Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 127, 69(2015)	1-Apr-2015

Q(β^-)=−18601 *SY*; S(n)=19385 *16*; S(p)=5504.3 *4*; Q(α)=−8142.5 *5* 2012Wa38
ΔQ(β^-)=401(syst) 2012Wa38.

^{22}Mg Levels

Cross Reference (XREF) Flags

A	^{22}Al ε decay	F	^{12}C(^{16}O,^{6}He)	K	^{24}Mg(p,t)
B	^{23}Si εp decay	G	^{12}C(^{22}Mg,^{22}Mg′)	L	^{24}Mg(α,^{6}He)
C	^{1}H(^{21}Na,γ)	H	^{12}C(^{23}Al,^{22}Mgγ)	M	^{25}Mg(^{3}He,^{6}He)
D	^{1}H(^{21}Na,P): res	I	^{18}Ne(α,p)		
E	^{12}C(^{12}C,2nγ)	J	^{20}Ne(^{3}He,n),(^{3}He,nγ)		

E(level)[†]	J$^\pi$	T$_{1/2}$[&]	XREF	Comments
0.0	0$^+$	3.8755 s *12*	ABC EF HIJK M	%ε+%β^+=100 δ<r^2>(^{26}Mg,^{22}Mg)=+0.214 fm^2 *5* (stat) *51* (syst) (2012Yo01). <r^2>$^{1/2}$=3.0691 fm *7* (stat) *86* (syst) (2012Yo01). J$^\pi$: L=0 in (p,t). T$_{1/2}$: From 2003Ha20. Other value: 3.857 s *9* (1972Ha58,1975Ha21). 2015Ha07 Weighted average of data in 2003Ha20 and 1975Ha21 is 3.8752 s *24* at 2σ (2015Ha07).
1247.02 *3*	2$^+$	2.0 ps *8*	ABC EF H JK M	J$^\pi$: L=2 in (p,t); E2 γ to 0$^+$. T$_{1/2}$: From weighted average of 2.9 ps *10* (1975Gr04) and 1.3 ps *9* (symmetric value of 0.7 ps *+15−3* (1972Ro20)) in (^{3}He,n),(^{3}He,nγ).
3308.22 *6*	4$^+$	200 fs *45*	A C EF H JK M	J$^\pi$: E2 γ to 2$^+$, member of isobaric triplet.
4402.0 *3*	2$^+$	<21 fs	C EF JK M	J$^\pi$: L=(2) and natural parity in (p,t). (M1) to 2$^+$, γ′s to 0$^+$ and 4$^+$.
5035.4 *5*	2$^+$	<0.07 ns	EF JK M	E(level): From (^{12}C,2nγ). J$^\pi$: L=2 in (^{3}He,n) and L=(2) and natural parity in (p,t).
5089.3 *8*	(1$^+$)		E K M	J$^\pi$: Assigned in 2005Se02 (^{12}C,2nγ) based on γ ray feeding and transition characteristics.
5293.11 *16*	(4$^+$)	44 fs *15*	A E H JK	J$^\pi$: (M1+E2) γ to 4$^+$. 2005Se02 (^{12}C,2nγ) assigned 4$^+$ comparing with a 4$^+$ state at 5146.0 keV in ^{22}Ne mirror. Natural parity in (p,t).
5296.0 *4*	(2$^-$)		E J	J$^\pi$: Dipole γ to 2$^+$. 2005Se02 (^{12}C,2nγ) assigned 2$^-$ comparing with a 2$^-$ state at 5146.0 keV in ^{22}Ne mirror.
5318 *4*	(1,2,3)	<17 ns	J	J$^\pi$: γ to 0$^+$.
5452.4 *4*	(3$^+$)	<0.07 ns	A E JK	XREF: J(5464). J$^\pi$: Dipole γ to 2$^+$. 2005Se02 (^{12}C,2nγ) assigned 3$^+$ in analogy with a 3$^+$ state at 5641.2 keV in ^{22}Ne mirror. Natural parity in 2001Ba17 (p,t) probably doubtful − 2005Se02 note the strength is noticeably suppressed.
5711.4 *7*	2$^+$	28 fs *10*	C EF JK M	J$^\pi$: L=2 in and natural parity in (p,t); L=2 in (^{3}He,n). Γ_p/Γ<0.20 (2003Da36).
5838 *5*	2$^+$,3,4$^+$	<17 ns	C J	J$^\pi$: γ′s to 2$^+$ and 4$^+$.
5953.8 *8*	0$^+$		C JK	XREF: J(5980). Γ_p/Γ=0.98 *1* (2003Da36). E(level): From (p,t). J$^\pi$: L=0 in (^{3}He,n) and (p,t).
6043 *3*	(0$^+$)		C F KLM	E(level): From 6036.2 *8* (p,t), 6042 *13* (^{21}Na,γ), 6051 *4* (^{3}He,^{6}He), 6041 *11* (^{16}O,^{6}He), 6059 *9* (α,^{6}He) using The Limitation of Relative Statistical Weight method (1985ZiZY). J$^\pi$: Natural parity in 2001Ba17 (p,t), L=0 in (p,t). However,

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{22}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[&]	XREF	Comments
				2003Da36 assign 1^-. Γ_p/Γ=0.97 *3* (2003Da36).
6226.1 *10*	(4^+)		A C F K M	E(level): From (p,t). J^π: L=4 in (^{3}He,n); Analogue state of 6345.1 ($J^\pi=4^+$) in ^{22}Ne. (2009Ma68).
6242.7? *11*			C F M	XREF: F(6255). E(level): From (^{21}Na,γ). Evaluator lists this level as doubtful based on observations in 2009Ma68 (p,t). It is noted that 2001Ba17 (p,t) measured a peak at 6241.1 keV *51* (width 26 keV *6*) and suggested as a doublet. 2005Se02 (^{12}C,2nγ) resolved the doublet by measuring a 6^+ state at 6254 keV. 2009Ma68 measured only one level at 6226.1 keV *10* (width 13 keV). Evaluator′s note: Average of 6254.23 and 6226.1 is 6240.1.
6254.23[‡] *21*	6^+		E JKL	XREF: K(6226). E(level): From (^{12}C,2nγ). J^π: L=6 in ((p,t) – see comments for level at 6226.1), Q γ to 4^+.
6313 *5*	4^+	<17 ns	A JK	E(level): Weighted average of 6307 *8* (^{22}Al β^+ decay) and 6317 *6* (p,t). J^π: L=4 in (p,t) and (^{3}He,n).
6325.6 *10*	(1^+)[#]	13.6 keV *14*	CD K M	E(level): From (^{21}Na,γ). J^π: Analogue state of 6853.5 ($J^\pi=(1^+)$) in ^{22}Ne. Γ: Other value – 16 keV *3* ((^{21}Na,γ) – 2004Da17).
6476 *8*			A	
6578 *7*	(1^-)[#]	12.8 keV *15*	D JK	E(level): From (p,t). J^π: From differential cross section fittings (2005Ru01). Γ_p=11.9 keV *14* and $\Gamma_{p'}$=0.94 keV *11* ((^{21}Na,p) – 2005Ru01).
6608 *2*	(2^+)[#]	17.9 keV *16*	CD F KLM	E(level): Weighted average of 6611 *11* (^{21}Na,p), 6606 *7* (p,t), 6605.4 *25* (^{21}Na,γ), 6616 *4* (^{3}He,^{6}He), 6606 *11* (^{16}O,^{6}He), 6606 *9* (α,^{6}He). J^π: L=0 and natural parity in (^{21}Na,p), analogue state of 6819.4 ($J^\pi=2^+$) in ^{22}Ne. Γ: Other values: – 30 keV *7* ((^{21}Na,γ) – 2004Da17). Γ_p=17.6 keV *15* and $\Gamma_{p'}$=0.3 keV *1* ((^{21}Na,γ) – 2005Ru01); Γ_p=23 keV *7* ((^{21}Na,p) – 2009He12).
6724 *8*			A	
6766 *12*	(3^-)[#]	105 keV *33*	D F JKLM	J^π: L=3 in (^{3}He,n). But $(1^+,2^+)$ in 2008He04 (^{21}Na,p). E(level): Weighted average of 6792 *17* (^{21}Na,p), 6770 *20* (^{3}He,n),(^{3}He,nγ), 6768.8 *12* (p,t), 6771 *5* (^{3}He,^{6}He), 6767 *20* (^{16}O,^{6}He), and 6766 *12* (α,^{6}He). Also Γ_p=94 keV *32* and $\Gamma_{p'}$=11.1 keV *8* (2005Ru01); Γ_p=64 keV *20* (2009He12).
6865 *8*	(3^+)[#]		A	J^π: From ^{22}Al β^+ decay, log *ft*=5.6 from $(4)^+$.
6876.0 *12*	(1^-)[#]		D F K M	E(level): From (p,t).
6983 *9*	(3^-)		J	J^π: L=3 in (^{3}He,n).
7027 *9*	$[3^+]$[@]		K	
7048 *5*	$[4^+]$[@]		A K	E(level): Weighted average of 7052 *8* (^{22}Al β^+ decay) and 7045 *7* (p,t).
7060 *7*			K	
7079 *8*	$[1^-]$[@]		K	
7132 *8*	(5^+)		A	J^π: From ^{22}Al β^+ decay, log *ft*=4.75 from $(4)^+$.
7218.3 *10*	0^+		JKLM	E(level): From (p,t). J^π: L=0 in (^{3}He,n).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{22}Mg Levels (continued)

