^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07

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

Parent: ^{206}At: E=0.0; $J^\pi=(6)^+$; $T_{1/2}$=30.5 min *6*; Q(ε)=5749 *14*; %ε+%β^+ decay=99.10 *8*

1977Li16: source produced in the ^{209}Bi(^{3}He,6n) reaction followed by radiochemical separation of the astatine fraction; Detectors: Ge(Li), Si(Li); Measured: Eγ, Iγ, γ singles, $\gamma\gamma$ coincidence, Iβ, E(ce), Ice.

1982Br07: source produced in 660-MeV proton spallation of a thorium target, followed by mass separation; Detectors: Ge(Li) and Si(Li); Measured: Eγ, Iγ, E(ce), Ice.

Others: 1970BrZO, 2023St05.

^{206}Po Levels

E(level)[†]	J^π[#]	$T_{1/2}$[#]	Comments
0.0	0^+	8.8 d *1*	
700.66 *3*	2^+	4.3 ps *7*	
1177.80 *4*	4^+	63 ps *5*	$T_{1/2}$: Other: 70 ps *6* from $\gamma\gamma$(Δt) in 2023St05.
1434.35 *5*	4^+	<3.5 ps	
1564.70 *5*	$(3)^+$		
1573.38 *6*	6^+	184 ps *50*	$T_{1/2}$: From $\gamma\gamma$(Δt) in 2023St05.
1585.88[‡] *12*	8^+	232 ns *4*	$T_{1/2}$: Other: 212 ns *5* in 1970BrZO.
1915.87 *8*	$(4)^+$		
2100.80 *6*	$(5)^+$		
2138.92 *7*	$(4,5)^+$		
2200.28[‡] *13*	8^+		
2262.05[‡] *13*	9^-	1.05 μs *6*	
2302.62 *6*	$(5)^+$		
2500.60 *8*	$5^+,6^+$		
2581.57 *7*	$(4,5,6)^+$		
2917.02 *7*	$(4^+,5^+,6^+)$		
3361.96 *7*			
3396.49 *12*			
3595.45 *8*			
3872.15 *9*			
4038.84 *8*			
4410.04 *9*			
4419.63 *11*			
4697.77 *16*			

[†] From a least-squares fit to Eγ.
[‡] Level reported only in 1982Br07.
[#] From Adopted Levels.

ε,β^+ radiations

av Eβ: Additional information 1.

E(decay)	E(level)	Iβ^+ [‡]	Iε[‡]	Log *ft*	I($\varepsilon+\beta^+$)[†‡]	Comments
(1051 *14*)	4697.77	7.47×10^{-11}	0.88 *14*	7.0	0.88 *14*	av Eβ=18 *8*; εK=0.7849 *6*; εL=0.16042 *31*; εM+=0.05469 *19*
(1329 *14*)	4419.63	1.72×10^{-4} *44*	2.73 *19*	6.726 *34*	2.73 *19*	av Eβ=158 *7*; εK=0.79059 *46*; εL=0.15633 *21*; εM+=0.05301 *16*
(1339 *14*)	4410.04	2.5×10^{-4} *6*	3.4 *3*	6.637 *41*	3.4 *3*	av Eβ=163 *7*; εK=0.79074 *45*; εL=0.15622 *20*;

Continued on next page (footnotes at end of table)

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I($\varepsilon+\beta^+$)†‡	Comments
						εM+=0.05297 *16*
(1710 *14*)	4038.84	0.00315 *49*	1.66 *21*	7.17 *6*	1.66 *21*	av Eβ=330 *6*; εK=0.79377 *38*; εL=0.15277 *14*; εM+=0.05156 *14*
(1877 *14*)	3872.15	0.0126 *14*	2.94 *25*	7.010 *39*	2.95 *25*	av Eβ=403 *6*; εK=0.79327 *40*; εL=0.15141 *13*; εM+=0.05104 *13*
(2154 *14*)	3595.45	0.080 *7*	6.9 *5*	6.763 *33*	7.0 *5*	av Eβ=524 *6*; εK=0.7893 *5*; εL=0.14904 *13*; εM+=0.05015 *12*
(2353 *14*)	3396.49	0.0327 *31*	1.63 *14*	7.472 *38*	1.66 *14*	av Eβ=610 *6*; εK=0.7837 *7*; εL=0.14709 *15*; εM+=0.04943 *12*
(2832 *14*)	2917.02	0.253 *37*	4.6 *7*	7.18 *6*	4.9 *7*	av Eβ=818 *6*; εK=0.7600 *12*; εL=0.14107 *24*; εM+=0.04732 *13*
(3167 *14*)	2581.57	0.09 *5*	1.0 *6*	7.95 *24*	1.1 *6*	av Eβ=964 *6*; εK=0.7347 *17*; εL=0.13561 *31*; εM+=0.04544 *13*
(3248 *14*)	2500.60	0.29 *6*	2.8 *6*	7.53 *8*	3.1 *6*	av Eβ=1000 *6*; εK=0.7276 *18*; εL=0.13414 *33*; εM+=0.04495 *14*
(3446 *14*)	2302.62	0.70 *47*	5.3 *40*	7.30 *29*	6 *4*	av Eβ=1086 *6*; εK=0.7087 *20*; εL=0.13031 *37*; εM+=0.04363 *14*
(3487 *14*)	2262.05					An intensity imbalance exists at this level.
(3549 *14*)	2200.28					An intensity imbalance exists at this level.
(3610 *14*)	2138.92	1.19 *11*	7.4 *8*	7.201 *42*	8.6 *8*	av Eβ=1158 *6*; εK=0.6916 *22*; εL=0.12692 *40*; εM+=0.04249 *15*
(3648 *14*)	2100.80					An intensity imbalance exists at this level.
(3833 *14*)	1915.87					An intensity imbalance exists at this level.
(4176 *14*)	1573.38	7.1 *9*	24.9 *39*	6.81 *6*	32 *4*	av Eβ=1408 *6*; εK=0.6248 *27*; εL=0.1140 *5*; εM+=0.03813 *15* Iβ^+: 10.0 reported in 1977Li16.
(4184 *14*)	1564.70	0.236 *23*	5.1 *5*	11.117^{2u} *43*	5.3 *5*	av Eβ=1371 *6*; εK=0.7560 *8*; εL=0.14902 *17*; εM+=0.05051 *13*
(4315 *14*)	1434.35	0.41 *16*	3.5 *15*	9.52 *17*	3.9 *15*	av Eβ=1424 *6*; εK=0.7151 *15*; εL=0.13522 *29*; εM+=0.04551 *13*
(4571 *14*)	1177.80	2.1 *8*	14 *6*	9.03 *16*	16 *6*	av Eβ=1532 *6*; εK=0.6961 *17*; εL=0.13111 *33*; εM+=0.04409 *12* Iβ^+: 7.0 (reported by 1977Li16).

