(K)=0.2274 *33*; α(L)=0.0392 *6*; α(M)=0.00921 *13* α(N)=0.002354 *33*; α(O)=0.000481 *7*; α(P)=5.73×10^{-5} *8* Mult.: α(exp)=0.26 *2* and A_2=−0.14 *1*, A_4=−0.01 *2* (2012Ci05).
9233.3	(28$^-$)	713.2[@] *1*	100[@]	8520.1	(26$^+$)	M2(+E3)	+0.03 *5*	0.1193 *17*	α(K)=0.0945 *14*; α(L)=0.01884 *27*; α(M)=0.00452 *6* α(N)=0.001161 *17*; α(O)=0.0002365 *34*; α(P)=2.78×10^{-5} *4* B(M2)(W.u.)=0.0278 *27*; B(E3)(W.u.)=0.03 *+9−3* Mult.,δ: α(exp)=0.10 *3* and A_2=0.14 *2*, A_4=0.00 *3* (2012Ci05).
10170.5	(31$^+$)	937.2[@] *1*	100[@]	9233.3	(28$^-$)	[E3]		0.01900 *27*	α(K)=0.01369 *19*; α(L)=0.00401 *6*; α(M)=0.000998 *14* α(N)=0.000255 *4*; α(O)=5.04×10^{-5} *7*; α(P)=5.28×10^{-6} *7* B(E3)(W.u.)=0.0276 *21*

[†] From ^{206}Po ε decay, unless otherwise stated.
[‡] From ^{205}Tl(α,3nγ).
[#] From ^{210}At α decay.
[@] From ^{208}Pb(^{76}Ge,xγ).
[&] Determined from measured sub-shell ce ratios and α(K)exp values from 1975Ka13, unless otherwise stated. δ were obtained using the briccmixing code.
[a] Additional information 1.
[b] Placement of transition in the level scheme is uncertain.

$^{206}_{83}Bi_{123}$-15

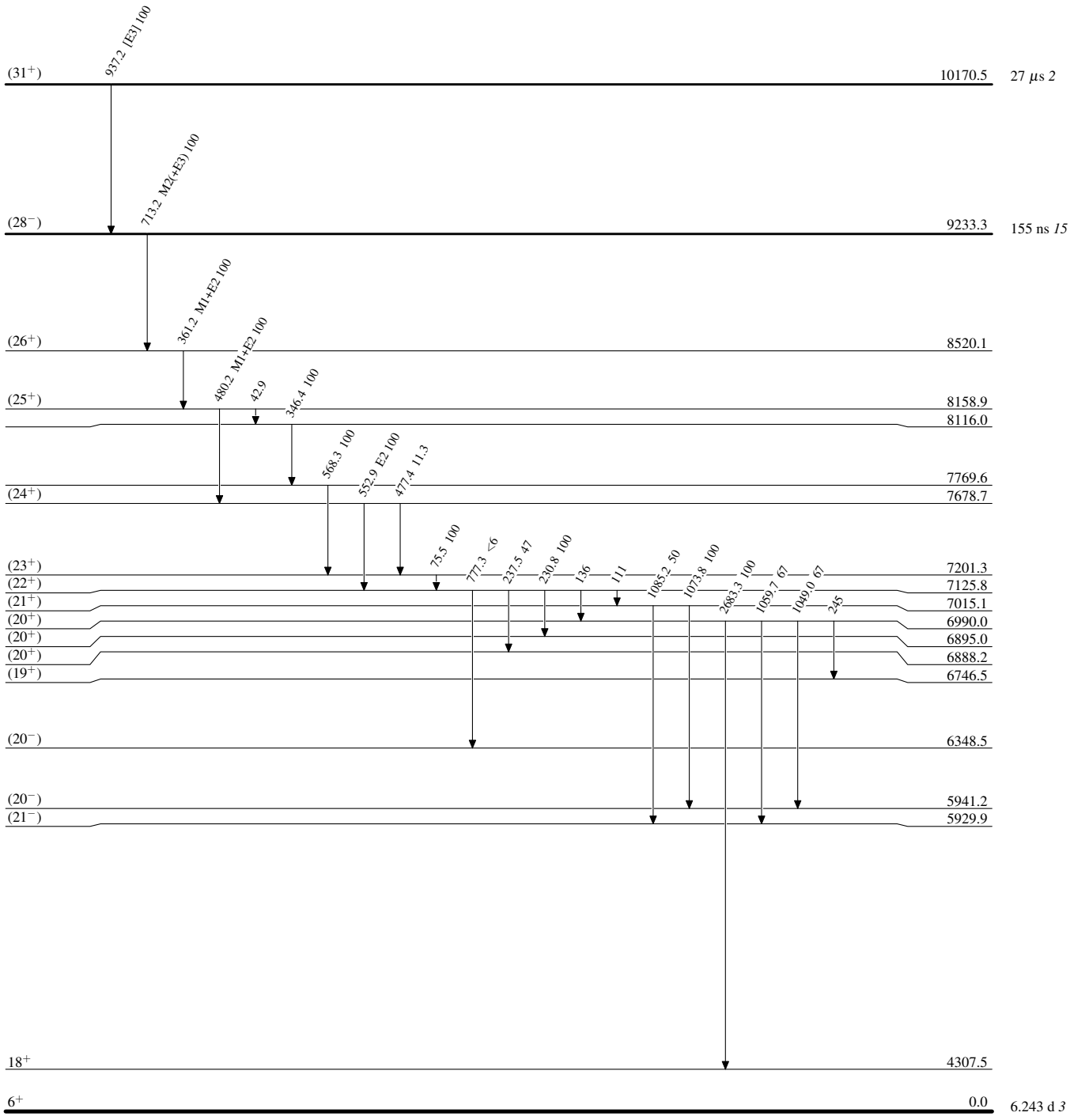
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{206}_{83}Bi_{123}$

