

Adopted Levels, Gammas

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

Q(β^-)=-3918 14; S(n)=7028 8; S(p)=4407 10; Q(α)=5215.8 25 [2012Wa38](#)
 Note: Current evaluation has used the following Q record -3903 22 7035 11 4407 10 5215.8 25 [2003Au03](#).

²⁰⁷Po Levels

Cross Reference (XREF) Flags

- A ²⁰⁷Po IT decay (2.79 s)
- B ²¹¹Rn α decay
- C ²⁰⁷At ϵ decay
- D ²⁰⁸Pb(α ,5n γ), ²⁰⁶Pb(α ,3n γ)

E(level) [†]	J ^{π}	T _{1/2}	XREF	Comments
0	5/2 ⁻	5.80 h 2	ABCD	% ϵ +% β^+ =99.979 2; % α =0.021 2 μ =+0.79 6 (1983He09 , 2005St24); Q=+0.28 (1961OI01 , 1989Ra17) Octupole mom(el)=+0.11 1 (1976Fu06) J ^{π} : Atomic beam (1961Ax02). Favored α decay to ²⁰³ Pb g.s. (J ^{π} =5/2 ⁻). T _{1/2} : Weighted average of 5.83 h 7 (1974Pa05), 5.81 h 4 (1978Ya04), and 5.79 h 2 (1983He09). % α : From (1974Pa05). Others: \approx 0.01 (1947Te01), 0.028 3 (1970AfZZ), but claimed by 1971Go35 to be incorrect, 0.008 1 (1971Go35). Q: From Q(²⁰⁷ Po)/Q(²⁰⁵ Po)=1.7 8 (1983He09). $\Delta\langle r^2 \rangle$ (207,208)=-0.078 5 (1991Ko32) using laser induced fluorescence spectroscopy. configuration: (π h _{9/2}) ₀₊ ⁺² (ν f _{5/2}) ⁻¹ .
68.557 14	1/2 ⁻	205 ns 10	BC	J ^{π} : 68.55 γ E2 to 5/2 ⁻ . Favored α decay from ²¹¹ Rn g.s.(J ^{π} =1/2 ⁻). T _{1/2} : From (α)(ce)(t) in ²¹¹ Rn α decay (1963As02). configuration: (π h _{9/2}) ₀₊ ⁺² (ν p _{1/2}) ⁻¹ .
236.472 13	3/2 ⁻		BC	J ^{π} : 167.900 γ M1(+E2) to 1/2 ⁻ ; 236.477 γ M1(+E2) to 5/2 ⁻ . configuration: (π h _{9/2}) ₀₊ ⁺² (ν p _{3/2}) ⁻¹ .
392.954 [‡] 18	3/2 ⁻		BC	J ^{π} : 324.408 γ M1(+E2) to 1/2 ⁻ ; 392.94 γ M1(+E2) to 5/2 ⁻ .
588.326 [‡] 15	7/2 ⁻		BC	J ^{π} : 588.333 γ E2+M1 to 5/2 ⁻ . Direct population in ²⁰⁷ At ϵ decay (J ^{π} =9/2 ⁻).
685.756 [‡] 18	5/2 ⁻		ABC	J ^{π} : 97.27 M1+E2 to 7/2 ⁻ ; 292.816 γ M1+E2 to 3/2 ⁻ ; 617.20 γ E2 to 1/2 ⁻ .
814.428 [‡] 16	9/2 ⁻		ABCD	J ^{π} : 814.060 γ E2 to 5/2 ⁻ . configuration: (π h _{9/2}) ₂₊ ⁺² (ν f _{5/2}) ⁻¹ .
907.049 17	7/2 ⁻		C	J ^{π} : 221.270 γ M1+E2 to 5/2 ⁻ ; 670.41 γ E2 to 3/2 ⁻ ; Direct population in ²⁰⁷ At ϵ decay (J ^{π} =9/2 ⁻).
1115.076 17	13/2 ⁺	49 μ s 4	A CD	μ =-0.910 14 J ^{π} : 300.648 γ M2 to 9/2 ⁻ . μ systematics. T _{1/2} : Weighted average of 47 μ s 7 (1962Ha26) and 50 μ s 5 (1973Co30) in ²⁰⁷ Po IT decay. μ : From g=-0.140 2 (1973Ri06), corrected for Knight shift and diamagnetic shielding. configuration: (π h _{9/2}) ₀₊ ⁺² (ν i _{13/2}) ⁻¹ .
1171.595 18	7/2 ⁻		C	J ^{π} : 357.153 γ M1+E2 to 9/2 ⁻ , 583.34 γ M1+E2 to 7/2 ⁻ , 934.6 γ to 3/2 ⁻ .
1225.604 17	5/2 ⁻		C	J ^{π} : 410.10 γ E2 to 9/2 ⁻ , 637.270 γ M1(+E2) to 7/2 ⁻ , 1225.62 γ M1+E2 to 5/2 ⁻ .
1274.12 4	13/2 ⁻		A CD	J ^{π} : 459.69 γ E2 to 9/2 ⁻ . 268.08 γ M3 from 19/2 ⁻ .

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Adopted Levels, Gammas (continued)

^{207}Po Levels (continued)				
E(level) [†]	J^π	$T_{1/2}$	XREF	Comments
1281.67 6	(7/2,9/2,11/2) ⁻		C	J^π : 693.33 γ E2+M1 to 7/2 ⁻ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$) excludes 5/2 ⁻ .
1331.53 8			C	
1383.16 7	19/2 ⁻	2.79 s 8	A CD	%IT=100 J^π : 268.08 γ E3 to 13/2 ⁺ . $T_{1/2}$: From 268 γ (t), 300 γ (t) and 814 γ (t) in ^{207}Pb (^3He ,3n γ) (1978Sc12). Others: 2.8 s 2 (1961WhZZ) and 2.8 s 1 (1985Ra18). configuration: (π h $_9/2$) $_{8+}^{+2}(\nu$ f $_5/2$) ⁻¹ .
1511.07 6	7/2 ⁻		C	J^π : 339.10 M1(+E2) to 7/2 ⁻ , 1118.25 γ to 3/2 ⁻ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$) excludes 5/2 ⁻ .
1548.22 4	(7/2 ⁻ ,9/2 ⁻)		C	J^π : 862.46 γ to 5/2 ⁻ , 959.79 γ to 7/2 ⁻ , 1548.21 γ to 5/2 ⁻ ; 755.08 γ from 9/2 ⁺ .
1564.26 18	21/2 ⁻		D	J^π : 181.2 γ M1 to 19/2 ⁻ . configuration: (π h $_9/2$) $_{8+}^{+2}(\nu$ f $_5/2$) ⁻¹ . The assignment is tentative.
1582.195 17	9/2 ⁺		C	J^π : 467.116 γ E2 to 13/2 ⁺ , 675.154 γ E1 to 7/2 ⁻ .
1676.67 4	7/2,9/2 ⁻		C	J^π : 862.46 γ to 9/2 ⁻ , 1676.50 γ to 5/2 ⁻ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$) excludes 5/2 ⁻ .
1691.27 18	17/2 ⁺		D	J^π : 576.2 γ E2 to 13/2 ⁺ .
1762.82 6	(5/2 ⁻ ,7/2 ⁻)		C	
1773.466 19	11/2 ⁺		C	J^π : 191.26 γ M1(+E2) to 9/2 ⁺ , 658.40 γ M1+E2 to 13/2 ⁺ .
1781.77 4	(7/2,9/2) ⁻		C	J^π : 233.58 γ M1(+E2) to (7/2 ⁻ ,9/2 ⁻), 1781.67 γ to 5/2 ⁻ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$) excludes 5/2 ⁻ .
1908.8? 3	(9/2 ⁺)		C	J^π : 793 γ to 13/2 ⁺ , 1320 γ to 7/2 ⁻ .
2016.34? 6			C	
2099.00 5	3/2 ⁻ ,5/2 ⁻ ,7/2 ⁻		C	J^π : 336.8 γ M1+E2 to (5/2 ⁻ ,7/2 ⁻), 1413.15 γ M1 to 5/2 ⁻ .
2230.250 20	9/2 ⁺		C	J^π : 456.750 γ M1 to 11/2 ⁺ , 648.095 γ M1 to 9/2 ⁺ , 1115.196 γ E2 to 13/2 ⁺ .
2294.23 9	(9/2 ⁺)		C	J^π : 520.78 γ M1(+E2) to 11/2 ⁺ , 1179.5 γ to 13/2 ⁺ , 2293.81 γ to 5/2 ⁻ .
2303.307 19	9/2 ⁺		C	J^π : 529.790 γ M1 to 11/2 ⁺ , 1188.26 γ E2 to 13/2 ⁺ , 1396.19 γ (E1) to 7/2 ⁻ .
2313.47 21	21/2 ⁺		D	J^π : 622.2 E2 γ to 17/2 ⁺ , 749.2 γ E1 to 21/2 ⁻ .
2379.7 3	25/2 ⁺	43.0 ns 3	D	$\mu=5.41$ 4 J^π : 66.2 γ E2 to 21/2 ⁺ . $T_{1/2}$: From 576.2 γ (t), 622.2 γ (t), and 749.2 γ (t) in 1985Ro07. Systematics uncertainty due to time calibration and background subtraction has been included. Other: 40 ns 2 is reported in 1985Ra18, based on 37 ns 4 (66 γ (t)), 42 ns 2 (181 γ (t)), 40 ns 1 (576 γ (t)), 40 ns 1 (622 γ (t)), and 41 ns 1 (749 γ (t)) all in ^{208}Pb (α ,5n γ), ^{206}Pb (α ,3n γ). μ : From $g=0.433$ 3 (1985Ro07). Value is corrected for Knight shift and diamagnetic shielding. configuration: 67.5% (π h $_9/2$) $_{8+}^{+2}(\nu$ i $_13/2$) ⁻¹) + 32.5 % (π h $_9/2$) $_{6+}^{+2}(\nu$ i $_13/2$) ⁻¹).
2393.48 6			C	
2414.25 5	(9/2 ⁺ ,11/2 ⁻)		C	J^π : 1298.84 γ to 13/2 ⁺ , 1506.97 γ to 7/2 ⁻ .
2454.64 4	(9/2 ⁺ ,11/2 ⁻)		C	J^π : 1283.08 γ to 7/2 ⁻ , 1339.17 γ to 13/2 ⁺ .
2583.02 11	(5/2 ⁻)		C	J^π : 1768.0 γ to 9/2 ⁻ , 2514.30 γ to 1/2 ⁻ .
2641.40 17	(3/2 ⁻ ,5/2 ⁻)		C	J^π : 2053.0 γ to 7/2 ⁻ , 2572.85 γ to 1/2 ⁻ .
2827.69 4	9/2 ⁺ ,11/2 ⁺		C	J^π : 1054.22 γ M1 γ to 11/2 ⁺ , 1712.60 γ to 13/2 ⁺ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$) excludes 13/2 ⁺ .
2845.89 4	(9/2 ⁺ ,11/2 ⁺)		C	J^π : 1263.71 γ (M1) to 9/2 ⁺ , 1334.0 γ to 7/2 ⁻ , 1730.76 γ to 13/2 ⁺ . Direct population in ^{207}At ϵ decay ($J^\pi=9/2^-$).
2860.43 6	9/2 ⁺ ,11/2		C	J^π : 1087.06 γ to 11/2 ⁺ , 1277.83 γ to 9/2 ⁺ , 1745.32 γ to 13/2 ⁺ , 2046.2 γ to 9/2 ⁻ .
2870.99 11	(7/2 ⁻ ,9/2 ⁻ ,11/2 ⁻)		C	J^π : 641.0 γ to 9/2 ⁺ , 772.20 γ to 3/2 ⁻ ,5/2 ⁻ ,7/2 ⁻ , 2056.2 γ to 9/2 ⁻ .