† Deduced from γ-ray intensity balances.
‡ For absolute intensity per 100 decays, multiply by 0.9910 *8*.

γ(^{206}Po)

Iγ normalization: Calculated by assuming that there is no ε+β$^+$ feeding to g.s. and I(γ+ce)(700.7γ)=100%.

x-ray		measured intensity (1982Br07)
Po-Kα$_1$	x ray	48.9 *15*
Po-Kβ$_1$	x ray	14.3 *7*
Po-Kβ$_2$	x ray	5.6 *3*

E$_\gamma$[†]	I$_\gamma$[†a]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[@]	δ[@]	α[&]	Comments
12.5 *1*	14.6×10^{-5} *17*	1585.88	8$^+$	1573.38	6$^+$	[E2]		4.52×10^4 *19*	%Iγ=0.000144 *17* α(M)=3.46×10^4 *15* α(N)=8.8×10^3 *4*; α(O)=1.66×10^3 *7*; α(P)=144 *6* E$_\gamma$: From adopted gammas, based on γ-rays energy difference in ^{198}Pt(^{13}C,5nγ) in 1990Ba31. I$_\gamma$: From intensity balance and α$_T$.
61.766[#] *19*	1.34[#] *14*	2262.05	9$^-$	2200.28	8$^+$	E1		0.355 *5*	%Iγ=1.32 *14* α(L)=0.271 *4*; α(M)=0.0649 *9* α(N)=0.01632 *23*; α(O)=0.00316 *4*; α(P)=0.000329 *5* Mult.: (α(L1)exp+α(L2)exp)≈0.22, α(L3)exp≈0.15 (1982Br07).
[x]110.70[#] *10*	0.10[#] *5*					M1		8.31 *12*	%Iγ=0.10 *5* α(K)=6.73 *10*; α(L)=1.200 *17*; α(M)=0.283 *4* α(N)=0.0729 *10*; α(O)=0.01526 *22*; α(P)=0.001971 *28* Mult.: From 1982Br07.
[x]139.25[#] *20*	0.24[#] *4*					E2(+M1)		3.1 *12*	%Iγ=0.24 *4* α(K)=1.9 *16*; α(L)=0.86 *24*; α(M)=0.22 *7* α(N)=0.057 *19*; α(O)=0.0112 *33*; α(P)=0.00117 *15* Mult.: From 1982Br07.
[x]154.48[‡] *28* 197.98 *12*	0.5[‡] *1* 1.6 *2*	2500.60	5$^+$,6$^+$	2302.62	(5)$^+$	M1(+E2)	≤0.34	1.54 *6*	%Iγ=1.58 *20* α(K)=1.24 *6*; α(L)=0.2291 *33*; α(M)=0.0544 *9* α(N)=0.01400 *23*; α(O)=0.00292 *4*; α(P)=0.000371 *7* I$_\gamma$: Other: 0.63 *15* (1982Br07). Mult.: α(K)exp=1.43 *22*, α(L)exp=0.25 *7* and α(M)exp≈0.06 (1977Li16) and α(K)exp=1.43 *20* (1982Br07).

