

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 106,367 (2005)	31-Aug-2005

Q(β^-)=-1732 14; S(n)=6686 5; S(p)=6606 5; Q(α)=2205 5 [2012Wa38](#)

Note: Current evaluation has used the following Q record -1743 13 6681 6 6607 5 2211 5 [2003Au03](#).

[Additional information 1.](#)

Other Reactions:

¹⁸⁰W(n, γ): [1987Ko37](#).

¹⁸¹Ta(e⁺,e⁺e⁻): [1986Er10](#).

¹⁸¹Ta(γ,π^-): [1985To14](#).

¹⁸¹Ta(p,n): [1994Ga49](#), [1990Zh02](#), [1988Sv02](#), [1988Sv01](#), [1988De26](#), [1987Ra23](#), [1986Ke17](#), [1984Zh09](#), [1984Zh02](#), [1984Ba05](#), [1983Ha33](#), [1982Bi04](#), [1980Fe05](#), [1980Ch32](#), [1980Bi15](#), [1979Pr10](#), [1979Bi08](#), [1979Ba68](#), [1977Bi10](#), [1976Ga17](#), [1975Ma29](#), [1973Ka27](#), [1973Gr13](#), [1972Bi06](#), [1971Gr25](#), [1971Cl10](#), [1968La09](#), [1966Kr10](#), [1966Bo23](#), [1962Ha13](#).

¹⁸¹Ta(d,2n):[1984Mu26](#),[1966Kr10](#).

¹⁸²W(γ,n):[1987Da29](#),[1975So08](#).

¹⁸²W(n,2n): [1975Qa01](#), [1969Wi28](#), [1969Wi26](#).

¹⁸²W(d,t): [1974Ca07](#).

¹⁸³W(p,t): [1973Oo01](#).

¹⁸¹W Levels

Cross Reference (XREF) Flags

A	¹⁸¹ Re ϵ decay (19.9 h)	D	¹⁸² W(d,t),(³ He, α), ¹⁸⁰ W(d,p)
B	¹⁷⁹ Hf(α ,2n γ), ¹⁸⁰ Hf(α ,3n γ)	E	¹³⁶ Xe(⁴⁸ Ca,3n γ)
C	¹⁸³ W(p,t)		

E(level) [†]	J $^\pi$	T _{1/2}	XREF	Comments
0.0 [‡]	9/2 ⁺	121.2 d 2	ABCD	% ϵ =100 J $^\pi$: L=4 in (d,p)+(d,t), M2 γ from 5/2 ⁻ . T _{1/2} : unweighted average of 120.95 d 2 (1973My02) and 121.53 d 9 (1972Em01). Other measurements: 1969GuZW , 1961Go38 .
113.40 [#] 14	11/2 ⁺		AB D	J $^\pi$: M1 γ to 9/2 ⁺ , E3 γ from 5/2 ⁻ .
250.72 [‡] 22	13/2 ⁺		AB D	J $^\pi$: L=6 in (³ He, α), rotational band member.
365.55 [@] 13	5/2 ⁻	14.59 μ s 15	ABCD	J $^\pi$: L=2 in (p,t), L=3 in (d,p)+(d,t). T _{1/2} : weighted average of 13 μ s 4 from delayed curve (2002Pf01); 14.6 μ s 2 from ¹⁸¹ Re ϵ decay $\gamma\gamma$ delayed curve (1994Si11 , 1985SiZX); 14 μ s 2 (1968Iv02); 16.0 μ s 20 from pulsed-beam delay activity (1967Co20); 14.7 μ s 5 from pulsed γ measurements in (γ ,n) (1958Du80); 14.4 μ s 3 (1957Bu39) and 16 μ s 1 (1956Ve03). Other measurements: 12.5 μ s 2 from $\gamma\gamma$ delayed measurement (1969FaZY) not included in the average because it deviates substantially from the other values with a small quoted error.
385.19 ^{&} 15	1/2 ⁻		A D	J $^\pi$: L=1 in (d,p)+(d,t), E2 to 5/2 ⁻ , rotational band member.
409.23 ^a 16	7/2 ⁻		ABCD	J $^\pi$: L=3 in (d,p)+(d,t), γ to 9/2 ⁺ .
414.3 [#] 4	15/2 ⁺		B	J $^\pi$: E2 to 11/2 ⁺ , rotational band member.
450.12 ^{&} 16	3/2 ⁻		A D	J $^\pi$: M1+E2 γ to 1/2 ⁻ , rotational band member.
457.84 ^c 18	1/2 ⁻		A CD	J $^\pi$: L=0 in (p,t).
475.60 [@] 14	7/2 ⁻		AB D	J $^\pi$: L=3 in (d,p)+(d,t), γ to 9/2 ⁺ .
488.43 ^{&} 17	5/2 ⁻		A CD	J $^\pi$: L=3 in (d,p)+(d,t), E2 γ to 1/2 ⁻ .
528.6 ^b 5	9/2 ⁻		B D	J $^\pi$: L \geq 5 from (d,p)+(d,t), rotational band member.
529.42 ^c 16	3/2 ⁻		A D	J $^\pi$: M1 γ to 1/2 ⁻ M1+E2 γ to 5/2 ⁻ .

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

¹⁸¹W Levels (continued)