E(level)†	J^π	XREF	Comments
7254 *8*	(1^-)#	A D	XREF: D(7270).
7338 *13*	(2^+)#	D K	E(level): From (p,t).
7384 *8*	(3^-)#	D F K M	E(level): Weighted average of 7402 *13* (^{16}O,^{6}He), 7389 *12* (p,t), and 7373 *9* (^{3}He,^{6}He).
7573 *8*		A	
7599.5 *29*	(2^+)#	D KLM	XREF: D(7585). E(level): From (p,t). Γ_p=23 keV *7* ((^{21}Na,p) – 2009He12).
7674 *18*	(1^-)#	D F	XREF: D(7654).
7741.1 *2*		K M	XREF: M(7757). E(level): From (p,t).
7810 *40*	(2^-)#	D J	XREF: D(7802). J^π: Unnatural parity (^{21}Na,p).
7928 *3*	$[2^+]$@	D F JKLM	XREF: D(7920). E(level): Weighted average of 7920.6 *15* (p,t), 7931 *5* (^{3}He,^{6}He), 7964 *16* (^{16}O,^{6}He), 7938 *9* (α,^{6}He).
8007.0 *14*	$[3^-]$@	A D KL	E(level): from (p,t). J^π: Natural parity (^{21}Na,p).
8062 *16*		F	
8180.3 *17*	$[2^+]$@	D F KLM	XREF: F(8203)L(8197)M(8229). E(level): From (p,t).
8290 *40*		A J	XREF: A(8339).
8398 *8*	$[2^+]$@	A D F KLM	XREF: D(8353). E(level): Weighted average of 8416 *8* (^{22}Al β^+ decay), 8394 *21* (^{3}He,^{6}He), 8396 *15* (^{16}O,^{6}He), 8380 *10* (α,^{6}He), 8383 *13* (p,t).
8519.3 *21*	(3^-)#	D F JKLM	XREF: F(8547)J(8550)M(8487). E(level): From (p,t). Γ_p=60 keV *20* ((^{21}Na,p) – 2009He12).
8579 *6*		A D K M	E(level): Weighted average of 8589 *8* (^{22}Al β^+ decay), 8598 *20* (^{3}He,^{6}He), and 8572 *6* (p,t).
8657.5 *17*		D F KL	XREF: D(8677)F(8613)L(8644). E(level): From (p,t).
8727	(2^+)#	D	
8743 *14*	$[4^+]$@	K	
8784.5 *23*	$[1^-]$@	F KLM	XREF: F(8754). E(level): From (p,t).
8827	(1^-)#	D	
8933.1 *29*	$[2^+]$@	D F KL	E(level): Weighted average of 8925 *19* (^{16}O,^{6}He) and 8921 *9* (α,^{6}He).
8991 *7*	(1^-)#	A D L	XREF: D(9050). E(level): Weighted average of 8985 *8* (^{22}Al β^+ decay) and 9029 *20* (α,^{6}He).
9080 *7*		F KL	XREF: L(9029). E(level): Weighted average of 9082 *7* (p,t) and 9066 *18* (^{16}O,^{6}He).
9157 *4*	(4^+)#	D F KL	XREF: F(9172). E(level): From (p,t).
9248? *20*		F	
9318 *12*		F K	E(level): Weighted average of 9329 *26* (^{16}O,^{6}He), 9315 *14* (p,t).
9378? *22*		L	E(level): Weighted average of 9378 *22* (^{16}O,^{6}He), 9315 *14* (p,t).
9452? *21*		F	
9481 *18*	$[3^-]$@	F K	E(level): Weighted average of 9452 *21* (^{16}O,^{6}He) and 9492 *13* (p,t).
9529 *7*		A F KL	XREF: A(9518). E(level): Weighted average of 9518 *8* (^{22}Al β^+ decay), 9533 *24* (^{16}O,^{6}He), 9542 *12* (α,^{6}He), and 9546 *15* (p,t).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{22}Mg Levels (continued)

E(level)†	J$^\pi$	XREF	Comments
			J$^\pi$: [2$^+$] in 2009Ma68 (p,t) and (1$^-$) in 2009Ch28 (p,t).
9640 *9*		F L	E(level): Weighted average of 9638 *21* (^{16}O,^{6}He) and 9640 *10* (α,^{6}He).
9712 *21*	[0$^+$]@	a F K	E(level): From (^{16}O,^{6}He).
9751.6 *27*	(2$^+$,1$^+$)@	a KL	E(level),J$^\pi$: From (p,t). 2009Ma68 (p,t) propose [2$^+$] from mirror analogy with 10137 keV level in ^{22}Ne.
9859 *5*	[0$^+$]@	F KL	E(level): Weighted average of 9827 *44* (^{16}O,^{6}He), 9853 *11* (α,^{6}He), and 9861 *6* (p,t).
9960 *7*		A F L	XREF: A(9965).
			E(level): Weighted average of 9965 *8* (^{22}Al β^+ decay), 9924 *28* (^{16}O,^{6}He), and 9953 *13* (α,^{6}He).
10084 *13*	[2$^+$]@	F KL	XREF: L(10128).
			E(level): Weighted average of 10087 *15* (p,t) and 10078 *24* ((^{16}O,^{6}He).
10168 *9*	[3$^+$]@	F K	E(level): From (p,t).
10271.7 *17*	[2$^+$]@	F KL	XREF: F(10297).
			E(level): Weighted average of 10297 *25* (^{16}O,^{6}He) and 10260 *10* (α,^{6}He).
10418 *8*	[4$^+$]@	A F KL	XREF: L(10389).
			E(level): Weighted average of 10413 *10* (^{22}Al β^+ decay), 10429 *26* (^{16}O,^{6}He), and 10430 *19* (p,t).
			J$^\pi$: From (p,t). 2009Ch28, also in (p,t), propose (1$^-$). Considering the presence of this level in ^{22}Al β^+ decay, evaluator lists [4$^+$].
10572 *22*		F I	E(level): Weighted average of 10580 *50* (α,p) and 10570 *25* (α,^{6}He).
10665 *11*	[3$^-$]@	A F KL	E(level): Weighted average of 10678 *12* (^{22}Al β^+ decay), 10660 *28* (^{16}O,^{6}He), 10627 *20* (α,^{6}He), and 10667 *19* (p,t).
10768 *13*	[2$^+$]@	F i KL	E(level): Weighted average of 10750 *31* (^{16}O,^{6}He), 10776 *20* (α,^{6}He), and 10768 *21* (p,t).
10876 *14*	[4$^+$]@	F i K	E(level): Weighted average of 10881 *15* (p,t) and 10844 *38* (^{16}O,^{6}He).
10901 *17*		F I L	E(level): Weighted average of 10910 *50* (α,p), 10844 *38* (^{16}O,^{6}He), and 10915 *20* (α,^{6}He).
11001 *11*	[0$^+$]@	F I KL	E(level): Weighted average of 10990 *50* (α,p), 10980 *31* (^{16}O,^{6}He), 11015 *20* (α,^{6}He), and 10999 *15* (p,t).
11122 *17*		F I L	E(level): Weighted average of 11130 *50* (α,p), 11135 *40* (^{16}O,^{6}He), and 11118 *20* (α,^{6}He).
11231? *20*		L	
11314 *16*	[4$^+$]@	A KL	E(level): From 11313 *20* (α,^{6}He) and 11317 *27* (p,t).
11410 *8*		A	
11499 *17*	[2$^+$]@	K	
11594 *12*		KL	E(level): Weighted average of 11581 *20* (α,^{6}He) and 11603 *16* (p,t).
			J$^\pi$: (3$^-$,4$^+$) in 2009Ch28 and [1$^-$] in 2009Ma68 both in (p,t).
11748 *17*	[0$^+$]@	KL	E(level): Weighted average of 11742 *20* (α,^{6}He) and 11760 *30* (p,t).
11914 *13*		KL	E(level): Weighted average of 11881 *20* (α,^{6}He) and 11937 *17* (p,t).
			J$^\pi$: (1$^-$,2$^+$) in 2009Ch28 and [0$^+$] in 2009Ma68 both in (p,t).
12003? *20*		L	
12185 *17*	[3$^-$]@	KL	E(level): Weighted average of 12169 *20* (α,^{6}He) and 12220 *30* (p,t).
12474 *26*	[2$^+$]@	K	
12665 *17*	[3$^-$]@	K	
13014 *37*		A K	E(level): Weighted average of 13018 *56* (^{22}Al β^+ decay) and 13010 *50* (p,t).
			J$^\pi$: [0$^+$] in (p,t) not consistent, considering population of this level in ^{22}Al β^+ decay from (4)$^+$.
14012 *3*		A G	E(level): IAS of ^{22}Al g.s., J^π=4$^+$. Other value: 14044 keV *15* (1982Ca16).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{22}Mg Levels (continued)