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Adopted Levels, Gammas (continued) ^{207}Po Levels (continued)

E(level) [†]	J ^π	XREF	Comments
2879.5 4	27/2 ⁺	D	J ^π : 499.8γ M1 γ to 25/2 ⁺ .
2887.94 6	(9/2)	C	J ^π : 1772.77γ to 13/2 ⁺ , 2888.1γ to 5/2 ⁻ .
2958.10 4	(7/2 ⁻ ,9/2 ⁻)	C	J ^π : 1409.86γ M1 to (7/2 ⁻ ,9/2 ⁻), 1684.07γ to 13/2 ⁻ , 2721.3γ to 3/2 ⁻ . Direct population in ^{207}At ε decay (J ^π =9/2 ⁻).
2961.92 10		C	
2963.7 4	27/2 ⁺	D	configuration: ((π h _{9/2}) ⁺¹ (π i _{13/2}) ⁺¹) ₁₁₋ (ν f _{5/2}) ⁻¹ . J ^π : 584.0γ M1 to 25/2 ⁺ .
3036.99 11	(5/2 ⁺)	C	J ^π : 1455.06γ to 9/2 ⁺ , 2968.5γ to 1/2 ⁻ .
3080.12 9		C	
3095.98 12	(7/2 ⁺ ,9/2 ⁺)	C	J ^π : 865.3γ (M1) to 9/2 ⁺ . 3096.5γ to 5/2 ⁻ .
3137.0 4	29/2 ⁺	D	J ^π : 257.5γ M1 to 27/2 ⁺ , 757.4γ E2 to 25/2 ⁺ . configuration: (π h _{9/2}) ₈₊ ⁺² (ν i _{13/2}) ⁻¹ .
3179.38 8	(9/2 ⁺)	C	J ^π : 2064.5γ to 13/2 ⁺ , 3179.2γ to 5/2 ⁻ .
3245.69 8	(5/2 ⁺ ,7/2)	C	J ^π : 1015.40γ to 9/2 ⁺ , 3008.9γ to 3/2 ⁻ .
3272.59 7	(7/2,9/2)	C	J ^π : 1042.39γ to 9/2 ⁺ , 2365.45γ to 7/2 ⁻ , 3272.1γ to 5/2 ⁻ .
3300.91 6	(9/2)	C	J ^π : 264.04γ to (5/2 ⁺), 1719.1γ to 9/2 ⁻ , 2026.78γ to 13/2 ⁻ , 2075.27γ to 5/2 ⁻ .
3380.47 10		C	
3381.2 4	31/2 ⁺	D	J ^π : 244.2γ M1 to 29/2 ⁺ .
3442.60 15		C	
3449.88 8	(7/2 ⁻ ,9/2 ⁻)	C	J ^π : 1350.73γ to (3/2 ⁻ ,5/2 ⁻ ,7/2 ⁻), 1867.97γ to 9/2 ⁺ .
3457.87 7	(9/2)	C	J ^π : 1154.65γ to 9/2 ⁺ , 2772.7γ to 5/2 ⁻ , 2342.65γ to 13/2 ⁺ .
3599.0 4	29/2 ⁻	D	J ^π : 719.5γ E1 to 27/2 ⁺ .
3602.4 4	31/2 ⁻	D	J ^π : 465.4γ E1 to 29/2 ⁺ .
3800.8 5	33/2 ⁻	D	J ^π : 198.4γ M1 to 31/2 ⁻ .
3919.5 5		D	
4346.3 5	35/2 ⁻	D	J ^π : 545.5 M1 to 33/2 ⁻ .

[†] From a least-squares fit to Eγ.[‡] Band(A): Configuration=((^{206}Po 2⁺)(ν 2f_{5/2})-1).

Adopted Levels, Gammas (continued)

$\gamma(^{207}\text{Po})$									
$E_i(\text{level})$	J_i^π	E_γ^\ddagger	I_γ^\ddagger	E_f	J_f^π	Mult. ‡	δ^\ddagger	α^\ddagger	Comments
68.557	1/2 ⁻	68.55 2	100	0	5/2 ⁻	E2		41.0	$\alpha(\text{L})=30.4$ 5; $\alpha(\text{M})=8.11$ 12; $\alpha(\text{N}+..)=2.50$ 4 $\alpha(\text{N})=2.08$ 3; $\alpha(\text{O})=0.393$ 6; $\alpha(\text{P})=0.0348$ 5 B(E2)(W.u.)=0.60 3
236.472	3/2 ⁻	167.900 20	100 5	68.557	1/2 ⁻	M1(+E2)	0.08 8	2.53 5	$\alpha(\text{K})=2.05$ 5; $\alpha(\text{L})=0.365$ 6; $\alpha(\text{M})=0.0863$ 15; $\alpha(\text{N}+..)=0.0274$ 5 $\alpha(\text{N})=0.0222$ 4; $\alpha(\text{O})=0.00464$ 8; $\alpha(\text{P})=0.000598$ 9 $\alpha(\text{K})=0.75$ 4; $\alpha(\text{L})=0.1375$ 23; $\alpha(\text{M})=0.0326$ 5; $\alpha(\text{N}+..)=0.01036$ 16 $\alpha(\text{N})=0.00839$ 13; $\alpha(\text{O})=0.00175$ 3; $\alpha(\text{P})=0.000223$ 5
		236.477 15	96 6	0	5/2 ⁻	M1+E2	0.25 9	0.93 4	
392.954	3/2 ⁻	156.54 5 324.408 20	10.0 17 99 7	236.472 68.557	3/2 ⁻ 1/2 ⁻	M1(+E2)	0.2 2	0.40 4	$\alpha(\text{K})=0.32$ 3; $\alpha(\text{L})=0.057$ 3; $\alpha(\text{M})=0.0135$ 6; $\alpha(\text{N}+..)=0.00428$ 18 $\alpha(\text{N})=0.00346$ 15; $\alpha(\text{O})=0.00072$ 4; $\alpha(\text{P})=9.3\times 10^{-5}$ 6 $\alpha(\text{K})=0.192$ 17; $\alpha(\text{L})=0.0337$ 19; $\alpha(\text{M})=0.0079$ 4; $\alpha(\text{N}+..)=0.00253$ 13 $\alpha(\text{N})=0.00204$ 11; $\alpha(\text{O})=0.000427$ 23; $\alpha(\text{P})=5.5\times 10^{-5}$ 4 $\alpha(\text{K})=0.022$ 4; $\alpha(\text{L})=0.0054$ 5; $\alpha(\text{M})=0.00133$ 11; $\alpha(\text{N}+..)=0.00042$ 4 $\alpha(\text{N})=0.00034$ 3; $\alpha(\text{O})=7.0\times 10^{-5}$ 6; $\alpha(\text{P})=8.2\times 10^{-6}$ 8 $\alpha(\text{K})=6.6$ 5; $\alpha(\text{L})=3.09$ 21; $\alpha(\text{M})=0.79$ 6; $\alpha(\text{N}+..)=0.247$ 18 $\alpha(\text{N})=0.203$ 15; $\alpha(\text{O})=0.040$ 3; $\alpha(\text{P})=0.00415$ 21 $\alpha(\text{K})=0.34$ 7; $\alpha(\text{L})=0.069$ 6; $\alpha(\text{M})=0.0166$ 11; $\alpha(\text{N}+..)=0.0053$ 4 $\alpha(\text{N})=0.0043$ 3; $\alpha(\text{O})=0.00088$ 7; $\alpha(\text{P})=0.000109$ 12
		392.94 6	100 8	0	5/2 ⁻	M1(+E2)	0.2 2	0.236 19	
588.326	7/2 ⁻	588.333 23	100 5	0	5/2 ⁻	E2+M1	2.7 +11-6	0.029 4	
685.756	5/2 ⁻	97.27 4	1.42 13	588.326	7/2 ⁻	M1+E2	0.71 8	10.70 25	
		292.816 25	18.0 16	392.954	3/2 ⁻	M1+E2	0.6 3	0.43 8	
		449.12 13 617.20 4	10.7 9 90 5	236.472 68.557	3/2 ⁻ 1/2 ⁻	E2		0.0198	$\alpha(\text{K})=0.01450$ 21; $\alpha(\text{L})=0.00401$ 6; $\alpha(\text{M})=0.000992$ 14; $\alpha(\text{N}+..)=0.000312$ 5 $\alpha(\text{N})=0.000255$ 4; $\alpha(\text{O})=5.14\times 10^{-5}$ 8; $\alpha(\text{P})=5.85\times 10^{-6}$ 9
814.428	9/2 ⁻	686.0 10 130 814.41 3	100 <0.1 100 5	0 685.756 0	5/2 ⁻ 5/2 ⁻ 5/2 ⁻	E2		0.01104	$\alpha(\text{K})=0.00850$ 12; $\alpha(\text{L})=0.00192$ 3; $\alpha(\text{M})=0.000467$ 7; $\alpha(\text{N}+..)=0.0001474$ 21 $\alpha(\text{N})=0.0001200$ 17; $\alpha(\text{O})=2.45\times 10^{-5}$ 4; $\alpha(\text{P})=2.91\times 10^{-6}$ 4 $\alpha(\text{K})=0.90$ 12; $\alpha(\text{L})=0.166$ 4; $\alpha(\text{M})=0.0395$ 6; $\alpha(\text{N}+..)=0.01254$ 19 $\alpha(\text{N})=0.01015$ 15; $\alpha(\text{O})=0.00211$ 4; $\alpha(\text{P})=0.000269$ 13
907.049	7/2 ⁻	221.270 20	17.9 10	685.756	5/2 ⁻	M1+E2	0.26 24	1.12 12	
		514.7 9 670.41 7	5.4 7 56 5	392.954 236.472	3/2 ⁻ 3/2 ⁻	E2		0.01655	$\alpha(\text{K})=0.01233$ 18; $\alpha(\text{L})=0.00319$ 5; $\alpha(\text{M})=0.000785$ 11; $\alpha(\text{N}+..)=0.000247$ 4 $\alpha(\text{N})=0.000202$ 3; $\alpha(\text{O})=4.08\times 10^{-5}$ 6; $\alpha(\text{P})=4.71\times 10^{-6}$ 7 $\alpha(\text{K})=0.0204$ 16; $\alpha(\text{L})=0.00349$ 23; $\alpha(\text{M})=0.00082$ 6;
		907.08 3	100 6	0	5/2 ⁻	M1(+E2)	≤ 0.5	0.0250 19	

