

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Achterberg, O. A. Capurro, G. V. Marti		NDS 110,1473 (2009)	31-May-2008

Q(β^-)=-4.76×10³ 4; S(n)=8.78×10³ 4; S(p)=5981 16; Q(α)=3012 16 [2012Wa38](#)

Note: Current evaluation has used the following Q record -4760 308790 305981 153006 15 [2003Au03](#).

¹⁷⁸W Levels

Cross Reference (XREF) Flags

A	¹⁷⁸ Re ϵ decay	E	¹⁷⁷ Hf(α ,3n γ)
B	⁴⁸ Ca(¹³⁶ Xe,6n γ)	F	¹⁸⁰ W(p,t)
C	¹⁶⁴ Dy(¹⁸ O,4n γ)	G	¹⁸¹ Ta(p,4n γ)
D	¹⁷⁰ Er(¹³ C,5n γ)		

E(level) [†]	J π [‡]	T _{1/2} [#]	XREF	Comments
0.0 [@]	0 ⁺	21.6 d 3	ABCDEFGG	% ϵ =100 T _{1/2} : weighted average of 21.5 d 5 (1950Wi67), 21.4 d 5 (1964Sa16), and 22.0 d 5 (1963Ra14). Other: 1956Bi73 .
105.90 [@] 9	2 ⁺		ABCDEFGG	J π : 106 γ E2 to 0 ⁺ .
342.74 [@] 10	4 ⁺		ABCDEFGG	J π : 237 γ E2 to 2 ⁺ .
694.16 [@] 11	6 ⁺		ABCDEFGG	J π : 352 γ E2 to 4 ⁺ .
997 5	0 ⁺		FG	J π : L=0 in (p,t).
1044.60 ^d 11	2 ⁻		A DE G	J π : 939 γ E1 to 2 ⁺ .
1082.44 ^b 15	2 ⁺		A FG	J π : 977 γ E0+M1+E2 to 2 ⁺ .
1110.43 ^c 20	2 ⁺		A G	J π : 1110 γ E2 to 0 ⁺ .
1120.13 ^e 11	3 ⁻		A DEFG	J π : 778 γ E1 to 4 ⁺ .
1141.50 [@] 12	8 ⁺		BCDE G	J π : 448 γ E2 to 6 ⁺ .
1225.24 ^d 11	4 ⁻		A DE G	J π : 883 γ E1 to 4 ⁺ .
1236.50 ^c 15	3 ⁺		A	
1275.09 ^b 15	4 ⁺		A FG	J π : 933 γ E0+M1+E2 to 4 ⁺ .
1294.51 ^{&} 15	0 ⁺		A	
1344.62 ^e 11	5 ⁻		A DE G	J π : 650 γ (E1) to 6 ⁺ , 1002 γ (E1) to 4 ⁺ .
1356 5	0 ⁺		F	J π : L=0 in (p,t).
1380.14 ^c 11	4 ⁺		A DE G	J π : 1274 γ E2 to 2 ⁺ .
1417.68 ^{&} 14	2 ⁺		A	J π : 1417 γ E2 to 0 ⁺ .
1435 5			F	
1449.6 4	2 ⁺		A F	J π : 1106, 1343, and 1449 γ E2 to 4 ⁺ , 2 ⁺ , and 0 ⁺ , respectively.
1508.62 ^d 13	6 ⁻		DE G	J π : 284 γ (E2) to (4) ⁻ , 164 γ (E2,M1) to 5 ⁻ .
1545.2 4	(3 ⁻)		A D	
1555.96 ^b 13	6 ⁺		A CDE G	J π : 862 γ E0+M1+E2 to 6 ⁺ .
1572.41 ^c 18	5 ⁺		A	
1597.83 ^{&} 17	4 ⁺		A	J π : 1492 γ E2 to 2 ⁺ .
1641.34 18	0 ⁺		A F	J π : L=0 in (p,t).
1656.29 ^e 12	7 ⁻		DE G	J π : 962 γ E1 to 6 ⁺ , 312 γ E2 to 5 ⁻ .
1664.94 ⁱ 11	6 ⁺	3.0 ns 4	BCDE G	J π : 285 γ (E2) to 4 ⁺ , 971 γ (M1+E2) to 6 ⁺ , 1322 γ (E2) to 4 ⁺ . T _{1/2} : From ¹⁸¹ Ta(p,4n γ) (3 ns <i>I</i> in (¹⁷⁰ Er(¹³ C,5n γ))).
1665.35 [@] 12	10 ⁺		BCDE G	J π : 523 γ E2 to 8 ⁺ .
1703.67 15	4 ⁺		A	J π : 1009 γ E2 to 6 ⁺ , 1361 γ M1 to 4 ⁺ .
1718.06 15	4 ⁺		A	
1728.40 23			A	

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Adopted Levels, Gammas (continued) ^{178}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
1738.70 ^k 12	7 ⁻	9.6 ns 5	BCDE G	J ^π : 74γ E1 to 6 ⁺ . T _{1/2} : From $^{177}\text{Hf}(\alpha,3n\gamma)$ (8 ns <i>I</i> in ($^{170}\text{Er}(^{13}\text{C},5n\gamma)$)).
1764.10 ^f 14	(5 ⁻)		A D	
1827.41 ^l 12	8 ⁻		BCDE	J ^π : 88γ to 7 ⁻ .
1835.39 ^j 13	7 ⁺		CDE G	J ^π : 171γ (M1,E2) to 6 ⁺ .
1863.9 4	(4 ⁺)		A	
1875.7 6			G	
1888.42 ^d 17	(8 ⁻)		DE G	J ^π : 380γ (E2) to 6 ⁻ .
1915.80 ^b 13	8 ⁺		CDE G	J ^π : 774γ E0+M1+E2 to 8 ⁺ .
1939.15 23			A	
1962.53 23			A	
1964.46 ^k 12	9 ⁻		BCDE	J ^π : 137γ (M1,E2) to 8 ⁻ , 226γ (E2) to 7 ⁻ .
1997.23 17			A	
2023.38 ⁱ 13	8 ⁺		CDE G	
2030 5			F	
2041.81 ^e 13	9 ⁻		DE G	J ^π : 386γ (E2) to 7 ⁻ , 900γ (E1) to 8 ⁺ .
2043.7 4			G	
2054.14 ^g 14	(7)		D	
2060 5			F	
2076.17 ^f 15	(7 ⁻)		D	
2078.27 ^h 16	8 ⁻		D	
2091 5			F	
2116 5			F	
2121.05 23			A F	
2133.03 ^l 13	10 ⁻		BCDE	J ^π : 168γ (M1,E2) to 9 ⁻ , 306γ (E2) to 8 ⁻ .
2136.05 14	8 ⁺		D	
2226.77 ^j 13	(9 ⁺)		CDE G	J ^π : 204γ (E2,M1) to 8 ⁺ , 392γ (E2) to 7 ⁺ .
2239.4 6			G	
2244.45 [@] 13	12 ⁺		CDE G	J ^π : 579γ (E2) to 10 ⁺ .
2322.62 ^h 13	9 ⁻		D	
2327.51 ^k 13	11 ⁻		BCDE	J ^π : 195γ (M1,E2) to 10 ⁻ , 363γ (E2) to 9 ⁻ .
2339.74 ^b 13	10 ⁺		CDE G	
2347.93 ^g 13	(9)		D	
2355.82 ^d 20	10 ⁻		DE G	J ^π : 468γ (E2) to (8 ⁻).
2444.42 ⁱ 13	10 ⁺		CDE	
2468.34 ^f 14	(9 ⁻)		D	
2489.84 ^e 14	11 ⁻		DE	J ^π : 448γ (E2) to 9 ⁻ .
2546.07 ^l 14	12 ⁻		CDE	J ^π : 219γ (E2,M1) to 11 ⁻ , 413γ E2 to 10 ⁻ .
2577.56 ^h 13	10 ⁻		D	
2671.79 ^j 14	11 ⁺		CDE	
2682.79 13	10 ⁺		D	J ^π : 546γ E2 to 8 ⁺ .
2718.14 ^g 14	(11)		D	
2784.30 ^k 15	13 ⁻		CDE	J ^π : 457γ (E2) to 11 ⁻ .
2803.99 ^b 13	(12 ⁺)		CDE	J ^π : 464γ E2 to 10 ⁺ , 559γ M1(+E2) to 12 ⁺ .
2841.97 ^h 17	11 ⁻		D	
2845.65 ^a 16	12 ⁺		D	
2858.71 [@] 15	14 ⁺		DE	J ^π : 614γ E2 to 12 ⁺ .
2901.42 ^d 22	12 ⁻		DE	J ^π : 546γ (E2) to 10 ⁻ .
2911.62 ⁱ 13	12 ⁺		D	

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Adopted Levels, Gammas (continued)

^{178}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
2933.45 ^f 17	(11 ⁻)		D	
2994.86 ^e 17	13 ⁻		DE	
3044.19 ^l 15	14 ⁻		CDE	
3053.81 13	11 ⁻	<2 ns	BCDE	J ^π : From γ-ray DCO ratios in $^{164}\text{Dy}(^{18}\text{O},4n\gamma)$. J ^π : 921γ M1+E2 to 10 ⁻ , 1090γ E2 to 9 ⁻ . K ^π =11 ⁻ . Configuration= $\nu(1/2[521]5/2[512]7/2[514]9/2[624])$.
3138.62 ^j 17	13 ⁺		CDE	J ^π : 467γ (E2) to 11 ⁺ .
3144.1 6			D	
3161.94 ^g 17	(13)		D	
3209.25 ^a 15	14 ⁺		D	
3235.34 12	12 ⁺	<1 ns	BCDE	J ^π : From γ-ray DCO ratios in $^{164}\text{Dy}(^{18}\text{O},4n\gamma)$. J ^π : 552γ E2 to 10 ⁺ , 991γ M1(+E2) to 12 ⁺ . K ^π =12 ⁺ . Configuration= $\nu(1/2[521]7/2[633]7/2[514]9/2[624])$ or $\nu(5/2[512]7/2[514])\pi(5/2[402]7/2[404])$.
3282.20 16	(12 ⁻)		D	Probable band member of K ^π =11 ⁻ band at 3053.
3301.2 4			A	
3317.40 ^k 16	15 ⁻		DE	J ^π : 533γ (E2) to 13 ⁻ .
3318.73 ^b 15	(14 ⁺)		DE	J ^π : 460γ M1(+E2) to 14 ⁺ .
3368.9 3	(2 ⁺)		A	
3383.3 5			A	
3385.35 18	(13 ⁺)		D	Probable band member of K ^π =12 ⁺ band at 3235.
3420.39 ⁱ 14	14 ⁺		D	
3455.57 ^f 19	(13 ⁻)		D	
3459.75 19	(13 ⁻)		D	
3488.42 [@] 16	16 ⁺		DE	J ^π : 630γ E2 to 14 ⁺ .
3499.3 4			A	
3505.8 5			A	
3511.9 4	(2 ⁺)		A	
3514.82 ^d 24	14 ⁻		D	
3515.0 5			A	
3525.53 ^m 15	(13 ⁻)	<1 ns	BCDE	J ^π : a tentative J ^π =(14) has been proposed in $^{164}\text{Dy}(^{18}\text{O},4n\gamma)$. J ^π : 290γ E1 to 12 ⁺ .
3550.9 4			A	
3558.28 ^e 19	15 ⁻		D	
3580.2 5			A	
3585.5 5			A	
3593.63 18	14 ⁻	3 ns I	D	J ^π : 68γ (M1) to 13 ⁻ . K ^π =14 ⁻ . Configuration= $\nu(5/2[512]7/2[514])\pi(7/2[404]9/2[514])$.
3594.8 5			A	
3612.22 ^j 19	15 ⁺		D	
3612.91 ^l 18	16 ⁻		DE	
3634.4 5			A	
3654.93 ^o 19	15 ⁺	30 ns I	D	J ^π : 61γ (E1) to 14 ⁻ .
3661.14 ^a 15	16 ⁺		D	
3673.94 ^g 20	(15)		D	
3686.63 ⁿ 16	(14 ⁺)		D	
3689.21 ^m 18	14 ⁻		D	J ^π : 164γ M1 to 13 ⁻ .
3695.06 16			D	
3706.2 5			A	
3807.0 4			A	
3810.5 5			A	
3837.0 ⁿ 6	(15 ⁺)		D	

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Adopted Levels, Gammas (continued) ^{178}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
3862.33 ^p 22	16 ⁺		D	J ^π : 207γ M1 to 15 ⁺ .
3871.00 ^b 16	16 ⁺		D	
3876.03 21	(15 ⁻)		D	Probable member of K ^π =14 ⁻ band at 3593.
3912.51 ^k 19	17 ⁻		D	
3930.62 ^m 19	15 ⁻		D	
4009.29 ⁱ 17	16 ⁺		D	
4084.4 ⁿ 6	(16 ⁺)		D	
4100.17 [@] 17	18 ⁺		D	J ^π : 612γ E2 to 16 ⁺ .
4129.93 ^o 23	17 ⁺		D	
4157.92 ^j 20	17 ⁺		D	
4171.5 ^d 6	16 ⁻		D	
4182.98 ^e 22	17 ⁻		D	
4208.88 ^m 19	16 ⁻		D	J ^π : 278γ M1 to 15 ⁻ , 520γ E2 to 14 ⁻ .
4238.21 ^l 21	18 ⁻		D	
4238.94 ^g 23	(17)		D	
4248.20 ^a 16	18 ⁺		D	J ^π : 760γ E2 to 16 ⁺ .
4368.8 ⁿ 6	(17 ⁺)		D	
4429.73 ^p 23	18 ⁺		D	
4498.31 ^b 19	18 ⁺		D	
4516.28 ^m 19	17 ⁻		D	
4555.92 ^k 21	19 ⁻		D	
4663.39 ⁱ 20	18 ⁺		D	
4678.7 ⁿ 6	(18 ⁺)		D	
4711.83 20	(17 ⁺)		D	J ^π : 1057γ E2 to 15 ⁺ . Additional information 1.
4730.36 [@] 20	20 ⁺		D	
4753.63 ^o 24	19 ⁺		D	
4797.12 ^j 23	19 ⁺		D	
4833.7 ^d 8	(18 ⁻)		D	
4835.44 ^g 25	(19)		D	
4863.88 ^e 24	19 ⁻		D	
4879.72 ^q 19	18 ⁻	<3 ns	D	J ^π : 363γ M1 to 17 ⁻ , 671γ E2 to 16 ⁻ .
4905.71 ^l 23	20 ⁻		D	
4941.84 ^a 18	20 ⁺		D	
5006.7 ⁿ 6	(19 ⁺)		D	
5063.22 ^r 22	19 ⁻		D	J ^π : 183γ M1 to 18 ⁻ .
5096.83 ^p 24	20 ⁺		D	
5188.31 ^b 21	20 ⁺		D	
5234.12 ^k 24	21 ⁻		D	
5269.84 ^q 24	20 ⁻		D	
5313.7 ^s 3	21 ⁻	64 ns 2	D	J ^π : 44γ (M1) to 20 ⁻ .
5428.96 [@] 22	22 ⁺		D	
5455.74 ^o 24	21 ⁺		D	
5460.8 ^g 3	(21)		D	
5522.1 ^r 3	21 ⁻		D	
5525.93 ^j 25	21 ⁺		D	
5537.6 ^d 13	(20 ⁻)		D	
5577.5 ^e 3	(21 ⁻)		D	

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Adopted Levels, Gammas (continued) ^{178}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
5603.21 ^l 25	22 ⁻		D	
5627.1 ^u 3	22 ⁻		D	
5675.2 ^t 3	22 ⁻		D	
5688.75 ^a 20	22 ⁺		D	
5814.2 ^q 3	22 ⁻		D	
5827.22 ^p 25	22 ⁺		D	
5906.61 ^b 24	22 ⁺		D	
5939.9 ^k 3	23 ⁻		D	
6000.6 ^v 3	23 ⁻		D	
6052.9 ^s 3	23 ⁻		D	
6136.8 ^g 3	(23)		D	
6140.0 ^r 3	23 ⁻		D	
6194.47 [@] 25	24 ⁺		D	
6207.8 ^o 3	23 ⁺		D	
6299.4 ^e 6	(23 ⁻)		D	
6329.1 ^j 6	23 ⁺		D	
6332.7 ^l 3	24 ⁻		D	
6389.8 ^u 3	24 ⁻		D	J ^π : 389γ M1+E2 to 23 ⁻ , 763γ E2 to 22 ⁻ .
6447.7 ^t 4	24 ⁻		D	
6483.85 ^a 23	24 ⁺		D	
6494.4 ^q 3	24 ⁻		D	
6572.7 ^w 3	25 ⁺	220 ns 10	D	J ^π : 183γ (E1) to 24 ⁻ , 946γ (E3) to 22 ⁻ .
6593.8 ^p 3	24 ⁺		D	
6685.3 ^k 3	25 ⁻		D	
6795.7 ^v 3	25 ⁻		D	
6859.1 ^s 5	25 ⁻		D	
6860.4 ^x 3	26 ⁺		D	J ^π : 288γ M1 to 25 ⁺ .
6872.9 ^r 4	25 ⁻		D	
6886.5 ^g 3	(25)		D	
6971.6 ^o 4	(25 ⁺)		D	
6984.2 6	25 ⁺		D	
7006.0 5	25 ⁺		D	
7017.2 [@] 3	(26 ⁺)		D	
7113.2 ^l 3	26 ⁻		D	
7217.5 ^w 4	27 ⁺		D	J ^π : 357γ M1 to 26 ⁺ , 645γ E2 to 25 ⁺ .
7218.6 ^u 5	26 ⁻		D	
7272.4 ^q 5	26 ⁻		D	
7288.2 ^t 6	26 ⁻		D	
7330.2 ^a 6	26 ⁺		D	
7337.0 ^p 4	26 ⁺		D	
7392.2 4	26 ⁺		D	
7489.9 ^k 3	27 ⁻		D	
7611.7 ^x 4	28 ⁺		D	J ^π : 394γ M1 to 27 ⁺ , 751γ E2 to 26 ⁺ .
7657.6 ^v 5	27 ⁻		D	
7690.1 ^r 5	27 ⁻		D	
7709.4 ^o 4	27 ⁺		D	
7719.3 ^g 6	(27)		D	
7732.2 ^s 8	27 ⁻		D	
7798.8 5	27 ⁺		D	

