

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Update	M. S. Basunia		31-Jan-2005

Q(β⁻)=-2.78×10³ 4; S(n)=8.74×10³ 4; S(p)=3.85×10³ 3; Q(α)=3.00×10³ 3 [2012Wa38](#)

Note: Current evaluation has used the following Q record -2780 408740 403850 303000 30 [2003Au03](#).

¹⁷⁵Ta Levels

Cross Reference (XREF) Flags

- A ¹⁷⁵W ε decay
- B ¹⁷⁵Lu(α,4nγ)
- C ¹⁶⁰Gd(¹⁹F,4nγ)
- D ¹⁷⁰Er(¹⁰B,5nγ)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
0.0 [#]	7/2 ⁺	10.5 h 2	ABCD	%ε+%β ⁺ =100 μ=2.270 45 Q=(+)3.65 35 J ^π : J from atomic beam (1975Ru06). ε+β ⁺ branch with log f ^μ t=8.8 to 196 level (J ^π =3/2 ⁻) in ¹⁷⁵ Hf suggests π=+. T _{1/2} : from 1963Sa14. Other values: 10.5 h 8 (1963Ma48), 10 h 1 (1962Ma41) and 11 h (1960Fa03). μ: NMR (1989Ra17,1984Oh07). Other: 2.27 5 (1989Ra17,1984Ed01). Q: Static nuclear orientation (1989Ra17,1983Ed01).
36.405 [@] 17	(5/2) ⁺	≤100 ns	ABCD	J ^π : 36.6γ M1+E2 to g.s. T _{1/2} : From prompt (±170 ns) coin between in-band higher level γ's and depopulating 36γ from this level (¹⁰ B,5nγ).
51.377 ^{&} 17	(5/2) ⁻		A CD	J ^π : 51.4γ E1(+M2) to g.s.
68.9 ^{&} 13	(1/2) ⁻		A	J ^π : 149γ (M1+E2) from (3/2 ⁻).
124.3 ^{&} 4	(9/2) ⁻		BCD	XREF: C(126.0).
129.75 [#] 16	(9/2) ⁺		BCD	
131.41 ^a 17	(9/2) ⁻	222 ns 8	BCD	T _{1/2} : From ¹⁷⁰ Er(¹⁰ B,5nγ). Other: 135 ns 25 in 1977An04. >100 in (α,4nγ) (1972Fo20).
142.59 [@] 16	(7/2) ⁺		BCD	
218.1 ^{&} 10	(3/2) ⁻		A	J ^π : 167γ (M1+E2) to (5/2 ⁻).
276.26 ^a 18	(11/2) ⁻		BCD	
276.71 [@] 16	(9/2) ⁺		BCD	
284.35 [#] 16	(11/2) ⁺		BCD	
296.8 ^{&} 5	(13/2) ⁻		BCD	XREF: C(298.1).
339.2 ^b 13	(1/2) ⁺	0.17 μs 2	A	J ^π : 270γ E1 to (1/2 ⁻). T _{1/2} : from ¹⁷⁵ W ε decay.
436.00 [@] 20	(11/2) ⁺		BCD	
446.60 ^a 23	(13/2) ⁻		BCD	
461.41 [#] 19	(13/2) ⁺		BCD	
571.5 ^{&} 5	(17/2) ⁻		BCD	
619.53 [@] 23	(13/2) ⁺		BCD	
640.51 ^a 23	(15/2) ⁻		BCD	
658.42 [#] 21	(15/2) ⁺		BCD	XREF: C(655.4).
826.0 [@] 3	(15/2) ⁺		BCD	

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Adopted Levels, Gammas (continued)

^{175}Ta Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
857.2 ^a 3	(17/2 ⁻)		BCD	
872.68 [#] 25	(17/2 ⁺)		BCD	
943.5 ^{&} 5	(21/2 ⁻)		BCD	
1051.8 [@] 3	(17/2 ⁺)		BCD	
1093.7 ^a 3	(19/2 ⁻)		BCD	
1102.1 [#] 3	(19/2 ⁺)		BCD	XREF: C(1098.7).
1280.0 11	(15/2)	≤1 ns	D	T _{1/2} : Based on absence of centroid shift for 833γ in $^{170}\text{Er}(^{10}\text{B},5n\gamma)$.
1297.3 [@] 3	(19/2 ⁺)		BCD	
1302.1 11	(15/2 ⁻)		D	
1342.3 [#] 3	(21/2 ⁺)		BCD	
1350.9 ^a 3	(21/2 ⁻)		BCD	XREF: D(1349.5).
1405.6 ^{&} 5	(25/2 ⁻)		BCD	
1497.3 ^c 10	(17/2)		D	
1549.4 11	(15/2 ⁻)		D	
1552.5 ^e 4	(17/2 ⁺)	5.1 ns 6	D	T _{1/2} : From $^{170}\text{Er}(^{10}\text{B},5n\gamma)$.
1557.3 [@] 4	(21/2 ⁺)		BCD	
1567.6 ^g 3	(21/2 ⁻)	1950 ns 150	B D	XREF: D(1565.9). T _{1/2} : From analysis of γ-time data in $^{170}\text{Er}(^{10}\text{B},5n\gamma)$. Other: 200 ns 70 in $^{160}\text{Gd}(^{19}\text{F},4n\gamma)$; reason for discrepancy not understood.
1593.1 [#] 4	(23/2 ⁺)		BCD	XREF: C(1589.5)D(1591.5).
1622.1 ^a 7	(23/2 ⁻)		CD	
1651.3 ^e 11	(19/2 ⁺)		D	
1690.9 11	(19/2)		D	
1731.0 ^f 11	(21/2 ⁺)	0.9 ns 3	D	T _{1/2} : From $^{170}\text{Er}(^{10}\text{B},5n\gamma)$.
1771.7 15	(19/2 ⁻)		D	
1794.2 ^e 14	(21/2 ⁺)		D	
1825.7 ^c 9	(21/2)		D	
1832.2 [@] 7	(23/2 ⁺)		CD	
1852.1 [#] 7	(25/2 ⁺)		CD	
1878.7 ^g 9	(23/2 ⁻)		D	
1896.8 ^f 13	(23/2 ⁺)		D	
1910.6 ^a 8	(25/2 ⁻)		CD	
1941.0 10	(23/2)		D	
1950.0 ^{&} 7	(29/2 ⁻)		BCD	XREF: D(1947.3).
1969.8 ^e 14	(23/2 ⁺)		D	
2039.5 15	(23/2)		D	
2088.0 ^f 13	(25/2 ⁺)		D	
2114.9 [@] 9	(25/2 ⁺)		CD	
2118.7 [#] 8	(27/2 ⁺)		CD	
2174.0 ^e 15	(25/2 ⁺)		D	
2203.6 ^g 9	(25/2 ⁻)		D	
2206.5 ^a 10	(27/2 ⁻)		CD	XREF: C(2208.6).
2213.2 ^c 9	(25/2)		D	
2300.4 ^f 14	(27/2 ⁺)		D	
2317.3 ^d 9	(27/2)		D	
2396.2 [#] 10	(29/2 ⁺)		CD	
2403.4 ^e 15	(27/2 ⁺)		D	
2407.2 [@] 10	(27/2 ⁺)		CD	

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Adopted Levels, Gammas (continued) ^{175}Ta Levels (continued)