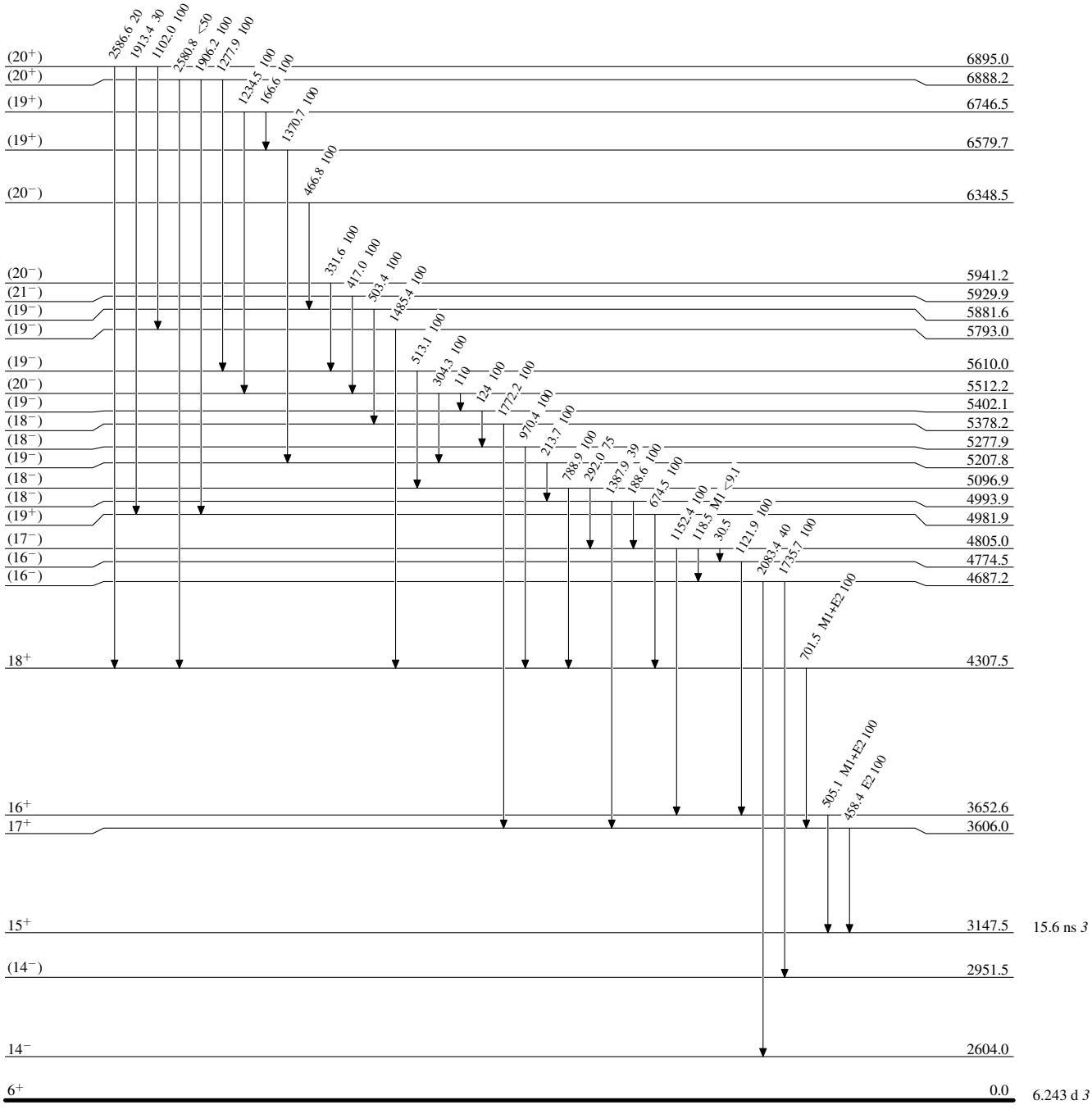
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{206}_{83}Bi_{123}$