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Adopted Levels, Gammas (continued) ^{178}W Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2} [#]	XREF	Comments
7897.5 [@] 6	(28 ⁺)		D	
7961.9 ^l 3	(28 ⁻)		D	
8034.6 ^w 4	29 ⁺		D	J ^π : 423γ M1 to 28 ⁺ , 818γ E2 to 27 ⁺ .
8096.4 ^p 4	28 ⁺		D	
8111.6 ^u 8	28 ⁻		D	
8122.1 ^q 8	28 ⁻		D	
8148.4 ^y 4	28 ⁽⁻⁾	<5 ns	D	J ^π : 931γ E1 to 27 ⁺ .
8189.1 ^t 9	28 ⁻		D	
8228.2 6	28 ⁺		D	
8365.3 ^k 6	(29 ⁻)		D	
8476.0 ^z 4	29 ⁽⁻⁾		D	J ^π : 327γ M1 to 28 ⁽⁻⁾ , 864γ E1 to 28 ⁺ .
8484.5 ^x 5	30 ⁺		D	J ^π : 450γ M1 to 29 ⁺ , 873γ E2 to 28 ⁺ .
8499.7 ^o 4	29 ⁺		D	
8564.3 ^r 9	29 ⁻		D	
8578.6 ^v 9	29 ⁻		D	
8655.3 ^s 10	29 ⁻		D	
8665.6 7	29 ⁺		D	
8800.3 ³ 4	30 ⁺	<1 ns	D	J ^π : 324γ E1 to 29 ⁽⁻⁾ , 766γ M1 to 29 ⁺ , 1187γ E2 to 28 ⁺ .
8897.3 ^y 4	30 ⁽⁻⁾		D	J ^π : 422γ M1 to 29 ⁽⁻⁾ , 749γ E2 to 28 ⁽⁻⁾ .
8905.6 ¹ 4	(29 ⁺)	<1 ns	D	J ^π : 757γ (E1) to 28 ⁽⁻⁾ .
8919.5 ^p 4	30 ⁺		D	
8957.9 ^w 7	31 ⁺		D	J ^π : 474γ M1 to 30 ⁺ , 924γ E2 to 29 ⁺ .
9016.6 ^q 10	30 ⁻		D	
9051.6 ^u 10	30 ⁻		D	
9124.7 ^t 12	30 ⁻		D	
9342.7 ² 4	(30 ⁺)		D	J ^π : 437γ (M1) to (29 ⁺).
9356.4 ^o 4	31 ⁺		D	
9359.5 ⁴ 4	(31 ⁺)		D	J ^π : 559γ M1 to 30 ⁺ .
9360.9 ^z 4	31 ⁻		D	J ^π : 464γ M1 to 30 ⁽⁻⁾ , 885γ E2 to 29 ⁽⁻⁾ .
9453.8 ^x 8	32 ⁺		D	J ^π : 494γ M1 to 30 ⁺ .
9475.5 ^r 11	31 ⁻		D	
9532.6 ^v 11	31 ⁻		D	
9806.7 ¹ 4	(31 ⁺)		D	J ^π : 464γ (M1) to (30 ⁺).
9810.6 ^p 4	32 ⁺		D	
9854.9 ^y 5	32 ⁻		D	J ^π : 494γ M1 to 31 ⁻ , 958γ E2 to 30 ⁽⁻⁾ .
9931.9 ³ 4	(32 ⁺)		D	J ^π : 572γ M1 to (31 ⁺), 1132γ (E2) to 30 ⁺ .
9947.6 ^q 12	32 ⁻		D	
9971.9 ^w 7	33 ⁺		D	J ^π : 518γ M1 to 32 ⁺ , 1014γ E2 to 31 ⁺ .
10280.3 ^o 5	33 ⁺		D	
10299.6 ² 5	(32 ⁺)		D	J ^π : 493γ (M1) to (31 ⁺).
10378.8 ^z 5	33 ⁻		D	J ^π : 524γ M1 to 32 ⁻ , 1018γ E2 to 31 ⁻ .
10509.2 ^x 8	34 ⁺		D	J ^π : 537γ M1 to 33 ⁺ , 1055γ E2 to 32 ⁺ .
10514.6 ^v 15	33 ⁻		D	
10525.9 ⁴ 4	(33 ⁺)		D	J ^π : 594γ M1 to (32 ⁺), 1166γ (E2) to (31 ⁺).
10766.4 ^p 8	34 ⁺		D	
10916.4 ^y 5	34 ⁻		D	J ^π : 538γ M1 to 33 ⁻ , 1060γ E2 to 32 ⁻ .
11066.0 ^w 8	35 ⁺		D	J ^π : 556γ M1 to 34 ⁺ , 1095γ E2 to 33 ⁺ .
11075.5 ⁵ 5	(34 ⁺)	<1 ns	D	J ^π : 550γ (M1) to (33 ⁺).
11265.4 ^o 9	35 ⁺		D	
11697.2 ⁵ 5	(35 ⁺)		D	J ^π : 622γ (M1) to (34 ⁺).

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Adopted Levels, Gammas (continued) ^{178}W Levels (continued)

E(level) [†]	J^π [‡]	XREF
11780.4 ^D 10	36 ⁺	D
12306.4 ^O 13	37 ⁺	D
12844.9 ^P 15	(38 ⁺)	D
13393.8 ^O 17	(39 ⁺)	D

[†] From a least-squares fit to adopted γ -ray energies.

[‡] Assignments are based on rotational band structure, and on γ -ray multiplicities and decay patterns. Specific arguments are given with individual levels.

From $^{170}\text{Er}(^{13}\text{C},5n\gamma)$, unless otherwise specified.

@ Band(A): $K^\pi=0^+$, Yrast band.

& Band(a): 2nd $K^\pi=0^+$ band.

^a Band(B): $K^\pi=12^+$, Yrare band.

^b Band(C): β -vibrational band.

^c Band(D): γ -vibrational band.

^d Band(E): $K^\pi=2^-$ band, $\alpha=0$.

^e Band(e): $K^\pi=2^-$ band, $\alpha=1$.

^f Band(F): $J^\pi=(3^-)$ band.

^g Band(G): $J=(7)$ band.

^h Band(H): $\Delta J=1$ on 8^- .

ⁱ Band(I): $K^\pi=6^+$, $\alpha=0$. Configuration= $\nu 5/2[512]\nu 7/2[514]$.

^j Band(i): $K^\pi=6^+$, $\alpha=1$. Configuration= $\nu 5/2[512]\nu 7/2[514]$.

^k Band(j): $K^\pi=7^-$, $\alpha=0$. Configuration= $\nu 7/2[633]\nu 7/2[514]$.

^l Band(J): $K^\pi=7^-$, $\alpha=1$. Configuration= $\nu 7/2[633]\nu 7/2[514]$.

^m Band(K): $K^\pi=13^-$. Configuration= $\nu(7/2[633]7/2[514])\pi(5/2[402]7/2[404])$.

ⁿ Band(L): $K^\pi=14^+$. Configuration= $\nu(7/2[633]7/2[514])\pi(5/2[402]9/2[514])$.

^o Band(m): $K^\pi=15^+$, $\alpha=0$. Configuration= $\nu(7/2[633]7/2[514])\pi(7/2[404]9/2[514])$.

^p Band(M): $K^\pi=15^+$, $\alpha=1$. Configuration= $\nu(7/2[633]7/2[514])\pi(7/2[404]9/2[514])$.

^q Band(N): $K^\pi=18^-$, $\alpha=0$. Configuration= $\nu(7/2[633]7/2[514])\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

^r Band(n): $K^\pi=18^-$, $\alpha=1$. Configuration= $\nu(7/2[633]7/2[514])\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

^s Band(o): $K^\pi=21^-$, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(5/2[402]9/2[514])$.

^t Band(O): $K^\pi=21^-$, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(5/2[402]9/2[514])$.

^u Band(P): $K^\pi=22^-$, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(7/2[404]9/2[514])$.

^v Band(p): $K^\pi=22^-$, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(7/2[404]9/2[514])$.

^w Band(q): $K^\pi=25^+$, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

^x Band(Q): $K^\pi=25^+$, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

^y Band(r): $K^\pi=28^-$, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(1/2[541]7/2[404]9/2[514]11/2[505])$.

^z Band(R): $K^\pi=28^-$, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(1/2[541]7/2[404]9/2[514]11/2[505])$.

¹ Band(S): $K^\pi=(29^+)$ band, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624]1/2[521]7/2[503])$

$\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

² Band(s): $K^\pi=(29^+)$ band, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624]1/2[521]7/2[503])$

$\pi(1/2[541]5/2[402]7/2[404]9/2[514])$.

³ Band(t): $K^\pi=30^+$ band, $\alpha=0$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(5/2[402]7/2[404]9/2[514]11/2[505])$.

⁴ Band(T): $K^\pi=30^+$ band, $\alpha=1$. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624])\pi(5/2[402]7/2[404]9/2[514]11/2[505])$.

⁵ Band(U): $K^\pi=(34^+)$ band. Configuration= $\nu(5/2[512]7/2[633]7/2[514]9/2[624]1/2[521]7/2[503])$

$\pi(5/2[402]7/2[404]9/2[514]11/2[505])$.

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	$\gamma(^{178}\text{W})$							
		E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult.#	δ	α [@]	I _(γ+ce)
105.90	2 ⁺	105.8 1	100	0.0	0 ⁺	E2		3.12	
342.74	4 ⁺	236.7 1	100	105.90	2 ⁺	E2		0.1772	
694.16	6 ⁺	351.4 1	100	342.74	4 ⁺	E2		0.0536	
1044.60	2 ⁻	938.6 1	100	105.90	2 ⁺	E1		0.00201	
1082.44	2 ⁺	740.0 [‡] 6	10 [‡] 3	342.74	4 ⁺				
		976.6 [‡] 5	100 [‡] 6	105.90	2 ⁺	E0+M1+E2		0.007 3	
1110.43	2 ⁺	767.7 [‡] 5	31 [‡] 7	342.74	4 ⁺				
		1004.4 [‡] 6	32 [‡] 7	105.90	2 ⁺				
		1110.8 [‡] 4	100 [‡] 5	0.0	0 ⁺	E2		0.00366	
1120.13	3 ⁻	75.5 1	28 14	1044.60	2 ⁻				
		777.3 1	100 7	342.74	4 ⁺	E1		0.00287	
		1014.5 5	10 3	105.90	2 ⁺				
1141.50	8 ⁺	447.4 1	100	694.16	6 ⁺	E2		0.0278	
1225.24	4 ⁻	105.2 1	35 9	1120.13	3 ⁻				
		180.6 1	48 4	1044.60	2 ⁻				
		882.4 1	100 4	342.74	4 ⁺	E1		0.00225	
1236.50	3 ⁺	893.6 [‡] 2	49 [‡] 5	342.74	4 ⁺	E2		0.00566	
		1130.7 [‡] 2	100 [‡] 7	105.90	2 ⁺	E2+M1	+6.9 +77-24	0.00361 11	
1275.09	4 ⁺	192.5 [‡] 2	5.2 [‡] 12	1082.44	2 ⁺	E2		0.351	
		580.8 [‡] 2	22 [‡] 4	694.16	6 ⁺	E2		0.01460	
		932.7 [‡] 5	100 [‡] 6	342.74	4 ⁺	E0+M1+E2		0.008 4	
		1169.5 [‡] 5	4.2 [‡] 9	105.90	2 ⁺				
1294.51	0 ⁺	1188.7 [‡] 2	100 [‡]	105.90	2 ⁺				
		1294.4 [‡] 2		0.0	0 ⁺	E0			0.052 5
1344.62	5 ⁻	119.2 5	15 5	1225.24	4 ⁻				
		224.3 1	70 7	1120.13	3 ⁻	(E2)		0.211	
		650.40 6	100 7	694.16	6 ⁺	(E1)		0.00409	
		1001.9 1	44 4	342.74	4 ⁺	(E1)		1.78×10 ⁻³	
1380.14	4 ⁺	686.1 1	50 8	694.16	6 ⁺				
		1037.4 1	100 8	342.74	4 ⁺	M1(+E2)		0.0065 24	
		1274.2 1	63 8	105.90	2 ⁺	E2		0.00282	
1417.68	2 ⁺	335.3 [‡] 2	8.6 [‡] 21	1082.44	2 ⁺				
		1311.5 [‡] 2	100 [‡] 14	105.90	2 ⁺	E0+M1+E2		0.0038 12	
		1417.9 [‡] 2	42 [‡] 7	0.0	0 ⁺	E2		0.00233	
1449.6	2 ⁺	1106.5 [‡] 6	52 [‡] 7	342.74	4 ⁺	E2		0.00369	
		1342.5 [‡] 15	49 [‡] 10	105.90	2 ⁺	E2		0.00256	

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Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments
1449.6	2 ⁺	1450.0 [‡] 5	100 [‡] 6	0.0	0 ⁺	E2	0.00225	
1508.62	6 ⁻	163.8 5	10.8 22	1344.62	5 ⁻	(E2,M1)	0.9 3	
		283.4 1	100 8	1225.24	4 ⁻	(E2)	0.1009	
1545.2	(3 ⁻)	500.3 5	100	1044.60	2 ⁻			
1555.96	6 ⁺	280.7 [‡] 2	33 [‡] 8	1275.09	4 ⁺	E2	0.1039	
		861.9 1	100 17	694.16	6 ⁺	E0+M1+E2	0.010 4	
1572.41	5 ⁺	878.2 [‡] 2	35 [‡] 6	694.16	6 ⁺			
		1229.7 [‡] 2	100 [‡] 11	342.74	4 ⁺			
1597.83	4 ⁺	1255.1 [‡] 2	100 [‡] 9	342.74	4 ⁺	E0+M1+E2	0.0042 14	
		1491.9 [‡] 2	64 [‡] 11	105.90	2 ⁺	E2	0.00214	
1641.34	0 ⁺	521.2 2	100 22	1120.13	3 ⁻			
		1298.6 2	28 8	342.74	4 ⁺			
1656.29	7 ⁻	311.7 1	100 7	1344.62	5 ⁻	E2	0.0759	
		514.6 1	31.7 24	1141.50	8 ⁺			
1664.94	6 ⁺	962.1 1	46.3 24	694.16	6 ⁺	E1	0.00192	
		284.9 1	9.2 7	1380.14	4 ⁺	(E2)	0.0993	B(E2)(W.u.)=0.091 14
		970.7 1	60.5 22	694.16	6 ⁺	(M1+E2)	0.008 3	
		1322.4 1	100 3	342.74	4 ⁺	(E2)	0.00263	B(E2)(W.u.)=0.00046 7
1665.35	10 ⁺	523.6 1	100	1141.50	8 ⁺	E2	0.0187	
1703.67	4 ⁺	1009.4 2	32 4	694.16	6 ⁺	E2	0.00442	
		1361.0 2	73 10	342.74	4 ⁺	M1	0.00455	
		1597.8 2	100 9	105.90	2 ⁺			
1718.06	4 ⁺	481.5 2	100 15	1236.50	3 ⁺			
		607.7 2	47 10	1110.43	2 ⁺			
		635.7 2	65 15	1082.44	2 ⁺			
		1375.2 2	42 8	342.74	4 ⁺			
1728.40		683.8 2	100	1044.60	2 ⁻			
1738.70	7 ⁻	73.6 1	100 4	1664.94	6 ⁺	E1	0.816	B(E1)(W.u.)=2.95×10 ⁻⁵ 23
		393.7 1	7.7 8	1344.62	5 ⁻			
1764.10	(5 ⁻)	218.6 5	17 8	1545.2	(3 ⁻)			
		538.8 1	100 8	1225.24	4 ⁻			
1827.41	8 ⁻	88.3 1	100 4	1738.70	7 ⁻			
		318.8 1	14 1	1508.62	6 ⁻			
1835.39	7 ⁺	170.5 1	100	1664.94	6 ⁺	(M1,E2)	0.8 3	
1863.9	(4 ⁺)	1169.5 [‡] 5	57 [‡] 50	694.16	6 ⁺			
		1521.4 [‡] 10	57 [‡] 30	342.74	4 ⁺			
		1758.2 [‡] 6	100 [‡] 30	105.90	2 ⁺			
1875.7		137.0 5	100	1738.70	7 ⁻			
1888.42	(8 ⁻)	379.8 1	100	1508.62	6 ⁻	(E2)	0.0432	