$^{206}_{84}Po_{122}$-3

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ[†]	I_γ[†a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
201.84 *12*	5.5 *6*	2302.62	$(5)^+$	2100.80	$(5)^+$	[M1,E2]		1.0 *5*	%Iγ=5.4 *6* α(K)=0.7 *5*; α(L)=0.2172 *31*; α(M)=0.0543 *33* α(N)=0.0140 *8*; α(O)=0.00280 *6*; α(P)=0.00031 *4* I_γ: Other: ≤0.25 (1982Br07).
233.55 *9*	3.2 *3*	3595.45		3361.96		(E2)		0.278 *4*	%Iγ=3.15 *30* α(K)=0.1181 *17*; α(L)=0.1186 *17*; α(M)=0.0312 *4* α(N)=0.00800 *11*; α(O)=0.001545 *22*; α(P)=0.0001486 *21* I_γ: Other: ≤0.5 (1982Br07).
256.53 *8*	4.5 *4*	1434.35	4^+	1177.80	4^+	M1(+E2)	≤0.6	0.70 *8*	%Iγ=4.4 *4* α(K)=0.56 *7*; α(L)=0.107 *4*; α(M)=0.0255 *7* α(N)=0.00656 *19*; α(O)=0.00136 *5*; α(P)=0.000171 *11* I_γ: Other: 4.2 *3* (1982Br07). Mult.: α(K)exp=0.67 *9*, α(L)exp=0.11 *2* and α(M)exp=0.022 *11* (1977Li16) and α(K)exp=0.60 *6* and α(L)exp=0.107 *22* (1982Br07).
[x]268.34 *9*	1.3 *1*					M1(+E2)		0.43 *25*	%Iγ=1.28 *10* α(K)=0.32 *24*; α(L)=0.083 *15*; α(M)=0.0204 *27* α(N)=0.0052 *7*; α(O)=0.00106 *18*; α(P)=1.2×10^{-4} *4* I_γ: Other: 1.28 *14* (1982Br07). Mult.: From 1982Br07.
[x]275.59 *11*	2.1 *2*					M1(+E2)		0.40 *24*	%Iγ=2.07 *20* α(K)=0.30 *22*; α(L)=0.076 *15*; α(M)=0.0187 *27* α(N)=0.0048 *7*; α(O)=0.00097 *18*; α(P)=1.14×10^{-4} *35* I_γ: Other: 1.66 *16* (1982Br07). Mult.: From 1982Br07.
278.88 *5*	2.7 *3*	2581.57	$(4,5,6)^+$	2302.62	$(5)^+$	M1+E2	1.52 *+19−15*	0.296 *22*	%Iγ=2.66 *30* α(K)=0.207 *20*; α(L)=0.0673 *17*; α(M)=0.01688 *35* α(N)=0.00434 *9*; α(O)=0.000867 *21*; α(P)=9.59×10^{-5} *35* I_γ: Other: 1.92 *14* (1982Br07). Mult.: α(K)exp=0.52 *7* (1977Li16) and α(K)exp=0.18 *2* (1982Br07).
[x]317.30 *16*	0.5 *1*					M1(+E2)		0.27 *16*	%Iγ=0.49 *10* α(K)=0.21 *15*; α(L)=0.049 *13*; α(M)=0.0119 *26* α(N)=0.0031 *7*; α(O)=6.2×10^{-4} *16*; α(P)=7.4×10^{-5} *27* I_γ: Other: ≈0.5 (1982Br07). Mult.: From 1982Br07.
342.51 *19*	1.5 *2*	1915.87	$(4)^+$	1573.38	6^+	(E2)		0.0857 *12*	%Iγ=1.48 *20* α(K)=0.0498 *7*; α(L)=0.0269 *4*; α(M)=0.00693 *10* α(N)=0.001778 *25*; α(O)=0.000349 *5*; α(P)=3.57×10^{-5} *5* I_γ: Other: ≤0.15 (1982Br07).
[x]373.41[‡] *9*	0.4[‡] *1*								

$^{206}_{84}Po_{122}$-4

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ[†]	I_γ[†a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
380.81 *21*	0.8 *1*	4419.63		4038.84		M1(+E2)	≤0.5	0.244 *20*	%Iγ=0.79 *10* α(K)=0.198 *18*; α(L)=0.0355 *20*; α(M)=0.0084 *4* α(N)=0.00216 *11*; α(O)=0.000451 *24*; α(P)=5.8×10^{-5} *4* I_γ: Other: 0.62 *20* (1982Br07). Mult.: α(K)exp=0.23 *7* (1977Li16) and 0.27 *11* (1982Br07).
386.894[b#] *19*	2.9[b#] *4*	1564.70	(3)$^+$	1177.80	4$^+$	M1(+E2)	≤0.3	0.245 *9*	%Iγ=2.9 *4* α(K)=0.199 *7*; α(L)=0.0351 *9*; α(M)=0.00827 *20* α(N)=0.00213 *5*; α(O)=0.000445 *11*; α(P)=5.73×10^{-5} *17* I_γ: Other: 2.7 *3* (1977Li16). Mult.: α(K)exp=0.037 *19*, α(L)exp=0.015 *7* in 1977Li16 requires E2, but α(K)exp=0.29 *5* in 1982Br07 suggests M1. The later is preferred owing to the (M1+E2) character of the 864.3γ to 2$^+$.
386.894[b#] *19*	2.9[b#] *4*	2302.62	(5)$^+$	1915.87	(4)$^+$	[M1,E2]		0.16 *10*	%Iγ=2.9 *4* α(K)=0.12 *8*; α(L)=0.027 *9*; α(M)=0.0065 *20* α(N)=0.0017 *5*; α(O)=3.4×10^{-4} *11*; α(P)=4.1×10^{-5} *18* I_γ: Other: 2.7 *3* (1977Li16). Mult.: α(K)exp=0.037 *19*, α(L)exp=0.015 *7* in 1977Li16 requires E2, but α(K)exp=0.29 *5* in 1982Br07 suggests M1.
395.54 *4*	49.3 *29*	1573.38	6$^+$	1177.80	4$^+$	E2		0.0579 *8*	%Iγ=48.6 *29* α(K)=0.0363 *5*; α(L)=0.01613 *23*; α(M)=0.00412 *6* α(N)=0.001058 *15*; α(O)=0.0002088 *29*; α(P)=2.193×10^{-5} *31* I_γ: Other: 44.4 *8* (1982Br07). Mult.: α(K)exp=0.037 *5*, α(L)exp=0.016 *2* and α(M)exp=0.004 *2* (1977Li16) and α(K)exp=0.038 *4* (1982Br07).
399.98 *16*	0.7 *1*	2500.60	5$^+$,6$^+$	2100.80	(5)$^+$	M1(+E2)	≤0.8	0.197 *34*	%Iγ=0.69 *10* α(K)=0.159 *30*; α(L)=0.0294 *34*; α(M)=0.0070 *7* α(N)=0.00180 *19*; α(O)=0.00037 *4*; α(P)=4.7×10^{-5} *6* I_γ: Other: 0.60 *10* (1982Br07). Mult.: α(K)exp=0.20 *7* (1982Br07).
416.41 *12*	1.3 *1*	2917.02	(4$^+$,5$^+$,6$^+$)	2500.60	5$^+$,6$^+$	[M1,E2]		0.13 *8*	%Iγ=1.28 *10* α(K)=0.10 *7*; α(L)=0.021 *8*; α(M)=0.0052 *17* α(N)=0.0013 *4*; α(O)=2.7×10^{-4} *10*; α(P)=3.3×10^{-5} *15* I_γ: Other: ≤0.1 (1982Br07).
444.73 *23*	1.3 *1*	3361.96		2917.02	(4$^+$,5$^+$,6$^+$)	M1(+E2)	≤0.9	0.145 *29*	%Iγ=1.28 *10* α(K)=0.117 *25*; α(L)=0.0215 *31*; α(M)=0.0051 *7*

