Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110,2081 (2009)	1-Mar-2009

Q(β^-)=2662 *10*; S(n)=8103 *13*; S(p)=8320 *13*; Q(α)=−4695 *16* 2012Wa38
Note: Current evaluation has used the following Q record 2662 108103 138329 23-4695 17 2003Au03.

^{103}Tc Levels

Ay: analyzing power – see 1977Fl04 for definition.
All BAND information from ^{176}Yb(^{37}Cl,xγ) (2001Ba39).

Cross Reference (XREF) Flags

A ^{103}Mo β^- decay
B ^{104}Ru(d,^{3}He), ^{104}Ru(pol t,α)
C ^{176}Yb(^{37}Cl,Xγ)

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	XREF	Comments
0.0[#]	5/2$^+$	54.2 s *8*	AB	%β^-=100 Suggested Nilsson configuration: 5/2[422]. $T_{1/2}$: from growth-decay of 210γ in ^{103}Ru (1977Ti02,1976KaYO). Others: 55 s *3* (1975Ba60), 50 s *2* (1972Tr08), 50 s *4* (1965FeZZ), 50 s *5* (1963Ki12). J$^\pi$: L=2 in (d,^{3}He), L=2 and Ay positive in (pol t,α).
45.86[@] *11*	7/2$^+$		AB	XREF: B(48). J$^\pi$: L=4 in (d,^{3}He), L=(4) and Ay negative in (pol t,α).
83.38[b] *16*	3/2$^-$		AB	XREF: B(84). J$^\pi$: L=1 in (d,^{3}He), L=1 and Ay positive in (pol t,α). Suggested Nilsson configuration: 3/2[301].
138.9[#] *5*	9/2$^+$		AB	XREF: B(140). J$^\pi$: L=4 in (d,^{3}He), L=4 and Ay positive in (pol t,α).
178.3[a] *8*	5/2$^-$		AB	XREF: B(180). J$^\pi$: L=3 in (d,^{3}He), L=3 and Ay negative in (pol t,α). Suggested Nilsson configuration: 5/2[303].
259.0[b] *6*	5/2$^-$		AB	XREF: B(257). J$^\pi$: L=3 in (d,^{3}He), L=(3) and Ay negative in (pol t,α).
338 *3*	1/2$^-$,3/2$^-$		B	J$^\pi$: L=1 in (d,^{3}He).
362[&]	(7/2$^-$)		C	J$^\pi$: γ's to 5/2$^-$, band structure.
383.2 *3*	(3/2,5/2,7/2$^-$)		A	J$^\pi$: γ's to 3/2$^-$,5/2$^+$,5/2$^-$.
469.77 *11*	(3/2$^+$,5/2$^+$)		AB	XREF: B(474). J$^\pi$: L=(2) in (d,^{3}He).
487.1 *4*	1/2$^-$		AB	XREF: B(492). J$^\pi$: L=1 in (d,^{3}He), L=1 and Ay negative in (pol t,α).
519.22 *20*	3/2$^-$		AB	XREF: B(524). J$^\pi$: L=1 in (d,^{3}He), J^π=3/2$^-$ favored from γ decay to 5/2$^+$ g.s.
557[@]	(11/2$^+$)		C	J$^\pi$: γ to 9/2$^+$, band structure.
595[a]	(9/2$^-$)		C	J$^\pi$: γ's to (7/2$^-$),5/2$^-$ and band structure.
620.76 *17*			A	
663[#]	(13/2$^+$)		C	J$^\pi$: γ's to (11/2$^+$), 9/2$^+$ and band structure.
686.6 *7*			Ab	XREF: b(688).
687.60 *15*	(3/2$^+$,5/2,7/2)		Ab	XREF: b(688).

