Adopted Levels, Gammas

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

Q(β^-)=−1839 *9*; S(n)=7035 *10*; S(p)=3547 *8*; Q(α)=3534 *17* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(β^-)=−1846 *11*; S(n)=7038 *10*; S(p)=3547 *8*; Q(α)=3530 *17* 2003Au03

^{206}Bi Levels

Cross Reference (XREF) Flags

A	^{206}Po ε decay
B	^{210}At α decay (8.1 h)
C	^{204}Pb(α,d)
D	^{205}Tl(α,3nγ)

E(level)[†]	J$^\pi$[#]	T$_{1/2}$	XREF	Comments
0.0[@]	6$^+$	6.243 d *3*	ABCD	%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). Other: +4.56 *6* (1959Li50). Q: LASER spectroscopy (1997Ki15,2000Pe30). Other: −0.19 *5* (1959Li50). For isotope shift 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) 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$^+$.
82.818[@] *19*	(5)$^+$		ABC	J$^\pi$: 82.802γ M1(+E2) to 4$^+$.
141.2 *5*	7$^+$		BCD	J$^\pi$: 141.2γ M1 to 6$^+$; observation in ^{205}Tl(α,3nγ) favors 7$^+$ rather than 5$^+$ or 6$^+$.
166.1[&] *9*	5$^+$		BC	J$^\pi$: 106γ (M1) to 4$^+$; HF in ^{210}At α decay (J$^\pi$=(5)$^+$).
200.381[&] *21*	(4)$^+$		A	J$^\pi$: 117.536γ M1(+E2) to (5)$^+$; 129.644γ M1(+E2) to (3)$^+$; 140.486γ M1(+E2) to 4$^+$;
282 *4*	(4$^+$,5$^+$)		B	E(level),J$^\pi$: From ^{210}At α decay.
352.691[a] *23*	(3,4)$^+$		AB	J$^\pi$: 292.80γ M1 to 4$^+$; 281.923γ M1(+E2) to (3)$^+$.
409.17[@] *3*	(2)$^+$		A	J$^\pi$: 338.44γ M1(+E2) to (3)$^+$.
523.209 *24*	(3,4)$^+$		A	J$^\pi$: 463.38γ M1(+E2) to 4$^+$; 452.47γ M1(+E2) to (3)$^+$.
733.91 *3*	(3$^+$)		A	J$^\pi$: 324.73γ M1 to (2)$^+$; 381.22γ M1 to (3,4)$^+$.
815.8 *7*	8$^+$		D	J$^\pi$: 674.6γ M1+E2 to 7$^+$; 229.0γ M2 from 10$^-$.
878.10 *3*	(2)$^+$		A	J$^\pi$: 818.23γ E2 to 4$^+$; non observation in ^{205}Tl(α,3nγ) would argue against J$^\pi$=6$^+$.
897.08 *3*	(3)$^+$		A	J$^\pi$: 837.24γ M1 to 4$^+$.
931.67 *3*	(1)$^+$		A	J$^\pi$: 53.61γ M1 to (2)$^+$;860.93γ E2 to (3)$^+$.
1044.8 *7*	10$^-$	0.89 ms *1*	D	%IT=100 μ=2.644 *14*; Q=0.049 *9* J$^\pi$: 229.0γ M2 to 8$^+$;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: Using g-factor=0.2631 *24* (1973Sc21) deduced using the in-beam NMR-PAC technique. The value was corrected for diamagnetic and Knight shifts. Q: Using the level mixing spectroscopy technique (1991Sc14). Other: 0.043 *7*

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{206}Bi Levels (continued)

E(level)[†]	J^{π}[#]	$T_{1/2}$	XREF	Comments
				(1989Ra17). Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-1})$.
1067[‡] *2*			C	
1077.87 *3*	2^+		A	J^{π}: 1017.93γ E2 to 4^+; 668.75γ M1(+E2) to $(2)^+$.
1080.9 *7*	$(8)^-$		D	J^{π}: 939.7γ E1 to 7^+. Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{13/2})^{-1})$.
1103.00 *3*	2^+		A	J^{π}: 1043.17γ E2 to 4^+; 174.340γ M1(+E2) to $(1)^+$.
1258.3	9		D	J^{π}: 213.5γ to 10^-;442.5γ to (8^+).
1266.9 *9*	9^+		D	J^{π}: 451.1γ M1+E2 to 8^+.
1389.42[b] *3*	$(1)^+$		A	J^{π}: 511.36γ M1(+E2) to $(2)^+$; 1318.68γ E2 to $(3)^+$.
1523.65 *7*	$(1)^+$		A	J^{π}: 645.58γ M1 to $(2)^+$; 1452.74γ E2 to $(3)^+$.
1567.62 *4*	$(1)^+$		A	J^{π}: 178.203 M1(+E2) to $(1)^+$; 1496.90γ E2 to $(3)^+$.
1600.15 *4*	$(1)^+$		A	J^{π}: 32.532 M1+E2 to $(1)^+$; population in ^{206}Po ε decay ($J^{\pi}=0^+$) would argue against $J^{\pi}=2^+$ assignment.
1639.3 *8*	11^-		D	J^{π}: 594.6γ M1+E2 to 10^-.
1789.2 *8*	12^-		D	J^{π}: 149.9γ M1+E2 to 11^-; 744.3γ E2 to 10^-.
2055.6 *10*	13^-		D	J^{π}: 266.4γ M1(+E2) to 12^-.
2499.4 *10*	13^-		D	J^{π}: 710.2γ M1(+E2) to 12^-.
2542[‡] *5*	(9^-)		C	J^{π}: L(α,d)=(9). Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ g_{9/2})^{+1})$.
2603.6 *11*	14^-		D	J^{π}: 548.0γ M1+E2 to 13^-.
2838[‡] *6*			C	
2860[‡] *6*	(10^-)		C	J^{π}: L(α,d)=(11). Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ i_{11/2})^{+1})$.
3147.1 *12*	15^+	15.6 ns *3*	D	$T_{1/2}$: 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=$((\pi\ h_{9/2})^{+1}(\nu\ p_{1/2})^{-1}(\nu\ i_{13/2})^{-2})$.
3170[‡] *6*	(8^-)		C	J^{π}: L(α,d)=(7). Configuration=$((\pi\ f_{7/2})^{+1}(\nu\ g_{9/2})^{+1})$.
3568[‡] *7*	(11^+)		C	J^{π}: L(α,d)=(10). Configuration=$((\pi\ i_{13/2})^{+1}(\nu\ g_{9/2})^{+1})$.
3603.5? *13*	$(17)^+$		D	J^{π}: 456.4γ E2 to 15^+.
3632[‡] *7*	(12^+)		C	J^{π}: L(α,d)=(10). Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ j_{15/2})^{+1})$.
3652.5? *13*	$(16)^+$		D	J^{π}: 505.4γ M1+E2 to 15^+.
4023[‡] *8*			C	
4076[‡] *8*			C	
4305.3?	$(18)^+$		D	J^{π}: 701.7γ M1(+E2) to $(17)^+$.
4843[‡] *10*	(14^-)		C	J^{π}: L(α,d)=(13). Configuration=$((\pi\ i_{13/2})^{+1}(\nu\ j_{15/2})^{+1})$.
5110[‡] *10*			C	