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^{\ddagger}	I_γ^{\ddagger}	E_f	J_f^π	Mult. [‡]	δ^{\ddagger}	α^\ddagger	Comments
1115.076	13/2 ⁺	300.648 13	100	814.428	9/2 ⁻	M2		1.84	$\alpha(\text{N}+..)=0.000261$ 17 $\alpha(\text{N})=0.000211$ 14; $\alpha(\text{O})=4.4\times 10^{-5}$ 3; $\alpha(\text{P})=5.7\times 10^{-6}$ 4 $\alpha(\text{K})=1.371$ 20; $\alpha(\text{L})=0.350$ 5; $\alpha(\text{M})=0.0871$ 13; $\alpha(\text{N}+..)=0.0279$ 4 $\alpha(\text{N})=0.0226$ 4; $\alpha(\text{O})=0.00470$ 7; $\alpha(\text{P})=0.000589$ 9 B(M2)(W.u.)=0.00259 22
1171.595	7/2 ⁻	357.153 15	100 7	814.428	9/2 ⁻	M1+E2	0.32 4	0.292 7	$\alpha(\text{K})=0.236$ 6; $\alpha(\text{L})=0.0426$ 8; $\alpha(\text{M})=0.01007$ 18; $\alpha(\text{N}+..)=0.00320$ 6 $\alpha(\text{N})=0.00259$ 5; $\alpha(\text{O})=0.000541$ 10; $\alpha(\text{P})=6.92\times 10^{-5}$ 14 $\alpha(\text{K})=0.051$ 8; $\alpha(\text{L})=0.0094$ 11; $\alpha(\text{M})=0.00224$ 25; $\alpha(\text{N}+..)=0.00071$ 8 $\alpha(\text{N})=0.00058$ 7; $\alpha(\text{O})=0.000120$ 14; $\alpha(\text{P})=1.52\times 10^{-5}$ 19
		583.34 3	82 5	588.326	7/2 ⁻	M1+E2	0.72 23	0.063 10	
		934.6 3	≈ 3.3	236.472	3/2 ⁻				
		1171.62 4	47 3	0	5/2 ⁻	E2		0.00543 8	$\alpha(\text{K})=0.00435$ 6; $\alpha(\text{L})=0.000826$ 12; $\alpha(\text{M})=0.000197$ 3; $\alpha(\text{N}+..)=6.41\times 10^{-5}$ 9 $\alpha(\text{N})=5.06\times 10^{-5}$ 7; $\alpha(\text{O})=1.044\times 10^{-5}$ 15; $\alpha(\text{P})=1.292\times 10^{-6}$ 18; $\alpha(\text{IPF})=1.83\times 10^{-6}$ 3
1225.604	5/2 ⁻	411.10 4	23.8 16	814.428	9/2 ⁻	E2		0.0523	$\alpha(\text{K})=0.0334$ 5; $\alpha(\text{L})=0.01414$ 20; $\alpha(\text{M})=0.00360$ 5; $\alpha(\text{N}+..)=0.001127$ 16 $\alpha(\text{N})=0.000925$ 13; $\alpha(\text{O})=0.000183$ 3; $\alpha(\text{P})=1.93\times 10^{-5}$ 3 $\alpha(\text{K})=0.053$ 5; $\alpha(\text{L})=0.0092$ 6; $\alpha(\text{M})=0.00216$ 14; $\alpha(\text{N}+..)=0.00069$ 5 $\alpha(\text{N})=0.00056$ 4; $\alpha(\text{O})=0.000116$ 8; $\alpha(\text{P})=1.50\times 10^{-5}$ 11 $\alpha(\text{K})=0.007$ 3; $\alpha(\text{L})=0.0012$ 5; $\alpha(\text{M})=0.00029$ 11; $\alpha(\text{N}+..)=0.00010$ 4 $\alpha(\text{N})=7.E-5$ 3; $\alpha(\text{O})=1.5\times 10^{-5}$ 6; $\alpha(\text{P})=2.0\times 10^{-6}$ 8; $\alpha(\text{IPF})=9.E-6$ 3
		637.270 20	100 9	588.326	7/2 ⁻	M1(+E2)	0.2 2	0.065 5	
		1225.62 3	47 3	0	5/2 ⁻	M1+E2		0.009 4	
1274.12	13/2 ⁻	459.69 3	100	814.428	9/2 ⁻	E2		0.0394	$\alpha(\text{K})=0.0264$ 4; $\alpha(\text{L})=0.00977$ 14; $\alpha(\text{M})=0.00247$ 4; $\alpha(\text{N}+..)=0.000774$ 11 $\alpha(\text{N})=0.000634$ 9; $\alpha(\text{O})=0.0001260$ 18; $\alpha(\text{P})=1.362\times 10^{-5}$ 19
1281.67	(7/2,9/2,11/2) ⁻	693.33 6	100 5	588.326	7/2 ⁻	E2+M1	4.6 3	0.0171 4	$\alpha(\text{K})=0.0130$ 3; $\alpha(\text{L})=0.00312$ 6; $\alpha(\text{M})=0.000763$ 13; $\alpha(\text{N}+..)=0.000240$ 4 $\alpha(\text{N})=0.000196$ 4; $\alpha(\text{O})=3.98\times 10^{-5}$ 7; $\alpha(\text{P})=4.68\times 10^{-6}$ 9
1331.53		1095.13 15	93 13	236.472	3/2 ⁻				
		1331.63 12	100 15	0	5/2 ⁻				

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	γ(²⁰⁷ Po) (continued)							Comments
		E _γ [‡]	I _γ [‡]	E _f	J _f ^π	Mult. [‡]	δ [‡]	α [†]	
1383.16	19/2 ⁻	109.1	<0.7	1274.12	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 B(M3)(W.u.)=0.10 +11-10 E _γ , Mult.: From ²⁰⁸ Pb(α,5nγ), ²⁰⁶ Pb(α,3nγ). 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 B(E3)(W.u.)=0.00046 20
		268.08 6	100 9	1115.076	13/2 ⁺	E3		1.169	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 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
1511.07	7/2 ⁻	339.10 25	34 4	1171.595	7/2 ⁻	M1(+E2)	0.15 15	0.356 18	
		603.8 5	68 14	907.049	7/2 ⁻	M1(+E2)	0.6 6	0.062 19	
		1118.25 8	78 8	392.954	3/2 ⁻				
		1275.17 25	27 3	236.472	3/2 ⁻				
		1510.89 @ 8	100 @ 7	0	5/2 ⁻				
1548.22	(7/2 ⁻ , 9/2 ⁻)	862.46 @ 5	61 @ 4	685.756	5/2 ⁻			0.0095	
		959.79 18	18.4 19	588.326	7/2 ⁻				
		1548.21 8	100 6	0	5/2 ⁻				
1564.26	21/2 ⁻	181.1 # 2	100 #	1383.16	19/2 ⁻	M1		2.05	α(K)=1.668 24; α(L)=0.294 5; α(M)=0.0694 10; α(N+..)=0.0221 4 α(N)=0.0179 3; α(O)=0.00374 6; α(P)=0.000483 7 Mult.: α(K) _{exp} =1.78 9; A ₂ =-0.24 3, A ₄ =0.03 4 in ²⁰⁸ Pb(α,5nγ), ²⁰⁶ Pb(α,3nγ). 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 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
1582.195	9/2 ⁺	467.116 13	100 6	1115.076	13/2 ⁺	E2		0.0379	
		675.154 23	95 6	907.049	7/2 ⁻	E1		0.00563 8	
		768.3 3	7.0 4	814.428	9/2 ⁻				
1676.67	7/2, 9/2 ⁻	862.46 @ 5	23.5 @ 16	814.428	9/2 ⁻				
		1676.50 15	100 6	0	5/2 ⁻				
1691.27	17/2 ⁺	576.2 # 2	100 #	1115.076	13/2 ⁺	E2		0.0231	α(K)=0.01662 24; α(L)=0.00488 7; α(M)=0.001214

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^{\ddagger}	I_γ^{\ddagger}	E_f	J_f^π	Mult. [‡]	δ^{\ddagger}	α^\dagger	Comments
									17; $\alpha(\text{N}+..)=0.000382$ 6 $\alpha(\text{N})=0.000312$ 5; $\alpha(\text{O})=6.27\times 10^{-5}$ 9; $\alpha(\text{P})=7.06\times 10^{-6}$ 10 Mult.: $\alpha(\text{K})_{\text{exp}}=0.017$ 2; $A_2=0.25$ 1, $A_4=-0.09$ 2 in $^{208}\text{Pb}(\alpha,5n\gamma), ^{206}\text{Pb}(\alpha,3n\gamma)$.
1762.82	(5/2 ⁻ ,7/2 ⁻)	948.37 10 1174.60 8 1371 1	100 8 69 5 <33	814.428 588.326 392.954	9/2 ⁻ 7/2 ⁻ 3/2 ⁻				
1773.466	11/2 ⁺	191.26 1	8.2 5	1582.195	9/2 ⁺	M1(+E2)	0.2 2	1.72 13	$\alpha(\text{K})=1.38$ 13; $\alpha(\text{L})=0.253$ 5; $\alpha(\text{M})=0.0600$ 16; $\alpha(\text{N}+..)=0.0191$ 5 $\alpha(\text{N})=0.0154$ 4; $\alpha(\text{O})=0.00322$ 6; $\alpha(\text{P})=0.000411$ 10 $\alpha(\text{K})=0.030$ 9; $\alpha(\text{L})=0.0057$ 12; $\alpha(\text{M})=0.0014$ 3; $\alpha(\text{N}+..)=0.00043$ 9 $\alpha(\text{N})=0.00035$ 7; $\alpha(\text{O})=7.3\times 10^{-5}$ 15; $\alpha(\text{P})=9.1\times 10^{-6}$ 21
		658.40 15	100 11	1115.076	13/2 ⁺	M1+E2	1.1 4	0.037 10	
1781.77	(7/2,9/2) ⁻	233.58 5	24 5	1548.22	(7/2 ⁻ ,9/2 ⁻)	M1(+E2)	0.4 4	0.91 19	$\alpha(\text{K})=0.72$ 18; $\alpha(\text{L})=0.140$ 7; $\alpha(\text{M})=0.0335$ 9; $\alpha(\text{N}+..)=0.0106$ 4 $\alpha(\text{N})=0.00863$ 23; $\alpha(\text{O})=0.00179$ 8; $\alpha(\text{P})=0.000224$ 23
		1193.44 7 1781.67 7 793 ^a 1 1001.5 ^a 5 1320 ^a 1	88 7 100 7 ≈56 100 50	588.326 0 1115.076 907.049 588.326	7/2 ⁻ 5/2 ⁻ 13/2 ⁺ 7/2 ⁻ 7/2 ⁻				
1908.8?	(9/2 ⁺)	2016.34? 2099.00	100 13.8 13	0 1762.82	5/2 ⁻ (5/2 ⁻ ,7/2 ⁻)	M1+E2	0.6 3	0.29 6	$\alpha(\text{K})=0.23$ 5; $\alpha(\text{L})=0.046$ 5; $\alpha(\text{M})=0.0110$ 10; $\alpha(\text{N}+..)=0.0035$ 3 $\alpha(\text{N})=0.00283$ 24; $\alpha(\text{O})=0.00059$ 6; $\alpha(\text{P})=7.3\times 10^{-5}$ 9 $\alpha(\text{K})=0.00701$ 10; $\alpha(\text{L})=0.001173$ 17; $\alpha(\text{M})=0.000275$ 4; $\alpha(\text{N}+..)=0.0001583$ $\alpha(\text{N})=7.08\times 10^{-5}$ 10; $\alpha(\text{O})=1.483\times 10^{-5}$ 21; $\alpha(\text{P})=1.93\times 10^{-6}$ 3; $\alpha(\text{IPF})=7.08\times 10^{-5}$ 10
		1413.15 5	100 6	685.756	5/2 ⁻	M1		0.00861 12	
		1510.89 [@] 8 2099.5 5 213.87 7 456.750 20	52 [@] 4 13 4 2.2 6 37 3	588.326 0 2016.34? 1773.466	7/2 ⁻ 5/2 ⁻ 2016.34? 11/2 ⁺				
2230.250	9/2 ⁺					M1		0.1621	$\alpha(\text{K})=0.1322$ 19; $\alpha(\text{L})=0.0229$ 4; $\alpha(\text{M})=0.00538$ 8; $\alpha(\text{N}+..)=0.001713$ 24 $\alpha(\text{N})=0.001385$ 20; $\alpha(\text{O})=0.000290$ 4; $\alpha(\text{P})=3.75\times 10^{-5}$ 6
		553.58 22	2.4 5	1676.67	7/2,9/2 ⁻				