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Adopted Levels, Gammas (continued)

^{103}Tc Levels (continued)

E(level)[†]	Jπ[‡]	XREF	Comments
			Jπ: γ's to 5/2⁻,5/2⁺,7/2⁺.
691.59 *16*	(1/2⁺,3/2,5/2⁻)	Ab	XREF: b(688).
			Jπ: γ's to 1/2⁻,5/2⁺.
779 *5*	3/2⁻	B	Jπ: L=1 in (d,^{3}He), L=(1) and Ay positive in (pol t,α).
848[&]	(11/2⁻)	C	Jπ: γ's to (7/2⁻), 9/2⁻ and band structure.
859 *5*	(7/2⁺)	B	Jπ: from L=(4) in (d,^{3}He) and Ay negative in (pol t,α). Other: L=(3) in (pol t,α).
887.2 *4*		A	
918 *5*	7/2⁺,9/2⁺	B	Jπ: L=4 in (d,^{3}He).
1085.98 *15*		A	
1097 *7*	3/2⁻	B	Jπ: L=1 in (d,^{3}He), L=(1) and Ay positive in (pol t,α).
1150 *7*	(3/2⁻)	B	Jπ: from L=(1) in (d,^{3}He) and Ay positive in (pol t,α). Other: L=(4) in (pol t,α).
1158[a]	(13/2⁻)	C	Jπ: γ's to (11/2⁻), (9/2⁻) and band structure.
1219 *7*	1/2⁻	B	Jπ: from L=1 in (d,^{3}He) and Ay negative in (pol t,α). Other: L=(3) in (pol t,α).
1219.82 *20*	(5/2⁺,7/2,9/2⁺)	A	Jπ: γ's to 5/2⁺ and 9/2⁺.
1236[@]	(15/2⁺)	C	Jπ: γ to (11/2⁺) and band structure.
1256 *7*	(5/2⁻,7/2⁻)	B	Jπ: L=(3) in (d,^{3}He).
1310 *7*	5/2⁻,7/2⁻	B	Jπ: L=3 in (d,^{3}He).
1344[#]	(17/2⁺)	C	Jπ: γ to (13/2⁺) and band structure.
1467[&]	(15/2⁻)	C	Jπ: γ's to (13/2⁻), (11/2⁻) and band structure.
1494.49 *21*		A	
1591		B	Unresolved multiplet. Peak too broad to be a single level.
1621.1 *6*		A	
1692? *10*		B	E(level): observed only in (pol t,α).
1727 *7*	5/2⁻,7/2⁻	B	Jπ: L=3 in (d,^{3}He).
1766 *7*	1/2⁻,3/2⁻	B	Jπ: L=1 in (d,^{3}He).
1817 *7*	(5/2⁻,7/2⁻)	B	Jπ: L=(3) in (d,^{3}He).
1834[a]	(17/2⁻)	C	Jπ: γ's to (15/2⁻), (13/2⁻) and band structure.
2153[#]	(21/2⁺)	C	Jπ: γ to (17/2⁺) and band structure.
2192[&]	(19/2⁻)	C	Jπ: γ to (15/2⁻) and band structure.
3017[c]	(23/2⁺,25/2⁺)	C	Jπ: γ to (21/2⁺) and band structure.
3371[c]	(25/2⁺,27/2⁺)	C	Jπ: γ to (23/2⁺,25/2⁺) and band structure.
3750[c]	(27/2⁺,29/2⁺)	C	Jπ: γ to (25/2⁺,27/2⁺) and band structure.
4069[c]	(29/2⁺,31/2⁺)	C	Jπ: γ to (27/2⁺,29/2⁺) and band structure.

[†] From ^{103}Mo β⁻ decay, ^{104}Ru(d,^{3}He), ^{104}Ru(pol t,α) or ^{176}Yb(^{37}Cl,xγ).

[‡] J values without parenthesis from pick up reactions. Others from proposed band structure in ^{176}Yb(^{37}Cl,xγ) and comparison with excited states in odd-mass $^{(97-105)}$Tc nuclides.

[#] Band(A): g.s. band, α=+1/2.

[@] Band(a): g.s. band, α=−1/2.

[&] Band(B): π5/2[303] band, α=−1/2.

[a] Band(b): π5/2[303] band, α=+1/2.

[b] Band(C): π3/2[301] band.

[c] Band(D): Band based on (23/2⁺,25/2⁺). g.s. band crossed by another band.