[†] From a least-squares fit to Eγ, unless otherwise specified.
[‡] From ^{204}Pb(α,d).
[#] From deduced γ-ray transition multipolarities in ^{206}Po ε and ^{205}Tl(α,3nγ), and from L-transfer values in ^{204}Pb(α,d).
[@] Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ f_{5/2})^{-1}(\nu\ p_{1/2}0^+))$.
[&] Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ p_{1/2})^{-1}(\nu\ f_{5/2}0^+))$.
[a] Configuration=$((\pi\ h_{9/2})^{+1}(\nu\ p_{3/2})^{-1}(\nu\ p_{1/2}0^+))$.
[b] Configuration=$((\pi\ f_{7/2})^{+1}(\nu\ f_{5/2})^{-1}(\nu\ p_{1/2}0^+))$.

$\gamma(^{206}Bi)$

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
59.897	4^+	59.908 *18*	100	0.0	6^+	E2		72.4	α(L)=53.8 *8*; α(M)=14.25 *20*; α(N+..)=4.33 *6* α(N)=3.62 *5*; α(O)=0.663 *10*; α(P)=0.0500 *7* B(E2)(W.u.)=0.0180 *6*
70.741	$(3)^+$	10.836 *22*	100	59.897	4^+	M1(+E2)	<0.003	319	α(M)=242 *4*; α(N+..)=76.2 *12* α(N)=62.1 *10*; α(O)=12.67 *20*; α(P)=1.506 *23*
82.818	$(5)^+$	82.802 *22*	100	0.0	6^+	M1(+E2)	<0.041	3.32	α(L)=2.53 *4*; α(M)=0.597 *9*; α(N+..)=0.188 *3* α(N)=0.1527 *22*; α(O)=0.0312 *5*; α(P)=0.00370 *6*
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 *11*; α(M)=0.1297 *25*; α(N+..)=0.0407 *8* α(N)=0.0332 *7*; α(O)=0.00676 *13*; α(P)=0.000796 *14* δ: From ^{205}Tl(α,3nγ).
166.1	5^+	106[#] *1*	100[#]	59.897	4^+	(M1)[#]		8.6 *3*	α(K)=7.01 *22*; α(L)=1.24 *4*; α(M)=0.291 *9*; α(N+..)=0.091 *3* α(N)=0.0744 *24*; α(O)=0.0152 *5*; α(P)=0.00181 *6* Mult.: Consistent with Iα(5361α)=Ti(106γ+167γ) from intensity balance measured in $\alpha\gamma$ coincidence (1975Ja09).
		167[#] *2*	64[#]	0.0	6^+	(M1)[#]		2.37 *9*	α(K)=1.93 *8*; α(L)=0.336 *13*; α(M)=0.079 *3*; α(N+..)=0.0249 *10* α(N)=0.0202 *8*; α(O)=0.00413 *16*; α(P)=0.000492 *19*
200.381	$(4)^+$	117.536 *28*	92 *14*	82.818	$(5)^+$	M1(+E2)	<0.044	6.42	α(K)=5.22 *8*; α(L)=0.919 *13*; α(M)=0.216 *3*; α(N+..)=0.0680 *10* α(N)=0.0553 *8*; α(O)=0.01130 *16*; α(P)=0.001344 *19*
		129.644 *22*	25 *4*	70.741	$(3)^+$	M1(+E2)	<0.100	4.84	α(K)=3.93 *6*; α(L)=0.696 *11*; α(M)=0.164 *3*; α(N+..)=0.0515 *8* α(N)=0.0419 *7*; α(O)=0.00856 *13*; α(P)=0.001015 *15*
		140.486 *28*	100 *22*	59.897	4^+	M1(+E2)	<0.095	3.85	α(K)=3.13 *5*; α(L)=0.552 *8*; α(M)=0.1300 *20*; α(N+..)=0.0409 *6* α(N)=0.0333 *5*; α(O)=0.00679 *10*; α(P)=0.000806 *12*
352.691	$(3,4)^+$	152.31 *5*	5.2 *8*	200.381	$(4)^+$	M1		3.07	α(K)=2.50 *4*; α(L)=0.437 *7*; α(M)=0.1028 *15*; α(N+..)=0.0323 *5* α(N)=0.0263 *4*; α(O)=0.00537 *8*; α(P)=0.000639 *9*
		281.923 *23*	100 *3*	70.741	$(3)^+$	M1(+E2)	<0.161	0.545 *10*	α(K)=0.444 *8*; α(L)=0.0773 *12*; α(M)=0.0182 *3*; α(N+..)=0.00571 *9* α(N)=0.00465 *7*; α(O)=0.000949 *14*; α(P)=0.0001127 *18*
		292.80 *3*	5.1 *3*	59.897	4^+	M1		0.496	α(K)=0.404 *6*; α(L)=0.0699 *10*; α(M)=0.01642 *23*; α(N+..)=0.00516 *8* α(N)=0.00420 *6*; α(O)=0.000858 *12*; α(P)=0.0001022 *15*
409.17	$(2)^+$	338.44 *3*	100	70.741	$(3)^+$	M1(+E2)	−0.01 *8*	0.334	α(K)=0.273 *5*; α(L)=0.0470 *7*; α(M)=0.01103 *16*; α(N+..)=0.00347 *5* α(N)=0.00282 *4*; α(O)=0.000576 *9*; α(P)=6.87×10^{-5} *11* δ: From $\gamma\gamma(\theta)$ (1981El07).
523.209	$(3,4)^+$	170.501 *21*	17.7 *17*	352.691	$(3,4)^+$	M1(+E2)	<0.099	2.23	α(K)=1.81 *3*; α(L)=0.318 *5*; α(M)=0.0747 *11*; α(N+..)=0.0235 *4* α(N)=0.0191 *3*; α(O)=0.00390 *6*; α(P)=0.000464 *7*
		322.81 *3*	6.9 *4*	200.381	$(4)^+$	M1		0.380	α(K)=0.310 *5*; α(L)=0.0535 *8*; α(M)=0.01255 *18*;

