^{207}At ε decay 1981Ch38,1981Ch39

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Lalkovski	NDS 112, 707 (2011)	1-Aug-2010

Parent: ^{207}At: E=0; $J^{\pi}=9/2^{-}$; $T_{1/2}$=1.81 h *3*; Q(ε)=3903 *22*; %ε+%β^{+} decay=91.4 *10*

1981Ch38,1981Ch39: Source produced in bombardment of 660-MeV protons on ^{232}Th target; chemical extraction of At from Th with subsequent mass separation of At isotopes. Detectors:Ge(Li) and Si(Li); Measured: Eγ, Iγ, Ice, γγ coin., ce-γ coin.

Other: 1970Jo20.

^{207}Po Levels

The previous evaluator (1984Sc44) proposed 22 new levels based on γγ, ce-γ coin and energy sums. All the levels proposed by 1971Jo20 and 1981Ch39 are accepted except for levels at 2734.2 and 3156.4 of 1971Jo20. The criterion for γ placement was an energy fit to within 2 standard deviations (except for a few multiply placed gammas). The ε decay to the low-lying (<2.5 MeV) levels in ^{207}Po resembles the ^{205}Bi ε decay to Pb; however, the log *ft*′s in ^{207}Po are in general lower than the analogous transitions in ^{205}Pb. Some of the low log *ft*′s for E≥2230 may be due to 2g9/2 and 1i11/2 n configuration fragments.

E(level)†	J^{π}‡	$T_{1/2}$‡	Comments
0	$5/2^{-}$	5.80 h *2*	
68.556 *14*	$1/2^{-}$	205 ns *10*	
236.472 *13*	$3/2^{-}$		
392.953 *18*	$3/2^{-}$		
588.323 *16*	$7/2^{-}$		
685.755 *18*	$5/2^{-}$		
814.422 *17*	$9/2^{-}$		
907.046 *17*	$7/2^{-}$		
1115.071 *18*	$13/2^{+}$	49 μs *4*	
1171.586 *19*	$7/2^{-}$		
1225.600 *17*	$5/2^{-}$		
1274.11 *4*	$13/2^{-}$		
1281.67 *6*	$(7/2,9/2,11/2)^{-}$		
1331.53? *8*			E(level): ce-γ coin suggest that 1095γ feeds the 236 level.
1383.15 *7*	$19/2^{-}$	2.79 s *8*	
1511.07 *6*	$7/2^{-}$		
1548.21 *4*	$(7/2^{-},9/2^{-})$		
1582.191 *18*	$9/2^{+}$		
1676.65 *4*	$7/2,9/2^{-}$		
1762.82 *8*	$(5/2^{-},7/2^{-})$		
1773.455 *19*	$11/2^{+}$		
1781.77 *4*	$(7/2,9/2)^{-}$		
1908.8? *3*	$(9/2^{+})$		ce-γ coin suggests that 1001γ feeds the 236 or the 907 levels.
2016.34? *6*			
2099.00 *5*	$3/2^{-},5/2^{-},7/2^{-}$		
2230.244 *20*	$9/2^{+}$		
2294.21 *9*	$(9/2)^{+}$		
2303.301 *19*	$9/2^{+}$		
2393.48 *6*			
2414.24 *5*	$(9/2^{+},11/2^{-})$		
2454.63 *4*	$(9/2^{+},11/2^{-})$		
2583.02 *11*	$(5/2^{-})$		
2641.40? *17*	$(3/2^{-},5/2^{-})$		
2827.68 *4*	$9/2^{+},11/2^{+}$		
2845.88 *4*	$(9/2^{+},11/2^{+})$		
2860.42 *6*	$9/2^{+},11/2$		
2870.99 *11*	$(7/2^{-},9/2^{-},11/2^{-})$		

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^{207}At ε decay 1981Ch38,1981Ch39 (continued)

^{207}Po Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
2887.94 *6*	(9/2)	3080.12 *9*		3272.58 *7*	(7/2,9/2)	3449.87 *8*	(7/2⁻,9/2⁻)
2958.09 *5*	(7/2⁻,9/2⁻)	3095.97? *12*	(7/2⁺,9/2⁺)	3300.90 *6*	(9/2)	3457.87 *7*	(9/2)
2961.91 *10*		3179.37 *8*	(9/2⁺)	3380.46 *10*			
3036.98? *11*	(5/2⁺)	3245.68 *8*	(5/2⁺,7/2)	3442.60 *15*			

† From a least-squares fit to the Eγ.
‡ From Adopted Levels.

ε,β⁺ radiations

Iγ normalization: From the requirement that Σ Ti(γ's to g.s.)=100 and that there is no direct feeding to the g.s.. From log *ft*>12.8 expected for the 9/2⁻ to 5/2⁻ ε+β⁺ transition to the g.s., one gets I(ε+β⁺ to g.s.)<8×10⁻⁵%.
I(β⁺)≈1.2% from γ± (I(γ±)/I(814γ))=0.059 *7* (1981Ch38). The decay scheme gives I(β⁺)=1.4% 2.

E(decay)	E(level)	Iβ⁺ ‡	Iε‡	Log *ft*	I(ε+β⁺)†‡	Comments
(445 *22*)	3457.87		1.58 *9*	6.37 *6*	1.58 *9*	εK=0.738 *5*; εL=0.194 *4*; εM+=0.0677 *14*
(602 *22*)	3300.90		2.55 *14*	6.47 *5*	2.55 *14*	εK=0.7601 *23*; εL=0.1786 *16*; εM+=0.0613 *7*
(945 *22*)	2958.09		2.87 *20*	6.85 *4*	2.87 *20*	εK=0.7798 *8*; εL=0.1645 *6*; εM+=0.05563 *23*
(1015 *22*)	2887.94		2.33 *14*	7.01 *4*	2.33 *14*	εK=0.7821 *7*; εL=0.1629 *5*; εM+=0.05499 *19*
(1043 *22*)	2860.42		1.25 *8*	7.31 *4*	1.25 *8*	εK=0.7829 *7*; εL=0.1624 *5*; εM+=0.05477 *18*
(1057 *22*)	2845.88		4.3 *3*	6.78 *4*	4.3 *3*	εK=0.7832 *6*; εL=0.1621 *5*; εM+=0.05465 *18*
(1075 *22*)	2827.68		3.38 *18*	6.90 *4*	3.38 *18*	εK=0.7837 *6*; εL=0.1618 *5*; εM+=0.05451 *17*
(1489 *22*)	2414.24		1.69 *22*	7.51 *6*	1.69 *22*	εK=0.7909 *3*; εL=0.15635 *22*; εM+=0.05234 *9*
(1600 *22*)	2303.301	0.019 *3*	19.1 *9*	6.52 *3*	19.1 *9*	av Eβ=283.2 *99*; εK=0.7917 *2*; εL=0.15533 *20*; εM+=0.05193 *8*
(1609 *22*)	2294.21	0.00122 *21*	1.14 *8*	7.75 *4*	1.14 *8*	av Eβ=287.3 *99*; εK=0.7918 *2*; εL=0.15524 *20*; εM+=0.05190 *8*
(1673 *22*)	2230.244	0.020 *3*	12.4 *7*	6.75 *3*	12.4 *7*	av Eβ=315.7 *98*; εK=0.7920; εL=0.15469 *19*; εM+=0.05168 *8*
(2121 *22*)	1781.77	0.0126 *13*	1.12 *9*	8.01 *4*	1.13 *9*	av Eβ=512.8 *97*; εK=0.7879 *5*; εL=0.15076 *22*; εM+=0.05021 *8*
(2226 *22*)	1676.65	0.0260 *17*	1.68 *2*	7.872 *14*	1.71 *23*	av Eβ=558.7 *96*; εK=0.7852 *7*; εL=0.14972 *23*; εM+=0.04983 *9*
(2321 *22*)	1582.191	<0.022	<1.1	>8.1	<1.1	av Eβ=600.0 *96*; εK=0.7822 *8*; εL=0.14871 *25*; εM+=0.04947 *9*
(2392 *22*)	1511.07	0.037 *3*	1.54 *12*	7.97 *4*	1.58 *12*	av Eβ=631.0 *97*; εK=0.7796 *9*; εL=0.1479 *3*; εM+=0.04919 *9*
(2621 *22*)	1281.67	0.060 *8*	1.52 *19*	8.06 *6*	1.58 *20*	av Eβ=731.3 *97*; εK=0.7686 *13*; εL=0.1450 *3*; εM+=0.04817 *11*
(2731 *22*)	1171.586	0.056 *14*	1.1 *3*	8.22 *11*	1.2 *3*	av Eβ=779.5 *97*; εK=0.7621 *15*; εL=0.1434 *4*; εM+=0.04763 *12*
(2788 *22*)	1115.071	0.11 *3*	7.2 *21*	8.89[1u] *13*	7.3 *21*	av Eβ=798.6 *92*; εK=0.7779 *4*; εL=0.15504 *22*; εM+=0.05199 *9*
(2996 *22*)	907.046	0.27 *6*	3.4 *7*	7.83 *10*	3.7 *8*	av Eβ=895.7 *97*; εK=0.7429 *18*; εL=0.1391 *4*; εM+=0.04615 *14*
(3089[#] *22*)	814.422	<0.2	<3	>8.0	<3	av Eβ=936.4 *97*; εK=0.7351 *20*; εL=0.1374 *5*; εM+=0.04558 *14*
(3315 *22*)	588.323	0.69 *13*	5.6 *11*	7.71 *9*	6.3 *12*	av Eβ=1036.1 *98*; εK=0.7137 *23*; εL=0.1329 *5*; εM+=0.04408 *16*

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^{207}At ε decay 1981Ch38,1981Ch39 (continued)

ε,β^+ radiations (continued)

† From the I(γ+ce) intensity balance at each level. Since there is an unplaced γ+ce intensity of≈13%, only branches >1% are shown.
‡ For absolute intensity per 100 decays, multiply by 0.914 *10*.
# Existence of this branch is questionable.

γ(^{207}Po)

Kα$_1$ x ray/I(814γ)=1.17 *6*, Kα$_2$ x ray/I(814γ)=0.66 *7* (1981Ch38). Other: Kα$_1$ x ray/I(814γ)=1.40 *10* (1971Jo20). Kα$_1$ x ray/I(814γ)=0.93 *7* and Kα$_2$ x ray/I(814γ)=0.56 *4* from the decay scheme.

1981Ch38 did not observe the 422.2 and 960.6 γ's reported by 1971Jo20. They are probably due to a ^{202}Bi impurity. A 994.0 γ with Iγ=50 *20* reported by 1971Jo20 and placed from the 1582 level is not included here. Not confirmed by 1981Ch38, and the Iγ for placement from the 1582 level is inconsistent with the ce-γ coin data of 1981Ch38.

For gammas of doubtful assignment to ^{207}At, see 1981Ch38.

