Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 108,2035 (2007)	30-Mar-2007

Q(β^-)=5587 *25*; S(n)=5.98×10^3 *3*; S(p)=8.83×10^3 *3*; Q(α)=−5.13×10^3 *3* 2012Wa38
Note: Current evaluation has used the following Q record 5600 505960 478930 80-4970 50 2003Au03.

^{104}Tc Levels

Cross Reference (XREF) Flags

A ^{104}Mo β^- decay

E(level)†	J$^\pi$	T$_{1/2}$	XREF	Comments
0	(3$^+$)	18.3 min *3*	A	%β^-=100 J$^\pi$: shell-model consideration, the observed feeding of the 2$^+$ and 4$^+$ levels suggest J^π=2$^-$,3,4$^-$. 2$^-$ is not likely on the basis of systematics (1978Su03) and π=+ is expected from shell−model arguments. T$_{1/2}$: weighted average of 18.0 min *3* (1972Tr08), 18.2 min *5* (1975Ti03), 18.4 min *3* (1978Su03). Others: 18 min *1* (1956Fl25), 17.3 min *2* (1969WiZX).
69.7 *2*	(+)	3.5 μs *3*	A	T$_{1/2}$: from $\gamma\gamma$(t) in ^{104}Mo β^-. Other: 5 μs *2* (1999Ge01). J$^\pi$: E2 γ to (3$^+$).
106.1 *3*	(+)	0.40 μs *2*	A	T$_{1/2}$: from 1999Ge01. J$^\pi$: if M1 γ to +.
119.7 *3*	(+)		A	J$^\pi$: if M1 γ to +.
174.8 *3*	1$^+$		A	J$^\pi$: log *ft*=4.35 from 0$^+$ parent.
220.8 *3*	(0$^+$,1$^+$,2$^+$)		A	J$^\pi$: if γ to 1$^+$ is M1 in ^{104}Mo β^- decay.
265.8 *3*			A	
306.8 *3*			A	
364.1 *3*			A	
398.8 *4*			A	
442.6 *3*			A	
613.8 *3*	1$^+$		A	J$^\pi$: log *ft*=5.8 from 0$^+$ parent.
641.8 *3*	1$^+$		A	J$^\pi$: log *ft*=5.1 from 0$^+$ parent.
710.6 *3*			A	
728.8 *4*	1$^+$		A	J$^\pi$: log *ft*=5.4 from 0$^+$ parent.
765.1 *3*			A	
778.9 *3*			A	
908.5 *3*			A	
989.3 *3*			A	
1017.3 *3*	1$^+$		A	J$^\pi$: log *ft*=5.5 from 0$^+$ parent.

† Level energy from least-squares adjustment.

γ(^{104}Tc)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.†	α‡	Comments
69.7	(+)	69.7 *2*	100	0	(3$^+$)	E2	4.62	B(E2)(W.u.)=0.60 *6*
106.1	(+)	36.3 *2*	100	69.7	(+)	[M1]	5.22	B(M1)(W.u.)=0.000185 *11*
119.7	(+)	50.0 *2*	100	69.7	(+)	[M1]	2.03	
174.8	1$^+$	55.0 *2*	15.7 *16*	119.7	(+)	[M1]	1.54 *3*	
		68.8 *2*	100 *10*	106.1	(+)	[M1]	0.811	
		105.2 *2*	1.6 *2*	69.7	(+)	[M1]	0.2440	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

γ(^{104}Tc) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Mult.[†]	α[‡]
220.8	$(0^+,1^+,2^+)$	46.0 *2*	100 *10*	174.8	1^+	[M1]	2.60
		101.0 *2*	3.25 *4*	119.7	$(^+)$		
		114.6 *2*	0.9 *1*	106.1	$(^+)$		
		151.0 *2*	9.1 *10*	69.7	$(^+)$		
265.8		91.0 *2*	100 *10*	174.8	1^+		
		159.5 *2*	9 *1*	106.1	$(^+)$		
		196.1 *2*	7.5 *8*	69.7	$(^+)$		
306.8		86.0 *2*	≈2	220.8	$(0^+,1^+,2^+)$		
364.1		98.0 *2*	<13.3	265.8			
		189.3 *2*	100 *10*	174.8	1^+		
398.8		92.0 *2*	24.3 *25*	306.8			
		132.0 *2*	16.2 *17*	265.8			
		178.3 *2*	100 *10*	220.8	$(0^+,1^+,2^+)$		
442.6		221.7 *2*	100	220.8	$(0^+,1^+,2^+)$		
613.8	1^+	393.1 *2*	100	220.8	$(0^+,1^+,2^+)$		
641.8	1^+	199.1 *2*	4.7 *5*	442.6			
		335.0 *2*	12.8 *13*	306.8			
		376.0 *2*	100 *10*	265.8			
		421.0 *2*	55 *6*	220.8	$(0^+,1^+,2^+)$		
		467.2 *2*	14.9 *15*	174.8	1^+		
		535.0 *2*	<2.1	106.1	$(^+)$		
710.6		444.8 *2*	100	265.8			
728.8	1^+	87.0 *2*	>100	641.8	1^+		
765.1		659.0 *2*	100	106.1	$(^+)$		
778.9		604.1 *2*	100	174.8	1^+		
908.5		733.7 *2*	100	174.8	1^+		
989.3		768.6 *2*	100	220.8	$(0^+,1^+,2^+)$		
1017.3	1^+	710.4 *2*	100	306.8			
		796.7 *2*	212.2	220.8	$(0^+,1^+,2^+)$		