From ENSDF

$^{206}_{83}Bi_{123}$-3

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
									α(N+..)=0.00395 *6*
523.209	(3,4)$^+$	452.47 *5*	18.00 *8*	70.741	(3)$^+$	M1(+E2)	<0.44	0.144 *10*	α(N)=0.00321 *5*; α(O)=0.000656 *10*; α(P)=7.82×10^{-5} *11* α(K)=0.117 *9*; α(L)=0.0204 *10*; α(M)=0.00480 *23*; α(N+..)=0.00151 *7*
		463.38 *5*	100 *4*	59.897	4$^+$	M1(+E2)	<0.26	0.140 *4*	α(N)=0.00123 *6*; α(O)=0.000250 *13*; α(P)=2.96×10^{-5} *17* α(K)=0.114 *4*; α(L)=0.0197 *5*; α(M)=0.00462 *11*; α(N+..)=0.00145 *4*
733.91	(3$^+$)	210.67 *5*	23 *8*	523.209	(3,4)$^+$	M1		1.233	α(N)=0.00118 *3*; α(O)=0.000241 *6*; α(P)=2.87×10^{-5} *8* α(K)=1.004 *14*; α(L)=0.1746 *25*; α(M)=0.0411 *6*; α(N+..)=0.01290 *18*
		324.73 *4*	55 *4*	409.17	(2)$^+$	M1		0.374	α(N)=0.01050 *15*; α(O)=0.00215 *3*; α(P)=0.000255 *4* α(K)=0.305 *5*; α(L)=0.0526 *8*; α(M)=0.01235 *18*; α(N+..)=0.00388 *6*
		381.22 *4*	100 *6*	352.691	(3,4)$^+$	M1(+E2)	<0.29	0.235 *8*	α(N)=0.00316 *5*; α(O)=0.000646 *9*; α(P)=7.69×10^{-5} *11* α(K)=0.191 *7*; α(L)=0.0333 *8*; α(M)=0.00783 *18*; α(N+..)=0.00246 *6*
		533.56 *6*	48 *4*	200.381	(4)$^+$	M1		0.0987	α(N)=0.00200 *5*; α(O)=0.000409 *10*; α(P)=4.85×10^{-5} *14* α(K)=0.0807 *12*; α(L)=0.01374 *20*; α(M)=0.00322 *5*; α(N+..)=0.001012 *15*
815.8	8$^+$	674.6[‡] *5*	100[‡]	141.2	7$^+$	M1+E2[‡]	0.08 *3*	0.0531	α(N)=0.000824 *12*; α(O)=0.0001684 *24*; α(P)=2.01×10^{-5} *3* α(K)=0.0435 *7*; α(L)=0.00735 *11*; α(M)=0.001721 *25*; α(N+..)=0.000541 *8* α(N)=0.000440 *7*; 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).
878.10	(2)$^+$	144.166 *28*	0.24 *4*	733.91	(3$^+$)	M1		3.59	α(K)=2.92 *4*; α(L)=0.511 *8*; α(M)=0.1202 *17*; α(N+..)=0.0378 *6* α(N)=0.0308 *5*; α(O)=0.00628 *9*; α(P)=0.000748 *11*
		354.87 *4*	1.74 *7*	523.209	(3,4)$^+$	M1		0.294	α(K)=0.240 *4*; α(L)=0.0413 *6*; α(M)=0.00969 *14*; α(N+..)=0.00304 *5* α(N)=0.00248 *4*; α(O)=0.000506 *7*; α(P)=6.03×10^{-5} *9*
		468.98 *5*	1.14 *5*	409.17	(2)$^+$	M1(+E2)	<0.44	0.131 *9*	α(K)=0.106 *8*; α(L)=0.0185 *10*; α(M)=0.00436 *21*; α(N+..)=0.00137 *7* α(N)=0.00111 *6*; α(O)=0.000227 *12*; α(P)=2.69×10^{-5} *16*
		677.71 *7*	6.49 *26*	200.381	(4)$^+$	E2		0.01543	α(K)=0.01161 *17*; α(L)=0.00289 *4*; α(M)=0.000707 *10*; α(N+..)=0.000220 *3* α(N)=0.000180 *3*; α(O)=3.56×10^{-5} *5*; α(P)=3.74×10^{-6} *6*
		807.38 *8*	100 *2*	70.741	(3)$^+$	M1(+E2)	<0.21	0.0329 *7*	α(K)=0.0270 *6*; α(L)=0.00454 *9*; α(M)=0.001064 *20*; α(N+..)=0.000334 *7* α(N)=0.000272 *6*; α(O)=5.56×10^{-5} *11*; α(P)=6.64×10^{-6} *13*
		818.23 *8*	4.60 *18*	59.897	4$^+$	E2		0.01042	α(K)=0.00808 *12*; α(L)=0.001777 *25*; α(M)=0.000430 *6*; α(N+..)=0.0001338 *19* α(N)=0.0001096 *16*; α(O)=2.18×10^{-5} *3*; α(P)=2.36×10^{-6} *4*