E$_\gamma$[‡]	I$_\gamma$[‡g]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[@]	δ[&]	α[†]	I$_{(\gamma+ce)}$[#g]	Comments
[x]43.7 *1*						M1+E2	0.35 *25*	6.×10^1 *6*	1.3 *8*	ce(L)/(γ+ce)=0.7 *5*; ce(M)/(γ+ce)=0.19 *21*; ce(N+)/(γ+ce)=0.06 *7* ce(N)/(γ+ce)=0.05 *6*; ce(O)/(γ+ce)=0.009 *12*; ce(P)/(γ+ce)=0.0010 *11*
[x]45.8 *1*									0.9 *2*	
[x]48.28 *4*	0.36 *7*					M1(+E2)	0.06 *6*	18.4 *22*	7.6 *8*	ce(L)/(γ+ce)=0.72 *6*; ce(M)/(γ+ce)=0.17 *3*; ce(N+)/(γ+ce)=0.055 *9* ce(N)/(γ+ce)=0.044 *8*; ce(O)/(γ+ce)=0.0092 *15*; ce(P)/(γ+ce)=0.00117 *17* E$_\gamma$: Placed from the 1274 level by 1984Sc44; however, ce(L)(48γ) coin with the 459γ requires placement below the 1225 level or above the 1274 level, and mult is inconsistent with the revised J$^\pi$(1274).
[x]56.8 *1*						(M1+E2)		6.×10^1 *5*	7.2 *12*	ce(L)/(γ+ce)=0.7 *5*; ce(M)/(γ+ce)=0.19 *20*; ce(N+)/(γ+ce)=0.06 *7* ce(N)/(γ+ce)=0.05 *6*; ce(O)/(γ+ce)=0.009 *11*; ce(P)/(γ+ce)=0.0009 *10* Mult.: L subshell ratios are inconsistent with any multipolarity.
[x]63.87 *2*	0.53 *9*					M1(+E2)		33 *25*	7.6 *9*	ce(L)/(γ+ce)=0.7 *4*; ce(M)/(γ+ce)=0.19 *19*; ce(N+)/(γ+ce)=0.06 *6* ce(N)/(γ+ce)=0.05 *5*; ce(O)/(γ+ce)=0.009 *10*; ce(P)/(γ+ce)=0.0009 *9* E$_\gamma$: Placed by 1984Sc44 from the 2294 level; however, the absence of coin between ce(L)(63γ) and the strong 456, 648, and 1115γ's deexciting the 2230 level argue against this placement.
[x]65.2 *3*						M1(+E2)	0.35 *25*	12 *7*	2.7 *4*	ce(L)/(γ+ce)=0.7 *3*; ce(M)/(γ+ce)=0.17 *13*; ce(N+)/(γ+ce)=0.05 *5* ce(N)/(γ+ce)=0.04 *4*; ce(O)/(γ+ce)=0.009 *7*; ce(P)/(γ+ce)=0.0010 *7*
68.55 *2*	3.1 *3*	68.556	1/2$^-$	0	5/2$^-$	E2		41.0		α(L)=30.4 *5*; α(M)=8.11 *12*; α(N+..)=2.50 *4* α(N)=2.08 *3*; α(O)=0.393 *6*; α(P)=0.0348 *5* Mult.: L1/L2=0.06 and L2/L3=1.09 (1981Ch38); Other: L1:L2:L3=<0.05:1.17 *5*: 1 (1970Jo20).

$^{207}_{84}$Po$_{123}$-4

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡g	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	δ &	α †	$I_{(\gamma+ce)}$ #g	Comments
										I_γ: From Ice(L)=95 and εL(exp)=30.42 (1981Ch38). Iγ(exp)=4.8 *24* (1981Ch38).
x69.40 *3*	2.6 *12*								8.7 *15*	
x97.27 *4*	0.64 *6*					M1+E2	0.87 *6*	10.34 *20*	2.74 *18*	ce(K)/(γ+ce)=0.501 *15*; ce(L)/(γ+ce)=0.307 *10*; ce(M)/(γ+ce)=0.079 *4*; ce(N+)/(γ+ce)=0.0247 *12* ce(N)/(γ+ce)=0.0203 *10*; ce(O)/(γ+ce)=0.00396 *19*; ce(P)/(γ+ce)=0.000399 *15*
97.27 *4*	0.64 *6*	685.755	5/2−	588.323	7/2−	M1+E2	0.71 *8*	10.70 *25*		α(K)=6.6 *5*; α(L)=3.09 *21*; α(M)=0.79 *6*; α(N+..)=0.247 *18* α(N)=0.203 *15*; α(O)=0.040 *3*; α(P)=0.00415 *21*
										E_γ: Transition placed by the evaluators based on level energy differences and required Mult. Mult.: From α(L1)exp=0.61 *12*, α(L2)exp=1.3 *2* and α(L3)exp=0.56 *11* (1981Ch38).
109.1	<0.03	1383.15	19/2−	1274.11	13/2−	M3		453		α(K)=82.9 *12*; α(L)=265 *4*; α(M)=79.5 *12*; α(N+..)=25.8 *4* α(N)=21.2 *3*; α(O)=4.18 *6*; α(P)=0.430 *6*
										E_γ,I_γ: From adopted gammas.
x121.03 *3*	3.5 *3*								18.7 *15*	E_γ: ce(K)(121γ)(2342γ) (1981Ch38) suggests placement of the 121γ above the 3458 level, if the placement of the 2342γ as feeding the 1115 isomer is correct.
130 bj	<1	814.422	9/2−	685.755	5/2−	[E2]		2.41		α(K)=0.375 *6*; α(L)=1.511 *22*; α(M)=0.403 *6*; α(N+..)=0.1247 *18* α(N)=0.1032 *15*; α(O)=0.0197 *3*; α(P)=0.00179 *3*
156.54 *5*	1.8 *3*	392.953	3/2−	236.472	3/2−	[M1]		3.10		α(K)=2.52 *4*; α(L)=0.445 *7*; α(M)=0.1049 *15*; α(N+..)=0.0334 *5* α(N)=0.0270 *4*; α(O)=0.00565 *8*; α(P)=0.000730 *11* Placed by 1984Sc44 on the basis of energy fit and ce-γ coin of 1981Ch38.
x163.88 *4*	4.4 *11*								13.9 *14*	
167.900 *20*	22.5 *12*	236.472	3/2−	68.556	1/2−	M1(+E2)	0.08 *8*	2.53 *5*		α(K)=2.05 *5*; α(L)=0.365 *6*; α(M)=0.0863 *15*; α(N+..)=0.0274 *5* α(N)=0.0222 *4*; α(O)=0.00464 *8*; α(P)=0.000598 *9* Mult.: From K:L12:L3=47 *5*:8.6 *10*:≤0.60, L1/L2=9.4 and α(K)exp=2.09 *25* (1981Ch38).
x169.08 *3*	3.0 *3*									
x187.15 *15*	1.8 *6*					M1(+E2)	0.26 *26*	1.79 *20*	8.0 *15*	ce(K)/(γ+ce)=0.51 *4*; ce(L)/(γ+ce)=0.097 *7*; ce(M)/(γ+ce)=0.0230 *19*; ce(N+)/(γ+ce)=0.0073 *6* ce(N)/(γ+ce)=0.0059 *5*; ce(O)/(γ+ce)=0.00123 *9*; ce(P)/(γ+ce)=0.000156 *12*
191.256 *8*	11.8 *7*	1773.455	11/2+	1582.191	9/2+	M1(+E2)	0.2 *2*	1.72 *13*		α(K)=1.38 *13*; α(L)=0.253 *5*; α(M)=0.0600 *16*;

$^{207}_{84}Po_{123}$-5

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡g	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	δ&	α†	Comments
									α(N+..)=0.0191 *5* α(N)=0.0154 *4*; α(O)=0.00322 *6*; α(P)=0.000411 *10* Mult.: α(K)exp=1.41 *17* (1981Ch38).
213.87f *7*	2.4 *6*	2230.244	9/2+	2016.34?					
221.270 *20*	26.7 *15*	907.046	7/2−	685.755	5/2−	M1+E2	0.26 *24*	1.12 *12*	α(K)=0.90 *12*; α(L)=0.166 *4*; α(M)=0.0395 *6*; α(N+..)=0.01254 *19* α(N)=0.01015 *15*; α(O)=0.00211 *4*; α(P)=0.000269 *13* Mult.: α(K)exp=0.90 *11* (1981Ch38).
233.58f *5*	2.9 *6*	1781.77	(7/2,9/2)−	1548.21	(7/2−,9/2−)	M1(+E2)	0.4 *4*	0.91 *19*	α(K)=0.72 *18*; α(L)=0.140 *7*; α(M)=0.0335 *9*; α(N+..)=0.0106 *4* α(N)=0.00863 *23*; α(O)=0.00179 *8*; α(P)=0.000224 *23* Mult.: α(K)exp=0.77 *19* (1981Ch38).
236.477 *15*	21.7 *13*	236.472	3/2−	0	5/2−	M1+E2	0.25 *9*	0.93 *4*	α(K)=0.75 *4*; α(L)=0.1375 *23*; α(M)=0.0326 *5*; α(N+..)=0.01036 *16* α(N)=0.00839 *13*; α(O)=0.00175 *3*; α(P)=0.000223 *5* Mult.: From K:L1:L2=17.4 *18*:≈3:≈0.4 and α(K)exp=0.80 *10* (1981Ch38).
264.04j *14*	3.8 *10*	3300.90	(9/2)	3036.98?	(5/2+)				
268.08 *6*	4.3 *4*	1383.15	19/2−	1115.071	13/2+	E3		1.169	α(K)=0.229 *4*; α(L)=0.692 *10*; α(M)=0.189 *3*; α(N+..)=0.0593 *9* α(N)=0.0490 *7*; α(O)=0.00945 *14*; α(P)=0.000897 *13* Mult.: From adopted gammas.
278.8f *3*	≈3	3457.87	(9/2)	3179.37	(9/2+)				
x286.84 *4*	6.7 *5*								Eγ: Placed by 1984Sc44 from the 2303 level; however, the observed coin with ce(K)(167γ) argues against this placement.
292.816 *25*	8.1 *7*	685.755	5/2−	392.953	3/2−	M1(+E2)	0.6 *3*	0.43 *8*	α(K)=0.34 *7*; α(L)=0.069 *6*; α(M)=0.0166 *11*; α(N+..)=0.0053 *4* α(N)=0.0043 *3*; α(O)=0.00088 *7*; α(P)=0.000109 *12* Mult.: From α(K)exp=0.35 *6* (1981Ch38).
300.648 *13*	287 *14*	1115.071	13/2+	814.422	9/2−	M2		1.84	α(K)=1.371 *20*; α(L)=0.350 *5*; α(M)=0.0871 *13*; α(N+..)=0.0279 *4* α(N)=0.0226 *4*; α(O)=0.00470 *7*; α(P)=0.000589 *9* Mult.: From α(K)exp=1.37 *9*, α(L12)exp=0.32 *3*, α(L3)exp=0.022 *2*, α(M)exp=0.089 *11* and L1/L2=7.5 (1981Ch38).
324.408 *20*	17.8 *12*	392.953	3/2−	68.556	1/2−	M1(+E2)	0.2 *2*	0.40 *4*	α(K)=0.32 *3*; α(L)=0.057 *3*; α(M)=0.0135 *6*; α(N+..)=0.00428 *18* α(N)=0.00346 *15*; α(O)=0.00072 *4*; α(P)=9.3×10^{-5} *6* Mult.: From K/L12=8 *3* and α(K)exp=0.33 *4* (1981Ch38).
336.8f *4*	3.1 *3*	2099.00	3/2−,5/2−,7/2−	1762.82	(5/2−,7/2−)	M1+E2	0.6 *3*	0.29 *6*	α(K)=0.23 *5*; α(L)=0.046 *5*; α(M)=0.0110 *10*; α(N+..)=0.0035 *3*

$^{207}_{84}Po_{123}$-6

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
									α(N)=0.00283 *24*; α(O)=0.00059 *6*; α(P)=7.3×10^{-5} *9* Mult.: α(K)exp=0.23 *4* (1981Ch38).
339.10[f] *25*	4.0 *5*	1511.07	7/2$^-$	1171.586	7/2$^-$	M1(+E2)	0.15 *15*	0.356 *18*	α(K)=0.289 *16*; α(L)=0.0508 *16*; α(M)=0.0120 *4*; α(N+..)=0.00381 *12* α(N)=0.00308 *9*; α(O)=0.000645 *20*; α(P)=8.3×10^{-5} *3* Mult.: α(K)exp=0.38 *6* from 1981Ch38.
[x]343.5[b] *10*									
357.153 *15*	60 *4*	1171.586	7/2$^-$	814.422	9/2$^-$	M1(+E2)	0.32 *4*	0.292 *7*	α(K)=0.236 *6*; α(L)=0.0426 *8*; α(M)=0.01007 *18*; α(N+..)=0.00320 *6* α(N)=0.00259 *5*; α(O)=0.000541 *10*; α(P)=6.92×10^{-5} *14* Mult.: From α(K)exp=0.26 *2*, α(L12)exp=0.063 *14*, α(M)exp=0.011 *3* and L1/L2=7.5 (1981Ch38).
[x]365.34 *11*	5.0 *3*					M1(+E2)	0.18 *18*	0.289 *19*	α(K)=0.234 *17*; α(L)=0.0412 *18*; α(M)=0.0097 *4*; α(N+..)=0.00309 *13* α(N)=0.00250 *10*; α(O)=0.000523 *23*; α(P)=6.7×10^{-5} *4*
373.14[f] *8*	9.1 *10*	2827.68	9/2$^+$,11/2$^+$	2454.63	(9/2$^+$,11/2$^-$)	(M1)		0.279	α(K)=0.227 *4*; α(L)=0.0395 *6*; α(M)=0.00931 *13*; α(N+..)=0.00296 *5* α(N)=0.00240 *4*; α(O)=0.000502 *7*; α(P)=6.49×10^{-5} *9* Mult.: α(K)exp≈0.0052 *13* (1981Ch38).
392.94 *6*	17.9 *14*	392.953	3/2$^-$	0	5/2$^-$	M1(+E2)	0.2 *2*	0.236 *19*	α(K)=0.192 *17*; α(L)=0.0337 *19*; α(M)=0.0079 *4*; α(N+..)=0.00253 *13* α(N)=0.00204 *11*; α(O)=0.000427 *23*; α(P)=5.5×10^{-5} *4* Mult.: From K/L12=8.1 *18* and α(K)exp=0.22 *4* (1981Ch38).
411.10 *4*	13.3 *9*	1225.600	5/2$^-$	814.422	9/2$^-$	E2		0.0523	α(K)=0.0334 *5*; α(L)=0.01414 *20*; α(M)=0.00360 *5*; α(N+..)=0.001127 *16* α(N)=0.000925 *13*; α(O)=0.000183 *3*; α(P)=1.93×10^{-5} *3* Alternate placement from 2641 is possible based on Eγ; however, consideration of final spins populated by other transitions from that level makes placement from the 2641 level less probable. Mult.: α(K)exp≤0.19, α(L12)exp=0.065 *10* (1981Ch38).
[x]425.19 *25*	4.3 *8*								
[x]432.96 *10*	9.4 *7*								
438.5[f j] *5*	≈2	3080.12		2641.40?	(3/2$^-$,5/2$^-$)				
449.12 *13*	4.8 *4*	685.755	5/2$^-$	236.472	3/2$^-$	[M1]		0.1696	α(K)=0.1383 *20*; α(L)=0.0239 *4*; α(M)=0.00563 *8*; α(N+..)=0.00179 *3*