7

²⁰⁷Po₁₂₃-7

From ENSDF

²⁰⁷Po₁₂₃-7

Adopted Levels, Gammas (continued) $\gamma(^{207}\text{Po})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\ddagger	I_γ^\ddagger	E_f	J_f^π	Mult. ‡	δ^\ddagger	α^\dagger	Comments
2230.250	9/2 ⁺	648.095 20	89 6	1582.195	9/2 ⁺	M1		0.0642	$\alpha(\text{K})=0.0525$ 8; $\alpha(\text{L})=0.00899$ 13; $\alpha(\text{M})=0.00211$ 3; $\alpha(\text{N}+..)=0.000672$ 10 $\alpha(\text{N})=0.000544$ 8; $\alpha(\text{O})=0.0001138$ 16; $\alpha(\text{P})=1.474\times 10^{-5}$ 21
		1004.56 6 1115.196 24	5.0 7 100 6	1225.604 5/2 ⁻ 1115.076 13/2 ⁺		E2		0.00597 9	$\alpha(\text{K})=0.00476$ 7; $\alpha(\text{L})=0.000921$ 13; $\alpha(\text{M})=0.000220$ 3; $\alpha(\text{N}+..)=6.98\times 10^{-5}$ 10 $\alpha(\text{N})=5.65\times 10^{-5}$ 8; $\alpha(\text{O})=1.165\times 10^{-5}$ 17; $\alpha(\text{P})=1.435\times 10^{-6}$ 20; $\alpha(\text{IPF})=2.56\times 10^{-7}$ 4
		1323.12 15 1641.82 6 1993.7 5	4.2 6 19.5 11 1.9 4	907.049 7/2 ⁻ 588.326 7/2 ⁻ 236.472 3/2 ⁻					
2294.23	(9/2) ⁺	520.78 9	100 7	1773.466	11/2 ⁺	M1(+E2)	0.18 18	0.112 8	$\alpha(\text{K})=0.091$ 7; $\alpha(\text{L})=0.0158$ 9; $\alpha(\text{M})=0.00372$ 19; $\alpha(\text{N}+..)=0.00118$ 6 $\alpha(\text{N})=0.00096$ 5; $\alpha(\text{O})=0.000200$ 11; $\alpha(\text{P})=2.58\times 10^{-5}$ 15
		1179.5 15 2293.81 25	≈ 26.3 7.9 13	1115.076 13/2 ⁺ 0 5/2 ⁻					
2303.307	9/2 ⁺	529.790 25	57 4	1773.466	11/2 ⁺	M1		0.1093	$\alpha(\text{K})=0.0892$ 13; $\alpha(\text{L})=0.01536$ 22; $\alpha(\text{M})=0.00361$ 5; $\alpha(\text{N}+..)=0.001150$ 16 $\alpha(\text{N})=0.000930$ 13; $\alpha(\text{O})=0.000195$ 3; $\alpha(\text{P})=2.52\times 10^{-5}$ 4
		626.77 4 721.14 4	31.9 19 100 8	1676.67 7/2,9/2 ⁻ 1582.195 9/2 ⁺		M1		0.0486	$\alpha(\text{K})=0.0397$ 6; $\alpha(\text{L})=0.00678$ 10; $\alpha(\text{M})=0.001593$ 23; $\alpha(\text{N}+..)=0.000507$ 7 $\alpha(\text{N})=0.000410$ 6; $\alpha(\text{O})=8.58\times 10^{-5}$ 12; $\alpha(\text{P})=1.112\times 10^{-5}$ 16
		755.08 9 1021.67 12	8.2 7 14.5 9	1548.22 (7/2 ⁻ ,9/2 ⁻) 1281.67 (7/2,9/2,11/2) ⁻		E2		0.00706 10	$\alpha(\text{K})=0.00558$ 8; $\alpha(\text{L})=0.001121$ 16; $\alpha(\text{M})=0.000269$ 4; $\alpha(\text{N}+..)=8.50\times 10^{-5}$ 12 $\alpha(\text{N})=6.91\times 10^{-5}$ 10; $\alpha(\text{O})=1.420\times 10^{-5}$ 20; $\alpha(\text{P})=1.735\times 10^{-6}$ 25
		1077.68 3 1131.72 6 1188.26 3	32.6 22 7.6 6 28.2 15	1225.604 5/2 ⁻ 1171.595 7/2 ⁻ 1115.076 13/2 ⁺		E2		0.00529 8	$\alpha(\text{K})=0.00424$ 6; $\alpha(\text{L})=0.000801$ 12; $\alpha(\text{M})=0.000191$ 3; $\alpha(\text{N}+..)=6.32\times 10^{-5}$ 9 $\alpha(\text{N})=4.90\times 10^{-5}$ 7; $\alpha(\text{O})=1.012\times 10^{-5}$ 15; $\alpha(\text{P})=1.254\times 10^{-6}$ 18; $\alpha(\text{IPF})=2.82\times 10^{-6}$ 4
		1396.19 4	23.6 13	907.049 7/2 ⁻		(E1)		0.001617 23	$\alpha(\text{K})=0.001265$ 18; $\alpha(\text{L})=0.000193$ 3; $\alpha(\text{M})=4.47\times 10^{-5}$ 7; $\alpha(\text{N}+..)=0.0001151$

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ [‡]	I_γ [‡]	E_f	J_f^π	Mult. [‡]	α^\dagger	Comments
								$\alpha(\text{K})=0.001265$ 18; $\alpha(\text{L})=0.000193$ 3; $\alpha(\text{M})=4.47\times 10^{-5}$ 7; $\alpha(\text{N+..})=0.0001151$ $\alpha(\text{N})=1.145\times 10^{-5}$ 16; $\alpha(\text{O})=2.39\times 10^{-6}$ 4; $\alpha(\text{P})=3.08\times 10^{-7}$ 5; $\alpha(\text{IPF})=0.0001009$ 15
2303.307	9/2 ⁺	1488.91 12 2303.5 3	5.1 5 0.99 15	814.428 0	9/2 ⁻ 5/2 ⁻			
2313.47	21/2 ⁺	622.2 [#] 2	100 [#] 6	1691.27	17/2 ⁺	E2	0.0195	$\alpha(\text{K})=0.01427$ 20; $\alpha(\text{L})=0.00392$ 6; $\alpha(\text{M})=0.000969$ 14; $\alpha(\text{N+..})=0.000305$ 5 $\alpha(\text{N})=0.000249$ 4; $\alpha(\text{O})=5.02\times 10^{-5}$ 7; $\alpha(\text{P})=5.73\times 10^{-6}$ 8 Mult.: $\alpha(\text{K})\text{exp}=0.015$ 2; $A_2=0.26$ 1, $A_4=-0.08$ 1 in $^{208}\text{Pb}(\alpha,5n\gamma), ^{206}\text{Pb}(\alpha,3n\gamma)$.
		749.2 [#] 2	10.4 [#] 12	1564.26	21/2 ⁻	E1	0.00462 7	$\alpha(\text{K})=0.00383$ 6; $\alpha(\text{L})=0.000607$ 9; $\alpha(\text{M})=0.0001412$ 20; $\alpha(\text{N+..})=4.46\times 10^{-5}$ 7 $\alpha(\text{N})=3.61\times 10^{-5}$ 5; $\alpha(\text{O})=7.50\times 10^{-6}$ 11; $\alpha(\text{P})=9.48\times 10^{-7}$ 14 Mult.: $\alpha(\text{K})\text{exp}=0.0024$ 3; $A_2=0.30$ 2, $A_4=0.00$ 3 consistent with $\Delta J=0$ transition in $^{208}\text{Pb}(\alpha,5n\gamma), ^{206}\text{Pb}(\alpha,3n\gamma)$.
2379.7	25/2 ⁺	66.2 [#] 2	100 [#]	2313.47	21/2 ⁺	E2	48.5 10	$\alpha(\text{L})=36.0$ 8; $\alpha(\text{M})=9.59$ 20; $\alpha(\text{N+..})=2.96$ 6 $\alpha(\text{N})=2.45$ 5; $\alpha(\text{O})=0.465$ 10; $\alpha(\text{P})=0.0411$ 9 $\text{B}(\text{E}2)(\text{W.u.})=2.87$ 8 Mult.: From $\alpha(\text{exp})=55$ 10, deduced from an intensity balances in delayed spectrum in $^{208}\text{Pb}(\alpha,5n\gamma), ^{206}\text{Pb}(\alpha,3n\gamma)$.
2393.48		1805.25 6 2393.04 15	100 7 19.5 18	588.326 0	7/2 ⁻ 5/2 ⁻			
2414.25	(9/2 ⁺ , 11/2 ⁻)	641.00 ^{&} 7 1242.62 7 1298.84 24 1506.97 9	69 ^{&} 23 100 9 24 6 82 5	1773.466 1171.595 1115.076 907.049	11/2 ⁺ 7/2 ⁻ 13/2 ⁺ 7/2 ⁻			
2454.64	(9/2 ⁺ , 11/2 ⁻)	1825.52 18 1283.08 4 1339.17 16	25 4 100 6 23 3	588.326 1171.595 1115.076	7/2 ⁻ 7/2 ⁻ 13/2 ⁺			
2583.02	(5/2 ⁻)	820.50 15 1768.0 5 1897.0 5 2514.30 15	100 13 13 3 11 3 10.0 25	1762.82 814.428 685.756 68.557	(5/2 ⁻ , 7/2 ⁻) 9/2 ⁻ 5/2 ⁻ 1/2 ⁻			
2641.40	(3/2 ⁻ , 5/2 ⁻)	2582.4 4 2053.0 3 2572.85 20	5.3 5 100 12 30 5	0 588.326 68.557	5/2 ⁻ 7/2 ⁻ 1/2 ⁻			
2827.69	9/2 ⁺ , 11/2 ⁺	373.14 8	31 3	2454.64	(9/2 ⁺ , 11/2 ⁻)	(M1)	0.279	$\alpha(\text{K})=0.227$ 4; $\alpha(\text{L})=0.0395$ 6; $\alpha(\text{M})=0.00931$ 13;

Adopted Levels, Gammas (continued)