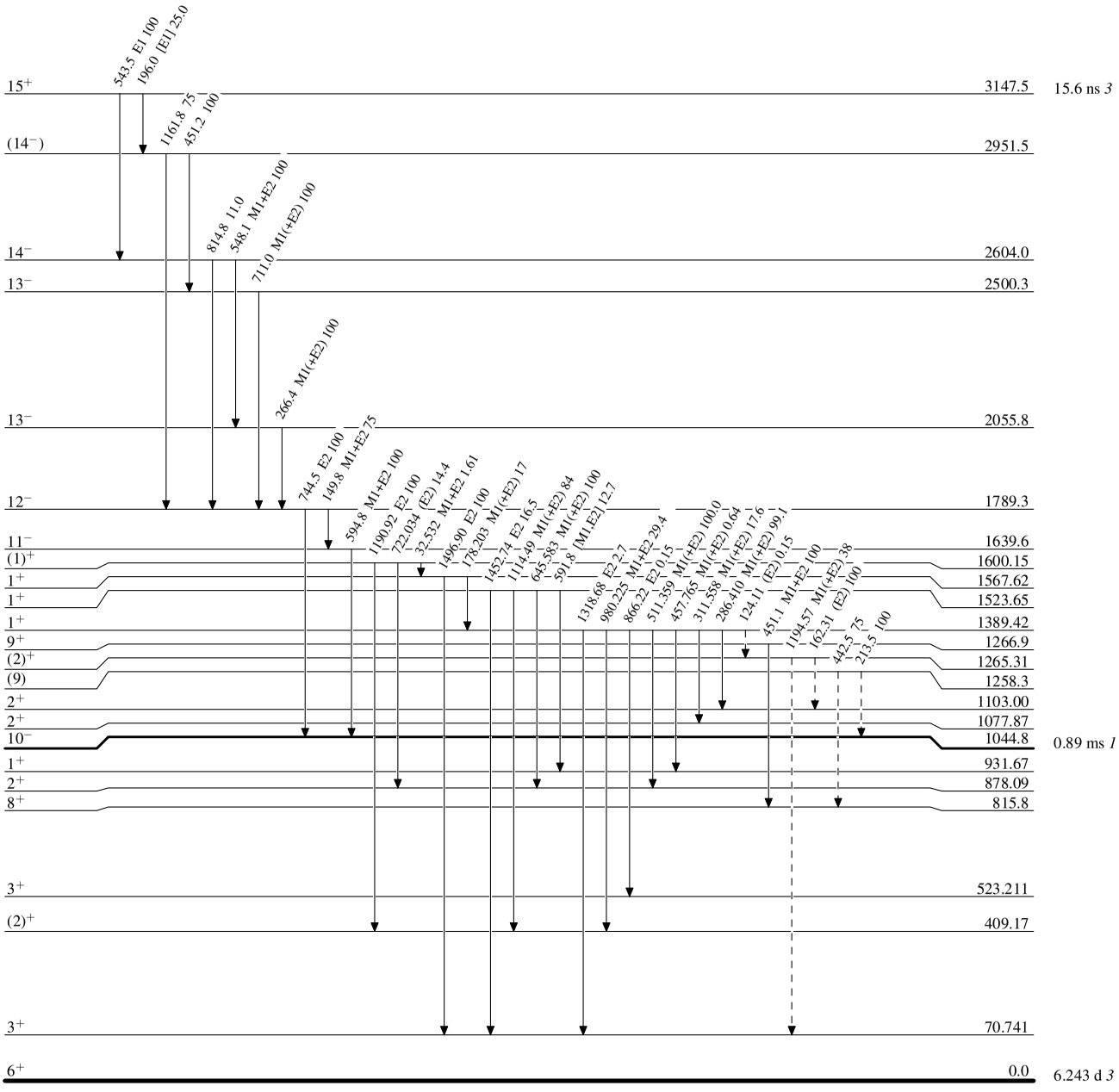
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)