$^{207}_{84}Po_{123}$-7

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡ g	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	δ &	α †	Comments
									α(N)=0.001450 *21*; α(O)=0.000303 *5*; α(P)=3.92×10^{-5} *6*
456.750 *20*	40 *3*	2230.244	9/2$^+$	1773.455	11/2$^+$	M1		0.1621	α(K)=0.1322 *19*; α(L)=0.0229 *4*; α(M)=0.00538 *8*; α(N+..)=0.001713 *24* α(N)=0.001385 *20*; α(O)=0.000290 *4*; α(P)=3.75×10^{-5} *6* Mult.: α(K)exp=0.148 *17* and α(L12)exp=0.018 *4* (1981Ch38).
459.69 *3*	37.9 *25*	1274.11	13/2$^-$	814.422	9/2$^-$	E2		0.0394	α(K)=0.0264 *4*; α(L)=0.00977 *14*; α(M)=0.00247 *4*; α(N+..)=0.000774 *11* α(N)=0.000634 *9*; α(O)=0.0001260 *18*; α(P)=1.362×10^{-5} *19* Mult.: α(K)exp=0.029 *4* (1981Ch38). α(K)exp gives E2(+M1) with δ≈6.2. The decay scheme requires ΔJ=2.
467.116 *13*	160 *10*	1582.191	9/2$^+$	1115.071	13/2$^+$	E2		0.0379	α(K)=0.0255 *4*; α(L)=0.00928 *13*; α(M)=0.00234 *4*; α(N+..)=0.000734 *11* α(N)=0.000602 *9*; α(O)=0.0001197 *17*; α(P)=1.297×10^{-5} *19* Mult.: α(K)exp=0.036 *5*, α(L12)exp=0.0088 *13*, α(L3)exp=0.0022 *5* and α(M)exp= 0.0023 *5* (1981Ch38). α(K)exp gives E2(+M1) with δ>3.3. The decay scheme requires ΔJ=2.
473.04 j *25*	3.5 *5*	3300.90	(9/2)	2827.68	9/2$^+$,11/2$^+$				
487.96 f *8*	6.4 *12*	3449.87	(7/2$^-$,9/2$^-$)	2961.91					
x498.23 *16*	8.6 *8*								
503.40 f *13*	11 *3*	2958.09	(7/2$^-$,9/2$^-$)	2454.63	(9/2$^+$,11/2$^-$)	M1(+E2)	0.6 *6*	0.10 *3*	α(K)=0.08 *3*; α(L)=0.015 *4*; α(M)=0.0035 *8*; α(N+..)=0.00112 *25* α(N)=0.00091 *20*; α(O)=0.00019 *5*; α(P)=2.4×10^{-5} *6* Mult.: α(K)exp=0.008 *3* (1981Ch38).
514.7 *9*	8 *1*	907.046	7/2$^-$	392.953	3/2$^-$	[E2]		0.0300	α(K)=0.0209 *3*; α(L)=0.00684 *11*; α(M)=0.00172 *3*; α(N+..)=0.000538 *8* α(N)=0.000441 *7*; α(O)=8.81×10^{-5} *14*; α(P)=9.72×10^{-6} *15*
520.78 f *9*	19.0 *13*	2294.21	(9/2)$^+$	1773.455	11/2$^+$	M1(+E2)	0.18 *18*	0.112 *8*	α(K)=0.091 *7*; α(L)=0.0158 *9*; α(M)=0.00372 *19*; α(N+..)=0.00118 *6* α(N)=0.00096 *5*; α(O)=0.000200 *11*; α(P)=2.58×10^{-5} *15* Mult.: α(K)exp=0.093 *12* and α(L12)exp=0.019 *3* (1981Ch38).
529.790 *25*	77 *5*	2303.301	9/2$^+$	1773.455	11/2$^+$	M1		0.1093	α(K)=0.0892 *13*; α(L)=0.01536 *22*; α(M)=0.00361 *5*; α(N+..)=0.001150 *16*

$^{207}_{84}Po_{123}$-8

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
									α(N)=0.000930 *13*; α(O)=0.000195 *3*; α(P)=2.52×10^{-5} *4*
[x]538.53 *12*	3.6 *7*								
553.58 *22*	2.6 *5*	2230.244	9/2$^+$	1676.65	7/2,9/2$^-$				
562.10[f] *20*	1.6 *5*	3449.87	(7/2$^-$,9/2$^-$)	2887.94	(9/2)				
583.34 *3*	49 *3*	1171.586	7/2$^-$	588.323	7/2$^-$	M1+E2	0.72 *23*	0.063 *10*	α(K)=0.051 *8*; α(L)=0.0094 *11*; α(M)=0.00224 *25*; α(N+..)=0.00071 *8* α(N)=0.00058 *7*; α(O)=0.000120 *14*; α(P)=1.52×10^{-5} *19* Mult.: α(K)exp=0.051 *7* (1981Ch38).
588.333 *23*	432 *23*	588.323	7/2$^-$	0	5/2$^-$	E2+M1	2.7 *+11−6*	0.029 *4*	α(K)=0.022 *4*; α(L)=0.0054 *5*; α(M)=0.00133 *11*; α(N+..)=0.00042 *4* α(N)=0.00034 *3*; α(O)=7.0×10^{-5} *6*; α(P)=8.2×10^{-6} *8* Mult.: From K/L12=4.7 *8* and α(K)exp=0.022 *3* (1981Ch38).
[x]599[b] *1*									
603.8[f] *5*	8.0 *16*	1511.07	7/2$^-$	907.046	7/2$^-$	M1(+E2)	0.6 *6*	0.062 *19*	α(K)=0.050 *16*; α(L)=0.0091 *22*; α(M)=0.0022 *5*; α(N+..)=0.00068 *16* α(N)=0.00055 *13*; α(O)=0.00012 *3*; α(P)=1.5×10^{-5} *4* Mult.: α(K)exp=0.050 *14* from 1981Ch38.
617.20 *4*	40.5 *24*	685.755	5/2$^-$	68.556	1/2$^-$	E2		0.0198	α(K)=0.01450 *21*; α(L)=0.00401 *6*; α(M)=0.000992 *14*; α(N+..)=0.000312 *5* α(N)=0.000255 *4*; α(O)=5.14×10^{-5} *8*; α(P)=5.85×10^{-6} *9* Mult.: From α(K)exp=0.017 *3* (1981Ch38).
626.77 *4*	43.0 *25*	2303.301	9/2$^+$	1676.65	7/2,9/2$^-$				Mult.: α(K)exp=0.013 *2* (1981Ch38) consistent with mult=M1+E2 with δ>5 or with E1+M2 with δ=0.24 *4*.
637.270 *20*	56 *5*	1225.600	5/2$^-$	588.323	7/2$^-$	M1(+E2)	0.2 *2*	0.065 *5*	α(K)=0.053 *5*; α(L)=0.0092 *6*; α(M)=0.00216 *14*; α(N+..)=0.00069 *5* α(N)=0.00056 *4*; α(O)=0.000116 *8*; α(P)=1.50×10^{-5} *11* Mult.: α(K)exp=0.055 *8*, α(L12)exp=0.0098 *18* (1981Ch38).
641.00[ie] *7*	12[i] *4*	2414.24	(9/2$^+$,11/2$^-$)	1773.455	11/2$^+$				
641.00[iefj] *7*	<8[i]	2870.99	(7/2$^-$,9/2$^-$,11/2$^-$)	2230.244	9/2$^+$				
648.095 *20*	96 *7*	2230.244	9/2$^+$	1582.191	9/2$^+$	M1		0.0642	α(K)=0.0525 *8*; α(L)=0.00899 *13*; α(M)=0.00211 *3*; α(N+..)=0.000672 *10* α(N)=0.000544 *8*; α(O)=0.0001138 *16*; α(P)=1.474×10^{-5} *21* Mult.: α(K)exp=0.054 *8* (1981Ch38).

$^{207}_{84}Po_{123}$-9

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ [‡]	I_γ [‡ g]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [†]	Comments
658.40 *15*	144 *16*	1773.455	11/2$^+$	1115.071	13/2$^+$	M1+E2	1.1 *4*	0.037 *10*	α(K)=0.030 *9*; α(L)=0.0057 *12*; α(M)=0.0014 *3*; α(N+..)=0.00043 *9* α(N)=0.00035 *7*; α(O)=7.3×10^{-5} *15*; α(P)=9.1×10^{-6} *21* Mult.: α(K)exp=0.030 *6* (1981Ch38).
670.41 *7*	84 *8*	907.046	7/2$^-$	236.472	3/2$^-$	E2		0.01655	α(K)=0.01233 *18*; α(L)=0.00319 *5*; α(M)=0.000785 *11*; α(N+..)=0.000247 *4* α(N)=0.000202 *3*; α(O)=4.08×10^{-5} *6*; α(P)=4.71×10^{-6} *7* Mult.: α(K)exp=0.009 *3* (1981Ch38).
675.154 *23*	152 *10*	1582.191	9/2$^+$	907.046	7/2$^-$	E1		0.00563 *8*	α=0.00563 *8*; α(K)=0.00466 *7*; α(L)=0.000745 *11*; α(M)=0.0001736 *25*; α(N+..)=5.48×10^{-5} *8* α(N)=4.44×10^{-5} *7*; α(O)=9.21×10^{-6} *13*; α(P)=1.160×10^{-6} *17* Mult.: α(K)exp=0.0041 *8* (1981Ch38).
681.80 *14*	1.50 *20*	3095.97?	(7/2$^+$,9/2$^+$)	2414.24	(9/2$^+$,11/2$^-$)				
686.0 *10*	≈45 [c]	685.755	5/2$^-$	0	5/2$^-$	[M1]		0.0554	α(K)=0.0452 *7*; α(L)=0.00773 *12*; α(M)=0.00182 *3*; α(N+..)=0.000578 *9* α(N)=0.000468 *7*; α(O)=9.79×10^{-5} *15*; α(P)=1.268×10^{-5} *19*
693.33 [f] *6*	58 *4*	1281.67	(7/2,9/2,11/2)$^-$	588.323	7/2$^-$	E2+M1	4.6 *3*	0.0171 *4*	α(K)=0.0130 *3*; α(L)=0.00312 *6*; α(M)=0.000763 *13*; α(N+..)=0.000240 *4* α(N)=0.000196 *4*; α(O)=3.98×10^{-5} *7*; α(P)=4.68×10^{-6} *9* E_γ: γγ coin indicate that the 693γ feeds the 588 level; however, the ce-γ coin results of 1981Ch38 suggest that the 693γ feeds the 393 level. No placement is suggested by 1981Ch38 for this intense γ. The ce-γ coin results of 1981Ch38 appear to be inconsistent with the γ-γ coin of 1971Jo20 and our decay scheme. Mult.: α(K)exp=0.013 *2* from 1981Ch38, α(K)exp=0.044 *11* from 1971Jo20.
721.14 *4*	135 *11*	2303.301	9/2$^+$	1582.191	9/2$^+$	M1		0.0486	α(K)=0.0397 *6*; α(L)=0.00678 *10*; α(M)=0.001593 *23*; α(N+..)=0.000507 *7* α(N)=0.000410 *6*; α(O)=8.58×10^{-5} *12*; α(P)=1.112×10^{-5} *16* Mult.: α(K)exp=0.046 *8* and α(L12)exp=0.0092 *16* (1981Ch38).
[x]726.0 *2*	9 *3*								
755.08 [f] *9*	11.1 *9*	2303.301	9/2$^+$	1548.21	(7/2$^-$,9/2$^-$)	[E1]		0.00455 *7*	α=0.00455 *7*; α(K)=0.00377 *6*; α(L)=0.000597 *9*; α(M)=0.0001390 *20*; α(N+..)=4.39×10^{-5} *7*