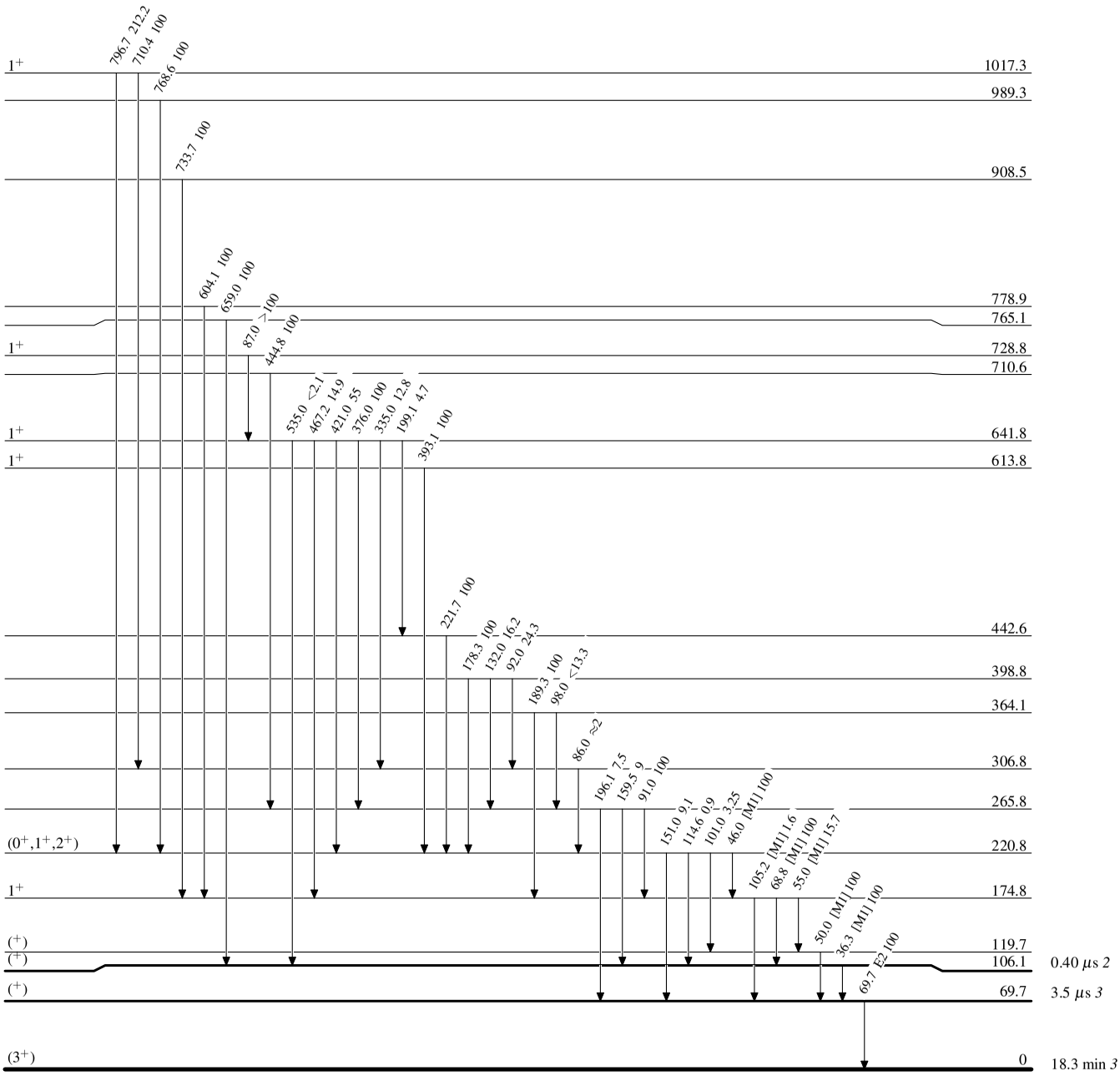
[†] From ^{104}Mo β^- decay.

[‡] 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.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{104}_{43}Tc_{61}$