Adopted Levels, Gammas (continued) $\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.#	$\alpha^@$
1915.80	8 ⁺	359.9 1	67 5	1555.96	6 ⁺		
		774.1 1	100 11	1141.50	8 ⁺	E0+M1+E2	0.013 6
1939.15		1596.4 2	100	342.74	4 ⁺		
1962.53		842.4 2	100	1120.13	3 ⁻		
1964.46	9 ⁻	136.9 1	100 7	1827.41	8 ⁻	(M1,E2)	1.6 4
		225.6 1	76 4	1738.70	7 ⁻	(E2)	0.207
		307.9 1	17 3	1656.29	7 ⁻		
		823.6 1	9 3	1141.50	8 ⁺		
1997.23		1654.1 2	100 14	342.74	4 ⁺		
		1891.7 2	30 9	105.90	2 ⁺		
2023.38	8 ⁺	187.8 1	56 6	1835.39	7 ⁺		
		358.6 1	100 6	1664.94	6 ⁺		
2041.81	9 ⁻	385.6 1	100 5	1656.29	7 ⁻	(E2)	0.0414
		900.1 1	36.6 24	1141.50	8 ⁺	(E1)	0.00217
2043.7		305.0 3	100	1738.70	7 ⁻		
2054.14	(7)	912.1 5	38 13	1141.50	8 ⁺		
		1360.0 1	100 13	694.16	6 ⁺		
2076.17	(7 ⁻)	312.0 1	100 10	1764.10	(5 ⁻)		
		1382.1 5	40 7	694.16	6 ⁺		
2078.27	8 ⁻	339.6 1	100	1738.70	7 ⁻		
2121.05		1778.3 2	100	342.74	4 ⁺		
2133.03	10 ⁻	168.3 1	46.4 21	1964.46	9 ⁻	(M1,E2)	0.8 3
		305.7 1	100 4	1827.41	8 ⁻	(E2)	0.0804
2136.05	8 ⁺	994.2 1	100 17	1141.50	8 ⁺		
		1442.4 5	67 17	694.16	6 ⁺		
2226.77	(9 ⁺)	203.5 1	35.7 24	2023.38	8 ⁺	(E2,M1)	0.46 18
		391.6 1	100 7	1835.39	7 ⁺	(E2)	0.0397
2239.4		363.7 3	100	1875.7			
2244.45	12 ⁺	578.9 1	100	1665.35	10 ⁺	(E2)	0.01472
2322.62	9 ⁻	245.0 5	25 8	2078.27	8 ⁻		
		358.4 1	88 13	1964.46	9 ⁻		
		494.9 1	100 13	1827.41	8 ⁻		
2327.51	11 ⁻	194.4 1	20.6 9	2133.03	10 ⁻	(M1,E2)	0.53 20
		363.1 1	100 4	1964.46	9 ⁻	(E2)	0.0489
2339.74	10 ⁺	423.8 1	44 6	1915.80	8 ⁺		
		674.7 1	100 6	1665.35	10 ⁺		
2347.93	(9)	293.8 1	55 7	2054.14	(7)		
		1206.4 1	100 9	1141.50	8 ⁺		
2355.82	10 ⁻	467.4 1	100	1888.42	(8 ⁻)	(E2)	0.0249
2444.42	10 ⁺	217.5 1	25 4	2226.77	(9 ⁺)		
		420.9 1	100 4	2023.38	8 ⁺		
2468.34	(9 ⁻)	392.1 1	100 8	2076.17	(7 ⁻)		

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments
2468.34	(9 ⁻)	1326.9 1	54 5	1141.50	8 ⁺			
2489.84	11 ⁻	447.9 1	100 3	2041.81	9 ⁻	(E2)	0.0278	
		824.6 1	26.5 21	1665.35	10 ⁺			
2546.07	12 ⁻	218.5 1	16.8 10	2327.51	11 ⁻	(E2,M1)	0.38 15	
		412.9 1	100 4	2133.03	10 ⁻	E2	0.0344	
2577.56	10 ⁻	254.9 1	89 11	2322.62	9 ⁻			
		444.1 5	22 11	2133.03	10 ⁻			
		612.9 1	100 22	1964.46	9 ⁻			
2671.79	11 ⁺	228.2 5	13.9 14	2444.42	10 ⁺			I_γ : 100 7 from $^{177}\text{Hf}(\alpha,3n\gamma)$.
		445.5 1	100 6	2226.77	(9 ⁺)			I_γ : 73 6 from $^{177}\text{Hf}(\alpha,3n\gamma)$.
2682.79	10 ⁺	546.4 1	0.9 2	2136.05	8 ⁺	E2	0.01689	
		1016.9 1	100 20	1665.35	10 ⁺			
		1541.9 1	60 10	1141.50	8 ⁺			
2718.14	(11)	370.2 1	100 7	2347.93	(9)			
		1052.8 1	67 7	1665.35	10 ⁺			
2784.30	13 ⁻	238.2 1	10.7 24	2546.07	12 ⁻			I_γ : 100 7 from $^{177}\text{Hf}(\alpha,3n\gamma)$.
		456.8 1	100 4	2327.51	11 ⁻	(E2)	0.0264	I_γ : 76 5 from $^{177}\text{Hf}(\alpha,3n\gamma)$.
2803.99	(12 ⁺)	464.3 1	35 6	2339.74	10 ⁺	E2	0.0253	
		559.3 1	100 9	2244.45	12 ⁺	M1(+E2)	0.029 14	
2841.97	11 ⁻	264.4 1	100	2577.56	10 ⁻			
2845.65	12 ⁺	1180.3 1	100	1665.35	10 ⁺			
2858.71	14 ⁺	614.2 1	100	2244.45	12 ⁺	E2	0.01282	
2901.42	12 ⁻	545.6 1	100	2355.82	10 ⁻	(E2)	0.01695	
2911.62	12 ⁺	466.9 1	67 13	2444.42	10 ⁺			
		572.0 1	100 22	2339.74	10 ⁺			
		1246.3 1	89 11	1665.35	10 ⁺			
2933.45	(11 ⁻)	465.1 1	100	2468.34	(9 ⁻)			
2994.86	13 ⁻	505.0 1	100 3	2489.84	11 ⁻			
		750.6 5	15 3	2244.45	12 ⁺			
3044.19	14 ⁻	260.0 1	8.9 25	2784.30	13 ⁻			
		498.1 1	100 4	2546.07	12 ⁻			
3053.81	11 ⁻	211.6 5	7.0 23	2841.97	11 ⁻			
		269.1 5	9 3	2784.30	13 ⁻			
		476.0 1	27.9 23	2577.56	10 ⁻			
		507.6 1	26 5	2546.07	12 ⁻			
		563.9 5	9.8 16	2489.84	11 ⁻			
		726.6 5	7.0 23	2327.51	11 ⁻			
		920.8 1	79 5	2133.03	10 ⁻	M1+E2	0.009 4	
		1012.1 5	5.6 14	2041.81	9 ⁻			
		1089.6 1	100 7	1964.46	9 ⁻	E2	0.00380	B(E2)(W.u.)>0.0011
		1388.5 5	9 5	1665.35	10 ⁺			

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments
3138.62	13 ⁺	227.9 5	8.3 17	2911.62	12 ⁺			
		466.7 1	100 8	2671.79	11 ⁺	(E2)	0.0250	
3144.1		1478.7 5	100	1665.35	10 ⁺			
3161.94	(13)	443.8 1	100	2718.14	(11)			
3209.25	14 ⁺	363.8 5	27 14	2845.65	12 ⁺			
		964.7 1	100 9	2244.45	12 ⁺			
3235.34	12 ⁺	181.4 1	100 4	3053.81	11 ⁻	D		
		389.5 5	2.9 6	2845.65	12 ⁺			
		430.8 1	6.8 11	2803.99	(12 ⁺)			
		552.3 1	12.8 23	2682.79	10 ⁺	E2	0.01646	B(E2)(W.u.)>0.015
		564.2 1	6.1 16	2671.79	11 ⁺			
		689.1 5	1.7 5	2546.07	12 ⁻			
		790.9 1	5.3 15	2444.42	10 ⁺			
		907.8 5	1.7 5	2327.51	11 ⁻			
		991.0 1	9.0 15	2244.45	12 ⁺	M1(+E2)	0.007 3	
		1570.6 1	12.0 15	1664.94	6 ⁺			
3282.20	(12 ⁻)	228.4 1	100	3053.81	11 ⁻			
3301.2		2957.6 [‡] 5	100 [‡] 22	342.74	4 ⁺			
		3196.0 [‡] 5	30 [‡] 9	105.90	2 ⁺			
3317.40	15 ⁻	273.3 1	7.9 20	3044.19	14 ⁻			
		533.0 1	100 4	2784.30	13 ⁻	(E2)	0.0179	
3318.73	(14 ⁺)	459.9 1	100 9	2858.71	14 ⁺	M1(+E2)	0.048 23	
		515.0 1	100 9	2803.99	(12 ⁺)			
3368.9	(2 ⁺)	2247.8 [‡] 8	44 [‡] 16	1120.13	3 ⁻			
		2287.0 [‡] 6	67 [‡] 22	1082.44	2 ⁺			
		2324.6 [‡] 8	44 [‡] 22	1044.60	2 ⁻			
		3025.0 [‡] 5	100 [‡] 30	342.74	4 ⁺			
		3263.6 [‡] 6	91 [‡] 31	105.90	2 ⁺			
		3369.5 [‡] 6	36 [‡] 11	0.0	0 ⁺			
3383.3		3277.4 [‡] 6	100 [‡] 36	105.90	2 ⁺			
		3383.3 [‡] 6	33 [‡] 10	0.0	0 ⁺			
3385.35	(13 ⁺)	103.4 5	75 15	3282.20	(12 ⁻)			
		150.2 5	100 15	3235.34	12 ⁺			
3420.39	14 ⁺	508.6 1	95 10	2911.62	12 ⁺			
		616.5 1	100 10	2803.99	(12 ⁺)			
		1176.0 1	50 5	2244.45	12 ⁺			
3455.57	(13 ⁻)	522.1 1	100	2933.45	(11 ⁻)			
3459.75	(13 ⁻)	526.3 1	100	2933.45	(11 ⁻)			
3488.42	16 ⁺	629.6 1	100	2858.71	14 ⁺	E2	0.01211	

Adopted Levels, Gammas (continued)

							$\gamma(^{178}\text{W})$ (continued)		
$E_i(\text{level})$	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. #	$\alpha^@$	Comments	
3499.3		3156.8 [±] 5	100 [±] 33	342.74	4 ⁺				
		3392.9 [±] 6	30 [±] 10	105.90	2 ⁺				
3505.8		3399.4 [±] 6	100 [±] 26	105.90	2 ⁺				
		3506.7 [±] 8	12 [±] 6	0.0	0 ⁺				
3511.9	(2 ⁺)	2287.0 [±] 6	33 [±] 11	1225.24	4 ⁻				
		3168.6 [±] 5	100 [±] 22	342.74	4 ⁺				
		3406.1 [±] 6	53 [±] 13	105.90	2 ⁺				
		3512.0 [±] 8	11 [±] 3	0.0	0 ⁺				
3514.82	14 ⁻	613.4 1	100	2901.42	12 ⁻				
3515.0		3172.2 [±] 6	100 [±] 36	342.74	4 ⁺				
		3409.0 [±] 8	55 [±] 18	105.90	2 ⁺				
3525.53	(13 ⁻)	140.2 1	4.4 5	3385.35	(13 ⁺)				
		290.2 1	100 3	3235.34	12 ⁺	E1	0.0248	B(E1)(W.u.)>8.2×10 ⁻⁶ E _γ : From ¹⁶⁴ Dy(¹⁸ O,4n _γ), ¹⁷⁷ Hf(α,3n _γ).	
3550.9		2324.6 [±] 8	21 [±] 11	1225.24	4 ⁻				
		2468.0 [±] 20	21 [±] 11	1082.44	2 ⁺				
		3208.5 [±] 5	78 [±] 21	342.74	4 ⁺				
		3445.2 [±] 6	100 [±] 11	105.90	2 ⁺				
3558.28	15 ⁻	563.4 1	100 3	2994.86	13 ⁻				
		699.9 5	10 3	2858.71	14 ⁺				
3580.2		3237.6 [±] 6	100 [±] 32	342.74	4 ⁺				
		3474.0 [±] 8	32 [±] 10	105.90	2 ⁺				
3585.5		3242.9 [±] 6	100 [±] 36	342.74	4 ⁺				
		3479.3 [±] 8	36 [±] 11	105.90	2 ⁺				
3593.63	14 ⁻	68.2 1	100	3525.53	(13 ⁻)	(M1)	2.47	B(M1)(W.u.)=0.0067 23	
3594.8		3251.6 [±] 5	100 [±] 34	342.74	4 ⁺				
		3489.9 [±] 8	20 [±] 5	105.90	2 ⁺				
3612.22	15 ⁺	473.5 1	100	3138.62	13 ⁺				
3612.91	16 ⁻	295.6 5	2.7 14	3317.40	15 ⁻				
		568.7 1	100 4	3044.19	14 ⁻				
3634.4		2036.5 [±] 8	100 [±] 33	1597.83	4 ⁺				
		3291.6 [±] 6	77 [±] 27	342.74	4 ⁺				
		3528.7 [±] 8	70 [±] 23	105.90	2 ⁺				
3654.93	15 ⁺	61.4 1	100	3593.63	14 ⁻	(E1)	0.265	B(E1)(W.u.)=2.43×10 ⁻⁵ 9	
3661.14	16 ⁺	451.8 1	27 5	3209.25	14 ⁺				

Adopted Levels, Gammas (continued)

$E_i(\text{level})$	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. #	$\gamma(^{178}\text{W})$ (continued)		Comments
							α @		
3661.14	16 ⁺	802.6 1	100 9	2858.71	14 ⁺				
3673.94	(15)	512.0 1	100	3161.94	(13)				
3686.63	(14 ⁺)	226.9 5	38 5	3459.75	(13 ⁻)				
		230.8 5	50 4	3455.57	(13 ⁻)				
		451.3 1	100 13	3235.34	12 ⁺				
3689.21	14 ⁻	163.6 1	100	3525.53	(13 ⁻)	M1	1.170		
3695.06		1450.6 1	100	2244.45	12 ⁺				
3706.2		3011.8 † 6	75 † 25	694.16	6 ⁺				
		3363.6 † 6	100 † 30	342.74	4 ⁺				
3807.0		3112.3 † 5	100 † 33	694.16	6 ⁺				
		3464.9 † 6	30 † 7	342.74	4 ⁺				
3810.5		3116.3 † 5	100 † 33	694.16	6 ⁺				
		3467.7 † 8	30 † 7	342.74	4 ⁺				
3837.0	(15 ⁺)	150.4 5	100	3686.63	(14 ⁺)				
3862.33	16 ⁺	207.4 1	100	3654.93	15 ⁺	M1	0.603		
3871.00	16 ⁺	382.5 1	41 5	3488.42	16 ⁺				
		552.4 1	100 12	3318.73	(14 ⁺)				
3876.03	(15 ⁻)	282.4 1	100	3593.63	14 ⁻				
3912.51	17 ⁻	595.1 1	100	3317.40	15 ⁻				
3930.62	15 ⁻	241.0 1	100 3	3689.21	14 ⁻				
		405.0 5	3.3 2	3525.53	(13 ⁻)				
4009.29	16 ⁺	588.9 1	100 6	3420.39	14 ⁺				
		1150.6 5	29 5	2858.71	14 ⁺				
4084.4	(16 ⁺)	247.4 1	100	3837.0	(15 ⁺)				
4100.17	18 ⁺	611.8 1	100	3488.42	16 ⁺	E2	0.01293		
4129.93	17 ⁺	267.5 1	100 5	3862.33	16 ⁺				
		475.1 5	7 4	3654.93	15 ⁺				
4157.92	17 ⁺	288.5 5	39 8	3871.00	16 ⁺				
		497.7 5	39 9	3661.14	16 ⁺				
		545.6 1	100 8	3612.22	15 ⁺				
4171.5	16 ⁻	656.7 5	100	3514.82	14 ⁻				
4182.98	17 ⁻	624.7 1	100	3558.28	15 ⁻				
4208.88	16 ⁻	277.9 1	100 4	3930.62	15 ⁻	M1	0.270	Mult.: A ₂ =-0.12 10, $\alpha(\text{K})_{\text{exp}}=0.244$ 15.	
		520.0 1	21 4	3689.21	14 ⁻	E2	0.0191	Mult.: $\alpha(\text{K})_{\text{exp}}=0.017$ 5.	
4238.21	18 ⁻	625.3 1	100	3612.91	16 ⁻	E2	0.01230	Mult.: A ₂ =+0.52 8.	
4238.94	(17)	565.0 1	100	3673.94	(15)				
4248.20	18 ⁺	587.1 1	50 4	3661.14	16 ⁺				
		759.7 1	100 7	3488.42	16 ⁺	E2	0.00798	Mult.: A ₂ =+0.24 20.	
4368.8	(17 ⁺)	284.4 1	100	4084.4	(16 ⁺)				
4429.73	18 ⁺	299.7 1	100 5	4129.93	17 ⁺	(M1,E2)	0.15 7	Mult.: A ₂ =+0.10 4, DCO=1.10 4.	