E(level) [†]	J ^π [‡]	T _{1/2}	XREF	Comments
2515.9 ^a 11	(29/2 ⁻)		D	
2532.5 ^f 15	(29/2 ⁺)		D	
2538.2 ^g 10	(27/2 ⁻)		D	
2568.9 ^{&} 9	(33/2 ⁻)		BCD	XREF: C(2565.6)D(2563.6).
2635.1 ^c 10	(29/2)		D	
2656.8 ^e 16	(29/2 ⁺)		D	
2681.4 [#] 11	(31/2 ⁺)		CD	
2704.4 [@] 11	(29/2 ⁺)		D	
2768.8 ^d 10	(31/2)		D	
2783.7 ^f 16	(31/2 ⁺)		D	
2825.8 ^a 12	(31/2 ⁻)		D	
2880.7 ^g 11	(29/2 ⁻)		D	
2931.9 ^e 17	(31/2 ⁺)		D	
2981.5 [#] 12	(33/2 ⁺)		CD	
3006.3 [@] 14	(31/2 ⁺)		D	
3053.0 ^f 16	(33/2 ⁺)		D	
3091.5 ^c 14	(33/2)		D	
3144.0 ^a 13	(33/2 ⁻)		D	
3217.1 ^h 12	(31/2 ⁻)		D	
3225.7 ^e 17	(33/2 ⁺)		D	
3232.4 ^g 12	(31/2 ⁻)		D	
3251.1 ^{&} 14	(37/2 ⁻)		CD	XREF: D(3245.8).
3288.1 [#] 15	(35/2 ⁺)		CD	
3295.8 ^d 14	(35/2)		D	
3312.5 [@] 15	(33/2 ⁺)		D	
3339.6 ^f 17	(35/2 ⁺)		D	
3457.8 ^a 15	(35/2 ⁻)		D	
3527.5 ^h 13	(33/2 ⁻)	≤0.5 ns	D	T _{1/2} : From lack of significant shift in time centroid of 646.8γ in ¹⁷⁰ Er(¹⁰ B,5nγ).
3604.7 ^c 18	(37/2)		D	
3613.8 [#] 16	(37/2 ⁺)		CD	
3623.8 [@] 17	(35/2 ⁺)		D	
3641.9 ^f 18	(37/2 ⁺)		D	
3763.2 ^h 17	(35/2,37/2)	≤2 ns	D	J ^π : Possible 5-quasiparticle state, or member of the K ^π =21/2 ⁻ rotational band. T _{1/2} : From comparison of time-difference spectra gated on 279.1γ and 235.7γ; 271.1γ and 236.6γ in ¹⁷⁰ Er(¹⁰ B,5nγ).
3892.3 ^d 18	(39/2)		D	
3943.8 [@] 18	(37/2 ⁺)		D	
3947.3 [#] 18	(39/2 ⁺)		CD	
3958.1 ^f 18	(39/2 ⁺)		D	
3993.4 ^{&} 17	(41/2 ⁻)		CD	
4042.3 19	(37/2,39/2)		D	
4188.8 ^c 20	(41/2)		D	
4265.0 [@] 20	(39/2 ⁺)		D	
4283.3 ^f 19	(41/2 ⁺)		D	
4300.0 [#] 19	(41/2 ⁺)		CD	XREF: D(4297).

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Adopted Levels, Gammas (continued) ^{175}Ta Levels (continued)

E(level) [†]	J^π [‡]	XREF	Comments
4330.3 22	(39/2,41/2)	D	
4559.3 ^d 20	(43/2)	D	
4591.6 [@] 21	(41/2 ⁺)	D	
4620.9 ^f 19	(43/2 ⁺)	D	
4636.1 24	(41/2,43/2)	D	
4661.3 [#] 21	(43/2 ⁺)	CD	
4786.1 ^{&} 20	(45/2 ⁻)	CD	
4849.3 ^c 23	(45/2)	D	
4925.2 [@] 23	(43/2 ⁺)	D	
4967.1 ^f 20	(45/2 ⁺)	D	
5040.0 [#] 21	(45/2 ⁺)	CD	XREF: C(5027.1).
5297.0 ^d 23	(47/2)	D	
5610.1 ^{&} 22	(49/2 ⁻)	CD	

[†] Deduced by evaluator from a least-squares fit to adopted γ -ray energies.

[‡] J^π assignments are based on rotational structure, γ -ray decay patterns and energy systematics of Nilsson states and rotational parameters in this mass region. Specific arguments are given for some levels.

[#] Band(A): 7/2(404) band.

[@] Band(B): 5/2(402) band.

[&] Band(C): 1/2(541) band: levels above the 49/2⁻ state of this band as reported in (¹⁹F,4n γ) are not adopted, since these levels were not confirmed in (¹⁰B,5n γ) by a detail experimental investigation.

^a Band(D): 9/2(514) band.

^b Band(E): 1/2(411) band.

^c Band(F): Sequence I : feeds J=17/2 to 29/2 members of 1/2[541] band.

^d Band(G): Sequence II : feeds J=21/2 29/2 members of 1/2[541] band.

^e Band(H): $K^\pi=(17/2^+)$ 3-quasiparticle band. Possible config: $\pi^3 [7/2^+, 9/2^-, 1/2^-]$ or $\pi^1 [9/2^-] \otimes \nu^2 [7/2^+, 1/2^-]$.

^f Band(I): $K^\pi=(21/2^+)$ 3-quasiparticle band. Possible config: $\pi^1 [9/2^-] \otimes \nu^2 [7/2^+, 5/2^-]$.

^g Band(J): $K^\pi=(21/2^-)$ 3-quasiparticle band. Possible config: $\pi^3 [5/2^+, 7/2^+, 9/2^-]$.

^h Possible 5-quasiparticle state, or member of the $K^\pi=(21/2^-)$ rotational band.

Adopted Levels, Gammas (continued)

E _i (level)	J ^π _i	γ(175Ta)		E _f	J ^π _f	Mult. ^a	δ [‡]	α ^c	Comments
		E _γ [†]	I _γ [†]						
36.405	(5/2) ⁺	36.40 [#] 2	100 [#]	0.0	7/2 ⁺	M1+E2 ^b	<0.15 [#]		
51.377	(5/2) ⁻	14.97 [#] 2		36.405	(5/2) ⁺				
		51.38 [#] 2		0.0	7/2 ⁺	E1(+M2) ^b	0.038 [#] 17	0.7 3	
124.3	(9/2) ⁻	72.9 4	100 17	51.377	(5/2) ⁻				
		123.6 ^e 3	39 5	0.0	7/2 ⁺				E _γ : 123.6γ should have been seen in ¹⁷⁰ Er(¹⁰ B,5nγ) but was not.
129.75	(9/2) ⁺	129.7 2	100	0.0	7/2 ⁺				
131.41	(9/2) ⁻	131.6 2	100	0.0	7/2 ⁺				
142.59	(7/2) ⁺	106.1 2	100	36.405	(5/2) ⁺				
218.1	(3/2) ⁻	149.17 [#]	40 [#] 8	68.9	(1/2) ⁻	(M1+E2) ^b		1.1 3	
		166.69 [#]	100 [#] 17	51.377	(5/2) ⁻	(M1+E2) ^b		0.80 24	
276.26	(11/2) ⁻	144.9 1	100	131.41	(9/2) ⁻				
276.71	(9/2) ⁺	134.0 2	100 12	142.59	(7/2) ⁺	D+Q	0.15 +6-6		
		240.2 ^d 2	20 ^{d‡} 3	36.405	(5/2) ⁺				
284.35	(11/2) ⁺	154.6 2	100 16	129.75	(9/2) ⁺	D+Q	0.25 +11-10		
		284.4 2	78 9	0.0	7/2 ⁺				I _γ : 88 8 in ¹⁷⁰ Er(¹⁰ B,5nγ).
296.8	(13/2) ⁻	172.5 2	100	124.3	(9/2) ⁻				
339.2	(1/2) ⁺	121.16 [#]	14 [#] 4	218.1	(3/2) ⁻	(E1) ^b		0.224	
		270.25 [#]	100 [#] 17	68.9	(1/2) ⁻	E1 ^b			
436.00	(11/2) ⁺	159.9 2	100 13	276.26	(11/2) ⁻				
		293.5 3	37 5	142.59	(7/2) ⁺				I _γ : 20 3 in ¹⁷⁰ Er(¹⁰ B,5nγ).
446.60	(13/2) ⁻	170.3 2	100 12	276.26	(11/2) ⁻	D(+Q)	0.12 +10-9		
		315.2 3	16.0 24	131.41	(9/2) ⁻				I _γ : 21 and 30 1 in ¹⁶⁰ Gd(¹⁹ F,4nγ).
461.41	(13/2) ⁺	177.1 2	60 9	284.35	(11/2) ⁺	D+Q	0.44 +17-13		I _γ : 42 6 in ¹⁷⁰ Er(¹⁰ B,5nγ).
		331.6 2	100 12	129.75	(9/2) ⁺				
571.5	(17/2) ⁻	274.7 1	100	296.8	(13/2) ⁻				
619.53	(13/2) ⁺	183.7 2	100 [‡] 7	436.00	(11/2) ⁺	D+Q	0.21 +17-14		
		342.3 3	83 [‡] 9	276.71	(9/2) ⁺				I _γ : 55 and 59 8 in ¹⁶⁰ Gd(¹⁹ F,4nγ).
640.51	(15/2) ⁻	193.9 2	100 12	446.60	(13/2) ⁻	D+Q	0.14 +5-6		
		364.3 2	21.7 9	276.26	(11/2) ⁻				I _γ : 31 4 in ¹⁷⁰ Er(¹⁰ B,5nγ).
658.42	(15/2) ⁺	197.0 2	26 [‡] 3	461.41	(13/2) ⁺	D+Q	0.49 +10-9		I _γ : 52 9 in ¹⁷⁵ Lu(α,4nγ).
		374.1 2	100 [‡] 7	284.35	(11/2) ⁺				
826.0	(15/2) ⁺	206.4 3	100 12	619.53	(13/2) ⁺				
		390.1 3	20.7 22	436.00	(11/2) ⁺				I _γ : 79 4 in ¹⁷⁰ Er(¹⁰ B,5nγ). 86 12 in ¹⁶⁰ Gd(¹⁹ F,4nγ).
857.2	(17/2) ⁻	216.8 ^d 2	100 ^{d‡} 6	640.51	(15/2) ⁻				
		410.5 3	32 [‡] 5	446.60	(13/2) ⁻				
872.68	(17/2) ⁺	214.4 3	19.0 [‡] 25	658.42	(15/2) ⁺				I _γ : 16 2 in ¹⁷⁵ Lu(α,4nγ).