$^{207}_{84}Po_{123}$-10

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡ g	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	α †	Comments
								α(N)=3.56×10^{-5} *5*; α(O)=7.39×10^{-6} *11*; α(P)=9.34×10^{-7} *13*
x760.8 b *10*	≤1.5							
765.03 f *10*	12.8 *9*	3179.37	(9/2$^+$)	2414.24	(9/2$^+$,11/2$^-$)			
768.3 *3*	11.2 *7*	1582.191	9/2$^+$	814.422	9/2$^-$	[E1]	0.00440 *7*	α=0.00440 *7*; α(K)=0.00365 *6*; α(L)=0.000578 *8*; α(M)=0.0001344 *19*; α(N+..)=4.25×10^{-5} *6* α(N)=3.44×10^{-5} *5*; α(O)=7.14×10^{-6} *10*; α(P)=9.04×10^{-7} *13*
772.20 f *15*	9.0 *6*	2870.99	(7/2$^-$,9/2$^-$,11/2$^-$)	2099.00	3/2$^-$,5/2$^-$,7/2$^-$			
789.54 f *25*	5.0 *6*	2887.94	(9/2)	2099.00	3/2$^-$,5/2$^-$,7/2$^-$			
793 b f j *1*		1908.8?	(9/2$^+$)	1115.071	13/2$^+$			
x798.20 *12*	5.4 *6*							
814.41 *3*	1000 *50*	814.422	9/2$^-$	0	5/2$^-$	E2	0.01104	α(K)=0.00850 *12*; α(L)=0.00192 *3*; α(M)=0.000467 *7*; α(N+..)=0.0001474 *21* α(N)=0.0001200 *17*; α(O)=2.45×10^{-5} *4*; α(P)=2.91×10^{-6} *4* Mult.: From α(K)exp= 0.0085 *6*, α(L1)exp=0.00184 *22* and L1/L2>2.6 (1981Ch38).
820.50 f *15*	12.0 *16*	2583.02	(5/2$^-$)	1762.82	(5/2$^-$,7/2$^-$)	[M1]	0.0347	α(K)=0.0284 *4*; α(L)=0.00483 *7*; α(M)=0.001134 *16*; α(N+..)=0.000361 *5* α(N)=0.000292 *4*; α(O)=6.11×10^{-5} *9*; α(P)=7.92×10^{-6} *11*
x833.06 *10*	10.6 *15*							E_γ: ce-γ coin suggest that this γ could be a doublet, part of Iγ may deexcite the 1225 level.
x838 b *1*								
x847.55 *17*	6.7 *12*					M1	0.0319	α(K)=0.0261 *4*; α(L)=0.00443 *7*; α(M)=0.001042 *15*; α(N+..)=0.000331 *5* α(N)=0.000268 *4*; α(O)=5.61×10^{-5} *8*; α(P)=7.27×10^{-6} *11*
852.46 f *16*	5.5 *5*	3245.68	(5/2$^+$,7/2)	2393.48				
862.46 h a f *5*	16.0 h *11*	1548.21	(7/2$^-$,9/2$^-$)	685.755	5/2$^-$			
862.46 h a f *5*	16.0 h *11*	1676.65	7/2,9/2$^-$	814.422	9/2$^-$			
865.3 *4*	5.0 *6*	3095.97?	(7/2$^+$,9/2$^+$)	2230.244	9/2$^+$	(M1)	0.0302	α(K)=0.0247 *4*; α(L)=0.00420 *6*; α(M)=0.000986 *14*; α(N+..)=0.000314 *5* α(N)=0.000254 *4*; α(O)=5.32×10^{-5} *8*; α(P)=6.89×10^{-6} *10*
x880.92 *4*	24.5 *18*							E_γ: Placed by 1984Sc44 from the 1274 level, on the basis of energy fit; however, this placement is not consistent with the in-beam level scheme.
x893.34 *23*	7.9 *9*							

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
907.08 *3*	149 *9*	907.046	7/2⁻	0	5/2⁻	M1(+E2)	≤0.5	0.0250 *19*	α(K)=0.0204 *16*; α(L)=0.00349 *23*; α(M)=0.00082 *6*; α(N+..)=0.000261 *17* α(N)=0.000211 *14*; α(O)=4.4×10^{-5} *3*; α(P)=5.7×10^{-6} *4* Mult.: α(K)exp=0.021 *4* and EL12=0.0043 *9* (1981Ch38).
[x]932.13 *20*	8.6 *7*								
934.6[f] *3*	≈2	1171.586	7/2⁻	236.472	3/2⁻	[E2]		0.00839 *12*	α=0.00839 *12*; α(K)=0.00658 *10*; α(L)=0.001378 *20*; α(M)=0.000332 *5*; α(N+..)=0.0001049 α(N)=8.53×10^{-5} *12*; α(O)=1.749×10^{-5} *25*; α(P)=2.12×10^{-6} *3*
[x]948.37 *10*	15.0 *12*								E_γ: Placed by 1984Sc44 from the 1762 level; however, this placement is not consistent with the observed coin with ce(L)(68γ).
948.37[f] *10*	15.0 *12*	1762.82	(5/2⁻,7/2⁻)	814.422	9/2⁻				
959.79[f] *18*	4.8 *5*	1548.21	(7/2⁻,9/2⁻)	588.323	7/2⁻	[M1]		0.0231	α(K)=0.0189 *3*; α(L)=0.00320 *5*; α(M)=0.000752 *11*; α(N+..)=0.000239 *4* α(N)=0.000194 *3*; α(O)=4.05×10^{-5} *6*; α(P)=5.26×10^{-6} *8*
[x]967.80 *9*	5.9 *11*								
[x]≈974[b]									
1001.5[f j] *5*	≈2	1908.8?	(9/2⁺)	907.046	7/2⁻				
1004.56 *6*	5.4 *8*	2230.244	9/2⁺	1225.600	5/2⁻	[M2]		0.0496	α(K)=0.0397 *6*; α(L)=0.00755 *11*; α(M)=0.00180 *3*; α(N+..)=0.000575 *8* α(N)=0.000466 *7*; α(O)=9.73×10^{-5} *14*; α(P)=1.249×10^{-5} *18*
1015.40[f] *8*	5.3 *6*	3245.68	(5/2⁺,7/2)	2230.244	9/2⁺				
1021.67[f] *12*	19.6 *12*	2303.301	9/2⁺	1281.67	(7/2,9/2,11/2)⁻	[E1]		0.00261 *4*	α=0.00261 *4*; α(K)=0.00217 *3*; α(L)=0.000337 *5*; α(M)=7.83×10^{-5} *11*; α(N+..)=2.48×10^{-5} *4* α(N)=2.00×10^{-5} *3*; α(O)=4.17×10^{-6} *6*; α(P)=5.33×10^{-7} *8* Mult.: α(K)exp gives E2(+M1) with δ>2.3 or E1+M2 with δ=0.37 *10*.
[x]1024.6 *2*	3 *1*								
1042.39[f] *8*	6.6 *6*	3272.58	(7/2,9/2)	2230.244	9/2⁺				
1054.22 *4*	24.0 *17*	2827.68	9/2⁺,11/2⁺	1773.455	11/2⁺	M1		0.0182	α(K)=0.01487 *21*; α(L)=0.00251 *4*; α(M)=0.000589 *9*; α(N+..)=0.000187 *3* α(N)=0.0001515 *22*; α(O)=3.17×10^{-5} *5*; α(P)=4.12×10^{-6} *6* Mult.: α(K)exp=0.014 *2* and α(L)exp=0.0029 *9* (1981Ch38).

$^{207}_{84}Po_{123}$-12

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡ g	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	α †	Comments
1077.68 *3*	44 *3*	2303.301	9/2$^+$	1225.600	5/2$^-$	[M2]	0.0411	α(K)=0.0329 *5*; α(L)=0.00620 *9*; α(M)=0.001478 *21*; α(N+..)=0.000471 *7* α(N)=0.000381 *6*; α(O)=7.97×10^{-5} *12*; α(P)=1.024×10^{-5} *15*
x1081.0 b *15*								
1087.06 f *10*	6.1 *7*	2860.42	9/2$^+$,11/2	1773.455	11/2$^+$			
1095.13 f *15*	3.7 *5*	1331.53?		236.472	3/2$^-$			
1115.196 *24*	108 *6*	2230.244	9/2$^+$	1115.071	13/2$^+$	E2	0.00597 *9*	α=0.00597 *9*; α(K)=0.00476 *7*; α(L)=0.000921 *13*; α(M)=0.000220 *3*; α(N+..)=6.98×10^{-5} *10* α(N)=5.65×10^{-5} *8*; α(O)=1.165×10^{-5} *17*; α(P)=1.435×10^{-6} *20*; α(IPF)=2.56×10^{-7} *4* Mult.: α(K)exp=0.0051 *7* and α(L)exp=0.0022 *4* (1981Ch38).
1118.25 f *8*	9.1 *9*	1511.07	7/2$^-$	392.953	3/2$^-$	[E2]	0.00594 *9*	α=0.00594 *9*; α(K)=0.00473 *7*; α(L)=0.000915 *13*; α(M)=0.000219 *3*; α(N+..)=6.94×10^{-5} *10* α(N)=5.62×10^{-5} *8*; α(O)=1.158×10^{-5} *17*; α(P)=1.426×10^{-6} *20*; α(IPF)=2.91×10^{-7} *5*
1127.9 f j *3*	3.0 *10*	3036.98?	(5/2$^+$)	1908.8?	(9/2$^+$)	[E2]	0.00584 *9*	α=0.00584 *9*; α(K)=0.00466 *7*; α(L)=0.000898 *13*; α(M)=0.000214 *3*; α(N+..)=6.83×10^{-5} *10* α(N)=5.51×10^{-5} *8*; α(O)=1.136×10^{-5} *16*; α(P)=1.401×10^{-6} *20*; α(IPF)=4.28×10^{-7} *8*
1131.72 *6*	10.2 *8*	2303.301	9/2$^+$	1171.586	7/2$^-$	[E1]	0.00218 *3*	α=0.00218 *3*; α(K)=0.00182 *3*; α(L)=0.000280 *4*; α(M)=6.49×10^{-5} *9*; α(N+..)=2.28×10^{-5} *4* α(N)=1.663×10^{-5} *24*; α(O)=3.47×10^{-6} *5*; α(P)=4.44×10^{-7} *7*; α(IPF)=2.30×10^{-6} *4*
x1134.6 *3*	2.0 *5*							
1139.03 f *22*	1.7 *5*	3442.60		2303.301	9/2$^+$			
1154.65 f *11*	3.6 *5*	3457.87	(9/2)	2303.301	9/2$^+$			
1163.2 f *4*	2.0 *5*	3457.87	(9/2)	2294.21	(9/2)$^+$			
x1171.62 *4*	27.9 *17*							E_γ: Placed from 1171 level by 1984Sc44 on the basis of coin with 1283γ (1971Jo20); however, this placement is not consistent with observed coin with ce(K)(167γ) (1981Ch38). Placement of the 1171γ above the 1283γ is thus suggested, a placement that could also be consistent with the observed coin with ce(K)(121γ).
1171.62 f *4*	27.9 *17*	1171.586	7/2$^-$	0	5/2$^-$	E2		Mult.: α(K)exp=0.0038 *6* (1981Ch38).
1174.60 f *8*	10.3 *8*	1762.82	(5/2$^-$,7/2$^-$)	588.323	7/2$^-$			
1179.5 f *15*	≈5	2294.21	(9/2)$^+$	1115.071	13/2$^+$	[E2]	0.00537 *8*	α=0.00537 *8*; α(K)=0.00429 *6*; α(L)=0.000814 *12*; α(M)=0.000194 *3*; α(N+..)=6.37×10^{-5} *9* α(N)=4.98×10^{-5} *8*; α(O)=1.029×10^{-5} *15*; α(P)=1.274×10^{-6} *19*; α(IPF)=2.26×10^{-6} *10*
1188.26 *3*	38 *2*	2303.301	9/2$^+$	1115.071	13/2$^+$	E2	0.00529 *8*	α=0.00529 *8*; α(K)=0.00424 *6*; α(L)=0.000801 *12*; α(M)=0.000191 *3*; α(N+..)=6.32×10^{-5} *9*

