Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 107,791 (2006)	15-Sep-2005

Q(β^-)=−7.2×10^2 *5*; S(n)=7.03×10^3 *5*; S(p)=4.17×10^3 *3*; Q(α)=2.95×10^3 *3* 2012Wa38
Note: Current evaluation has used the following Q record −720 407030 404170 302950 30 2003Au03.

^{176}Ta Levels

Cross Reference (XREF) Flags

A ^{176}W ε decay
B ^{176}Hf(d,2nγ),(p,nγ)
C ^{175}Lu(α,3nγ)
D ^{170}Er(^{11}B,5nγ)
E ^{170}Er(^{10}B,4nγ),^{173}Yb(^{7}Li,4nγ)

E(level)[†]	J$^\pi$[@]	T$_{1/2}$[&]	XREF	Comments
0.0	(1)$^-$	8.09 h *5*	ABC E	%ε+%β^+=100 J$^\pi$: J^π=(1,2)$^-$, from log *ft* values in ε decay to low-J values in ^{176}Hf. J^π=(1)$^-$ is expected from Gallagher-Moszkowski spin-coupling rule for configuration=((π 7/2[404])(ν 5/2[512])). T$_{1/2}$: weighted average of 8.08 h *7* (1969Bo23), 8.2 h *1* (1963Va20), 8.0 h *3* (1963Ma48), and 8.0 h *1* (1950Wi67). Others: 1969Ho17, 1963Ve02, 1963Ra14, 1963Ha33, 1960Gr14.
0+x	(3,4)$^-$		D	J$^\pi$: From (M1+E2) or stretched quadrupole character of the 196.3γ from the (5$^-$) state at 196.3+x keV in ^{170}Er(^{11}B,5nγ).
0+y[d]	(4$^+$)		D	J$^\pi$: 39.9γ, 63.9γ, and 85.9γ of M1 with small E2 admixtures feeding this state from (5$^+$), (6$^+$), and (7$^+$) states in ^{170}Er(^{11}B,5nγ). Band assignment.
0+w[g]	7$^+$		CDE	J$^\pi$: K^π=7$^+$, configuration=((π 9/2[514])+(ν 5/2[512])). Assignment is based on prompt (<5 ns) 186.6γ E1 from 186.6+W level, which can be assumed to involve only a single-particle transition (ν 7/2[633] to ν 5/2[512]). Level may be isomeric. T$_{1/2}$ and decay mode are unknown.
39.7+y[d] *7*	(5$^+$)		D	J$^\pi$: Band assignment.
46.0[#] *10*	(2$^-$)		BC	J$^\pi$: 46.0γ M1 to (1$^-$). Possible member of g.s. rotational band. Rotational parameter A=11.5 keV.
69.5[#] *15*	(1$^-$,2$^-$,3$^-$)		BC	J$^\pi$: 23.5γ (M1) to (2$^-$).
75+w	(7$^+$)		D	
90.4+x[c] *8*	(4,5)$^+$	27 ns *8*	D	J$^\pi$: 90.4γ E1 to the (3,4)$^-$ state at 0+x keV.
99.9+x[b] *8*	(3$^+$)	38 ns *6*	D	J$^\pi$: 99.9γ E1 to the (3,4)$^-$ state at 0+x keV. T$_{1/2}$: 30.5 ns *10* in (d,2nγ),(p,nγ) (1978Du06).
100+z[b]	(5$^+$)		D	
100.2[‡a] *10*	(0$^+$)	30.5 ns *10*	AB	T$_{1/2}$: from (d,2nγ), (p,nγ) (1978Du06). Other value: 25 ns *3* ^{176}W ε decay (1963Va20). J$^\pi$: 100.2γ E1 to (1$^-$). Two-quasiparticle configuration with K^π=0$^+$ is expected from Gallagher-Moszkowski spin-coupling rule.
103.0[#] *18*	(+)	1.1 ms *1*	BC	T$_{1/2}$: from ^{175}Lu(α,3nγ) (1971Go21). Other value: 1.05 ms *10* (1978Du06).
103.6+y[d] *8*	(6$^+$)		B D	
133.8[‡a] *13*	(2$^+$)	2 ns *1*	A	T$_{1/2}$: from ^{176}W ε decay (1968Ab05). J$^\pi$: 33.6γ E2 to (0$^+$). Rotational structure.
152.0+w[g] *6*	8$^+$		D	
182.6+x[e] *8*	(4$^-$)	≤2 ns	D	
184.3[‡] *13*	(1$^+$)		AB	J$^\pi$: 50.5γ (M1) to (2$^+$), 84.1γ (M1) to (0$^+$).
186.5+w[f] *6*	8$^-$	1.5 ns *5*	CDE	J$^\pi$: 186.8γ E1 to (7$^+$).

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Adopted Levels, Gammas (continued)

^{176}Ta Levels (continued)

E(level)†	Jπ@	$T_{1/2}$&	XREF	Comments
				$T_{1/2}$: other: <5 ns (1978Bu16).
189.5+y[d] 8	(7+)		D	
193.8?[#]	(+)	13.3 ns 10	B	
195.1[‡a] 13	(1+)		AB	Jπ: 61.3γ M1 to (2+), 94.9γ M1 to (0+).
196.3+x[e] 8	(5−)		D	
222.3+x[c] 11	(5,6)+		D	
241.9+x[e] 9	(6−)		D	
249.5+w[f] 8	9−		DE	
255.3+z[b] 12	(7+)		D	
298.2+y[d] 9	(8+)		D	
305.1+x[e] 10	(7−)		D	
320.4+w[g] 6	9+		D	
378.9+x[c] 11	(6,7)+		D	
382.7+x[e] 10	(8−)		D	
383.6+w[f] 8	10−		CDE	
428.8+y[d] 9	(9+)		D	
486.1+x[e] 11	(9−)		D	
504.6+z[b] 14	(9+)		D	
505.7+w[g] 8	10+		D	
553.9+w[f] 8	11−		CDE	
558.1+x[c] 11	(7,8)+		D	
581.5+y[d] 9	(10+)		D	
601.4+x[e] 11	(10−)		D	
712.5+w[g] 9	11+		D	
753.0+w[f] 9	12−		CDE	
754.2+x[e] 12	(11−)		D	
754.9+y[d] 10	(11+)		D	
759.0+x[c] 12	(8,9)+		D	
845.9+z[b] 16	(11+)		D	
906.4+x[e] 12	(12−)		D	
949.1+y[d] 10	(12+)		D	
976.8+w[f] 10	13−		CDE	
979.8+x[c] 12	(9,10)+		D	
1113.5+x[e] 12	(13−)		D	
1163.1+y[d] 10	(13+)		D	
1218.8+x[c] 13	(10,11)+		D	
1225+w[f] 11	14−		CDE	
1273.7+z[b] 18	(13+)		D	
1299.7+x[e] 13	(14−)		D	
1371+w[h] 1	14−	3.8 μs 4	DE	$T_{1/2}$: From (^{10}B,4nγ),(^{7}Li,4nγ) (1978Bu16).
1382+w[i] 1	(11,12)+	2.0 ns 4	D	
1397.4+y[d] 11	(14+)		D	
1432+w 1	(13+)	25 ns 8	D	
1476.7+x[c] 14	(11,12)+		D	
1495+w[f] 11	15−		DE	
1530+w[i] 1	(12,13)+		D	
1555+w[h] 1	15−		D	

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Adopted Levels, Gammas (continued)

^{176}Ta Levels (continued)