From ENSDF

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

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
897.08	(3)+	544.39 *7*	24 *9*	352.691	(3,4)+	M1		0.0936	α(K)=0.0766 *11*; α(L)=0.01302 *19*; α(M)=0.00305 *5*; α(N+..)=0.000959 *14* α(N)=0.000781 *11*; α(O)=0.0001596 *23*; α(P)=1.90×10^{-5} *3*
		826.44 *9*	100	70.741	(3)+				
		837.24 *9*	65 *5*	59.897	4+	M1		0.0304	α(K)=0.0249 *4*; α(L)=0.00418 *6*; α(M)=0.000979 *14*; α(N+..)=0.000308 *5* α(N)=0.000250 *4*; α(O)=5.12×10^{-5} *8*; α(P)=6.12×10^{-6} *9*
931.67	(1)+	53.61 *4*		878.10	(2)+	M1		11.78	α(L)=9.00 *13*; α(M)=2.12 *3*; α(N+..)=0.666 *10* α(N)=0.542 *8*; α(O)=0.1107 *16*; α(P)=0.01318 *19*
		522.47 *5*	100 *2*	409.17	(2)+	M1(+E2)	−0.16 *6*	0.1024 *22*	α(K)=0.0837 *19*; α(L)=0.0143 *3*; α(M)=0.00336 *7*; α(N+..)=0.001056 *20* α(N)=0.000859 *16*; α(O)=0.000176 *4*; α(P)=2.09×10^{-5} *5* δ: From $\gamma\gamma(\theta)$ (1981El07).
		860.93 *9*	22.5 *9*	70.741	(3)+	E2		0.00940	α(K)=0.00734 *11*; α(L)=0.001569 *22*; α(M)=0.000378 *6*; α(N+..)=0.0001178 *17* α(N)=9.65×10^{-5} *14*; α(O)=1.92×10^{-5} *3*; α(P)=2.10×10^{-6} *3*
1044.8	10−	229.0[‡] *5*	100[‡]	815.8	8+	M2[‡]		4.26 *7*	K/L=3.5 *1*; K/LM=2.79 *9* α(K)=3.11 *5*; α(L)=0.863 *14*; α(M)=0.216 *4*; α(N+..)=0.0684 *12* α(N)=0.0558 *9*; α(O)=0.01129 *19*; α(P)=0.001287 *21* B(M2)(W.u.)=0.000263 *8*
		903.6[‡] *5*	75[‡]	141.2	7+	E3[‡]		0.0207	α(K)=0.01476 *21*; α(L)=0.00448 *7*; α(M)=0.001119 *16*; α(N+..)=0.000349 *5* α(N)=0.000286 *4*; α(O)=5.64×10^{-5} *8*; α(P)=5.87×10^{-6} *9* B(E3)(W.u.)=0.0001370 *23* Mult.: K/LM=2.9 *2*; α(K)exp=0.011 *3*.
1077.87	2+	146.180 *26*	3.6 *10*	931.67	(1)+	M1(+E2)	<0.085	3.44	α(K)=2.80 *4*; α(L)=0.492 *7*; α(M)=0.1159 *17*; α(N+..)=0.0364 *6* α(N)=0.0297 *5*; α(O)=0.00605 *9*; α(P)=0.000719 *10*
		180.791 *19*	3.3 *4*	897.08	(3)+	M1(+E2)	<0.18	1.87 *4*	α(K)=1.52 *3*; α(L)=0.269 *4*; α(M)=0.0635 *10*; α(N+..)=0.0200 *3* α(N)=0.01625 *25*; α(O)=0.00331 *5*; α(P)=0.000392 *6*
		343.97 *4*	1.9 *6*	733.91	(3+)	M1		0.320	α(K)=0.261 *4*; α(L)=0.0449 *7*; α(M)=0.01055 *15*; α(N+..)=0.00332 *5* α(N)=0.00270 *4*; α(O)=0.000551 *8*; α(P)=6.57×10^{-5} *10*
		554.64 *6*	51 *2*	523.209	(3,4)+	M1(+E2)	<0.33	0.086 *4*	α(K)=0.070 *3*; α(L)=0.0120 *4*; α(M)=0.00282 *9*; α(N+..)=0.00089 *3* α(N)=0.000722 *23*; α(O)=0.000147 *5*; α(P)=1.75×10^{-5} *7*
		668.75 *7*	28.0 *11*	409.17	(2)+	M1(+E2)	<0.41	0.052 *3*	α(K)=0.0423 *25*; α(L)=0.0072 *4*; α(M)=0.00169 *8*; α(N+..)=0.000532 *25* α(N)=0.000433 *20*; α(O)=8.8×10^{-5} *5*; α(P)=1.05×10^{-5} *6*
		877.9	0.67 *10*	200.381	(4)+				
		1007.15 *10*	100 *4*	70.741	(3)+	M1(+E2)	<0.45	0.0179 *11*	α(K)=0.0146 *9*; α(L)=0.00246 *14*; α(M)=0.00058 *3*;