$^{207}_{84}Po_{123}$-13

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡ g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N)=4.90×10^{-5} *7*; α(O)=1.012×10^{-5} *15*; α(P)=1.254×10^{-6} *18*; α(IPF)=2.82×10^{-6} *4* Mult.: α(K)exp=0.0052 *13* (1981Ch38).
1193.44[f] *7*	10.6 *8*	1781.77	(7/2,9/2)$^-$	588.323	7/2$^-$	[M1]	0.01320	α(K)=0.01081 *16*; α(L)=0.00182 *3*; α(M)=0.000427 *6*; α(N+..)=0.0001419 *20* α(N)=0.0001097 *16*; α(O)=2.30×10^{-5} *4*; α(P)=2.98×10^{-6} *5*; α(IPF)=6.16×10^{-6} *9*
1225.62 *3*	26.4 *18*	1225.600	5/2$^-$	0	5/2$^-$	M1+E2	0.009 *4*	α=0.009 *4*; α(K)=0.007 *3*; α(L)=0.0012 *5*; α(M)=0.00029 *11*; α(N+..)=0.00010 *4* α(N)=7.E−5 *3*; α(O)=1.5×10^{-5} *6*; α(P)=2.0×10^{-6} *8*; α(IPF)=9.E−6 *3*
1242.62 *7*	17.5 *15*	2414.24	(9/2$^+$,11/2$^-$)	1171.586	7/2$^-$			
1245.46 *5*	13.4 *11*	2827.68	9/2$^+$,11/2$^+$	1582.191	9/2$^+$	[M1]	0.01183	α(K)=0.00969 *14*; α(L)=0.001628 *23*; α(M)=0.000382 *6*; α(N+..)=0.0001369 *20* α(N)=9.82×10^{-5} *14*; α(O)=2.06×10^{-5} *3*; α(P)=2.67×10^{-6} *4*; α(IPF)=1.543×10^{-5} *22*
[x]1254.11 *15*	2.52 *22*							
1263.71[f] *4*	12.1 *9*	2845.88	(9/2$^+$,11/2$^+$)	1582.191	9/2$^+$	(M1)	0.01140	α(K)=0.00933 *13*; α(L)=0.001568 *22*; α(M)=0.000368 *6*; α(N+..)=0.0001364 *19* α(N)=9.46×10^{-5} *14*; α(O)=1.98×10^{-5} *3*; α(P)=2.57×10^{-6} *4*; α(IPF)=1.94×10^{-5} *3*
1275.17[f] *25*	3.1 *3*	1511.07	7/2$^-$	236.472	3/2$^-$	[E2]	0.00464 *7*	α=0.00464 *7*; α(K)=0.00373 *6*; α(L)=0.000689 *10*; α(M)=0.0001635 *23*; α(N+..)=6.35×10^{-5} *9* α(N)=4.20×10^{-5} *6*; α(O)=8.69×10^{-6} *13*; α(P)=1.082×10^{-6} *16*; α(IPF)=1.170×10^{-5} *17*
1277.83[f] *23*	3.3 *4*	2860.42	9/2$^+$,11/2	1582.191	9/2$^+$			
1283.08[f] *4*	27.4 *16*	2454.63	(9/2$^+$,11/2$^-$)	1171.586	7/2$^-$	[E2]	0.00459 *7*	α=0.00459 *7*; α(K)=0.00369 *6*; α(L)=0.000680 *10*; α(M)=0.0001614 *23*; α(N+..)=6.38×10^{-5} *9* α(N)=4.14×10^{-5} *6*; α(O)=8.57×10^{-6} *12*; α(P)=1.069×10^{-6} *15*; α(IPF)=1.275×10^{-5} *18*
[x]1291.8 *4*	2.3 *3*							
1298.84 *24*	4.2 *11*	2414.24	(9/2$^+$,11/2$^-$)	1115.071	13/2$^+$			
1305.4[f] *3*	5.8 *16*	2887.94	(9/2)	1582.191	9/2$^+$			
1320[f j] *1*	3.6 *18*	1908.8?	(9/2$^+$)	588.323	7/2$^-$			
1323.12 *15*	4.5 *6*	2230.244	9/2$^+$	907.046	7/2$^-$	[E1]	0.001723 *25*	α=0.001723 *25*; α(K)=0.001386 *20*; α(L)=0.000212 *3*; α(M)=4.91×10^{-5} *7*; α(N+..)=7.66×10^{-5} *11* α(N)=1.258×10^{-5} *18*; α(O)=2.62×10^{-6} *4*; α(P)=3.37×10^{-7} *5*; α(IPF)=6.11×10^{-5} *9*
1331.63[f] *12*	4.0 *6*	1331.53?		0	5/2$^-$			
1334.0[f] *10*	≈1	2845.88	(9/2$^+$,11/2$^+$)	1511.07	7/2$^-$	[E1]	0.001705 *24*	α=0.001705 *24*; α(K)=0.001366 *20*; α(L)=0.000209 *3*;

$^{207}_{84}Po_{123}$-14

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ ‡	I_γ ‡g	E_i(level)	J_i^π	E_f	J_f^π	Mult.@	α†	Comments
								α(M)=4.84×10^{-5} *7*; α(N+..)=8.17×10^{-5} *13* α(N)=1.240×10^{-5} *18*; α(O)=2.59×10^{-6} *4*; α(P)=3.33×10^{-7} *5*; α(IPF)=6.64×10^{-5} *11*
1339.17[f] *16*	6.2 *7*	2454.63	(9/2$^+$,11/2$^-$)	1115.071	13/2$^+$	[E1]	0.001697 *24*	α=0.001697 *24*; α(K)=0.001357 *19*; α(L)=0.000207 *3*; α(M)=4.81×10^{-5} *7*; α(N+..)=8.42×10^{-5} *12* α(N)=1.231×10^{-5} *18*; α(O)=2.57×10^{-6} *4*; α(P)=3.30×10^{-7} *5*; α(IPF)=6.90×10^{-5} *10*
x1348.0 *10*	≈2							
1350.73[f] *11*	9.4 *9*	3449.87	(7/2$^-$,9/2$^-$)	2099.00	3/2$^-$,5/2$^-$,7/2$^-$			
1358.5[bf] *5*	≤1.5	3457.87	(9/2)	2099.00	3/2$^-$,5/2$^-$,7/2$^-$			
x1364.70 *20*	3.0 *5*							
1371[bf] *1*	≤5	1762.82	(5/2$^-$,7/2$^-$)	392.953	3/2$^-$			
1396.19 *4*	31.8 *18*	2303.301	9/2$^+$	907.046	7/2$^-$	(E1)	0.001617 *23*	α=0.001617 *23*; α(K)=0.001265 *18*; α(L)=0.000193 *3*; α(M)=4.47×10^{-5} *7*; α(N+..)=0.0001151 α(N)=1.145×10^{-5} *16*; α(O)=2.39×10^{-6} *4*; α(P)=3.08×10^{-7} *5*; α(IPF)=0.0001009 *15* Mult.: α(K)exp≈0.0019 (1981Ch38).
1409.86[f] *5*	25.9 *15*	2958.09	(7/2$^-$,9/2$^-$)	1548.21	(7/2$^-$,9/2$^-$)	M1	0.00866 *13*	α=0.00866 *13*; α(K)=0.00705 *10*; α(L)=0.001180 *17*; α(M)=0.000277 *4*; α(N+..)=0.0001574 α(N)=7.12×10^{-5} *10*; α(O)=1.492×10^{-5} *21*; α(P)=1.94×10^{-6} *3*; α(IPF)=6.93×10^{-5} *10* Mult.: α(K)exp=0.0062 *16* (1981Ch38).
1413.15[f] *5*	22.4 *13*	2099.00	3/2$^-$,5/2$^-$,7/2$^-$	685.755	5/2$^-$	M1	0.00861 *12*	α=0.00861 *12*; α(K)=0.00701 *10*; α(L)=0.001173 *17*; α(M)=0.000275 *4*; α(N+..)=0.0001583 α(N)=7.08×10^{-5} *10*; α(O)=1.483×10^{-5} *21*; α(P)=1.93×10^{-6} *3*; α(IPF)=7.08×10^{-5} *10* Mult.: α(K)exp=0.0071 *18* (1981Ch38).
1450.75[f] *20*	1.3 *3*	2961.91		1511.07	7/2$^-$			
1455.06[f] *25*	0.80 *20*	3036.98?	(5/2$^+$)	1582.191	9/2$^+$	[E2]	0.00367 *6*	α=0.00367 *6*; α(K)=0.00294 *5*; α(L)=0.000522 *8*; α(M)=0.0001235 *18*; α(N+..)=8.85×10^{-5} *13* α(N)=3.17×10^{-5} *5*; α(O)=6.58×10^{-6} *10*; α(P)=8.27×10^{-7} *12*; α(IPF)=4.94×10^{-5} *7*
1488.91 *12*	6.9 *7*	2303.301	9/2$^+$	814.422	9/2$^-$	[E1]	0.001520 *22*	α=0.001520 *22*; α(K)=0.001135 *16*; α(L)=0.0001726 *25*; α(M)=4.00×10^{-5} *6*; α(N+..)=0.000172 α(N)=1.024×10^{-5} *15*; α(O)=2.14×10^{-6} *3*; α(P)=2.76×10^{-7} *4*; α(IPF)=0.0001594 *23*
x1493.23 *12*	5.7 *6*							
1506.97 *9*	14.3 *9*	2414.24	(9/2$^+$,11/2$^-$)	907.046	7/2$^-$			
1510.89[haf] *8*	11.7[h] *8*	1511.07	7/2$^-$	0	5/2$^-$	[M1]	0.00732 *11*	α=0.00732 *11*; α(K)=0.00591 *9*; α(L)=0.000987 *14*; α(M)=0.000231 *4*; α(N+..)=0.000193 *3*

$\gamma(^{207}Po)$ (continued)