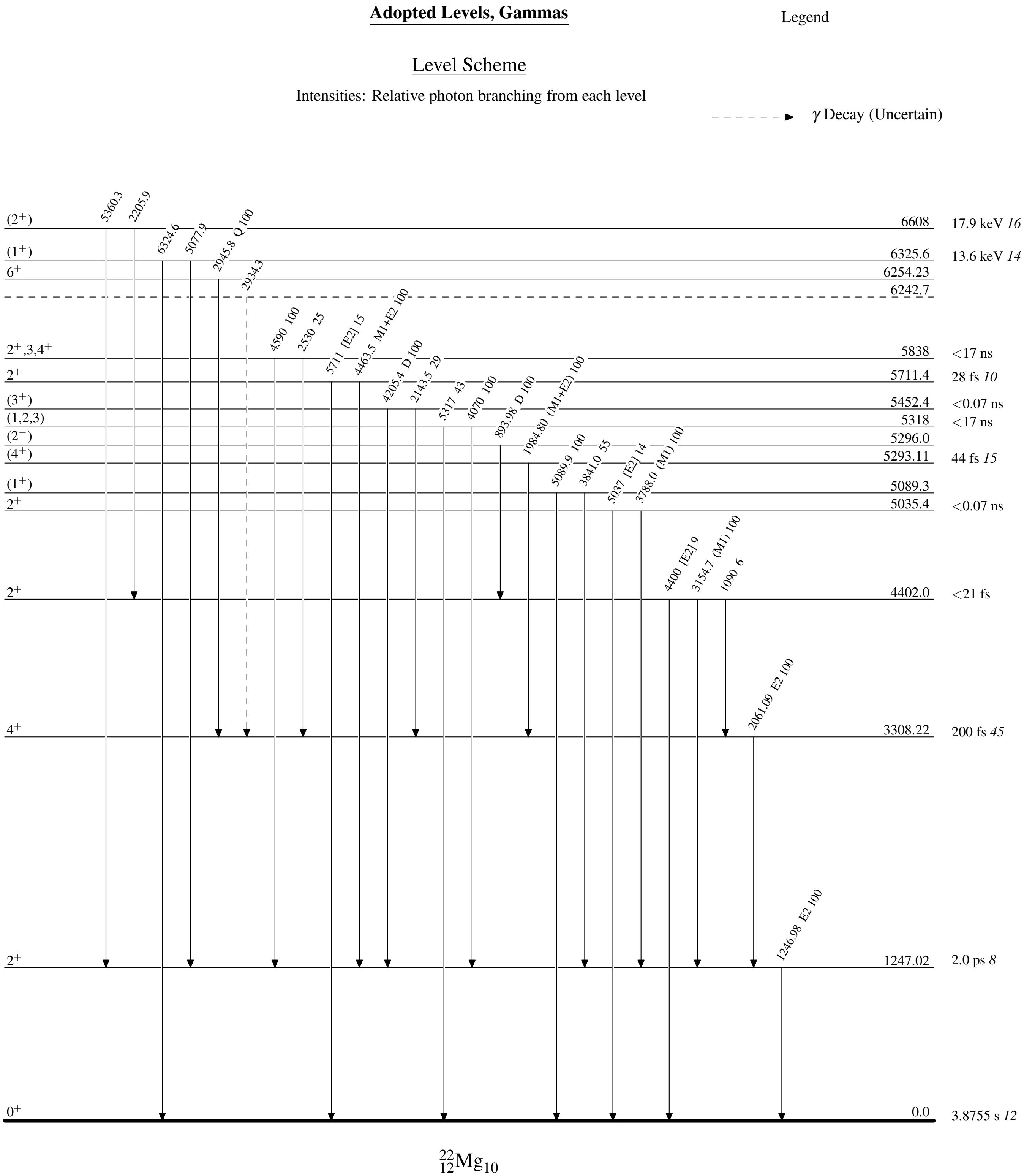
† From least squares fit to γ-ray energies for excited levels up to 5838 keV.
‡ From (^{12}C,2nγ).
# From R-matrix analysis in 2014Zh05 (^{21}Na,p).
@ Based on mirror analogy with ^{22}Ne nucleus in 2009Ma68 (p,t).
& From (^{3}He,n),(^{3}He,nγ), except otherwise noted. Γ_{tot} from (^{21}Na,p) − additional data listed in the comments section.

γ(^{22}Mg)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.#	δ	Comments
1247.02	2+	1246.98† *3*	100	0.0	0+	E2		B(E2)(W.u.)=26 *11*
3308.22	4+	2061.09† *5*	100	1247.02	2+	E2		B(E2)(W.u.)=21 *5*
4402.0	2+	1090‡ *50*	6‡ *5*	3308.22	4+			
		3154.7‡ *3*	100‡ *5*	1247.02	2+	(M1)		B(M1)(W.u.)>0.029
		4400‡ *50*	9‡ *5*	0.0	0+	[E2]		B(E2)(W.u.)>0.33
5035.4	2+	3788.0‡ *5*	100‡ *5*	1247.02	2+	(M1)		B(M1)(W.u.)>5.1×10^{-6}
		5037‡ *6*	14‡ *5*	0.0	0+	[E2]		B(E2)(W.u.)>8.3×10^{-5}
5089.3	(1+)	3841.0† *10*	55† *9*	1247.02	2+			
		5089.9† *12*	100† *10*	0.0	0+			
5293.11	(4+)	1984.80† *14*	100	3308.22	4+	(M1+E2)		
5296.0	(2−)	893.98† *9*	100	4402.0	2+	D		E_γ: Placement from (^{12}C,2nγ).
5318	(1,2,3)	4070‡ *5*	100‡ *21*	1247.02	2+			
		5317‡ *6*	43‡ *21*	0.0	0+			
5452.4	(3+)	2143.5† *6*	29† *5*	3308.22	4+			
		4205.4† *5*	100† *7*	1247.02	2+	D		
5711.4	2+	4463.5‡ *10*	100‡ *3*	1247.02	2+	M1+E2	−0.17 *10*	B(M1)(W.u.)=0.007 *3*; B(E2)(W.u.)=0.08 *5*
		5711‡ *1*	15‡ *3*	0.0	0+	[E2]		B(E2)(W.u.)=0.12 *5*
5838	2+,3,4+	2530‡ *45*	25‡ *19*	3308.22	4+			
		4590‡ *5*	100‡ *19*	1247.02	2+			
6242.7?		2934.3&		3308.22	4+			E_γ: From (^{21}Na,γ). Evaluator lists this γ-ray as doubtful based on the existence of the level at 6242.7 keV *11*. Please see comments for the depopulating level.
6254.23	6+	2945.8† *2*	100	3308.22	4+	Q		
6325.6	(1+)	5077.9@		1247.02	2+			
		6324.6@		0.0	0+			
6608	(2+)	2205.9@		4402.0	2+			
		5360.3@		1247.02	2+			

† From (^{12}C,2nγ).
‡ From (^{3}He,n),(^{3}He,nγ).
# From γ-ray angular distribution measurements in (^{12}C,2nγ), (^{3}He,n),(^{3}He,nγ) and RUL.
@ Placement from (^{21}Na,γ), calculated by evaluator from level energy difference, recoil energy subtracted.
& Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas



Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty	NDS 186, 2 (2022)	31-Mar-2022

Q(β^-)=−13884.77 *23*; S(n)=16531.22 *3*; S(p)=11692.69 *1*; Q(α)=−9316.56 *1* 2021Wa16
S(2n)=29676.23 *16*, S(2p)=20486.805 *22* (2021Wa16).