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments
4429.73	18 ⁺	567.5 1	16 3	3862.33	16 ⁺	(E2)	0.01543	Mult.: DCO=0.92 12.
4498.31	18 ⁺	398.4 5	1.9 5	4100.17	18 ⁺			
		627.3 1	100 13	3871.00	16 ⁺			
4516.28	17 ⁻	307.3 1	100 6	4208.88	16 ⁻			
		585.6 1	41 3	3930.62	15 ⁻			
4555.92	19 ⁻	643.4 1	100	3912.51	17 ⁻	(E2)	0.01152	Mult.: A ₂ =+0.42 12.
4663.39	18 ⁺	654.1 1	100	4009.29	16 ⁺			
4678.7	(18 ⁺)	309.9 1	100	4368.8	(17 ⁺)			
4711.83	(17 ⁺)	1057.0 1	100	3654.93	15 ⁺	E2	0.00403	$\alpha(\text{K})\text{exp}=0.0026$ 9.
4730.36	20 ⁺	630.2 1	100	4100.17	18 ⁺			
4753.63	19 ⁺	323.9 1	100 7	4429.73	18 ⁺	(M1,E2)	0.12 6	Mult.: DCO=1.15 4.
		623.7 1	21 3	4129.93	17 ⁺	(E2)	0.01237	Mult.: DCO=1.26 10.
4797.12	19 ⁺	639.2 1	100	4157.92	17 ⁺			
4833.7	(18 ⁻)	662.2 5	100	4171.5	16 ⁻			
4835.44	(19)	596.5 1	100	4238.94	(17)			
4863.88	19 ⁻	680.9 1	100	4182.98	17 ⁻			
4879.72	18 ⁻	168.0 1	23.5 20	4711.83	(17 ⁺)	(E1)	0.0978	B(E1)(W.u.)>1.9×10 ⁻⁶ Mult.: A ₂ =-0.67.
		363.3 1	100 8	4516.28	17 ⁻	M1	0.1310	B(M1)(W.u.)>8.1×10 ⁻⁵ Mult.: A ₂ =+0.28 4, $\alpha(\text{K})\text{exp}=0.094$ 9.
		670.9 1	39.2 20	4208.88	16 ⁻	E2	0.01048	B(E2)(W.u.)>0.0049 Mult.: $\alpha(\text{K})\text{exp}=0.0094$ 21.
		966 1	5.9 18	3912.51	17 ⁻			
		1266 1	3.9 16	3612.91	16 ⁻			
4905.71	20 ⁻	667.5 1	100	4238.21	18 ⁻			
4941.84	20 ⁺	693.6 1	100 8	4248.20	18 ⁺			
		841.7 1	42 4	4100.17	18 ⁺			
5006.7	(19 ⁺)	328.0 1	100 13	4678.7	(18 ⁺)			
		637.7 5	21 6	4368.8	(17 ⁺)			
5063.22	19 ⁻	183.5 1	100	4879.72	18 ⁻	(M1)	0.848	Mult.: A ₂ =-0.13 2.
5096.83	20 ⁺	343.1 1	100 18	4753.63	19 ⁺	(M1,E2)	0.11 5	Mult.: DCO=1.11 4.
		667.1 1	27 5	4429.73	18 ⁺	(E2)	0.01062	Mult.: DCO=1.10 11.
5188.31	20 ⁺	690.0 1	100	4498.31	18 ⁺			
5234.12	21 ⁻	678.2 1	100	4555.92	19 ⁻			
5269.84	20 ⁻	206.6 1	100	5063.22	19 ⁻	M1(+E2)	0.44 17	Mult.: A ₂ =+0.01 7.
5313.7	21 ⁻	43.8 1	100 11	5269.84	20 ⁻	(M1)	9.04 14	B(M1)(W.u.)=0.00039 7
		251.0 5	33 11	5063.22	19 ⁻			
5428.96	22 ⁺	698.6 1	100	4730.36	20 ⁺			
5455.74	21 ⁺	358.7 1	100 5	5096.83	20 ⁺			Mult.: DCO=1.16 5.
		702.2 1	55 10	4753.63	19 ⁺			Mult.: DCO=1.18 7.
5460.8	(21)	625.4 1	100	4835.44	(19)			

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments
5522.1	21 ⁻	252.2 1	100 5	5269.84	20 ⁻			Mult.: $A_2=+0.03$ 6.
		458.8 5	20 15	5063.22	19 ⁻			
5525.93	21 ⁺	728.8 1	100	4797.12	19 ⁺			
5537.6	(20 ⁻)	704& 1	100	4833.7	(18 ⁻)			
5577.5	(21 ⁻)	713.6 1	100	4863.88	19 ⁻			
5603.21	22 ⁻	697.5 1	100	4905.71	20 ⁻			
5627.1	22 ⁻	313.5 1	100	5313.7	21 ⁻			
5675.2	22 ⁻	361.5 1	100	5313.7	21 ⁻			
5688.75	22 ⁺	746.9 1	100 13	4941.84	20 ⁺			
		958.6 5	12.5 25	4730.36	20 ⁺			
5814.2	22 ⁻	292.1 1	100 6	5522.1	21 ⁻			
		544.9 5	28 7	5269.84	20 ⁻			
5827.22	22 ⁺	371.3 1	100 7	5455.74	21 ⁺			Mult.: DCO=1.28 6.
		730.5 1	53 7	5096.83	20 ⁺			Mult.: DCO=1.14 7.
5906.61	22 ⁺	718.3 1	100	5188.31	20 ⁺			
5939.9	23 ⁻	705.8 1	100	5234.12	21 ⁻			
6000.6	23 ⁻	325.3 1	30.4 22	5675.2	22 ⁻			
		373.3 1	100 4	5627.1	22 ⁻			
		686.8 5	10.9 22	5313.7	21 ⁻			
6052.9	23 ⁻	377.7 1	100	5675.2	22 ⁻			
6136.8	(23)	676.0 1	100	5460.8	(21)			
6140.0	23 ⁻	325.8 1	100 8	5814.2	22 ⁻			
		617.9 5	41 7	5522.1	21 ⁻			
6194.47	24 ⁺	765.5 1	100	5428.96	22 ⁺			
6207.8	23 ⁺	380.5 1	100 11	5827.22	22 ⁺			
		752.1 1	89 11	5455.74	21 ⁺			Mult.: DCO=1.16 8.
6299.4	(23 ⁻)	721.9 5	100	5577.5	(21 ⁻)			
6329.1	23 ⁺	803.2 5	100	5525.93	21 ⁺			
6332.7	24 ⁻	729.5 1	100	5603.21	22 ⁻			
6389.8	24 ⁻	336.9 1	13 6	6052.9	23 ⁻			
		389.1 1	100 6	6000.6	23 ⁻	M1+E2	0.07 4	Mult.: $A_2=+0.47$ 15, $\alpha(\text{K})\text{exp}=0.058$ 5.
		762.9 1	44 4	5627.1	22 ⁻	E2	0.00790	Mult.: $\alpha(\text{K})\text{exp}=0.0081$ 17.
6447.7	24 ⁻	394.8 5	100 20	6052.9	23 ⁻			
		772.4 5	50 25	5675.2	22 ⁻			
6483.85	24 ⁺	795.1 1	100	5688.75	22 ⁺			
6494.4	24 ⁻	354.3 1	100 10	6140.0	23 ⁻			
		680.7 5	30 10	5814.2	22 ⁻			
6572.7	25 ⁺	182.9 1	100 3	6389.8	24 ⁻	(E1)	0.0787	B(E1)(W.u.)= 1.44×10^{-7} 9 Mult.: $A_2=-0.13$ 2.
		572& 1	<1.0	6000.6	23 ⁻			
		946 1	1.7 7	5627.1	22 ⁻	(E3)	0.01144	B(E3)(W.u.)=0.07 3

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.#	$\alpha^@$	Comments
6593.8	24 ⁺	386.0 1	100 13	6207.8	23 ⁺			
		767.0 5	63 10	5827.22	22 ⁺			Mult.: DCO=1.18 10.
6685.3	25 ⁻	745.4 1	100	5939.9	23 ⁻			
6795.7	25 ⁻	405.8 1	100 15	6389.8	24 ⁻			
		795.4 5	67 17	6000.6	23 ⁻			
6859.1	25 ⁻	411.3 5	100 40	6447.7	24 ⁻			
		806.2 5	50 25	6052.9	23 ⁻			
6860.4	26 ⁺	287.7 1	100	6572.7	25 ⁺	M1	0.246	Mult.: A ₂ =-1.15 20, DCO=0.17 1.
6872.9	25 ⁻	378.5 1	100 9	6494.4	24 ⁻			
		734.1 5	38 13	6140.0	23 ⁻			
6886.5	(25)	749.7 1	100	6136.8	(23)			
6971.6	(25 ⁺)	377.4 5	100 20	6593.8	24 ⁺			
		763.9 5	80 20	6207.8	23 ⁺			Mult.: DCO=1.13 13.
6984.2	25 ⁺	390.4 5	100	6593.8	24 ⁺			
7006.0	25 ⁺	411.7 4	62 15	6593.8	24 ⁺			
		799.7 7	100 54	6207.8	23 ⁺			
7017.2	(26 ⁺)	822.7 1	100	6194.47	24 ⁺			
7113.2	26 ⁻	780.5 1	100	6332.7	24 ⁻			
7217.5	27 ⁺	357.0 1	100 6	6860.4	26 ⁺	M1	0.1373	Mult.: A ₂ =+0.04 20, DCO=1.05 3.
		645.0 5	23.5 24	6572.7	25 ⁺	E2	0.01146	Mult.: DCO=1.21 5.
7218.6	26 ⁻	422.6 5	100 20	6795.7	25 ⁻			
		828.8 5	100 25	6389.8	24 ⁻			
7272.4	26 ⁻	399.1 5	100 15	6872.9	25 ⁻			
		778.5 5	25 13	6494.4	24 ⁻			
7288.2	26 ⁻	429.1 5	33 20	6859.1	25 ⁻			
		840.5 5	100 33	6447.7	24 ⁻			
7330.2	26 ⁺	846.3 5	100	6483.85	24 ⁺			
7337.0	26 ⁺	365.5 1	100 4	6971.6	(25 ⁺)			Mult.: DCO=1.15 6.
		743.0 2	50 6	6593.8	24 ⁺			Mult.: DCO=0.83 13.
7392.2	26 ⁺	386.0 10	22 33	7006.0	25 ⁺			
		420.3 3	100 11	6971.6	(25 ⁺)			
		799.9 6	83 39	6593.8	24 ⁺			
7489.9	27 ⁻	804.6 1	100	6685.3	25 ⁻			
7611.7	28 ⁺	394.0 1	100 8	7217.5	27 ⁺	M1	0.1056	Mult.: A ₂ =+0.49 20, DCO=1.52 6.
		751.3 1	75 8	6860.4	26 ⁺	E2	0.00817	Mult.: DCO=1.53 17.
7657.6	27 ⁻	438.7 5	33 17	7218.6	26 ⁻			
		862.2 5	100 33	6795.7	25 ⁻			
7690.1	27 ⁻	417.8 5	100 25	7272.4	26 ⁻			
		817.0 5	<50	6872.9	25 ⁻			
7709.4	27 ⁺	373.0 1	100 12	7337.0	26 ⁺			Mult.: DCO=1.15 8.
		737.5 2	69 8	6971.6	(25 ⁺)			

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^@$	Comments	
7719.3	(27)	833.3 & 5	100	6886.5	(25)				
7732.2	27 ⁻	444		7288.2	26 ⁻				
		873		6859.1	25 ⁻				
7798.8	27 ⁺	406.6 2	100	7392.2	26 ⁺				
		793.1 14		7006.0	25 ⁺				
7897.5	(28 ⁺)	880.3 5	100	7017.2	(26 ⁺)				
7961.9	(28 ⁻)	848.7 1	100	7113.2	26 ⁻				
8034.6	29 ⁺	423.1 5	100 15	7611.7	28 ⁺	M1	0.0875	Mult.: $A_2=+0.42$ 26, DCO=2.16 16.	
		817.8 5	100 20	7217.5	27 ⁺	E2	0.00681	Mult.: DCO=1.03 14.	
8096.4	28 ⁺	387.5 1	100 9	7709.4	27 ⁺				
		758.9 1	27 6	7337.0	26 ⁺				
8111.6	28 ⁻	454		7657.6	27 ⁻				
		893		7218.6	26 ⁻				
8122.1	28 ⁻	432		7690.1	27 ⁻				
		850		7272.4	26 ⁻				
8148.4	28 ⁽⁻⁾	930.9 1	100	7217.5	27 ⁺	E1	0.00204	B(E1)(W.u.)>5.3×10 ⁻⁸ Mult.: $A_2=-0.45$ 20, DCO=0.62 3.	
8189.1	28 ⁻	457		7732.2	27 ⁻				
		901		7288.2	26 ⁻				
8228.2	28 ⁺	427.0 & 2	43 14	7798.8	27 ⁺				
		836.0 4	100 21	7392.2	26 ⁺				
8365.3	(29 ⁻)	875.4 5	100	7489.9	27 ⁻				
8476.0	29 ⁽⁻⁾	327.5 5	100 33	8148.4	28 ⁽⁻⁾	M1	0.173	Mult.: DCO=0.20 5.	
		864.4 1	93 7	7611.7	28 ⁺	E1	0.00234	Mult.: DCO=0.68 13.	
8484.5	30 ⁺	450.0 5	33 17	8034.6	29 ⁺	M1	0.0744	Mult.: $A_2=+0.34$ 30.	
		872.6 5	100 33	7611.7	28 ⁺	E2	0.00595	Mult.: DCO=1.10 9.	
8499.7	29 ⁺	403.2 1	100 11	8096.4	28 ⁺				
		791.1 4	84 16	7709.4	27 ⁺				
8564.3	29 ⁻	442		8122.1	28 ⁻				
		874		7690.1	27 ⁻				
8578.6	29 ⁻	467		8111.6	28 ⁻				
		921		7657.6	27 ⁻				
8655.3	29 ⁻	466		8189.1	28 ⁻				
		923		7732.2	27 ⁻				
8665.6	29 ⁺	439.5 & 4	100	8228.2	28 ⁺				
8800.3	30 ⁺	324.4 1	100 6	8476.0	29 ⁽⁻⁾	E1	0.0190	B(E1)(W.u.)>4.6×10 ⁻⁶ Mult.: DCO=0.60 11.	
		765.8 1	27 3	8034.6	29 ⁺	M1	0.0189	B(M1)(W.u.)>9.8×10 ⁻⁶ Mult.: DCO=1.10 20.	
		1187.3 4	5.9 6	7611.7	28 ⁺	E2	0.00322	B(E2)(W.u.)>0.00018	

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult.#	$\alpha^@$	Comments
8897.3	30 ⁽⁻⁾	421.8 5	100	8476.0	29 ⁽⁻⁾	M1	0.0882	
		749		8148.4	28 ⁽⁻⁾	E2	0.00822	E_γ : see $^{170}\text{Er}(^{13}\text{C},5\text{n}\gamma)$.
8905.6	(29 ⁺)	757.2 2	100	8148.4	28 ⁽⁻⁾	(E1)	0.00302	$B(E1)(\text{W.u.}) > 4.9 \times 10^{-7}$ Mult.: DCO=0.75 24.
8919.5	30 ⁺	419.6 6		8499.7	29 ⁺			
		823.4 4		8096.4	28 ⁺			
8957.9	31 ⁺	474 1	<50	8484.5	30 ⁺	M1	0.0649	Mult.: $A_2 = +0.38$ 34.
		924 1	100 50	8034.6	29 ⁺	E2	0.00529	
9016.6	30 ⁻	452		8564.3	29 ⁻			
		895		8122.1	28 ⁻			
9051.6	30 ⁻	473		8578.6	29 ⁻			
		940		8111.6	28 ⁻			
9124.7	30 ⁻	469		8655.3	29 ⁻			
		936		8189.1	28 ⁻			
9342.7	(30 ⁺)	437.0 1	100	8905.6	(29 ⁺)	(M1)	0.0803	
9356.4	31 ⁺	436.9 2	50 9	8919.5	30 ⁺			
		856.7 2	100 9	8499.7	29 ⁺			
9359.5	(31 ⁺)	559.1 1	100	8800.3	30 ⁺	M1	0.0423	Mult.: DCO=1.07 17.
9360.9	31 ⁻	463.6 2	100 27	8897.3	30 ⁽⁻⁾	M1	0.0688	
		884.8 2	53 13	8476.0	29 ⁽⁻⁾	E2	0.00578	
9453.8	32 ⁺	494 1	<50	8957.9	31 ⁺	M1	0.0583	Mult.: DCO=1.12 5.
		968 1	<100	8484.5	30 ⁺			
9475.5	31 ⁻	459		9016.6	30 ⁻			
		911		8564.3	29 ⁻			
9532.6	31 ⁻	481		9051.6	30 ⁻			
		954		8578.6	29 ⁻			
9806.7	(31 ⁺)	464.0 1	100	9342.7	(30 ⁺)	(M1)	0.0686	
9810.6	32 ⁺	453.9 3	33 7	9356.4	31 ⁺			
		891.2 2	100 7	8919.5	30 ⁺			
9854.9	32 ⁻	493.7 8		9360.9	31 ⁻	M1	0.0584	
		957.6 2		8897.3	30 ⁽⁻⁾	E2	0.00492	
9931.9	(32 ⁺)	572.4 1	100 9	9359.5	(31 ⁺)	M1	0.0398	Mult.: DCO=0.48 10.
		1132.0 5	8.2 18	8800.3	30 ⁺	(E2)	0.00353	
9947.6	32 ⁻	472		9475.5	31 ⁻			
		931		9016.6	30 ⁻			
9971.9	33 ⁺	517.7 3	81 19	9453.8	32 ⁺	M1	0.0516	
		1014.1 1	100 13	8957.9	31 ⁺	E2	0.00438	
10280.3	33 ⁺	469.5 3	63 13	9810.6	32 ⁺			
		924.0 3	100 13	9356.4	31 ⁺			
10299.6	(32 ⁺)	492.9 1	100	9806.7	(31 ⁺)	(M1)	0.0586	
10378.8	33 ⁻	524.0 2		9854.9	32 ⁻	M1	0.0500	

Adopted Levels, Gammas (continued)

$\gamma(^{178}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. #	$\alpha^{\text{@}}$	Comments
10378.8	33 ⁻	1017.7 7		9360.9	31 ⁻	E2	0.00435	
10509.2	34 ⁺	536.9 3	29 12	9971.9	33 ⁺	M1	0.0469	
		1055.5 3	100 12	9453.8	32 ⁺	E2	0.00405	
10514.6	33 ⁻	982		9532.6	31 ⁻			
10525.9	(33 ⁺)	594.1 2	100 17	9931.9	(32 ⁺)	M1	0.0361	Mult.: DCO=1.11 5.
		1166.1 4	32 7	9359.5	(31 ⁺)	(E2)	0.00333	
10766.4	34 ⁺	486		10280.3	33 ⁺			
		956		9810.6	32 ⁺			
10916.4	34 ⁻	537.6 1		10378.8	33 ⁻	M1	0.0468	
		1060.5 7		9854.9	32 ⁻	E2	0.00401	
11066.0	35 ⁺	556.5 3		10509.2	34 ⁺	M1	0.0428	
		1095.5 7	100	9971.9	33 ⁺	E2	0.00376	Mult.: DCO=1.28 36.
11075.5	(34 ⁺)	549.6 1	100	10525.9	(33 ⁺)	(M1)	0.0442	B(M1)(W.u.)>0.00013
		1144		9931.9	(32 ⁺)			
11265.4	35 ⁺	499		10766.4	34 ⁺			
		985		10280.3	33 ⁺			
11697.2	(35 ⁺)	621.7 1	100	11075.5	(34 ⁺)	(M1)	0.0321	
11780.4	36 ⁺	515		11265.4	35 ⁺			
		1014		10766.4	34 ⁺			
12306.4	37 ⁺	1041		11265.4	35 ⁺			
12844.9	(38 ⁺)	1065&		11780.4	36 ⁺			
13393.8	(39 ⁺)	1088&		12306.4	37 ⁺			

† From $^{170}\text{Er}(^{13}\text{C},5n\gamma)$, unless otherwise stated.