E_γ ‡	I_γ ‡g	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	α †	Comments
								α(N)=5.95×10^{-5} *9*; α(O)=1.248×10^{-5} *18*; α(P)=1.621×10^{-6} *23*; α(IPF)=0.0001195 *17*
1510.89 hdaf *8*	11.7 h *8*	2099.00	3/2$^-$,5/2$^-$,7/2$^-$	588.323	7/2$^-$	[M1]	0.00732 *11*	α=0.00732 *11*; α(K)=0.00591 *9*; α(L)=0.000987 *14*; α(M)=0.000231 *4*; α(N+..)=0.000193 *3* α(N)=5.95×10^{-5} *9*; α(O)=1.248×10^{-5} *18*; α(P)=1.621×10^{-6} *23*; α(IPF)=0.0001195 *17*
1548.21 f *8*	26.1 *16*	1548.21	(7/2$^-$,9/2$^-$)	0	5/2$^-$			
x1552.48 *13*	7.2 *5*							
1556.54 f *11*	6.2 *7*	2887.94	(9/2)	1331.53?				
x1574.64 *11*	3.7 *4*							
1589.19 f *15*	3.8 *4*	2870.99	(7/2$^-$,9/2$^-$,11/2$^-$)	1281.67	(7/2,9/2,11/2)$^-$			
1598.31 f *18*	2.9 *3*	3380.46		1781.77	(7/2,9/2)$^-$			
1631.16 f *20*	2.1 *3*	3179.37	(9/2$^+$)	1548.21	(7/2$^-$,9/2$^-$)			
1641.82 *6*	21.1 *12*	2230.244	9/2$^+$	588.323	7/2$^-$	[E1]	0.001420 *20*	α=0.001420 *20*; α(K)=0.000964 *14*; α(L)=0.0001461 *21*; α(M)=3.38×10^{-5} *5*; α(N+..)=0.000276 α(N)=8.66×10^{-6} *13*; α(O)=1.81×10^{-6} *3*; α(P)=2.34×10^{-7} *4*; α(IPF)=0.000265 *4*
1676.50 *10*	68 *4*	1676.65	7/2,9/2$^-$	0	5/2$^-$			Mult.: α(K)exp>0.003 (1971Jo20) is consistent with mult=M1(+E2), or with E1+M2 with δ>0.40.
1684.07 *18*	2.6 *3*	2958.09	(7/2$^-$,9/2$^-$)	1274.11	13/2$^-$	[E2]	0.00290 *4*	α=0.00290 *4*; α(K)=0.00226 *4*; α(L)=0.000389 *6*; α(M)=9.15×10^{-5} *13*; α(N+..)=0.0001560 *22* α(N)=2.35×10^{-5} *4*; α(O)=4.88×10^{-6} *7*; α(P)=6.20×10^{-7} *9*; α(IPF)=0.0001270 *18*
1697.0 f *4*	1.20 *12*	3245.68	(5/2$^+$,7/2)	1548.21	(7/2$^-$,9/2$^-$)			
1712.60 *9*	29.8 *18*	2827.68	9/2$^+$,11/2$^+$	1115.071	13/2$^+$			
1716.39 *10*	20.9 *12*	2887.94	(9/2)	1171.586	7/2$^-$			
1719.1 *4*	4.2 *6*	3300.90	(9/2)	1582.191	9/2$^+$			
1730.76 f *6*	84 *5*	2845.88	(9/2$^+$,11/2$^+$)	1115.071	13/2$^+$	[E2]	0.00278 *4*	α=0.00278 *4*; α(K)=0.00215 *3*; α(L)=0.000368 *6*; α(M)=8.65×10^{-5} *13*; α(N+..)=0.0001727 *25* α(N)=2.22×10^{-5} *4*; α(O)=4.62×10^{-6} *7*; α(P)=5.87×10^{-7} *9*; α(IPF)=0.0001453 *21* E_γ: This intense γ is not observed in γγ or ce-γ coin, which suggests that it feeds the g.s. or an isomeric state.
1736.7 f *4*	1.5 *6*	2961.91		1225.600	5/2$^-$			
1745.32 f *7*	15.6 *9*	2860.42	9/2$^+$,11/2	1115.071	13/2$^+$			
1768.0 f *5*	1.6 *3*	2583.02	(5/2$^-$)	814.422	9/2$^-$	[E2]	0.00270 *4*	α=0.00270 *4*; α(K)=0.00207 *3*; α(L)=0.000353 *5*; α(M)=8.29×10^{-5} *12*; α(N+..)=0.000186 *3*

$^{207}_{84}Po_{123}$-16

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
								α(N)=2.13×10^{-5} *3*; α(O)=4.43×10^{-6} *7*; α(P)=5.63×10^{-7} *8*; α(IPF)=0.0001602 *23*
1772.77 *7*	15.0 *9*	2887.94	(9/2)	1115.071	13/2$^+$			
1781.67[f] *7*	12.1 *8*	1781.77	(7/2,9/2)$^-$	0	5/2$^-$	[M1]	0.00501 *7*	α=0.00501 *7*; α(K)=0.00387 *6*; α(L)=0.000645 *9*; α(M)=0.0001510 *22*; α(N+..)=0.000341 *5* α(N)=3.89×10^{-5} *6*; α(O)=8.15×10^{-6} *12*; α(P)=1.059×10^{-6} *15*; α(IPF)=0.000293 *4*
1786.57 *7*	19.3 *11*	2958.09	(7/2$^-$,9/2$^-$)	1171.586	7/2$^-$	[M1]	0.00498 *7*	α=0.00498 *7*; α(K)=0.00384 *6*; α(L)=0.000640 *9*; α(M)=0.0001500 *21*; α(N+..)=0.000344 *5* α(N)=3.86×10^{-5} *6*; α(O)=8.09×10^{-6} *12*; α(P)=1.051×10^{-6} *15*; α(IPF)=0.000296 *5*
1805.25 *6*	16.4 *12*	2393.48		588.323	7/2$^-$			
[x]1807.5 *4*	8 *3*							
1811.42 *23*	5.3 *12*	3036.98?	(5/2$^+$)	1225.600	5/2$^-$	[E1]	0.001369 *20*	α=0.001369 *20*; α(K)=0.000819 *12*; α(L)=0.0001237 *18*; α(M)=2.86×10^{-5} *4*; α(N+..)=0.000397 α(N)=7.33×10^{-6} *11*; α(O)=1.532×10^{-6} *22*; α(P)=1.98×10^{-7} *3*; α(IPF)=0.000388 *6*
1825.52 *18*	4.3 *7*	2414.24	(9/2$^+$,11/2$^-$)	588.323	7/2$^-$			
1854.54[f] *9*	12.1 *9*	3080.12		1225.600	5/2$^-$			
1867.97[f] *25*	1.7 *5*	3449.87	(7/2$^-$,9/2$^-$)	1582.191	9/2$^+$			
1875.74[f] *15*	7.2 *5*	3457.87	(9/2)	1582.191	9/2$^+$			
[x]1881.2 *3*	2.0 *3*							
[x]1887.47 *15*	4.0 *6*							
[x]1891.87 *11*	6.8 *8*							
1897.0[f] *5*	1.3 *4*	2583.02	(5/2$^-$)	685.755	5/2$^-$	[M1]	0.00439 *7*	α=0.00439 *7*; α(K)=0.00330 *5*; α(L)=0.000548 *8*; α(M)=0.0001284 *18*; α(N+..)=0.000417 *6* α(N)=3.30×10^{-5} *5*; α(O)=6.92×10^{-6} *10*; α(P)=9.00×10^{-7} *13*; α(IPF)=0.000376 *6*
1908.22[f] *25*	3.3 *5*	3080.12		1171.586	7/2$^-$			
1993.7[f] *5*	2.0 *4*	2230.244	9/2$^+$	236.472	3/2$^-$	[E3]	0.00416 *6*	α=0.00416 *6*; α(K)=0.00321 *5*; α(L)=0.000610 *9*; α(M)=0.0001455 *21*; α(N+..)=0.000198 *3* α(N)=3.74×10^{-5} *6*; α(O)=7.76×10^{-6} *11*; α(P)=9.74×10^{-7} *14*; α(IPF)=0.0001520 *22*
[x]2006.6 *3*	1.8 *3*							
2016.25[f] *10*	16.0 *11*	2016.34?		0	5/2$^-$			
2026.78[j] *18*	4.2 *4*	3300.90	(9/2)	1274.11	13/2$^-$			
2046.2[f] *3*	3.0 *5*	2860.42	9/2$^+$,11/2	814.422	9/2$^-$			
2053.0[f] *3*	6.6 *8*	2641.40?	(3/2$^-$,5/2$^-$)	588.323	7/2$^-$			
2056.2[f] *3*	3.5 *6*	2870.99	(7/2$^-$,9/2$^-$,11/2$^-$)	814.422	9/2$^-$			
2064.5[f] *3*	4.1 *4*	3179.37	(9/2$^+$)	1115.071	13/2$^+$			

$^{207}_{84}Po_{123}$-17

^{207}At ε decay 1981Ch38,1981Ch39 (continued)

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
[x]2071.6 *3*	2.1 *4*							
2075.27 *7*	11.0 *10*	3300.90	(9/2)	1225.600	5/2$^-$			
2099.5[f] *5*	3.0 *10*	2099.00	3/2$^-$,5/2$^-$,7/2$^-$	0	5/2$^-$	[M1]	0.00362 *5*	α=0.00362 *5*; α(K)=0.00254 *4*; α(L)=0.000422 *6*; α(M)=9.87×10^{-5} *14*; α(N+..)=0.000557 *8* α(N)=2.54×10^{-5} *4*; α(O)=5.32×10^{-6} *8*; α(P)=6.93×10^{-7} *10*; α(IPF)=0.000525 *8*
[x]2134.10 *20*	2.5 *4*							
2143.57 *12*	3.6 *4*	2958.09	(7/2$^-$,9/2$^-$)	814.422	9/2$^-$	[M1]	0.00349 *5*	α=0.00349 *5*; α(K)=0.00241 *4*; α(L)=0.000400 *6*; α(M)=9.36×10^{-5} *13*; α(N+..)=0.000588 *9* α(N)=2.41×10^{-5} *4*; α(O)=5.05×10^{-6} *7*; α(P)=6.56×10^{-7} *10*; α(IPF)=0.000558 *8*
2188.79 *25*	2.8 *4*	3095.97?	(7/2$^+$,9/2$^+$)	907.046	7/2$^-$	[E1]	0.001374 *20*	α=0.001374 *20*; α(K)=0.000602 *9*; α(L)=9.03×10^{-5} *13*; α(M)=2.08×10^{-5} *3*; α(N+..)=0.000661 *10* α(N)=5.34×10^{-6} *8*; α(O)=1.118×10^{-6} *16*; α(P)=1.451×10^{-7} *21*; α(IPF)=0.000655 *10*
[x]2197.0 *5*	2.4 *7*							
2293.81[f] *25*	1.50 *24*	2294.21	(9/2)$^+$	0	5/2$^-$	[M2]	0.00629 *9*	α=0.00629 *9*; α(K)=0.00486 *7*; α(L)=0.000837 *12*; α(M)=0.000197 *3*; α(N+..)=0.000401 *6* α(N)=5.07×10^{-5} *8*; α(O)=1.063×10^{-5} *15*; α(P)=1.378×10^{-6} *20*; α(IPF)=0.000339 *5*
2303.5 *3*	1.33 *20*	2303.301	9/2$^+$	0	5/2$^-$	[M2]	0.00624 *9*	α=0.00624 *9*; α(K)=0.00481 *7*; α(L)=0.000828 *12*; α(M)=0.000195 *3*; α(N+..)=0.000405 *6* α(N)=5.02×10^{-5} *7*; α(O)=1.052×10^{-5} *15*; α(P)=1.364×10^{-6} *19*; α(IPF)=0.000343 *5*
2342.65[f] *10*	16.3 *12*	3457.87	(9/2)	1115.071	13/2$^+$			
2365.45[f] *20*	1.60 *22*	3272.58	(7/2,9/2)	907.046	7/2$^-$			
2373.45[f] *25*	0.90 *14*	2961.91		588.323	7/2$^-$			
[x]2380.42 *15*	1.46 *13*							
2393.04 *15*	3.2 *3*	2393.48		0	5/2$^-$			
[x]2426.5 *3*	1.0 *3*							
[x]2444.3 *5*	0.85 *25*							
[x]2450.8 *3*	1.7 *4*							
2457.6[f] *4*	3.7 *3*	3272.58	(7/2,9/2)	814.422	9/2$^-$			
2473.69[f] *25*	2.02 *25*	3380.46		907.046	7/2$^-$			
2486.6 *4*	3.2 *3*	3300.90	(9/2)	814.422	9/2$^-$			
2514.30[f] *15*	1.2 *3*	2583.02	(5/2$^-$)	68.556	1/2$^-$	[E2]	0.00183 *3*	α=0.00183 *3*; α(K)=0.001101 *16*; α(L)=0.0001778 *25*; α(M)=4.15×10^{-5} *6*; α(N+..)=0.000512 *8* α(N)=1.065×10^{-5} *15*; α(O)=2.23×10^{-6} *4*; α(P)=2.87×10^{-7} *4*; α(IPF)=0.000498 *7*
[x]2526.5 *3*	0.90 *20*							
2535.57[f] *25*	1.74 *17*	3442.60		907.046	7/2$^-$			

$^{207}_{84}Po_{123}$-18

γ(^{207}Po) (continued)