Other reactions:

2004Be18, 2004Be08: ^{12}C(^{24}Mg, ^{12}C), E=130 MeV; measured Eγ, (particle)γ-coin.

2011Fr14: ^{12}C(^{13}C,n) E=12, 13.5, 20 MeV; measured reaction products ^{25}Mg; deduced ^{24}Mg excited states and reported resonance energies at 13.25 MeV *20* and 14.25 MeV *20*.

2001Di12: ^{11}B(^{13}N,X), (^{13}N,^{12}C), E=29.5, 45 MeV. Measured particle spectra, fusion σ. Deduced ^{24}Mg 6−α decay features, isospin purity/mixing in ^{24}Mg at excitation energy ~47 MeV, GDR γ-emission features.

2006Va20: ^{28}Si(p,p′X)^{24}Mg, E=1 GeV; measured Eγ; deduced σ.

^{24}Mg Levels

Cross Reference (XREF) Flags

A	^{24}Na β^- decay (14.956 h)	N	^{20}Ne(α,γ):Resonances	Others:	
B	^{24}Na β^- decay (20.18 ms)	O	^{20}Ne(α,α),(α,α'):Resonances	AA	Coulomb excitation
C	^{24}Al ε decay (2.053 s)	P	^{20}Ne(^{6}Li,d),(^{7}Li,t)	AB	^{24}Mg(α,$\alpha'\gamma$)
D	^{24}Al ε decay (130.7 ms)	Q	^{22}Ne(^{3}He,n)	AC	^{24}Mg(^{6}Li,^{6}Li′)
E	^{25}Si εp decay	R	^{23}Na(p,γ),(p,p′),(p,X),	AD	^{24}Mg(^{16}O,^{16}O′)
F	^{26}P ε2p decay	S	^{23}Na(^{3}He,d),(^{3}He,dγ)	AE	^{25}Mg(p,d)
G	^{28}P $\varepsilon\alpha$ decay	T	^{24}Mg(γ,γ')	AF	^{25}Mg(^{3}He,^{4}He)
H	^{12}C(^{12}C,γ)	U	^{24}Mg(e,e′)	AG	^{27}Al(μ^-,ν3nγ)
I	^{12}C(^{12}C,p):Resonances	V	^{24}Mg(π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$)	AH	^{27}Al(p,α)
J	^{12}C(^{14}N,d)	W	^{24}Mg(p,p′),(pol p,p′),	AI	^{28}Si(d,^{6}Li)
K	^{12}C(^{24}Mg,^{12}Cγ)	X	^{24}Mg(n,n′γ)	AJ	^{28}Si(^{28}Si,Xγ)
L	^{12}C(^{16}O,α),(^{16}O,$\alpha\gamma$)	Y	^{24}Mg(^{3}He,^{3}He′)		
M	^{12}C(^{24}Mg,2^{12}C),(^{20}Ne,2^{12}C)	Z	^{24}Mg(α,α')		

E(level)[†]	J$^\pi$	T$_{1/2}$ or Γ[j]	XREF	Comments
0[p]	0$^+$	stable	ABCDEFGH JKL N PQRSTUVWXYZ	XREF: Others: AA, AB, AD, AE, AF, AG, AH, AI, AJ δ<r^2>(^{26}Mg,^{24}Mg)=+0.140 fm^2 *5* (stat) *25* (syst) (2012Yo01). <r^2>$^{1/2}$(^{24}Mg)=3.0570 *16* (charge radius) (2013An02 evaluation). Others: 3.0570 fm *7* (stat) *48* (syst) (2012Yo01), 3.030 fm *30* (1971Li26 − (e,e′)).
1368.667[p] *5*	2$^+$	1.36 ps *3*	A CDEF H JKL N PQRSTUVWXYZ	XREF: Others: AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ μ=+1.08 *3*; Q=−0.29 *3* g=0.538 *13* (2015Ku05) T=0 (2015Ku05) J$^\pi$: L=2 in ^{24}Mg(p,p′). E2 to 0$^+$. T$_{1/2}$ or Γ: From τ=1.96 ps *5*: weighted average of mean lifetimes of (α,γ): 2.25 ps *9* (1973Br33), (^{16}O,α),(^{16}O,$\alpha\gamma$): 1.82 ps *14* (1974Fo11), 2.11 ps *16* (1970Al10), 2.09 ps *13* (1975Ho15), 2.07 ps *34* (1970Cu02); (e,e′): 1.9 ps *2* (1956He83), 1.87 ps *5* (1969Ti01), 1.9 ps *2* (1972Na06), 1.97 ps *11* (1974Jo10); (γ,γ'): 1.76 ps *21* (1981Ca10), 1.8 ps *2* (1977Ca14), 1.92 ps *15* (1971Sw07), 1.95 ps *26* (1966Sk01); Coul Ex: 1.91 ps *10* (1979Fe05), 1.92 ps *10* (1977Sc36), 2.00 ps *14* (1970Ha04), 2.02 ps *10* (1971Vi01), 1.93 ps *13* (1975Bi03), 1.65 ps *15* (1969Pe11); (p,γ): 1.97 ps *16*