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Ta})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult. ^a	δ^{\ddagger}	Comments
872.68	(17/2 ⁺)	411.3 3	100 [‡] 6	461.41	(13/2 ⁺)			
943.5	(21/2 ⁻)	372.0 1	100	571.5	(17/2 ⁻)			
1051.8	(17/2 ⁺)	225.9 2	100 [‡] 6	826.0	(15/2 ⁺)	D(+Q)	0.11 +16-11	
		432.2 4	88 [‡] 3	619.53	(13/2 ⁺)			I_γ : 58 6 in ¹⁷⁵ Lu(α ,4n γ). 67 and 76 12 in ¹⁶⁰ Gd(¹⁹ F,4n γ).
1093.7	(19/2 ⁻)	236.6 2	100 [‡] 8	857.2	(17/2 ⁻)	D+Q	0.09 +8-8	
		453.1 2	64.7 [‡] 25	640.51	(15/2 ⁻)			I_γ : 40 5 in ¹⁷⁵ Lu(α ,4n γ). 51 and 90 13 in ¹⁶⁰ Gd(¹⁹ F,4n γ).
1102.1	(19/2 ⁺)	229.5 3	19 [‡] 3	872.68	(17/2 ⁺)			I_γ : 23 3 in ¹⁷⁵ Lu(α ,4n γ).
		443.6 2	100.0 [‡] 15	658.42	(15/2 ⁺)			
1280.0	(15/2)	833.4&	100&	446.60	(13/2 ⁻)			
1297.3	(19/2 ⁺)	245.7 2	70 10	1051.8	(17/2 ⁺)	D+(Q)	0.21 +27-20	I_γ : 57 6 in ¹⁷⁰ Er(¹⁰ B,5n γ).
		471.2 2	100 13	826.0	(15/2 ⁺)			
1302.1	(15/2 ⁻)	730.6	100	571.5	(17/2 ⁻)			
1342.3	(21/2 ⁺)	240.2 ^d 2	13.4 ^{d‡} 11	1102.1	(19/2 ⁺)	D+Q	0.32 +9-9	
		469.6 2	100 [‡] 5	872.68	(17/2 ⁺)			
1350.9	(21/2 ⁻)	257.2 2	100 [‡] 6	1093.7	(19/2 ⁻)	D(+Q)	0.14 +17-14	
		494.0 3	89 [‡] 6	857.2	(17/2 ⁻)			I_γ : 74 9 in ¹⁷⁵ Lu(α ,4n γ).
1405.6	(25/2 ⁻)	462.1 1	100	943.5	(21/2 ⁻)			
1497.3	(17/2)	925.8&	100&	571.5	(17/2 ⁻)			
1549.4	(15/2 ⁻)	977.9&	100&	571.5	(17/2 ⁻)			
1552.5	(17/2 ⁺)	458.9&	44& 9	1093.7	(19/2 ⁻)			
		680.3&	18& 6	872.68	(17/2 ⁺)			
		695.7&	53& 12	857.2	(17/2 ⁻)			
		894.2&	23& 8	658.42	(15/2 ⁺)			
		912.1&	100& 23	640.51	(15/2 ⁻)			
		932.4&	32& 9	619.53	(13/2 ⁺)			
		1090.6&	15& 6	461.41	(13/2 ⁺)			
1557.3	(21/2 ⁺)	260.0 3	38 6	1297.3	(19/2 ⁺)			I_γ : 56 11 in ¹⁷⁰ Er(¹⁰ B,5n γ).
		505.5 5	100 19	1051.8	(17/2 ⁺)			
1567.6	(21/2 ⁻)	216.8 ^d 2	45 ^{d‡} 9	1350.9	(21/2 ⁻)	(M1)		Mult.: $\alpha(\text{exp})=0.3$ 2, from intensity balance at 1350 keV level in ¹⁷⁰ Er(¹⁰ B,5n γ).
		473.8 2	100 11	1093.7	(19/2 ⁻)			
		709.6&	43& 5	857.2	(17/2 ⁻)			
1593.1	(23/2 ⁺)	251.0 3	26 3	1342.3	(21/2 ⁺)			
		490.9 3	100 12	1102.1	(19/2 ⁺)			
1622.1	(23/2 ⁻)	271.1&	52& 11	1350.9	(21/2 ⁻)			I_γ : 63 15 in ¹⁶⁰ Gd(¹⁹ F,4n γ).

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Ta})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. ^a	δ^\ddagger	Comments
1622.1	(23/2 ⁻)	528.3&	100& 8	1093.7	(19/2 ⁻)			
1651.3	(19/2 ⁺)	98.8&	100&	1552.5	(17/2 ⁺)			
1690.9	(19/2)	1119.4&	100&	571.5	(17/2 ⁻)			
1731.0	(21/2 ⁺)	163.4&	100&	1567.6	(21/2 ⁻)	E1		Mult.: From $\alpha(\text{exp})\leq 0.16$ in ¹⁷⁰ Er(¹⁰ B,5ny).
1771.7	(19/2 ⁻)	469.6&	100&	1302.1	(15/2 ⁻)			
1794.2	(21/2 ⁺)	142.7&	100&	1651.3	(19/2 ⁺)			
1825.7	(21/2)	328.5&	44& 22	1497.3	(17/2)			
		881.9&	100& 11	943.5	(21/2 ⁻)			
1832.2	(23/2 ⁺)	275.1&	53& 10	1557.3	(21/2 ⁺)			
		534.6&	100& 6	1297.3	(19/2 ⁺)			
1852.1	(25/2 ⁺)	258.8&	12& 3	1593.1	(23/2 ⁺)			
		509.0&	100& 5	1342.3	(21/2 ⁺)			
1878.7	(23/2 ⁻)	311.2&	100&	1567.6	(21/2 ⁻)			
1896.8	(23/2 ⁺)	165.7&	100&	1731.0	(21/2 ⁺)			
1910.6	(25/2 ⁻)	288.1&	61& 6	1622.1	(23/2 ⁻)			
		559.9&	100& 16	1350.9	(21/2 ⁻)			
1941.0	(23/2)	997.3&	100&	943.5	(21/2 ⁻)			
1950.0	(29/2 ⁻)	544.6 5	100	1405.6	(25/2 ⁻)			
1969.8	(23/2 ⁺)	175.5&	100& 27	1794.2	(21/2 ⁺)	D+Q	0.2 +5-2	
		318.6&	32& 7	1651.3	(19/2 ⁺)			
2039.5	(23/2)	348.6&	100&	1690.9	(19/2)			
2088.0	(25/2 ⁺)	191.0&	100& 11	1896.8	(23/2 ⁺)	D+Q	0.47 +20-12	
		357.1&	25& 4	1731.0	(21/2 ⁺)			
2114.9	(25/2 ⁺)	282.5&	86& 15	1832.2	(23/2 ⁺)			
		557.7&	100& 16	1557.3	(21/2 ⁺)			
2118.7	(27/2 ⁺)	266.1 @	10 @	1852.1	(25/2 ⁺)			
		526.6 @	100 @	1593.1	(23/2 ⁺)			
2174.0	(25/2 ⁺)	204.1&	100& 32	1969.8	(23/2 ⁺)	D+Q	0.31 +4-5	
		379.8&	57& 11	1794.2	(21/2 ⁺)			
2203.6	(25/2 ⁻)	325.2&	100& 6	1878.7	(23/2 ⁻)	D+Q	0.24 +19-15	
		635.9&	10& 3	1567.6	(21/2 ⁻)			
2206.5	(27/2 ⁻)	295.7&	76& 14	1910.6	(25/2 ⁻)			
		584.6&	100& 10	1622.1	(23/2 ⁻)			