E_γ[‡]	I_γ[‡g]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	α[†]	Comments
[x]2545.38 *18*	3.7 *5*							
[x]2558.42 *12*	6.4 *6*							
2566.10[f] *13*	6.3 *6*	3380.46		814.422	9/2$^-$			
2572.85[f] *20*	2.0 *3*	2641.40?	(3/2$^-$,5/2$^-$)	68.556	1/2$^-$			
2582.4[f] *4*	0.63 *6*	2583.02	(5/2$^-$)	0	5/2$^-$	[M1]	0.00269 *4*	α=0.00269 *4*; α(K)=0.001493 *21*; α(L)=0.000247 *4*; α(M)=5.77×10^{-5} *8*; α(N+..)=0.000893 *13* α(N)=1.485×10^{-5} *21*; α(O)=3.11×10^{-6} *5*; α(P)=4.05×10^{-7} *6*; α(IPF)=0.000875 *13*
2591.30[f] *15*	4.3 *4*	3179.37	(9/2$^+$)	588.323	7/2$^-$			
[x]2627.36 *15*	3.13 *25*							
2684.21[f] *15*	2.94 *25*	3272.58	(7/2,9/2)	588.323	7/2$^-$			
[x]2691.2[j] *3*	0.76 *20*							E_γ: listed as 2591.2 by 1981Ch38 (probably a typographic error).
2712.50 *15*	27.4 *17*	3300.90	(9/2)	588.323	7/2$^-$			
2721.3 *5*	0.90 *20*	2958.09	(7/2$^-$,9/2$^-$)	236.472	3/2$^-$	[M3]	0.00669 *10*	α=0.00669 *10*; α(K)=0.00513 *8*; α(L)=0.000918 *13*; α(M)=0.000217 *3*; α(N+..)=0.000418 *6* α(N)=5.60×10^{-5} *8*; α(O)=1.172×10^{-5} *17*; α(P)=1.513×10^{-6} *22*; α(IPF)=0.000349 *5*
2772.7[f] *4*	2.1 *3*	3457.87	(9/2)	685.755	5/2$^-$			
2792.5[f] *4*	0.70 *20*	3380.46		588.323	7/2$^-$			
2800.6 *4*	≈1	3036.98?	(5/2$^+$)	236.472	3/2$^-$	[E1]	0.001516 *22*	α=0.001516 *22*; α(K)=0.000406 *6*; α(L)=6.05×10^{-5} *9*; α(M)=1.395×10^{-5} *20*; α(N+..)=0.001036 *1* α(N)=3.58×10^{-6} *5*; α(O)=7.49×10^{-7} *11*; α(P)=9.75×10^{-8} *14*; α(IPF)=0.001031 *15*
2854.7[f] *3*	1.20 *20*	3442.60		588.323	7/2$^-$			
2861.8[f] *3*	1.20 *20*	3449.87	(7/2$^-$,9/2$^-$)	588.323	7/2$^-$			
[x]2877.0 *7*	0.60 *15*							
2888.1[f] *4*	1.00 *25*	2887.94	(9/2)	0	5/2$^-$			
2962.5[f] *6*	0.60 *10*	2961.91		0	5/2$^-$			
2968.5 *5*	0.50 *10*	3036.98?	(5/2$^+$)	68.556	1/2$^-$	[M2]	0.00383 *6*	α=0.00383 *6*; α(K)=0.00260 *4*; α(L)=0.000439 *7*; α(M)=0.0001032 *15*; α(N+..)=0.000686 *10* α(N)=2.65×10^{-5} *4*; α(O)=5.57×10^{-6} *8*; α(P)=7.23×10^{-7} *11*; α(IPF)=0.000653 *10*
3008.9[f] *5*	1.06 *21*	3245.68	(5/2$^+$,7/2)	236.472	3/2$^-$			
3080.4[f] *6*	0.40 *12*	3080.12		0	5/2$^-$			
3096.5 *7*	0.59 *15*	3095.97?	(7/2$^+$,9/2$^+$)	0	5/2$^-$			
3179.2[f] *5*	0.80 *12*	3179.37	(9/2$^+$)	0	5/2$^-$			
3272.1[f] *5*	0.42 *7*	3272.58	(7/2,9/2)	0	5/2$^-$			
3458.3[f] *7*	≈0.5	3457.87	(9/2)	0	5/2$^-$			

$^{207}_{84}Po_{123}$-19

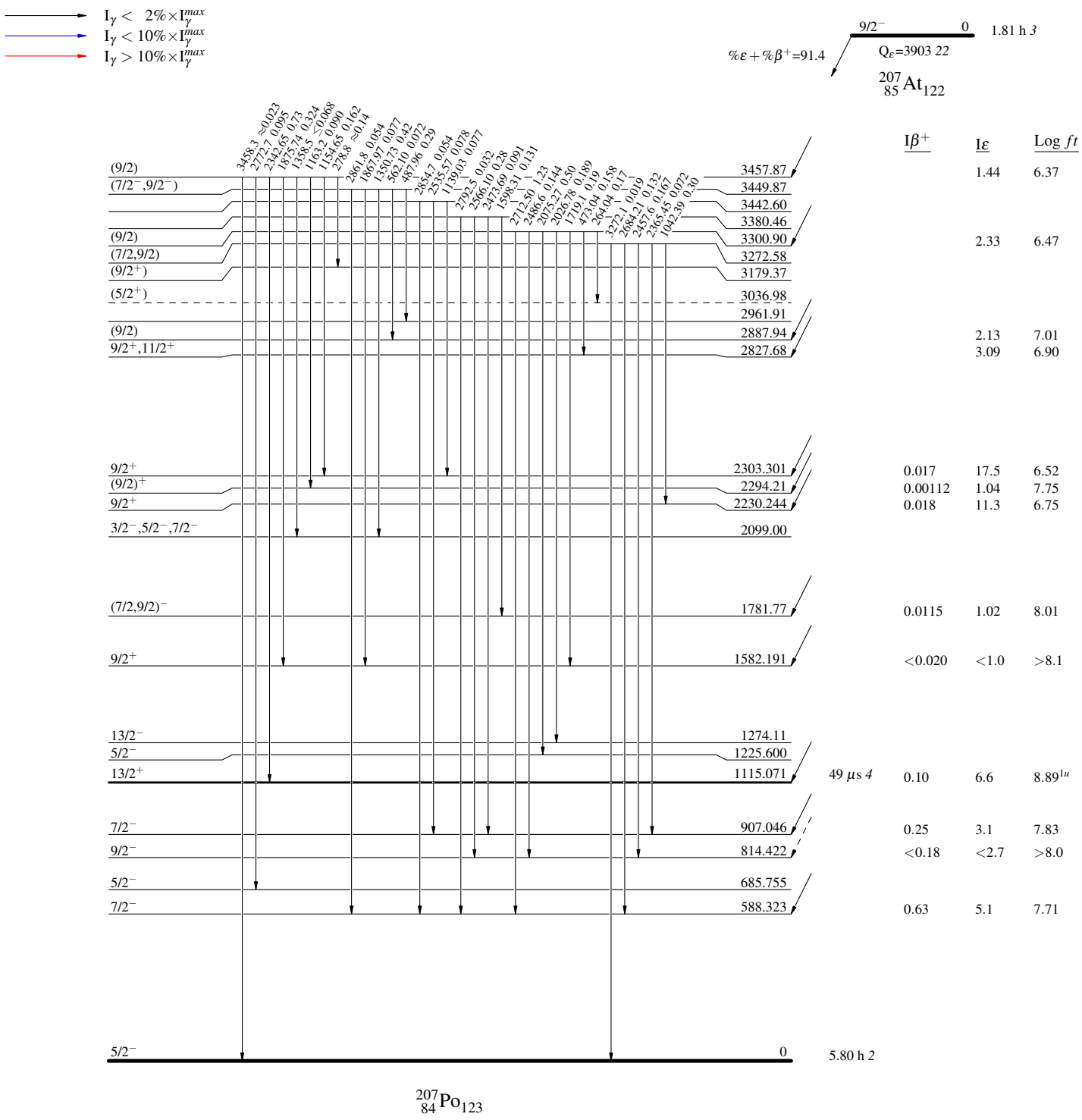
γ(^{207}Po) (continued)

† Additional information 1.
‡ From 1981Ch38 and 1981Ch39, unless otherwise specified.
# From 1981Ch38.
@ From α(K)exp based and Iγ and Ice of 1981Ch38 and subshell ratios, unless otherwise specified.
& From measured α(K)exp and subshell ratios in 1981Ch38 using the BrICCmixing program.
a Not included in determining the excitation energy.
b Seen only in ce-γ coin.
c From ce-γ coin.
d 1984Sc44 suggests placement from the 1511 and 2099 levels. Absence of coin with 588γ (1971Jo20) argues against dominant placement from the 2099 level; however, expected coin intensity would be near authors′ sensitivity limit.
e coin with ce(K)(191γ) implies that the 641γ feeds the 1773 level either directly or via single-γ cascades. The coin intensity leads to Iγ(641γ from 2414)=12 *4*, leaving Iγ<8 for alternate placements. 1984Sc44 suggests alternate placements from the 1548 and/or the 2871 levels since the energy fit from the 2414 level is poor; however, the placement from the 1548 level is inconsistent with the observed coin with ce(K)(191γ) and the absence of coin with ce(K)(221γ).
f Placement made by 1984Sc44.
g For absolute intensity per 100 decays, multiply by 0.0451 *15*.
h Multiply placed with undivided intensity.
i Multiply placed with intensity suitably divided.
j Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme

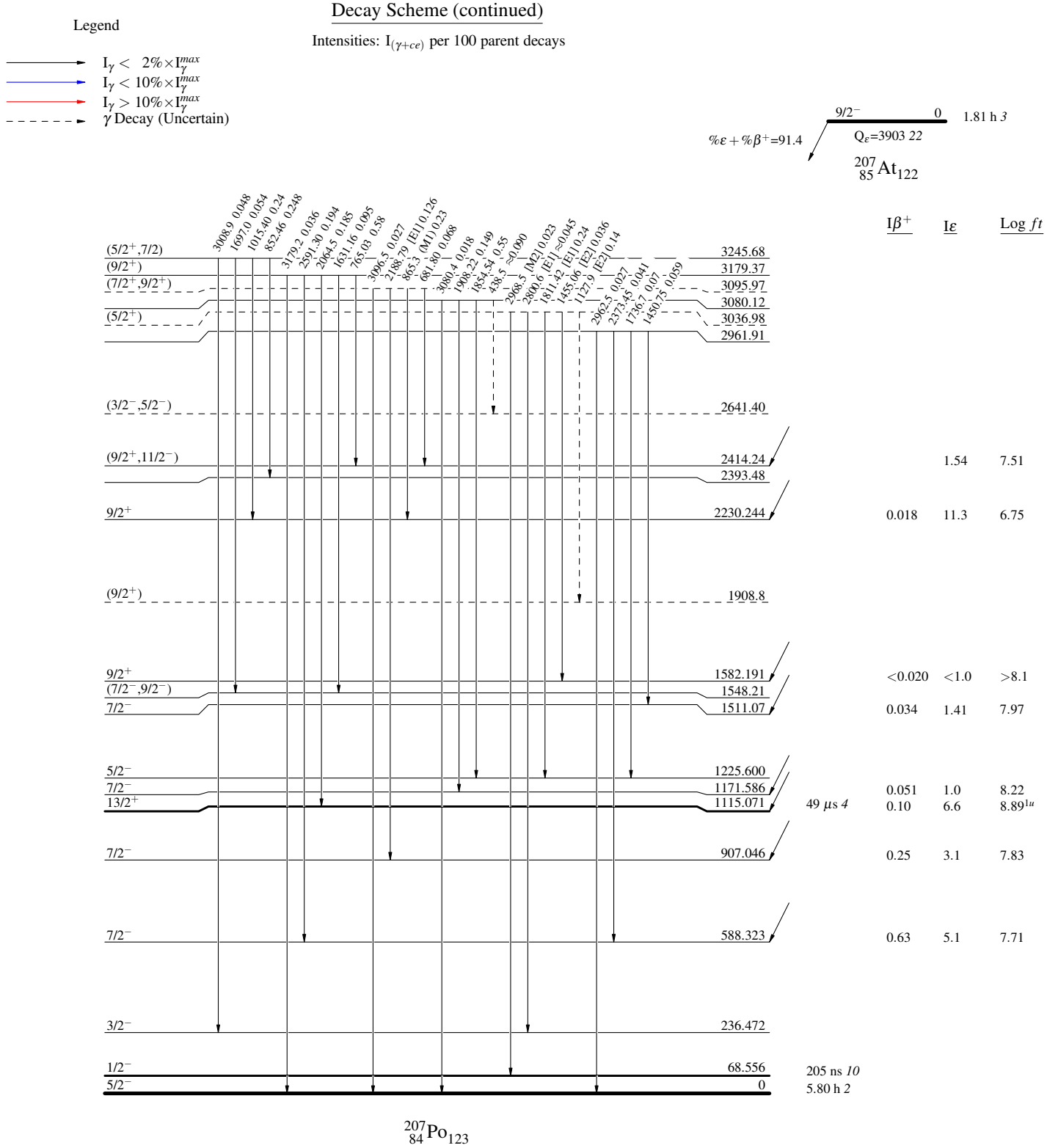
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme (continued)