E(level) [†]	J ^π	XREF	Comments
560.43 ^c 15	5/2 ⁻	A CD	J ^π : L=2 in (p,t), L=3 in (d,p)+(d,t).
599.4 [‡] 4	17/2 ⁺	B	J ^π : E2 to 13/2 ⁺ , rotational band member.
609.2 [@] 4	9/2 ⁻	BCD	J ^π : Q to 5/2 ⁻ , rotational band member.
643.03 ^{&} 16	7/2 ⁻	A D	J ^π : L=3, ≥5 in (d,p)+(d,t), rotational band member.
661.67 ^d 16	7/2 ⁻	AB D	J ^π : L=3 in (d,p)+(d,t), E1 to 9/2 ⁺ .
675.2 ^a 5	11/2 ⁻	B	J ^π : Q to 7/2 ⁻ , rotational band member.
715 ^c	(7/2 ⁻)	CD	J ^π : L=3 in (d,p)+(d,t). Predicted to occur at 727 keV by 3/2[512] band parameters derived from the lower members.
726.27 ^e 16	3/2 ⁻	A D	J ^π : L=1,3 in (d,p)+(d,t), M1+E2 γ to 5/2 ⁻ , rotational band assignment.
761.7 [@] 4	(11/2 ⁻)	B	J ^π : γ's to 7/2 ⁻ , 9/2 ⁻ , rotational band member, may be the ≈777-keV level seen in (d,p)+(d,t) with L≥5.
784 5		CD	J ^π : L≥5 from (d,t).
805.3 ^d 4	(9/2 ⁻)	B	J ^π : γ to 7/2 ⁻ , rotational band member.
807.51 ^e 16	5/2 ⁻	A CD	J ^π : M1 γ to 7/2 ⁻ , E1 γ from 3/2 ⁺ .
814.2 [#] 5	19/2 ⁺	B	J ^π : E2 to 15/2 ⁺ , rotational band member.
848.2 ^b 5	13/2 ⁻	B	J ^π : Q to 9/2 ⁻ , rotational band member.
937 ^e 6	(7/2 ⁻)	D	Probable rotational band member.
953.45 ^f 15	7/2 ⁺	AB	J ^π : M1 γ to 9/2 ⁺ , γ from 3/2 ⁺ .
975.3 ^d 6	(11/2 ⁻)	B	J ^π : rotational band member.
993.5 ^f 3	(9/2 ⁺)	A D	J ^π : M1 to 11/2 ⁺ , J>9/2 unlikely to be indirectly fed following ε feeding from 5/2 ⁺ parent. Population in (d,p)+(d,t) is consistent with lower spin.
1009.32 17	(5/2,7/2) ⁺	A D	J ^π : γ to 9/2 ⁺ , fed by γ from 3/2 ⁺ .
1039.0 [‡] 6	21/2 ⁺	B	J ^π : stretched E2 to 17/2 ⁺ , rotational band member.
1046.3 ^a 6	15/2 ⁻	B	J ^π : Q to 11/2 ⁻ , rotational band member.
1084		D	
1086.79 21	(7/2) ⁺	A C	J ^π : E2 γ to 9/2 ⁺ , γ to 11/2 ⁺ , M1 γ from (5/2 ⁺).
1124 ^f	(13/2 ⁺)	D	J ^π : probable L=6 in (³ He,α), probable rotational band member.
1188.33 18	3/2 ⁻	A	J ^π : M1+E2 γ's to 1/2 ⁻ , M1 γ's to 5/2 ⁻ .
1193 5	(5/2,7/2) ⁻	CD	J ^π : L=3 in (d,p)+(d,t).
1248.85 18	5/2 ⁻	A D	J ^π : M1 γ to 3/2 ⁻ , E2 γ to 7/2 ⁻ .
1262 5		C	
1268.2 ^b 6	17/2 ⁻	B	J ^π : γ's to 13/2 ⁻ , 15/2 ⁻ , rotational band member.
1271.98 18	5/2 ⁺	A	J ^π : M1 γ to 7/2 ⁺ , M1+E2 γ from 3/2 ⁺ , γ to 9/2 ⁺ .
1274	5/2 ⁻ , 7/2 ⁻	D	J ^π : L=3 in (d,p)+(d,t).
1310.2 [#] 6	23/2 ⁺	B	J ^π : Q to 19/2 ⁺ , rotational band member.
1318		D	
1329.89 25	5/2 ⁻ , 7/2 ⁻	A	J ^π : M1 γ's to 5/2 ⁻ , M1 γ's to 7/2 ⁻ .
1355.3 3	5/2 ⁻ , 7/2 ⁻	A D	J ^π : L=3 in (d,p)+(d,t).
1365.60 15	3/2 ⁺	A	J ^π : E1 to 5/2 ⁻ at 560, E1 to 1/2 ⁻ at 458.
1369	5/2 ⁻ , 7/2 ⁻	D	J ^π : L=3 in (d,p)+(d,t).
1377.75 22	3/2 ⁺ , 5/2 ⁺	A C	J ^π : E1 γ to 3/2 ⁻ , fed with log ft=6.7 from 5/2 ⁺ .
1422.8 3	5/2 ⁻ , 7/2 ⁻	A D	J ^π : L=3 in (d,p)+(d,t).
1440.55 19	5/2 ⁺ , 7/2 ⁺	A C	J ^π : M1 γ to 7/2 ⁺ , E1 γ to 5/2 ⁻ , E2 to 9/2 ⁺ .
1469.11 19	(5/2) ⁺	A	J ^π : E2 γ to 9/2 ⁺ , E1 γ to 5/2 ⁻ , γ to 3/2 ⁻ .
1498.14 20	7/2 ⁺	A	J ^π : E2 γ to 11/2 ⁺ , γ to 5/2 ⁻ .
1502		D	
1512.9 ^a 8	19/2 ⁻	B	J ^π : Q to 15/2 ⁻ , rotational band member.
1518 5		C	
1538.0 5	(7/2 ⁺)	A	J ^π : (M1) γ to 9/2 ⁺ , log ft=6.9 from 5/2 ⁺ .
1560.3 [‡] 6	25/2 ⁺	B E	J ^π : stretched E2 to 21/2 ⁺ , rotational band member.
1652		D	

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Adopted Levels, Gammas (continued) ^{181}W Levels (continued)

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
1653.1 6	21/2 ⁺	140 ns 20	B E	J ^π : γ to 17/2 ⁺ and 19/2 ⁺ . T _{1/2} : From 2002Pf01. Other: ≈110 ns from (α,2nγ)+(α,3nγ) (1973Li17).
1667 5			C	
1712 5			C	
1744.9 ^g 8	(23/2 ⁻)	≈50 ns	B E	J ^π : rotational band member. T _{1/2} : from (α,2nγ)+(α,3nγ) (1973Li17).
1777.2 ^b 8	21/2 ⁻		B	J ^π : rotational band member.
1864 5	1/2 ⁺		CD	J ^π : L=0 in (d,t)+(d,p); however, L=0 in (p,t) leads to π=-.
1892 5			C	
1899.3 [#] 7	27/2 ⁺		B	J ^π : stretched E2 γ to 23/2 ⁺ , rotational band member.
1945 5			C	
1994.9 ^h 11	(25/2 ⁻)		E	J ^π : rotational band member.
2015 5			C	
2034 5			C	
2061.6 9			B	
2067 5			C	
2155.8 [‡] 7	29/2 ⁺		B E	J ^π : rotational band member.
2270.9 ^g 11	(27/2 ⁻)		E	J ^π : rotational band member.
2569.9 ^h 12	(29/2 ⁻)		E	J ^π : rotational band member.
2577.4 [#] 9	31/2 ⁺		B	J ^π : rotational band member.
2823.9 [‡] 9	33/2 ⁺		B E	J ^π : rotational band member.
2890.9 ^g 13	(31/2 ⁻)		E	J ^π : rotational band member.
3231.9 ^h 14	(33/2 ⁻)		E	J ^π : rotational band member.
3564.9 [‡] 14	37/2 ⁺		E	J ^π : rotational band member.
3592.9 ^g 15	(35/2 ⁻)		E	J ^π : rotational band member.
3943.9 16	37/2	≈20 ns	E	T _{1/2} : From $^{136}\text{Xe}(^{48}\text{Ca},3n\gamma)$ (1992YeZW).
4374.0 [‡] 17	41/2 ⁺		E	J ^π : rotational band member.
5240.0 [‡] 20	45/2 ⁺		E	J ^π : rotational band member.
6140.0 [‡] 22	49/2 ⁺		E	J ^π : rotational band member.
7069.0 [‡] 24	53/2 ⁺		E	J ^π : rotational band member.
8021 [‡] 3	57/2 ⁺		E	J ^π : rotational band member.
8041 3	57/2	<3 ns	E	T _{1/2} : From $^{136}\text{Xe}(^{48}\text{Ca},3n\gamma)$ (1992YeZW).
8655 3			E	

[†] From least square fit to Eγ's by evaluator.

[‡] Band(A): 9/2(624), α=+1/2. A=10.5, B=3.7, fit to levels J=9/2⁺ to 21/2⁺.

[#] Band(a): 9/2(624), α=-1/2. A=10.6, B=3.4, fit to levels J=11/2⁺ to 23/2⁺.

[@] Band(B): 5/2(512). A=16.3, B=-51, fit to levels J=5/2⁻ to (11/2⁻).

[&] Band(C): 1/2(521). A=14.8, a=0.49, fit to levels J=1/2⁻ to 7/2⁻.

^a Band(D): 7/2(514), α=-1/2. A=13.5, B=-3.4, fit to levels J=7/2⁻ to 19/2⁻.

^b Band(d): 7/2(514), α=+1/2. A=13.6, B=-4.8, fit to levels J=9/2⁻ to 21/2⁻.

^c Band(E): 1/2(510). A=14.4, a=0.55, fit to levels J=1/2⁻ to (7/2⁻).

^d Band(F): 7/2(503). A=16.4, B=-25, fit to levels J=7/2⁻, (9/2⁻), (11/2⁻).

^e Band(G): 3/2(512). A=17.6, fit to levels J=3/2⁻ to (7/2⁻).

^f Band(H): 7/2(633). A=3.97, B=30, fit to levels J=7/2⁺, (9/2⁺), (13/2⁺).

^g Band(I): K=23/2 band, α=-1/2.

^h Band(i): K=23/2 band, α=+1/2.