$\gamma(^{207}\text{Po})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\ddagger	I_γ^\ddagger	E_f	J_f^π	Mult. ‡	δ^\ddagger	α^\dagger	Comments
2827.69	9/2 ⁺ , 11/2 ⁺	1054.22 4	81 6	1773.466	11/2 ⁺	M1		0.0182	$\alpha(\text{N}+\text{..})=0.00296$ 5 $\alpha(\text{N})=0.00240$ 4; $\alpha(\text{O})=0.000502$ 7; $\alpha(\text{P})=6.49\times 10^{-5}$ 9 $\alpha(\text{K})=0.01487$ 21; $\alpha(\text{L})=0.00251$ 4; $\alpha(\text{M})=0.000589$ 9; $\alpha(\text{N}+\text{..})=0.000187$ 3 $\alpha(\text{N})=0.0001515$ 22; $\alpha(\text{O})=3.17\times 10^{-5}$ 5; $\alpha(\text{P})=4.12\times 10^{-6}$ 6
2845.89	(9/2 ⁺ , 11/2 ⁺)	1245.46 5 1712.60 9 1263.71 4	45 4 100 6 14.4 11	1582.195 1115.076 1582.195	9/2 ⁺ 13/2 ⁺ 9/2 ⁺	(M1)		0.01140	$\alpha(\text{K})=0.00933$ 13; $\alpha(\text{L})=0.001568$ 22; $\alpha(\text{M})=0.000368$ 6; $\alpha(\text{N}+\text{..})=0.0001364$ 19 $\alpha(\text{N})=9.46\times 10^{-5}$ 14; $\alpha(\text{O})=1.98\times 10^{-5}$ 3; $\alpha(\text{P})=2.57\times 10^{-6}$ 4; $\alpha(\text{IPF})=1.94\times 10^{-5}$ 3
2860.43	9/2 ⁺ , 11/2	1334.0 10 1730.76 6 1087.06 10 1277.83 23 1745.32 7 2046.2 3	≈ 1.2 100 6 39 5 21 3 100 6 19 3	1511.07 1115.076 1773.466 1582.195 1115.076 814.428	7/2 ⁻ 13/2 ⁺ 11/2 ⁺ 9/2 ⁺ 13/2 ⁺ 9/2 ⁻				
2870.99	(7/2 ⁻ , 9/2 ⁻ , 11/2 ⁻)	641.00 & α 7 772.20 15 1589.19 15 2056.2 3	<89 & 100 7 42 4 39 7	2230.250 2099.00 1281.67 814.428	9/2 ⁺ 3/2 ⁻ , 5/2 ⁻ , 7/2 ⁻ (7/2, 9/2, 11/2) ⁻ 9/2 ⁻				
2879.5	27/2 ⁺	499.8 [#] 2	100 [#]	2379.7	25/2 ⁺	M1		0.1276	$\alpha(\text{K})=0.1040$ 15; $\alpha(\text{L})=0.0179$ 3; $\alpha(\text{M})=0.00422$ 6; $\alpha(\text{N}+\text{..})=0.001344$ 19 $\alpha(\text{N})=0.001087$ 16; $\alpha(\text{O})=0.000228$ 4; $\alpha(\text{P})=2.94\times 10^{-5}$ 5 Mult.: $\alpha(\text{K})\text{exp}=0.103$ 5; $A_2=-0.33$ 3, $A_4=0.09$ 2 in $^{208}\text{Pb}(\alpha, 5n\gamma)$, $^{206}\text{Pb}(\alpha, 3n\gamma)$.
2887.94	(9/2)	789.54 25 1305.4 3 1556.54 11 1716.39 10 1772.77 7 2888.1 4	24 3 28 8 30 3 100 6 72 4 4.8 12	2099.00 1582.195 1331.53 1171.595 1115.076 0	3/2 ⁻ , 5/2 ⁻ , 7/2 ⁻ 9/2 ⁺ 7/2 ⁻ 13/2 ⁺ 5/2 ⁻				
2958.10	(7/2 ⁻ , 9/2 ⁻)	503.40 13	43 12	2454.64	(9/2 ⁺ , 11/2 ⁻)	M1(+E2)	0.6 6	0.10 3	$\alpha(\text{K})=0.08$ 3; $\alpha(\text{L})=0.015$ 4; $\alpha(\text{M})=0.0035$ 8; $\alpha(\text{N}+\text{..})=0.00112$ 25 $\alpha(\text{N})=0.00091$ 20; $\alpha(\text{O})=0.00019$ 5; $\alpha(\text{P})=2.4\times 10^{-5}$ 6

Adopted Levels, Gammas (continued)

$\gamma(^{207}\text{Po})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^{\ddagger}	I_γ^{\ddagger}	E_f	J_f^π	Mult. [‡]	α^\dagger	Comments
								$\alpha(\text{K})=0.08\ 3$; $\alpha(\text{L})=0.015\ 4$; $\alpha(\text{M})=0.0035\ 8$; $\alpha(\text{N+..})=0.00112\ 25$
2958.10	(7/2 ⁻ ,9/2 ⁻)	1409.86 5	100 6	1548.22	(7/2 ⁻ ,9/2 ⁻)	M1	0.00866 13	$\alpha(\text{N})=0.00091\ 20$; $\alpha(\text{O})=0.00019\ 5$; $\alpha(\text{P})=2.4\times 10^{-5}\ 6$ $\alpha(\text{K})=0.00705\ 10$; $\alpha(\text{L})=0.001180\ 17$; $\alpha(\text{M})=0.000277\ 4$; $\alpha(\text{N+..})=0.0001574$ $\alpha(\text{N})=7.12\times 10^{-5}\ 10$; $\alpha(\text{O})=1.492\times 10^{-5}\ 21$; $\alpha(\text{P})=1.94\times 10^{-6}\ 3$; $\alpha(\text{IPF})=6.93\times 10^{-5}\ 10$
		1684.07 18	10.0 12	1274.12	13/2 ⁻			
		1786.57 7	75 4	1171.595	7/2 ⁻			
		2143.57 12	13.9 15	814.428	9/2 ⁻			
		2721.3 5	3.5 8	236.472	3/2 ⁻			
2961.92		1450.75 20	87 20	1511.07	7/2 ⁻			
		1736.7 4	100 40	1225.604	5/2 ⁻			
		2373.45 25	60 9	588.326	7/2 ⁻			
		2962.5 6	40 7	0	5/2 ⁻			
2963.7	27/2 ⁺	584.0 [#] 2	100 [#]	2379.7	25/2 ⁺	M1	0.0845	$\alpha(\text{K})=0.0690\ 10$; $\alpha(\text{L})=0.01184\ 17$; $\alpha(\text{M})=0.00279\ 4$; $\alpha(\text{N+..})=0.000886\ 13$ $\alpha(\text{N})=0.000717\ 10$; $\alpha(\text{O})=0.0001501\ 21$; $\alpha(\text{P})=1.94\times 10^{-5}\ 3$ Mult.: $\alpha(\text{K})\text{exp}=0.095\ 5$; $A_2=-0.31\ 13$, $A_4=0.08\ 1$ in $^{208}\text{Pb}(\alpha,5n\gamma)$, $^{206}\text{Pb}(\alpha,3n\gamma)$.
3036.99	(5/2 ⁺)	1127.9 ^a 3	57 19	1908.8?	(9/2 ⁺)			
		1455.06 25	15 4	1582.195	9/2 ⁺			
		1811.42 23	100 23	1225.604	5/2 ⁻			
		2800.6 4	≈19	236.472	3/2 ⁻			
		2968.5 5	9.4 19	68.557	1/2 ⁻			
3080.12		438.5 ^a 5	≈16	2641.40	(3/2 ⁻ ,5/2 ⁻)			
		1854.54 9	100 7	1225.604	5/2 ⁻			
		1908.22 25	27 4	1171.595	7/2 ⁻			
		3080.4 6	3.3 10	0	5/2 ⁻			
3095.98	(7/2 ⁺ ,9/2 ⁺)	681.80 14	30 4	2414.25	(9/2 ⁺ ,11/2 ⁻)	(M1)	0.0302	$\alpha(\text{K})=0.0247\ 4$; $\alpha(\text{L})=0.00420\ 6$; $\alpha(\text{M})=0.000986\ 14$; $\alpha(\text{N+..})=0.000314\ 5$ $\alpha(\text{N})=0.000254\ 4$; $\alpha(\text{O})=5.32\times 10^{-5}\ 8$; $\alpha(\text{P})=6.89\times 10^{-6}\ 10$
		865.3 4	100 12	2230.250	9/2 ⁺			
		2188.79 25	56 8	907.049	7/2 ⁻			
		3096.5 7	12 3	0	5/2 ⁻			
3137.0	29/2 ⁺	173.3 2	15.6 13	2963.7	27/2 ⁺			
		257.5 [#] 2	100 [#] 8	2879.5	27/2 ⁺	M1	0.769	$\alpha(\text{K})=0.625\ 9$; $\alpha(\text{L})=0.1097\ 16$; $\alpha(\text{M})=0.0259\ 4$; $\alpha(\text{N+..})=0.00823\ 12$ $\alpha(\text{N})=0.00666\ 10$; $\alpha(\text{O})=0.001393\ 20$; $\alpha(\text{P})=0.000180\ 3$ Mult.: $\alpha(\text{K})\text{exp}=0.61\ 6$; $A_2=-0.23\ 2$, $A_4=0.05\ 3$ in $^{208}\text{Pb}(\alpha,5n\gamma)$, $^{206}\text{Pb}(\alpha,3n\gamma)$.

Adopted Levels, Gammas (continued)

γ(²⁰⁷Po) (continued)

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ[‡]</u>	<u>I_γ[‡]</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[‡]</u>	<u>α[†]</u>	<u>Comments</u>
3137.0	29/2 ⁺	757.4 [#] 2	78 [#] 7	2379.7	25/2 ⁺	E2	0.01281	α(K)=0.00976 14; α(L)=0.00231 4; α(M)=0.000564 8; α(N+..)=0.0001778 25 α(N)=0.0001449 21; α(O)=2.95×10 ⁻⁵ 5; α(P)=3.47×10 ⁻⁶ 5 Mult.: α(K)exp=0.011 1; A ₂ =0.30 3, A ₄ =-0.11 5 in ²⁰⁸ Pb(α,5nγ), ²⁰⁶ Pb(α,3nγ).
3179.38	(9/2 ⁺)	765.03 10 1631.16 20 2064.5 3 2591.30 15 3179.2 5	100 7 16.4 23 32 3 34 3 6.3 9	2414.25 1548.22 1115.076 588.326 0	(9/2 ⁺ ,11/2 ⁻) (7/2 ⁻ ,9/2 ⁻) 13/2 ⁺ 7/2 ⁻ 5/2 ⁻			
3245.69	(5/2 ⁺ ,7/2)	852.46 16 1015.40 8 1697.0 4 3008.9 5	100 9 96 11 21.8 22 19 4	2393.48 2230.250 1548.22 236.472	9/2 ⁺ (7/2 ⁻ ,9/2 ⁻) 3/2 ⁻			
3272.59	(7/2,9/2)	1042.39 8 2365.45 20 2457.6 4 2684.21 15 3272.1 5	100 9 24 3 56 5 45 4 6.4 11	2230.250 907.049 814.428 588.326 0	9/2 ⁺ 7/2 ⁻ 9/2 ⁻ 7/2 ⁻ 5/2 ⁻			
3300.91	(9/2)	264.04 14 473.04 25 1719.1 4 2026.78 18 2075.27 7 2486.6 4 2712.50 15	14 4 12.8 18 15.3 22 15.3 15 40 4 11.8 11 100 6	3036.99 2827.69 1582.195 1274.12 1225.604 814.428 588.326	(5/2 ⁺) 9/2 ⁺ ,11/2 ⁺ 9/2 ⁺ 13/2 ⁻ 5/2 ⁻ 9/2 ⁻ 7/2 ⁻			
3380.47		1598.31 18 2473.69 25 2566.10 13 2792.5 4	46 5 32 4 100 10 11 3	1781.77 907.049 814.428 588.326	(7/2,9/2) ⁻ 7/2 ⁻ 9/2 ⁻ 7/2 ⁻			
3381.2	31/2 ⁺	244.2 [#] 2	100 [#]	3137.0	29/2 ⁺	M1	0.891	α(K)=0.724 11; α(L)=0.1271 18; α(M)=0.0300 5; α(N+..)=0.00954 14 α(N)=0.00772 11; α(O)=0.001615 23; α(P)=0.000209 3 Mult.: α(K)exp=0.80 8; A ₂ =-0.22 2, A ₄ =0.08 3 in ²⁰⁸ Pb(α,5nγ), ²⁰⁶ Pb(α,3nγ).
3442.60		1139.03 22 2535.57 25 2854.7 3	98 29 100 10 69 11	2303.307 907.049 588.326	9/2 ⁺ 7/2 ⁻ 7/2 ⁻			
3449.88	(7/2 ⁻ ,9/2 ⁻)	487.96 8 562.10 20 1350.73 11	68 13 17 5 100 10	2961.92 2887.94 2099.00	(9/2) (9/2) 3/2 ⁻ ,5/2 ⁻ ,7/2 ⁻			

Adopted Levels, Gammas (continued)