‡ From ^{178}Re ϵ decay.

From γ -ray angular distribution coefficients in $^{170}\text{Er}(^{13}\text{C},5n\gamma)$, $^{177}\text{Hf}(\alpha,3n\gamma)$, and $^{181}\text{Ta}(p,4n\gamma)$; from conversion electron data in ^{178}Re ϵ decay and $^{181}\text{Ta}(p,4n\gamma)$; from γ -ray DCO ratios in $^{164}\text{Dy}(^{18}\text{O},4n\gamma)$ and $^{170}\text{Er}(^{13}\text{C},5n\gamma)$.

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

& Placement of transition in the level scheme is uncertain.

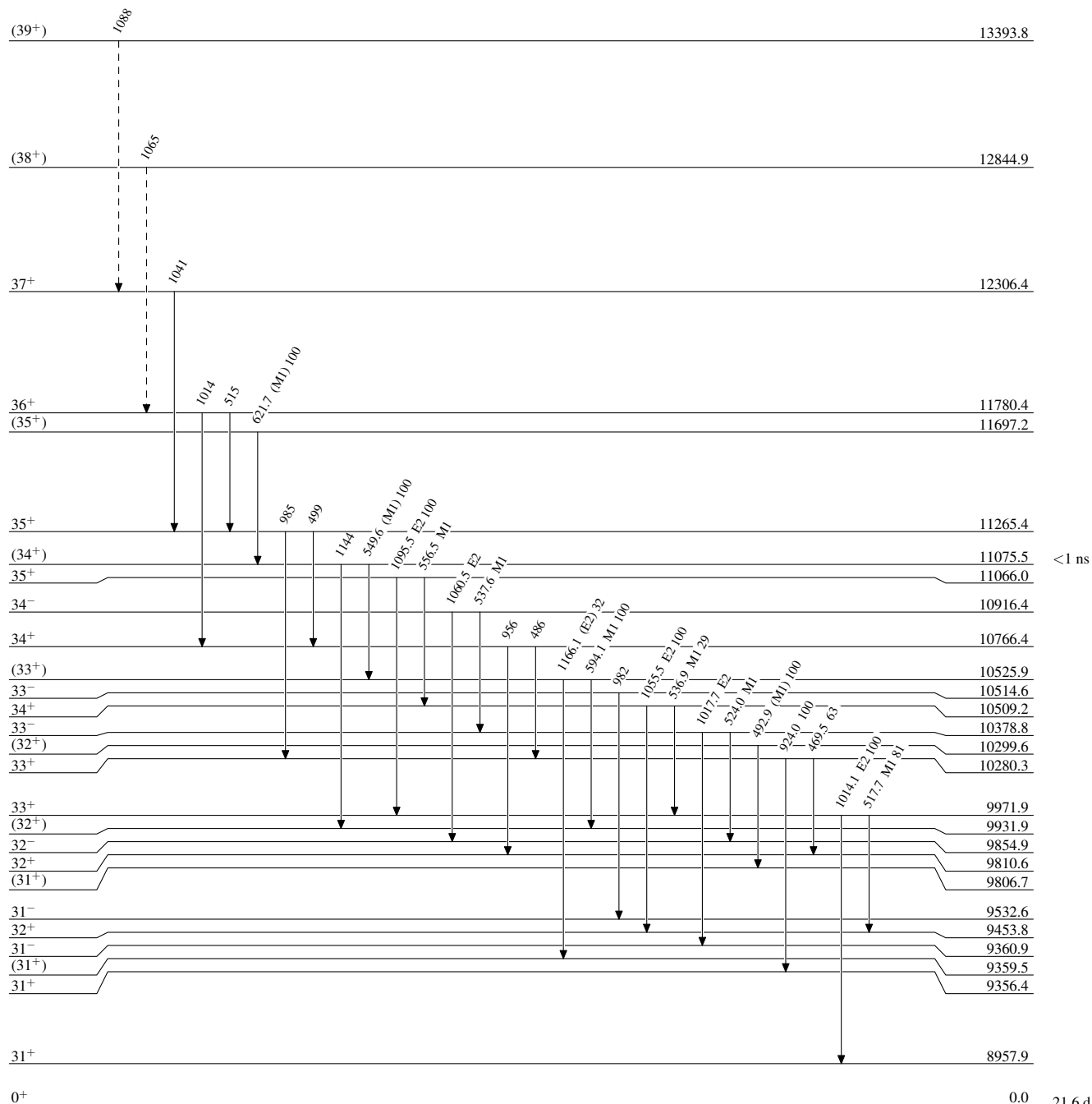
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

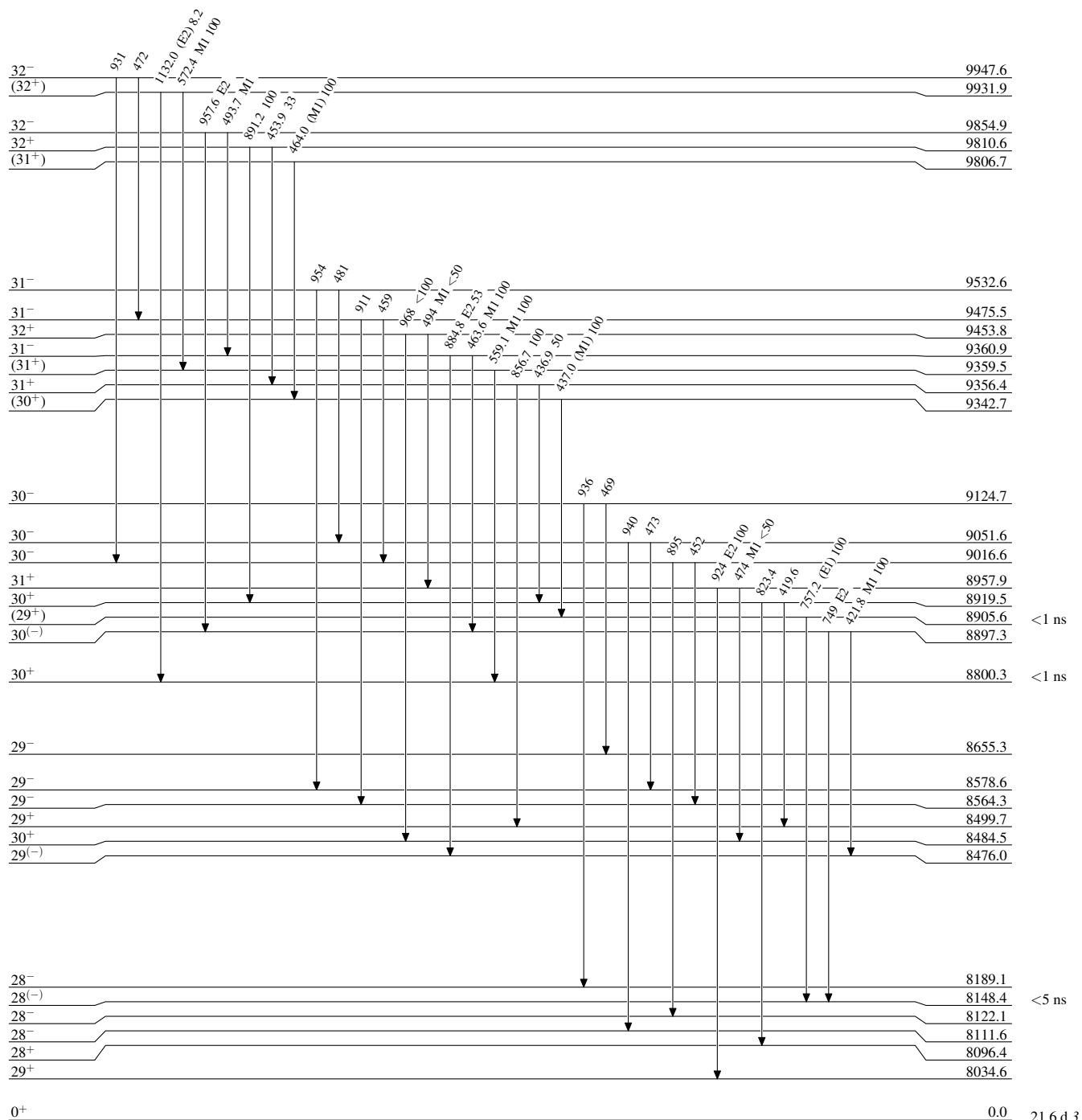
-----▶ γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



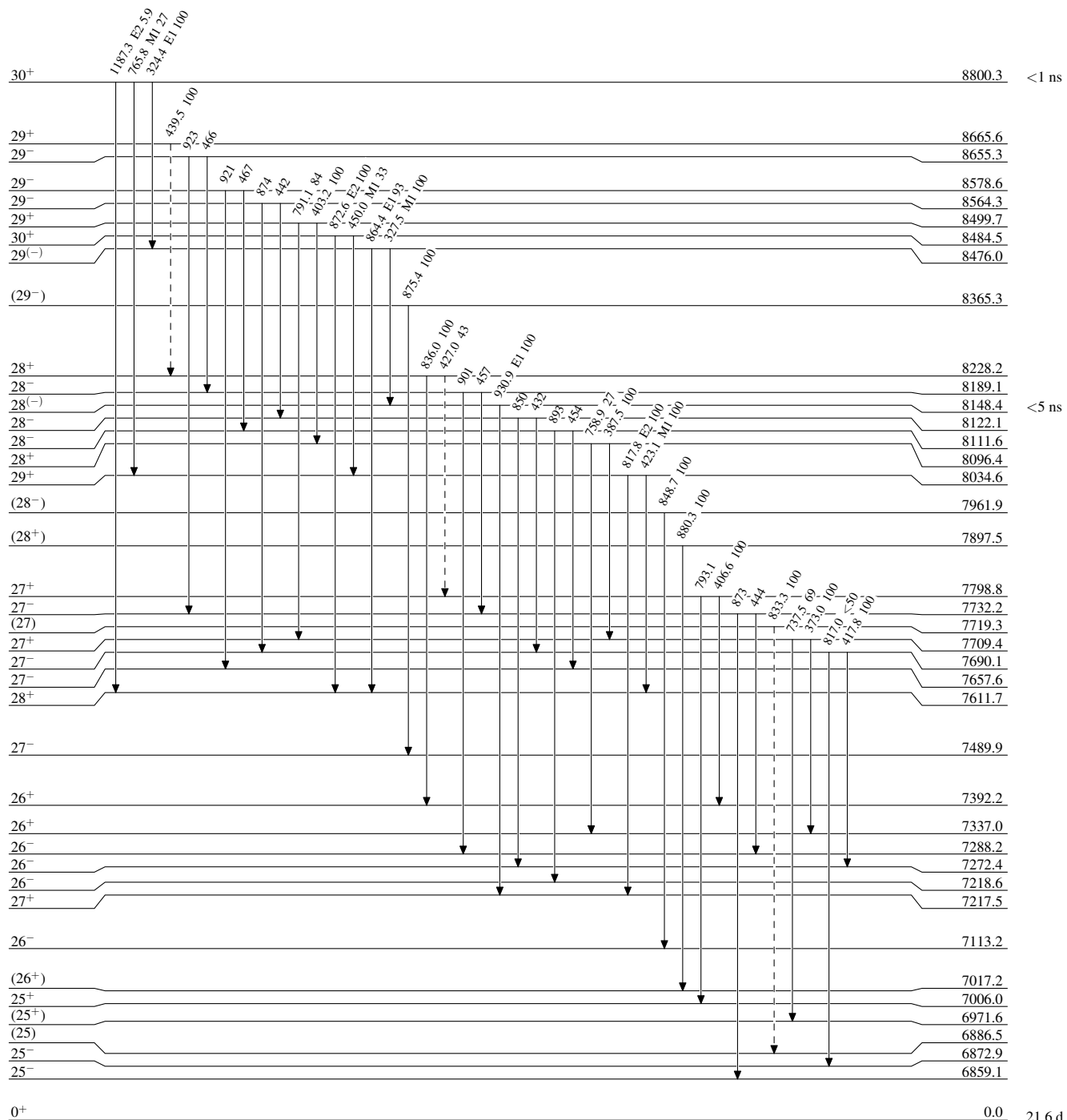
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)



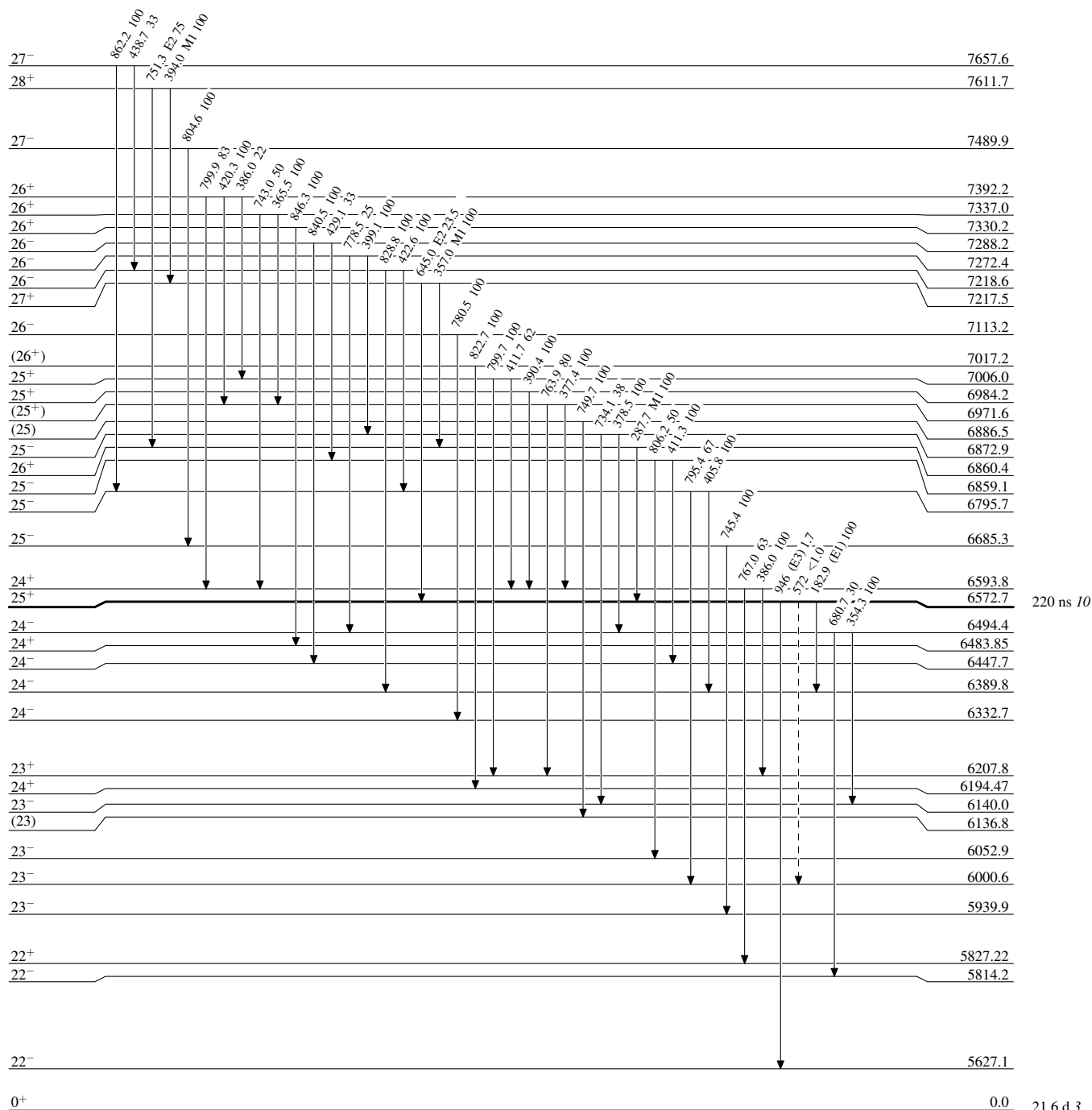
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