Adopted Levels, Gammas (continued)

E _i (level)	J _i ^π	γ(¹⁸¹ W)							Comments
		E _γ [†]	I _γ [‡]	E _f	J _f ^π	Mult.#	δ [#]	α ^f	
113.40	11/2 ⁺	113.30 19	100	0.0	9/2 ⁺	M1		3.42	
250.72	13/2 ⁺	137.28 19	100 ^b 14	113.40	11/2 ⁺	M1		1.978	
		251.2 ^a	40 ^b 6	0.0	9/2 ⁺	E2 ^d		0.148	
365.55	5/2 ⁻	252.2 [@] 3	1.7 ^{&} 4	113.40	11/2 ⁺	E3		0.807	B(E3)(W.u.)=7.5 20
		365.5 3	100 ^{&} 10	0.0	9/2 ⁺	M2		0.472	B(M2)(W.u.)=0.0068 10
385.19	1/2 ⁻	19.7 [@] 2	100 ^{&}	365.55	5/2 ⁻	E2		8540	
409.23	7/2 ⁻	43.5 2	100 14	365.55	5/2 ⁻	M1+E2	0.10 3	11.2 11	
		409.0 3	53 9	0.0	9/2 ⁺				
414.3	15/2 ⁺	163.5 ^a	95 ^b 13	250.72	13/2 ⁺	D ^c			
		301.0 ^a	100 ^b 14	113.40	11/2 ⁺	E2 ^d		0.085	
450.12	3/2 ⁻	65.0 [@] 2	100 ^{&}	385.19	1/2 ⁻	M1+E2	0.33 4	5.0 5	
457.84	1/2 ⁻	72.7 [@] 2	100 ^{&}	385.19	1/2 ⁻	M1		12.35	
475.60	7/2 ⁻	109.89 19	100 14	365.55	5/2 ⁻	M1+E2	0.38 7	3.61	
		475.6 3	16 3	0.0	9/2 ⁺				
488.43	5/2 ⁻	38.1 [@] 2	35 ^{&} 9	450.12	3/2 ⁻	M1		14.20	
		103.1 [@] 2	100 ^{&} 39	385.19	1/2 ⁻	E2		3.52	
528.6	9/2 ⁻	119.4 ^a	100 ^b	409.23	7/2 ⁻	[M1] ^c		2.94	
529.42	3/2 ⁻	71.7 [@] 2	30 ^{&} 12	457.84	1/2 ⁻	M1+E2	0.29 +6-4	13.05	
		144.3 [@] 2	100 ^{&} 40	385.19	1/2 ⁻	M1		1.717	
		163.9 [@] 2	34 ^{&} 14	365.55	5/2 ⁻	M1+E2	≈0.8	0.973	
560.43	5/2 ⁻	31.1 [@] 2	1.8 ^{&} 7	529.42	3/2 ⁻	M1		25.9	
		102.7 [@] 2	27 ^{&} 11	457.84	1/2 ⁻	E2		3.57	
		110.3 [@] 2	100 ^{&} 23	450.12	3/2 ⁻	M1+E2	0.17 7	3.67	
		175.2 [@] 2	46 ^{&} 23	385.19	1/2 ⁻	E2		0.491	
		195.0 [@] 2	17 ^{&} 7	365.55	5/2 ⁻	M1		0.736	
599.4	17/2 ⁺	185.1 ^a	60 ^b 8	414.3	15/2 ⁺	D ^c			
		348.6 ^a	100 ^b 14	250.72	13/2 ⁺	E2 ^d		0.0553	
609.2	9/2 ⁻	133.7 ^a	20 ^b 4	475.60	7/2 ⁻	[M1] ^c		2.128	
		243.5 ^a	100 ^b 20	365.55	5/2 ⁻	Q ^c			
643.03	7/2 ⁻	154.4 [@] 2	100 ^{&} 39	488.43	5/2 ⁻	E2		0.766	
		167.2 [@] 2	36 ^{&} 11	475.60	7/2 ⁻	[M1]		1.133	
		193.2 [@] 2	31 ^{&} 11	450.12	3/2 ⁻	[E2]		0.350	
		278.1 [@] 3	61 ^{&} 19	365.55	5/2 ⁻	[M1]		0.276	
661.67	7/2 ⁻	186.2 2	5.7 10	475.60	7/2 ⁻	E2		0.397	

Adopted Levels, Gammas (continued)

$\gamma(^{181}\text{W})$ (continued)									
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.#	$\delta^\#$	α^f	
661.67	7/2 ⁻	296.1 3	9.2 22	365.55	5/2 ⁻	M1+E2	≈0.8	0.1772	
		661.6 3	100 14	0.0	9/2 ⁺	E1		0.00397	
675.2	11/2 ⁻	146.6 ^a	77 ^b 11	528.6	9/2 ⁻	D ^c			
		265.9 ^a	100 ^b 14	409.23	7/2 ⁻	Q ^c			
726.27	3/2 ⁻	165.8 [@] 2	0.6& 3	560.43	5/2 ⁻	M1+E2	≈0.8	0.94	
		197.0 [@] 2	2.6& 11	529.42	3/2 ⁻	M1		0.716	
		237.4 [@] 3	0.49& 15	488.43	5/2 ⁻	[M1]		0.426	
		276.4 [@] 3	3.2& 8	450.12	3/2 ⁻	M1+E2		0.8 +9-6	0.21 6
		316.7 [@] 3	0.45& 15	409.23	7/2 ⁻	[E2]			0.0730
		340.8 [@] 3	0.19& 7	385.19	1/2 ⁻	[M1]			0.1600
		360.7 [@] 3	100& 20	365.55	5/2 ⁻	M1+E2		1.4 +20-7	0.08 3
		761.7	(11/2 ⁻)	152.4 ^a	74 ^b 15	609.2		9/2 ⁻	[M1] ^c
		286.2 ^a	100 ^b 20	475.60	7/2 ⁻	[E2] ^c		0.0988	
805.3	(9/2 ⁻)	143.1 ^a	100 ^b	661.67	7/2 ⁻	[M1] ^c		1.758	
807.51	5/2 ⁻	164.6 [@] 2	9& 4	643.03	7/2 ⁻	M1+E2	≈0.8	0.961	
		331.9 [@] 3	100& 28	475.60	7/2 ⁻	M1		0.1717	
		398.0 [@] 3	48& 12	409.23	7/2 ⁻	M1		0.1060	
		441.8 [@] 3	78& 39	365.55	5/2 ⁻	(M1)		0.0805	
814.2	19/2 ⁺	214.7 ^a	42 ^b 6	599.4	17/2 ⁺	D ^c			
		400.0 ^a	100 ^b 14	414.3	15/2 ⁺	E2 ^d		0.0377	
848.2	13/2 ⁻	172.9 ^a	19 ^b 3	675.2	11/2 ⁻	(D) ^c			
		319.7 ^a	100 ^b 14	528.6	9/2 ⁻	Q ^c			
953.45	7/2 ⁺	840.4 [@] 4	8& 3	113.40	11/2 ⁺	E2		0.00649	
		953.6 3	100& 25	0.0	9/2 ⁺	M1		0.01131	
975.3	(11/2 ⁻)	170.0 ^a	100 ^b	805.3	(9/2 ⁻)	(D) ^c			
993.5	(9/2 ⁺)	879.8 [@] 4	100& 24	113.40	11/2 ⁺	M1		0.01382	
		993.7 [@] 4	16& 9	0.0	9/2 ⁺	(M1)		0.01021	
1009.32	(5/2,7/2) ⁺	533.3 [@] 3	2.4& 12	475.60	7/2 ⁻				
		643.9 [@] 4	23& 6	365.55	5/2 ⁻				
		1009.4 [@] 5	100& 24	0.0	9/2 ⁺				
1039.0	21/2 ⁺	224.9 ^a	32 ^b 6	814.2	19/2 ⁺	(D) ^c			
		439.6 ^a	100 ^b 20	599.4	17/2 ⁺	E2 ^d		0.0293	
1046.3	15/2 ⁻	198.1 ^a	34 ^b 7	848.2	13/2 ⁻	[M1] ^c		0.705	