E(level)†	Jπ@	$T_{1/2}$&	XREF
1563.4+x[e] *13*	(15⁻)		D
1649.8+y[d] *10*	(15⁺)		D
1666+w *1*	(14⁻)	≤1 ns	D
1705+w[i] *1*	(13,14)⁺		D
1754.8+x[c] *14*	(12,13)⁺		D
1779.6+x[e] *13*	(16⁻)		D
1781.4+z[b] *20*	(15⁺)		D
1785+w[f] *1*	16⁻		D
1812+w[h] *1*	16⁻		D
1906+w[i] *1*	(14,15)⁺		D
1921.5+y[d] *11*	(16⁺)		D
1995+w *2*	(15⁻)		D
2094+w[f] *1*	17⁻		D
2098.7+x[e] *14*	(17⁻)		D
2107+w[h] *1*	17⁻		D
2210.3+y[d] *12*	(17⁺)		D
2343.0+x[e] *14*	(18⁻)		D
2349+w *2*	(16⁻)		D
2362.6+z[b] *22*	(17⁺)		D
2418+w[f] *1*	18⁻		D
2426+w[h] *1*	18⁻		D
2517.4+y[d] *12*	(18⁺)		D
2713.2+x[e] *15*	(19⁻)		D
2760+w[f] *1*	19⁻		D
2765+w[h] *1*	19⁻		D
2771+w[j] *1*	20⁻	0.97 ms *7*	D
2841.4+y[d] *13*	(19⁺)		D
2983.4+x[e] *15*	(20⁻)		D
3011.3+z[b] *23*	(19⁺)		D
3080+w[j] *1*	(21⁻)		D
3108+w[f] *1*	20⁻		D
3116+w[h] *1*	20⁻		D
3181.8+y[d] *13*	(20⁺)		D
3398.0+x[e] *17*	(21⁻)		D
3446+w[j] *1*	(22⁻)		D
3472+w[f] *1*	21⁻		D
3483+w[h] *1*	21⁻		D
3539.2+y[d] *15*	(21⁺)		D
3697.2+x[e] *17*	(22⁻)		D
3724.0+z[b] *24*	(21⁺)		D
3837+w[f] *1*	22⁻		D
3841+w[j] *1*	(23⁻)		D
3853+w[h] *1*	(22⁻)		D
3911.9+y[d] *16*	(22⁺)		D
4143.7+x[e] *19*	(23⁻)		D
4212+w[f] *1*	23⁻		D

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Adopted Levels, Gammas (continued)

^{176}Ta Levels (continued)

E(level)[†]	J$^\pi$[@]	T$_{1/2}$[&]	XREF	Comments
4241+w[h] *1*	(23$^-$)		D	
4255+w[j] *1*	(24$^-$)		D	
4272.1+y[d] *17*	(23$^+$)		D	
4423+w *1*	(24)	≤0.5 ns	D	
4478.4+x[e] *19*	(24$^-$)		D	
4497+z[b] *3*	(23$^+$)		D	
4586+w[f] *1*	24$^-$		D	
4682+w[j] *1*	(25$^-$)		D	
4971+w[f] *1*	25$^-$		D	
5119+w[j] *1*	(26$^-$)		D	
5294+w[k] *1*	(27$^-$)	≤1 ns	D	J$^\pi$: From 175.7γ M1 transition.
5354+w[f] *1*	26$^-$		D	
5560+w[j] *1*	(27$^-$)		D	
5687+w[k] *2*	(28$^-$)		D	
5749+w[f] *2*	(27$^-$)		D	
6106+w[k] *2*	(29$^-$)		D	
6150+w[f] *2*	(28$^-$)		D	
6562+w[k] *2*	(30$^-$)		D	

[†] Deduced by evaluator from a least squares fit to the adopted γ-ray energies. The level energies of bands 1, 2 and 4 are relative to the (3,4)$^-$ state at 0+x keV, band 3 relative to the (4$^+$) state at 0+y, and all other level energies are relative to the 7$^+$ state at 0+W. Least squares fits were done separately for each group.

[‡] From ^{176}W ε decay (1963Va20).

[#] From ^{176}Hf(d,2nγ), (p,nγ) (1978Du06).

[@] J^π assignments are based on rotational structure, on $\gamma(\theta)$, and on γ-ray multipolarities and decay patterns.

[&] From ^{170}Er(^{11}B,5nγ), except as noted.

[a] Band(A): K$^\pi$=(0$^+$) possible configuration=((π 7/2[404])-(ν 7/2[633])).

[b] Band(B): Band 1: K=1 configuration=π1/2[541]⊗ν1/2[521].

[c] Band(C): Band 2: K=4 configuration=π9/2[514]⊗ν1/2[521].

[d] Band(D): Band 3: K=2(assumed) configuration=π1/2[541]⊗ν5/2[512].

[e] Band(E): Band 4: K=3(assumed) configuration=π1/2[541]⊗ν7/2[633].

[f] Band(F): Band 5: K=8 configuration=π9/2[514]⊗ν7/2[633], Coriolis mixed with K^π=(9$^-$), configuration=((π 9/2[514])+(ν 9/2[624])).

[g] Band(G): Band 6: K=7 configuration=π9/2[514]⊗ν5/2[512].

[h] Band(H): Band 7: K=14 Possible configuration=π^3(5/2[402],7/2[404],9/2[514]) ⊗ν(7/2[633]).

[i] Band(I): Band 8: K=11 Possible configuration=π(7/2[404])⊗ν^3(1/2[521],7/2[514],7/2[633]).

[j] Band(J): Band 9: K=20 configuration=π^3(7/2[404],9/2[514],5/2[402])⊗ν^3(5/2[512],7/2[633], 7/2[514]).

[k] Band(K): Band 10: K=27 Possible configuration=π^3(7/2[404],9/2[514],5/2[402])⊗ν^5(5/2[642], 9/2[624],5/2[512],7/2[633],7/2[514]).

Adopted Levels, Gammas (continued)

γ(^{176}Ta)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	α[e]	Comments
39.7+y	(5$^+$)	39.9 *8*	100	0+y	(4$^+$)			
46.0	(2$^-$)	46.0[‡]	100[&]	0.0	(1)$^-$	M1	7.39	
69.5	(1$^-$,2$^-$,3$^-$)	23.5[‡]		46.0	(2$^-$)	(M1)[b]	54.1	
90.4+x	(4,5)$^+$	90.4 *8*	100	0+x	(3,4)$^-$	E1		B(E1)(W.u.)=1.1×10^{-5} *4* Mult.: α(exp)<2.5.
99.9+x	(3$^+$)	99.9 *8*	100	0+x	(3,4)$^-$	E1		B(E1)(W.u.)=5.7×10^{-6} *9* Mult.: α(exp)=0.6 *3*.
100.2	(0$^+$)	100.20[#]	100[#]	0.0	(1)$^-$	E1[c]	0.369	B(E1)(W.u.)=5.13×10^{-6} *24*
103.0	(+)	33.5[‡]		69.5	(1$^-$,2$^-$,3$^-$)	E1[b]	1.40	B(E1)(W.u.)=2.2×10^{-9} *3*
103.6+y	(6$^+$)	63.9 *8*	100	39.7+y	(5$^+$)			
		103.4 *8*	20	0+y	(4$^+$)			
133.8	(2$^+$)	33.58[#]	100[#]	100.2	(0$^+$)	E2[c]	555	B(E2)(W.u.)=2.0×10^2 *11*
152.0+w	8$^+$	151.9 *8*	100	0+w	7$^+$	M1+E2		
182.6+x	(4$^-$)	182.6 *8*	100	0+x	(3,4)$^-$			
184.3	(1$^+$)	50.55[#]	13.6[#]	133.8	(2$^+$)	(M1)[c]	5.57	
		84.14[#]	100[#]	100.2	(0$^+$)	(M1)[c]	7.39	
186.5+w	8$^-$	111.1 *8*	5 *1*	75+w	(7$^+$)			
		186.6 *6*	≈100	0+w	7$^+$	(E1)	0.0728	B(E1)(W.u.)>6.1×10^{-6} Mult.: from α, deduced from transition intensity balance at 186.8+x level.
189.5+y	(7$^+$)	85.9 *8*	100	103.6+y	(6$^+$)			
		149.8 *8*	36[d] *14*	39.7+y	(5$^+$)			
193.8?	(+)	90.8[‡f]		103.0	(+)	(M1,E2)[b]		
195.1	(1$^+$)	61.29[#]	100[#]	133.8	(2$^+$)	M1[c]	3.16	
		94.86[#]	100[#]	100.2	(0$^+$)	M1[c]	5.23	
196.3+x	(5$^-$)	196.3 *8*	100	0+x	(3,4)$^-$	(M1+E2)		
222.3+x	(5,6)$^+$	131.9 *8*	100	90.4+x	(4,5)$^+$			
241.9+x	(6$^-$)	45.6 *2*	100	196.3+x	(5$^-$)	(M1+E2)		
249.5+w	9$^-$	63.1 *6*	100	186.5+w	8$^-$	M1+E2		Mult.: α(exp)=3.7 *3*.
255.3+z	(7$^+$)	155.4 *8*	100	100+z	(5$^+$)	E2		Mult.: From α(exp)=0.91 *12*.
298.2+y	(8$^+$)	108.7 *8*	100	189.5+y	(7$^+$)			
		194.6 *8*	68[d] *11*	103.6+y	(6$^+$)			
305.1+x	(7$^-$)	62.9 *8*	100	241.9+x	(6$^-$)	(M1+E2)		Mult.: From intensity balance.
		108.5 *8*	23[d] *9*	196.3+x	(5$^-$)	(E2)		
320.4+w	9$^+$	168.4 *8*	100	152.0+w	8$^+$	M1+E2		
		320.3 *8*	23[d] *4*	0+w	7$^+$			
378.9+x	(6,7)$^+$	155.9 *8*	100	222.3+x	(5,6)$^+$			