$^{206}_{84}Po_{122}$-5

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ [†]	I_γ [†a]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [@]	α [&]	Comments
									α(N)=0.00131 *18*; α(O)=0.00027 *4*; α(P)=3.5×10^{-5} *6* I_γ: Other: 1.37 *7* (1982Br07). Mult.: α(K)exp=0.15 *8* (1977Li16,1982Br07).
477.10 *3*	88 *4*	1177.80	4^+	700.66	2^+	E2		0.0360 *5*	%Iγ=87 *4* α(K)=0.02441 *34*; α(L)=0.00867 *12*; α(M)=0.002186 *31* α(N)=0.000561 *8*; α(O)=0.0001118 *16*; α(P)=1.216×10^{-5} *17* I_γ: Other: 87.7 *24* (1982Br07). Mult.: α(K)exp=0.025 *3*, α(L)exp=0.0090 *12* and α(M)exp=0.0023 *12* (1977Li16) and α(K)exp=0.026 *8* (1982Br07).
[x]498.52[‡] *41*	0.6[‡] *1*								
527.27 *7*	3.0 *3*	2100.80	$(5)^+$	1573.38	6^+	M1(+E2)	≤0.43	0.104 *7*	%Iγ=2.96 *30* α(K)=0.085 *6*; α(L)=0.0148 *7*; α(M)=0.00350 *17* α(N)=0.00090 *4*; α(O)=0.000188 *9*; α(P)=2.42×10^{-5} *13* I_γ: Other: 2.98 *12* (1982Br07) and 6.3 *5* from Iγ(528γ)/Iγ(477γ)=0.071 *6* (2023St05) and Iγ(477γ)=88 from 1977Li16. Mult.: α(K)exp=0.07 *3* (1977Li16) and 0.091 *11* (1982Br07).
565.55 *12*	3.3 *3*	2138.92	$(4,5)^+$	1573.38	6^+	[M1,E2]		0.058 *34*	%Iγ=3.25 *30* α(K)=0.046 *29*; α(L)=0.009 *4*; α(M)=0.0022 *9* α(N)=5.6×10^{-4} *23*; α(O)=1.1×10^{-4} *5*; α(P)=1.4×10^{-5} *7* I_γ: Other: ≤0.2 (1982Br07).
[x]599.33[‡] *14*	0.4[‡] *1*								
614.40[b] *5*	6.3[b] *6*	2200.28	8^+	1585.88	8^+	M1(+E2)	≤0.32	0.0714 *27*	%Iγ=6.2 *6* α(K)=0.0582 *23*; α(L)=0.01006 *32*; α(M)=0.00237 *7* α(N)=0.000609 *19*; α(O)=0.000127 *4*; α(P)=1.65×10^{-5} *6* I_γ: Other: 6.14 *19* (1982Br07). Mult.: α(K)exp=0.063 *17* (1977Li16) and 0.060 *4* (1982Br07).
614.40[b] *5*	6.3[b] *6*	2917.02	$(4^+,5^+,6^+)$	2302.62	$(5)^+$	M1(+E2)	≤0.31	0.0715 *26*	%Iγ=6.2 *6* α(K)=0.0583 *22*; α(L)=0.01008 *31*; α(M)=0.00237 *7* α(N)=0.000610 *18*; α(O)=0.000128 *4*; α(P)=1.65×10^{-5} *5* I_γ: Other: 6.14 *19* (1982Br07). Mult.: α(K)exp=0.063 *17* (1977Li16) Others: α(K)exp=0.060 *4* (1982Br07). This transition is a doublet.
676		2262.05	9^-	1585.88	8^+	[E1]		0.00562 *8*	α(K)=0.00465 *7*; α(L)=0.000743 *10*; α(M)=0.0001732 *24* α(N)=4.43×10^{-5} *6*; α(O)=9.19×10^{-6} *13*; α(P)=1.157×10^{-6} *16* E_γ: From 1982Br07.
700.66 *3*	100	700.66	2^+	0.0	0^+	E2		0.01507 *21*	%Iγ=98.515 *20*