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Ta})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	Mult. ^a	δ^\ddagger
2213.2	(25/2)	387.1& 807.7&	100& 15 37& 13	1825.7 (21/2) 1405.6 (25/2 ⁻)			
2300.4	(27/2 ⁺)	212.4& 403.7&	100& 16 74& 11	2088.0 (25/2 ⁺) 1896.8 (23/2 ⁺)	D+Q	0.5 +6-3	
2317.3	(27/2)	376.0& 911.5&	65& 19 100& 13	1941.0 (23/2) 1405.6 (25/2 ⁻)			
2396.2	(29/2 ⁺)	277.7@ 543.7@	<7@ 100	2118.7 (27/2 ⁺) 1852.1 (25/2 ⁺)			
2403.4	(27/2 ⁺)	229.4& 433.7&	100& 12 58& 15	2174.0 (25/2 ⁺) 1969.8 (23/2 ⁺)			
2407.2	(27/2 ⁺)	292.4& 575.1&	55& 9 100& 14	2114.9 (25/2 ⁺) 1832.2 (23/2 ⁺)			
2515.9	(29/2 ⁻)	309.6& 605.3&	99& 15 100& 23	2206.5 (27/2 ⁻) 1910.6 (25/2 ⁻)			
2532.5	(29/2 ⁺)	232.3& 444.4&	90& 19 100& 39	2300.4 (27/2 ⁺) 2088.0 (25/2 ⁺)	D+Q	0.4 +6-2	
2538.2	(27/2 ⁻)	334.5& 659.5&	100& 12 24& 9	2203.6 (25/2 ⁻) 1878.7 (23/2 ⁻)	D+Q	0.23 +16-14	
2568.9	(33/2 ⁻)	618.9 6	100	1950.0 (29/2 ⁻)			
2635.1	(29/2)	421.7& 685.4&	100& 24 47& 13	2213.2 (25/2) 1950.0 (29/2 ⁻)			
2656.8	(29/2 ⁺)	253.6& 482.9&	89& 19 100& 22	2403.4 (27/2 ⁺) 2174.0 (25/2 ⁺)			
2681.4	(31/2 ⁺)	285.1@ 562.8@	<10@ 100@	2396.2 (29/2 ⁺) 2118.7 (27/2 ⁺)			
2704.4	(29/2 ⁺)	297.5& 589.2&	60& 9 100& 28	2407.2 (27/2 ⁺) 2114.9 (25/2 ⁺)			
2768.8	(31/2)	451.1& 819.3&	100& 28 25& 8	2317.3 (27/2) 1950.0 (29/2 ⁻)			
2783.7	(31/2 ⁺)	251.3& 483.3&	71& 10 100& 39	2532.5 (29/2 ⁺) 2300.4 (27/2 ⁺)			
2825.8	(31/2 ⁻)	310.4& 619.0&	89& 17 100& 19	2515.9 (29/2 ⁻) 2206.5 (27/2 ⁻)			

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Ta})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ^\dagger	I_γ^\dagger	E_f	J_f^π
2880.7	(29/2 ⁻)	342.5&	100& 20	2538.2 (27/2 ⁻)		3641.9	(37/2 ⁺)	302.1&	47& 20	3339.6 (35/2 ⁺)	
		677.2&	39& 10	2203.6 (25/2 ⁻)				588.8&	100& 27	3053.0 (33/2 ⁺)	
2931.9	(31/2 ⁺)	275.1&	88& 19	2656.8 (29/2 ⁺)		3763.2	(35/2,37/2)	235.7&	100&	3527.5 (33/2 ⁻)	
		528.2&	100& 31	2403.4 (27/2 ⁺)		3892.3	(39/2)	596.5&	100&	3295.8 (35/2)	
2981.5	(33/2 ⁺)	300.2@	<20@	2681.4 (31/2 ⁺)		3943.8	(37/2 ⁺)	631.3&	100&	3312.5 (33/2 ⁺)	
		585.3@	100@	2396.2 (29/2 ⁺)		3947.3	(39/2 ⁺)	659.2&	100&	3288.1 (35/2 ⁺)	
3006.3	(31/2 ⁺)	599.1&	100&	2407.2 (27/2 ⁺)		3958.1	(39/2 ⁺)	316.3&	39& 17	3641.9 (37/2 ⁺)	
3053.0	(33/2 ⁺)	269.5&	54& 11	2783.7 (31/2 ⁺)				618.7&	100& 44	3339.6 (35/2 ⁺)	
		520.4&	100& 25	2532.5 (29/2 ⁺)		3993.4	(41/2 ⁻)	742.3&	100&	3251.1 (37/2 ⁻)	
3091.5	(33/2)	456.4&	100&	2635.1 (29/2)		4042.3	(37/2,39/2)	279.1&	100&	3763.2 (35/2,37/2)	
3144.0	(33/2 ⁻)	318.3&	49& 22	2825.8 (31/2 ⁻)		4188.8	(41/2)	584.1&	100&	3604.7 (37/2)	
		627.9&	100& 19	2515.9 (29/2 ⁻)		4265.0	(39/2 ⁺)	641.2&	100&	3623.8 (35/2 ⁺)	
3217.1	(31/2 ⁻)	336.4&	100& 16	2880.7 (29/2 ⁻)		4283.3	(41/2 ⁺)	325.5&	36& 9	3958.1 (39/2 ⁺)	
		678.8&	73& 16	2538.2 (27/2 ⁻)				641.1&	100& 55	3641.9 (37/2 ⁺)	
3225.7	(33/2 ⁺)	293.7&	88& 50	2931.9 (31/2 ⁺)		4300.0	(41/2 ⁺)	686.2&	100&	3613.8 (37/2 ⁺)	
		569.1&	100& 25	2656.8 (29/2 ⁺)		4330.3	(39/2,41/2)	288.0&	100&	4042.3 (37/2,39/2)	
3232.4	(31/2 ⁻)	351.9&	100&	2880.7 (29/2 ⁻)		4559.3	(43/2)	667.0&	100&	3892.3 (39/2)	
		694.0&	≤43&	2538.2 (27/2 ⁻)		4591.6	(41/2 ⁺)	647.8&	100&	3943.8 (37/2 ⁺)	
3251.1	(37/2 ⁻)	682.2&	100&	2568.9 (33/2 ⁻)		4620.9	(43/2 ⁺)	337.4&	80& 40	4283.3 (41/2 ⁺)	
3288.1	(35/2 ⁺)	606.7&	100&	2681.4 (31/2 ⁺)				662.9&	100& 40	3958.1 (39/2 ⁺)	
3295.8	(35/2)	527.0&	100&	2768.8 (31/2)		4636.1	(41/2,43/2)	305.8&	100&	4330.3 (39/2,41/2)	
3312.5	(33/2 ⁺)	608.1&	100&	2704.4 (29/2 ⁺)		4661.3	(43/2 ⁺)	714.0&	100&	3947.3 (39/2 ⁺)	
3339.6	(35/2 ⁺)	286.6&	52& 14	3053.0 (33/2 ⁺)		4786.1	(45/2 ⁻)	792.7@	100@	3993.4 (41/2 ⁻)	
		555.9&	100& 33	2783.7 (31/2 ⁺)		4849.3	(45/2)	660.5&	100&	4188.8 (41/2)	
3457.8	(35/2 ⁻)	632.0&	100&	2825.8 (31/2 ⁻)		4925.2	(43/2 ⁺)	660.2&	100&	4265.0 (39/2 ⁺)	
3527.5	(33/2 ⁻)	310.4&	35& 18	3217.1 (31/2 ⁻)		4967.1	(45/2 ⁺)	346.0&	50& 33	4620.9 (43/2 ⁺)	
		646.8&	100& 21	2880.7 (29/2 ⁻)				684.0&	100& 33	4283.3 (41/2 ⁺)	
3604.7	(37/2)	513.2&	100&	3091.5 (33/2)		5040.0	(45/2 ⁺)	740.0&	100&	4300.0 (41/2 ⁺)	
3613.8	(37/2 ⁺)	632.3&	100&	2981.5 (33/2 ⁺)		5297.0	(47/2)	737.7&	100&	4559.3 (43/2)	
3623.8	(35/2 ⁺)	617.5&	100&	3006.3 (31/2 ⁺)		5610.1	(49/2 ⁻)	824.0&	100&	4786.1 (45/2 ⁻)	

† From ¹⁷⁵Lu(α ,4n γ), except as noted.