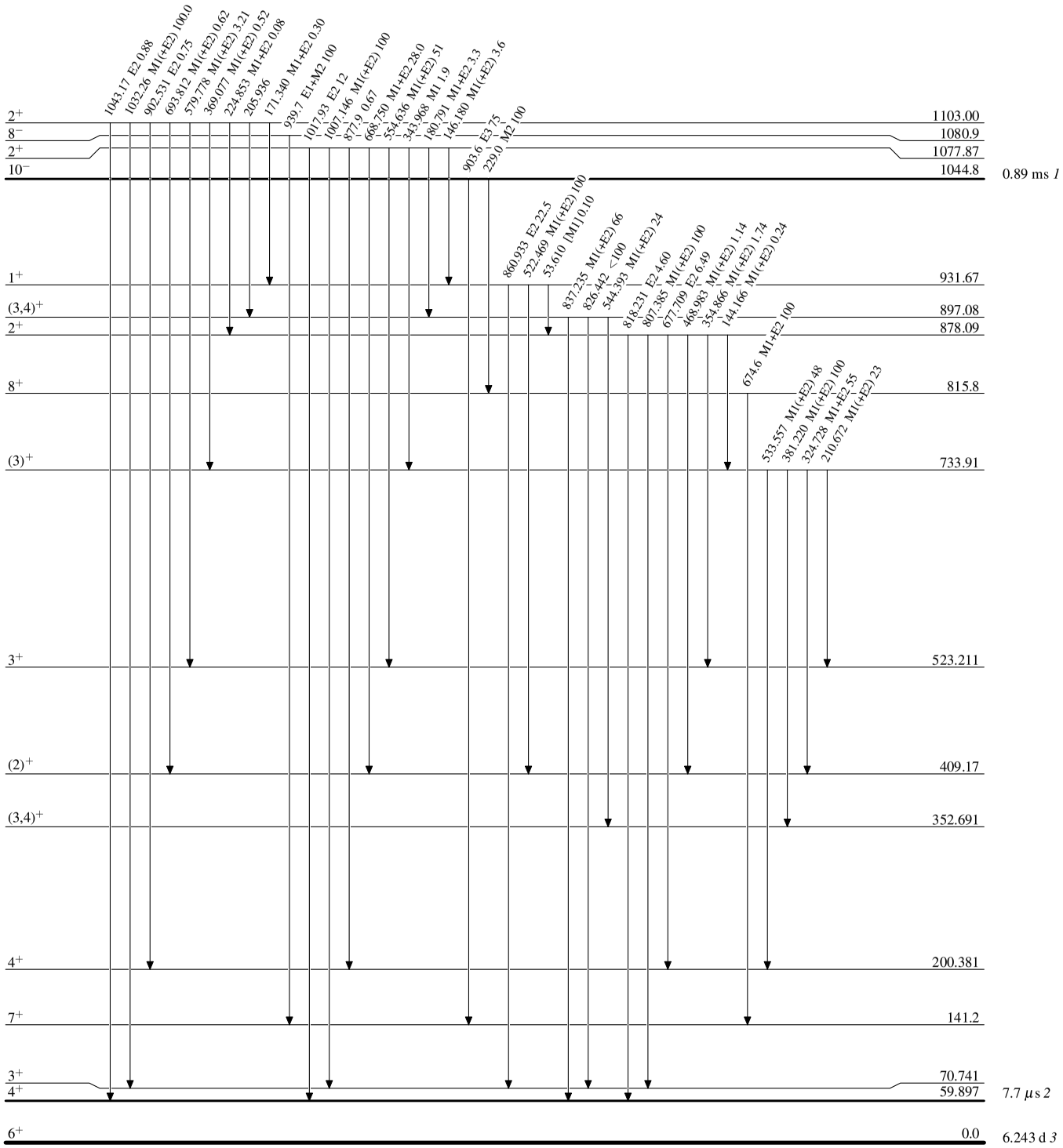


$^{206}_{83}Bi_{123}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