Adopted Levels, Gammas (continued)

$\gamma(^{103}Tc)$

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π
45.86	$7/2^+$	45.8 *2*	100	0.0	$5/2^+$
83.38	$3/2^-$	83.4 *2*	100	0.0	$5/2^+$
138.9	$9/2^+$	93 *1*	100	45.86	$7/2^+$
178.3	$5/2^-$	95 *1*	100	83.38	$3/2^-$
259.0	$5/2^-$	176 *1*	100 *26*	83.38	$3/2^-$
		259 *1*	22.2 *22*	0.0	$5/2^+$
362	$(7/2^-)$	103		259.0	$5/2^-$
		185		178.3	$5/2^-$
383.2	$(3/2,5/2,7/2^-)$	205 *1*	24 *11*	178.3	$5/2^-$
		299.8 *5*	100 *11*	83.38	$3/2^-$
		383.2 *5*	13 *5*	0.0	$5/2^+$
469.77	$(3/2^+,5/2^+)$	330.9 *5*	3.7 *4*	138.9	$9/2^+$
		423.910 *17*	100 *10*	45.86	$7/2^+$
		469.8 *2*	22.1 *16*	0.0	$5/2^+$
487.1	$1/2^-$	404 *1*	100 *34*	83.38	$3/2^-$
		487 *1*	6.9 *16*	0.0	$5/2^+$
519.22	$3/2^-$	436 *1*	2.5 *25*	83.38	$3/2^-$
		519.2 *2*	100 *8*	0.0	$5/2^+$
557	$(11/2^+)$	418		138.9	$9/2^+$
595	$(9/2^-)$	232		362	$(7/2^-)$
		417		178.3	$5/2^-$
620.76		150.8 *5*	69 *8*	469.77	$(3/2^+,5/2^+)$
		574.8 *5*	30 *3*	45.86	$7/2^+$
		620.8 *2*	100 *7*	0.0	$5/2^+$
663	$(13/2^+)$	106		557	$(11/2^+)$
		524		138.9	$9/2^+$
686.6		547.7 *5*	100	138.9	$9/2^+$
687.60	$(3/2^+,5/2,7/2)$	200.5 *5*	13 *3*	487.1	$1/2^-$
		217.8 *2*	49 *4*	469.77	$(3/2^+,5/2^+)$
		429 *1*	1.1 *4*	259.0	$5/2^-$
		641.8 *5*	21.1 *24*	45.86	$7/2^+$
		687.6 *2*	100 *9*	0.0	$5/2^+$
691.59	$(1/2^+,3/2,5/2^-)$	172 *1*	40 *12*	519.22	$3/2^-$
		204.5 *5*	47 *6*	487.1	$1/2^-$
		308.5 *5*	17.4 *12*	383.2	$(3/2,5/2,7/2^-)$
		608.2 *2*	100 *7*	83.38	$3/2^-$
		691.6 *2*	64 *5*	0.0	$5/2^+$
848	$(11/2^-)$	255		595	$(9/2^-)$
		486		362	$(7/2^-)$
887.2		417.3 *5*	100 *14*	469.77	$(3/2^+,5/2^+)$
		887.3 *5*	53 *6*	0.0	$5/2^+$
1085.98		616 *1*	6.7 *12*	469.77	$(3/2^+,5/2^+)$
		1040.2 *2*	100 *15*	45.86	$7/2^+$
		1085.9 *2*	76 *12*	0.0	$5/2^+$
1158	$(13/2^-)$	309		848	$(11/2^-)$
		563		595	$(9/2^-)$
1219.82	$(5/2^+,7/2,9/2^+)$	599.0 *5*	72 *6*	620.76	
		750.0 *2*	100 *7*	469.77	$(3/2^+,5/2^+)$
		1081 *1*	19 *4*	138.9	$9/2^+$
		1174.2 *5*	52 *6*	45.86	$7/2^+$
		1220 *1*	26 *3*	0.0	$5/2^+$
1236	$(15/2^+)$	679		557	$(11/2^+)$
1344	$(17/2^+)$	681		663	$(13/2^+)$
1467	$(15/2^-)$	310		1158	$(13/2^-)$
		619		848	$(11/2^-)$

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Adopted Levels, Gammas (continued)