From ENSDF

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

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
									α(N+..)=0.000181 *10* α(N)=0.000147 *8*; α(O)=3.01×10^{-5} *16*; α(P)=3.59×10^{-6} *20*
1077.87	2$^+$	1017.93 *13*	12 *4*	59.897	4$^+$	E2		0.00676	α(K)=0.00537 *8*; α(L)=0.001058 *15*; α(M)=0.000253 *4*; α(N+..)=7.89×10^{-5} *11* α(N)=6.45×10^{-5} *9*; α(O)=1.294×10^{-5} *19*; α(P)=1.445×10^{-6} *21*
1080.9	(8)$^-$	939.7[‡] *5*	100[‡]	141.2	7$^+$	E1[‡]		0.00292	α(K)=0.00243 *4*; α(L)=0.000375 *6*; α(M)=8.68×10^{-5} *13*; α(N+..)=2.71×10^{-5} *4* α(N)=2.21×10^{-5} *4*; α(O)=4.49×10^{-6} *7*; α(P)=5.27×10^{-7} *8*
1103.00	2$^+$	171.340 *24*	0.30 *3*	931.67	(1)$^+$	M1(+E2)	<0.16	2.18 *4*	α(K)=1.77 *4*; α(L)=0.314 *5*; α(M)=0.0740 *12*; α(N+..)=0.0232 *4* α(N)=0.0189 *3*; α(O)=0.00386 *6*; α(P)=0.000457 *7*
		205.94 *5*		897.08	(3)$^+$				
		224.85 *4*	0.08 *5*	878.10	(2)$^+$				
		369.08 *4*	0.52 *3*	733.91	(3$^+$)	M1(+E2)	<0.33	0.254 *11*	α(K)=0.207 *9*; α(L)=0.0362 *11*; α(M)=0.00852 *23*; α(N+..)=0.00267 *8* α(N)=0.00218 *6*; α(O)=0.000444 *13*; α(P)=5.26×10^{-5} *18*
		579.78 *6*	3.21 *13*	523.209	(3,4)$^+$	M1(+E2)	<0.39	0.075 *4*	α(K)=0.062 *4*; α(L)=0.0106 *5*; α(M)=0.00248 *11*; α(N+..)=0.00078 *4* α(N)=0.00064 *3*; α(O)=0.000130 *6*; α(P)=1.54×10^{-5} *8*
		693.81 *8*	0.62 *3*	409.17	(2)$^+$	M1		0.0495	α(K)=0.0406 *6*; α(L)=0.00685 *10*; α(M)=0.001605 *23*; α(N+..)=0.000504 *7* α(N)=0.000410 *6*; α(O)=8.39×10^{-5} *12*; α(P)=1.002×10^{-5} *14*
		902.53 *9*	0.75 *3*	200.381	(4)$^+$	E2		0.00856	α(K)=0.00672 *10*; α(L)=0.001400 *20*; α(M)=0.000337 *5*; α(N+..)=0.0001049 *15* α(N)=8.59×10^{-5} *12*; α(O)=1.716×10^{-5} *24*; α(P)=1.89×10^{-6} *3*
		1032.26 *10*	100.0 *21*	70.741	(3)$^+$	M1(+E2)	<0.23	0.0174 *4*	α(K)=0.0143 *3*; α(L)=0.00239 *5*; α(M)=0.000559 *12*; α(N+..)=0.000176 *4* α(N)=0.000143 *3*; α(O)=2.92×10^{-5} *6*; α(P)=3.50×10^{-6} *8*
		1043.17 *13*	0.88 *3*	59.897	4$^+$	E2		0.00645	α(K)=0.00513 *8*; α(L)=0.001001 *14*; α(M)=0.000239 *4*; α(N+..)=7.46×10^{-5} *11* α(N)=6.10×10^{-5} *9*; α(O)=1.224×10^{-5} *18*; α(P)=1.371×10^{-6} *20*
1258.3	9	213.5[‡a] *10*	100[‡]	1044.8	10$^-$				
		442.5[‡a] *10*	75[‡]	815.8	8$^+$				
1266.9	9$^+$	451.1[‡] *5*	100[‡]	815.8	8$^+$	M1+E2[‡]	0.15 *3*	0.1516 *25*	α(K)=0.1238 *20*; α(L)=0.0213 *4*; α(M)=0.00500 *8*; α(N+..)=0.001570 *24* α(N)=0.001277 *20*; α(O)=0.000261 *4*; α(P)=3.11×10^{-5} *5* δ: From $\gamma(\theta)$ in ^{205}Tl(α,3nγ).
1389.42	(1)$^+$	286.410 *26*	99 *2*	1103.00	2$^+$	M1(+E2)	<0.077	0.526	α(K)=0.429 *6*; α(L)=0.0742 *11*; α(M)=0.01744 *25*; α(N+..)=0.00548 *8* α(N)=0.00446 *7*; α(O)=0.000911 *13*; α(P)=0.0001085 *16*