$^{176}_{73}Ta_{103}$-5

Adopted Levels, Gammas (continued)

γ(^{176}Ta) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	Comments
378.9+x	(6,7)$^+$	288.8 *8*	35[d] *8*	90.4+x	(4,5)$^+$		
382.7+x	(8$^-$)	78.0 *8*	100	305.1+x	(7$^-$)	(M1+E2)	
		140.7 *8*	54[d] *20*	241.9+x	(6$^-$)		Iγ(78.0):Iγ(140.7)=100(31):31(10) from Iγ in ^{170}Er(^{11}B,5nγ).
383.6+w	10$^-$	134.0 *6*	100	249.5+w	9$^-$	M1+(E2)	Mult.: From ^{170}Er(^{10}B,4nγ), ^{173}Yb(^{7}Li,4nγ).
		197.0 *8*	3[d] *1*	186.5+w	8$^-$		Iγ(134.0):Iγ(197.0)=100(5):2(1) from Iγ in ^{170}Er(^{11}B,5nγ).
428.8+y	(9$^+$)	130.3 *8*	86 *8*	298.2+y	(8$^+$)	M1+E2	
		239.4 *8*	100 *8*	189.5+y	(7$^+$)		
486.1+x	(9$^-$)	103.3 *8*	100 *13*	382.7+x	(8$^-$)	M1+E2	
		181.4 *8*	70[d] *5*	305.1+x	(7$^-$)		Iγ(103.3):Iγ(181.4)=100(13):11(5) from Iγ in ^{170}Er(^{11}B,5nγ).
504.6+z	(9$^+$)	249.3 *8*	100	255.3+z	(7$^+$)		
505.7+w	10$^+$	185.3 *8*	100	320.4+w	9$^+$		
		353.7 *8*	54[d] *14*	152.0+w	8$^+$		
553.9+w	11$^-$	170.0 *6*	100	383.6+w	10$^-$	M1+E2	
		304.7 *6*	16[d] *1*	249.5+w	9$^-$	E2	
558.1+x	(7,8)$^+$	179.3 *8*	100	378.9+x	(6,7)$^+$		
		335.5 *8*	35[d] *8*	222.3+x	(5,6)$^+$		
581.5+y	(10$^+$)	152.3 *8*	76[d]	428.8+y	(9$^+$)		
		283.3 *2*	100 *16*	298.2+y	(8$^+$)	E2	
601.4+x	(10$^-$)	115.3 *2*	71[d]	486.1+x	(9$^-$)	M1+E2	
		218.8 *8*	100 *3*	382.7+x	(8$^-$)		Iγ(115.3):Iγ(218.8)=100(21):84(10) from Iγ in ^{170}Er(^{11}B,5nγ).
712.5+w	11$^+$	206.8 *8*	99[d]	505.7+w	10$^+$		
		392.1 *8*	100 *17*	320.4+w	9$^+$		
753.0+w	12$^-$	198.9 *6*	100	553.9+w	11$^-$	M1+E2	
		369.5 *6*	34[d] *2*	383.6+w	10$^-$		
754.2+x	(11$^-$)	152.4 *8*	100	601.4+x	(10$^-$)		
		268.3 *8*	99[d] *19*	486.1+x	(9$^-$)		Iγ(152.4):Iγ(268.3)=93(15):100(13) from Iγ in ^{170}Er(^{11}B,5nγ).
754.9+y	(11$^+$)	173.2 *8*	50[d]	581.5+y	(10$^+$)		
		326.2 *8*	100 *2*	428.8+y	(9$^+$)	E2	
759.0+x	(8,9)$^+$	200.8 *8*	100	558.1+x	(7,8)$^+$		
		380.1 *8*	34[d] *8*	378.9+x	(6,7)$^+$	E2	
845.9+z	(11$^+$)	341.3 *8*	100	504.6+z	(9$^+$)		
906.4+x	(12$^-$)	151.9 *8*	20[d]	754.2+x	(11$^-$)		
		305.0 *8*	100 *60*	601.4+x	(10$^-$)		Iγ(151.9):Iγ(305.0)=≈51:100(10) from Iγ in ^{170}Er(^{11}B,5nγ).
949.1+y	(12$^+$)	194.1 *8*	48[d]	754.9+y	(11$^+$)	M1	
		367.7 *8*	100 *14*	581.5+y	(10$^+$)		
976.8+w	13$^-$	224.6 *2*	100	753.0+w	12$^-$	M1+E2	
		423.8 *6*	56[d] *5*	553.9+w	11$^-$		

$^{176}_{73}Ta_{103}$-6

Adopted Levels, Gammas (continued)

γ(^{176}Ta) (continued)

E_i(level)	J_i^π	E_γ [†]	I_γ [@]	E_f	J_f^π	Mult.[a]	Comments
979.8+x	$(9,10)^+$	220.8 *8*	100	759.0+x	$(8,9)^+$		
		421.8 *8*	53[d] *13*	558.1+x	$(7,8)^+$		
1113.5+x	(13^-)	206.9 *8*	45[d]	906.4+x	(12^-)		
		359.4 *2*	100 *18*	754.2+x	(11^-)	E2	
1163.1+y	(13^+)	213.8 *8*	29[d]	949.1+y	(12^+)	M1+E2	
		408.2 *2*	100 *11*	754.9+y	(11^+)		
1218.8+x	$(10,11)^+$	239.3 *8*	100	979.8+x	$(9,10)^+$		
		459.6 *8*	44[d] *13*	759.0+x	$(8,9)^+$		
1225+w	14^-	247.9 *6*	100	976.8+w	13^-	M1+E2	
		472.5 *2*	73[d] *6*	753.0+w	12^-	E2	Iγ(247.9):Iγ(472.5)=91(13):100(17) from Iγ in ^{170}Er(^{11}B,5nγ).
1273.7+z	(13^+)	427.8 *8*	100	845.9+z	(11^+)		
1299.7+x	(14^-)	186.3 *8*	31[d]	1113.5+x	(13^-)	M1+E2	
		393.3 *8*	100 *16*	906.4+x	(12^-)		
1371+w	14^-	393.6 *6*	27.9[&] *19*	976.8+w	13^-	M1+E2	Mult.: α(exp)=0.064 *15*.
		618.4 *6*	100[&] *4*	753.0+w	12^-	E2	Mult.: α(exp)=0.012 *2*.
1382+w	$(11,12)^+$	828.1 *8*	100	553.9+w	11^-		
1397.4+y	(14^+)	234.1 *8*	22[d]	1163.1+y	(13^+)		
		448.4 *8*	100 *15*	949.1+y	(12^+)		
1432+w	(13^+)	61.4 *8*	100	1371+w	14^-	E1	B(E1)(W.u.)=3.7×10^{-5} *12*
1476.7+x	$(11,12)^+$	257.8 *8*	98[d]	1218.8+x	$(10,11)^+$		
		496.9 *8*	100 *23*	979.8+x	$(9,10)^+$		
1495+w	15^-	269.9 *6*	91[d]	1225+w	14^-		
		517.7[f] *6*	100 *7*	976.8+w	13^-	E2	Iγ(269.9):Iγ(517.7)=78(10):100(13) from Iγ in ^{170}Er(^{11}B,5nγ).
1530+w	$(12,13)^+$	147.8 *8*	50 *17*	1382+w	$(11,12)^+$		
		777.1 *8*	100 *22*	753.0+w	12^-		
1555+w	15^-	183.8 *6*	100	1371+w	14^-		
1563.4+x	(15^-)	263.4 *8*	32[d]	1299.7+x	(14^-)		
		449.7 *8*	100 *19*	1113.5+x	(13^-)	E2	Iγ(263.4):Iγ(449.7)=40(10):100(16) from Iγ in ^{170}Er(^{11}B,5nγ).
1649.8+y	(15^+)	252.4 *8*	27[d]	1397.4+y	(14^+)		
		486.7 *2*	100 *19*	1163.1+y	(13^+)	E2	
1666+w	(14^-)	233.9 *8*	100	1432+w	(13^+)	E1	B(E1)(W.u.)=1.683×10^{-5} *18*
1705+w	$(13,14)^+$	175.0 *8*	100	1530+w	$(12,13)^+$		
		323.2 *8*	80[d] *30*	1382+w	$(11,12)^+$		Iγ(175.0):Iγ(323.2)=100(21):57(21) Iγ in ^{170}Er(^{11}B,5nγ).
1754.8+x	$(12,13)^+$	278.0[f] *8*	≤100	1476.7+x	$(11,12)^+$		
		536.0[f] *8*	≤45	1218.8+x	$(10,11)^+$		
1779.6+x	(16^-)	216.3 *8*	18[d]	1563.4+x	(15^-)		
		479.9 *2*	100 *15*	1299.7+x	(14^-)		