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$ or Γ[j]	XREF	Comments
				(1989Ke04), 2.00 ps *45* (1973Le15). Others τ: (α,α′γ): 1.44 ps *+11−9* (1968Ro05); (γ,γ′): 1.11 ps *13* (1970He01), 1.1 ps *2* (1965Ka15); (p,γ): 1.40 ps *45* (1972Me09) − omitted as outlier. μ: From 2020StZV, 2015Ku05 − Time Dependent Recoil in Vacuum. Other: +1.02 *4* from 2014StZZ − Recoil into Vacuum, Differential method (1975Ho15), Perturbed Angular Correlation after Ion Implantation (1974Eb02). Q: From 2021StZZ − Coulomb Excitation Reorientation (1990Gr11). Others: −0.18 *2* (1981Sp07), −0.178 *13* (13) (1979Fe05), −0.07 *3* (1981Ko06) − also listed in 2014StZZ. Uncertainty in g-factor includes 0.011 (statistical) and 0.007 (systematic).
4122.853[p] *12*	4^{+}	24.3 fs *21*	A C E H jKL N P RS U WXYZ	XREF: Others: AB, AD, AE, AF, AG, AH, AI, AJ μ=+1.7 *12* XREF: AJ(4115.1). J$^{\pi}$: L=4 in (α,α′) and in ^{24}Mg(p,p′); E2 to 2^{+}. T$_{1/2}$ or Γ: From mean lifetime τ=35 fs *3*: Weighted average of τ values from (^{16}O,α),(^{16}O,αγ): 53 fs *9* (1975Br10) and 48 fs *9* (1983Sp01); (p,γ),(p,p′): 32 fs *3*, 33 fs *2* (both from 1989Ke04), 40 fs *4* (1973Le15), 25 fs *5* (1972Me09); (^{3}He,d),(^{3}He,dγ): 68 fs *25* (1969An08); (n,n′γ): 56 fs *19* (1984El12); (p,p′),(pol p,p′): 65 fs *19* (1972Ba93); (α,α′γ): 51 fs *+33−28* (1968Ro05). Other: mean lifetime τ=169 fs *34* (outlier) (1971Ha32 − (α,α′γ)). μ: From 2020StZV, 1983Sp01 − Transient Field.
4238.35[q] *4*	2^{+}	45.7 fs *35*	A CDE H jKL N P RS UVWXYZ	XREF: Others: AB, AD, AE, AF, AG, AH, AI, AJ μ=+1.3 *4* J$^{\pi}$: L=2 in (α,α′) and ^{24}Mg(p,p′). T$_{1/2}$ or Γ: From τ=66 fs *5*: Weighted average of mean lifetimes (^{16}O,α),(^{16}O,αγ): τ=85 fs *15* (1975Br10), 110 fs *26* (1970Cu02 − revised value of τ=83 fs *16* (1968Cu05)); (p,γ),(p,p′): 66 fs *5*, 63 fs *5* (1989Ke04), 88 fs *11* (1973Le15), 53 fs *9* (1972Me09); (^{3}He,d),(^{3}He,dγ): τ=86 fs *30* (1969An08); (e,e′): 63 fs *10* (1974Jo10), 60 fs *6* (1978Za07), 69 fs *12* (1969Ti01); (p,p′),(pol p,p′): 120 fs *30* (1967AlZV), 95 fs *25* (1972Ba93); (α,α′γ): 101 fs *25*. Others: (α,α′γ): 185 fs *33* (1971Ha32); (n,n′γ): τ=105 fs *5* (1984El12). μ: From 2020StZV, 1983Sp01 − Transient Field.
5235.16[q] *5*	3^{+}	68 fs *5*	A C H JKL N RS W Y	XREF: Others: AB, AE, AF, AG, AH, AI, AJ XREF: AH(5251). J$^{\pi}$: L(p,d)=0+2, unnatural parity (^{16}O,α). Band assignment. L=3 in ^{24}Mg(p,p′) gives π=− is inconsistent. T$_{1/2}$ or Γ: From τ=98 fs *7*: weighted average of data from (^{16}O,α),(^{16}O,αγ): τ=109 fs 15 (1975Br10); (p,γ),(p,p′): 105 fs *16*, 101 fs *7* (1989Ke04), 65 fs *11* (1972Me09), 120 fs *16* (1973Le15); (^{3}He,d),(^{3}He,dγ): 95 fs *25* (1969An08); (p,p′),(pol p,p′): 130 fs *70* (1967AlZV) and 128 fs *32* (1972Ba93); (α,α′γ): 173 fs *46* (1971Ha32), 79 fs *+47−51* (1968Ro05).
6010.34[q] *5*	4^{+}	53 fs *4*	C H JKL N P RS UVWXYZ	XREF: Others: AB, AD, AE, AF, AH, AI, AJ μ=+2.1 *16* XREF: V(5.93E3)AD(6.1E3)AJ(6007.3).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
				J^π: L=4 in (α,α') and ^{24}Mg(p,p′), natural parity (^{16}O,α). $T_{1/2}$ or Γ: From τ=77 fs *6*: weighted average of data from (^{3}He,d),(^{3}He,dγ): τ=50 fs 25 (1969An08); (p,p′),(pol p,p′): 85 fs *22* (1972Ba93); (^{16}O,α),(^{16}O,$\alpha\gamma$): 77 fs *14* (1975Br10); (p,γ),(p,p′): 63 fs *10* and 83 fs *6* (1989Ke04); and 83 fs *10* (1973Le15), 46 fs *14* (1972Me09); (n,n′γ): 115 fs *20* (1984El12); ($\alpha,\alpha'\gamma$): 71 fs *+37−40* (1968Ro05). Others: (p,p′),(pol p,p′): 200 fs *40* (1967AlZV); ($\alpha,\alpha'\gamma$): 124 fs *20* (1971Ha32). μ: From 2020StZV, 1984Sp03 − Transient Field.
6432.2 *10*	0^+	69 fs *12*	JKL N PQR UVW YZ	XREF: Others: AB, AD, AE, AF, AH, AI XREF: AF(6448). J^π: L=0 in (α,α') and ^{24}Mg(p,p′), natural parity in (^{16}O,α). $T_{1/2}$ or Γ: From τ=100 fs *17*: Weighted average of τ values from (^{16}O,α),(^{16}O,$\alpha\gamma$): 66 fs *29* (1976Br34); (p,γ),(p,p′): 105 fs *45*, 140 fs *30* (1989Ke04), 110 fs *17* (1973Le15); and (p,p′),(pol p,p′): 77 fs *23* (1972Ba93). Others: (p,p′),(pol p,p′): 270 fs *60* (1967AlZV); ($\alpha,\alpha'\gamma$): 241 fs *+25−17* (1968Ro05); (p,γ),(p,p′): 66 fs *13* (1972Me09). Uncertainty of τ=100 fs *17* is the lowest input value.
7.0×10^3				XREF: Others: AD
7348.60 *10*	2^+	6.5 fs *22*	C JKL N P RS UVW YZ	XREF: Others: AD, AE, AF, AH, AI, AJ J^π: L=2 in (α,α') and ^{24}Mg(p,p′), natural parity (^{16}O,α). $T_{1/2}$ or Γ: Weighted average of 4.5 fs *14* from (p,γ), 10 fs *2* from (e,e′), and 24 fs *11* from (p,p′).
7555.3 *10*	1^-	270[l] fs *55*	JKL N RS W YZ	XREF: Others: AD, AE, AF, AH XREF: J(7.58E3). J^π: L=1 in ^{24}Mg(p,p′), natural parity (^{16}O,α).
7616.41 *7*	3^-	1.01 ps *15*	C H KL N RS UVW YZ	XREF: Others: AE, AF, AH, AI XREF: V(7.55E3). J^π: L=3 in (α,α') and ^{24}Mg(p,p′), natural parity (^{16}O,α). $T_{1/2}$ or Γ: From τ=1.46 ps *22*: Weighted average of τ values from (p,γ),(p,p′): 1.19 ps *20* (1989Ke04), 2.00 ps *55* (1973Le15); (p,p′),(pol p,p′): 2.1 ps *4* (1967AlZV) and 1.8 ps *6* (1972Ba93).
7747.7 *2*	1^+	12.5 fs *28*	L N RS W Y	XREF: Others: AF E(level): Other values: 7750 *3* (^{3}He,d) and 7746 *3* (p,p′). J^π: L(^{3}He,d)=0+2 and unnatural parity (^{16}O,α).
7812.4 *5*	$(4^-,5^+)$	21 fs *3*	C JKL N RS W Y	XREF: Others: AF, AH XREF: AH(7797). $T_{1/2}$ or Γ: Weighted average of 24 fs *3* (^{16}O,α) and 17 fs *4* (p,γ). J^π: γ to 3^+ and 4^+ states; and γ from 5^-. Unnatural parity (^{16}O,α).
8113.2[p] *10*	6^+	3.6 fs *12*	JKL P RS W Y	XREF: Others: AD, AF, AH, AI, AJ XREF: Y(8120)AJ(8104.7).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
				J^π: L=6 in (p,p′), natural parity (^{16}O,α). $T_{1/2}$ or Γ: Weighted average of 3.9 fs *21* (^{16}O,αγ) and 3.5 fs *12* (p,γ).
8358.1[‡] *3*	3^-	63 fs *8*	H jKL N RS UVW YZ	XREF: Others: AD, AF, AH, AI J^π: L=3 in (p,p′), natural parity (^{16}O,α). $T_{1/2}$ or Γ: Weighted average of 76 fs *38* (^{16}O,αγ), 54 fs *8* (p,γ), 76 fs *13* (e,e′), and 82 fs *17* (p,p′).
8438.4 *10*	1^-	9 fs *2*	jK N RS W YZ	XREF: Others: AB, AD, AH, AI T=0 J^π: D γ to 0^+ and L=1 in ^{24}Mg(p,p′).
8439.29 *5*	4^+	3.2 fs *14*	C H KL N R	XREF: Others: AF, AH J^π: γ to 2^+. log *ft*=3.93 from 4^+. Natural parity.