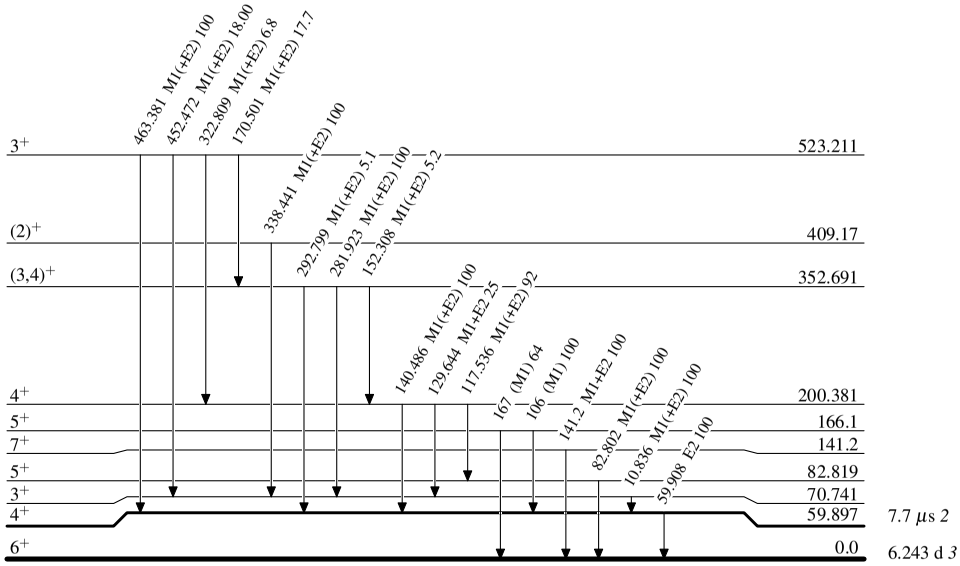


$^{206}_{83}Bi_{123}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{206}_{83}Bi_{123}$