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ[†]	I_γ[†a]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[&]	Comments
									α(K)=0.01132 *16*; α(L)=0.00283 *4*; α(M)=0.000695 *10* α(N)=0.0001785 *25*; α(O)=3.62×10^{-5} *5*; α(P)=4.21×10^{-6} *6* I_γ: Other: 100 (1982Br07). Mult.: α(K)exp=0.0114, α(L)exp=0.0029 and α(M)exp=0.0012 (1977Li16).
704.66 *9*	6.1 *6*	2138.92	(4,5)$^+$	1434.35	4$^+$	M1+E2	≈0.9	≈0.0352	%Iγ=6.0 *6* α(K)≈0.0283; α(L)≈0.00523; α(M)≈0.001241 α(N)≈0.000319; α(O)≈6.63×10^{-5}; α(P)≈8.38×10^{-6} I_γ: Other: 5.20 *10* (1982Br07). Mult.: α(K)exp≈0.029 (1982Br07).
[x]709.32[‡] *23*	0.6[‡] *1*								
[x]729.14[‡] *9*	0.2[‡] *1*								
729.27 *15*	1.0 *1*	2302.62	(5)$^+$	1573.38	6$^+$	E2+M1	2.3 *12*	0.019 *10*	%Iγ=0.99 *10* α(K)=0.015 *8*; α(L)=0.0032 *12*; α(M)=7.7×10^{-4} *27* α(N)=2.0×10^{-4} *7*; α(O)=4.1×10^{-5} *15*; α(P)=4.9×10^{-6} *21* I_γ: Other: 2.20 *8* (1982Br07) and 3.8 *4* from Iγ(528γ)/Iγ(477γ)=0.071 *6* (2023St05) and Iγ(477γ)=88 from 1977Li16. Mult.: α(K)exp=0.015 *9* (1982Br07).
733.73 *5*	10.4 *7*	1434.35	4$^+$	700.66	2$^+$	E2		0.01368 *19*	%Iγ=10.2 *7* α(K)=0.01037 *15*; α(L)=0.002508 *35*; α(M)=0.000614 *9* α(N)=0.0001576 *22*; α(O)=3.20×10^{-5} *4*; α(P)=3.75×10^{-6} *5* I_γ: Other: 7.89 *21* (1982Br07). Mult.: α(K)exp=0.0145 *23* (1982Br07). Note, that this value suggests E2+M1 assignment, but the adopted level scheme requires E2.
738.03 *12*	1.2 *1*	1915.87	(4)$^+$	1177.80	4$^+$	[M1]		0.0457 *6*	%Iγ=1.18 *10* α(K)=0.0374 *5*; α(L)=0.00638 *9*; α(M)=0.001498 *21* α(N)=0.000386 *5*; α(O)=8.07×10^{-5} *11*; α(P)=1.046×10^{-5} *15* I_γ: Other: 1.07 *7* (1982Br07).
[x]747.52[‡] *5*	0.1[‡] *1*								
[x]796.60 *11*	1.2 *1*								%Iγ=1.18 *10* I_γ: Other: 2.8 *5* from Iγ(797γ)/Iγ(477γ)=0.032 *6* (2023St05) and Iγ(477γ)=88 from 1977Li16.
[x]802.50[‡] *15*	0.2[‡] *1*								I_γ: Other: 2.0 *4* from Iγ(803γ)/Iγ(477γ)=0.023 *5* (2023St05) and Iγ(477γ)=88 from 1977Li16.
[x]806.33 *13*	5.8 *6*								E_γ: From 2023St05. I_γ: From Iγ(806γ)/Iγ(477γ)=0.066 *7* (2023St05) and Iγ(477γ)=88 from 1977Li16.

$^{206}_{84}Po_{122}$-7

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ [†]	I_γ [†a]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [@]	α [&]	Comments
824.22 *9*	1.3 *1*	4419.63		3595.45					%Iγ=1.28 *10* I_γ: Other: 1.16 *6* (1982Br07).
[x]838.01[#] *15*	2.6[#] *3*					(M1)		0.0329 *5*	%Iγ=2.56 *30* α(K)=0.0269 *4*; α(L)=0.00457 *6*; α(M)=0.001073 *15* α(N)=0.000276 *4*; α(O)=5.78×10^{-5} *8*; α(P)=7.49×10^{-6} *10* Mult.: From 1982Br07.
864.30[#] *11*	1.76[#] *10*	1564.70	(3)$^+$	700.66	2$^+$	(M1+E2)		0.020 *10*	%Iγ=1.73 *10* α(K)=0.016 *9*; α(L)=0.0029 *13*; α(M)=7.0×10^{-4} *29* α(N)=1.8×10^{-4} *8*; α(O)=3.7×10^{-5} *16*; α(P)=4.7×10^{-6} *22* Mult.: α(K)exp≈0.011 (1982Br07).
868.27 *5*	7.8 *8*	2302.62	(5)$^+$	1434.35	4$^+$	(E2)		0.00971 *14*	%Iγ=7.7 *8* α(K)=0.00754 *11*; α(L)=0.001643 *23*; α(M)=0.000398 *6* α(N)=0.0001022 *14*; α(O)=2.089×10^{-5} *29*; α(P)=2.504×10^{-6} *35* I_γ: Other: 8.1 *4* (1982Br07). Mult.: α(K)exp≈0.0074 (1982Br07).
[x]911.96[‡] *9*	0.6[‡] *1*								
923.12 *6*	5.7 *6*	2100.80	(5)$^+$	1177.80	4$^+$	M1+E2	≈1.1	≈0.01628	%Iγ=5.6 *6* α(K)≈0.01316; α(L)≈0.002382; α(M)≈0.000564 α(N)≈0.0001451; α(O)≈3.02×10^{-5}; α(P)≈3.82×10^{-6} I_γ: Other: 5.30 *21* (1982Br07). Mult.: α(K)exp≈0.013 (1982Br07).
927.09 *14*	1.0 *1*	2500.60	5$^+$,6$^+$	1573.38	6$^+$	M1+E2	≈0.2	≈0.02465	%Iγ=0.99 *10* α(K)≈0.02016; α(L)≈0.00343; α(M)≈0.000805 α(N)≈0.0002071; α(O)≈4.34×10^{-5}; α(P)≈5.61×10^{-6} I_γ: Other: 1.00 *13* (1982Br07). Mult.: α(K)exp≈0.02 (1982Br07).
[x]939.25 *7*	2.0 *2*					(M1+E2)		0.016 *8*	%Iγ=1.97 *20* α(K)=0.013 *7*; α(L)=0.0024 *10*; α(M)=5.6×10^{-4} *23* α(N)=1.4×10^{-4} *6*; α(O)=3.0×10^{-5} *13*; α(P)=3.8×10^{-6} *17* I_γ: Others: 2.06 *8* (1982Br07) and 4.8 *6* from Iγ(939γ)/Iγ(477γ)=0.054 *7* (2023St05) and Iγ(477γ)=88 from 1977Li16. Mult.: From 1982Br07.
955.20 *8*	1.5 *2*	3872.15		2917.02	(4$^+$,5$^+$,6$^+$)	M1+E2	≈1.0	≈0.01573	%Iγ=1.48 *20* α(K)≈0.01274; α(L)≈0.002277; α(M)≈0.000538 α(N)≈0.0001385; α(O)≈2.88×10^{-5}; α(P)≈3.67×10^{-6} I_γ: Other: 2.00 *20* (1982Br07). Mult.: α(K)exp≈0.013 (1982Br07).