γ(^{103}Tc) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π
1494.49		1448.6 *2*	100 *7*	45.86	$7/2^+$
		1494.6 *5*	27 *3*	0.0	$5/2^+$
1621.1		1151.3 *5*	100	469.77	$(3/2^+,5/2^+)$
1834	$(17/2^-)$	366		1467	$(15/2^-)$
		676		1158	$(13/2^-)$
2153	$(21/2^+)$	809		1344	$(17/2^+)$
2192	$(19/2^-)$	725		1467	$(15/2^-)$
3017	$(23/2^+,25/2^+)$	864		2153	$(21/2^+)$
3371	$(25/2^+,27/2^+)$	354		3017	$(23/2^+,25/2^+)$
3750	$(27/2^+,29/2^+)$	379		3371	$(25/2^+,27/2^+)$
4069	$(29/2^+,31/2^+)$	319		3750	$(27/2^+,29/2^+)$

[†] From ^{103}Mo β^- decay if available, if not, taken from the other data sets.

Adopted Levels, Gammas

Level Scheme

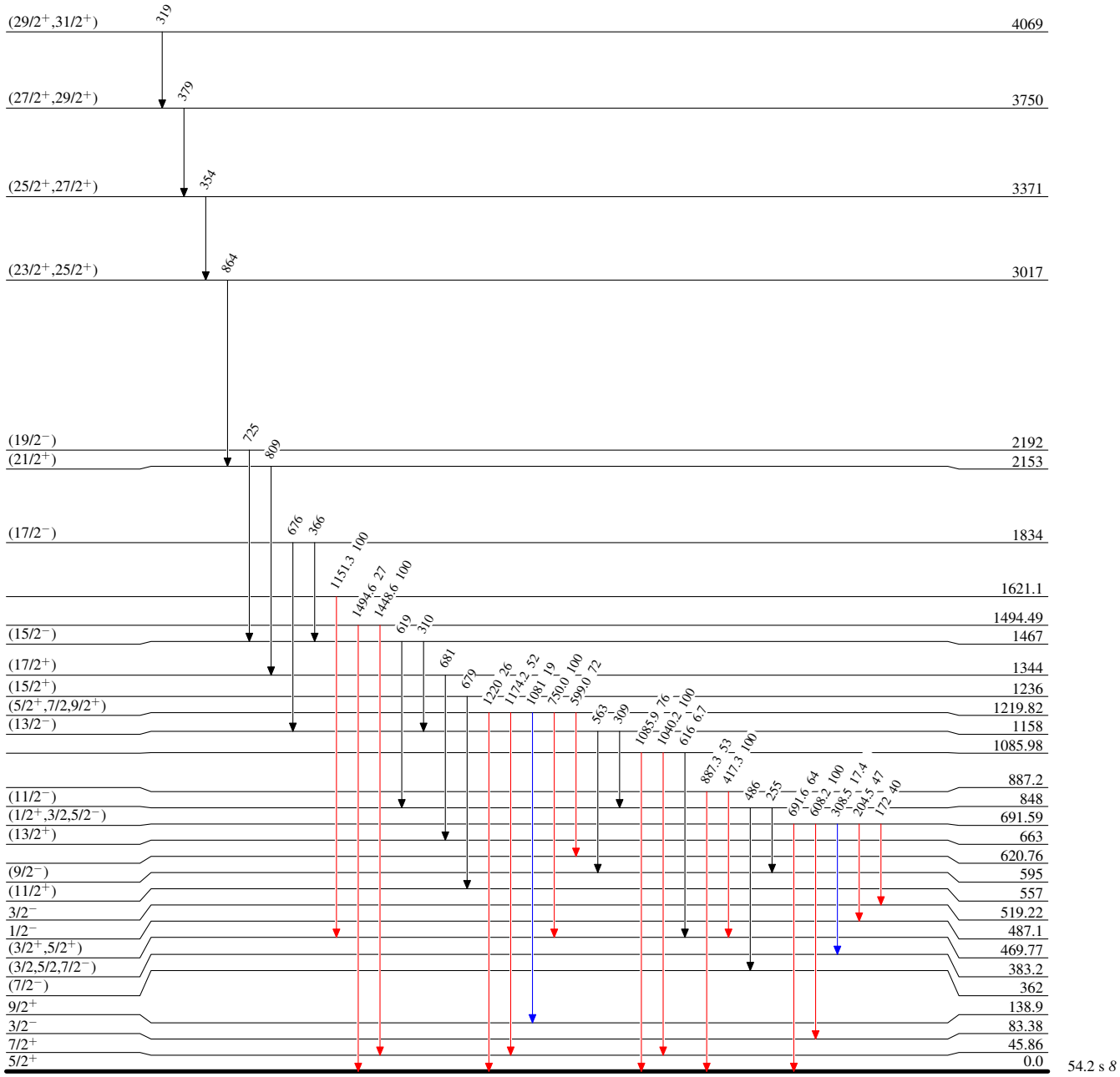
Intensities: Type not specified

Legend