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

$E_i(\text{level})$	J_i^π	E_γ^\ddagger	I_γ^\ddagger	E_f	J_f^π	Mult. [‡]	α^\dagger	Comments
3449.88	(7/2 ⁻ , 9/2 ⁻)	1867.97 25 2861.8 3	18 5 12.8 22	1582.195 588.326	9/2 ⁺ 7/2 ⁻			
3457.87	(9/2)	278.8 3 1154.65 11 1163.2 3 1358.5 5 1875.74 15 2342.65 10 2772.7 4 3458.3 7	≈18 22 3 12 3 ≤9.2 44 3 100 7 12.9 18 ≈3	3179.38 2303.307 2294.23 2099.00 1582.195 1115.076 685.756 0	(9/2 ⁺) 9/2 ⁺ (9/2 ⁺) 3/2 ⁻ , 5/2 ⁻ , 7/2 ⁻ 9/2 ⁺ 13/2 ⁺ 5/2 ⁻ 5/2 ⁻			
3599.0	29/2 ⁻	719.5 [#] 2	100 [#]	2879.5	27/2 ⁺	E1	0.00499 7	$\alpha(\text{K})=0.00413$ 6; $\alpha(\text{L})=0.000657$ 10; $\alpha(\text{M})=0.0001529$ 22; $\alpha(\text{N}+..)=4.83\times 10^{-5}$ 7 $\alpha(\text{N})=3.91\times 10^{-5}$ 6; $\alpha(\text{O})=8.12\times 10^{-6}$ 12; $\alpha(\text{P})=1.025\times 10^{-6}$ 15 Mult.: $\alpha(\text{K})\text{exp}=0.0045$ 5; $A_2=-0.19$ 3, $A_4=0.07$ 4 in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$).
3602.4	31/2 ⁻	(3.4)		3599.0	29/2 ⁻	[M1]		E_γ : Not observed. Existence inferred from 719.5 γ -198.4 γ coin. $I_{(\gamma+ce)}$: From $I(\gamma+ce)(465.4\gamma)/I(\gamma+ce)(3.4\gamma)=2$ (1985Ra18) in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$).
		465.4 [#] 2	100 [#]	3137.0	29/2 ⁺	E1	0.01192	$\alpha(\text{K})=0.00980$ 14; $\alpha(\text{L})=0.001622$ 23; $\alpha(\text{M})=0.000379$ 6; $\alpha(\text{N}+..)=0.0001195$ 17 $\alpha(\text{N})=9.70\times 10^{-5}$ 14; $\alpha(\text{O})=2.00\times 10^{-5}$ 3; $\alpha(\text{P})=2.48\times 10^{-6}$ 4 Mult.: $\alpha(\text{K})\text{exp}=0.009$ 1; $A_2=-0.23$ 2, $A_4=0.05$ 3 in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$).
3800.8	33/2 ⁻	198.4 [#] 2	100 [#]	3602.4	31/2 ⁻	M1	1.590	$\alpha(\text{K})=1.291$ 19; $\alpha(\text{L})=0.227$ 4; $\alpha(\text{M})=0.0536$ 8; $\alpha(\text{N}+..)=0.01707$ 25 $\alpha(\text{N})=0.01381$ 20; $\alpha(\text{O})=0.00289$ 5; $\alpha(\text{P})=0.000373$ 6 Mult.: $\alpha(\text{K})\text{exp}=1.36$ 7; $A_2=-0.17$ 6, $A_4=0.03$ 10 in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$).
3919.5		538.3 [#] 2	100 [#]	3381.2	31/2 ⁺	E1,E2		Mult.: $\alpha(\text{K})\text{exp}=0.017$ 2; $A_2=-0.26$ 4, $A_4=0.06$ 5 in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$). The assignment is ambiguous.
4346.3	35/2 ⁻	545.5 [#] 2	100 [#]	3800.8	33/2 ⁻	M1	0.1011	$\alpha(\text{K})=0.0825$ 12; $\alpha(\text{L})=0.01420$ 20; $\alpha(\text{M})=0.00334$ 5; $\alpha(\text{N}+..)=0.001063$ 15 $\alpha(\text{N})=0.000860$ 12; $\alpha(\text{O})=0.000180$ 3; $\alpha(\text{P})=2.33\times 10^{-5}$ 4 Mult.: $\alpha(\text{K})\text{exp}=0.080$ 4; $A_2=-0.09$ 1, $A_4=0.04$ 8 in ²⁰⁸ Pb($\alpha, 5n\gamma$), ²⁰⁶ Pb($\alpha, 3n\gamma$).

† Additional information 1.

‡ From ²⁰⁷At ϵ decay, unless otherwise specified.

Adopted Levels, Gammas (continued) $\gamma(^{207}\text{Po})$ (continued)

From $^{208}\text{Pb}(\alpha,5n\gamma),^{206}\text{Pb}(\alpha,3n\gamma)$.

@ Multiply placed with undivided intensity.

& Multiply placed with intensity suitably divided.

^a Placement of transition in the level scheme is uncertain.

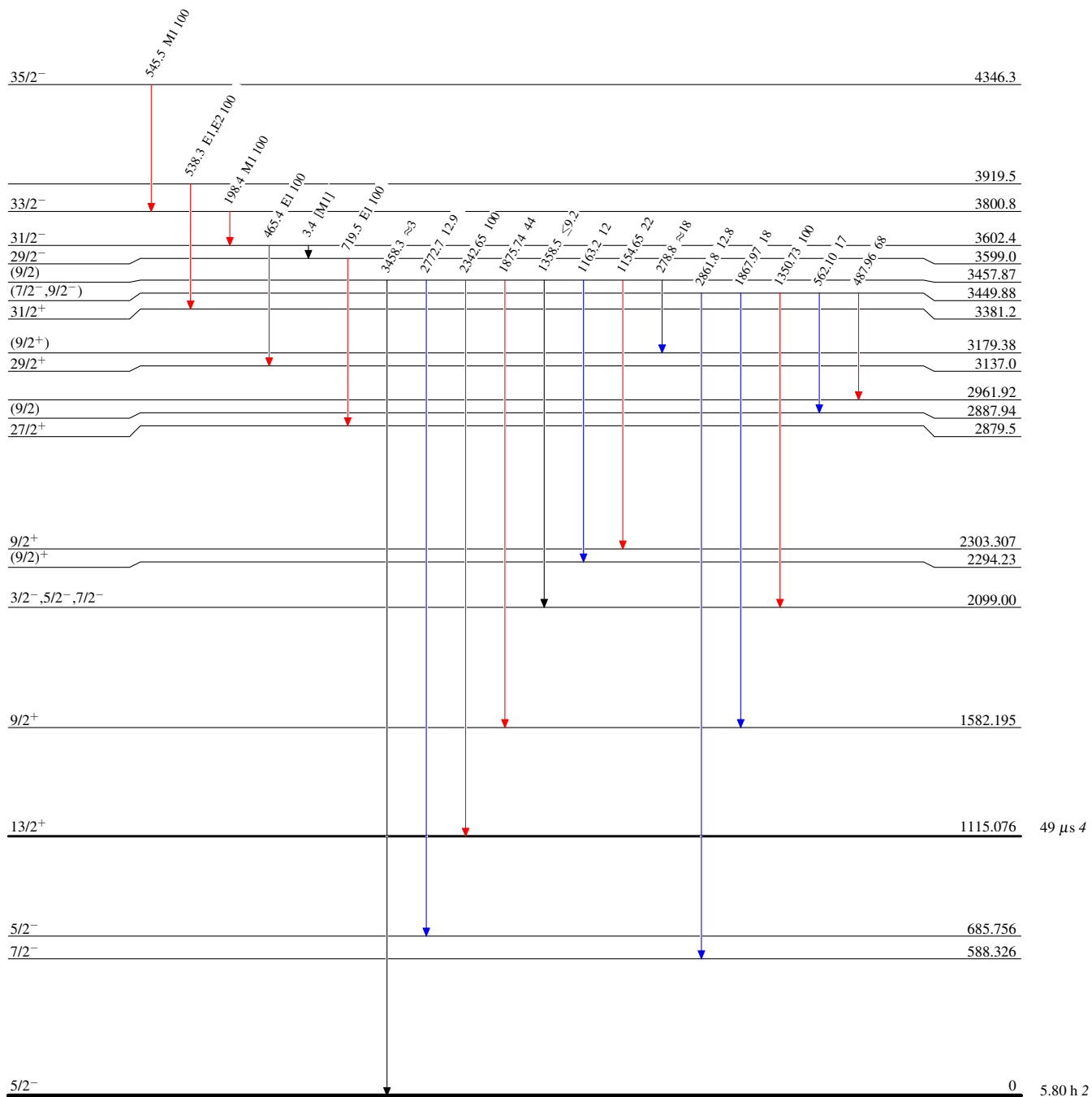
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Type not specified

- ▶ $I_\gamma < 2\% \times I_\gamma^{max}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{max}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{max}$
- - - -▶ γ Decay (Uncertain)



$^{207}_{84}\text{Po}_{123}$

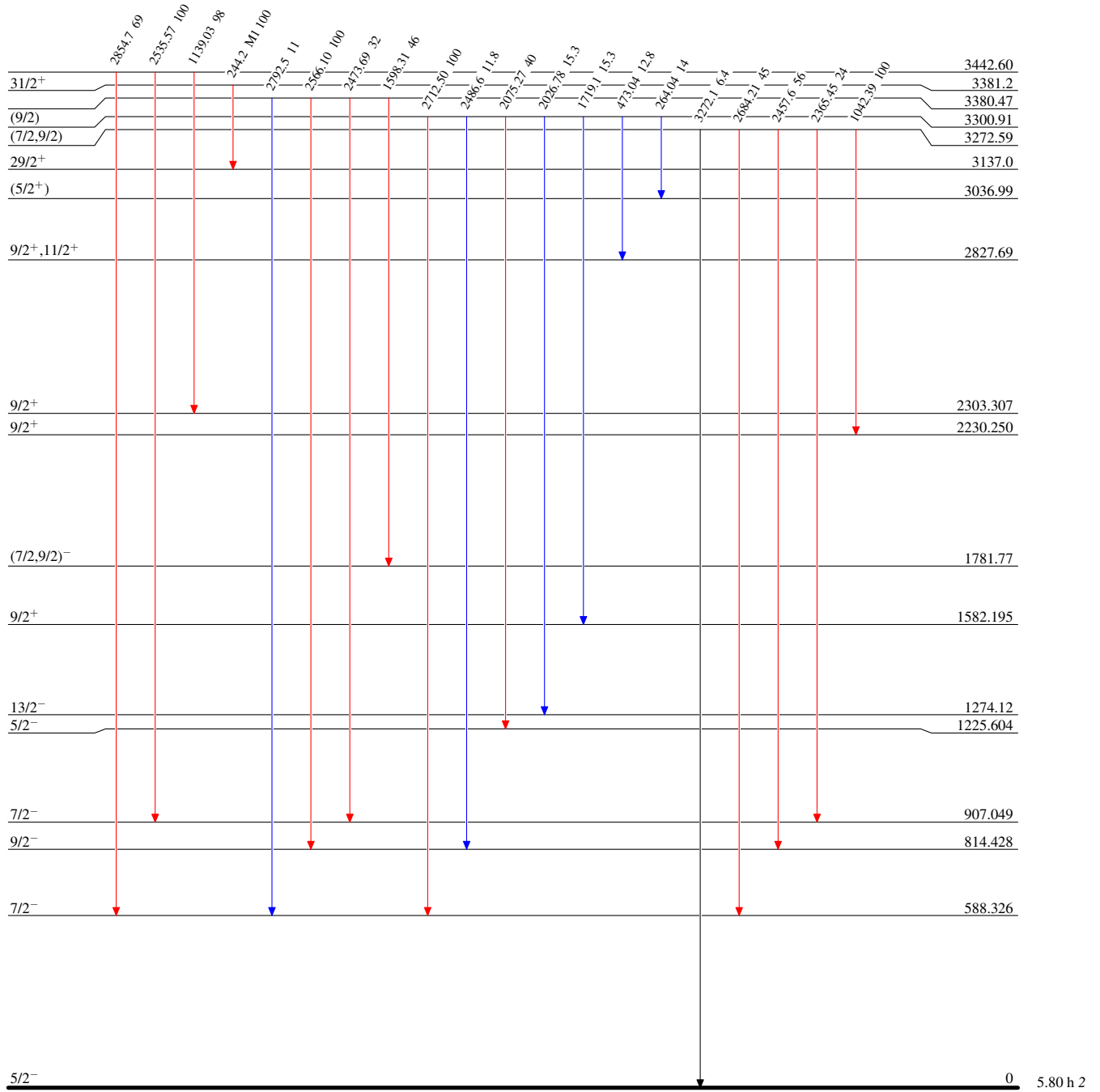
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