$^{206}_{84}Po_{122}$-8

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07 (continued)

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

E_γ †	I_γ †a	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	δ@	α&	Comments
960.92 *12*	1.4 *1*	2138.92	$(4,5)^+$	1177.80	4^+	[M1]		0.02306 *32*	%Iγ=1.38 *10* α(K)=0.01887 *26*; α(L)=0.00319 *4*; α(M)=0.000750 *11* α(N)=0.0001929 *27*; α(O)=4.04×10^{-5} *6*; α(P)=5.24×10^{-6} *7* I_γ: Other: ≈0.5 (1982Br07).
x976.32 *10*	1.4 *1*								%Iγ=1.38 *10* I_γ: Others: 1.26 *6* (1982Br07) and 1.0 *3* from Iγ(976γ)/Iγ(477γ)=0.011 *3* (2023St05) and Iγ(477γ)=88 from 1977Li16.
1008.64 *28*	1.8 *2*	2581.57	$(4,5,6)^+$	1573.38	6^+	[M1,E2]		0.014 *7*	%Iγ=1.77 *20* α(K)=0.011 *5*; α(L)=0.0020 *8*; α(M)=4.7×10^{-4} *19* α(N)=1.2×10^{-4} *5*; α(O)=2.5×10^{-5} *10*; α(P)=3.2×10^{-6} *14*
1013.82 *12*	3.0 *3*	3595.45		2581.57	$(4,5,6)^+$				%Iγ=2.96 *30* Mult.: α(K)exp=0.053 *17* (1982Br07) suggests M2 assignment. I_γ: Other: 2.45 *20* (1982Br07).
x1026.29# *10*	0.82# *7*								%Iγ=0.81 *7*
1048.18 *11*	2.3 *2*	4410.04		3361.96		(M1)		0.01842 *26*	%Iγ=2.27 *20* α(K)=0.01509 *21*; α(L)=0.00255 *4*; α(M)=0.000598 *8* α(N)=0.0001538 *22*; α(O)=3.22×10^{-5} *5*; α(P)=4.18×10^{-6} *6* I_γ: Other: 1.88 *8* (1982Br07). Mult.: α(K)exp≈0.021 (1982Br07).
1059.38 *5*	3.5 *4*	3361.96		2302.62	$(5)^+$				%Iγ=3.4 *4* I_γ: Other: 2.80 *10* (1982Br07). Mult.: α(K)exp=0.046 *14* (1982Br07) suggests M2 assignment.
x1071.78‡ *19*	0.2‡ *1*								I_γ: Other: 2.9 *5* from Iγ(1072γ)/Iγ(477γ)=0.032 *6* (2023St05) and Iγ(477γ)=88 from 1977Li16.
x1087.76 *15*	0.7 *1*								%Iγ=0.69 *10* I_γ: Other: ≤0.2 (1982Br07).
1094.89 *12*	0.7 *1*	3595.45		2500.60	$5^+,6^+$				%Iγ=0.69 *10* I_γ: Other: ≤0.15 (1982Br07).
1124.77 *10*	1.9 *2*	2302.62	$(5)^+$	1177.80	4^+	M1+E2	≈0.5	≈0.01347	%Iγ=1.87 *20* α(K)≈0.01101; α(L)≈0.001877; α(M)≈0.000441 α(N)≈0.0001135; α(O)≈2.374×10^{-5}; α(P)≈3.07×10^{-6}; α(IPF)≈6.79×10^{-7} I_γ: Other: 1.85 *10* (1982Br07). Mult.: α(K)exp≈0.011 (1982Br07).
x1196.86 *11*	1.5 *2*								%Iγ=1.48 *20* I_γ: Other: 1.04 *6* (1982Br07).
1257.53 *12*	1.2 *1*	3396.49		2138.92	$(4,5)^+$				%Iγ=1.18 *10* I_γ: Other: 1.10 *7* (1982Br07).

$^{206}_{84}Po_{122}$-9

γ(^{206}Po) (continued)