$^{176}_{73}Ta_{103}$-7

Adopted Levels, Gammas (continued)

γ(^{176}Ta) (continued)

E_i(level)	J_i^π	E_γ †	I_γ @	E_f	J_f^π	Mult. a	Comments
1781.4+z	(15$^+$)	507.7 *8*	100	1273.7+z	(13$^+$)		
1785+w	16$^-$	289.6 *6*	73 d	1495+w	15$^-$		
		559.7 *6*	100 *8*	1225+w	14$^-$	E2	
1812+w	16$^-$	257.7 *6*	100	1555+w	15$^-$	M1+E2	
		441.6 *8*	3 d *1*	1371+w	14$^-$		
1906+w	(14,15)$^+$	200.9 *8*	59 d	1705+w	(13,14)$^+$		
		376.3 *8*	100 *29*	1530+w	(12,13)$^+$		
1921.5+y	(16$^+$)	271.7 *8*	19 d	1649.8+y	(15$^+$)		
		524.1 *2*	100 *23*	1397.4+y	(14$^+$)	E2	Iγ(271.7):Iγ(524.1)=19(5):100(8) from Iγ in ^{170}Er(^{11}B,5nγ).
1995+w	(15$^-$)	328.2 *8*	100	1666+w	(14$^-$)	M1+E2	
2094+w	17$^-$	309.6 *6*	60	1785+w	16$^-$		
		598.7 *2*	100 *7*	1495+w	15$^-$	E2	Iγ(309.6):Iγ(598.7)=73(15):100(17) from Iγ in ^{170}Er(^{11}B,5nγ).
2098.7+x	(17$^-$)	319.5 *6*	20 d	1779.6+x	(16$^-$)		
		534.9 *8*	100 *25*	1563.4+x	(15$^-$)	E2	
2107+w	17$^-$	294.1 *2*	100 *10*	1812+w	16$^-$	M1+E2	
		321.7 *8*	15 *3*	1785+w	16$^-$		
		552.0 *6*	13 *3*	1555+w	15$^-$		Iγ(294.1):Iγ(552.0)=100:11(1) from λ value (Branching ratio in ^{170}Er(^{11}B,5nγ)).
		611.1 *8*	≤2	1495+w	15$^-$		
2210.3+y	(17$^+$)	288.7 *8*	32 d	1921.5+y	(16$^+$)		
		560.5 *8*	100 *19*	1649.8+y	(15$^+$)		
2343.0+x	(18$^-$)	244.5 *8*	16 d	2098.7+x	(17$^-$)		
		563.3 *8*	100 *3*	1779.6+x	(16$^-$)	E2	
2349+w	(16$^-$)	353.9 *8*	100	1995+w	(15$^-$)		
2362.6+z	(17$^+$)	581.2 *8*	100	1781.4+z	(15$^+$)	E2	
2418+w	18$^-$	323.5 *6*	52 d	2094+w	17$^-$	M1+E2	
		632.8 *6*	100 *9*	1785+w	16$^-$		
2426+w	18$^-$	319.5 *8*	100 *10*	2107+w	17$^-$	M1+E2	
		613.8 *6*	32 *4*	1812+w	16$^-$		Iγ(319.5):Iγ(613.7)=100:27(2) from λ value (Branching ratio in ^{170}Er(^{11}B,5nγ)).
		640.9 *8*	40 *8*	1785+w	16$^-$		
2517.4+y	(18$^+$)	307.3 *8*	15 d	2210.3+y	(17$^+$)		
		596.1 *8*	100 *38*	1921.5+y	(16$^+$)		I_γ: Iγ(307.3):Iγ(596.1)=14(4):100(18) from Iγ in ^{170}Er(^{11}B,5nγ).
2713.2+x	(19$^-$)	369.5 f *8*	48 *12*	2343.0+x	(18$^-$)		
		614.5 *8*	100 *16*	2098.7+x	(17$^-$)		
2760+w	19$^-$	333.5 *8*	28 *7*	2426+w	18$^-$		
		342.3 *8*	69 *14*	2418+w	18$^-$		
		652.5 *8*	14 *7*	2107+w	17$^-$		

$^{176}_{73}Ta_{103}$-8

Adopted Levels, Gammas (continued)

γ(^{176}Ta) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	Comments
2760+w	19^-	665.5 *6*	100 *21*	2094+w	17^-		Iγ(665.2):Iγ(342.3)=100(8):48 from λ value (Branching ratio in ^{170}Er(^{11}B,5nγ)).
2765+w	19^-	338.6 *6*	100 *12*	2426+w	18^-	M1+E2	
		346.9 *6*	22 *5*	2418+w	18^-	(M1+E2)	
		657.8 *6*	49 *10*	2107+w	17^-		Iγ(338.3):Iγ(657.6)=100:48(6) from λ value (Branching ratio in ^{170}Er(^{11}B,5nγ)).
		670.5 *6*	37 *7*	2094+w	17^-		
2771+w	20^-	6.9 *6*		2765+w	19^-		
		11.2 *6*		2760+w	19^-		
		345.6 *6*		2426+w	18^-	E2	Mult.: α(exp)=0.040 *1*.
2841.4+y	(19^+)	324.4 *8*	14[d]	2517.4+y	(18^+)		
		630.7 *8*	100 *43*	2210.3+y	(17^+)		
2983.4+x	(20^-)	269.5[f] *8*	≤23	2713.2+x	(19^-)		
		641.0 *8*	100 *14*	2343.0+x	(18^-)		
3011.3+z	(19^+)	648.7 *8*	100	2362.6+z	(17^+)		
3080+w	(21^-)	309.1 *8*	100	2771+w	20^-	M1+E2	
3108+w	20^-	348.8 *8*	55[d]	2760+w	19^-		
		691.0 *8*	100 *17*	2418+w	18^-		
3116+w	20^-	351.8 *8*	90[d]	2765+w	19^-		
		690.2 *8*	100 *27*	2426+w	18^-		Iγ(351.8):Iγ(690.2)=≈40:100(20) from Iγ in ^{170}Er(^{11}B,5nγ).
3181.8+y	(20^+)	340.4[f] *8*	≤11	2841.4+y	(19^+)		
		664.4 *8*	100 *22*	2517.4+y	(18^+)		
3398.0+x	(21^-)	684.8 *8*	100	2713.2+x	(19^-)		
3446+w	(22^-)	366.2 *8*	100	3080+w	(21^-)	M1+E2	
		674.7 *8*	4[d] *2*	2771+w	20^-		
3472+w	21^-	363.6 *8*	100 *23*	3108+w	20^-	M1+E2	
		712.7 *8*	77[d]	2760+w	19^-		
3483+w	21^-	367.3 *8*	75 *25*	3116+w	20^-	M1+E2	
		719.0 *8*	100 *25*	2765+w	19^-		
3539.2+y	(21^+)	697.8 *8*	100	2841.4+y	(19^+)		
3697.2+x	(22^-)	713.8 *8*	100	2983.4+x	(20^-)		
3724.0+z	(21^+)	712.7 *8*	100	3011.3+z	(19^+)		
3837+w	22^-	364.9 *8*	50[d]	3472+w	21^-		
		728.7 *8*	100 *25*	3108+w	20^-		Iγ(364.9):Iγ(728.7)=35(20):100(25) from Iγ in ^{170}Er(^{11}B,5nγ).
3841+w	(23^-)	394.8 *8*	100	3446+w	(22^-)		
		761.1 *8*	9[d] *4*	3080+w	(21^-)		
3853+w	(22^-)	369.5 *8*	100 *33*	3483+w	21^-		
		736.4 *8*	≤66	3116+w	20^-		
3911.9+y	(22^+)	730.1 *8*	100	3181.8+y	(20^+)		
4143.7+x	(23^-)	745.7 *8*	100 *31*	3398.0+x	(21^-)		
4212+w	23^-	374.3 *8*	100	3837+w	22^-		