Adopted Levels, Gammas (continued)

$\gamma(^{175}\text{Ta})$ (continued)

‡ From $^{170}\text{Er}(^{10}\text{B},5n\gamma)$.

From ^{175}W ε decay.

@ From $^{160}\text{Gd}(^{19}\text{F},4n\gamma)$.

& From $^{170}\text{Er}(^{10}\text{B},5n\gamma)$.

^a From angular distribution in $^{170}\text{Er}(^{10}\text{B},5n\gamma)$, except as noted.

^b From ce data in ^{175}W ε decay.

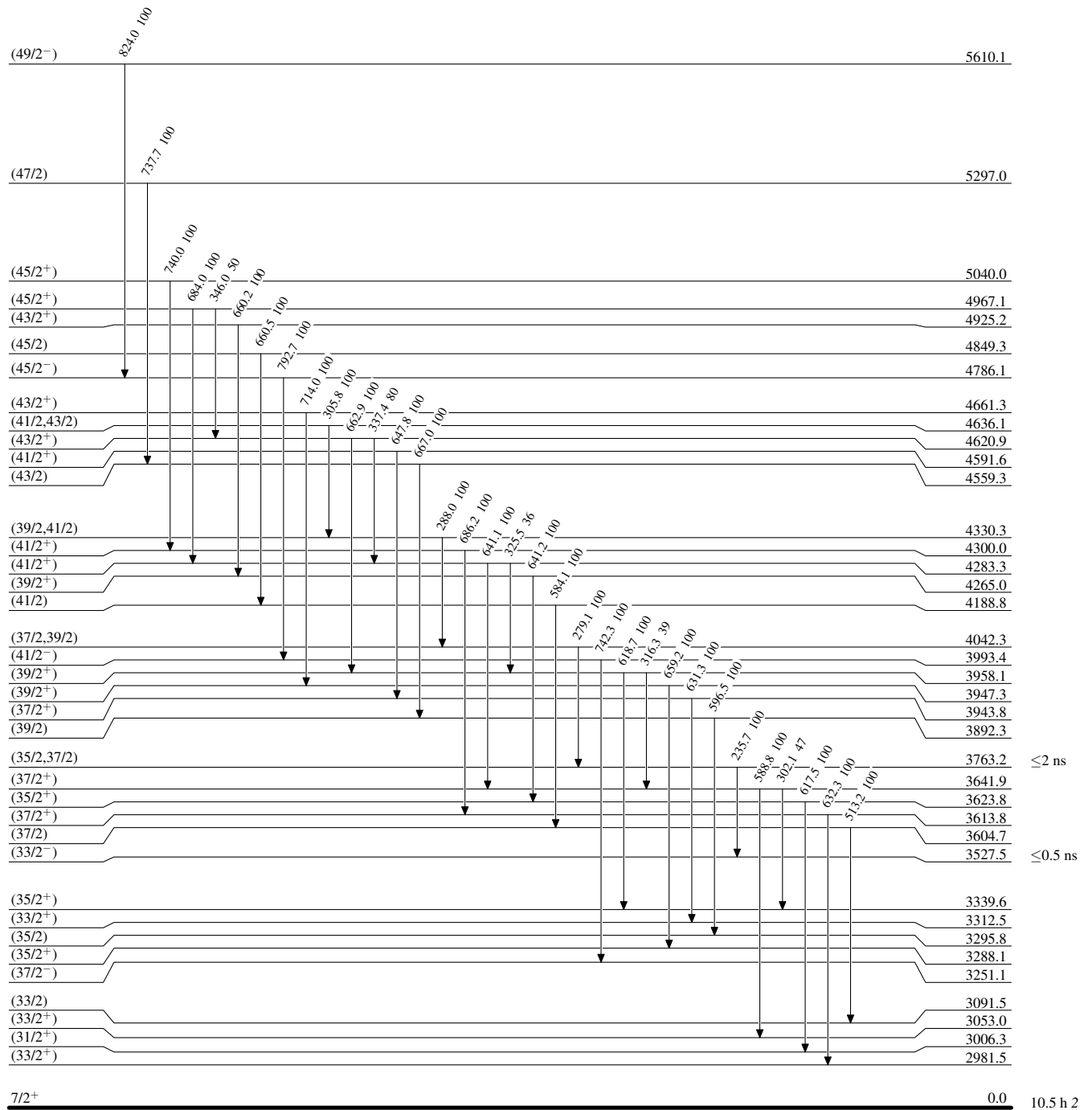
^c Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^d Multiply placed with undivided intensity.

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

Adopted Levels, GammasLevel Scheme

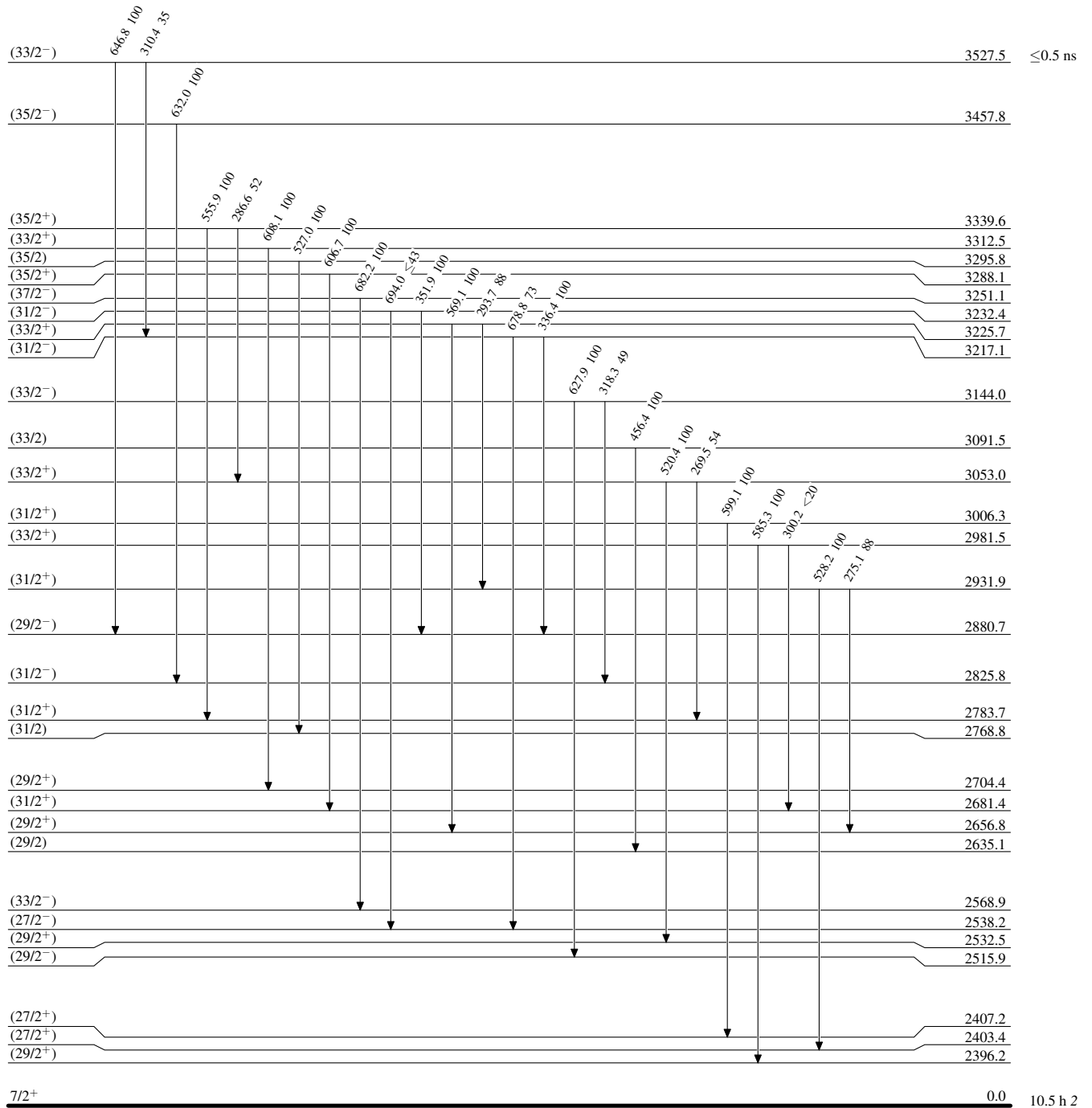
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