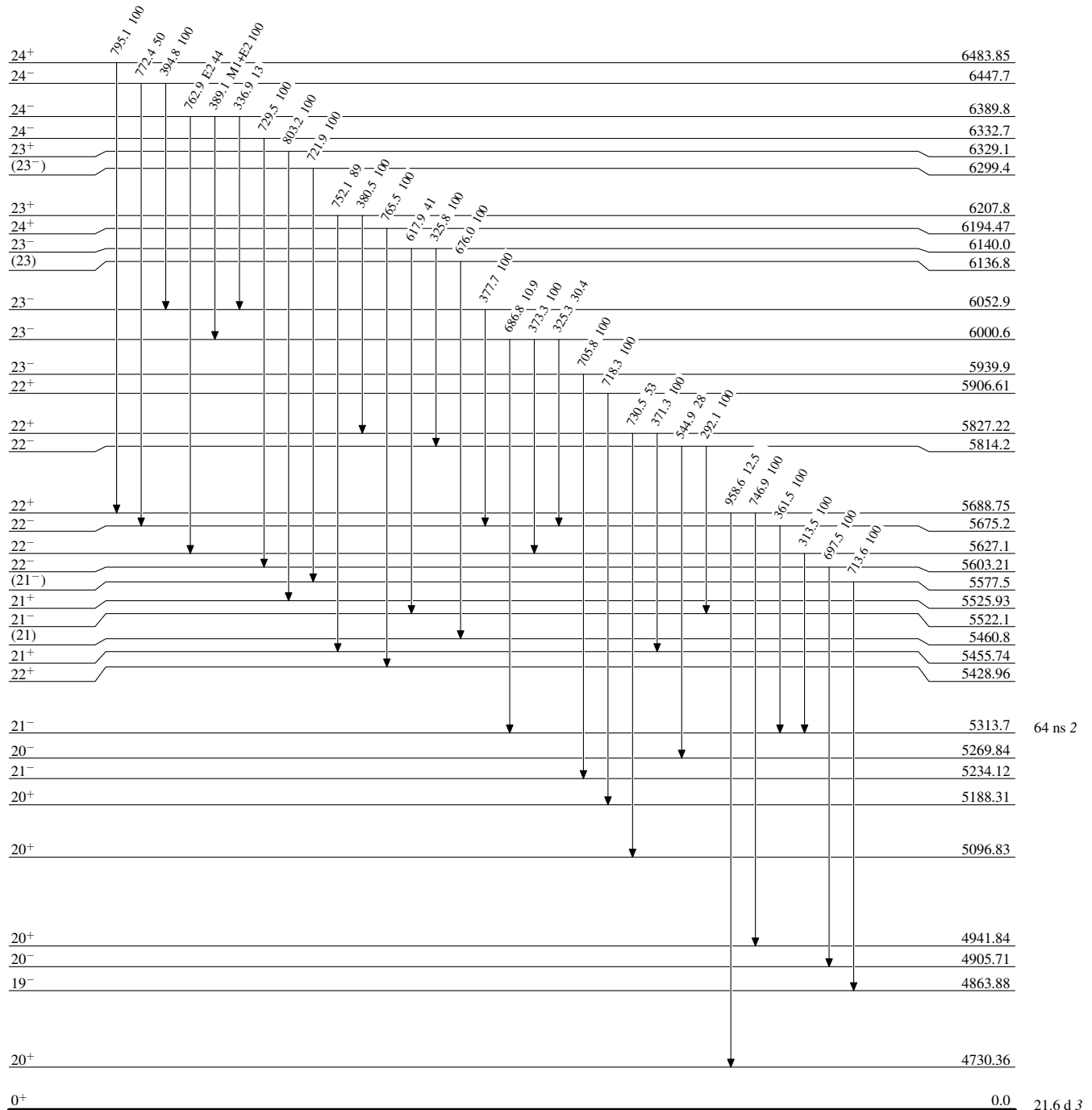
-----▶ γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



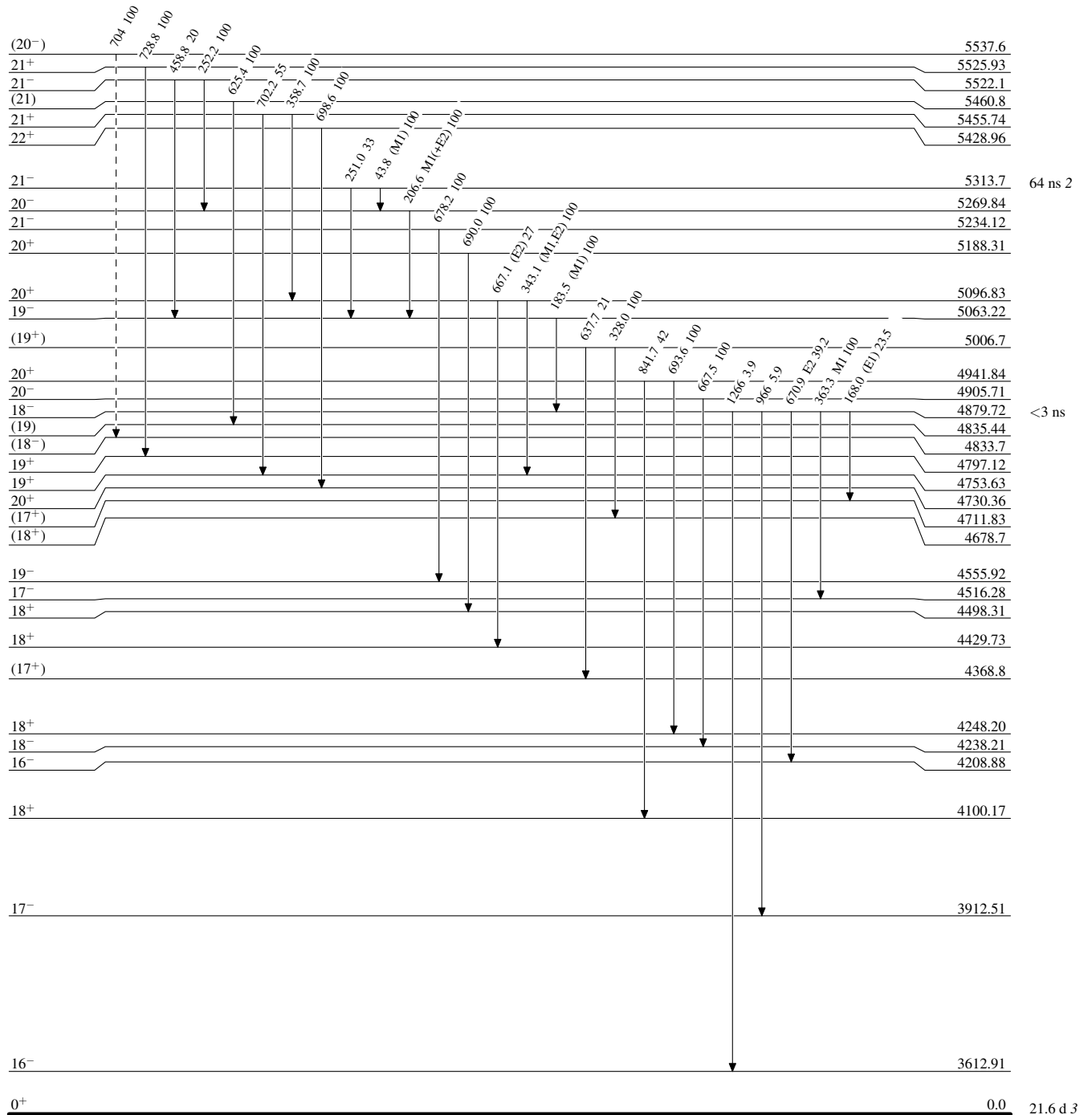
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

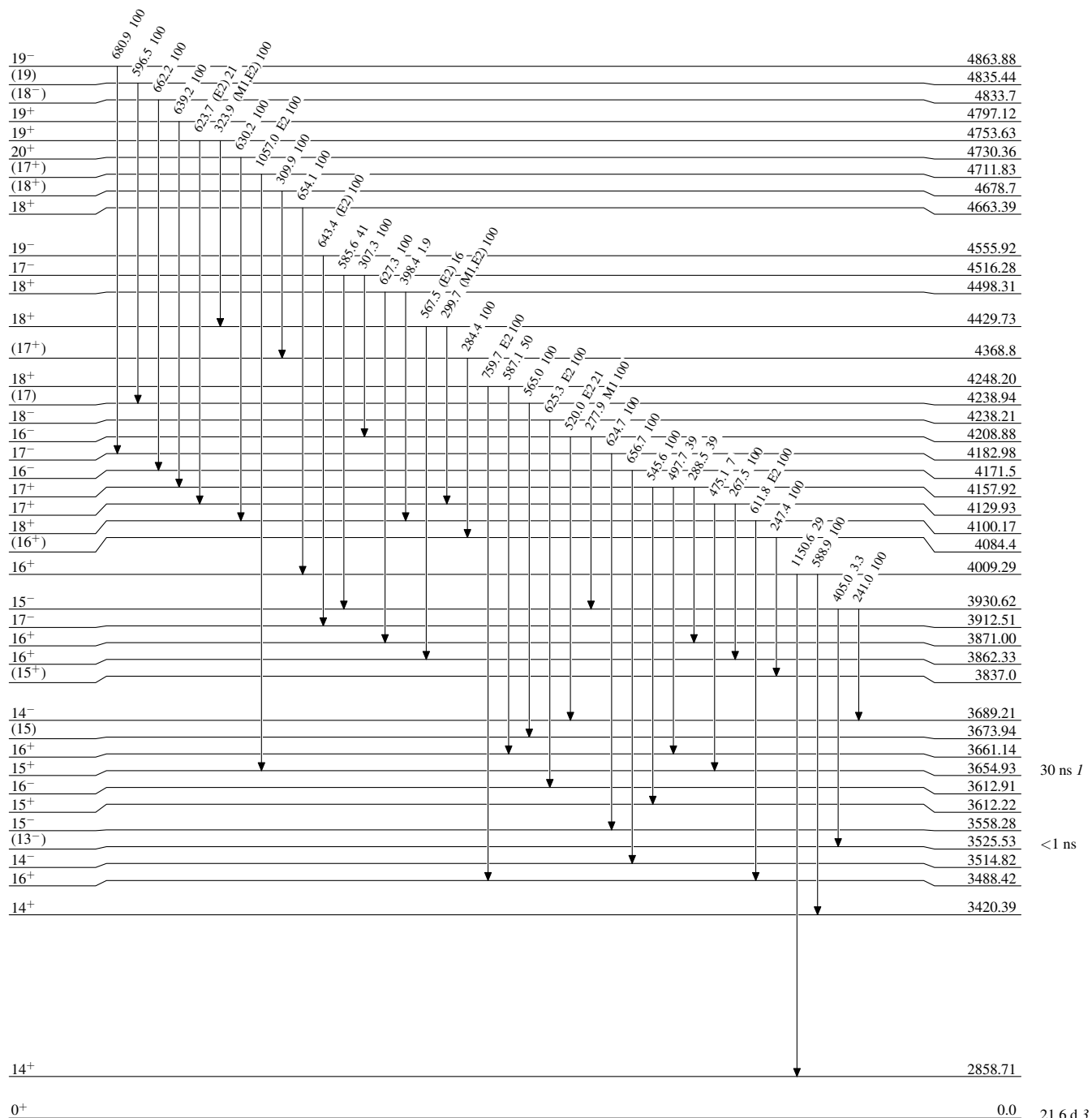
-----> γ Decay (Uncertain)



Adopted Levels, Gammas

Level Scheme (continued)

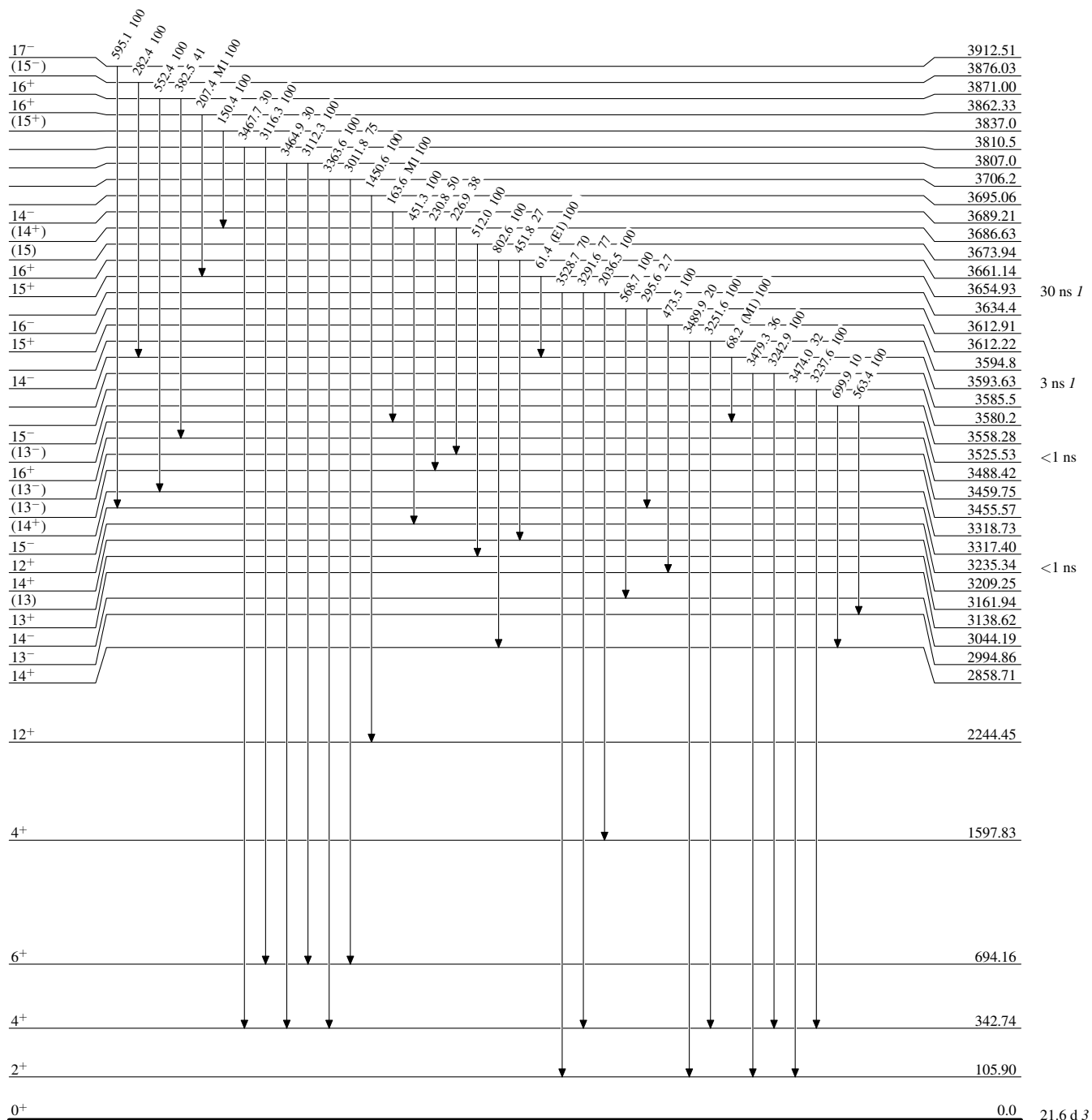
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

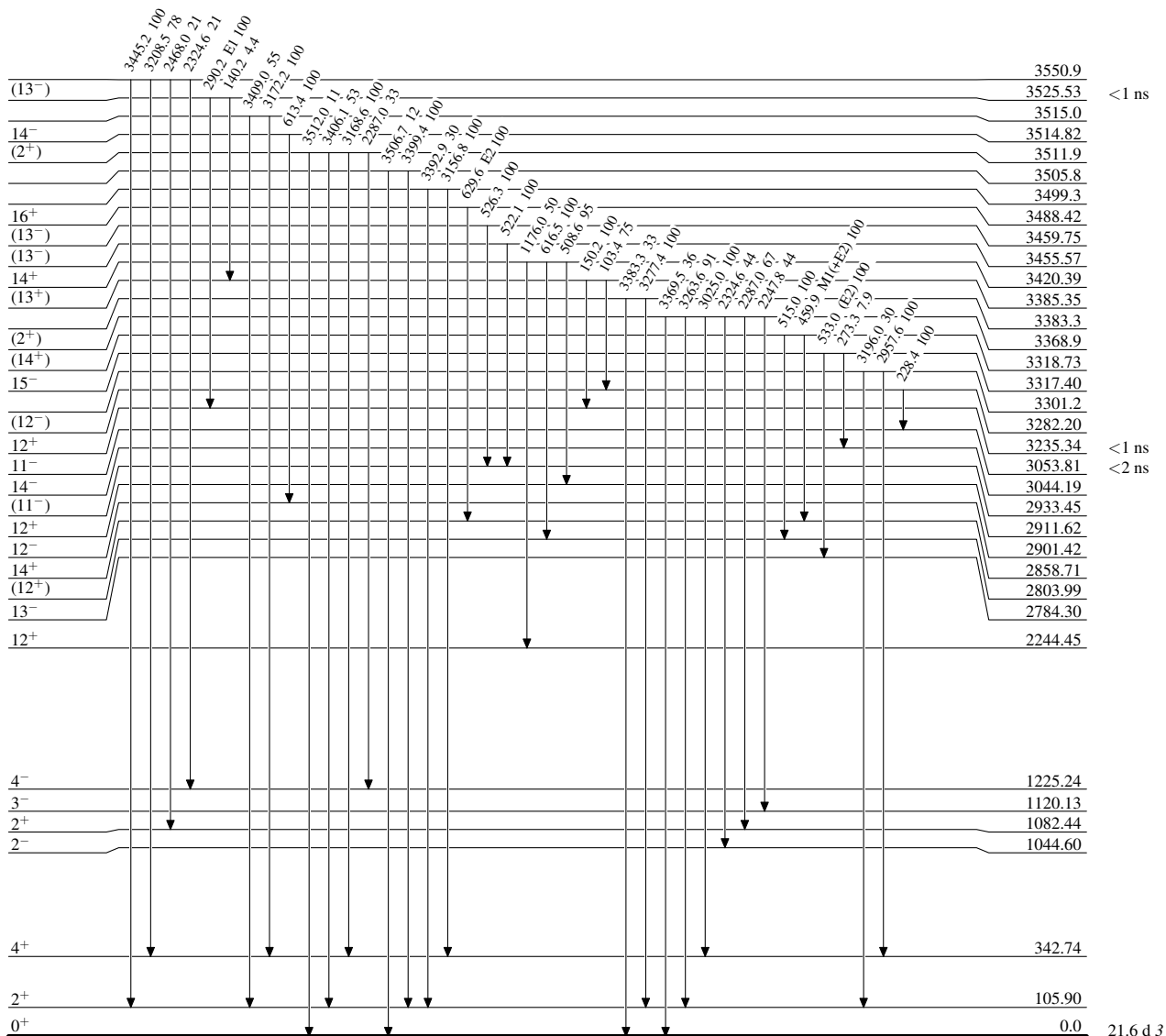
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