$^{176}_{73}Ta_{103}$-9

Adopted Levels, Gammas (continued)

γ(^{176}Ta) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[@]	E_f	J_f^π	Mult.[a]	Comments
4212+w	23$^-$	739.7 *8*	91[d] *18*	3472+w	21$^-$		Iγ(374.3):Iγ(739.7)=≤55:100(33) from Iγ in ^{170}Er(^{11}B,5nγ).
4241+w	(23$^-$)	387.8 *8*	≤100	3853+w	(22$^-$)		
		757.2 *8*	≤100	3483+w	21$^-$		
4255+w	(24$^-$)	413.8 *8*	100	3841+w	(23$^-$)		
		809.5 *8*	24[d] *9*	3446+w	(22$^-$)		
4272.1+y	(23$^+$)	732.9 *8*	100	3539.2+y	(21$^+$)		
4423+w	(24)	976.8 *8*	100	3446+w	(22$^-$)		
4478.4+x	(24$^-$)	781.2 *8*	100	3697.2+x	(22$^-$)		
4497+z	(23$^+$)	773.2 *8*	100	3724.0+z	(21$^+$)		
4586+w	24$^-$	374.5 *8*	≤33	4212+w	23$^-$		
		748.8 *8*	100 *33*	3837+w	22$^-$		
4682+w	(25$^-$)	427.2 *8*	100	4255+w	(24$^-$)	M1+E2	
		841.0 *8*	24[d] *6*	3841+w	(23$^-$)		Iγ(427.2):Iγ(841.0)=100(23):46(15) from Iγ in ^{170}Er(^{11}B,5nγ).
4971+w	25$^-$	759.3 *8*	100	4212+w	23$^-$		
5119+w	(26$^-$)	436.3 *8*	100	4682+w	(25$^-$)		
		863.4 *8*	37[d] *4*	4255+w	(24$^-$)		
5294+w	(27$^-$)	175.7 *8*	100[&]	5119+w	(26$^-$)	M1	B(M1)(W.u.)=0.00406 *6* Mult.: α(exp)=1.2 *5*.
5354+w	26$^-$	767.7 *8*	100	4586+w	24$^-$		
5560+w	(27$^-$)	442.1 *8*	100	5119+w	(26$^-$)		
		877.5 *8*	63[d] *22*	4682+w	(25$^-$)		
5687+w	(28$^-$)	393.2 *8*	100	5294+w	(27$^-$)		
5749+w	(27$^-$)	778.0[f] *8*	100	4971+w	25$^-$		
6106+w	(29$^-$)	418.0 *8*	100	5687+w	(28$^-$)		
		811.2[f] *8*	19[d] *20*	5294+w	(27$^-$)		
6150+w	(28$^-$)	796.0[f] *8*	100	5354+w	26$^-$		
6562+w	(30$^-$)	456.1[f] *8*	100	6106+w	(29$^-$)		

[†] From ^{170}Er(^{11}B,5nγ), except as noted.
[‡] From ^{176}Hf(d,2nγ), (p,nγ) (1978Du06).
[#] From ^{176}W ε decay (1963Va20).
[@] From ^{170}Er(^{11}B,5nγ), except as noted.
[&] From ^{170}Er(^{10}B,4nγ) (1978Bu16).
[a] From ^{170}Er(^{11}B,5nγ) (1998Ko09,1994Da11), except as noted.
[b] From γ(θ) in ^{176}Hf(d,3nγ), (p,nγ) (1978Du06).
[c] From ce data in ^{176}W ε decay (1963Va20).

$^{176}_{73}Ta_{103}$-10

Adopted Levels, Gammas (continued)

$\gamma(^{176}Ta)$ (continued)

[d] from λ value (Branching ratio in $^{170}Er(^{11}B,5n\gamma)$).
[e] 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.
[f] Placement of transition in the level scheme is uncertain.

$^{176}_{73}Ta_{103}$-11

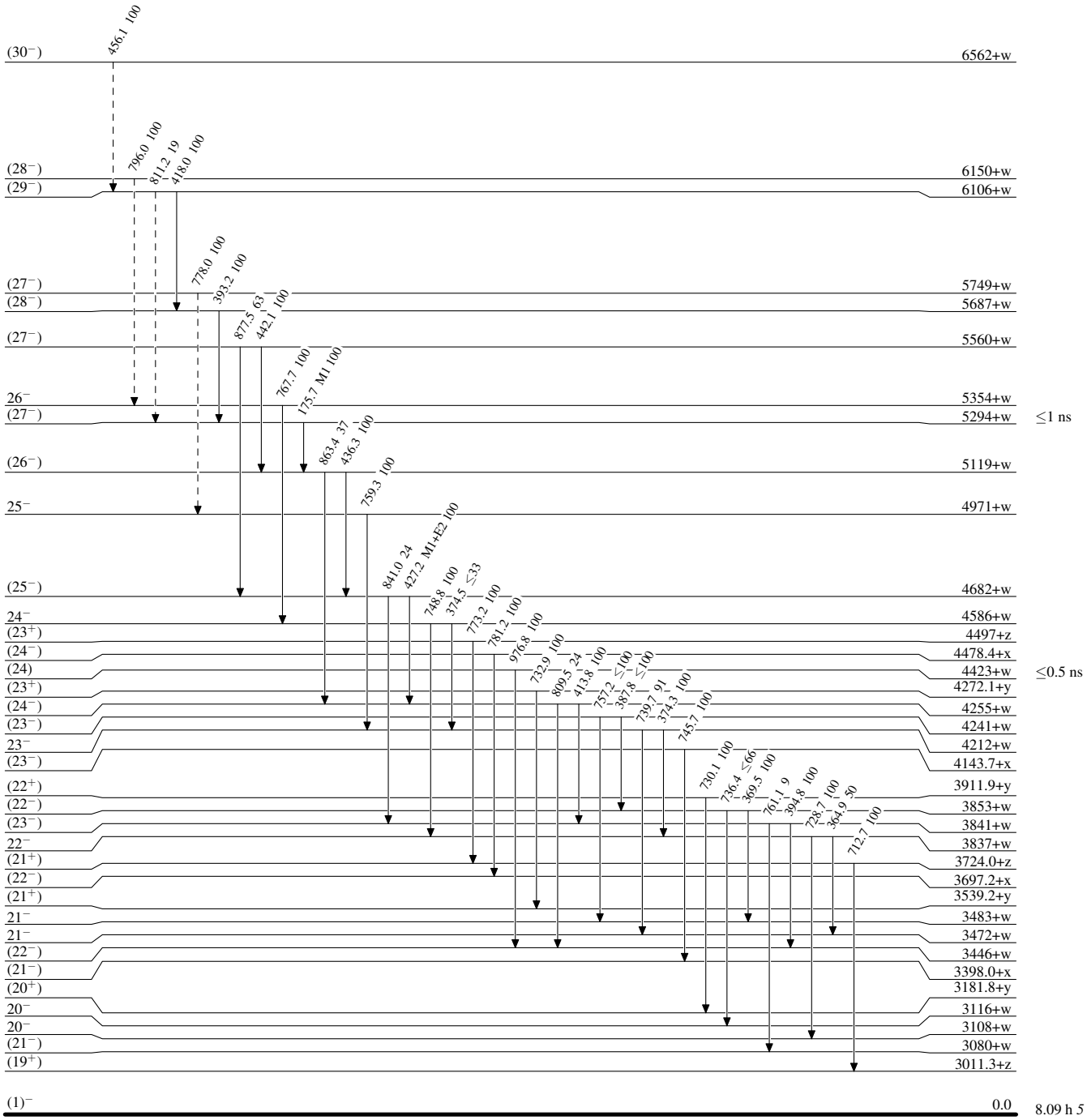
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{176}_{73}Ta_{103}$