8654.9[‡] *4*	2^+	14 fs *3*	L N P RS W Y	XREF: Others: AF, AI E(level): Other values: 8655 *3* (^{3}He,d), 8654 *3* (p,p′), and 8661 *10* (^{3}He,^{4}He). J^π: L=2 in (p,p′), γ to 0^+, natural parity. $T_{1/2}$ or Γ: From τ=20 fs *5*: Unweighted ave. of data from (^{16}O,α),(^{16}O,αγ): t=28 fs *7* (1976Br34); (p,γ),(p,p′): 10 fs *2* (1989Ke04), 13 fs *5* (1972Me09), and 29 fs *7* (1973Le15).
8864.5[‡] *2*	2^-	5.5 fs *21*	L N RS W Y	XREF: Others: AF, AI E(level): Others: 8870 *3* (^{3}He,d), 8864 *3* (p,p′), and 8866 *10* (^{3}He,^{4}He). J^π: 2 from γγ(θ) in ^{23}Na(p,γ)) (1969Ba47). Unnatural parity (^{16}O,α).
9003.5[‡] *2*	2^+	8.4[m] fs *12*	L N RS U W YZ	XREF: Others: AB, AF, AI E(level): Others: 8995 *21* from (e,e′), 9002 *3* from (p,p′), and 9012 *10* from (^{3}He,^{4}He). J^π: L=2 in (p,p′). Natural parity (^{16}O,α).
9146.2[‡] *3*	1^-		L RS W YZ	XREF: Others: AB, AF, AI XREF: S(9166)AF(9166). J^π: L=1 in (p,p′). Natural parity (^{16}O,α).
9160 *15*	$[5^-]$[h]		J	
9284.4 *3*	$2^+,4^+$	11 fs *3*	H KL N RS u W Y	XREF: Others: AF J^π: L=2 in (^{3}He,d), natural parity (^{16}O,α), γ from (3^-) and 4^+.
9299.8[‡] *3*			K n R	
9301.07 *9*	(4^+)	7 fs *2*	C H L n R VW	J^π: γ′s to 2^+ and 4^+. log *ft*=4.8 from 4^+ in ^{24}Al ε decay (2.053 s).
9305.39 *24*	0^+	173[n] fs *35*	L R u Z	J^π: From ^{24}Mg(α,α′), based on comparison of differential cross sections to DWBA calculations.
9450 *15*	$[5^-,6^+]$[h]		J	XREF: Others: AI
9457.81 *4*	$(3)^+$	4.3 fs *21*	C L N RS W Y	XREF: Others: AF J^π: L=2 in (^{3}He,d), in (^{3}He,^{4}He), and in (^{3}He,^{3}He′); γ′s to 1^+ and 4^+. Tentative unnatural parity in (^{16}O,α).
9516.18 *5*	4^+	12 fs *5*	C L N RS W	XREF: Others: AF T=1 J^π: γ′s to 2^+ and 4^+, isobaric analog to ^{24}Na ground state. Natural parity (^{16}O,α). L(^{3}He,d)=2.
9527.6[q] *7*	(6^+)	8[n] fs *4*	KL W Y	XREF: Others: AF, AI, AJ XREF: W(9521)Y(9520)AJ(9523).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J$^{\pi}$	$T_{1/2}$ or Γ[j]	XREF	Comments
				J$^{\pi}$: L=(6) in (^{3}He,^{3}He′); band member in (^{24}Mg,^{12}Cγ).
9532.7[‡] *2*	(2,3)$^+$	14 fs *7*	R W	XREF: Others: AF, AI T=0 XREF: AF(9650). J$^{\pi}$: L(p,p′)=2 and γ to 3$^-$. $T_{1/2}$ or Γ: Weighted average of 34 fs *14* (p,p′),(pol p,p′) and 11 fs *5* (p,γ),(p,p′).
9828.0[‡] *20*	1$^+$	0.30[m] fs *7*	D N RSTU W Y	XREF: Others: AF T=0&1 J$^{\pi}$: Log *ft*=4.6 from 1$^+$; γ to 0$^+$; D γ from 0$^+$ at 13048.
9940 *15*	[5$^-$][h]		J	
9965.3 *11*	1$^+$	71[m] as *7*	D N RSTU W	XREF: Others: AF T=1 J$^{\pi}$: Log *ft*=3.5 from 1$^+$; γ to 0$^+$. $T_{1/2}$ or Γ: Weighted average of 93 as *18* from (γ,γ′) and 69 as *6* from (e,e′).
10027.97[‡] *9*	5$^-$	62[n] fs *18*	H KL N RS VW Y	XREF: Others: AI T=0 XREF: V(9.97E3). J$^{\pi}$: L=5 in (p,p′) and in (^{3}He,^{3}He′), natural parity (^{16}O,α).
10059.1[‡] *4*	(1,2)$^+$	<3 fs	D L N RS W	XREF: Others: AF T=1 E(level): Other: Least-squares fit yields 10059 *3*. J$^{\pi}$: log *ft*=4.5 from 1$^+$, L=(0)+2 (^{3}He,d).
10110.9[‡] *4*	(0$^+$)	<5[o] keV	L N R W Y	T=0 J$^{\pi}$: L=0 in (^{3}He,^{3}He′); also in 1968Ol04 (^{16}O,αγ), based on simultaneous fits to the angular correlations of the two cascade gamma rays involved.
10161 *3*	(0$^+$)		L N S W	XREF: Others: AF J$^{\pi}$: L=0 in (p,p′). γ to 2$^+$. Tentative L(^{3}He,d)=(1) inconsistent for π=+. E(level): From (p,p′),(pol p,p′).
10250 *15*	[4$^+$,5$^-$][h]		J	
10333.6[‡] *2*	3$^-$[c]	<7[o] keV	H L N RS W	T=0 J$^{\pi}$: L=3 in (p,p′).
10360.7[‡] *3*	2$^+$	1.0 fs *3*	KL N RSTU W YZ	XREF: Others: AF, AI T=0 $T_{1/2}$ or Γ: weighted average of 0.8 fs *2* from (γ,γ′) and 1.3 fs *3* from (e,e′). J$^{\pi}$: L=2 in (α,α′), ^{24}Mg(p,p′) and (^{3}He,^{3}He′); γ′s to 0$^+$.
10575.93 *8*	(4)$^+$	9[n] fs *2*	C J L N S w	XREF: Others: AI T=0 XREF: J(10490). J$^{\pi}$: L=4 in (p,p′) for doublet. log *ft*=4.5 in from 4$^+$ in ^{24}Al ε decay (2.053 s).
10581.26[‡] *13*	(2$^+$,3$^+$,4$^+$)	<2 fs	R w	XREF: Others: AF, AI J$^{\pi}$: γ′s to 2$^+$ and 4$^+$. L=4 in (p,p′) for doublet.
10659.8[‡] *2*	(1,2$^+$)		L Rs	J$^{\pi}$: γ′s to 0$^+$ and 2$^+$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J$^\pi$	T$_{1/2}$ or Γ[j]	XREF	Comments
10660.17[‡] *17*	$(3^+,4^+)$	<2 fs	N Rs W	J$^\pi$: γ′s to 3^+ and 4^+. L=4 in (p,p′) for doublet.
10679.7[‡] *3*	0^+	2.1[n] eV *8*	D L N Rs W YZ	XREF: Others: AF T=0 J$^\pi$: Spin=0 from γγ(θ) in (α,γ); π=+ from L=2 in (^{3}He,^{4}He). Also L=0 in (^{3}He,^{3}He′).
10712.2[‡] *2*	1^+	23[m] as *2*	L R TU W	T=1 J$^\pi$: M1 excitation in (e,e′) and (γ,γ′).
10731.1[‡] *2*	2^+	7 fs *3*	L N RS W	XREF: Others: AF T=0 J$^\pi$: 6491.8γ D to 2^+, ΔJ=0; π=+ from L(=3He,d)=0+2.
10820.8 *4*	$3^+,4^+$	7.5[n] eV *11*	C L N RS W Y	XREF: Others: AF XREF: S(10838). J$^\pi$: γ to 2^+, L=4 in ^{24}Mg(p,p′), and RUL.
10917.2[‡] *3*	2^+	0.8[m] fs *1*	D L N RSTU W Y	XREF: Others: AF, AI T=0 XREF: U(10939). J$^\pi$: L=2 in (^{3}He,^{4}He), (^{3}He,d), and (^{3}He,^{3}He′); γ′s to 0^+ and 4^+, and RUL.
11012 *3*	$3,5^+$[c]		L N s	T=1 E(level): Weighted average of 11008 *4* (^{16}O,α) and 11014 *3* (α,γ).
11018 *3*	2^+	<3[o] keV	D L N s vW Y	XREF: Others: AF, AI T=0 E(level): Weighted average of 11017 *3* from (p,p′), 11018 *4* from (^{16}O,α), 11020 *3* from (α,γ), 11022 *10* from (^{3}He,^{4}He), 11016 *7* (d,^{6}Li). J$^\pi$: L=2 in (^{3}He,^{3}He′); γ′s to 0^+ and 4^+; and RUL; also in (α,γ) based on αγ(θ) for spin 2.
11133 *3*		26[n] fs *4*	L N vW	E(level): From (α,γ). Others: 11128 *3* (^{16}O,α), 11128 *3* (p,p′).
11150 *15*	$[6^+,7^-]$[h]		J	
11165 *2*	3^-	<3[o] keV	L N W Y	T=0 E(level): Weighted average of 11161 *4* (^{16}O,α), 11167 *2* (α,γ), and 11161 *3* (p,p′). J$^\pi$: L=3 in (p,p′) and (^{3}He,^{3}He′); spin=3 from αγ(θ) in (α,γ).
11181 *3*			L N W	E(level): From (p,p′),(pol p,p′). Others: 11182 *4* (^{16}O,α) and 11185 (α,γ). J$^\pi$: L=3 in (p,p′) possibly for doublet.
11187.3[‡] *3*			K N R W	
11207 *3*		0.0022[n] eV *12*	L N R W	T=0&1 XREF: N(11215). E(level): From (p,p′).
11216.69[‡] *18*	$3^+,4^+$	0.78[n] eV *11*	C L N R W Y	XREF: Others: AF T=0 XREF: N(11226)AF(11228). J$^\pi$: L=4 in (p,p′) and (^{3}He,^{3}He′); γ to 2^+.
11293 *3*		20[n] fs *3*	L N s W	E(level): From (p,p′).
11314.4 *15*	$(3,4)^+$		C L N s W Y	XREF: Others: AF