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

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

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

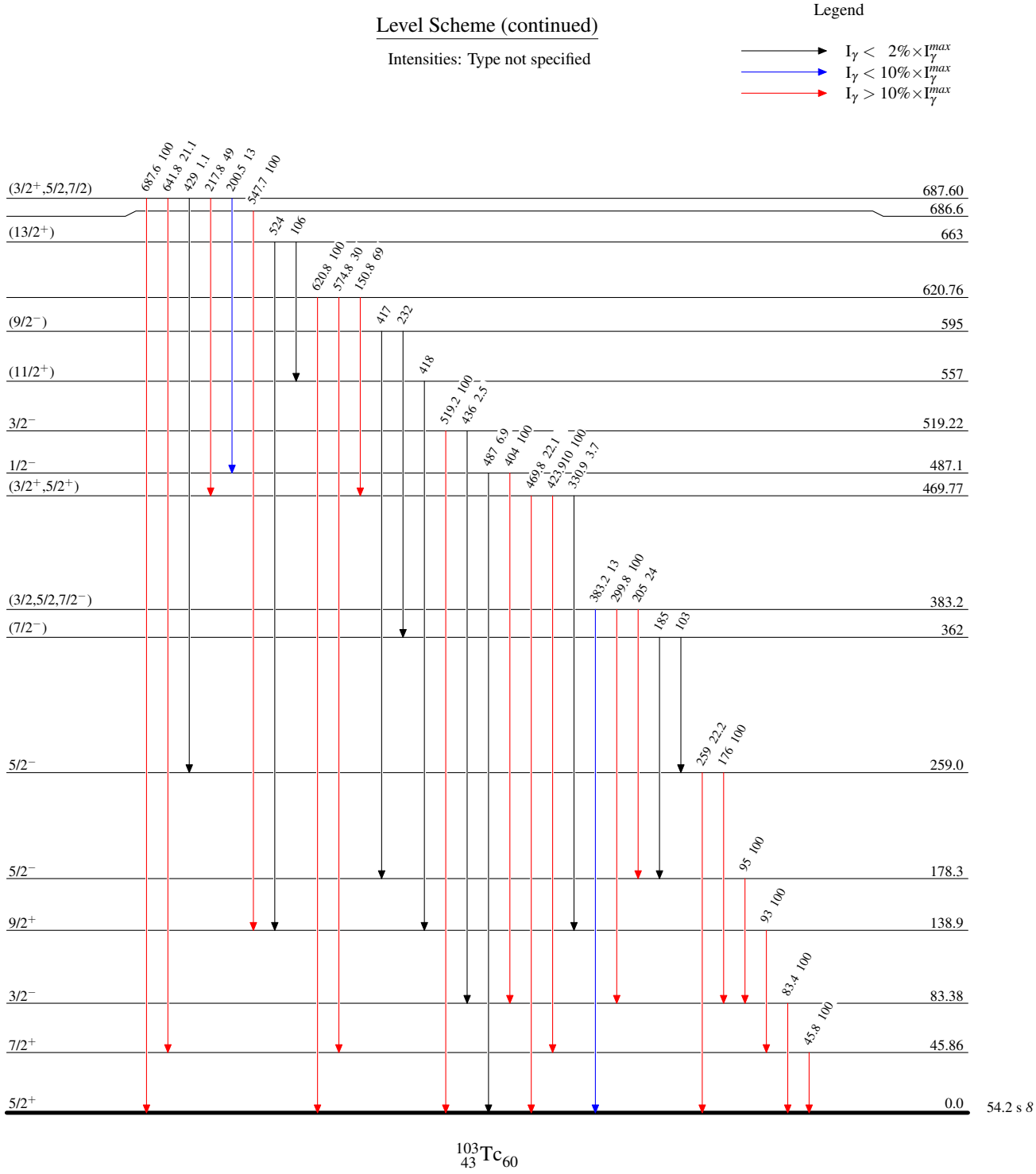


$^{103}_{43}Tc_{60}$

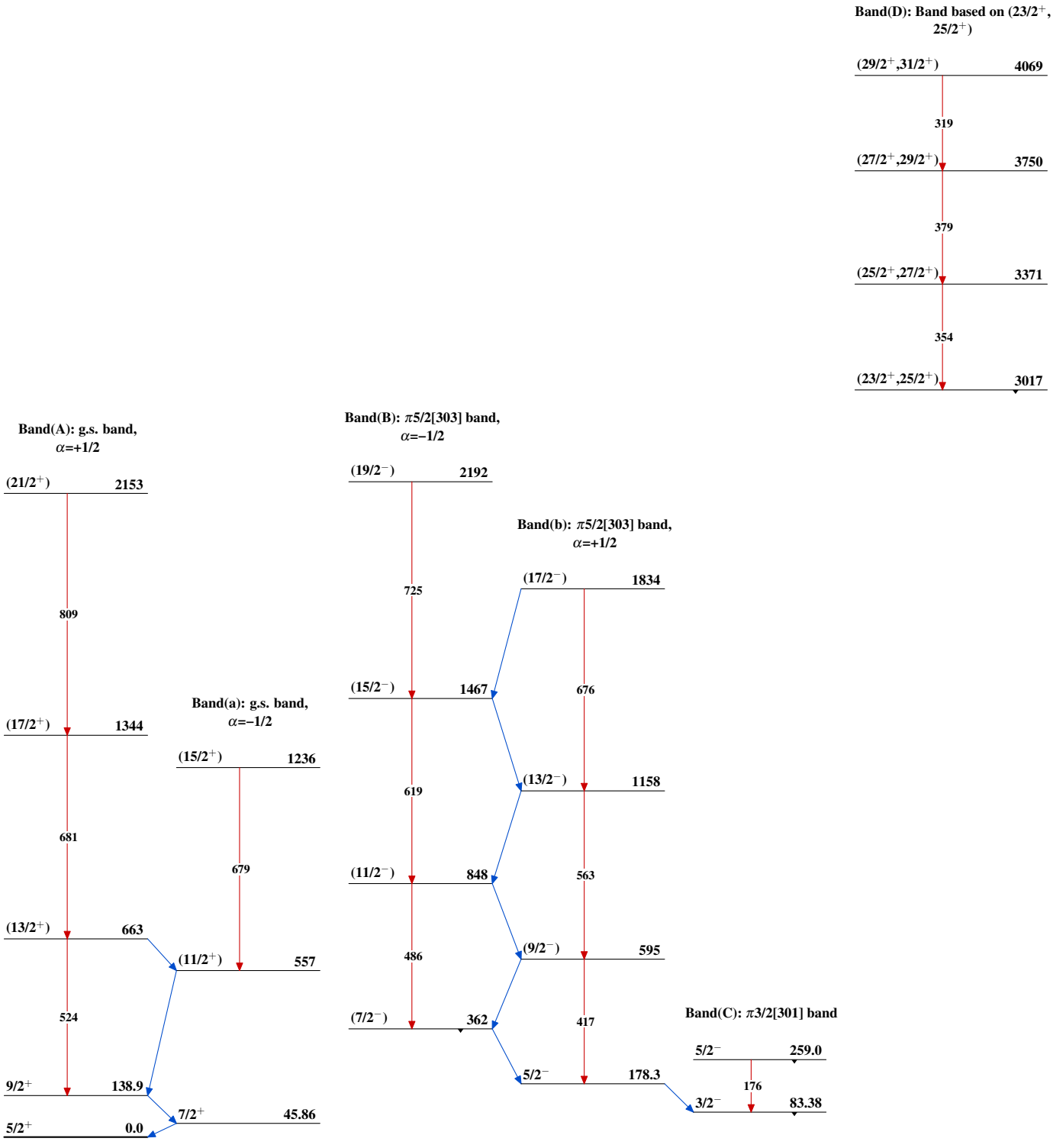
Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



Adopted Levels, Gammas



$^{103}_{43}Tc_{60}$