From ENSDF

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

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
1389.42	(1)+	311.56 *3*	17.6 *4*	1077.87	2+	M1(+E2)	<0.17	0.414 *8*	α(K)=0.337 *7*; α(L)=0.0586 *9*; α(M)=0.01377 *21*; α(N+..)=0.00433 *7* α(N)=0.00352 *6*; α(O)=0.000719 *11*; α(P)=8.55×10^{-5} *14*
		457.76 *5*	0.64 *4*	931.67	(1)+	M1		0.1482	α(K)=0.1212 *17*; α(L)=0.0207 *3*; α(M)=0.00486 *7*; α(N+..)=0.001526 *22* α(N)=0.001242 *18*; α(O)=0.000254 *4*; α(P)=3.03×10^{-5} *5*
		511.36 *5*	100 *2*	878.10	(2)+	M1(+E2)	<0.15	0.1096 *18*	α(K)=0.0896 *15*; α(L)=0.01529 *24*; α(M)=0.00359 *6*; α(N+..)=0.001127 *18* α(N)=0.000917 *14*; α(O)=0.000187 *3*; α(P)=2.23×10^{-5} *4*
		866.22 *10*	0.15 *1*	523.209	(3,4)+	E2		0.00929	α(K)=0.00725 *11*; α(L)=0.001545 *22*; α(M)=0.000372 *6*; α(N+..)=0.0001160 *17* α(N)=9.50×10^{-5} *14*; α(O)=1.89×10^{-5} *3*; α(P)=2.07×10^{-6} *3*
		980.23 *10*	29.4 *6*	409.17	(2)+	M1(+E2)	−0.38 *15*	0.0186 *13*	α(K)=0.0152 *11*; α(L)=0.00257 *16*; α(M)=0.00060 *4*; α(N+..)=0.000189 *12* α(N)=0.000154 *10*; α(O)=3.14×10^{-5} *19*; α(P)=3.75×10^{-6} *24* δ: from $\gamma\gamma(\theta)$ (1981El07).
		1318.68 *13*	2.7 *1*	70.741	(3)+	E2		0.00415	α(K)=0.00335 *5*; α(L)=0.000601 *9*; α(M)=0.0001420 *20*; α(N+..)=6.28×10^{-5} *9* α(N)=3.62×10^{-5} *5*; α(O)=7.32×10^{-6} *11*; α(P)=8.39×10^{-7} *12*; α(IPF)=1.84×10^{-5} *3*
1523.65	(1)+	591.8	12.7 *16*	931.67	(1)+				
		645.58 *7*	100 *4*	878.10	(2)+	M1		0.0598	α(K)=0.0490 *7*; α(L)=0.00828 *12*; α(M)=0.00194 *3*; α(N+..)=0.000610 *9* α(N)=0.000496 *7*; α(O)=0.0001015 *15*; α(P)=1.211×10^{-5} *17*
		1114.49 *14*	84 *5*	409.17	(2)+	M1		0.01455	α(K)=0.01195 *17*; α(L)=0.00199 *3*; α(M)=0.000465 *7*; α(N+..)=0.0001466 *21* α(N)=0.0001189 *17*; α(O)=2.43×10^{-5} *4*; α(P)=2.91×10^{-6} *4*; α(IPF)=4.98×10^{-7} *8*
		1452.74 *15*	16.6 *10*	70.741	(3)+	E2		0.00350	α(K)=0.00281 *4*; α(L)=0.000491 *7*; α(M)=0.0001157 *17*; α(N+..)=8.55×10^{-5} *12* α(N)=2.95×10^{-5} *5*; α(O)=5.98×10^{-6} *9*; α(P)=6.91×10^{-7} *10*; α(IPF)=4.93×10^{-5} *7*
1567.62	(1)+	178.203 *20*	17 *4*	1389.42	(1)+	M1(+E2)	<0.190	1.95 *4*	α(K)=1.58 *4*; α(L)=0.281 *4*; α(M)=0.0662 *11*; α(N+..)=0.0208 *4* α(N)=0.0169 *3*; α(O)=0.00345 *5*; α(P)=0.000408 *6*
		1496.90 *18*	100 *4*	70.741	(3)+	E2		0.00333	α(K)=0.00266 *4*; α(L)=0.000462 *7*; α(M)=0.0001088 *16*; α(N+..)=9.61×10^{-5} *14* α(N)=2.77×10^{-5} *4*; α(O)=5.62×10^{-6} *8*; α(P)=6.51×10^{-7} *10*; α(IPF)=6.21×10^{-5} *9*
1600.15	(1)+	32.532 *19*	2.0 *1*	1567.62	(1)+	M1+E2	0.083 *4*	60.8 *13*	α(L)=46.2 *10*; α(M)=11.09 *24*; α(N+..)=3.46 *8* α(N)=2.83 *6*; α(O)=0.568 *12*; α(P)=0.0637 *11*
		722.03 *8*	14.3 *25*	878.10	(2)+	E2(+M1)		0.029 *16*	α(K)=0.023 *14*; α(L)=0.0043 *19*; α(M)=0.0010 *5*;

From ENSDF

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

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

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[@]	δ[@]	α[&]	Comments
									α(N+..)=0.00032 *14* α(N)=0.00026 *11*; α(O)=5.3×10^{-5} *23*; α(P)=6.E−6 *3*
1600.15	(1)$^+$	1190.92 *14*	100 *4*	409.17	(2)$^+$	E2(+M1)		0.009 *4*	α(K)=0.007 *3*; α(L)=0.0012 *5*; α(M)=0.00028 *11*; α(N+..)=9.E−5 *4* α(N)=7.E−5 *3*; α(O)=1.5×10^{-5} *6*; α(P)=1.7×10^{-6} *7*; α(IPF)=4.4×10^{-6} *14*
1639.3	11$^-$	594.6[‡] *5*	100[‡]	1044.8	10$^-$	M1+E2[‡]	0.16 *3*	0.0729 *12*	α(K)=0.0596 *10*; α(L)=0.01015 *16*; α(M)=0.00238 *4*; α(N+..)=0.000747 *12* α(N)=0.000608 *10*; α(O)=0.0001243 *20*; α(P)=1.481×10^{-5} *24*
1789.2	12$^-$	149.9[‡] *5*	67[‡]	1639.3	11$^-$	M1+E2[‡]	−0.05 *2*	3.21 *6*	α(K)=2.61 *5*; α(L)=0.458 *8*; α(M)=0.1078 *19*; α(N+..)=0.0339 *6* α(N)=0.0276 *5*; α(O)=0.00563 *10*; α(P)=0.000669 *12*
		744.3[‡] *5*	100[‡]	1044.8	10$^-$	E2[‡]		0.01266	α(K)=0.00968 *14*; α(L)=0.00226 *4*; α(M)=0.000549 *8*; α(N+..)=0.0001708 *25* α(N)=0.0001401 *20*; α(O)=2.78×10^{-5} *4*; α(P)=2.96×10^{-6} *5*
2055.6	13$^-$	266.4[‡] *5*	100[‡]	1789.2	12$^-$	M1(+E2)[‡]	−0.01 *1*	0.643 *10*	α(K)=0.524 *8*; α(L)=0.0907 *14*; α(M)=0.0213 *4*; α(N+..)=0.00670 *10* α(N)=0.00545 *9*; α(O)=0.001115 *17*; α(P)=0.0001327 *20*
2499.4	13$^-$	710.2[‡] *5*	100[‡]	1789.2	12$^-$	M1(+E2)[‡]	0.00 *3*	0.0466	α(K)=0.0382 *6*; α(L)=0.00644 *10*; α(M)=0.001509 *22*; α(N+..)=0.000474 *7* α(N)=0.000386 *6*; α(O)=7.89×10^{-5} *12*; α(P)=9.42×10^{-6} *14*
2603.6	14$^-$	548.0[‡] *5*	100[‡]	2055.6	13$^-$	M1+E2[‡]	−0.07 *1*	0.0917	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*
3147.1	15$^+$	543.5[‡] *5*	100[‡]	2603.6	14$^-$	E1[‡]		0.00835	α(K)=0.00690 *10*; α(L)=0.001112 *16*; α(M)=0.000259 *4*; α(N+..)=8.06×10^{-5} *12* α(N)=6.58×10^{-5} *10*; α(O)=1.327×10^{-5} *19*; α(P)=1.521×10^{-6} *22* B(E1)(W.u.)=7.68×10^{-8} *15*
3603.5?	(17)$^+$	456.4[‡] *5*	100[‡]	3147.1	15$^+$	E2[‡]		0.0384	α(K)=0.0260 *4*; α(L)=0.00930 *14*; α(M)=0.00234 *4*; α(N+..)=0.000723 *11* α(N)=0.000596 *9*; α(O)=0.0001154 *17*; α(P)=1.115×10^{-5} *16*
3652.5?	(16)$^+$	505.4[‡] *5*	100[‡]	3147.1	15$^+$	M1+E2[‡]	0.14 *2*	0.1123 *17*	α(K)=0.0918 *14*; α(L)=0.01570 *23*; α(M)=0.00368 *6*; α(N+..)=0.001158 *17* α(N)=0.000942 *14*; α(O)=0.000193 *3*; α(P)=2.29×10^{-5} *4*
4305.3?	(18)$^+$	701.7[‡a] *5*	100[‡]	3603.5?	(17)$^+$	M1(+E2)[‡]	−0.01 *3*	0.0481	α(K)=0.0394 *6*; α(L)=0.00665 *10*; α(M)=0.001557 *22*; α(N+..)=0.000489 *7* α(N)=0.000398 *6*; α(O)=8.14×10^{-5} *12*; α(P)=9.72×10^{-6} *14*