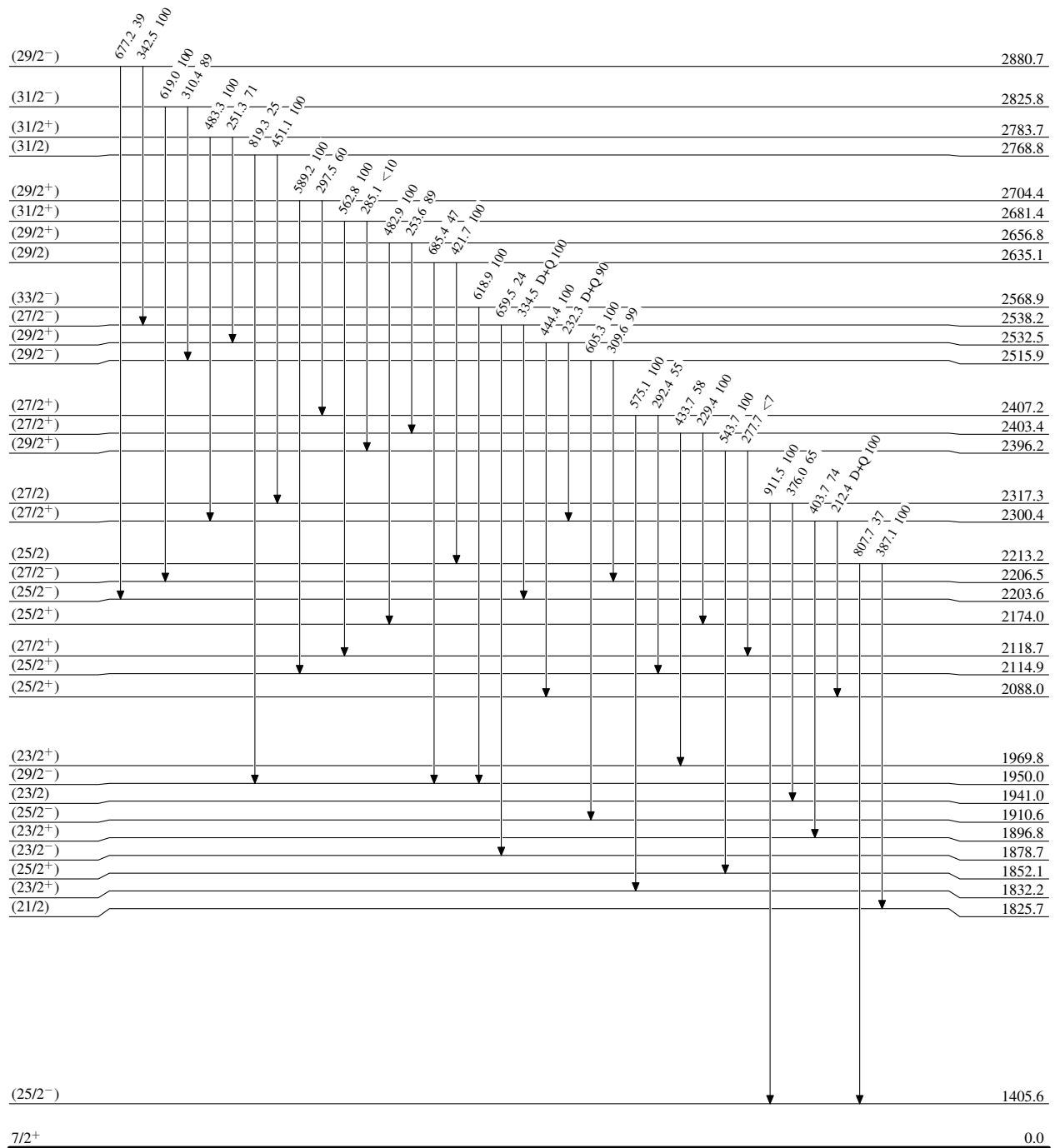
Level Scheme (continued)

Intensities: Relative photon branching from each level



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

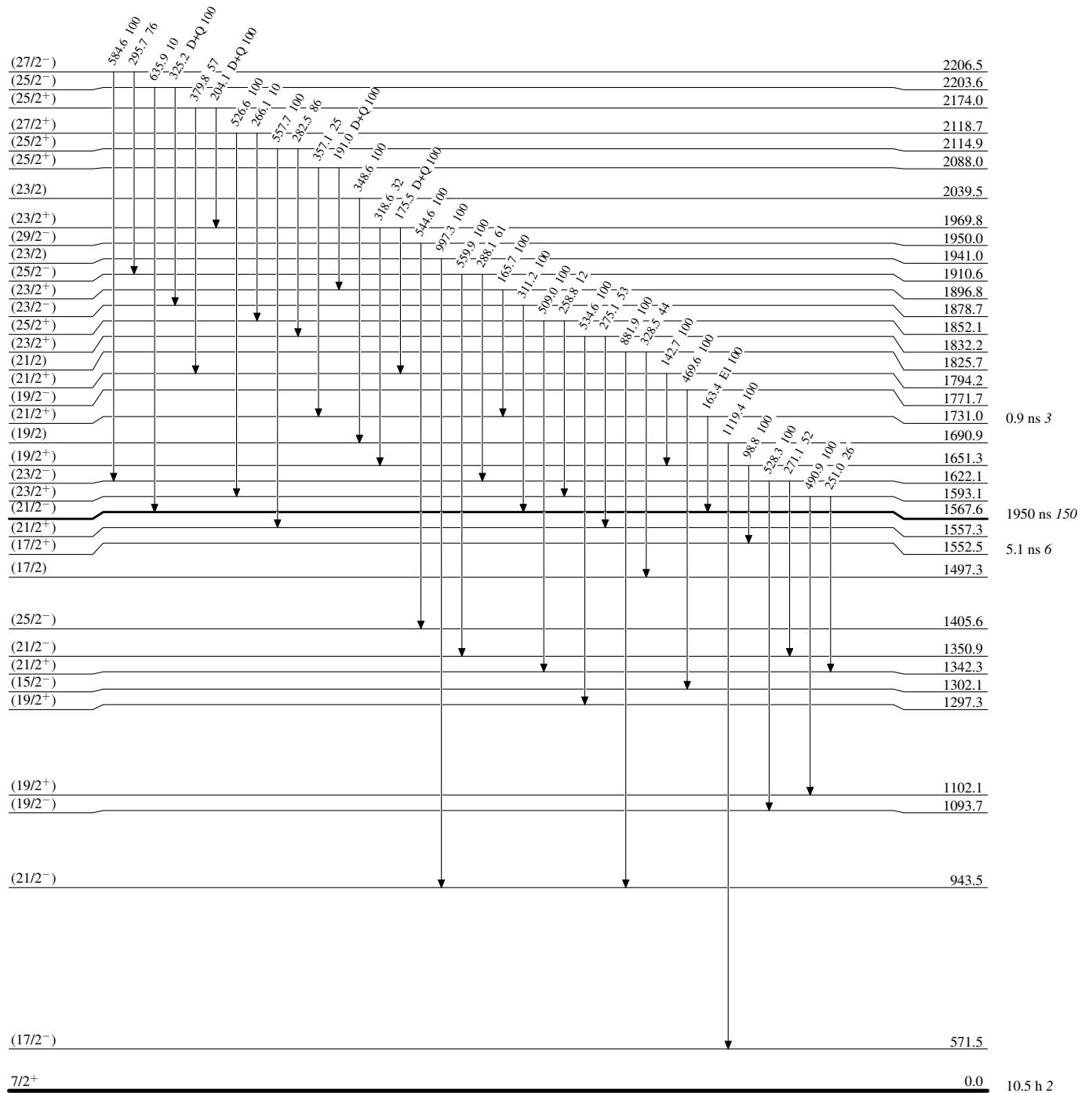
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