Adopted Levels, Gammas (continued)

$\gamma(^{181}\text{W})$ (continued)								
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.#	$\delta^\#$	α^f
1046.3	15/2 ⁻	371.1 ^a	100 ^b 20	675.2	11/2 ⁻	Q ^c		
1086.79	(7/2) ⁺	973.2 @ 4	24 & 8	113.40	11/2 ⁺			
		1086.6 @ 5	100 & 25	0.0	9/2 ⁺	E2		0.00385
1188.33	3/2 ⁻	628.8 @ 4	9 & 3	560.43	5/2 ⁻	[M1]		0.0324
		659.2 @ 4	16 & 5	529.42	3/2 ⁻	[M1]		0.0287
		699.9 @ 4	9 & 3	488.43	5/2 ⁻	[M1]		0.02462
		730.1 @ 4	5 & 2	457.84	1/2 ⁻	[M1]		0.02211
		738.0 @ 4	20 & 7	450.12	3/2 ⁻	M1		0.02152
		803.6 @ 4	100 & 50	385.19	1/2 ⁻	M1+E2	≈1	0.01224
		822.7 @ 4	11 & 4	365.55	5/2 ⁻	M1		0.01636
1248.85	5/2 ⁻	239.3 @ 3	13 & 4	1009.32	(5/2,7/2) ⁺	[E1]		0.0401
		441.8 @ 3	65 & 32	807.51	5/2 ⁻	(M1)		0.0805
		522.1 @ 3	33 & 11	726.27	3/2 ⁻	M1		0.0523
		587.4 @ 3	100 & 25	661.67	7/2 ⁻	E2		0.01440
		773.4 @ 4	11 & 4	475.60	7/2 ⁻	[M1]		0.01911
		883.2 @ 4	38 & 13	365.55	5/2 ⁻	M1		0.01369
1268.2	17/2 ⁻	221.9 ^a	39 ^b 6	1046.3	15/2 ⁻	[M1] ^c		0.514
		420.0 ^a	100 ^b 14	848.2	13/2 ⁻	[E2] ^c		0.0331
1271.98	5/2 ⁺	262.6 @ 3	19 & 7	1009.32	(5/2,7/2) ⁺	M1+E2	0.9 +7-4	0.24 6
		318.6 @ 3	100 & 27	953.45	7/2 ⁺	M1		0.1916
		862.7 @ 4	16 & 5	409.23	7/2 ⁻			
		1272.5 @ 5	10 & 3	0.0	9/2 ⁺			
1310.2	23/2 ⁺	271.2 ^a	24 ^b 5	1039.0	21/2 ⁺	D ^c		
		496.0 ^a	100 ^b 20	814.2	19/2 ⁺	Q ^c		
1329.89	5/2 ⁻ , 7/2 ⁻	524.4 @ 3	62 & 21	807.51	5/2 ⁻	[M1]		0.0517
		668.2 @ 4	100 & 33	661.67	7/2 ⁻	[M1]		0.0277
		769.7 @ 4	50 & 17	560.43	5/2 ⁻	M1		0.01934
		854.4 @ 4	60 & 19	475.60	7/2 ⁻	M1		0.01487
1355.3	5/2 ⁻ , 7/2 ⁻	693.9 @ 4	28 & 9	661.67	7/2 ⁻	M1+E2	≈1.5	0.01455
		989.4 @ 4	100 & 25	365.55	5/2 ⁻	M1		0.01032
1365.60	3/2 ⁺	93.7 @ 2	1.8 & 7	1271.98	5/2 ⁺	M1+E2	0.38 +7-6	5.81
		177.5 @ 2	25 & 10	1188.33	3/2 ⁻	E1		0.0855

Adopted Levels, Gammas (continued)

$\gamma(^{181}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult.#	$\delta^\#$	α^f		
1365.60	$3/2^+$	356.1 @ 3	26 & 13	1009.32	$(5/2, 7/2)^+$	[E2]		0.0520		
		412.3 @ 3	16 & 5	953.45	$7/2^+$	[E2]		0.0348		
		557.8 @ 3	33 & 7	807.51	$5/2^-$	E1		0.00566		
		639.0 @ 4	100 & 20	726.27	$3/2^-$	E1		0.00426		
		805.2 @ 4	48 & 24	560.43	$5/2^-$	E1		0.00269		
		835.7 @ 4	7.1 & 17	529.42	$3/2^-$					
		877.2 @ 4	7 & 3	488.43	$5/2^-$					
		907.4 @ 4	16 & 5	457.84	$1/2^-$	E1		0.00215		
		980.7 @ 4	2.9 & 9	385.19	$1/2^-$					
		1000.2 @ 5	52 & 10	365.55	$5/2^-$	E1		0.00179		
		1377.75	$3/2^+, 5/2^+$	570.1 @ 3	44 & 11	807.51	$5/2^-$			
				651.2 @ 4	100 & 29	726.27	$3/2^-$	E1		0.00410
				817.5 @ 4	13 & 4	560.43	$5/2^-$			
				848.5 @ 4	13 & 4	529.42	$3/2^-$			
889.5 @ 4	11 & 2			488.43	$5/2^-$					
1422.8	$5/2^-, 7/2^-$	696.9 @ 4	20 & 10	726.27	$3/2^-$					
		946.9 @ 4	75 & 25	475.60	$7/2^-$					
		1057.1 @ 5	100 & 33	365.55	$5/2^-$					
1440.55	$5/2^+, 7/2^+$	353.6 @ 3	23 & 3	1086.79	$(7/2)^+$	(M1)		0.145		
		487.1 @ 3	38 & 19	953.45	$7/2^+$	M1		0.0623		
		632.7 @ 4	8 & 3	807.51	$5/2^-$					
		965.1 @ 4	11 & 3	475.60	$7/2^-$			0.00157		
		1075.6 @ 5	54 & 15	365.55	$5/2^-$	E1		0.00157		
1469.11	$(5/2)^+$	1440.7 @ 5	100 & 19	0.0	$9/2^+$	E2		0.00224		
		382.3 @ 3	33 & 11	1086.79	$(7/2)^+$	M1+E2	≈ 0.8	0.089		
		515.7 @ 3	20 & 6	953.45	$7/2^+$	M1		0.0540		
		993.7 @ 4	26 & 13	475.60	$7/2^-$					
		1018.6 @ 5	16 & 5	450.12	$3/2^-$					
		1103.5 @ 5	85 & 21	365.55	$5/2^-$	E1		0.00150		
		1469.2 @ 5	100 & 27	0.0	$9/2^+$	E2		0.00216		
1498.14	$7/2^+$	489.0 @ 3	100 & 50	1009.32	$(5/2, 7/2)^+$	M1		0.0617		
		544.8 @ 3	39 & 13	953.45	$7/2^+$					

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Adopted Levels, Gammas (continued)