$^{207}_{84}\text{Po}_{123}$

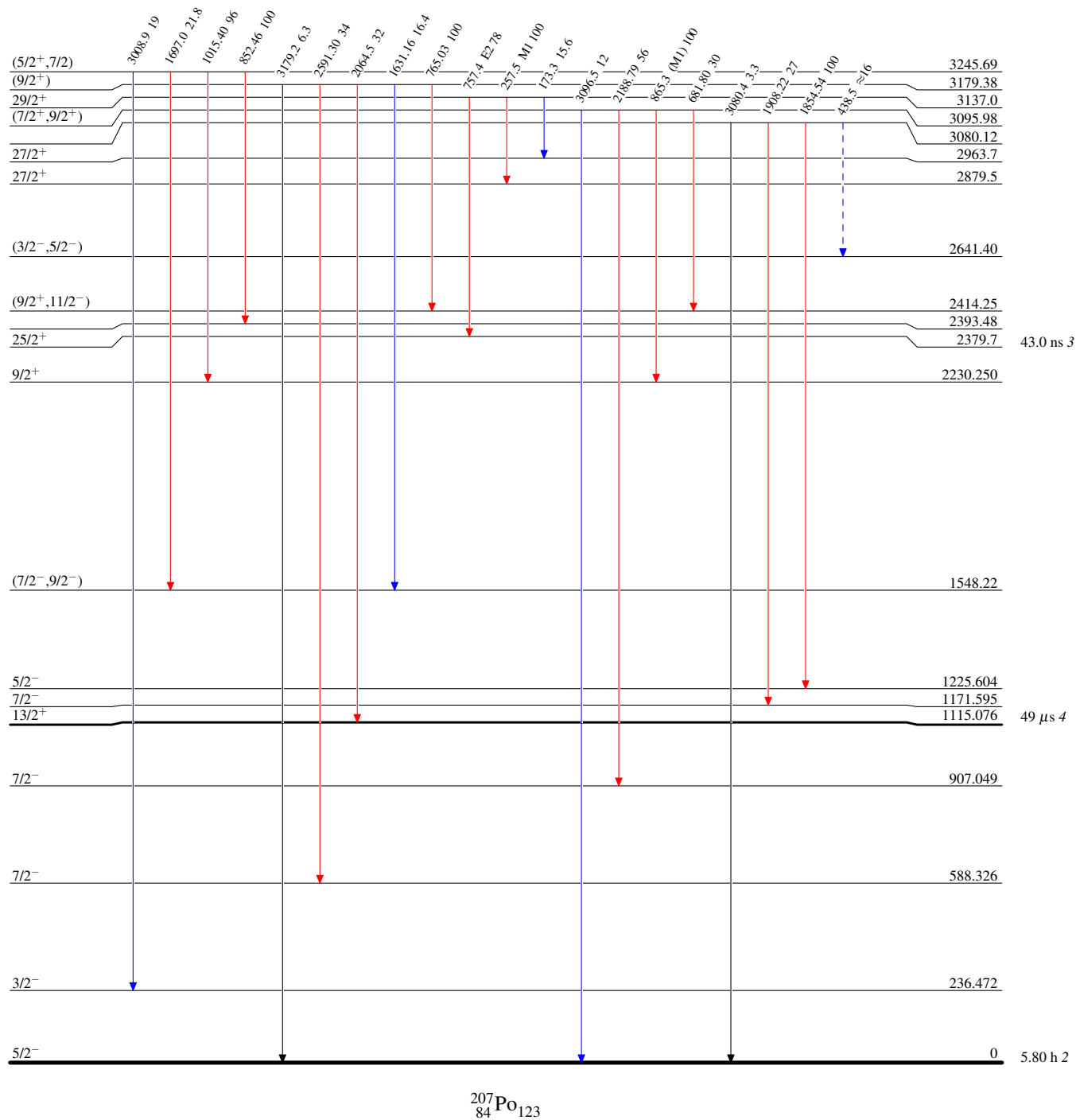
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Type not specified

- ▶ $I_\gamma < 2\% \times I_\gamma^{\max}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{\max}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{\max}$
- - -▶ γ Decay (Uncertain)



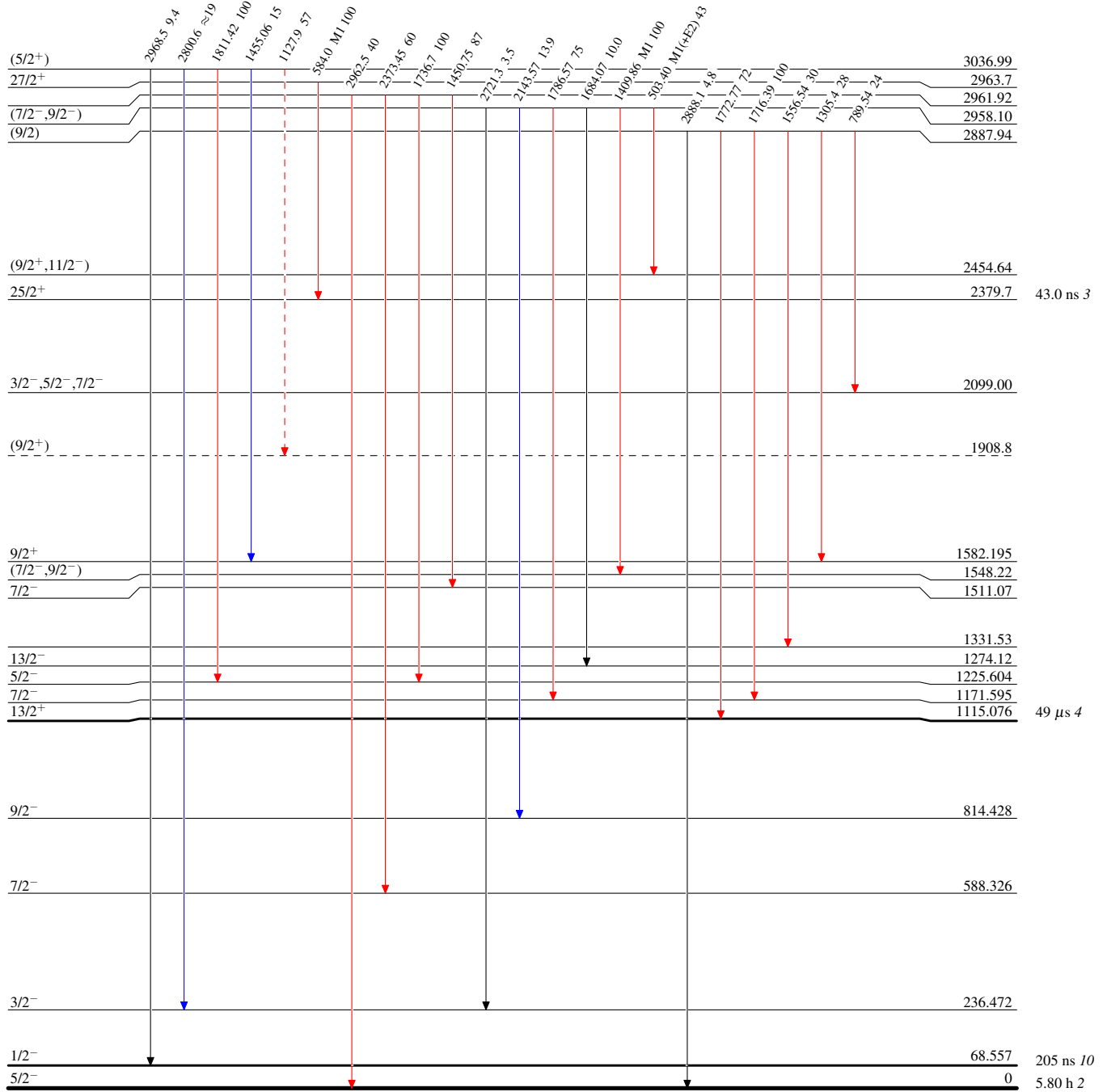
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

- ▶ $I_\gamma < 2\% \times I_\gamma^{max}$
- ▶ $I_\gamma < 10\% \times I_\gamma^{max}$
- ▶ $I_\gamma > 10\% \times I_\gamma^{max}$
- - -▶ γ Decay (Uncertain)



$^{207}_{84}\text{Po}_{123}$

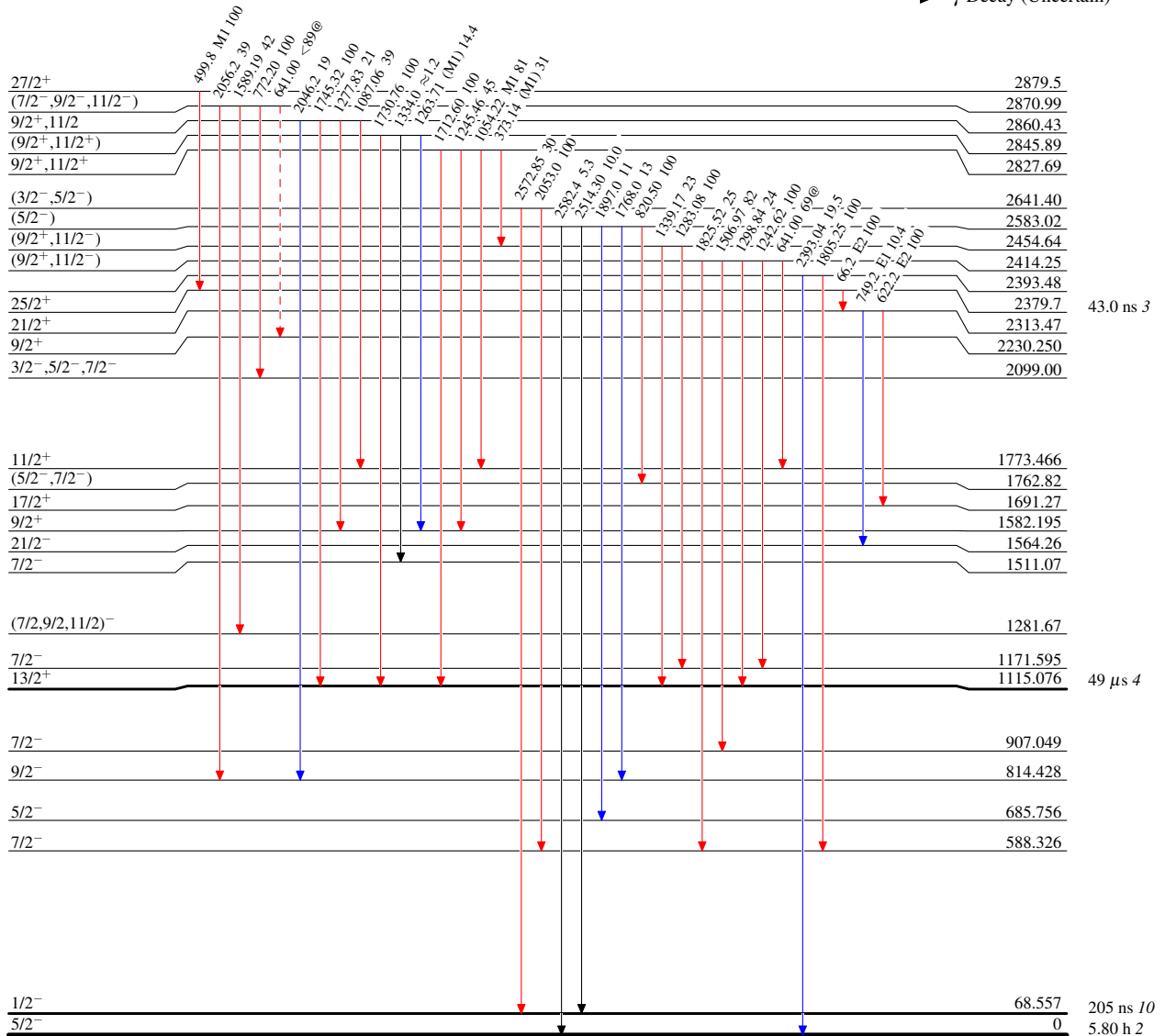
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
@ Multiply placed: intensity suitably divided