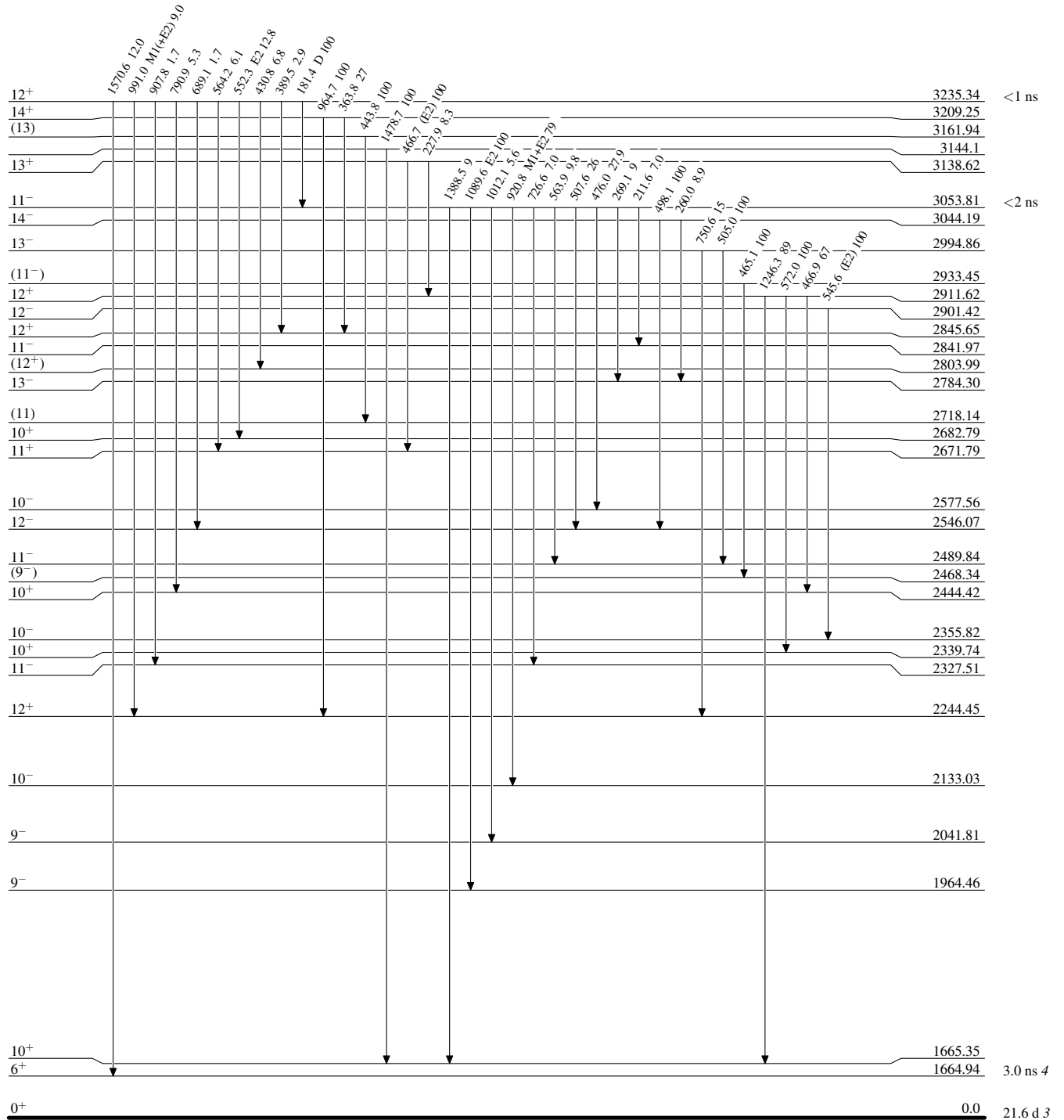


$^{178}_{74}\text{W}_{104}$

Adopted Levels, Gammas

Level Scheme (continued)

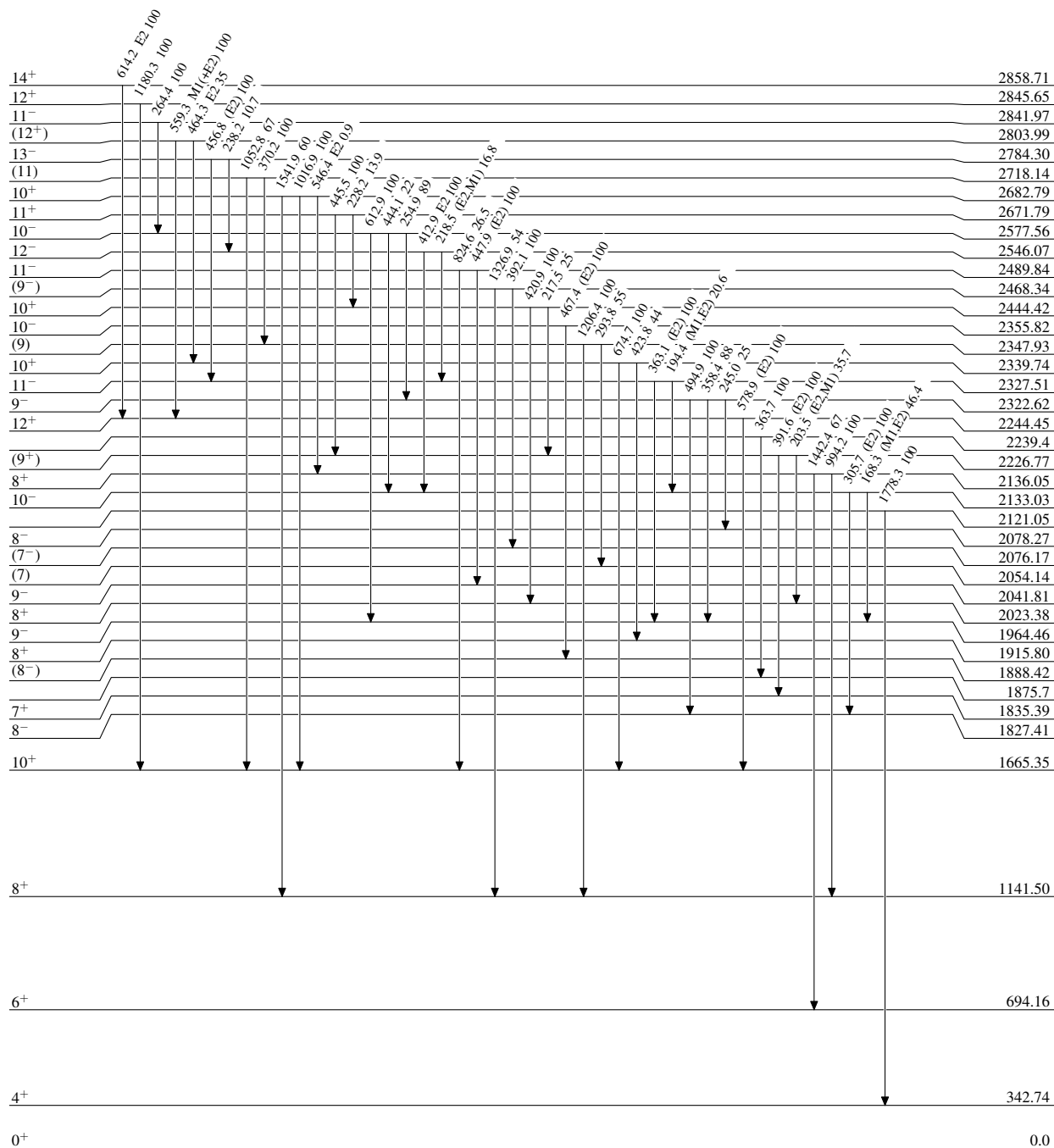
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

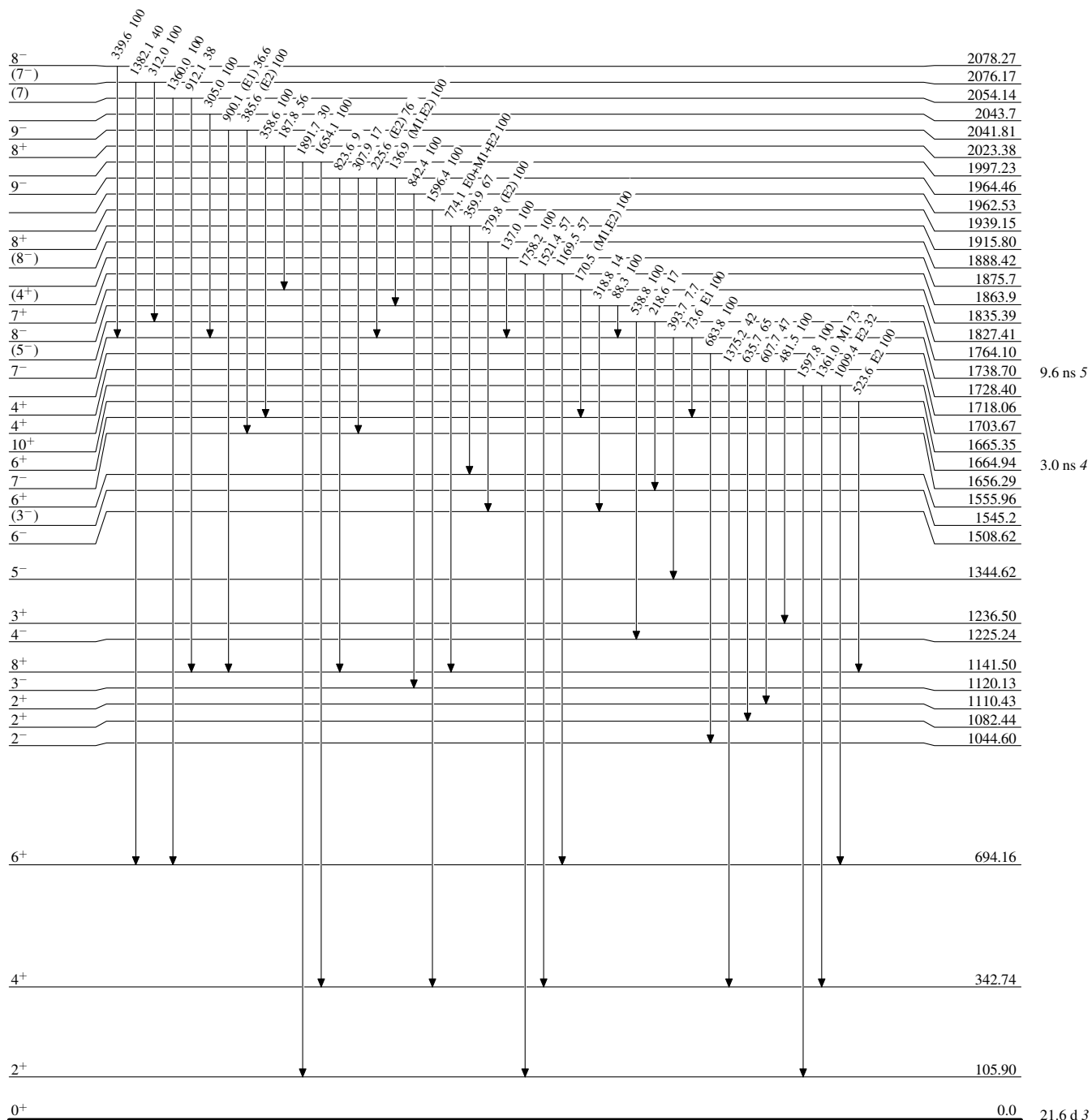
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

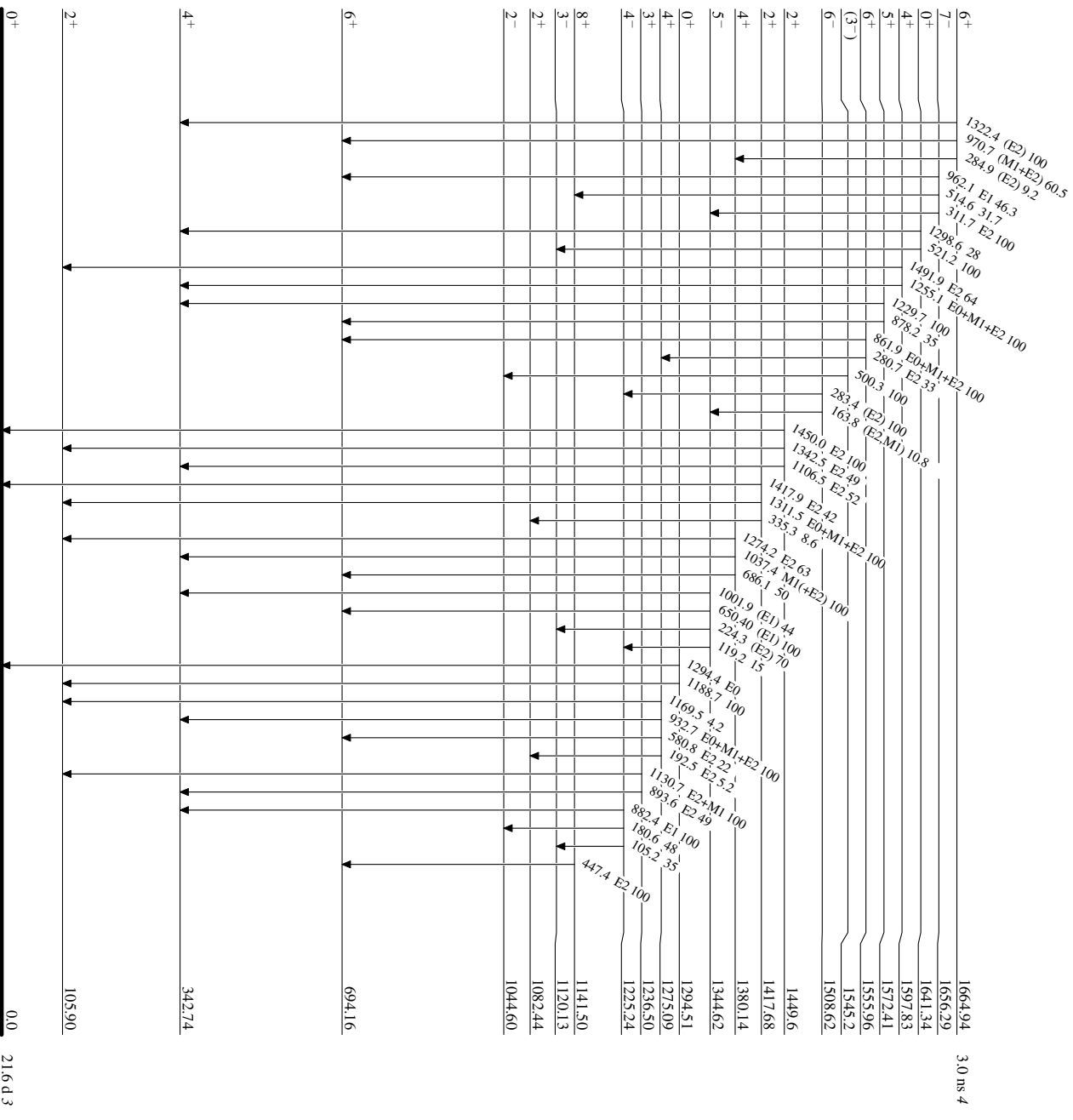
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