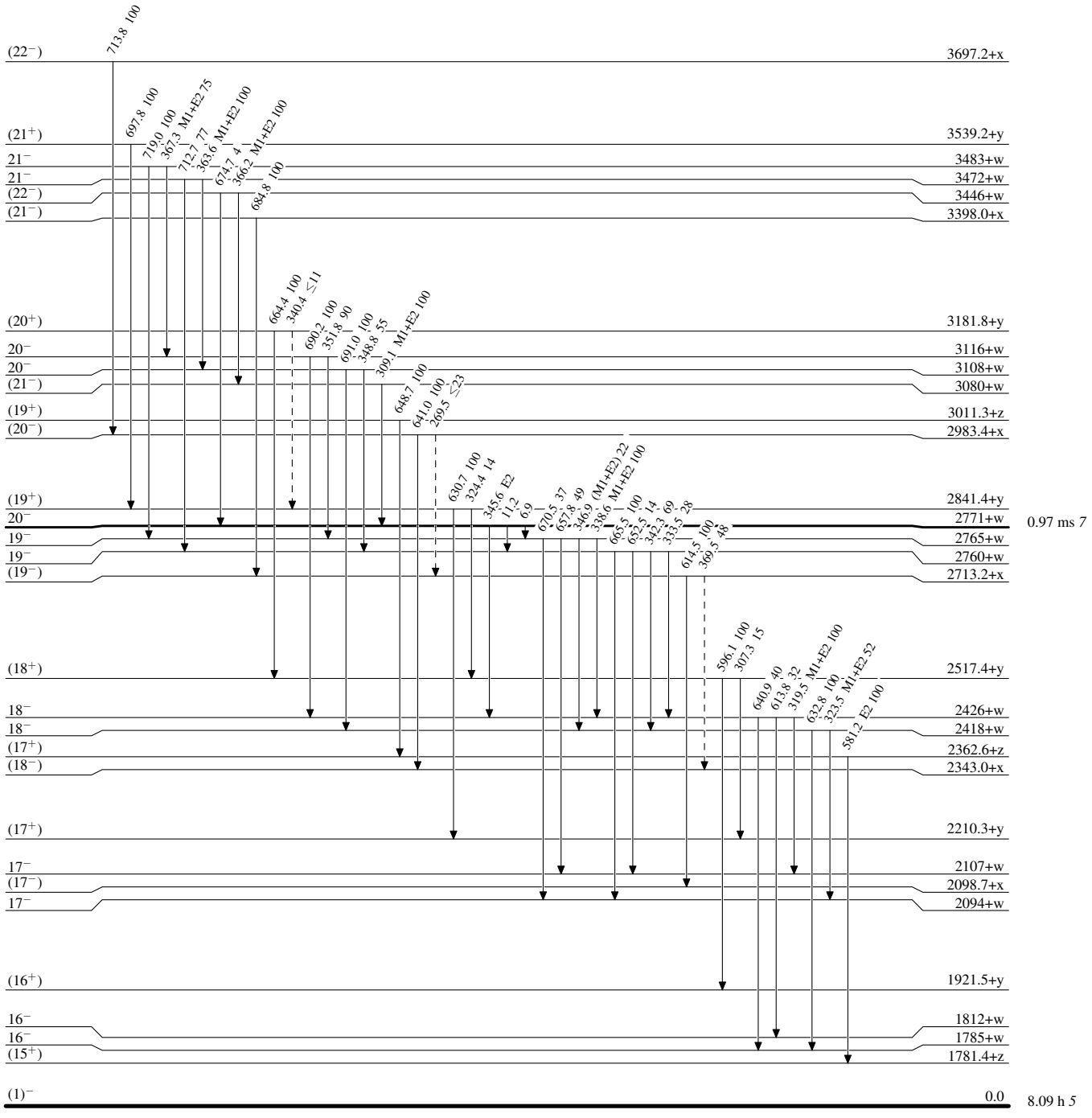
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{176}_{73}Ta_{103}$

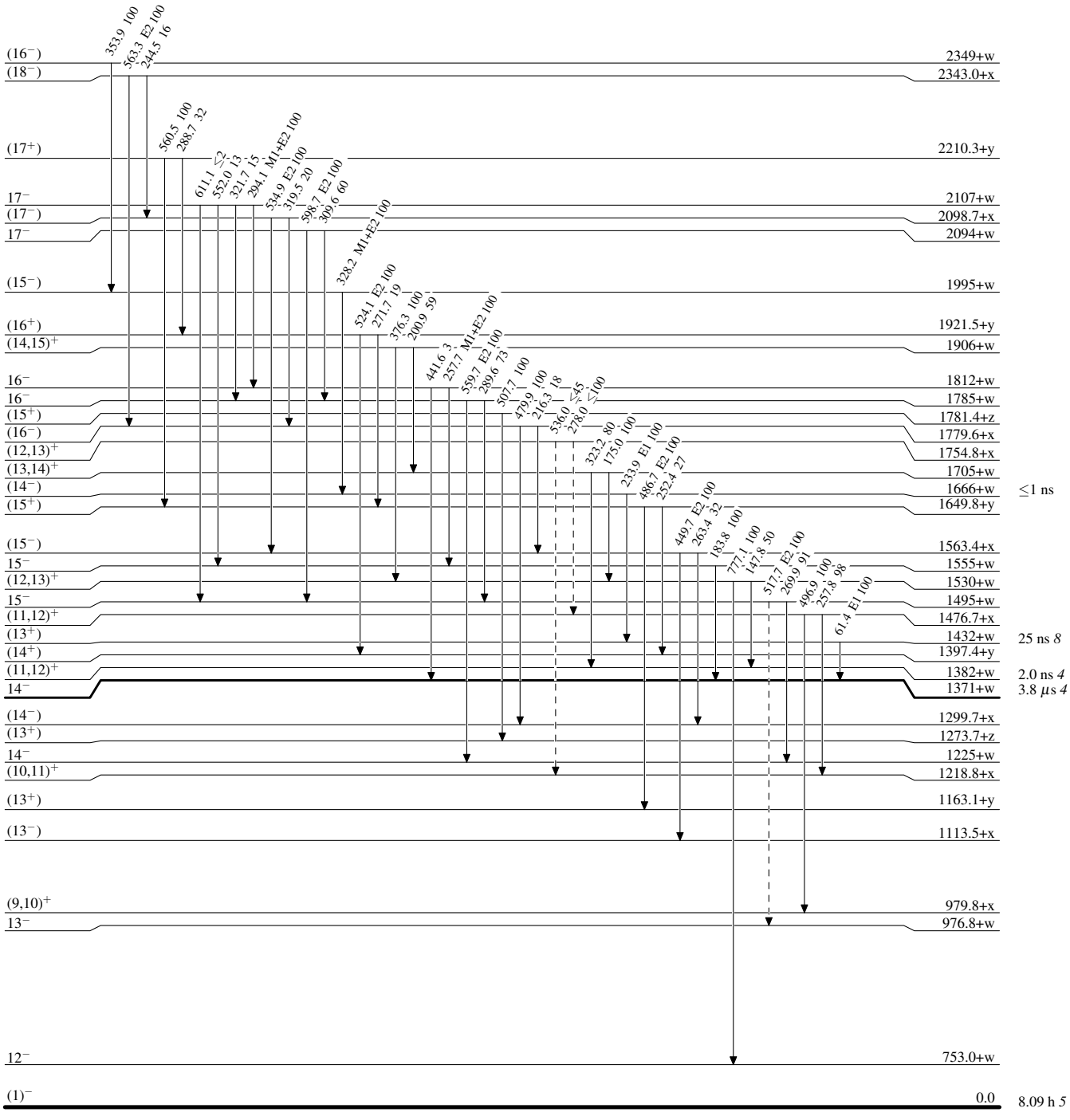
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)