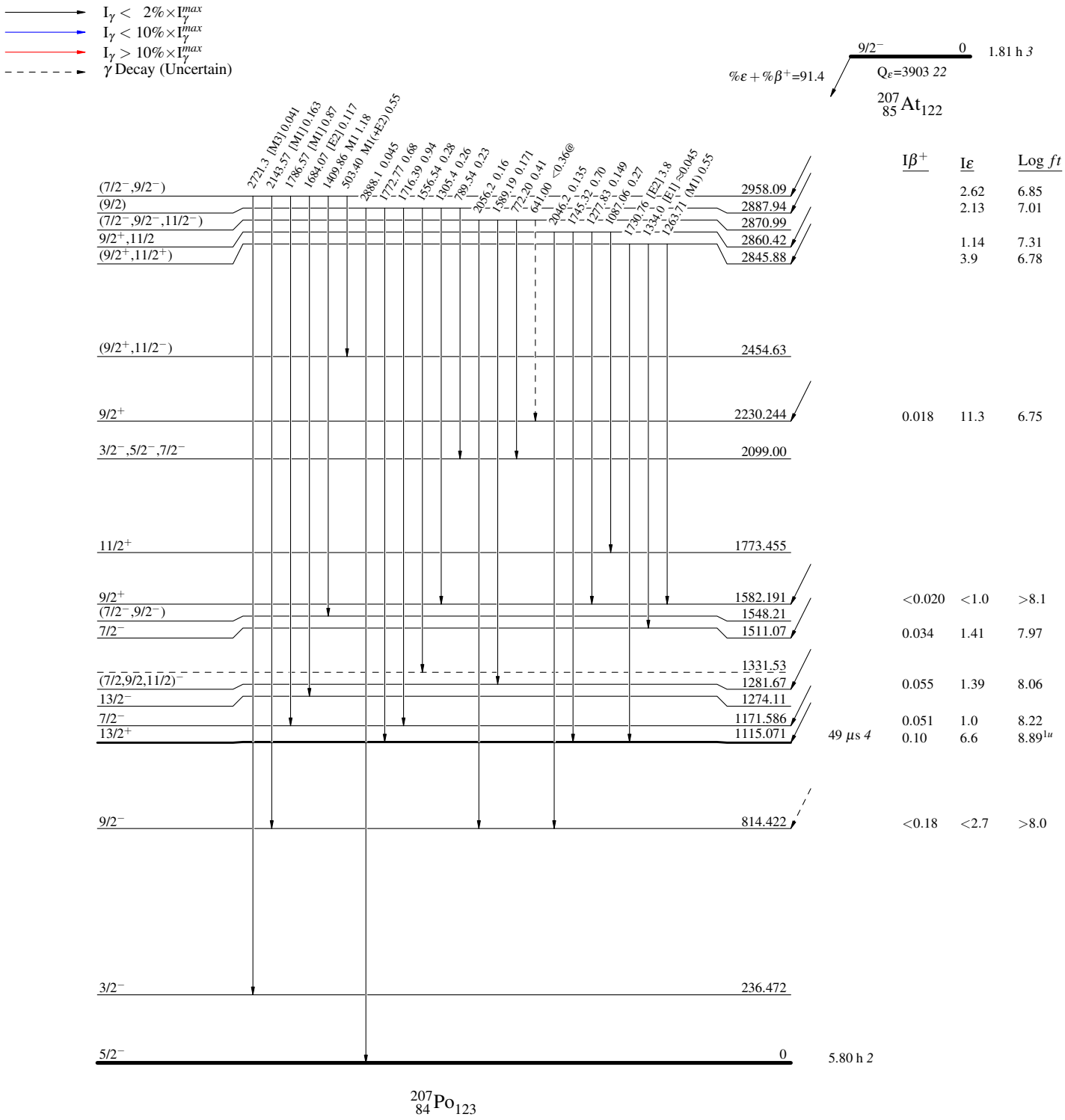
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme (continued)

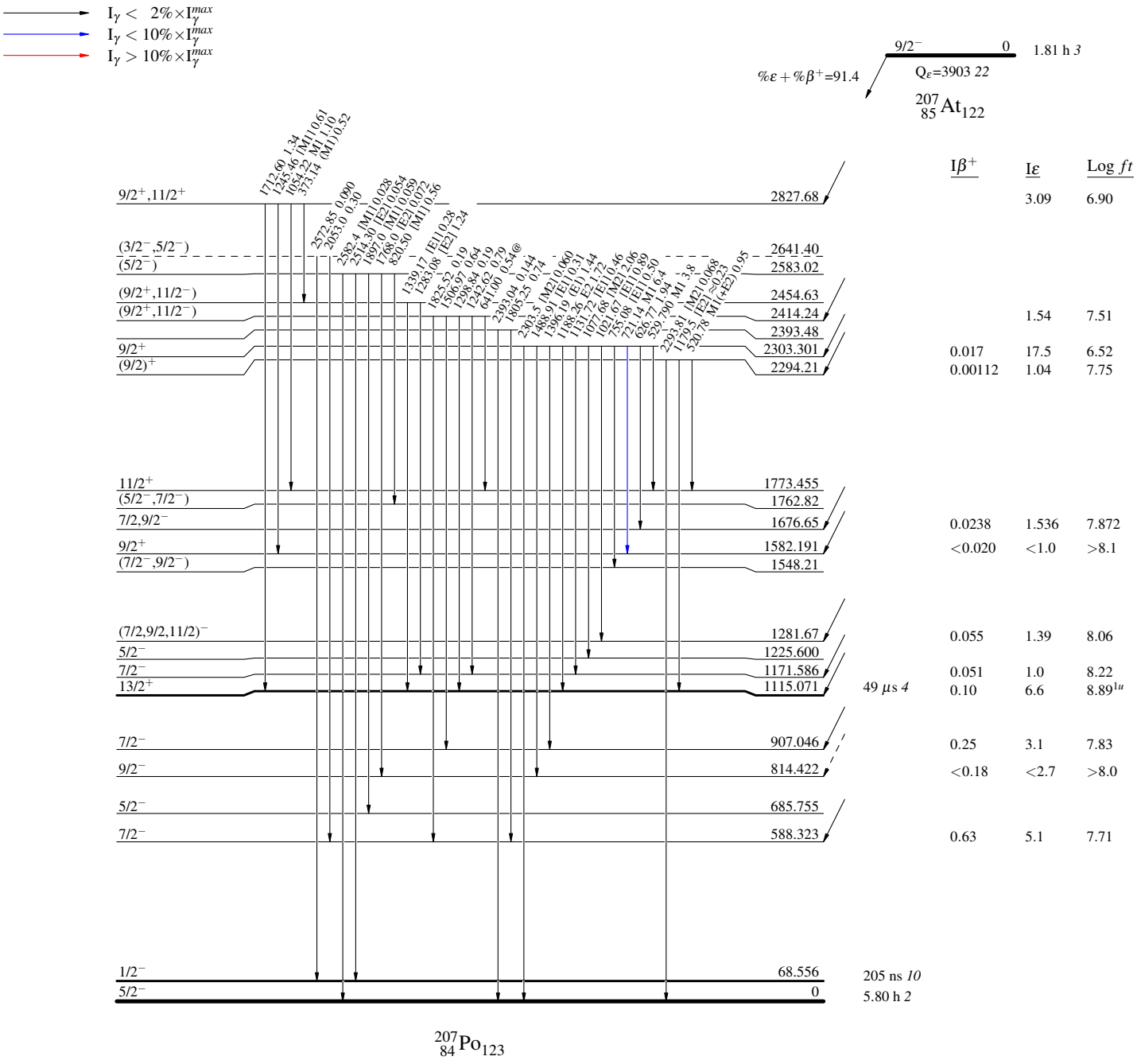
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme (continued)

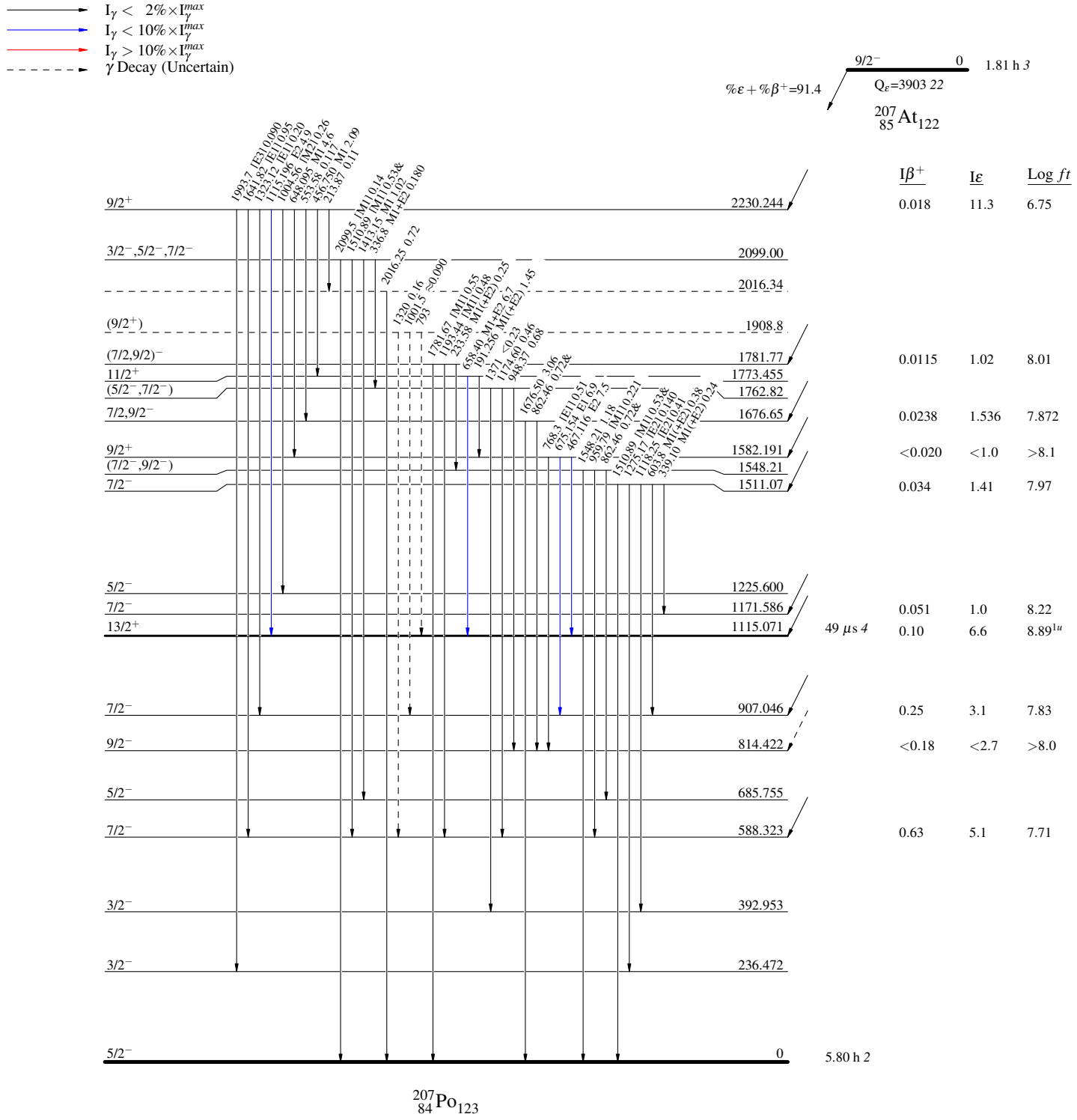
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
@ Multiply placed: intensity suitably divided



^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



^{207}At ε decay 1981Ch38,1981Ch39

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided