

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 121, 561 (2014)	31-Mar-2014

Q(β⁻)=-2367 9; S(n)=7161 9; S(p)=2895 8; Q(α)=5631.2 10 [2012Wa38](#)

Other reaction:

²⁰⁹Bi(³He,2n): [1994Sz10](#), [1991VyZZ](#).

²¹⁰At Levels

High-spin states arise from ²⁰⁹Bi(α,3nγ), ²⁰⁵Tl(⁹Be,4nγ), and ²⁰⁸Pb(⁷Li,5nγ), low-spin states from ²¹⁰Rn ε decay. J±1/2 doublets are formed by 3p_{1/2} neutron-hole coupled to Configuration=(π 1h_{9/2})³. For splitting energies of J±1/2 pairs (exp vs calc), see [1972Wi19](#), [1980RaZM](#), [1982Lo18](#).

For systematics of high-spin ²⁰⁹At, ²¹⁰At, ²¹¹At states (energies, configuration), see [1980RaZM](#). Isomerism of 11⁺, 15⁻ states in ²¹⁰At is preserved in 21/2⁻, 29/2⁺ states of ²⁰⁹At, ²¹¹At, which deexcite by E2, E3 γ-rays, respectively, as for ²¹⁰At ([1981Ha54](#)).

Cross Reference (XREF) Flags

A	²¹⁰ Rn ε decay (2.4 h)	D	²⁰⁵ Tl(⁹ Be,4nγ)
B	²¹⁴ Fr α decay (5.0 ms)	E	²⁰⁸ Pb(⁷ Li,5nγ)
C	²¹⁴ Fr α decay (3.35 ms)	F	²⁰⁹ Bi(α,3nγ)

E(level) ^j	J ^π †	T _{1/2}	XREF	Comments
0.0 [@]	(5) ⁺	8.1 h 4	ABCDEF	%ε+%β ⁺ =99.825 20; %α=0.175 20 T _{1/2} : average of 8.3 h (1949Ke10) and 7.9 h 4 (1969Go23). J ^π : analogous to ²⁰⁸ Bi g.s. which has the same shell-model configuration. Additional information 1 . %α: From Iα(²¹⁰ Po)/Iα(²¹⁰ At) (1969Go23).
72.65 [@] 5	(4) ⁺		ABC EF	Additional information 2 . J ^π : analogous to (4) ⁺ level at 63.3 keV in ²⁰⁸ Bi.
496.17 5	(4) ⁺		ABC	J ^π : 423γ M1 to (4) ⁺ , 496γ M1 to (5) ⁺ .
507.4 ^{&k} 1	(6) ⁺		CDEF	J ^π : 507γ E2 to (5) ⁺ ; transition strength is consistent with ΔJ=1 for Configuration=(ν 2f _{5/2}) ⁻¹ to Configuration=(ν 3p _{1/2}) ⁻¹ . Additional information 3 .
530.88 6	(3) ⁺		A C	J ^π : 458γ M1+E2 to (4) ⁺ , 958γ E2 from (1) ⁺ .
576.4 ^{&k} 1	(7) ⁺		CDEF	J ^π : 576γ E2 to (5) ⁺ , 69γ M1 to (6) ⁺ . Additional information 4 .
594? 7			BC	E(level): Level from ²¹⁴ Fr α decay (3.35 ms)- 1968To10 , based on Eα=7963 5. This Eα is not reported in 2005Ku06 and speculated to be a doublet (Please see comments in ²¹⁴ Fr α decay (5.0 ms) and ²¹⁴ Fr α decay (3.35 ms) datasets).
603.5 5			C	
721.28 6	(3) ⁺		A	J ^π : 649γ M1 to (4) ⁺ , 190γ M1 to (3) ⁺ , 767γ E2 from (1) ⁺ .
768.95 7	(2) ⁺		A	J ^π : 696γ E2 to (4) ⁺ , 238γ M1 to (3) ⁺ .
837 8			B	
847.11 25			C	
966.2 6			C	
984.9 1	(3) ⁺		A	J ^π : 489γ (M1+E2) to (4) ⁺ .
1036.7 1	(3) ⁺		AB	J ^π : 964γ M1(+E2) to (4) ⁺ .
1052.76 7	(2) ⁺		A	J ^π : 284γ M1 to (2) ⁺ , 522γ M1 to (3) ⁺ .
1129.00 7	(2) ⁺		A	J ^π : 360γ M1 to (2) ⁺ , 598γ (M1+E2) to (3) ⁺ .
1222.42 ^{@l} 23	(8) ⁺		C EF	XREF: C(1228). J ^π : γ transitions to (6) ⁺ and (7) ⁺ states.
1251.9 ^{@k} 1	(9) ⁺		DEF	J ^π : 676γ E2 to (7) ⁺ .

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Adopted Levels, Gammas (continued) ^{210}At Levels (continued)

E(level) ^{<i>j</i>}	J ^{π†}	T _{1/2}	XREF	Comments
1292.23 ⁶	(2) ⁺		A	Additional information 5. J ^π : 571γ M1 to (3) ⁺ , 196γ M1 from (1) ⁺ .
1363.2 ^{@k} ²	(11) ⁺	24.8 ns ⁷	DEF	μ=+9.79 ³ ; Q=0.65 ⁸ J ^π : 111γ E2 to (9) ⁺ . Systematics of B(E2)(W.u.) for this isomer. Theoretical μ=+10.2 ¹ (calculated using μ(8 ⁺ , ²¹⁰ Po)=+7.35 ⁵ , μ(p,1h9/2,1,5/2 ⁻)=+2.284, and μ(1/2 ⁻ , ²⁰⁷ Po g.s.)=+0.5822) (1981Ha54), compares with μ exp=+9.79 ³ . Additional information 6. T _{1/2} : weighted average of 25 ns ⁵ (1970AbZT), 30 ns ⁵ (1970BeZO), 27 ns ³ (1972Wi19), 25 ns ² (1983Ma08) from ²⁰⁹ Bi(α,3nγ), 28.4 ns ¹⁴ (1987Dr01) from ²⁰⁵ Tl(⁹ Be,4nγ), and 23.6 ns ⁷ (2001Ba79) from ²⁰⁸ Pb(⁷ Li,5nγ). μ: differential perturbed angular distribution of γ rays (1975ReZU,1989Ra17). Q: differential perturbed angular distribution of γ rays (1983Ma08,1989Ra17). Other: 1991Sc15 .
1402.9 ⁱ ²	(8) ⁺		F	J ^π : 151γ dipole to (9) ⁺ . Additional information 7.
1488.59 ⁷	(1) ⁺		A	J ^π : 196γ M1 to (2) ⁺ , 767γ E2 to (3) ⁺ . log ft=7.2 from 0 ⁺ .
1495.0 [@] ²	(10) ⁺		EF	J ^π : 131γ M1 to (11) ⁺ , 243γ M1 to (9) ⁺ . Additional information 8.
1525.52 ⁷	(1) ⁺		A	J ^π : 233γ M1 to (2) ⁺ , 995γ E2 to (3) ⁺ . log ft=7.1 from 0 ⁺ .
1688.7 ^{al} ³	(10) ⁻	15.5 ns ¹⁰	EF	J ^π : 194γ E1 to (10) ⁺ , 325γ E1 to (11) ⁺ . Systematics of B(E1)(W.u.) for this isomer. Additional information 9. T _{1/2} : weighted average of 15 ns ² (1980RaZM), 15.3 ns ²¹ (1982Lo18), and 15.9 ns ¹⁴ (2001Ba79) from ²⁰⁸ Pb(⁷ Li,5nγ). Other value: 16 ns (1978Ra03).
1740.0 ^{&l} ³	(10) ⁺		EF	J ^π : 79.2γ M1 from (11) ⁺ .
1819.1 ^{#&l} ³	(11) ⁺		E	J ^π : 324γ M1 to (10) ⁺ .
1905.2 ^b ²	(12) ⁺		DEF	J ^π : 542γ M1 to (11) ⁺ , systematics of B(E3)(W.u.) (644γ) from (15) ⁻ isomer. Additional information 10.
1913.1 ¹¹			E	
1928.3 ^b ³	(11) ⁺		E	
1967.0 ¹	(1,2) ⁻		A	J ^π : 1198γ E1 to (2) ⁺ , 314γ M1 from (0,1) ⁻ .
1970.0 ^{#&l} ³	(12) ⁺		EF	J ^π : 151γ M1 to (11) ⁺ , 64.8γ M1 to (12) ⁺ .
2042.9 ^{&k} ²	(13) ⁺		DEF	J ^π : 680γ E2 to (11) ⁺ , 138γ M1 to (12) ⁺ . Additional information 11.
2281.0 ¹	(0,1) ⁻		A	J ^π : 314γ M1 to (1,2) ⁻ . log ft=4.9 from 0 ⁺ .
2459.3 ⁶			E	
2467.1 ^c ²	(13) ⁺		EF	
2549.6 ^{ek} ²	(15) ⁻	0.482 μs ⁶	DEF	μ=+15.675 ¹⁷ ; Q=1.22 ¹² J ^π : 644γ E3 to (12) ⁺ . Theoretical μ=+16.0 ² (calculated using μ(8 ⁺ , ²¹⁰ Po)=+7.35 ⁵ , μ(p,1i13/2)=+8.07 ¹⁰ , and μ(1/2 ⁻ , ²⁰⁷ Pb g.s.)=+0.5822) (1981Ha54), compares with μ exp=+15.675 ¹⁷ . Additional information 12. T _{1/2} : weighted average of 0.58 μs ⁵ (1976WeZD,1978Ra03), 0.49 μs ¹ (1983Ma08), 0.48 μs ¹ (1987Dr01), 0.476 μs ⁶ (1987Ca23), and 0.500 μs ²⁰ (2001Ba79). Other values: 0.74 μs ⁸ (1970BeZO), 0.75 μs ¹⁰ (1970AbZT,1972Wi19). μ: Differential perturbed angular distribution of γ rays (1989Ra17). Other values: 15.57 ¹⁵ (1976WeZD , recalculated by 1978Ra03,1989Ra17); 15.48 ¹⁵ (1987Ca23,1989Ra17). Q: Differential perturbed angular distribution of γ rays (1983Ma08,1989Ra17). Other: 1991Sc15 .
2572.0 ^{ek} ²	(14) ⁻	≤1 ns	DEF	J ^π : 529γ (E1) to (13) ⁺ . Additional information 13.

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Adopted Levels, Gammas (continued) ^{210}At Levels (continued)

E(level) ^{<i>j</i>}	J ^π [†]	T _{1/2}	XREF	Comments
				T _{1/2} : from $^{209}\text{Bi}(\alpha,3n\gamma)$ (1982Lo18).
2600.3 ^{<i>e</i>} 4	(13 ⁻)		E	
2640.5 4			E	
2649.9 4			E	
2665.5 ^{<i>e</i>} 4	(14 ⁻)		E	J ^π : 115.8γ M1 to (15 ⁻).
2683.7 ^{<i>e</i>} 2	(13 ⁻)		EF	J ^π : 99.7γ M1 from (14 ⁻).
2783.4 ^{<i>ak</i>} 2	(14 ⁻)		DEF	J ^π : 117.8γ M1 to (14 ⁻), 183.1γ M1 to (13 ⁻).
2877.2 ^{<i>c</i>} 6	(14 ⁺)		E	
3070.8 8	(14 ⁻)		E	
3107.2 ^{<i>fk</i>} 2	(16 ⁻)		DEF	J ^π : 558γ M1 to (15 ⁻). Additional information 14.
3112.0 ^{<i>k</i>} 2			F	
3176.5 ^{<i>#f</i>} 4	(15 ⁻)		E	
3263.4 ^{<i>f</i>} 4	(15 ⁻)		E	
3323.3 ^{<i>#</i>} 4	(15 ⁻)		E	
3348.6 6			E	
3415.8 ^{<i>#f</i>} 4	(16 ⁻)		E	J ^π : 92.5γ M1 to (15 ⁻).
3423.3 ^{<i>#d</i>} 4	(15 ⁻)		E	
3542.4 ^{<i>fk</i>} 2	(17 ⁻)		DEF	J ^π : 435γ M1 to (16 ⁻). Systematics of B(M2)(W.u.) for 485γ from (19) ⁺ isomer at 4028 keV. Additional information 15.
3551.7	(15 ⁻)		DEF	J ^π : 103.5γ M1 from (16 ⁻).
3578.48	(15 ⁻)		E	
3655.3	(16 ⁻)		DEF	J ^π : 1106γ M1 to (15 ⁻). Systematics of B(E3)(W.u.) for 372γ from (19) ⁺ isomer at 4028 keV. Additional information 16.
3774.5 ^{<i>k</i>} 2			F	
4027.7 ^{<i>k</i>} 2	(19) ⁺	5.66 μs 7	DEF	μ=13.26 13; Q=2.20 25 J ^π : 372γ E3 to (16 ⁻), 485γ M2 to (17 ⁻). Theoretical μ=+14.0 2 (calculated using μ(8 ⁺ , ²¹⁰ Po)=+7.35 5, μ(p,1i13/2)=+8.07 10, and μ(n,2g9/2)=-1.38 2) (1981Ha54), compares with μ exp=13.26 13. Additional information 17. T _{1/2} : weighted average of 4.0 μs 17 (1978Ra03), 5.90 μs 17 (1987Dr01), 5.9 μs 3 (1987Ca23), and 5.61 μs 7 (2001Ba79). Other values: 3.6 μs 6 (1976WeZD); ≈1 μs (1975BeXL). μ: Differential perturbed angular distributions of γ rays (1987Ca23,1989Ra17). Other value: 14.00 48 (1978Ra03,1989Ra17). Q: Level mixing spectroscopy (1989Ra17).
4078.0 ^{<i>h</i>} 2	(17 ⁺)		EF	
4199.0 6	(18 ⁺)		E	J ^π : 120.8γ M1 to (17 ⁺).
4235.9 5			E	
4426.6 7			E	
4467.7 4	(20) ⁺		E	J ^π : 440γ M1 to (19) ⁺ .
4751.4 7			E	
4786.2 7			E	
4814.5 4	(20) ⁺		E	
4975.8 11			E	
4986.1 8			E	
5063.9 4	(21 ⁻)		E	
5175.3 4	(22 ⁻)		E	
5248.1 4			E	
5332.6 12			E	
5353.4 12			E	

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Adopted Levels, Gammas (continued) ^{210}At Levels (continued)

<u>E(level)<i>j</i></u>	<u>$J^{\pi\dagger}$</u>	<u>$T_{1/2}$</u>	<u>XREF</u>	<u>Comments</u>
5453.4 4			E	
5578.4 8			E	
5719.4 13			E	
5836.3 4			E	
5839.6 5			E	
5848.1 13			E	
5893.9 8			E	
5933.4 7			E	
5949.0 4	(22)		E	
5969.6 7	(23 ⁻)		E	
6199.4 4	(22 ⁻)		E	
6274.7 4	(23 ⁻)		E	
6287.3 11			E	
6413.6 7			E	
6428.3 5			E	
6467.8 5	(⁻)		E	
6524.7 4	(24 ⁻)		E	
6635.2 7			E	
6643.8 5			E	
6931.2 7			E	
6959.3 6	(26 ⁻)	98 ns 2	E	$T_{1/2}$: From $\gamma\gamma(t)$ in $^{208}\text{Pb}(^7\text{Li},5n\gamma)$ (2001Ba79).
7203.6 12			E	
7262.3 12			E	
7369.4 12			E	
7409.0 16			E	
7414.3 9			E	
7472.1 11			E	
7476.0 6			E	
7603.4 6			E	
7658.8 6			E	
7718.5 8			E	
7774.6 15			E	
7803.1 8			E	
7831.3 8			E	
7847.3 6	(29 ⁺)	36.0 ns 14	E	$T_{1/2}$: From $\gamma\gamma(t)$ with a pulsed beam in $^{208}\text{Pb}(^7\text{Li},5n\gamma)$ (2001Ba79).
7955.1 6			E	
8011.2 7			E	
8018.5 13			E	
8045.3 8			E	
8063.6 8			E	
8122.3 9			E	
8211.5 13			E	
8280.1 8			E	
8376.1 12			E	
8557.2 16			E	
8564.9 8			E	
8956.3 13			E	
9067.3 10			E	

[†] Spin and parity assignments are based on shell-model predictions (2001Ba79), on a comparison with analogous high-spin states in ^{209}At and ^{211}At , and on the agreement between theoretical and experimental magnetic moments. Additional arguments based on γ -ray multipolarities are given with individual levels.

[‡] $T_{1/2} < 1.4$ ns – from ($^7\text{Li},5n\gamma$).

[#] $T_{1/2} < 2.1$ ns – from ($^7\text{Li},5n\gamma$).

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Adopted Levels, Gammas (continued)

²¹⁰At Levels (continued)

@ Configuration= $((\pi 1h_{9/2})^3(\nu 3p_{1/2})^{-1})$. Configurations are from 2001Ba79 – (⁷Li,5n γ), unless noted otherwise.

& Configuration= $((\pi 1h_{9/2})^3(\nu 2f_{5/2})^{-1})$.

^a Configuration= $((\pi 1h_{9/2})^3(\nu 1i_{13/2})^{-1})$.

^b Configuration= $((\pi 1h_{9/2})^2(\pi 2f_{7/2})^1(\nu 3p_{1/2})^{-1})$.

^c Configuration= $((\pi 1h_{9/2})^2(\pi 2f_{7/2})^1(\nu 2f_{5/2})^{-1})$.

^d Configuration= $((\pi 1h_{9/2})^2(\pi 2f_{7/2})^1(\nu 1i_{13/2})^{-1})$.

^e Configuration= $((\pi 1h_{9/2})^2(\pi 1i_{13/2})^1(\nu 3p_{1/2})^{-1})$.

^f Configuration= $((\pi 1h_{9/2})^2(\pi 1i_{13/2})^1(\nu 2f_{5/2})^{-1})$.

^g Configuration= $((\pi 1h_{9/2})^2(\pi 1i_{13/2})^1(\nu 3p_{3/2})^{-1})$.

^h Configuration= $((\pi 1h_{9/2})^1(\pi 1i_{13/2})^2(\nu 3p_{1/2})^{-1})$.

ⁱ Configuration= $((\pi 1h_{9/2})^3(\nu 3p_{1/2})^{-1})$ – from 1972Wi19 ($\alpha, 3n\gamma$).

^j From ²¹⁰Rn ϵ decay, unless otherwise specified.

^k From ²⁰⁹Bi($\alpha, 3n\gamma$).

^l From ²⁰⁸Pb(⁷Li,5n γ).

E _i (level)	J _i ^{π}	$\gamma(^{210}\text{At})$		E _f	J _f ^{π}	Mult.	δ^d	α^c	Comments
		E _{γ} ^{\dagger}	I _{γ} ^{\dagger}						
72.65	(4) ⁺	72.70 7	100	0.0	(5) ⁺	M1 ^a		5.87	$\alpha(L)=4.47 7; \alpha(M)=1.059 16$ $\alpha(N)=0.274 4; \alpha(O)=0.0588 9;$ $\alpha(P)=0.00812 12$
496.17	(4) ⁺	423.5 1	100 3	72.65	(4) ⁺	M1 ^a		0.216	$\alpha(K)=0.1755 25; \alpha(L)=0.0308 5;$ $\alpha(M)=0.00727 11$ $\alpha(N)=0.00188 3; \alpha(O)=0.000403 6;$ $\alpha(P)=5.58 \times 10^{-5} 8$
		496.15 7	95 3	0.0	(5) ⁺	M1 ^a		0.1414	$\alpha(K)=0.1150 17; \alpha(L)=0.0201 3;$ $\alpha(M)=0.00474 7$ $\alpha(N)=0.001228 18; \alpha(O)=0.000263 4;$ $\alpha(P)=3.64 \times 10^{-5} 5$
507.4	(6) ⁺	434.7 [#] 6	6.6 [‡] 8	72.65	(4) ⁺	E2 ^b		0.0324	$\alpha(K)=0.0222 4; \alpha(L)=0.00768 11;$ $\alpha(M)=0.00194 3$ $\alpha(N)=0.000501 7; \alpha(O)=0.0001028 15;$ $\alpha(P)=1.232 \times 10^{-5} 18$
		507.4	100 [‡] 3	0.0	(5) ⁺				
530.88	(3) ⁺	458.25 7	100	72.65	(4) ⁺	M1+E2 ^a	≈ 0.68	≈ 0.1326	$\alpha(K) \approx 0.1058; \alpha(L) \approx 0.0204;$ $\alpha(M) \approx 0.00487$ $\alpha(N) \approx 0.001261; \alpha(O) \approx 0.000268;$ $\alpha(P) \approx 3.61 \times 10^{-5}$ δ : from ce(K)/ce(L) exp=5.2 8 in ²¹⁰ Rn ϵ decay (1978Vy01).
576.4	(7) ⁺	69.2 [#] 3	2.7 [‡] 2	507.4	(6) ⁺	M1 ^{&}		6.78 13	$\alpha(L)=5.16 10; \alpha(M)=1.224 24$ $\alpha(N)=0.317 6; \alpha(O)=0.0679 13;$ $\alpha(P)=0.00937 18$
		576.7 [@] 3	100 [‡] 2	0.0	(5) ⁺	E2 ^b		0.0241	$\alpha(K)=0.01720 25; \alpha(L)=0.00523 8;$ $\alpha(M)=0.001307 19$ $\alpha(N)=0.000338 5; \alpha(O)=6.96 \times 10^{-5} 10;$ $\alpha(P)=8.52 \times 10^{-6} 12$ E _{γ} : Other: 576.4 ($\alpha, 3n\gamma$).
603.5	(3) ⁺	530.7 [@] 4	100	72.65	(4) ⁺	M1 ^a		1.95	$\alpha(K)=1.577 23; \alpha(L)=0.281 4;$ $\alpha(M)=0.0665 10$
721.28		190.35 7	17.3 8	530.88	(3) ⁺				

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Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
721.28	(3) ⁺	225.1 1	6.0 6	496.17	(4) ⁺	M1 ^a	1.217	$\alpha(\text{N})=0.01724$ 25; $\alpha(\text{O})=0.00369$ 6; $\alpha(\text{P})=0.000510$ 8 $\alpha(\text{K})=0.987$ 14; $\alpha(\text{L})=0.1755$ 25; $\alpha(\text{M})=0.0415$ 6 $\alpha(\text{N})=0.01076$ 16; $\alpha(\text{O})=0.00230$ 4; $\alpha(\text{P})=0.000318$ 5 $\alpha(\text{K})=0.0567$ 8; $\alpha(\text{L})=0.00982$ 14; $\alpha(\text{M})=0.00232$ 4 $\alpha(\text{N})=0.000600$ 9; $\alpha(\text{O})=0.0001285$ 18; $\alpha(\text{P})=1.778\times 10^{-5}$ 25
		648.70 7	100 3	72.65	(4) ⁺	M1 ^a	0.0696	$\alpha(\text{K})=0.01116$ 16; $\alpha(\text{L})=0.00281$ 4; $\alpha(\text{M})=0.000692$ 10 $\alpha(\text{N})=0.000179$ 3; $\alpha(\text{O})=3.72\times 10^{-5}$ 6; $\alpha(\text{P})=4.70\times 10^{-6}$ 7
		721.2 1	8.2 4	0.0	(5) ⁺	(E2) ^a	0.01488	$\alpha(\text{K})=0.844$ 12; $\alpha(\text{L})=0.1500$ 21; $\alpha(\text{M})=0.0355$ 5 $\alpha(\text{N})=0.00919$ 13; $\alpha(\text{O})=0.00197$ 3; $\alpha(\text{P})=0.000272$ 4 $\alpha(\text{K})=0.01193$ 17; $\alpha(\text{L})=0.00309$ 5; $\alpha(\text{M})=0.000762$ 11 $\alpha(\text{N})=0.000197$ 3; $\alpha(\text{O})=4.09\times 10^{-5}$ 6; $\alpha(\text{P})=5.14\times 10^{-6}$ 8
768.95	(2) ⁺	238.1 1	51.2 23	530.88	(3) ⁺	M1 ^a	1.041	$\alpha(\text{K})=0.07$ 5; $\alpha(\text{L})=0.015$ 7; $\alpha(\text{M})=0.0036$ 14 $\alpha(\text{N})=0.0009$ 4; $\alpha(\text{O})=0.00019$ 8; $\alpha(\text{P})=2.6\times 10^{-5}$ 12
		696.25 7	100 3	72.65	(4) ⁺	E2 ^a	0.01602	$\alpha(\text{K})=0.06$ 4; $\alpha(\text{L})=0.011$ 5; $\alpha(\text{M})=0.0027$ 11 $\alpha(\text{N})=0.0007$ 3; $\alpha(\text{O})=0.00015$ 7; $\alpha(\text{P})=2.0\times 10^{-5}$ 10 $\alpha(\text{K})=0.013$ 7; $\alpha(\text{L})=0.0024$ 11; $\alpha(\text{M})=0.00057$ 25 $\alpha(\text{N})=0.00015$ 7; $\alpha(\text{O})=3.2\times 10^{-5}$ 14; $\alpha(\text{P})=4.3\times 10^{-6}$ 20
847.11		774.7 [@] 4	78 21	72.65	(4) ⁺			
		846.9 [@] 3	100 17	0.0	(5) ⁺			
966.2		966.2 [@] 6	100	0.0	(5) ⁺			
984.9	(3) ⁺	488.7 1	63 3	496.17	(4) ⁺	(M1+E2) ^a	0.09 6	$\alpha(\text{K})=0.520$ 8; $\alpha(\text{L})=0.0921$ 13; $\alpha(\text{M})=0.0218$ 3 $\alpha(\text{N})=0.00564$ 8; $\alpha(\text{O})=0.001208$ 17; $\alpha(\text{P})=0.0001669$ 24
1036.7	(3) ⁺	911.9 1	100 11	72.65	(4) ⁺	(M1+E2) ^a	0.07 5	$\alpha(\text{K})=0.1006$ 15; $\alpha(\text{L})=0.01754$ 25; $\alpha(\text{M})=0.00414$ 6 $\alpha(\text{N})=0.001072$ 15; $\alpha(\text{O})=0.000230$ 4; $\alpha(\text{P})=3.18\times 10^{-5}$ 5 $\alpha(\text{K})=0.00630$ 9; $\alpha(\text{L})=0.001319$ 19; $\alpha(\text{M})=0.000318$ 5 $\alpha(\text{N})=8.23\times 10^{-5}$ 12; $\alpha(\text{O})=1.731\times 10^{-5}$ 25; $\alpha(\text{P})=2.26\times 10^{-6}$ 4
		540.0 2	50 7	496.17	(4) ⁺	(M1+E2) ^a	0.017 9	$\alpha(\text{K})=0.272$ 4; $\alpha(\text{L})=0.0479$ 7; $\alpha(\text{M})=0.01132$ 16 $\alpha(\text{N})=0.00293$ 5; $\alpha(\text{O})=0.000628$ 9; $\alpha(\text{P})=8.67\times 10^{-5}$ 13
1052.76	(2) ⁺	283.75 7	18.4 13	768.95	(2) ⁺	M1 ^a	0.641	$\alpha(\text{K})=0.04$ 3; $\alpha(\text{L})=0.008$ 4; $\alpha(\text{M})=0.0020$ 9 $\alpha(\text{N})=0.00052$ 22; $\alpha(\text{O})=0.00011$ 5; $\alpha(\text{P})=1.5\times 10^{-5}$ 8
		331.7 3	6.1 9	721.28	(3) ⁺	M1 ^a	0.1236	
		521.9 2	44 3	530.88	(3) ⁺	M1 ^a	0.1236	
		980.15 7	100 7	72.65	(4) ⁺	E2 ^a	0.00804	
1129.00	(2) ⁺	360.00 7	64 4	768.95	(2) ⁺	M1 ^a	0.335	
		598.2 1	100 9	530.88	(3) ⁺	(M1+E2) ^a	0.05 4	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
1222.42	(8 ⁺)	646.0 [‡]	15 [‡] 3	576.4	(7) ⁺			
		715.1 [‡]	100 [‡] 6	507.4	(6) ⁺			
1251.9	(9) ⁺	675.5 [#]	100 [#]	576.4	(7) ⁺	E2 ^b	0.01708	$\alpha(\text{K})=0.01264$ 18; $\alpha(\text{L})=0.00335$ 5; $\alpha(\text{M})=0.000828$ 12 $\alpha(\text{N})=0.000214$ 3; $\alpha(\text{O})=4.44\times 10^{-5}$ 7; $\alpha(\text{P})=5.56\times 10^{-6}$ 8
1292.23	(2) ⁺	239.5 10 255.5 1	≈ 2 11.7 6	1052.76 (2) ⁺ 1036.7 (3) ⁺		M1 ^a	0.856	$\alpha(\text{K})=0.695$ 10; $\alpha(\text{L})=0.1232$ 18; $\alpha(\text{M})=0.0292$ 4 $\alpha(\text{N})=0.00755$ 11; $\alpha(\text{O})=0.001617$ 23; $\alpha(\text{P})=0.000223$ 4
		307.3 1	9.5 6	984.9 (3) ⁺		M1 ^a	0.515	$\alpha(\text{K})=0.418$ 6; $\alpha(\text{L})=0.0739$ 11; $\alpha(\text{M})=0.01748$ 25 $\alpha(\text{N})=0.00453$ 7; $\alpha(\text{O})=0.000970$ 14; $\alpha(\text{P})=0.0001339$ 19
		570.95 7	100 3	721.28 (3) ⁺		M1 ^a	0.0974	$\alpha(\text{K})=0.0793$ 12; $\alpha(\text{L})=0.01380$ 20; $\alpha(\text{M})=0.00326$ 5 $\alpha(\text{N})=0.000843$ 12; $\alpha(\text{O})=0.000181$ 3; $\alpha(\text{P})=2.50\times 10^{-5}$ 4
		761.4 1	64.2 20	530.88 (3) ⁺		M1 ^a	0.0457	$\alpha(\text{K})=0.0373$ 6; $\alpha(\text{L})=0.00643$ 9; $\alpha(\text{M})=0.001517$ 22 $\alpha(\text{N})=0.000393$ 6; $\alpha(\text{O})=8.41\times 10^{-5}$ 12; $\alpha(\text{P})=1.164\times 10^{-5}$ 17
1363.2	(11) ⁺	796 111.3 ^{e#}	≈ 1.6 100 ^{e#}	496.17 (4) ⁺ 1251.9 (9) ⁺		E2 ^b	4.91	$\alpha(\text{K})=0.398$ 6; $\alpha(\text{L})=3.34$ 5; $\alpha(\text{M})=0.896$ 13 $\alpha(\text{N})=0.231$ 4; $\alpha(\text{O})=0.0454$ 7; $\alpha(\text{P})=0.00459$ 7 B(E2)(W.u.) ≈ 2.1
1402.9	(8 ⁺)	151.0 [#]	100 [#]	1251.9 (9) ⁺		[M1]	3.74	$\alpha(\text{K})=3.03$ 5; $\alpha(\text{L})=0.542$ 8; $\alpha(\text{M})=0.1284$ 18 $\alpha(\text{N})=0.0333$ 5; $\alpha(\text{O})=0.00712$ 10; $\alpha(\text{P})=0.000983$ 14 Mult.: $A_2=-0.32$ 15 in $^{209}\text{Bi}(\alpha,3n\gamma)$ suggests dipole nature.
1488.59	(1) ⁺	196.3 1	100 5	1292.23 (2) ⁺		M1 ^a	1.78	$\alpha(\text{K})=1.446$ 21; $\alpha(\text{L})=0.258$ 4; $\alpha(\text{M})=0.0610$ 9 $\alpha(\text{N})=0.01580$ 23; $\alpha(\text{O})=0.00338$ 5; $\alpha(\text{P})=0.000467$ 7
		767.30 7	99 3	721.28 (3) ⁺		E2 ^a	0.01309	$\alpha(\text{K})=0.00992$ 14; $\alpha(\text{L})=0.00239$ 4; $\alpha(\text{M})=0.000587$ 9 $\alpha(\text{N})=0.0001517$ 22; $\alpha(\text{O})=3.16\times 10^{-5}$ 5; $\alpha(\text{P})=4.02\times 10^{-6}$ 6
		957.75 7	85 4	530.88 (3) ⁺		E2 ^a	0.00841	$\alpha(\text{K})=0.00657$ 10; $\alpha(\text{L})=0.001391$ 20; $\alpha(\text{M})=0.000336$ 5 $\alpha(\text{N})=8.70\times 10^{-5}$ 13; $\alpha(\text{O})=1.83\times 10^{-5}$ 3; $\alpha(\text{P})=2.38\times 10^{-6}$ 4
1495.0	(10) ⁺	131.7 [‡]	64 [‡] 7	1363.2 (11) ⁺		M1 ^{&}	5.52	$\alpha(\text{K})=4.47$ 7; $\alpha(\text{L})=0.802$ 12; $\alpha(\text{M})=0.190$ 3 $\alpha(\text{N})=0.0492$ 7; $\alpha(\text{O})=0.01053$ 15; $\alpha(\text{P})=0.001454$ 21
		243.1 [‡]	100 [‡] 7	1251.9 (9) ⁺		M1 ^{&}	0.983	$\alpha(\text{K})=0.797$ 12; $\alpha(\text{L})=0.1416$ 20; $\alpha(\text{M})=0.0335$ 5 $\alpha(\text{N})=0.00867$ 13; $\alpha(\text{O})=0.00186$ 3; $\alpha(\text{P})=0.000257$ 4
1525.52	(1) ⁺	233.3 1	100 3	1292.23 (2) ⁺		M1 ^a	1.102	$\alpha(\text{K})=0.893$ 13; $\alpha(\text{L})=0.1588$ 23; $\alpha(\text{M})=0.0376$ 6 $\alpha(\text{N})=0.00973$ 14; $\alpha(\text{O})=0.00208$ 3; $\alpha(\text{P})=0.000288$ 4
		396.55 7	8.9 5	1129.00 (2) ⁺		M1 ^a	0.258	$\alpha(\text{K})=0.209$ 3; $\alpha(\text{L})=0.0368$ 6; $\alpha(\text{M})=0.00870$ 13 $\alpha(\text{N})=0.00225$ 4; $\alpha(\text{O})=0.000482$ 7; $\alpha(\text{P})=6.66\times 10^{-5}$ 10
		472.80 7	24.4 10	1052.76 (2) ⁺		M1 ^a	0.1608	$\alpha(\text{K})=0.1308$ 19; $\alpha(\text{L})=0.0229$ 4; $\alpha(\text{M})=0.00540$ 8

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Adopted Levels, Gammas (continued)

								$\gamma(^{210}\text{At})$ (continued)		
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments		
1525.52	(1) ⁺	756.6 1	31.8 13	768.95	(2) ⁺	M1 ^a	0.0465	$\alpha(\text{N})=0.001399$ 20; $\alpha(\text{O})=0.000300$ 5; $\alpha(\text{P})=4.14\times 10^{-5}$ 6 $\alpha(\text{K})=0.0379$ 6; $\alpha(\text{L})=0.00654$ 10; $\alpha(\text{M})=0.001542$ 22		
		804.2 1	26.6 13	721.28	(3) ⁺	E2 ^a	0.01190	$\alpha(\text{N})=0.000399$ 6; $\alpha(\text{O})=8.55\times 10^{-5}$ 12; $\alpha(\text{P})=1.184\times 10^{-5}$ 17 $\alpha(\text{K})=0.00909$ 13; $\alpha(\text{L})=0.00212$ 3; $\alpha(\text{M})=0.000519$ 8		
		994.60 7	56.2 23	530.88	(3) ⁺	E2 ^a	0.00782	$\alpha(\text{N})=0.0001342$ 19; $\alpha(\text{O})=2.80\times 10^{-5}$ 4; $\alpha(\text{P})=3.59\times 10^{-6}$ 5 $\alpha(\text{K})=0.00614$ 9; $\alpha(\text{L})=0.001275$ 18; $\alpha(\text{M})=0.000308$ 5		
1688.7	(10) ⁻	193.5 [#]	93 [‡] 7	1495.0	(10) ⁺	E1 ^{b&}	0.0910	B(E1)(W.u.)= 5.2×10^{-7} 6 $\alpha(\text{K})=0.0732$ 11; $\alpha(\text{L})=0.01360$ 19; $\alpha(\text{M})=0.00322$ 5 $\alpha(\text{N})=0.000826$ 12; $\alpha(\text{O})=0.0001712$ 24; $\alpha(\text{P})=2.19\times 10^{-6}$ 3		
		325.3 [#]	97 [‡] 7	1363.2	(11) ⁺	E1 ^{b&}	0.0269	B(E1)(W.u.)= 1.15×10^{-7} 13 $\alpha(\text{K})=0.0219$ 3; $\alpha(\text{L})=0.00381$ 6; $\alpha(\text{M})=0.000897$ 13 $\alpha(\text{N})=0.000230$ 4; $\alpha(\text{O})=4.83\times 10^{-5}$ 7; $\alpha(\text{P})=6.30\times 10^{-6}$ 9		
		436.6 [#]	100 [‡] 10	1251.9	(9) ⁺	[E1]	0.01411	B(E1)(W.u.)= 4.9×10^{-8} 7 $\alpha(\text{K})=0.01156$ 17; $\alpha(\text{L})=0.00195$ 3; $\alpha(\text{M})=0.000457$ 7 $\alpha(\text{N})=0.0001177$ 17; $\alpha(\text{O})=2.48\times 10^{-5}$ 4; $\alpha(\text{P})=3.28\times 10^{-6}$ 5		
1740.0	(10) ⁺	487.8 [‡]	53 [‡] 6	1251.9	(9) ⁺					
		517.6 [‡]	100 [‡] 12	1222.42	(8) ⁺					
1819.1	(11) ⁺	79.2 [‡]	≤ 1.5 [‡]	1740.0	(10) ⁺	M1 ^{&}	4.58	$\alpha(\text{L})=3.48$ 5; $\alpha(\text{M})=0.825$ 12 $\alpha(\text{N})=0.214$ 3; $\alpha(\text{O})=0.0458$ 7; $\alpha(\text{P})=0.00632$ 9		
		324.0 [‡]	23 [‡] 2	1495.0	(10) ⁺	M1 ^{&}	0.446	$\alpha(\text{K})=0.362$ 5; $\alpha(\text{L})=0.0639$ 9; $\alpha(\text{M})=0.01511$ 22 $\alpha(\text{N})=0.00391$ 6; $\alpha(\text{O})=0.000838$ 12; $\alpha(\text{P})=0.0001158$ 17		
1905.2	(12) ⁺	455.8 [‡]	18 [‡] 8	1363.2	(11) ⁺					
		567.1 [‡]	100 [‡] 2	1251.9	(9) ⁺					
		86.4 [‡]	1.3 [‡] 2	1819.1	(11) ⁺	M1	3.55	$\alpha(\text{L})=2.71$ 4; $\alpha(\text{M})=0.641$ 9 $\alpha(\text{N})=0.1660$ 24; $\alpha(\text{O})=0.0356$ 5; $\alpha(\text{P})=0.00491$ 7		
		542.0 5	100 [‡] 2	1363.2	(11) ⁺	M1 ^b	0.1118	$\alpha(\text{K})=0.0910$ 13; $\alpha(\text{L})=0.01585$ 23; $\alpha(\text{M})=0.00374$ 6 $\alpha(\text{N})=0.000969$ 14; $\alpha(\text{O})=0.000208$ 3; $\alpha(\text{P})=2.87\times 10^{-5}$ 4		
1913.1		224.4 [‡]	100 [‡]	1688.7	(10) ⁻					
1928.3	(11) ⁺	433.2 [‡]	100 [‡] 6	1495.0	(10) ⁺					
1967.0	(1,2) ⁻	565.0 [‡]	67 [‡] 6	1363.2	(11) ⁺					
		837	≈ 5	1129.00	(2) ⁺					
		914.15 7	100 3	1052.76	(2) ⁺	(E1) ^a	0.00332	$\alpha(\text{K})=0.00276$ 4; $\alpha(\text{L})=0.000435$ 6; $\alpha(\text{M})=0.0001013$ 15		

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Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
1967.0	(1,2) ⁻	1198.05 7	79 3	768.95	(2) ⁺	E1 ^a	0.00207	$\alpha(\text{N})=2.61\times 10^{-5}$ 4; $\alpha(\text{O})=5.56\times 10^{-6}$ 8; $\alpha(\text{P})=7.57\times 10^{-7}$ 11 $\alpha(\text{K})=0.001711$ 24; $\alpha(\text{L})=0.000265$ 4; $\alpha(\text{M})=6.17\times 10^{-5}$ 9
1970.0	(12) ⁺	64.8 [‡]	≤ 4 [‡]	1905.2	(12) ⁺	M1 ^{&}	8.22	$\alpha(\text{N})=1.591\times 10^{-5}$ 23; $\alpha(\text{O})=3.39\times 10^{-6}$ 5; $\alpha(\text{P})=4.65\times 10^{-7}$ 7; $\alpha(\text{IPF})=1.368\times 10^{-5}$ 20 $\alpha(\text{L})=6.26$ 9; $\alpha(\text{M})=1.483$ 21 $\alpha(\text{N})=0.384$ 6; $\alpha(\text{O})=0.0822$ 12; $\alpha(\text{P})=0.01136$ 16
		151.0 [‡]	8.4 [‡] 3	1819.1	(11) ⁺	M1	3.74	$\alpha(\text{K})=3.03$ 5; $\alpha(\text{L})=0.542$ 8; $\alpha(\text{M})=0.1284$ 18 $\alpha(\text{N})=0.0333$ 5; $\alpha(\text{O})=0.00712$ 10; $\alpha(\text{P})=0.000983$ 14
2042.9	(13) ⁺	606.7 [‡] 72.7 [‡]	100 [‡] 8 5.7 [‡] 8	1363.2 1970.0	(11) ⁺ (12) ⁺	M1 ^{&}	5.87	$\alpha(\text{L})=4.47$ 7; $\alpha(\text{M})=1.059$ 15 $\alpha(\text{N})=0.274$ 4; $\alpha(\text{O})=0.0588$ 9; $\alpha(\text{P})=0.00812$ 12
		137.6 [‡]	9 [‡] 3	1905.2	(12) ⁺	M1 ^{&}	4.87	$\alpha(\text{K})=3.94$ 6; $\alpha(\text{L})=0.707$ 10; $\alpha(\text{M})=0.1674$ 24 $\alpha(\text{N})=0.0434$ 6; $\alpha(\text{O})=0.00929$ 13; $\alpha(\text{P})=0.001283$ 18
		679.6 [‡]	100 [‡] 3	1363.2	(11) ⁺	E2 ^b	0.01686	$\alpha(\text{K})=0.01250$ 18; $\alpha(\text{L})=0.00329$ 5; $\alpha(\text{M})=0.000814$ 12 $\alpha(\text{N})=0.000211$ 3; $\alpha(\text{O})=4.37\times 10^{-5}$ 7; $\alpha(\text{P})=5.47\times 10^{-6}$ 8
2281.0	(0,1) ⁻	314.0 1	100	1967.0	(1,2) ⁻	M1 ^a	0.486	$\alpha(\text{K})=0.394$ 6; $\alpha(\text{L})=0.0697$ 10; $\alpha(\text{M})=0.01647$ 24 $\alpha(\text{N})=0.00427$ 6; $\alpha(\text{O})=0.000914$ 13; $\alpha(\text{P})=0.0001262$ 18
2459.3		770.6 [‡]	100 [‡]	1688.7	(10) ⁻			
2467.1	(13) ⁺	424.2 [‡] 497.1 [‡]	35 [‡] 7 6 [‡] 1	2042.9 1970.0	(13) ⁺ (12) ⁺			
2549.6	(15) ⁻	561.8 [‡] 579.5 [‡]	100 [‡] 7 9.0 [‡] 6	1905.2 1970.0	(12) ⁺ (12) ⁺	E3 ^{&}	0.0742	$\alpha(\text{K})=0.0414$ 6; $\alpha(\text{L})=0.0244$ 4; $\alpha(\text{M})=0.00639$ 9 $\alpha(\text{N})=0.001662$ 24; $\alpha(\text{O})=0.000338$ 5; $\alpha(\text{P})=3.95\times 10^{-5}$ 6 B(E3)(W.u.) \approx 3.9
		644.3 [‡]	100 [‡] 1	1905.2	(12) ⁺	E3 ^{&}	0.0549	$\alpha(\text{K})=0.0329$ 5; $\alpha(\text{L})=0.01642$ 23; $\alpha(\text{M})=0.00426$ 6 $\alpha(\text{N})=0.001107$ 16; $\alpha(\text{O})=0.000226$ 4; $\alpha(\text{P})=2.69\times 10^{-5}$ 4 B(E3)(W.u.)=18.9 6
2572.0	(14) ⁻	22 [‡] 104.9 [‡]	≤ 0.6 [‡] 7.7 [‡] 6	2549.6 2467.1	(15) ⁻ (13) ⁺	E1 ^{&}	0.408	B(E1)(W.u.) $>1.1\times 10^{-5}$ $\alpha(\text{K})=0.319$ 5; $\alpha(\text{L})=0.0673$ 10; $\alpha(\text{M})=0.01606$ 23 $\alpha(\text{N})=0.00409$ 6; $\alpha(\text{O})=0.000833$ 12; $\alpha(\text{P})=0.0001000$ 14
		529.1 [‡]	100 [‡] 5	2042.9	(13) ⁺	(E1) ^b	0.00947	B(E1)(W.u.) $>1.1\times 10^{-6}$ $\alpha(\text{K})=0.00779$ 11; $\alpha(\text{L})=0.001287$ 18; $\alpha(\text{M})=0.000302$ 5 $\alpha(\text{N})=7.76\times 10^{-5}$ 11; $\alpha(\text{O})=1.641\times 10^{-5}$ 23; $\alpha(\text{P})=2.19\times 10^{-6}$ 3

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Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
2572.0	(14 ⁻)	1208.5 [‡]	1.9 [‡] 4	1363.2	(11) ⁺	[E3]	0.01199	B(E3)(W.u.)>2.0 $\alpha(\text{K})=0.00900$ 13; $\alpha(\text{L})=0.00226$ 4; $\alpha(\text{M})=0.000556$ 8 $\alpha(\text{N})=0.0001443$ 21; $\alpha(\text{O})=3.02\times 10^{-5}$ 5; $\alpha(\text{P})=3.91\times 10^{-6}$ 6; $\alpha(\text{IPF})=1.394\times 10^{-6}$ 20
2600.3	(13 ⁻)	695.1 [‡]	100 [‡]	1905.2	(12) ⁺			
2640.5		951.8 [‡]	100 [‡]	1688.7	(10) ⁻			
2649.9		721.6 [‡]	100 [‡]	1928.3	(11) ⁺			
2665.5	(14) ⁻	115.8 [‡]	100 [‡]	2549.6	(15) ⁻	M1&	7.96	$\alpha(\text{K})=6.44$ 9; $\alpha(\text{L})=1.160$ 17; $\alpha(\text{M})=0.275$ 4 $\alpha(\text{N})=0.0712$ 10; $\alpha(\text{O})=0.01524$ 22; $\alpha(\text{P})=0.00210$ 3
2683.7	(13) ⁻	778.4 [‡]	100 [‡]	1905.2	(12) ⁺			
2783.4	(14) ⁻	99.7 [‡]	5.9 [‡] 6	2683.7	(13) ⁻	M1&	12.15	$\alpha(\text{K})=9.80$ 14; $\alpha(\text{L})=1.79$ 3; $\alpha(\text{M})=0.423$ 6 $\alpha(\text{N})=0.1096$ 16; $\alpha(\text{O})=0.0235$ 4; $\alpha(\text{P})=0.00324$ 5
		117.8 [‡]	2.0 [‡] 4	2665.5	(14) ⁻	M1&	7.58	$\alpha(\text{K})=6.13$ 9; $\alpha(\text{L})=1.104$ 16; $\alpha(\text{M})=0.261$ 4 $\alpha(\text{N})=0.0677$ 10; $\alpha(\text{O})=0.01451$ 21; $\alpha(\text{P})=0.00200$ 3
		183.1 [‡]	8.0 [‡] 6	2600.3	(13) ⁻	M1&	2.17	$\alpha(\text{K})=1.759$ 25; $\alpha(\text{L})=0.314$ 5; $\alpha(\text{M})=0.0743$ 11 $\alpha(\text{N})=0.0192$ 3; $\alpha(\text{O})=0.00412$ 6; $\alpha(\text{P})=0.000569$ 8
		211.5 [‡]	100 [‡] 4	2572.0	(14) ⁻	M1&	1.448	$\alpha(\text{K})=1.174$ 17; $\alpha(\text{L})=0.209$ 3; $\alpha(\text{M})=0.0495$ 7 $\alpha(\text{N})=0.01281$ 18; $\alpha(\text{O})=0.00274$ 4; $\alpha(\text{P})=0.000379$ 6
		233.9 [‡]	5.1 [‡] 6	2549.6	(15) ⁻			
		740.6 [‡]	57 [‡] 2	2042.9	(13) ⁺			
2877.2	(14) ⁺	410.2 [‡]	100 [‡]	2467.1	(13) ⁺			
3070.8	(14) ⁻	287.4 [‡]	100 [‡]	2783.4	(14) ⁻			
3107.2	(16) ⁻	557.7 [‡]	100 [‡]	2549.6	(15) ⁻	M1&	0.1036	$\alpha(\text{K})=0.0844$ 12; $\alpha(\text{L})=0.01469$ 21; $\alpha(\text{M})=0.00347$ 5 $\alpha(\text{N})=0.000898$ 13; $\alpha(\text{O})=0.000192$ 3; $\alpha(\text{P})=2.66\times 10^{-5}$ 4
3112.0		540.0 [#]	100 [#]	2572.0	(14) ⁻			
3176.5	(15) ⁻	511.1 [‡]	100 [‡] 10	2665.5	(14) ⁻			
		627.0 [‡]	12.5 [‡] 13	2549.6	(15) ⁻			
3263.4	(15) ⁻	691.5 [‡]	100 [‡] 4	2572.0	(14) ⁻			
		714.1 [‡]	13.4 [‡] 16	2549.6	(15) ⁻			
3323.3	(15) ⁻	216.2 [‡]	4.2 [‡] 3	3107.2	(16) ⁻			
		540.0 [‡]	100 [‡] 1	2783.4	(14) ⁻			
		657.7 [‡]	13.7 [‡] 14	2665.5	(14) ⁻			
3348.6		708.1 [‡]	100 [‡]	2640.5				
3415.8	(16) ⁻	92.5 [‡]	100 [‡] 11	3323.3	(15) ⁻	M1&	2.91	$\alpha(\text{L})=2.22$ 4; $\alpha(\text{M})=0.526$ 8 $\alpha(\text{N})=0.1362$ 19; $\alpha(\text{O})=0.0292$ 4; $\alpha(\text{P})=0.00403$ 6
		152.2 [‡]	47 [‡] 5	3263.4	(15) ⁻	M1&	3.66	$\alpha(\text{K})=2.96$ 5; $\alpha(\text{L})=0.530$ 8; $\alpha(\text{M})=0.1255$ 18 $\alpha(\text{N})=0.0325$ 5; $\alpha(\text{O})=0.00696$ 10; $\alpha(\text{P})=0.000962$ 14
		239.4 [‡]	95 [‡] 5	3176.5	(15) ⁻	M1&	1.026	$\alpha(\text{K})=0.832$ 12; $\alpha(\text{L})=0.1477$ 21; $\alpha(\text{M})=0.0350$ 5 $\alpha(\text{N})=0.00905$ 13; $\alpha(\text{O})=0.00194$ 3; $\alpha(\text{P})=0.000268$ 4
		866.3 [‡]	42 [‡] 2	2549.6	(15) ⁻			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
3423.3	(15 ⁻)	352.6 \ddagger	$\leq 18\ddagger$	3070.8 (14 ⁻)				
		639.8 \ddagger	76 \ddagger 9	2783.4 (14 ⁻)				
		758.0 \ddagger	44 \ddagger 4	2665.5 (14 ⁻)				
		851.4 \ddagger	100 \ddagger 9	2572.0 (14 ⁻)				
		873.6 \ddagger	53 \ddagger 7	2549.6 (15 ⁻)				
3542.4	(17 ⁻)	435.2 \ddagger	100 \ddagger 3	3107.2 (16 ⁻)		M1 ^b	0.201	$\alpha(\text{K})=0.1632$ 23; $\alpha(\text{L})=0.0286$ 4; $\alpha(\text{M})=0.00676$ 10 $\alpha(\text{N})=0.001749$ 25; $\alpha(\text{O})=0.000375$ 6; $\alpha(\text{P})=5.18 \times 10^{-5}$ 8
		992.9 \ddagger	13 \ddagger 1	2549.6 (15 ⁻)				
3551.7	(15 ⁻)	128.3 \ddagger	$\leq 1.3\ddagger$	3423.3 (15 ⁻)				
		228.2 \ddagger	$\leq 1.3\ddagger$	3323.3 (15 ⁻)				
		768.2 \ddagger	100 \ddagger 3	2783.4 (14 ⁻)				
		979.7 \ddagger	20 \ddagger 1	2572.0 (14 ⁻)				
		1002.0 \ddagger	7.5 \ddagger 5	2549.6 (15 ⁻)				
3578.4	(15 ⁻)	795.0 \ddagger	100 \ddagger 16	2783.4 (14 ⁻)				
		1006.4 \ddagger	$\leq 20\ddagger$	2572.0 (14 ⁻)				
		1029.0 \ddagger	$\leq 20\ddagger$	2549.6 (15 ⁻)				
3655.3	(16 ⁻)	76.8 \ddagger	$\leq 1.1\ddagger$	3578.4 (15 ⁻)		M1 ^{&}	5.00	$\alpha(\text{L})=3.81$ 6; $\alpha(\text{M})=0.903$ 13 $\alpha(\text{N})=0.234$ 4; $\alpha(\text{O})=0.0501$ 7; $\alpha(\text{P})=0.00692$ 10
		103.5 \ddagger	9.2 \ddagger 10	3551.7 (15 ⁻)		M1 ^{&}	10.95	$\alpha(\text{K})=8.85$ 13; $\alpha(\text{L})=1.603$ 23; $\alpha(\text{M})=0.380$ 6 $\alpha(\text{N})=0.0984$ 14; $\alpha(\text{O})=0.0211$ 3; $\alpha(\text{P})=0.00291$ 4
		231.9 \ddagger	4.8 \ddagger 6	3423.3 (15 ⁻)		M1 ^{&}	1.120	$\alpha(\text{K})=0.908$ 13; $\alpha(\text{L})=0.1615$ 23; $\alpha(\text{M})=0.0382$ 6 $\alpha(\text{N})=0.00990$ 14; $\alpha(\text{O})=0.00212$ 3; $\alpha(\text{P})=0.000293$ 4
		332.0 \ddagger	4.4 \ddagger 6	3323.3 (15 ⁻)		M1 ^{&}	0.417	$\alpha(\text{K})=0.339$ 5; $\alpha(\text{L})=0.0598$ 9; $\alpha(\text{M})=0.01413$ 20 $\alpha(\text{N})=0.00366$ 6; $\alpha(\text{O})=0.000784$ 11; $\alpha(\text{P})=0.0001083$ 16
		391.9 \ddagger	11.5 \ddagger 22	3263.4 (15 ⁻)		M1 ^{&}	0.266	$\alpha(\text{K})=0.216$ 3; $\alpha(\text{L})=0.0380$ 6; $\alpha(\text{M})=0.00898$ 13 $\alpha(\text{N})=0.00233$ 4; $\alpha(\text{O})=0.000498$ 7; $\alpha(\text{P})=6.88 \times 10^{-5}$ 10
		478.7		3176.5 (15 ⁻)				E_γ : From $^{208}\text{Pb}(^7\text{Li}, 5\text{n}\gamma)$.
		548.0 \ddagger	$\leq 1.1\ddagger$	3107.2 (16 ⁻)				
		990.0 \ddagger	3.2 \ddagger 5	2665.5 (14 ⁻)				
		1083.2 \ddagger	$\leq 1.1\ddagger$	2572.0 (14 ⁻)				
		1105.6 \ddagger	100 \ddagger 2	2549.6 (15 ⁻)		M1 ^b	0.01737	$\alpha(\text{K})=0.01419$ 20; $\alpha(\text{L})=0.00242$ 4; $\alpha(\text{M})=0.000570$ 8 $\alpha(\text{N})=0.0001476$ 21; $\alpha(\text{O})=3.16 \times 10^{-5}$ 5; $\alpha(\text{P})=4.38 \times 10^{-6}$ 7; $\alpha(\text{IPF})=3.38 \times 10^{-7}$ 5
3774.5		662.5 [#]	100 [#]	3112.0				
4027.7	(19) ⁺	372.3 \ddagger	100 \ddagger 2	3655.3 (16 ⁻)		E3 ^{&}	0.324	$\alpha(\text{K})=0.1106$ 16; $\alpha(\text{L})=0.1571$ 22; $\alpha(\text{M})=0.0424$ 6 $\alpha(\text{N})=0.01104$ 16; $\alpha(\text{O})=0.00221$ 3; $\alpha(\text{P})=0.000243$ 4 B(E3)(W.u.)=30.8 11
		485.2 \ddagger	67 \ddagger 2	3542.4 (17 ⁻)		M2 ^b	0.433	$\alpha(\text{K})=0.333$ 5; $\alpha(\text{L})=0.0751$ 11; $\alpha(\text{M})=0.0184$ 3 $\alpha(\text{N})=0.00479$ 7; $\alpha(\text{O})=0.001022$ 15; $\alpha(\text{P})=0.0001389$ 20 B(M2)(W.u.)=0.00144 6
		611.8 \ddagger	27 \ddagger 1	3415.8 (16 ⁻)		[E3]	0.0635	$\alpha(\text{K})=0.0368$ 6; $\alpha(\text{L})=0.0199$ 3; $\alpha(\text{M})=0.00518$ 8

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Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	α^c	Comments
4027.7	(19) ⁺	920.4 [‡]	11 [‡] 1	3107.2	(16) ⁻	[E3]	0.0222	$\alpha(\text{N})=0.001347$ 19; $\alpha(\text{O})=0.000275$ 4; $\alpha(\text{P})=3.24 \times 10^{-5}$ 5 B(E3)(W.u.)=0.257 12 B(E3)(W.u.)=0.0060 6 $\alpha(\text{K})=0.01559$ 22; $\alpha(\text{L})=0.00495$ 7; $\alpha(\text{M})=0.001247$ 18 $\alpha(\text{N})=0.000324$ 5; $\alpha(\text{O})=6.72 \times 10^{-5}$ 10; $\alpha(\text{P})=8.40 \times 10^{-6}$ 12
4078.0	(17) ⁺	535.8 [‡] 662.3 [‡] 971.0 [‡]	100 [‡] 7 86 [‡] 7 10.3 [‡] 16	3542.4 (17) ⁻ 3415.8 (16) ⁻ 3107.2 (16) ⁻				
4199.0	(18) ⁺	120.8 [‡]	100 [‡]	4078.0	(17) ⁺	M1 &	7.06	$\alpha(\text{K})=5.71$ 8; $\alpha(\text{L})=1.027$ 15; $\alpha(\text{M})=0.243$ 4 $\alpha(\text{N})=0.0630$ 9; $\alpha(\text{O})=0.01349$ 19; $\alpha(\text{P})=0.00186$ 3
4235.9		(37)	100	4199.0	(18) ⁺			
4426.6		348.4 [‡]	100 [‡]	4078.0	(17) ⁺			
4467.7	(20) ⁺	440.1 [‡]	100 [‡]	4027.7	(19) ⁺	M1 &	0.195	$\alpha(\text{K})=0.1583$ 23; $\alpha(\text{L})=0.0277$ 4; $\alpha(\text{M})=0.00655$ 10 $\alpha(\text{N})=0.001697$ 24; $\alpha(\text{O})=0.000364$ 5; $\alpha(\text{P})=5.02 \times 10^{-5}$ 7
4751.4		673.2 [‡]	100 [‡]	4078.0	(17) ⁺			
4786.2		708.0 [‡]	100 [‡]	4078.0	(17) ⁺			
4814.5	(20) ⁺	578.6 [‡] 786.9 [‡]	13 [‡] 2 100 [‡] 9	4235.9 4027.7 (19) ⁺				
4975.8		161.3 [‡]	100 [‡]	4814.5	(20) ⁺			
4986.1		787.1 [‡]	100 [‡]	4199.0	(18) ⁺			
5063.9	(21) ⁻	249.5 [‡]	100 [‡] 10	4814.5	(20) ⁺	E1 &	0.0495	$\alpha(\text{K})=0.0401$ 6; $\alpha(\text{L})=0.00720$ 10; $\alpha(\text{M})=0.001702$ 24 $\alpha(\text{N})=0.000437$ 7; $\alpha(\text{O})=9.11 \times 10^{-5}$ 13; $\alpha(\text{P})=1.170 \times 10^{-5}$ 17
5175.3	(22) ⁻	596.3 [‡] 1036.2 [‡] 111.3 ^{e‡}	95 [‡] 10 15 [‡] 4 40 ^{e‡} 3	4467.7 (20) ⁺ 4027.7 (19) ⁺ 5063.9 (21) ⁻		M1 &	8.91	$\alpha(\text{K})=7.21$ 10; $\alpha(\text{L})=1.300$ 19; $\alpha(\text{M})=0.308$ 5 $\alpha(\text{N})=0.0798$ 12; $\alpha(\text{O})=0.01708$ 24; $\alpha(\text{P})=0.00236$ 4
5248.1		707.7 [‡]	46 [‡] 6	4467.7	(20) ⁺			
5332.6		1147.7 [‡]	100 [‡] 6	4027.7	(19) ⁺	[E3]	0.01342	$\alpha(\text{K})=0.00997$ 14; $\alpha(\text{L})=0.00260$ 4; $\alpha(\text{M})=0.000643$ 9 $\alpha(\text{N})=0.0001669$ 24; $\alpha(\text{O})=3.49 \times 10^{-5}$ 5; $\alpha(\text{P})=4.48 \times 10^{-6}$ 7; $\alpha(\text{IPF})=2.42 \times 10^{-7}$ 4
5353.4		780.5 [‡]	100 [‡]	4467.7	(20) ⁺			
5453.4		346.6 [‡] 367.3 [‡] 278.1 [‡] 389.4 [‡] 638.8 [‡] 985.6 [‡]	100 [‡] 100 [‡] 58 [‡] 8 100 [‡] 12 10 [‡] 3 19 [‡] 4	4986.1 4986.1 5175.3 (22) ⁻ 5063.9 (21) ⁻ 4814.5 (20) ⁺ 4467.7 (20) ⁺				
5578.4		1379.4 [‡]	100 [‡]	4199.0	(18) ⁺			
5719.4		141.0 [‡]	100 [‡]	5578.4				

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Adopted Levels, Gammas (continued)

$\gamma(^{210}\text{At})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.	α^c	Comments
5836.3		772.4 \ddagger	100 \ddagger	5063.9	(21 $^-$)			
5839.6		591.4 \ddagger	100 \ddagger 20	5248.1				
		1372.0 \ddagger	32 \ddagger 4	4467.7	(20) $^+$			
5848.1		494.7 \ddagger	100 \ddagger	5353.4				
		515.5 \ddagger	100 \ddagger	5332.6				
5893.9		830.0 \ddagger 5	100 \ddagger	5063.9	(21 $^-$)			
5933.4		685.2 \ddagger	100 \ddagger	5248.1				
5949.0	(22)	885.1 \ddagger 5	100 \ddagger	5063.9	(21 $^-$)			
5969.6	(23 $^-$)	794.3 \ddagger	100 \ddagger	5175.3	(22 $^-$)			
6199.4	(22 $^-$)	229.8 \ddagger	17 \ddagger 2	5969.6	(23 $^-$)	M1&	1.149	$\alpha(\text{K})=0.932$ 13; $\alpha(\text{L})=0.1656$ 24; $\alpha(\text{M})=0.0392$ 6 $\alpha(\text{N})=0.01015$ 15; $\alpha(\text{O})=0.00217$ 3; $\alpha(\text{P})=0.000300$ 5
		250.3 $\ddagger f$	$\leq 3.4\ddagger$	5949.0	(22)			
		305.6 \ddagger	$\leq 3.4\ddagger$	5893.9				
		363.1 \ddagger	$\leq 3.4\ddagger$	5836.3				
		746.0 \ddagger	100 \ddagger 4	5453.4				
		951.4 \ddagger	10.0 \ddagger 14	5248.1				
6274.7	(23 $^-$)	75.2 \ddagger	$\leq 6\ddagger$	6199.4	(22 $^-$)	M1&	5.32	$\alpha(\text{L})=4.05$ 6; $\alpha(\text{M})=0.960$ 14 $\alpha(\text{N})=0.249$ 4; $\alpha(\text{O})=0.0533$ 8; $\alpha(\text{P})=0.00735$ 11
		325.7 \ddagger	78 \ddagger 11	5949.0	(22)			
		438.4 \ddagger	100 \ddagger 11	5836.3				
		1210.5 \ddagger	29 \ddagger 5	5063.9	(21 $^-$)			
6287.3		447.7 \ddagger	100 \ddagger	5839.6				
6413.6		574.0 \ddagger	100 \ddagger	5839.6				
6428.3		458.6 \ddagger	100 \ddagger 7	5969.6	(23 $^-$)			
		1252.8 \ddagger	21 \ddagger 3	5175.3	(22 $^-$)			
		1364.2 \ddagger	41 \ddagger 10	5063.9	(21 $^-$)			
6467.8	($^-$)	193.1 \ddagger	100 \ddagger	6274.7	(23 $^-$)	M1&	1.87	$\alpha(\text{K})=1.515$ 22; $\alpha(\text{L})=0.270$ 4; $\alpha(\text{M})=0.0639$ 9 $\alpha(\text{N})=0.01655$ 24; $\alpha(\text{O})=0.00354$ 5; $\alpha(\text{P})=0.000489$ 7
6524.7	(24 $^-$)	(57 \ddagger)	$\leq 5\ddagger$	6467.8	($^-$)	M1&	11.96	$\alpha(\text{L})=9.11$ 13; $\alpha(\text{M})=2.16$ 3 $\alpha(\text{N})=0.559$ 8; $\alpha(\text{O})=0.1197$ 17; $\alpha(\text{P})=0.01654$ 24
		250.0 \ddagger	100 \ddagger 20	6274.7	(23 $^-$)			
		555.2 \ddagger	35 \ddagger 5	5969.6	(23 $^-$)			
		1349.4 \ddagger	21 \ddagger 3	5175.3	(22 $^-$)			
6635.2		665.6 \ddagger	100 \ddagger	5969.6	(23 $^-$)			
6643.8		215.5 \ddagger	100 \ddagger	6428.3				
6931.2		463.4 \ddagger	100 \ddagger	6467.8	($^-$)			
6959.3	(26 $^-$)	435.0 \ddagger	100 \ddagger	6524.7	(24 $^-$)	[E2]	0.0473	$\alpha(\text{K})=0.0305$ 5; $\alpha(\text{L})=0.01259$ 18; $\alpha(\text{M})=0.00321$ 5 $\alpha(\text{N})=0.000831$ 12; $\alpha(\text{O})=0.0001691$ 24; $\alpha(\text{P})=1.98\times 10^{-5}$ 3 B(E2)(W.u.)=0.00477 12
7203.6		244.3 \ddagger	100 \ddagger	6959.3	(26 $^-$)			
7262.3		303.0 \ddagger	100 \ddagger	6959.3	(26 $^-$)			
7369.4		410.1 \ddagger	100 \ddagger	6959.3	(26 $^-$)			

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Adopted Levels, Gammas (continued) $\gamma(^{210}\text{At})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.	α^c	Comments
7409.0		146.7 [‡]	100 [‡]	7262.3				
7414.3		483.1 [‡]	100 [‡]	6931.2				
7472.1		828.3 [‡]	100 [‡]	6643.8				
7476.0		832.2 [‡]	100 [‡]	6643.8				
7603.4		959.6 [‡]	100 [‡]	6643.8				
7658.8		699.5 [‡]	100 [‡] 8	6959.3 (26 ⁻)				
		1014.6 [‡]	7.7 [‡] 7	6643.8				
7718.5		242.5 [‡]	100 [‡]	7476.0				
7774.6		302.5 [‡]	100 [‡]	7472.1				
7803.1		199.7 [‡]	100 [‡]	7603.4				
7831.3		872.0 [‡]	100 [‡]	6959.3 (26 ⁻)				
7847.3	(29 ⁺)	888.0 [‡]	100 [‡]	6959.3 (26 ⁻)	[E3]	0.0242	B(E3)(W.u.)=28.9 12 $\alpha(\text{K})=0.01678$ 24; $\alpha(\text{L})=0.00554$ 8; $\alpha(\text{M})=0.001398$ 20 $\alpha(\text{N})=0.000363$ 5; $\alpha(\text{O})=7.52\times 10^{-5}$ 11; $\alpha(\text{P})=9.35\times 10^{-6}$ 13	
7955.1		995.8 [‡]	100 [‡]	6959.3 (26 ⁻)				
8011.2		164.1 [‡]	≤ 45 [‡]	7847.3 (29 ⁺)				
		352.4 [‡]	100 [‡] 14	7658.8				
8018.5		604.2 [‡]	100 [‡]	7414.3				
8045.3		1086.0 [‡]	100 [‡]	6959.3 (26 ⁻)				
8063.6		216.3 [‡]	100 [‡]	7847.3 (29 ⁺)				
8122.3		319.2 [‡]	100 [‡]	7803.1				
8211.5		166.2 [‡]	100 [‡]	8045.3				
8280.1		432.8 [‡]	100 [‡]	7847.3 (29 ⁺)				
8376.1		421.0 [‡]	100 [‡]	7955.1				
8557.2		1187.8 [‡]	100 [‡]	7369.4				
8564.9		717.6 [‡]	100 [‡]	7847.3 (29 ⁺)				
8956.3		1125.0 [‡]	100 [‡]	7831.3				
9067.3		1003.7 [‡]	100 [‡]	8063.6				

[†] From ^{210}Rn ε decay, unless otherwise specified.

[‡] From $^{208}\text{Pb}(^7\text{Li},5n\gamma)$.

From $^{209}\text{Bi}(\alpha,3n\gamma)$.

@ From ^{214}Fr α decay (3.35 ms).

& From γ -ray transition intensity balance in $^{208}\text{Pb}(^7\text{Li},5n\gamma)$.

^a From ce data in ^{210}Rn ε decay.

^b From ce data in $^{209}\text{Bi}(\alpha,3n\gamma)$.

^c Additional information 18.

^d If No value given it was assumed $\delta=1.00$ for E2/M1, $\delta=1.00$ for E3/M2 and $\delta=0.10$ for the other multiplicities.

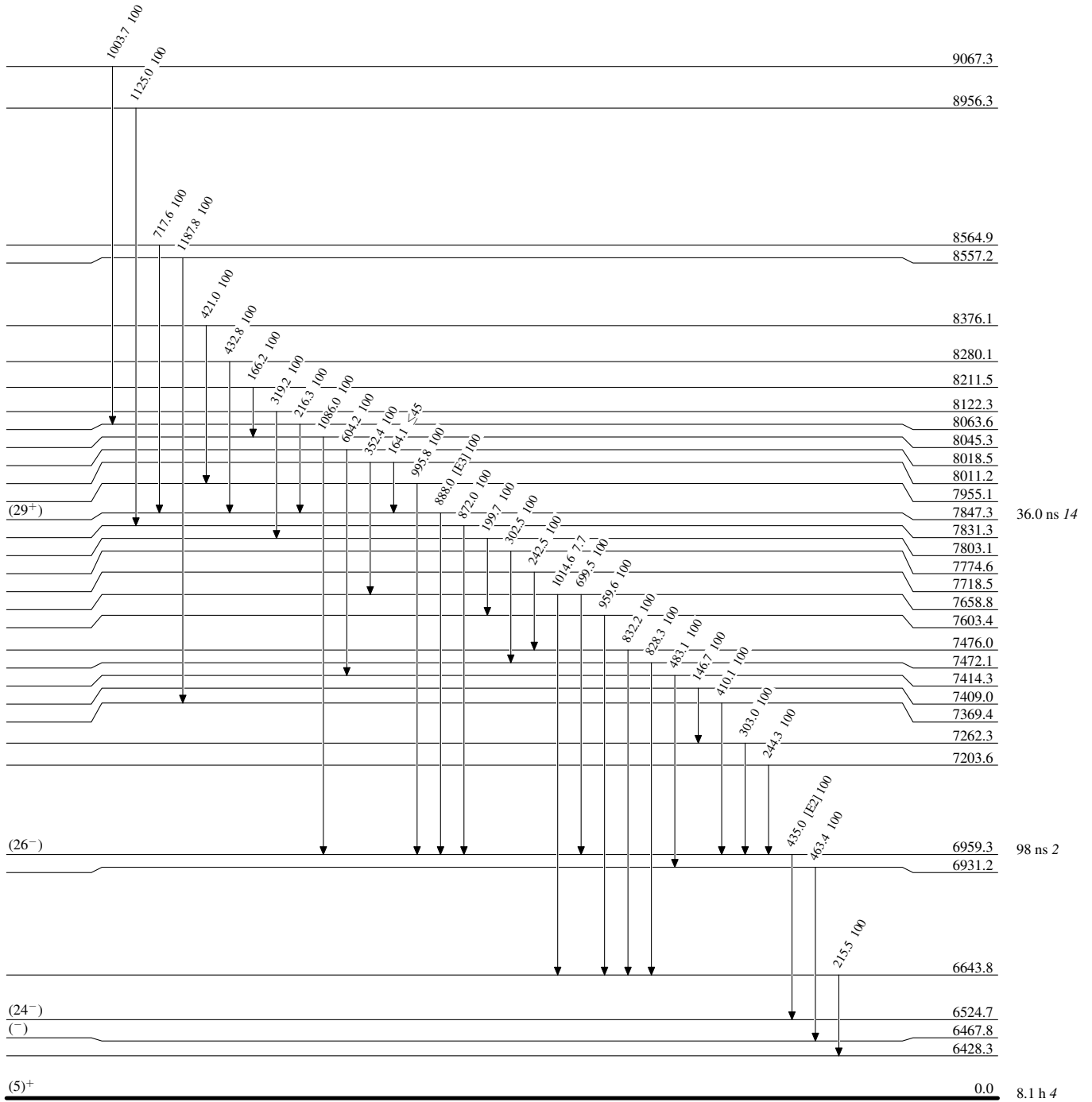
^e Multiply placed with intensity suitably divided.

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

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

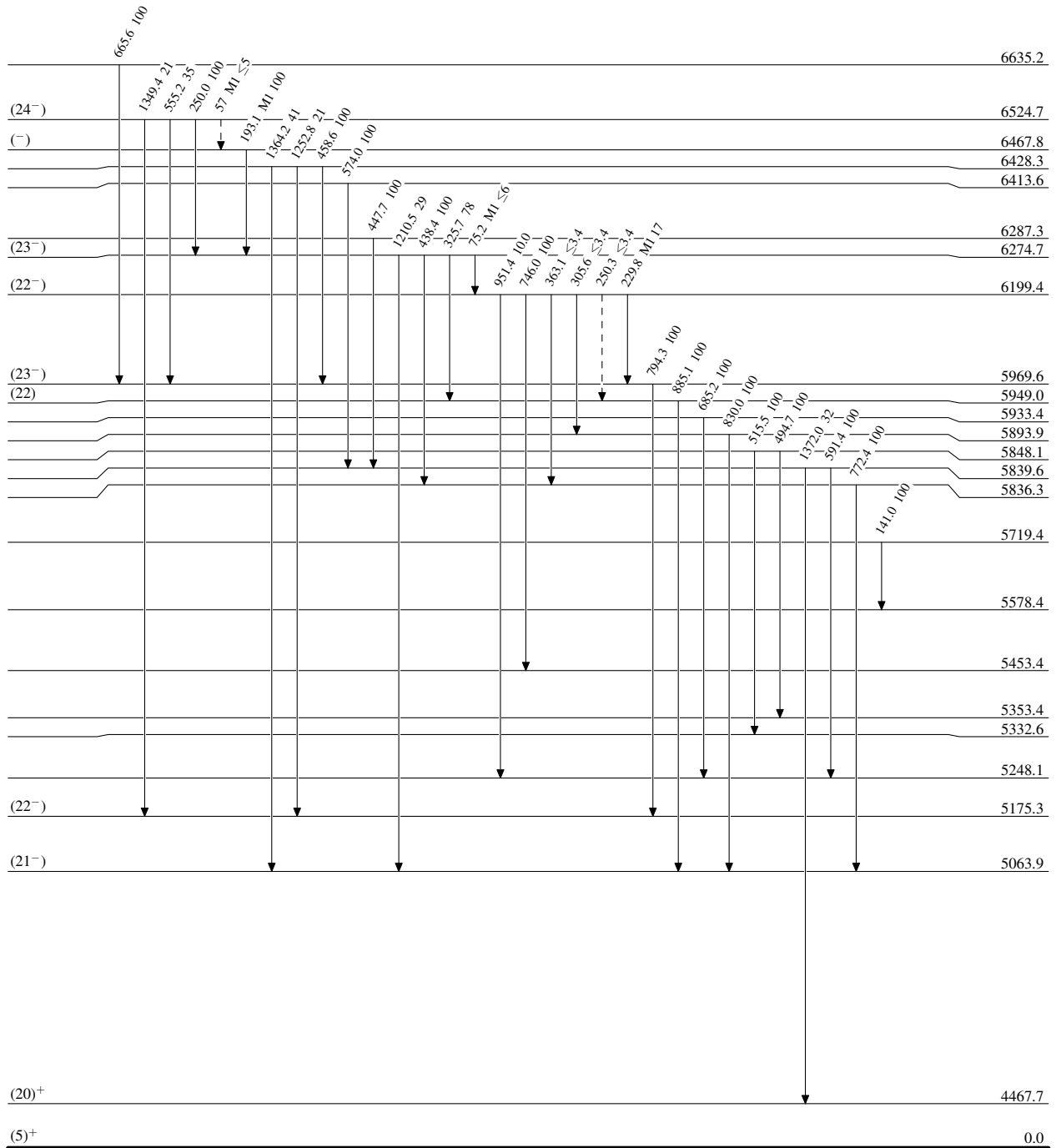


Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

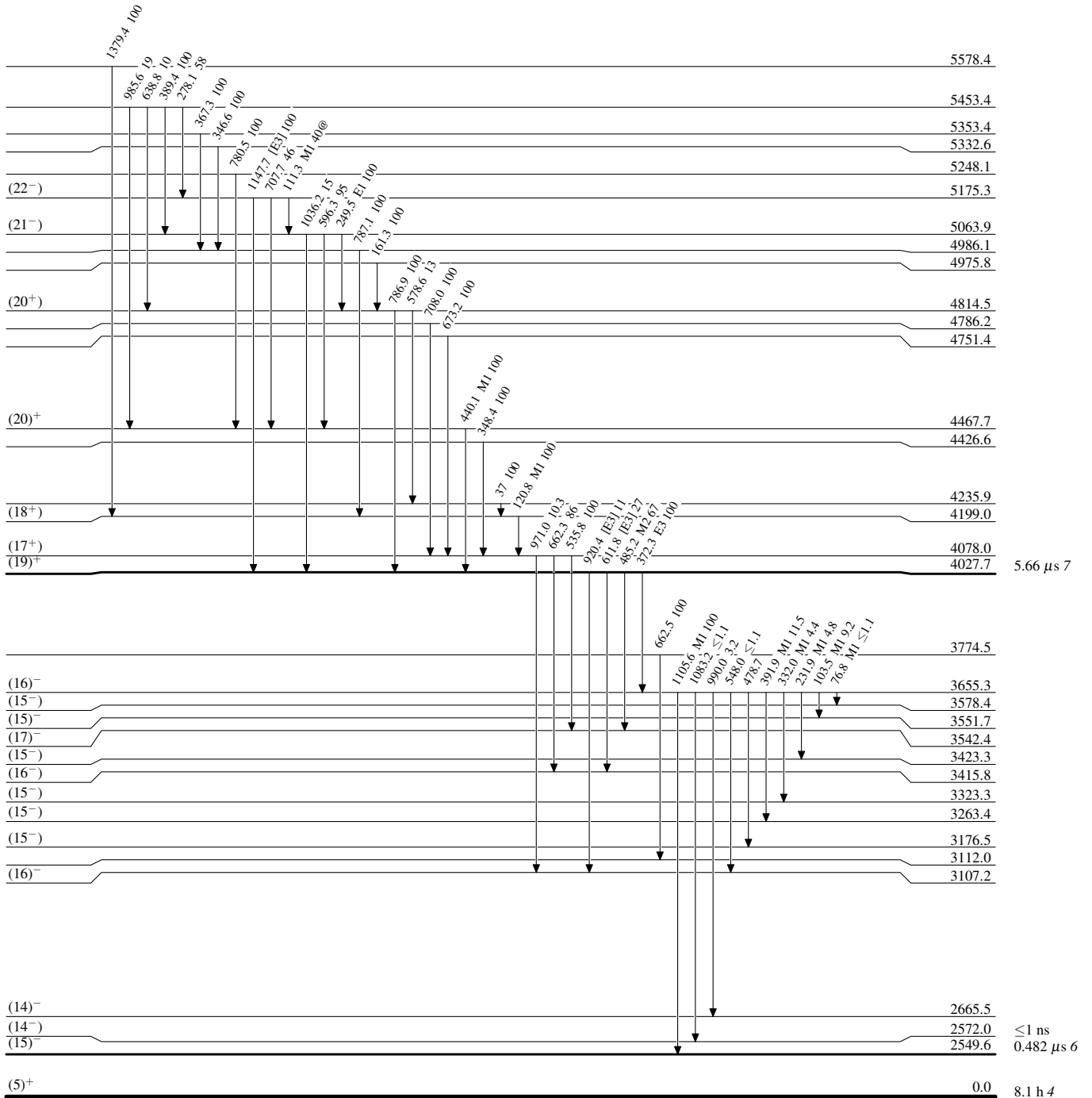
-----▶ γ Decay (Uncertain)

Adopted Levels, Gammas

Legend

Level Scheme (continued)

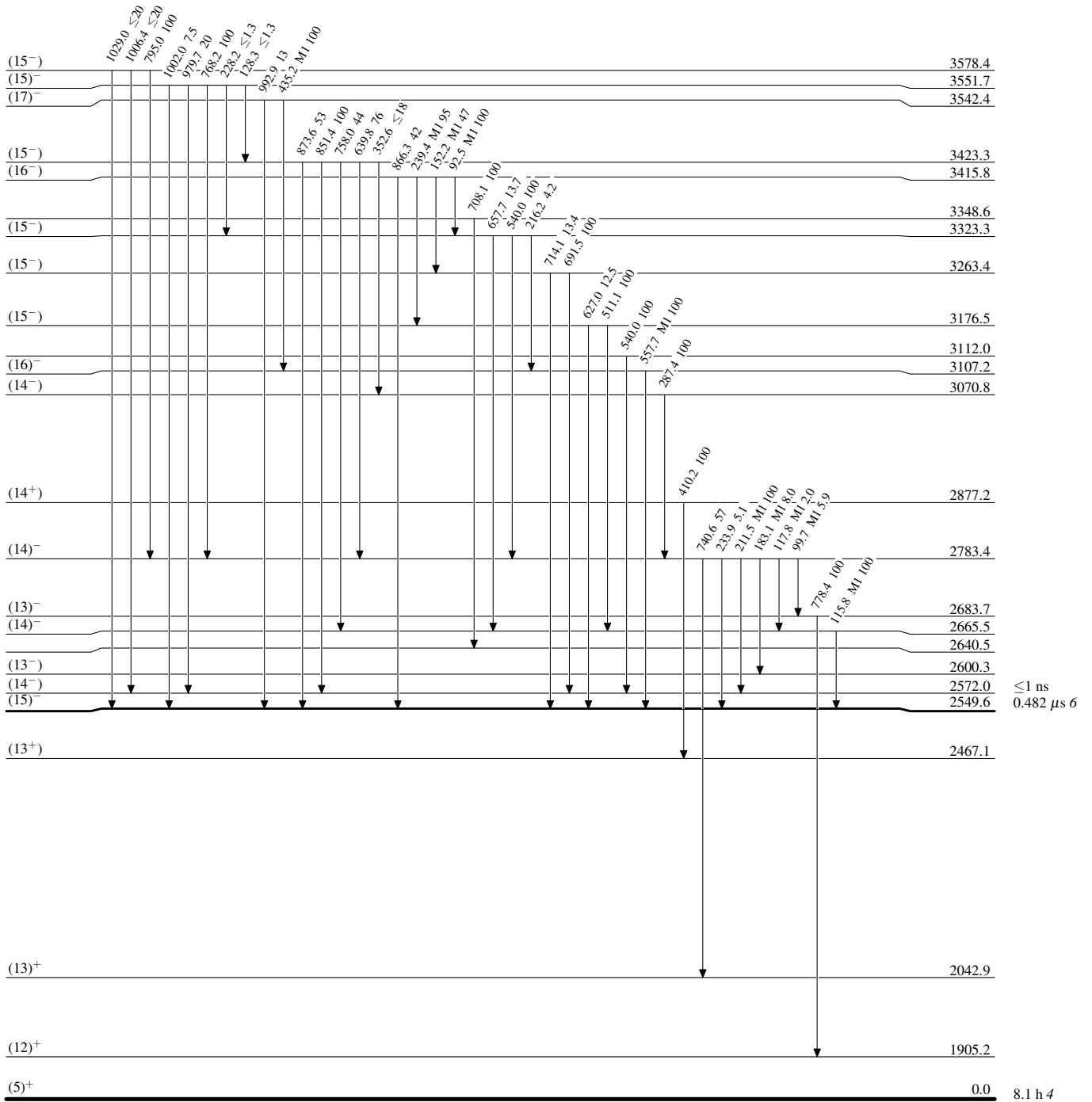
Intensities: Relative photon branching from each level
 @ Multiply placed: intensity suitably divided

-----► γ Decay (Uncertain) $^{210}_{85}\text{At}_{125}$

Adopted Levels, Gammas

Level Scheme (continued)

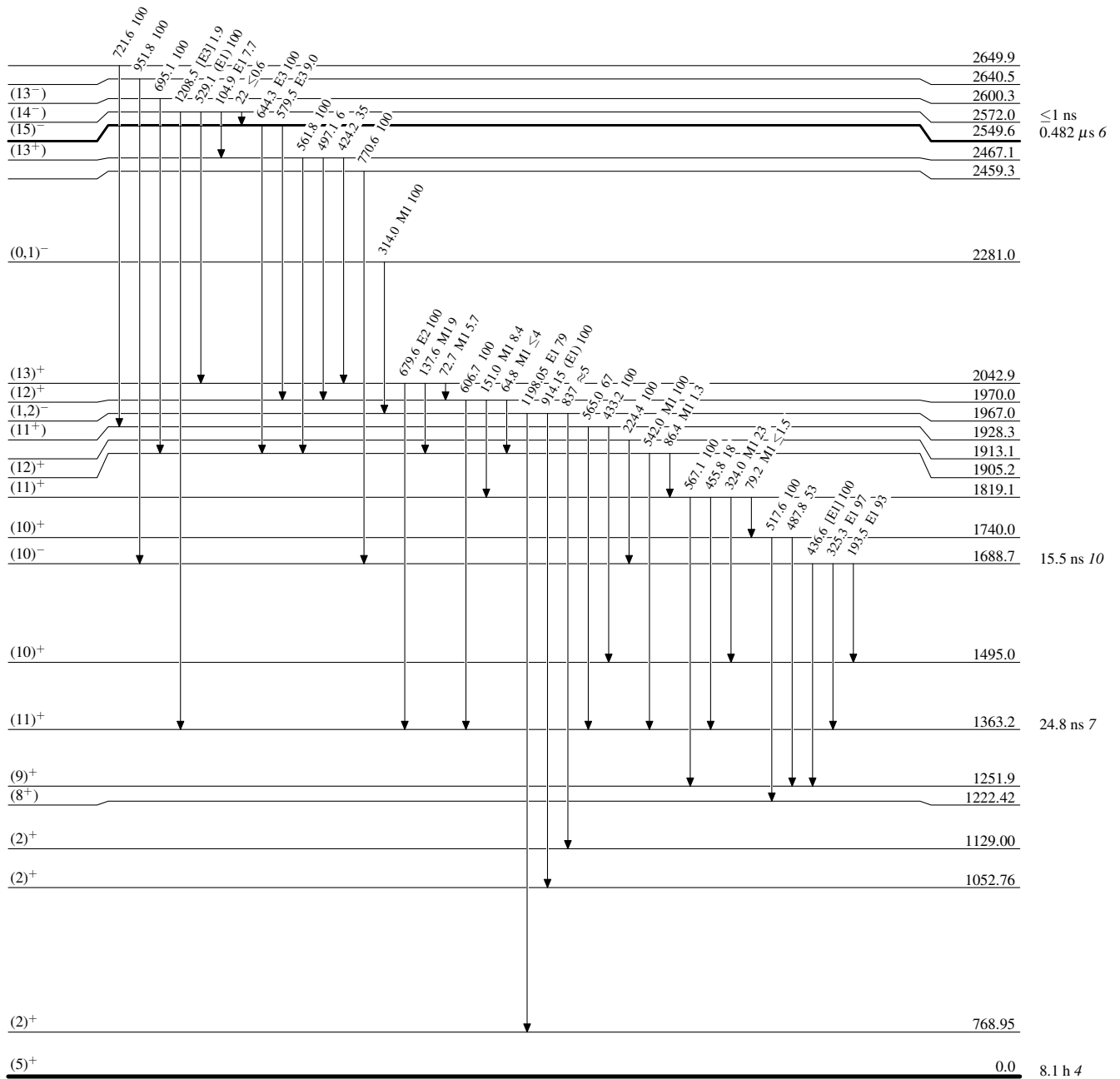
Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



Adopted Levels, Gammas

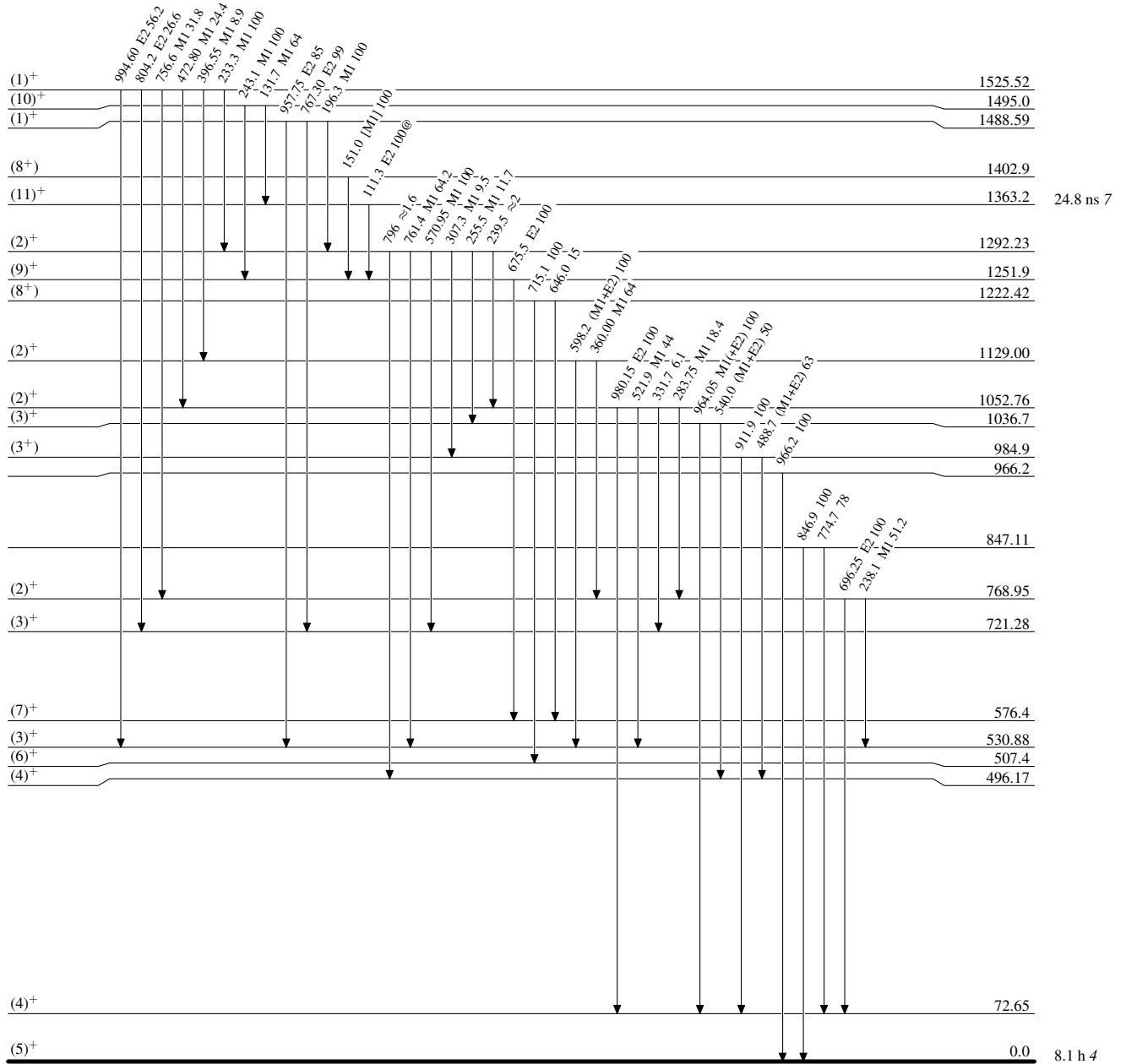
Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



Adopted Levels, GammasLevel Scheme (continued)

Intensities: Relative photon branching from each level
 @ Multiplied: intensity suitably divided

 $^{210}_{85}\text{At}_{125}$

Adopted Levels, Gammas**Level Scheme (continued)**

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