[†] From ^{206}Po ε decay, unless otherwise specified.
[‡] From ^{205}Tl(α,3nγ).

From ENSDF

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

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

[#] From ^{210}At α decay.

[@] Deduced from the measured L-subshell ratios and α(K)exp values in ^{206}Po ε decay, unless otherwise specified.

[&] 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.

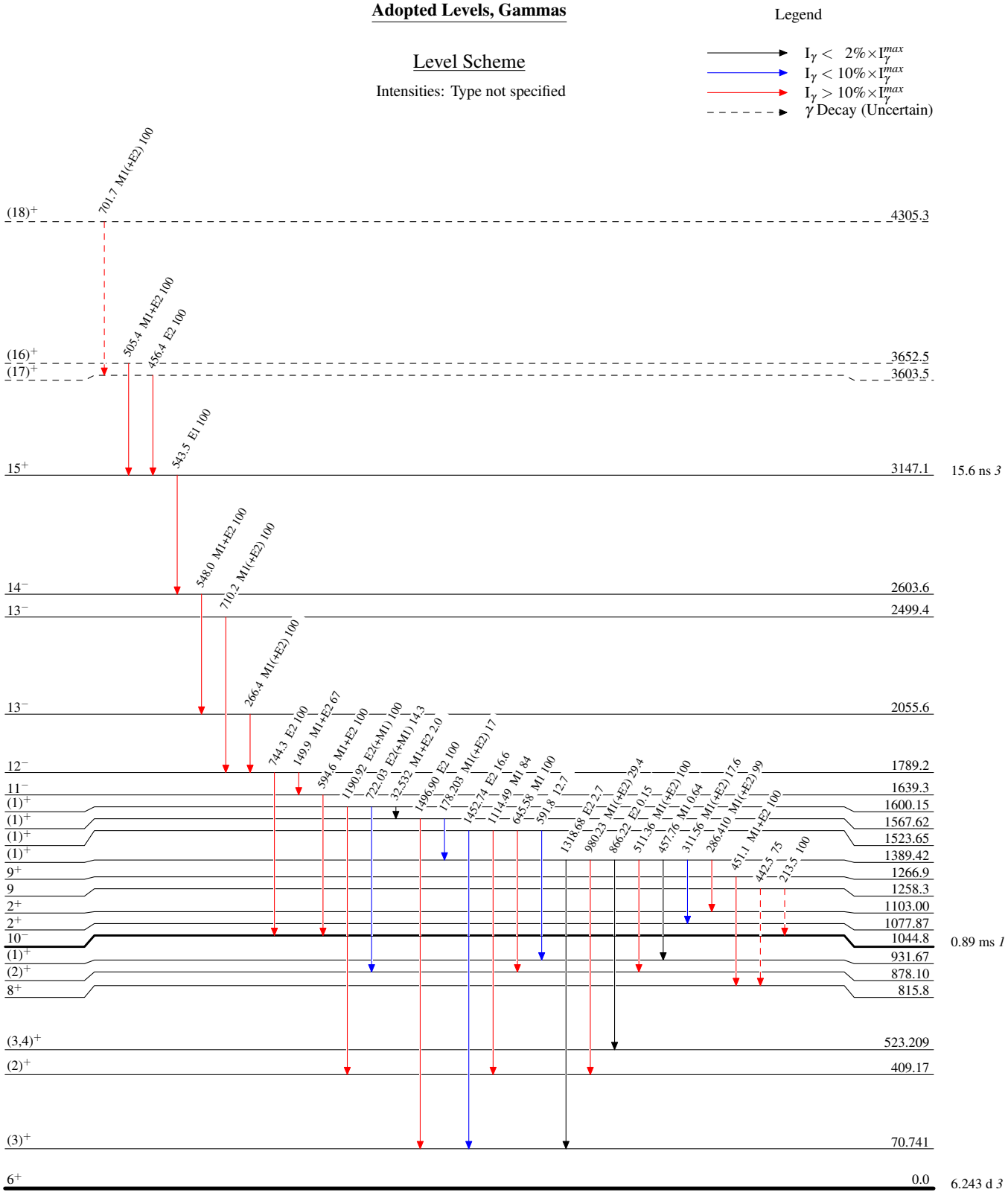