$\gamma(^{181}\text{W})$ (continued)							
$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\ddagger	E_f	J_f^π	Mult. #	α^f
1498.14	7/2 ⁺	1132.3 [@]	5	30 ^{&}	10	365.55	5/2 ⁻
		1384.2 [@]	5	31 ^{&}	10	113.40	11/2 ⁺
		1498.2 [@]	5	11 ^{&}	4	0.0	9/2 ⁺
1512.9	19/2 ⁻	466.6 ^a		100 ^b	1046.3	15/2 ⁻	Q ^c
1538.0	(7/2 ⁺)	1538.0 [@]	5	100 ^{&}	0.0	9/2 ⁺	(M1)
1560.3	25/2 ⁺	250.1 ^a		100 ^b	20	1310.2	23/2 ⁺
		521.3 ^a		68 ^b	14	1039.0	21/2 ⁺
1653.1	21/2 ⁺	838.9 ^a		100 ^b	20	814.2	19/2 ⁺
		1053.7 ^a		23 ^b	5	599.4	17/2 ⁺
1744.9	(23/2 ⁻)	91.8 ^a		100 ^b		1653.1	21/2 ⁺
1777.2	21/2 ⁻	509.0 ^a		100 ^b		1268.2	17/2 ⁻
1899.3	27/2 ⁺	339.1 ^a		14 ^b	3	1560.3	25/2 ⁺
		589.0 ^a		100 ^b	20	1310.2	23/2 ⁺
1994.9	(25/2 ⁻)	250 ^e				1744.9	(23/2 ⁻)
2061.6		548.7 ^a		100 ^b		1512.9	19/2 ⁻
2155.8	29/2 ⁺	256.5 ^a		7.8 ^b	16	1899.3	27/2 ⁺
		595.6 ^a		100 ^b	20	1560.3	25/2 ⁺
2270.9	(27/2 ⁻)	276 ^e				1994.9	(25/2 ⁻)
		526 ^e				1744.9	(23/2 ⁻)
2569.9	(29/2 ⁻)	299 ^e				2270.9	(27/2 ⁻)
		575 ^e				1994.9	(25/2 ⁻)
2577.4	31/2 ⁺	678.1 ^a		100 ^b		1899.3	27/2 ⁺
2823.9	33/2 ⁺	668.1 ^a		100 ^b		2155.8	29/2 ⁺
2890.9	(31/2 ⁻)	321 ^e				2569.9	(29/2 ⁻)
		620 ^e				2270.9	(27/2 ⁻)
3231.9	(33/2 ⁻)	341 ^e				2890.9	(31/2 ⁻)
		662 ^e				2569.9	(29/2 ⁻)
3564.9	37/2 ⁺	741 ^e				2823.9	33/2 ⁺
3592.9	(35/2 ⁻)	361 ^e				3231.9	(33/2 ⁻)
		702 ^e				2890.9	(31/2 ⁻)
3943.9	37/2	351 ^e				3592.9	(35/2 ⁻)
		712 ^e				3231.9	(33/2 ⁻)
4374.0	41/2 ⁺	809 ^e				3564.9	37/2 ⁺
5240.0	45/2 ⁺	866 ^e				4374.0	41/2 ⁺

Adopted Levels, Gammas (continued)

$\gamma(^{181}\text{W})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	E_f	J_f^π	Mult.#	α^f
6140.0	49/2 ⁺	900 ^e	5240.0	45/2 ⁺	E2 ^d	0.005 63
7069.0	53/2 ⁺	929 ^e	6140.0	49/2 ⁺	E2 ^d	0.005 28
8021	57/2 ⁺	952 ^e	7069.0	53/2 ⁺	E2 ^d	0.005 02
8041	57/2	(20)	8021	57/2 ⁺		
		972 ^e	7069.0	53/2 ⁺		
8655		614 ^e	8041	57/2		

[†] Weighted average of values from ($\alpha, xn\gamma$) (assuming $\Delta(E_\gamma)=0.5$ keV) and ^{181}Re ε decay.

[‡] Weighted average of intensities from ($\alpha, xn\gamma$) data (assuming 20% uncertainty) and ^{181}Re ε decay.

From ^{181}Re ε decay, except as noted.

@ From ^{181}Re ε decay only.

& From ^{181}Re ε decay only.

^a From ($\alpha, xn\gamma$).

^b From ($\alpha, xn\gamma$).

^c From ($\alpha, xn\gamma$).

^d Stretched quadrupole transition connecting $\Delta J=2$ states in the rotational band.

^e From $^{136}\text{Xe}(^{48}\text{Ca}, 3n\gamma)$.

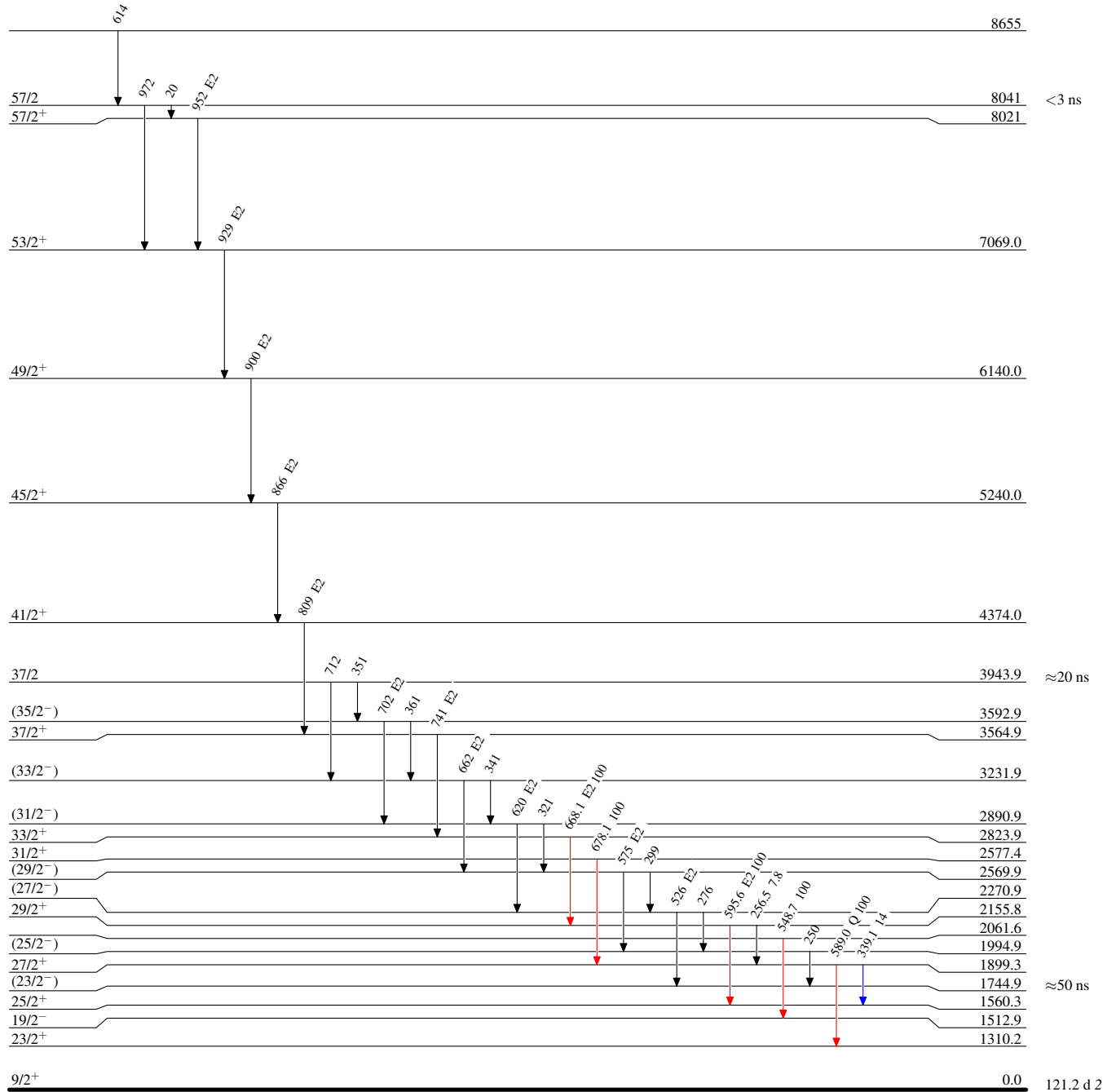
^f Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Legend