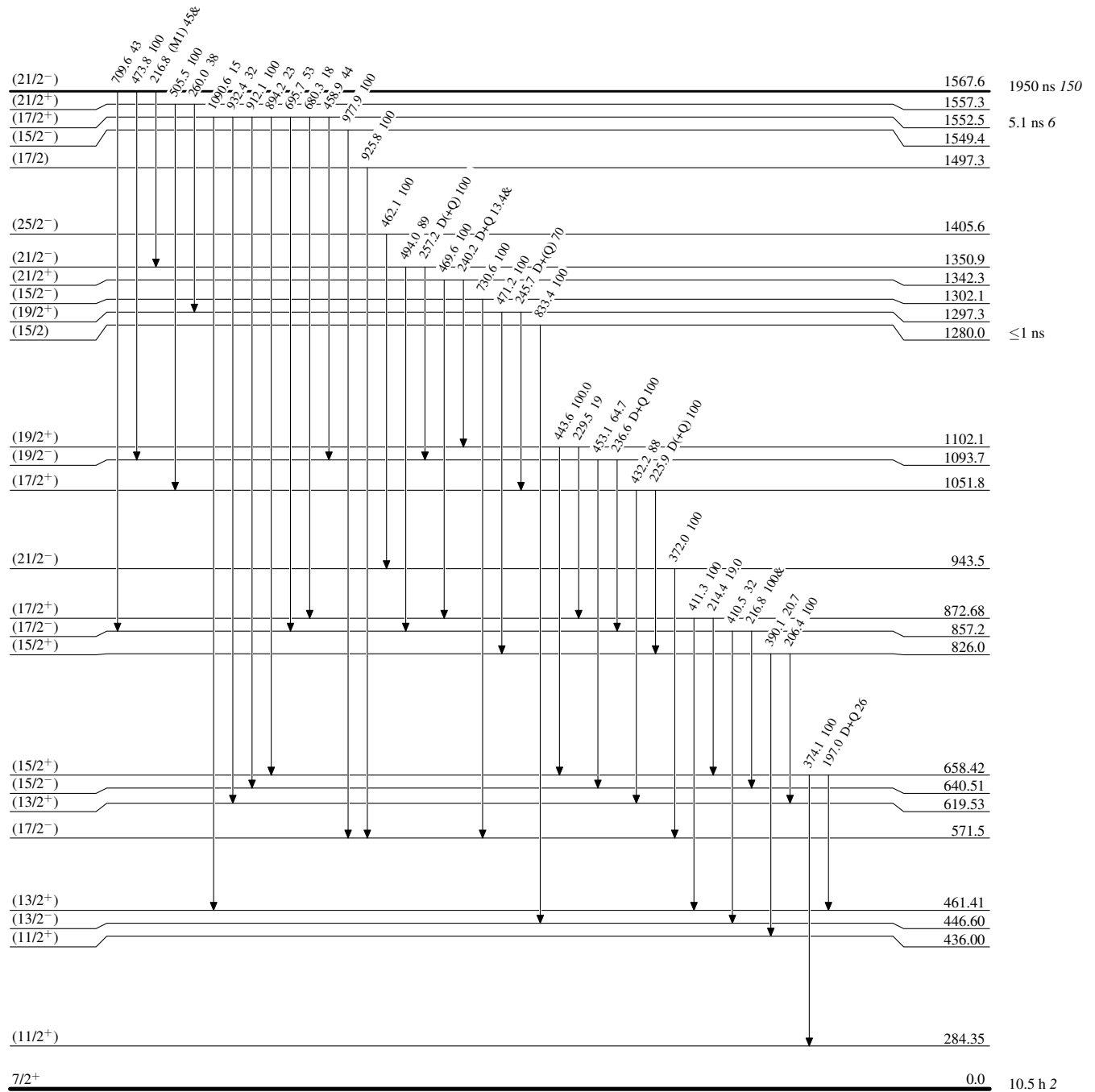
Level Scheme (continued)

Intensities: Relative photon branching from each level



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

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



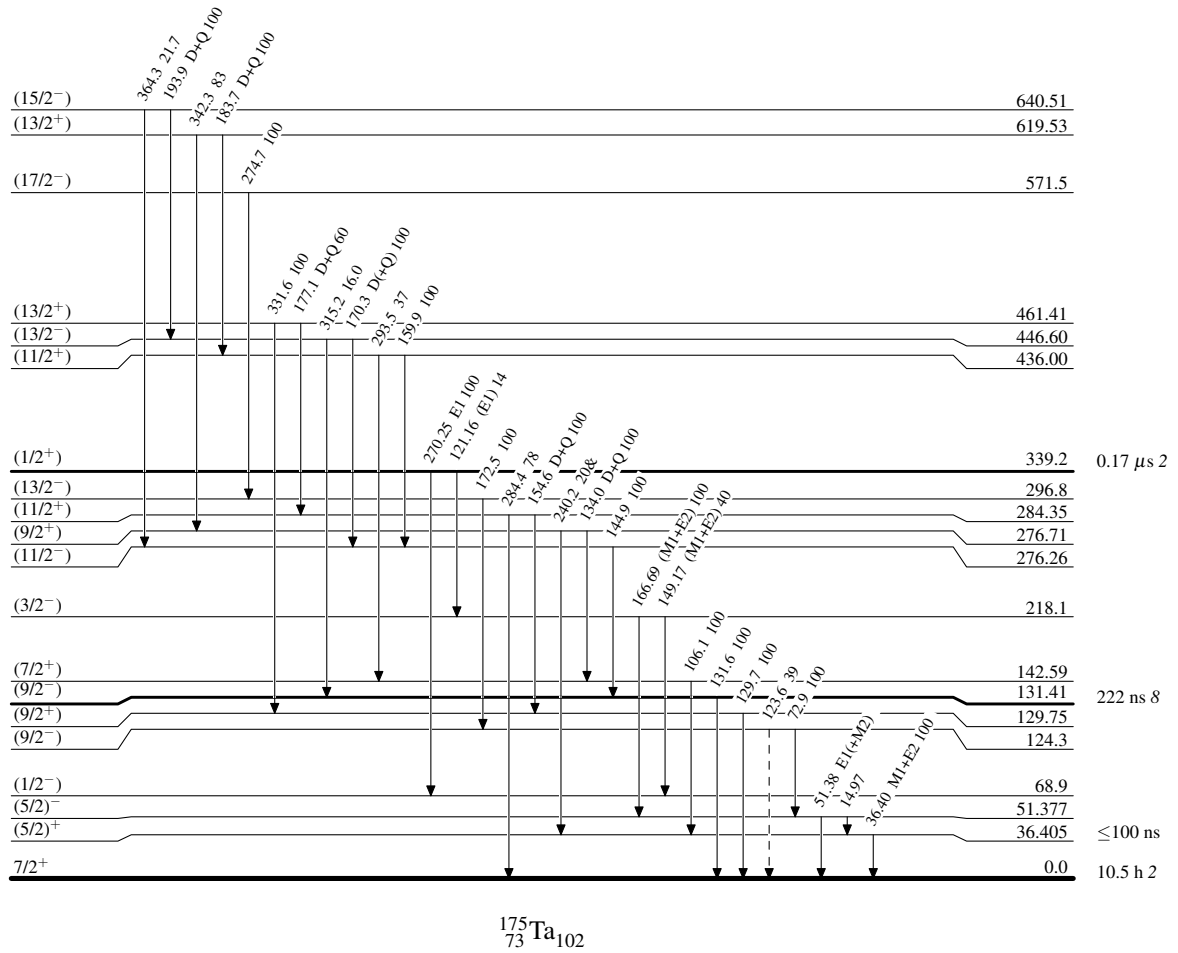
Adopted Levels, Gammas

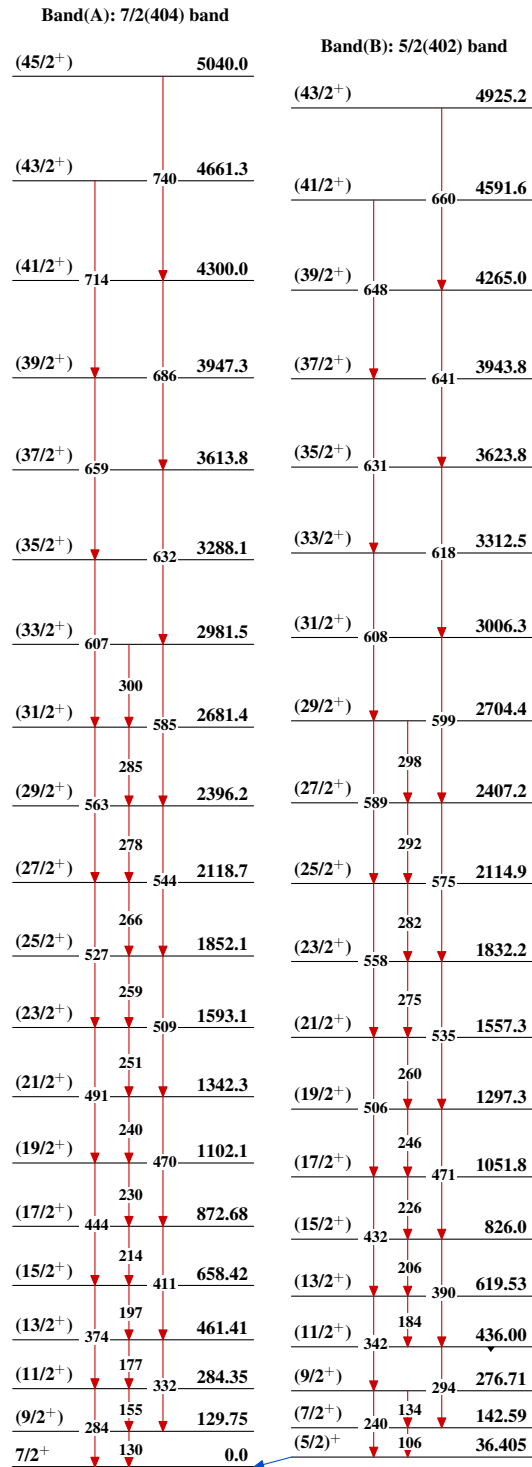
Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