E_γ †	I_γ †a	E_i(level)	E_f	J^π_f	Comments
1290.44 *11*	0.7 *1*	3872.15	2581.57	$(4,5,6)^+$	%Iγ=0.69 *10* I_γ: Other: ≤0.06 (1982Br07).
1292.84 *21*	0.7 *1*	3595.45	2302.62	$(5)^+$	%Iγ=0.69 *10* I_γ: Other: ≤0.06 (1982Br07).
x1294.89 *12*	0.7 *1*				%Iγ=0.69 *10* I_γ: Other: ≤0.06 (1982Br07).
x1349.52 *14*	0.7 *1*				%Iγ=0.69 *10* I_γ: Other: ≤0.02 (1982Br07).
1446.08 *12*	1.3 *1*	3361.96	1915.87	$(4)^+$	%Iγ=1.28 *10* I_γ: Other: ≤0.2 (1982Br07).
1492.85 *15*	0.2 *1*	4410.04	2917.02	$(4^+,5^+,6^+)$	%Iγ=0.20 *10*
x1637.41 *9*	1.2 *1*				%Iγ=1.18 *10* I_γ: Other: 0.96 *7* (1982Br07).
1736.25 *11*	0.9 *1*	4038.84	2302.62	$(5)^+$	%Iγ=0.89 *10* I_γ: Other: ≤0.07 (1982Br07).
x1745.56‡ *20*	0.7‡ *1*				
x1855.85‡ *65*	0.4‡ *1*				
1899.84 *12*	0.5 *1*	4038.84	2138.92	$(4,5)^+$	%Iγ=0.49 *10* I_γ: Other: ≤0.06 (1982Br07).
1909.33 *19*	0.6 *1*	4410.04	2500.60	$5^+,6^+$	%Iγ=0.59 *10* I_γ: Other: 0.31 *5* (1982Br07).
x1928.17 *19*	0.7 *1*				%Iγ=0.69 *10* I_γ: Other: ≈0.3 (1982Br07).
1938.07 *11*	1.3 *1*	4038.84	2100.80	$(5)^+$	%Iγ=1.28 *10* I_γ: Other: 1.15 *5* (1982Br07).
x2075.54‡ *45*	0.4‡ *1*				
2116.07 *18*	0.5 *1*	4697.77	2581.57	$(4,5,6)^+$	%Iγ=0.49 *10* I_γ: Other: 0.50 *10* (1982Br07).
2218.76 *18*	0.5 *1*	3396.49	1177.80	4^+	%Iγ=0.49 *10* I_γ: Other: 0.28 *3* (1982Br07).
2271.14 *12*	0.3 *1*	4410.04	2138.92	$(4,5)^+$	%Iγ=0.30 *10* I_γ: Other: ≤0.1 (1982Br07).
2298.75 *24*	0.8 *1*	3872.15	1573.38	6^+	%Iγ=0.79 *10* I_γ: Other: 0.55 *6* (1982Br07).
2318.58 *21*	0.5 *1*	4419.63	2100.80	$(5)^+$	%Iγ=0.49 *10* I_γ: Other: 0.19 *3* (1982Br07).
x2495.17‡ *21*	0.2‡ *1*				
2559.07 *25*	0.4 *1*	4697.77	2138.92	$(4,5)^+$	%Iγ=0.39 *10* I_γ: Other: ≤0.15 (1982Br07).

$^{206}_{84}Po_{122}$-10

$\gamma(^{206}\text{Po})$ (continued)

E_γ [†]	I_γ [†a]	E_i(level)
[x]2566.6[‡] *15*	0.2[‡] *1*	
[x]2592.5[‡] *10*	0.1[‡] *1*	

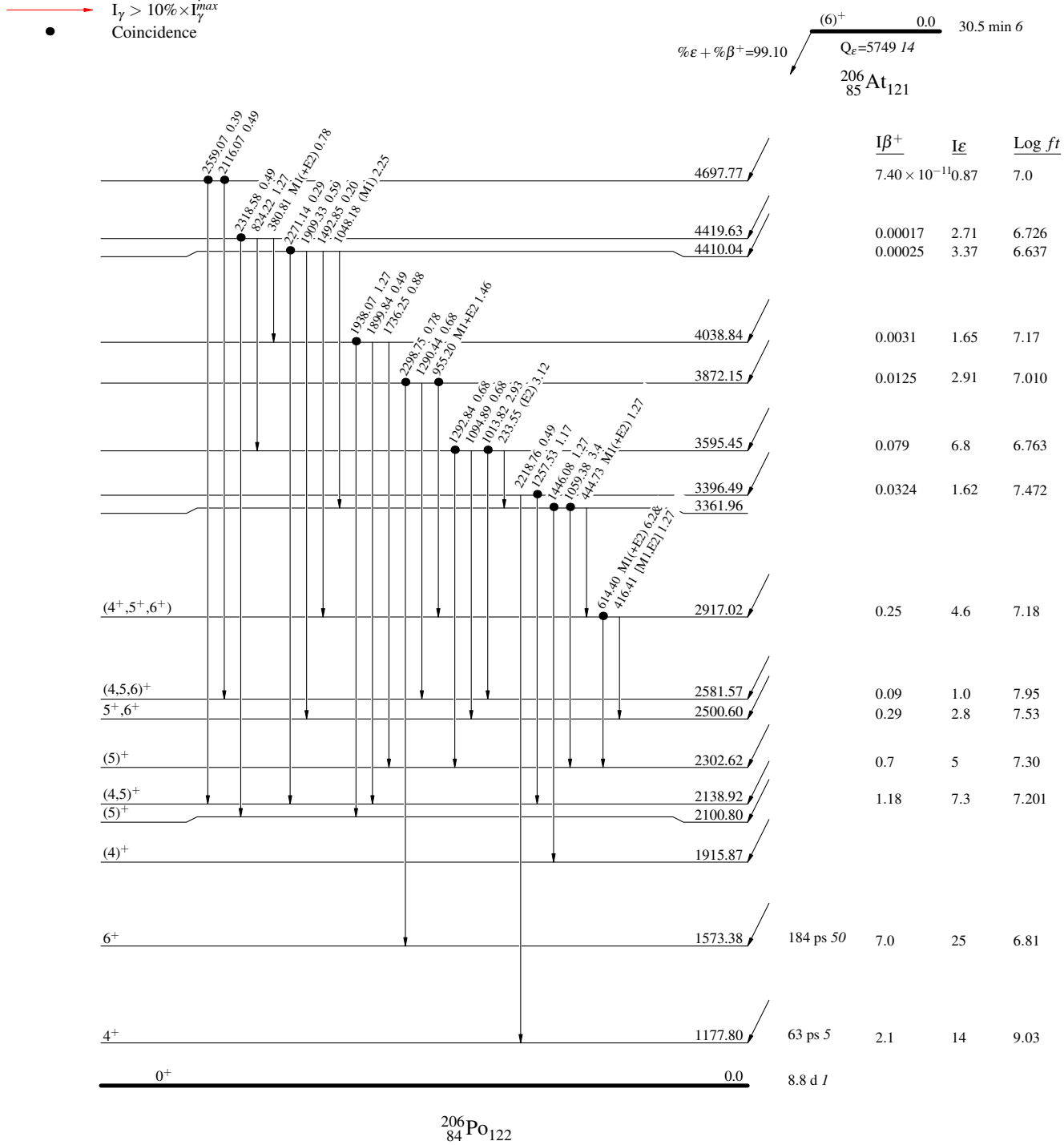
† From 1977Li16, unless otherwise stated. Values from 1982Br07 are given in the comments section.
‡ From 1977Li16, but not assigned with certainty to ^{206}At decay.
# From 1982Br07.
@ From ce measurements in 1977Li16 and 1982Br07.
& Additional information 2.
a For absolute intensity per 100 decays, multiply by 0.9763 *8*.
b Multiply placed with undivided intensity.
x γ ray not placed in level scheme.