Level Scheme
Intensities: Type not specified

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



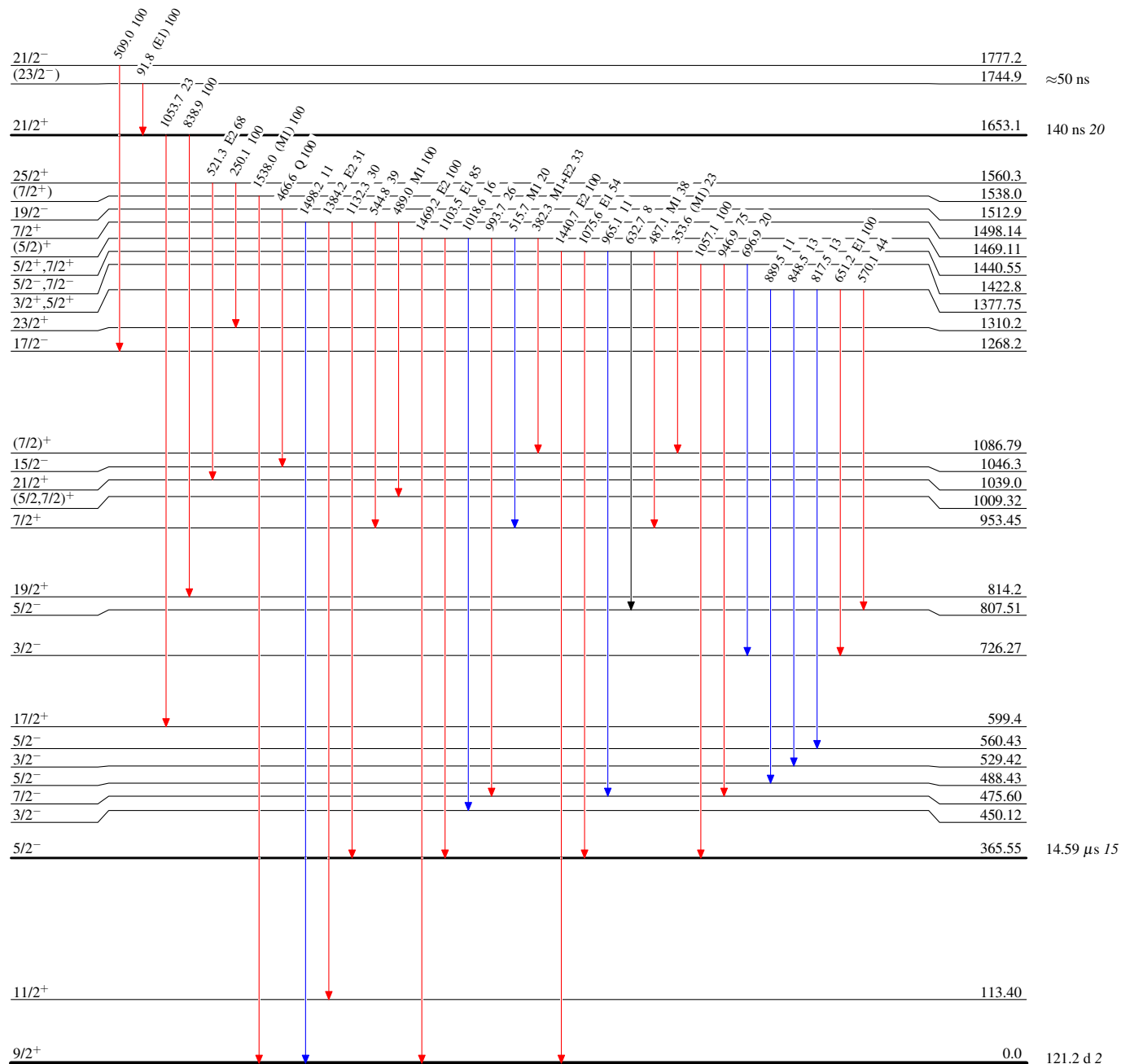
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



$^{181}_{74}\text{W}_{107}$

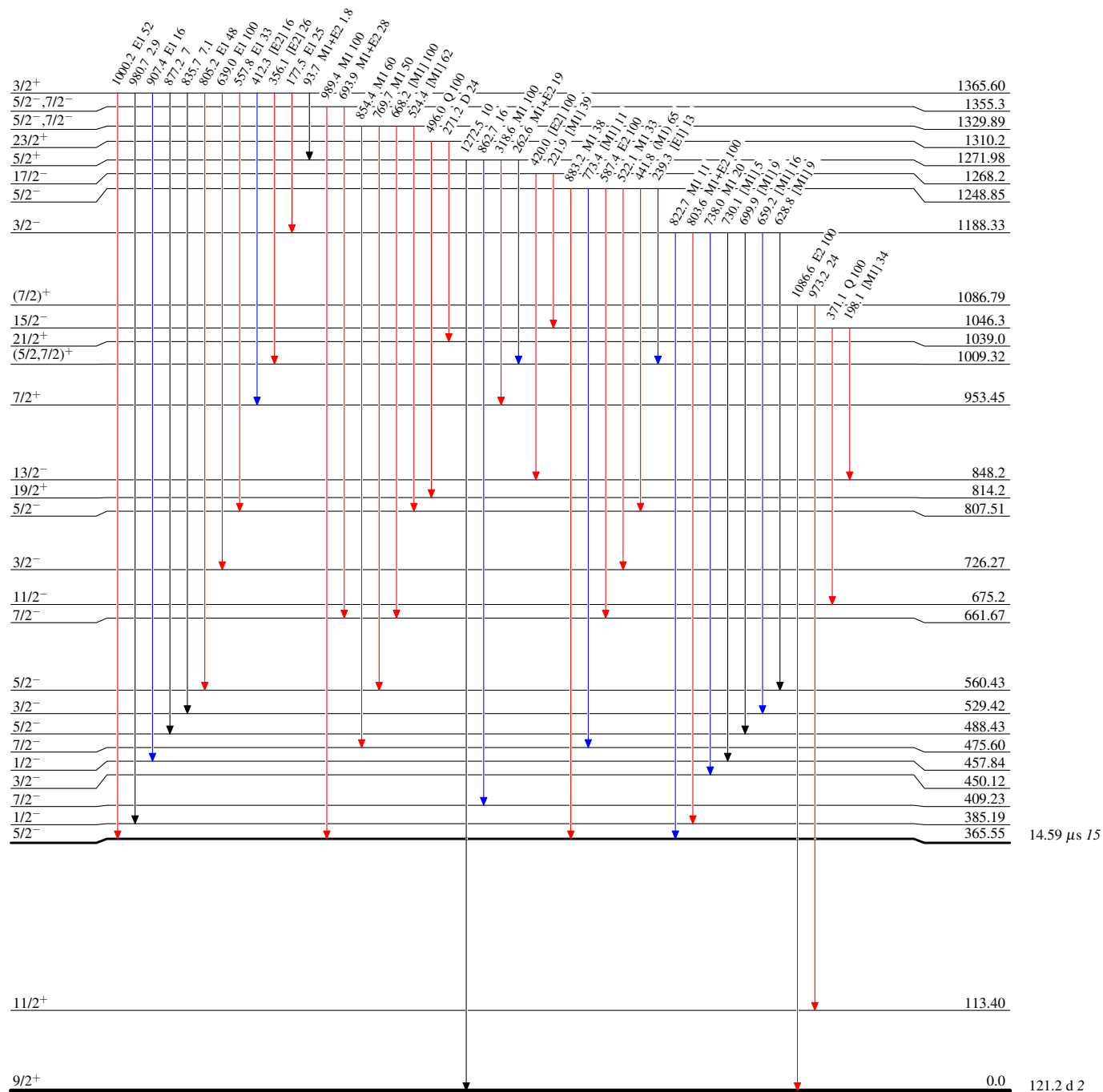
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