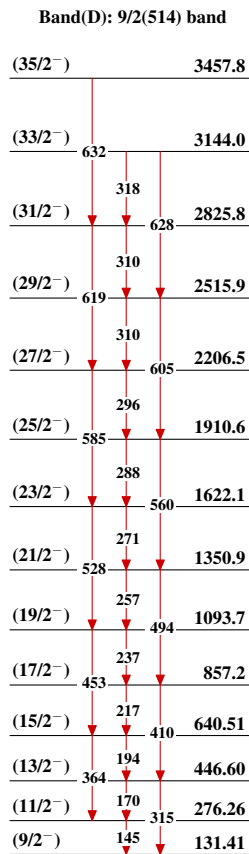
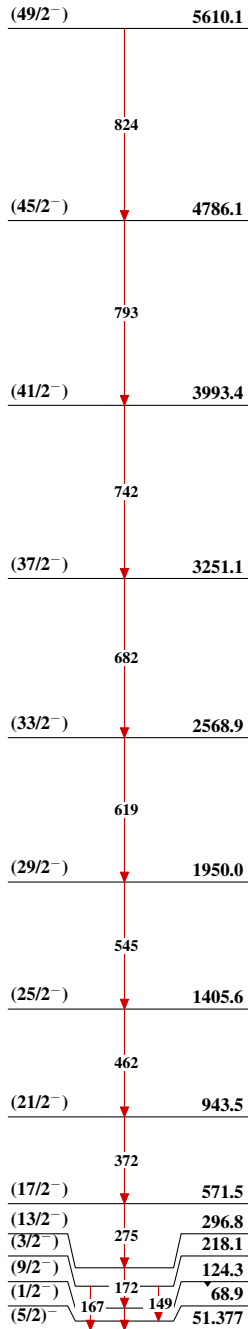
-----▶ γ Decay (Uncertain)



Adopted Levels, Gammas $^{175}_{73}\text{Ta}_{102}$

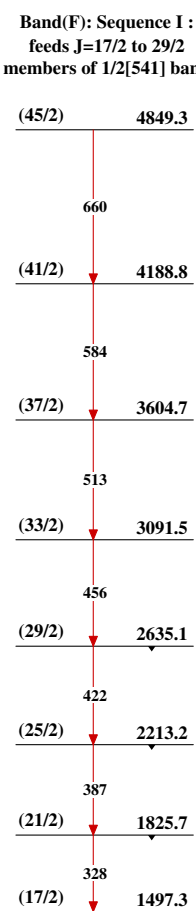
Adopted Levels, Gammas (continued)

Band(C): 1/2(541) band: levels above the 49/2⁻ state of this band as reported in (¹⁹F,4n γ) are not adopted, since these levels were not confirmed in (¹⁰B,5n γ) by a detail experimental investigation

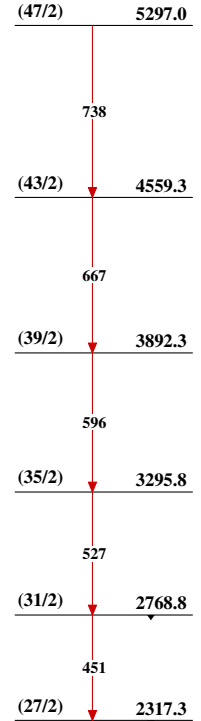


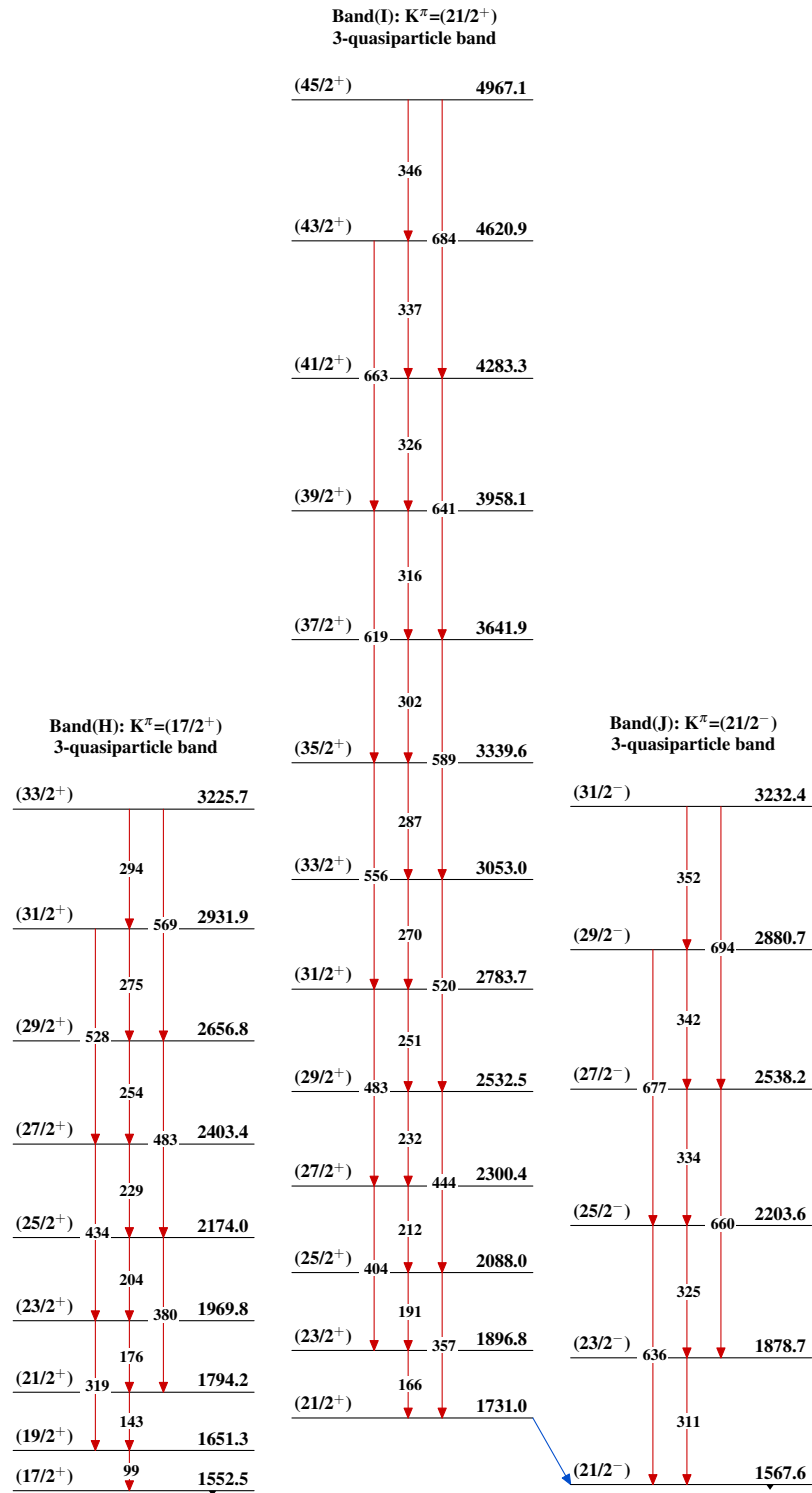
Band(E): 1/2(411) band
(1/2⁺) 339.2

Band(F): Sequence I :
feeds J=17/2 to 29/2
members of 1/2[541] band



Band(G): Sequence II :
feeds J=21/2 29/2
members of 1/2[541] band



Adopted Levels, Gammas (continued) $^{175}_{73}\text{Ta}_{102}$