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07

Decay Scheme

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence



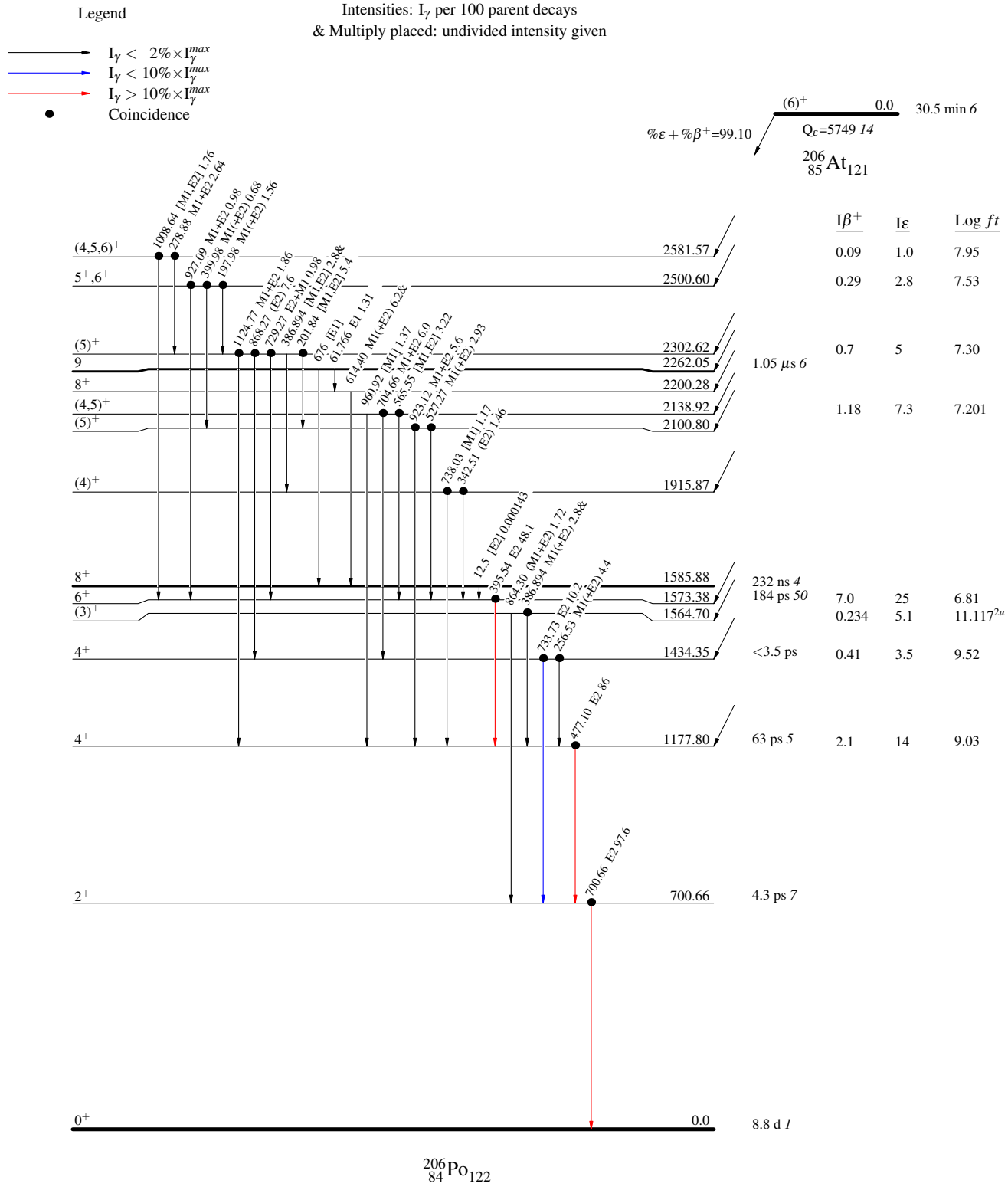
	Iβ+	Iε	Log *ft*
4697.77	7.40×10^{-11}	0.87	7.0
4419.63	0.00017	2.71	6.726
4410.04	0.00025	3.37	6.637
4038.84	0.0031	1.65	7.17
3872.15	0.0125	2.91	7.010
3595.45	0.079	6.8	6.763
3396.49	0.0324	1.62	7.472
2917.02	0.25	4.6	7.18
2581.57	0.09	1.0	7.95
2500.60	0.29	2.8	7.53
2302.62	0.7	5	7.30
2138.92	1.18	7.3	7.201

$^{206}_{84}Po_{122}$

^{206}At $\varepsilon+\beta^+$ decay 1977Li16,1982Br07

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



$^{206}_{84}Po_{122}$