$^{181}_{74}\text{W}_{107}$

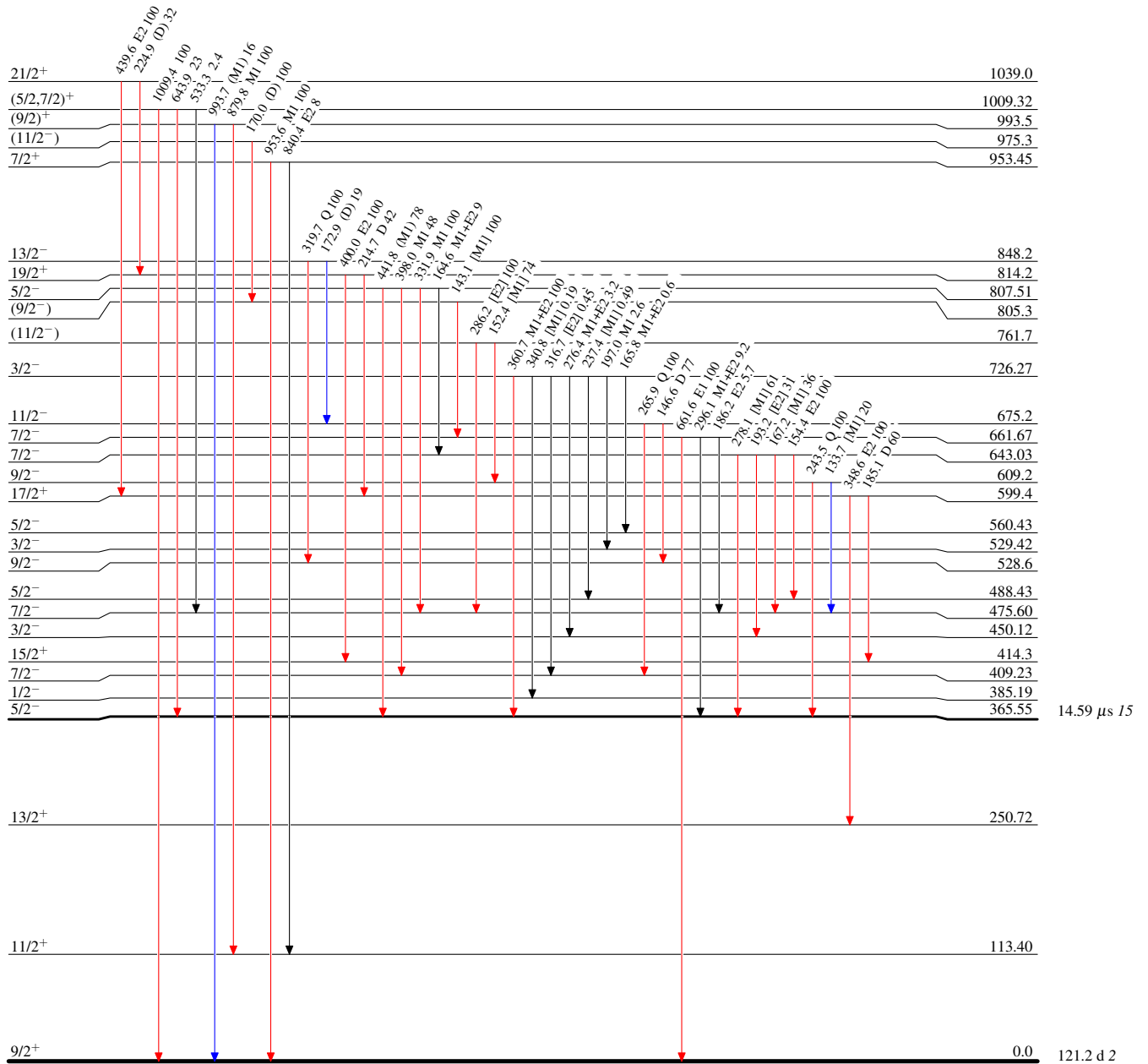
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