From ENSDF

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

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

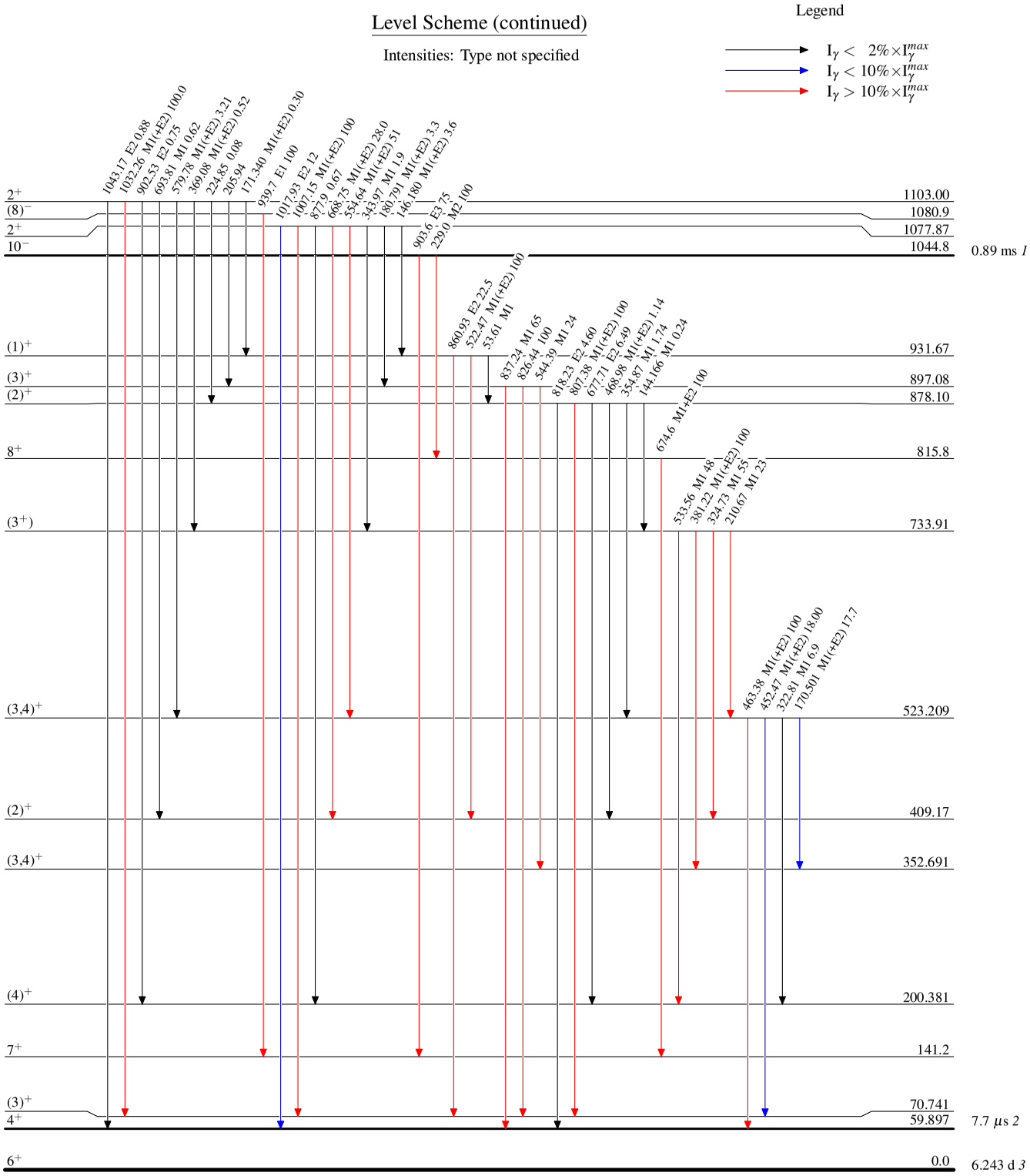


$^{206}_{83}Bi_{123}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

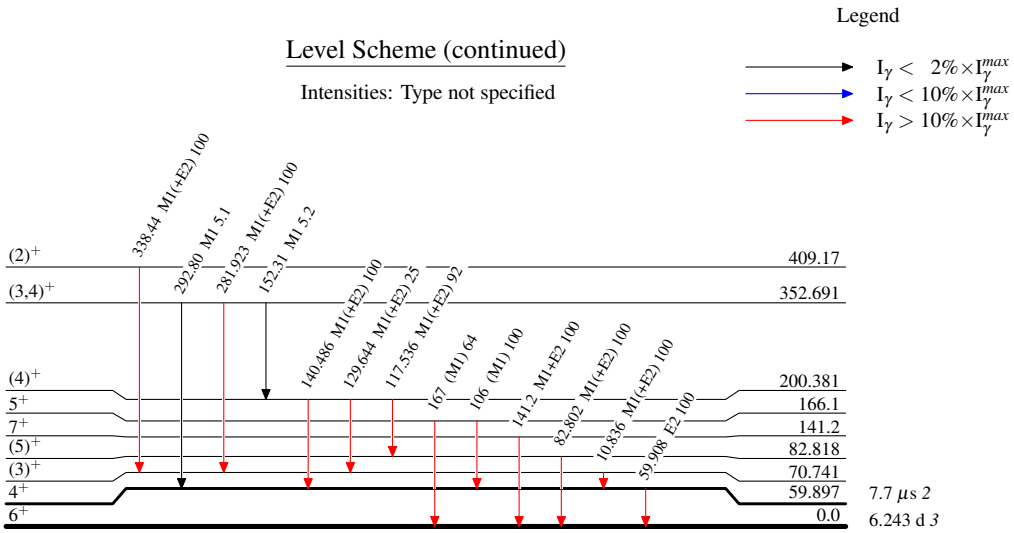


$^{206}_{83}Bi_{123}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



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