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
				J^π: log *ft*=5.2 in ^{24}Al ε decay (2.053 s). γ to 2^+.
11330 *3*			L N Rs W	E(level): From (p,p′).
11390 *20*	0^+[i]		Z	
11391 *3*	1^-	0.5[o] keV	L NO Rs U W Y	XREF: Others: AF T=0 E(level): Weighted average of 11390 *4* (^{16}O,α), 11395 *3* (α,γ), 11390 *5* (α,α), 11389 *3* (p,p′). J^π: L=1 in (p,p′) and (^{3}He,^{3}He′); γ to 0^+.
11394[#] *4*			L s	XREF: Others: AF L(^{3}He,^{4}He)=1 probably for a doublet.
11452.8[‡] *4*	2^+	<2[o] keV	L N R u W Y	T=0 J^π: L=2 in (p,p′) and (^{3}He,^{3}He′).
11457 *3*	(0^+)[&]		D NO S	XREF: Others: AF T=0 E(level): Weighted average of 11455 *4* (^{16}O,α), 11461 *4* (α,γ), 11460 *5* (α,α), 11457 *3* (^{3}He,d), and 11456 *3* (p,p′).
11522 *2*	2^+	0.5[o] keV	D L N Rs U W Y	XREF: Others: AF T=0 XREF: U(11474). E(level): Weighted average of 11523 *2* (α,γ), 11519 *4* (^{16}O,α), and 11521 *3* (p,p′). J^π: L=2 in (p,p′) and spin=2 from $\alpha\gamma(\theta)$ in (α,γ).
11527 *4*	(2^+)[&]		J L O s	XREF: Others: AF E(level): Weighted average of 11528 *4* (^{16}O,α), 11526 *5* (α,α).
11568	(2^+)		Y	J^π: L=2 in (^{3}He,^{3}He′).
11600 *2*	3^-	15[n] fs *4*	L N W	XREF: Others: AF, AI T=0 E(level): From (α,γ). J^π: spin=3 from $\alpha\gamma(\theta)$ in (α,γ), natural parity (^{16}O,α).
11618 *3*			L N W	E(level): From (p,p′).
11698.2 *13*	4^+	1.6[n] eV *6*	C L N S W	XREF: Others: AF, AI T=0 E(level): Weighted average of 11700 *2* (α,γ), 11698.6 *13* (^{3}He,d), 11694 *3* (p,p′), 11694 *4* (^{16}O,α), and 11701 *10* (^{3}He,^{4}He). J^π: L=4 in (p,p′); spin=4 from $\alpha\gamma(\theta)$ in (α,γ).
11730 *2*	0^+[i]	10[o] keV *2*	L NO S W Z	T=0 E(level): Weighted average of 11727 *4* (^{16}O,α), 11732 *2* (α,γ), 11735 *5* (α,α), 11724 *5* (^{3}He,d), and 11727 *3* (p,p′). J^π: L=0 in (p,p′).
11830 *2*			J L N S W	XREF: J(11810). E(level): Weighted average of 11827 *4* (^{16}O,α), 11831.7 *18* (^{3}He,d), and 11828 *3* (p,p′).
11860[‡] *2*	(8^+)	63[n] fs *24*	KL N	XREF: Others: AI XREF: N(11865). J^π: From linear polarization measurements (1978We03) (^{16}O,$\alpha\gamma$); γ to 6^+; π=N (^{16}O,α). The possibility of 6^+ assignment discarded with 85% confidence (1978We03). $T_{1/2}$ or Γ: From (^{16}O,α).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
11862.8 *13*	1^-[i]	7.0[o] keV *3*	NO RS W Z	T=0 E(level): Weighted average of 11868 *5* (α,α'), 11869 *3* (α,γ), 11862.7 *12* (^{3}He,d), 11862 *3* (p,p′), and 11860 *2* (p,γ). J^π: L=1 in (p,p′); spin=1 from $\alpha\gamma(\theta)$ in (α,γ).
11909 *2*		5.5[o] keV *22*	N R	T=0 E(level): Weighted average of 11904 *4* (α,γ) and 11910 *2* (p,γ),(p,p′),(p,x).
11932.9[‡] *2*	$(3)^+$	<0.02 keV	L N RS W	XREF: Others: AF J^π: L(3He,d)=2,0+2; γ to 2^+ and 2^- and 4^+ and (4^-,5^+).
11966.6[‡] *5*	2^+	2.0 keV *4*	L NO RS W	T=0 J^π: L=2 in (p,p′); spin=2 from $\alpha\gamma(\theta)$ in (α,γ). $T_{1/2}$ or Γ: Weighted average of 2.4 keV *5* (α,γ) and 1.8 keV *4* (p,γ).
11988.5[‡] *1*	2^+	<0.02 keV	L RS W	XREF: Others: AI T=0 J^π: L=2 in (p,p′); L=0+2 in (^{3}He,d); γ to 2^+,4^+.
12003 *3*		<1[o] keV	N W	T=0 E(level): Weighted average of 12004 *4* (α,γ) and 12002 *3* (p,p′).
12017.2[‡] *6*	3^-	0.7 keV *2*	N RS U W	T=0 XREF: U(11990). J^π: L=3 in (p,p′); L(^{3}He,d)=1; populated in (α,γ) implies natural parity. In (e,e′) 11990 keV*25* overlaps two lower levels; J^π=3^- implies excitation of this level.
12051.3[‡] *5*	4^+	<0.02 keV	C N RS VW	XREF: Others: AF T=0&1 J^π: L=4 in (p,p′); populated in (α,γ) implies natural parity.
12119.0[‡] *10*	4^+[f]	1.9[o] keV *3*	C L N R W	T=0 J^π: log *ft*=5.3 from 4^+; γ′s to 2^+ and 4^+; populated in (α,γ) implies natural parity.
12128[‡] *3*			R W	
12162 *3*	4^+	0.9[o] keV *3*	C N W	T=0 E(level): Weighted average of 12163 *4* (α,γ) and 12161 *3* (p,p′). J^π: L=4 in (p,p′); populated in (α,γ): resonance – implies natural parity.
12183.3[‡] *1*		<0.046 keV	R W	γ′s to 0^+ and 4^+.
12244 *3*			W	
12259.3[‡] *5*	2^-	<0.06 keV	R W	J^π: From (p,γ) 1963Gl05, based on $\gamma(\theta)$ and γ-γ correlation measurements. L=3 in (p,p′) for doublet.
12259.8[‡] *4*	3^-	1.8[o] keV *3*	N R W	T=0 J^π: From 1956Ba96, based on elastic scattering (p_0) in ^{23}Na(p,p). L=3 in (p,p′) for doublet.
12273 *5*	(3^-)[&]		O	
12340 *15*	$[7^+]$[h]		J	
12340.2[‡] *4*	3^+	<0.07 keV	R W	J^π: From (p,γ) 1963Gl05, based on $\gamma(\theta)$ and γ-γ correlation measurements.
12342 *3*		3.5[n] fs *14*	L W	E(level): From (p,p′),(pol p,p′).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
12385	0^-[d]	7 keV *2*	R	
12400.3[‡] *5*	3^+	<0.09 keV	R	T=0 J^π: From 1963Gl05, based on $\gamma(\theta)$ and γ-γ angular correlation measurements.