Legend

- ▶ I_γ < 2% × I_γ^{max}
- ▶ I_γ < 10% × I_γ^{max}
- ▶ I_γ > 10% × I_γ^{max}
- - -▶ γ Decay (Uncertain)



²⁰⁷Po₈₄¹²³

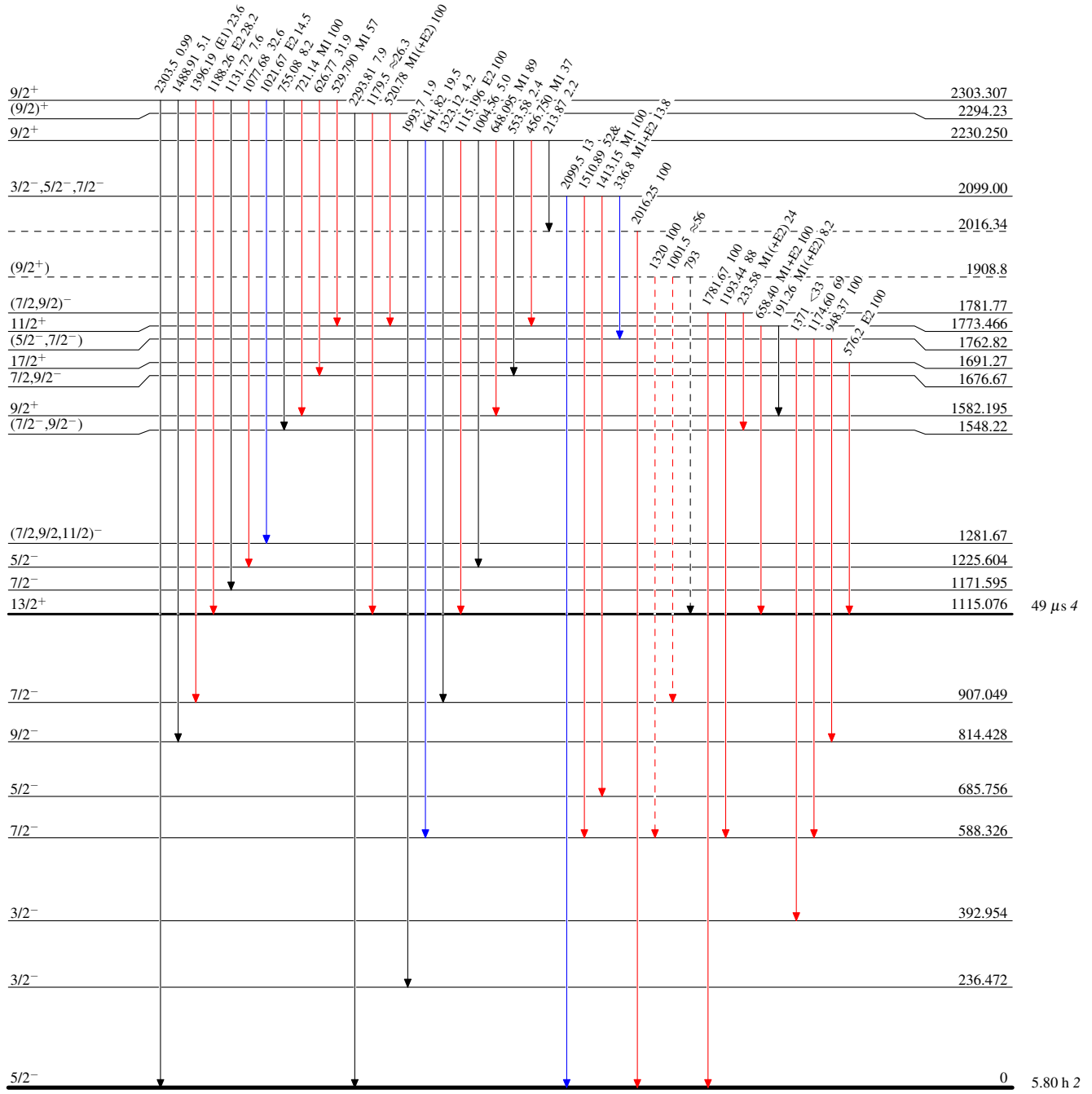
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- - - γ Decay (Uncertain)



$^{207}_{84}\text{Po}_{123}$

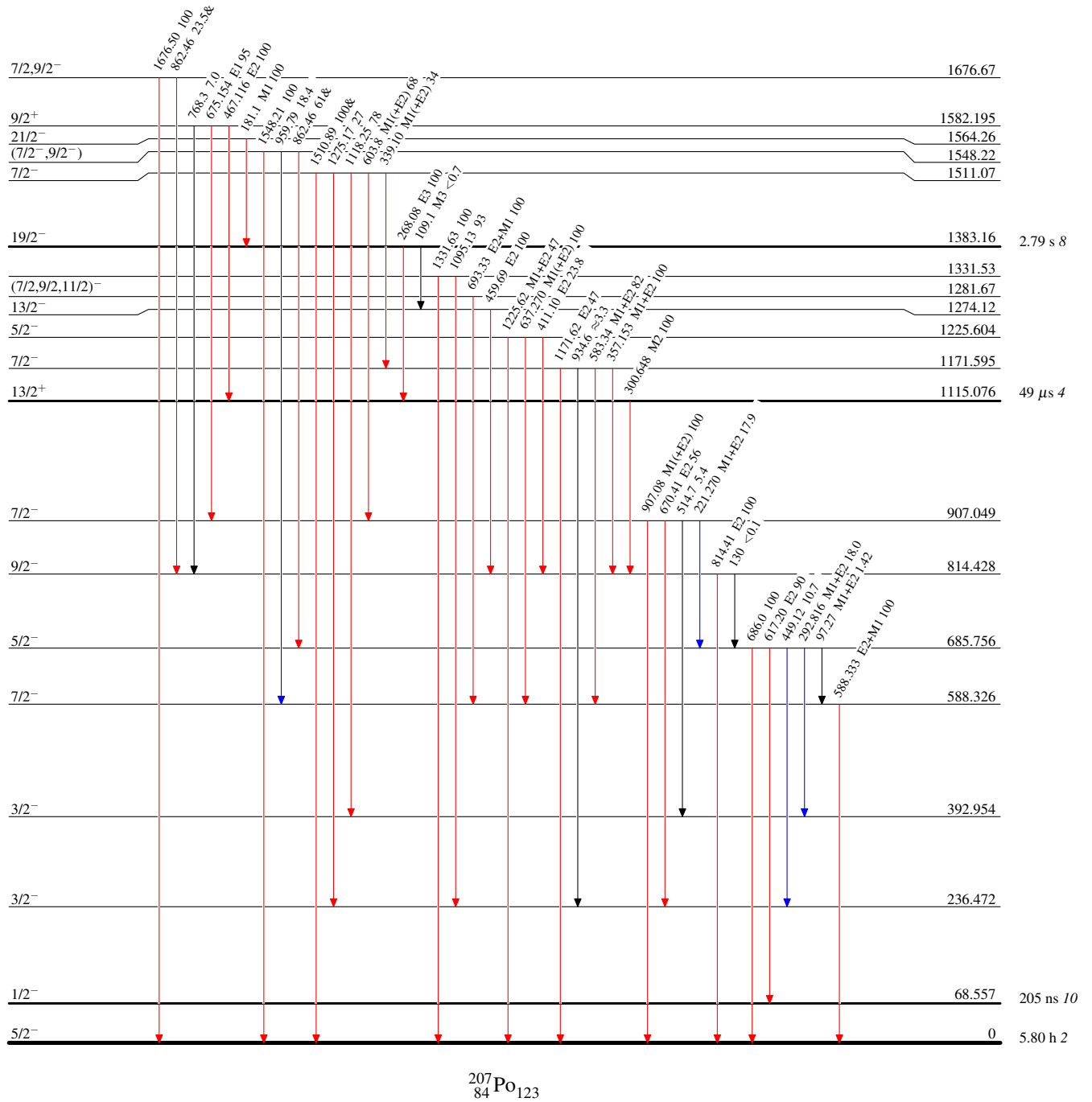
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified
 & Multiply placed: undivided intensity given
 @ Multiply placed: intensity suitably divided

Legend

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



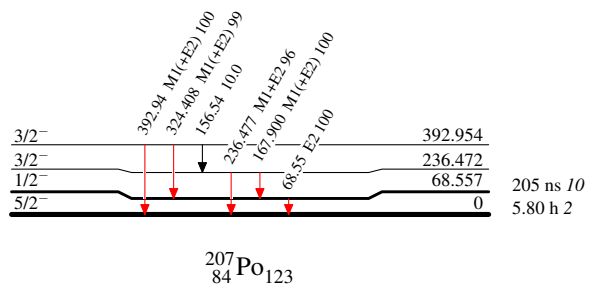
²⁰⁷₈₄Po₁₂₃

Adopted Levels, GammasLevel Scheme (continued)

Intensities: Type not specified
 & Multiply placed: undivided intensity given
 @ Multiply placed: intensity suitably divided

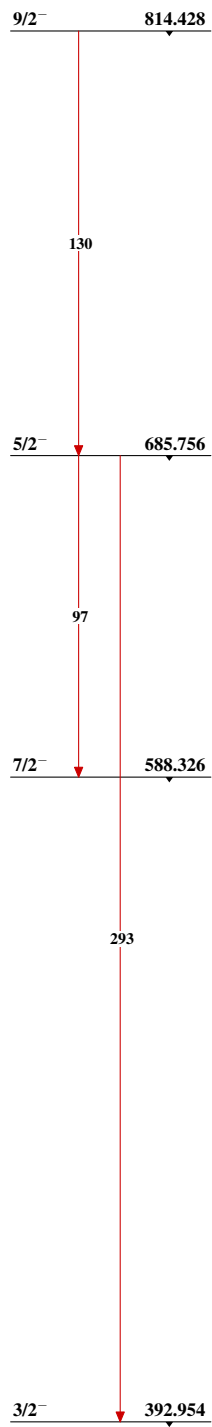
Legend

→ $I_\gamma < 2\% \times I_\gamma^{max}$
 → $I_\gamma < 10\% \times I_\gamma^{max}$
 → $I_\gamma > 10\% \times I_\gamma^{max}$

 $^{207}_{84}\text{Po}_{123}$

Adopted Levels, Gammas

Band(A): Configuration=((
 $^{206}\text{Po } 2^+$)(v
2f5/2)-1)

 $^{207}_{84}\text{Po}_{123}$