Legend

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



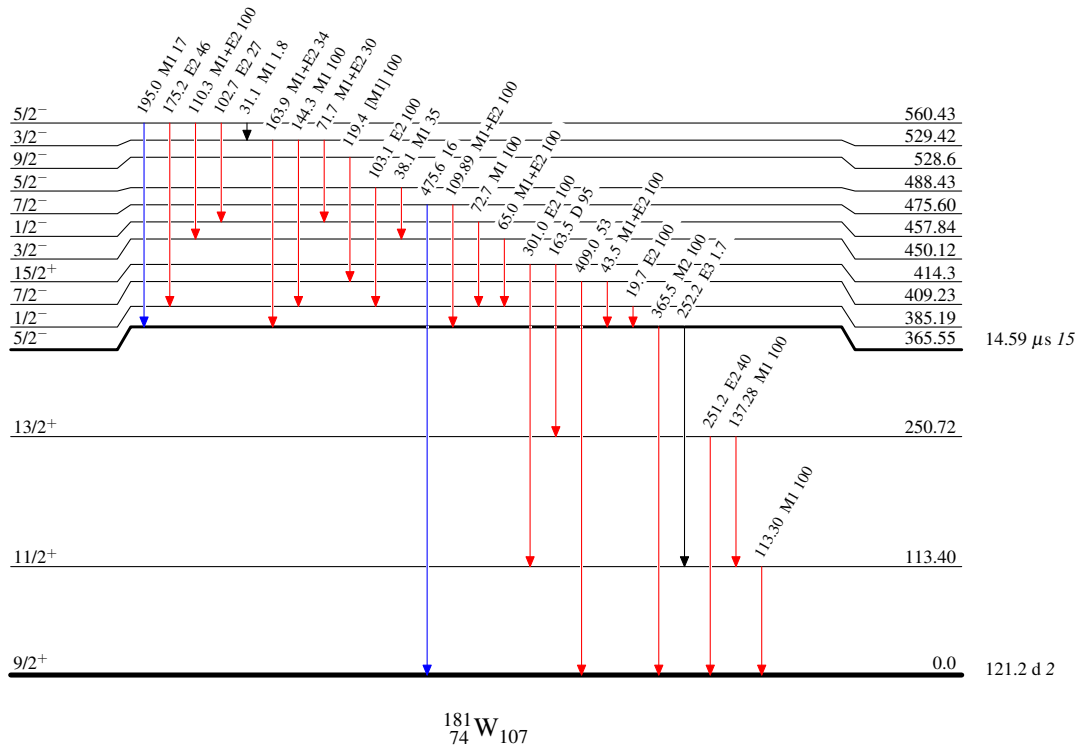
Adopted Levels, Gammas

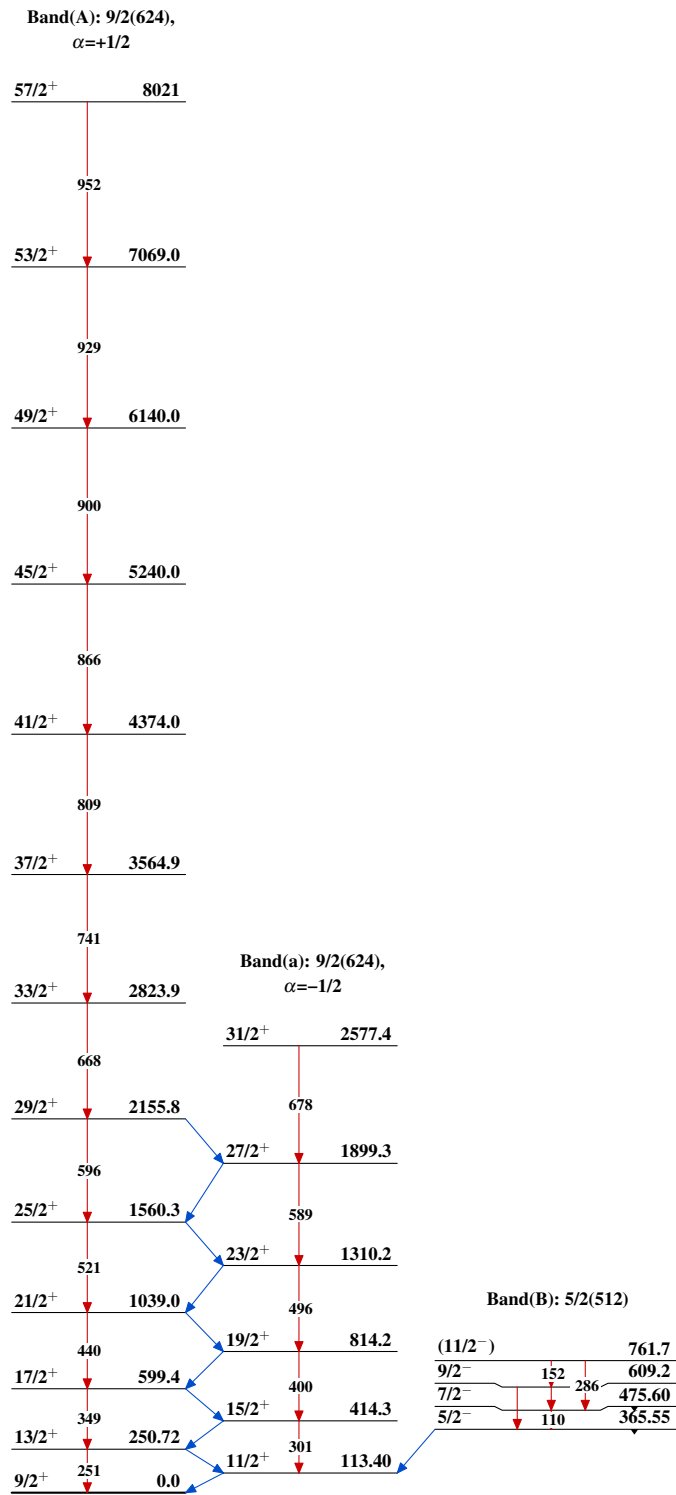
Level Scheme (continued)

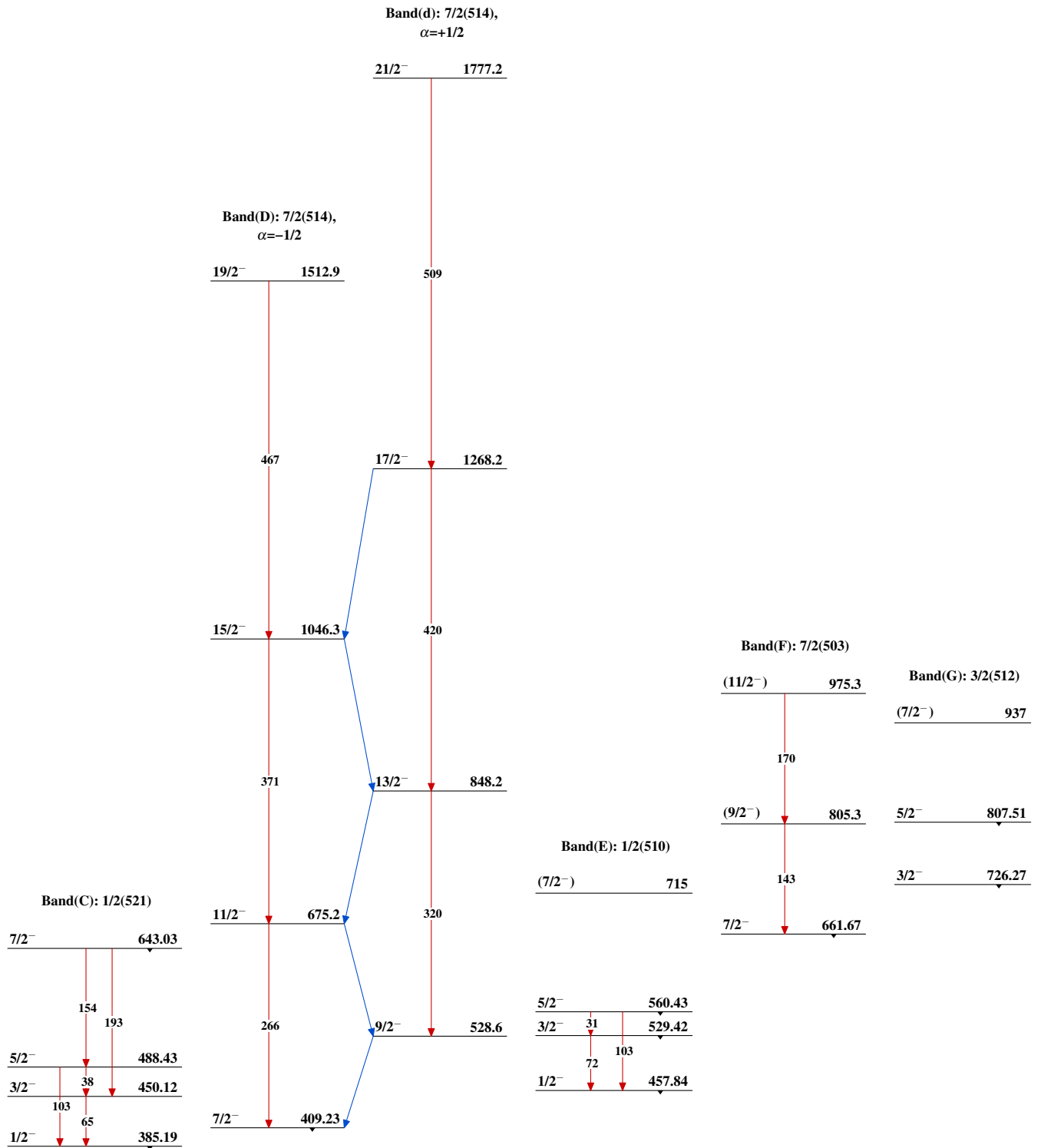
Intensities: Type not specified

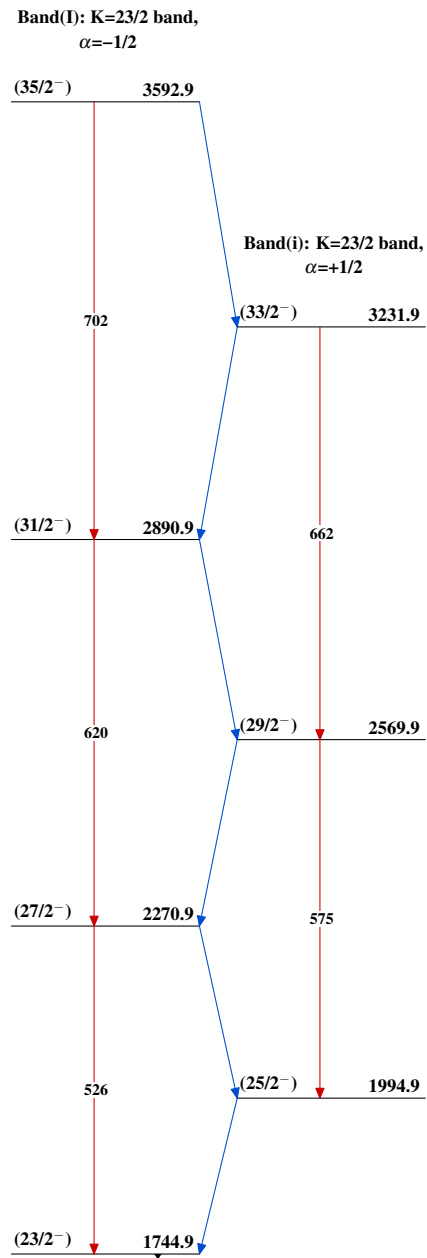
Legend

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



Adopted Levels, Gammas $^{181}_{74}\text{W}_{107}$

Adopted Levels, Gammas (continued) $^{181}_{74}\text{W}_{107}$

Adopted Levels, Gammas (continued)**Band(H): 7/2(633)** $(13/2^+)$ 1124 $(9/2^+)$ 993.5 $7/2^+$ 953.45 $^{181}_{74}\text{W}_{107}$