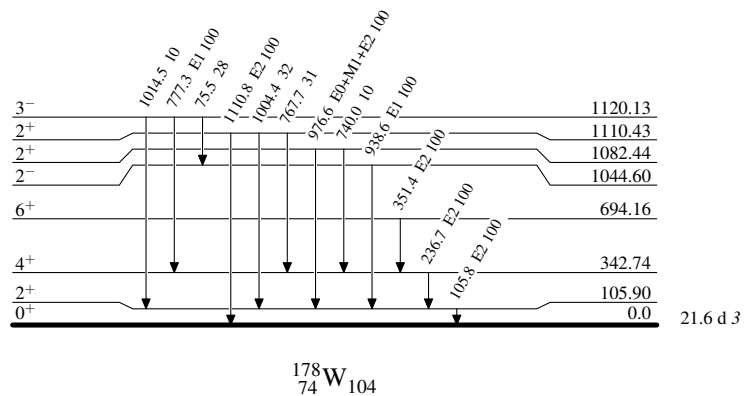


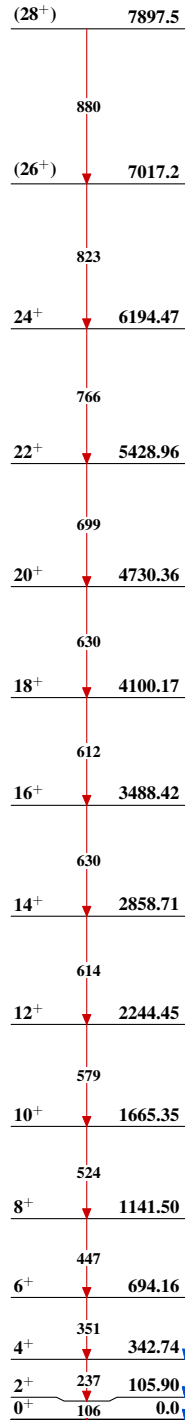
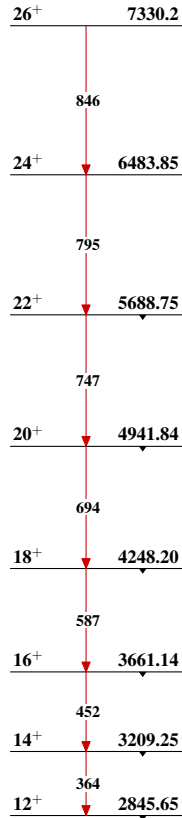
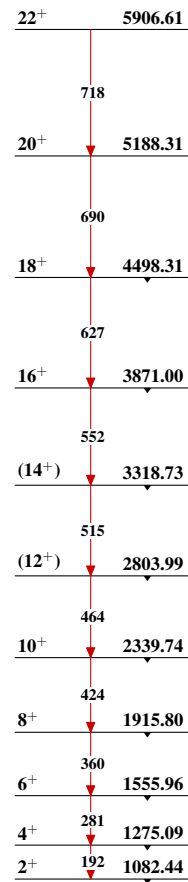
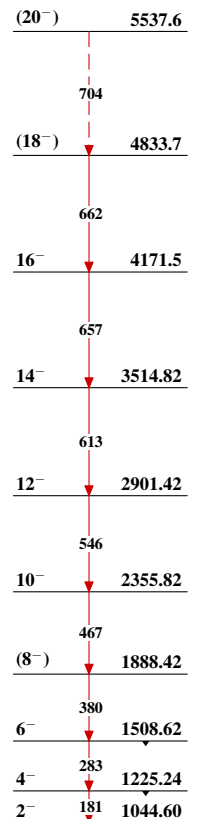
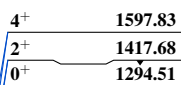
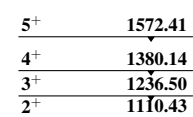
178 W
74 W 104

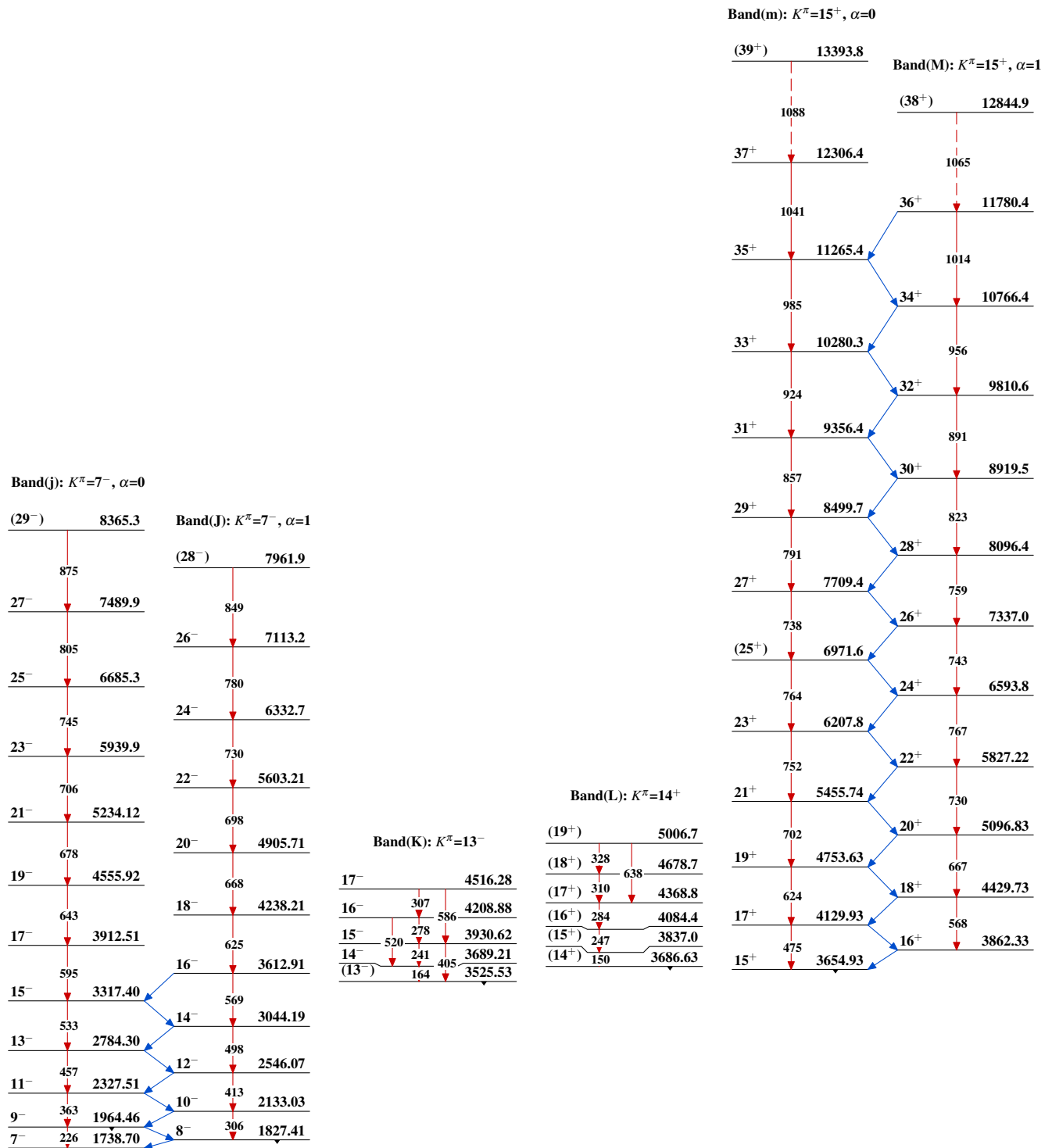
21643

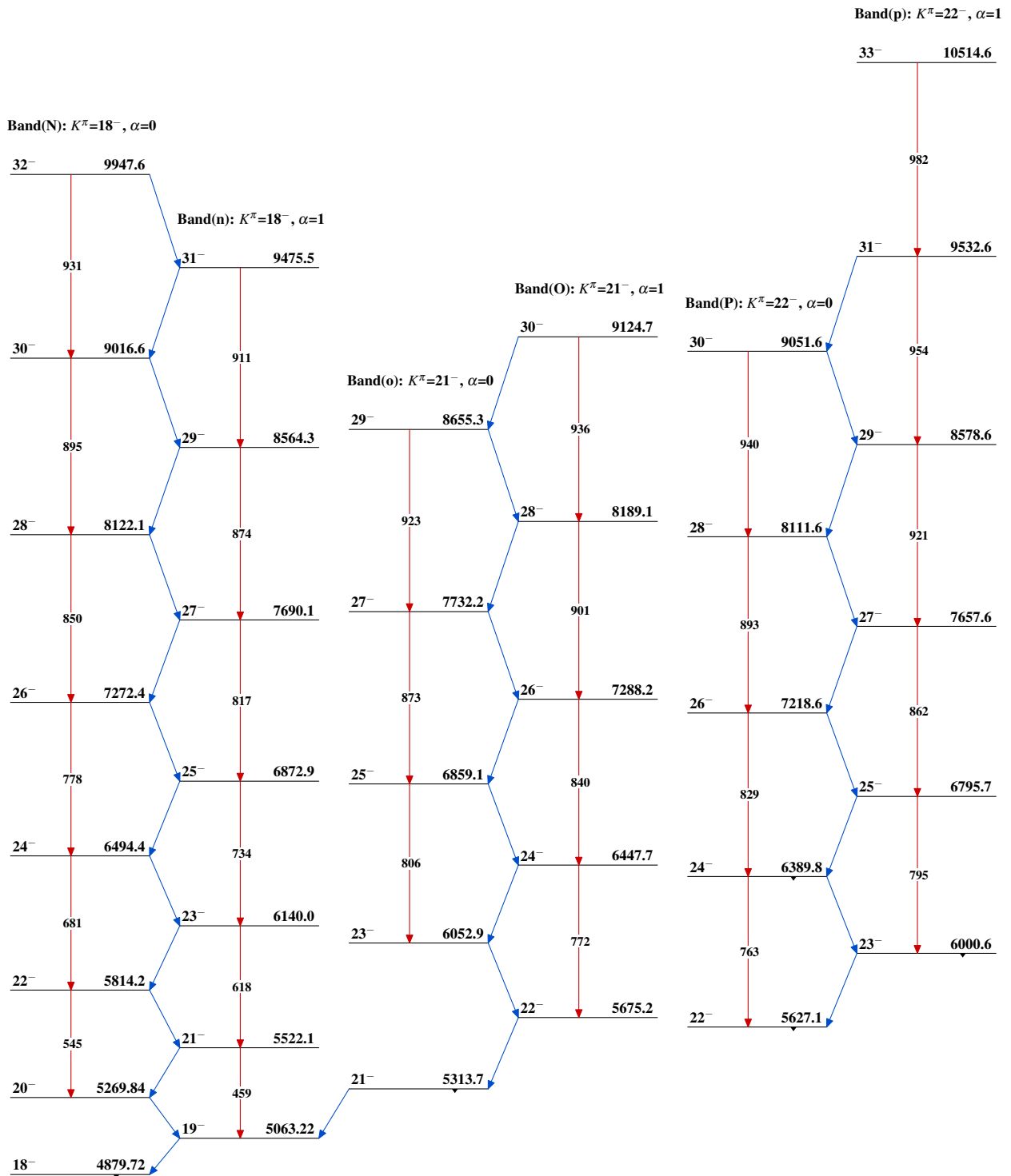
Adopted Levels, Gammas**Level Scheme (continued)**

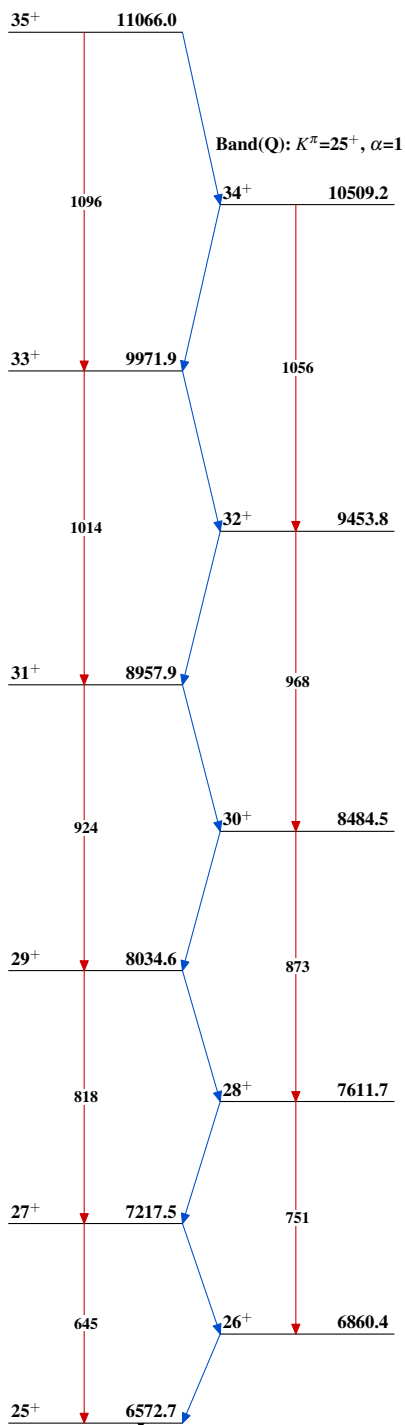
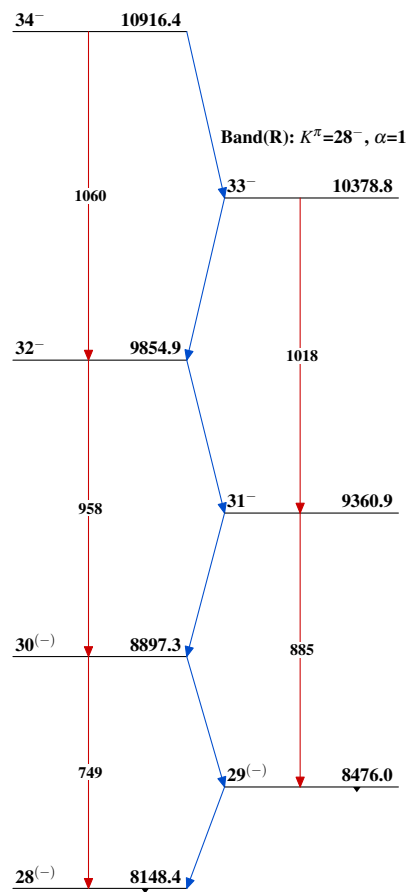
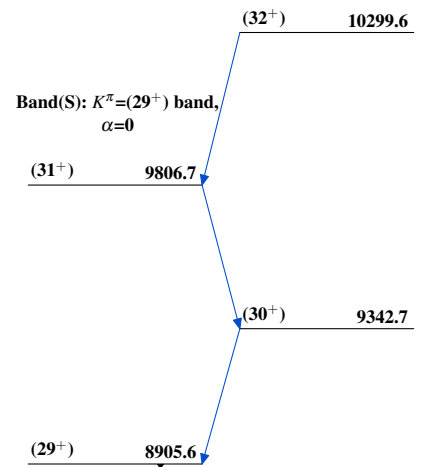
Intensities: Relative photon branching from each level

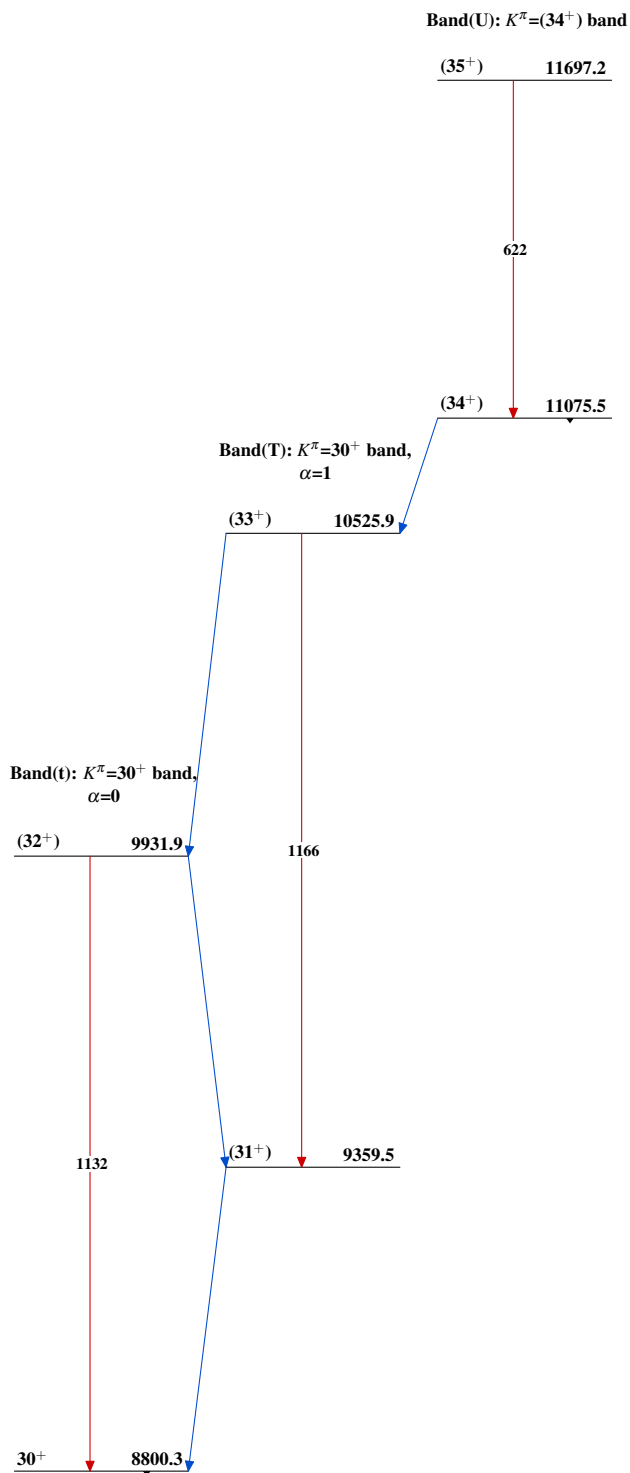


Adopted Levels, Gammas**Band(A): $K^\pi=0^+$, Yrast band****Band(B): $K^\pi=12^+$, Yrare band****Band(C): β -vibrational band****Band(E): $K^\pi=2^-$ band, $\alpha=0$** **Band(a): 2nd $K^\pi=0^+$ band****Band(D): γ -vibrational band**

Adopted Levels, Gammas (continued)

Adopted Levels, Gammas (continued) $^{178}_{74}\text{W}_{104}$

Adopted Levels, Gammas (continued)Band(q): $K^\pi=25^+$, $\alpha=0$ Band(r): $K^\pi=28^-$, $\alpha=0$ Band(s): $K^\pi=(29^+)$ band, $\alpha=1$ Band(S): $K^\pi=(29^+)$ band, $\alpha=0$ 

Adopted Levels, Gammas (continued) $^{178}_{74}\text{W}_{104}$