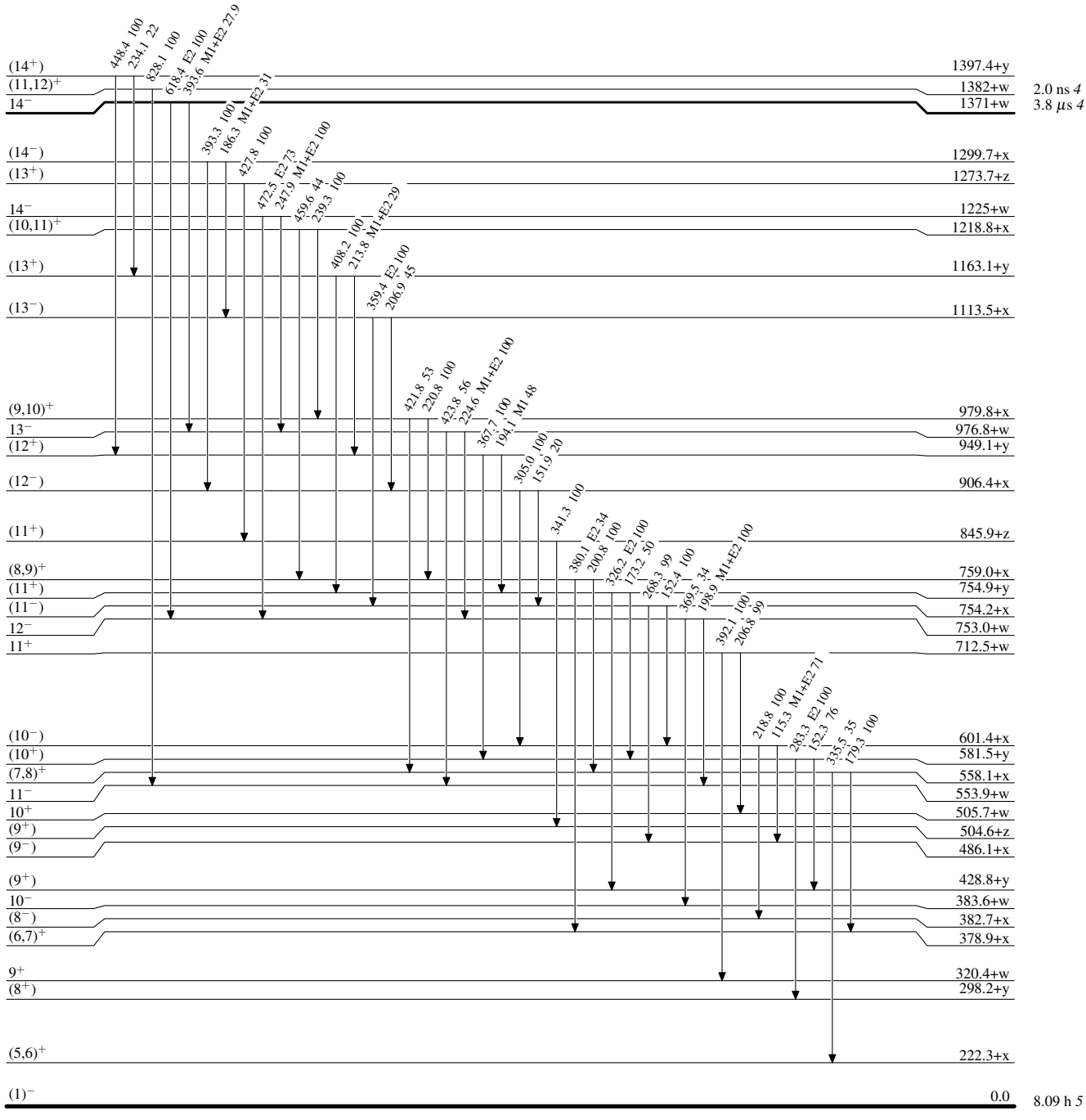


$^{176}_{73}Ta_{103}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

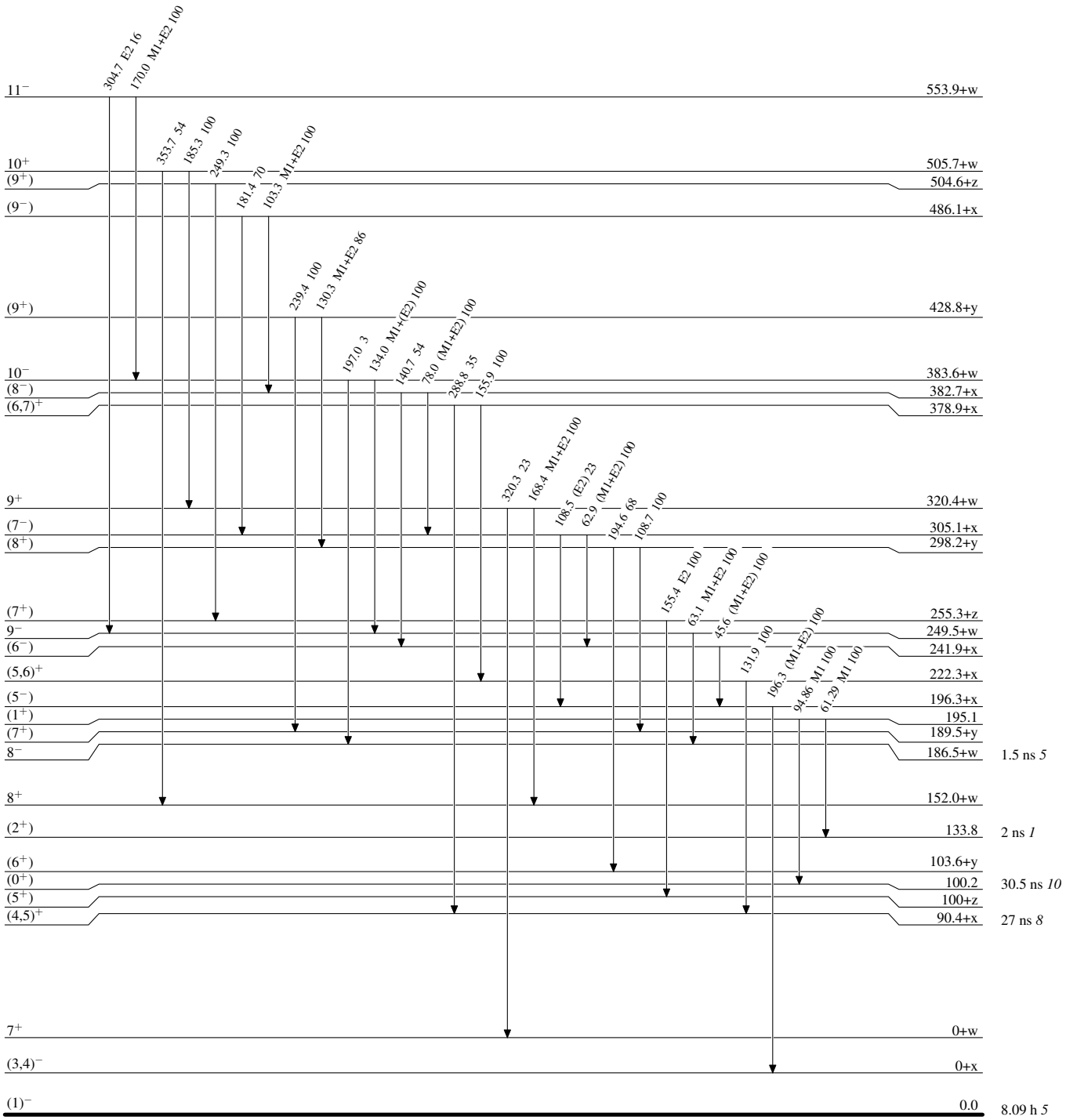


$^{176}_{73}Ta_{103}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



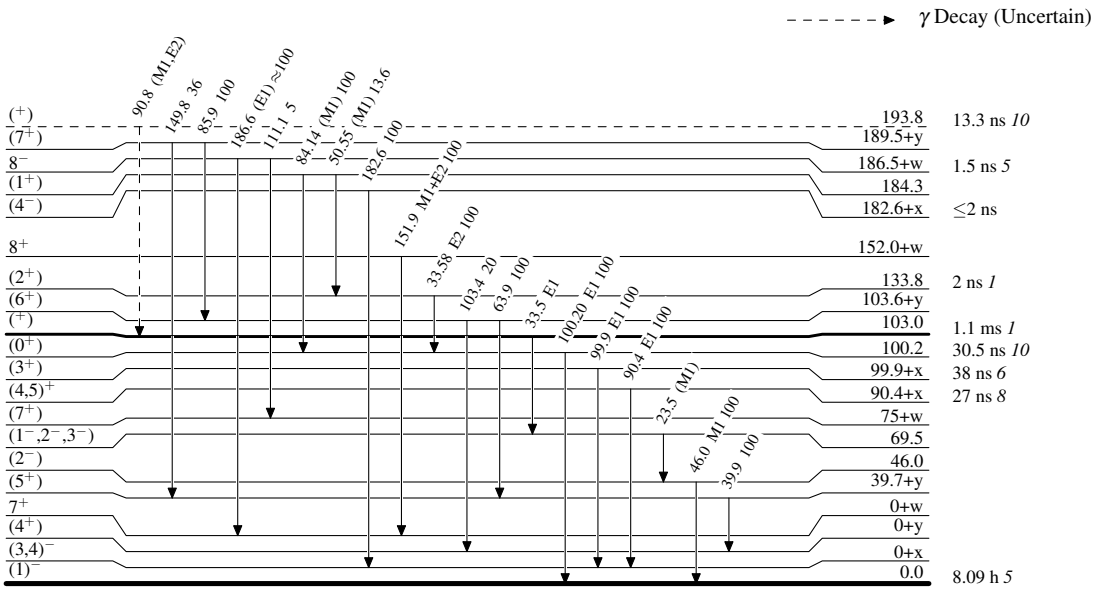
$^{176}_{73}Ta_{103}$

Adopted Levels, Gammas

Legend

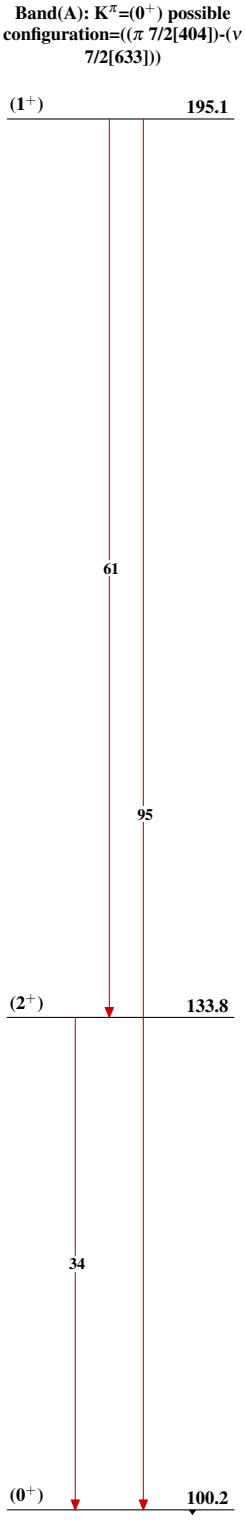
Level Scheme (continued)

Intensities: Relative photon branching from each level



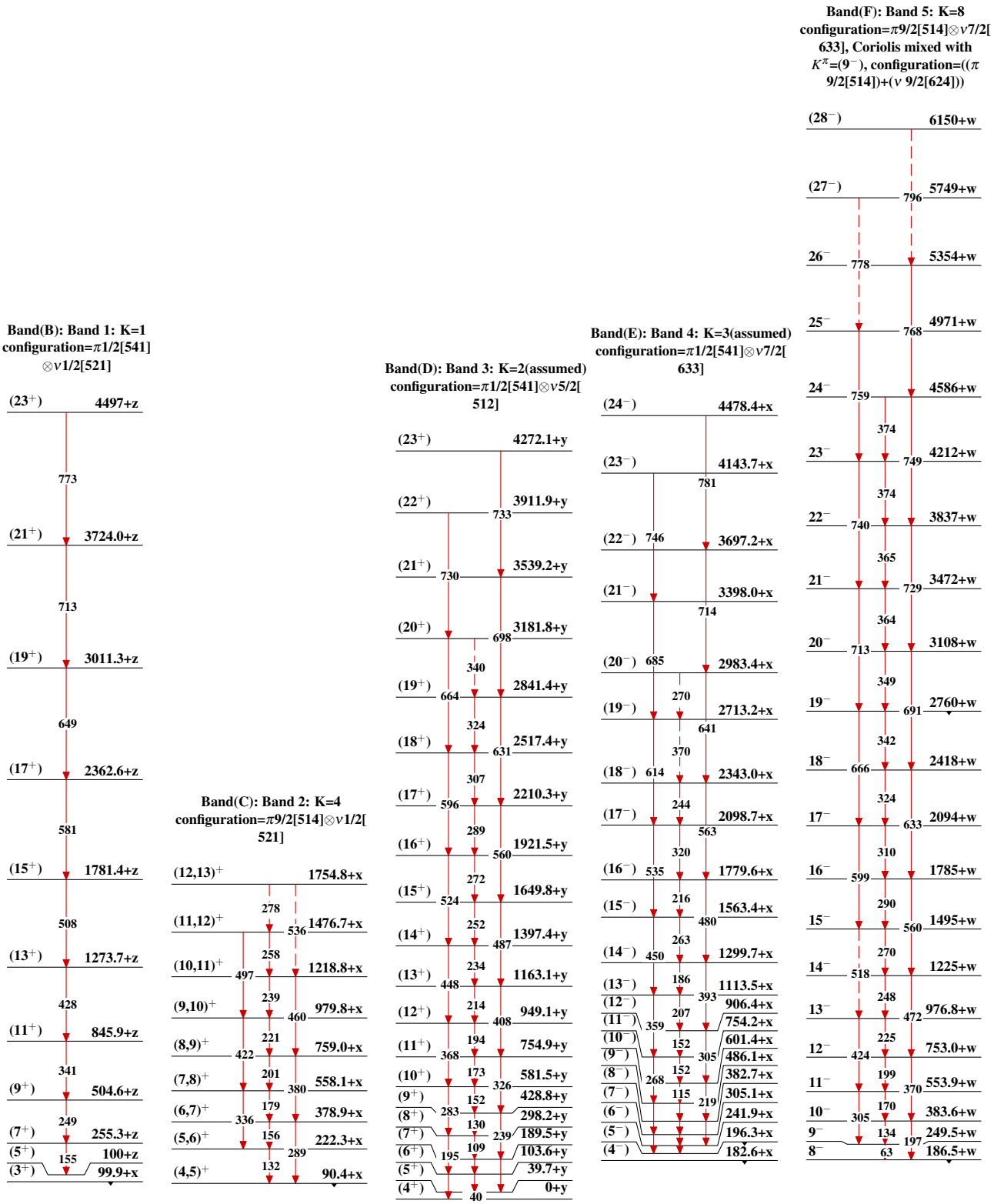
$^{176}_{73}Ta_{103}$

Adopted Levels, Gammas



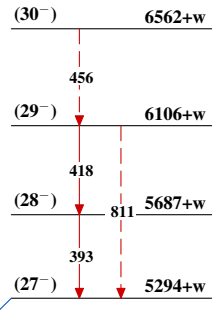
$^{176}_{73}Ta_{103}$

Adopted Levels, Gammas (continued)

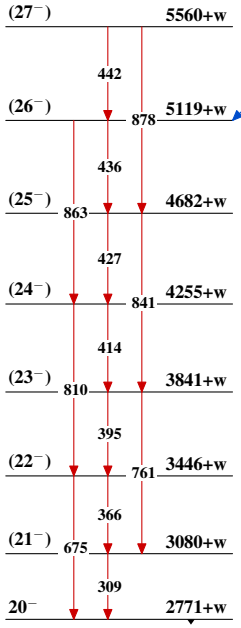


Adopted Levels, Gammas (continued)

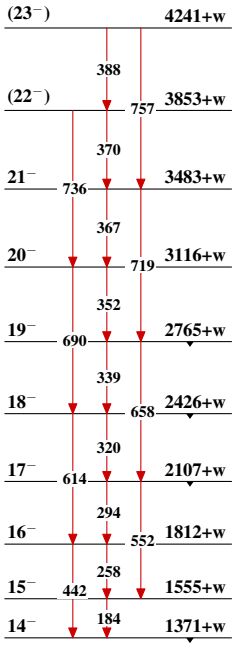
Band(K): Band 10: K=27 Possible configuration= π^3(7/2[404],9/2[514], 5/2[402])⊗ν^5(5/2[642], 9/2[624],5/2[512], 7/2[633],7/2[514])



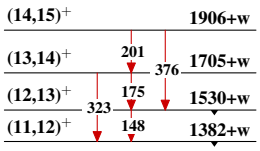
Band(J): Band 9: K=20 configuration=π^3(7/2[404], 9/2[514],5/2[402])⊗ν^3(5/2[512], 7/2[633], 7/2[514])



Band(H): Band 7: K=14 Possible configuration=π^3(5/2[402], 7/2[404],9/2[514]) ⊗ν(7/2[633])



Band(I): Band 8: K=11 Possible configuration=π(7/2[404])⊗ν^3(1/2[521],7/2[514],7/2[633])



Band(G): Band 6: K=7 configuration=π9/2[514]⊗ν5/2[512]