12404.9[‡] *5*	2^+	<0.1 keV	D N R W	T=0&1 J^π: L=2 in (p,p′); Log *ft*=5.5 from 1^+; γ to 4^+.
12443 *3*	6^+,7^-	11[n] fs *3*	L N W	T=0 E(level): Weighted average of 12446 *4* (α,γ) and 12441 *3* (p,p′). J^π: From $\alpha\gamma\gamma$ angular correlations ((^{16}O,$\alpha\gamma$) – 2012Di04).
12450 *3*	1^-[d]	5.7[o] keV *4*	N R W	T=0 E(level): Weighted average of 12456 *4* (α,γ) and 12447 *3* (p,p′).
12467 *3*	2^+	5.1[k] keV *1*	D NO W	T=0 E(level): Weighted average of 12467 *4* (α,γ), 12466 *5* (α,α), and 12467 *3* (p,p′). J^π: L=2 in (p,p′).
12478 *3*	2^+[&d]	3.8[o] keV *3*	NO R W	E(level): Weighted average of 12472 *4* (α,γ), 12484 *5* (α,α), and 12479 *3* (p,p′); populated in (α,γ), (α,α) resonances – implies natural parity.
12507 *3*	4^+	2.3[o] keV *3*	NO R W	T=0 XREF: O(12515). E(level): Weighted average of 12508 *4* (α,γ), 12515 *5* (α,α), and 12504 *3* (p,p′). J^π: L=4 in (p,p′); populated in (α,γ), (α,α) resonances – implies natural parity.
12527.6[‡] *6*	1^+[d]	7.5 keV *10*	L R U W	T=0&1 XREF: L(12.54E3). J^π: 2^+ in (e,e′) for 12522 *30* (larger uncertainty) is inconsistent.
12581 *3*	2^+[d]	5.5 keV *6*	NO R W	T=0 E(level): Unweighted average of 12580 *4* (α,γ), 12587 *2* (α,α), and 12577 *3* (p,p′). J^π: L=2 in (p,p′). $T_{1/2}$ or Γ: Weighted average of 6.2 keV *6* (α,γ), 5.2 keV *9* (α,α), and 4 keV *1* (p,γ).
12638.7[‡] *1*	4^+	0.03 keV *2*	L N R W	T=0&1 J^π: L=4 in (p,p′); populated in (α,γ): resonance – implies natural parity.
12659.1[‡] *1*		0.08 keV *8*	R W	
12660.8[‡] *5*	3^-	0.9[o] keV *3*	NO R W	T=0 J^π: L=3 in (p,p′).
12670.0[‡] *5*	2^-[d]	4.0 keV *5*	R U W	T=1 J^π: 8430.1γ D to 2^+, ΔJ=0.
12733.3[‡] *6*		<0.6 keV	o R U	XREF: U(12706).
12739.0[‡] *7*	2^+	8.0[o] keV *7*	No R W	T=0 J^π: L=2 in (p,p′); populated in (α,γ): resonance – implies natural parity. $T_{1/2}$ or Γ: weighted average of 8.3 keV *5* from (α,γ) and 6.7 keV *10* from (p,γ).
12744 *1*	(2^+)[a]	11[k] keV *2*	O	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
12747 *2*	(4^+)[a]	2[k] keV *2*	O	
12778[‡] *1*	2^+[e]	30 keV *5*	O R W	T=0
12784 *2*	(1^-)[a]	28[k] keV *4*	O	
12807.8[‡] *5*	2^+	1.8 keV *6*	N R W	T=0 J^π: L=2 in (p,p′); populated in (α,γ): resonance – implies natural parity. $T_{1/2}$ or Γ: Unweighted average of 2.3 keV *3* (α,γ) and 1.2 keV *1* (p,γ).
12818.1[‡] *2*	1^+[de]	2.3 keV *4*	O R	T=0&1
12846.9[‡] *5*	$(3^-,4^+)$	0.2 keV *1*	L R W	T=0 J^π: L=3 or 4 in (p,p′).
12852.3[‡] *5*		0.3 keV *1*	N R	T=0
12854 *1*	$(1^+,2^+,3^+)$	0.4 keV *1*	R	J^π: γ to 0^+ and 3^+. Others: $(1^+,2,3^-)$ in 1972Me09; (0^-) in 1987Va24 probably erroneous – both in (p,γ),(p,p′),(p,x).
12861 *3*	$2^+,3^-$	<1[o] keV	N W	T=0 E(level): From (p,p′),(pol p,p′). J^π: γ′s to 1^- and 4^+.
12895.1[‡] *5*	1^+[de]	0.3 keV *2*	R W	T=0
12921.6[‡] *5*	$(2^+,3^-,4^+)$	6.5 keV *5*	N R W	T=0&1 J^π: γ′s to 2^+ and 4^+; populated in (α,γ): resonance – implies natural parity. $T_{1/2}$ or Γ: Weighted average of 6.7 keV *6* (α,γ) and 6.3 keV *5* (p,γ).
12955.5[‡] *1*	1^+	1.9 keV *1*	L R W	T=1 J^π: 1 from γγ(θ) measurements in ^{23}Na(p,γ) (1969Ba47); γ′s to 0^+ and 2^+. 1^+ in 1987Va24 – ^{23}Na(p,x).
12963.9[‡] *5*	2^-[e]	3.5 keV *2*	R W	T=0
12967.9 *5*		<1.5 keV	R	
12975 *3*	4^+	3.3[o] keV *3*	C NO W	T=0 XREF: O(12983). E(level): Weighted average of 12973 *3* (p,p′), 12977 *4* (α,γ), and 12983 *10* (α,α). J^π: L=4 in (p,p′).
12997.9[‡] *5*		0.3 keV *2*	O QR U W	XREF: O(13005?).
13029.8[‡] *1*	$2^+,3^-$[e]	0.7 keV *1*	R W	T=1 γ′s to 1^- and 4^+. 2^+ in (p,γ),(p,p′),(p,x).
13048 *2*	0^+	3.0 keV *7*	L NO R W	T=1 E(level): Weighted average of 13047 *4* (α,γ), 13049 *2* (p,γ), and 13047 *3* (p,p′). J^π: D γ to 1^+, based on γγ(θ) in (α,γ); populated in (α,γ), (α,α′) resonances – implies natural parity. $T_{1/2}$ or Γ: Unweighted average of 2.3 keV *4* (α,γ) and 3.7 keV *5* (p,γ).
13050.0[‡] *1*	4^+[d]	0.09 keV *3*	N R W	T=0&1 J^π: L=4 in (p,p′); populated in (α,γ) resonance – implies natural parity.
13057 *3*	5^-[f]	<1[o] keV	L N W	T=0 XREF: L(13070). E(level): Weighted average of 13070 *20* (^{16}O,α), 13061 *4* (α,γ), and 13055 *3* (p,p′).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
13088.8[‡] *5*	2^+	9 keV *3*	N R W	T=0&1 J^π: L=2,3 in (p,p′), γ to 4^+ and 0^+. $T_{1/2}$ or Γ: Unweighted average of 11.9 keV *6* (α,γ), and 6.4 keV *7* (p,γ).
13095 *2*	(2^+)[a]	14[k] keV *3*	O	
13133 *3*	0^+[i]	7 keV *1*	J N R Z	T=0 E(level): Weighted average of 13136 *4* (α,γ) and 13132 *3* (p,γ). $T_{1/2}$ or Γ: Weighted average of 9 keV *2* (α,γ) and 6 keV *1* (p,γ).
13138 *3*		5.4[o] keV *5*	N R W	T=0 XREF: N(13141). E(level): Weighted average of 13141 *4* (α,γ) and 13137 *3* (p,p′).
13146		3.2 keV *5*	R	
13160.5[‡] *7*		1.7 keV *7*	R W	T=0
13178 *3*			W z	
13184.6[‡] *8*		5.6[o] keV *4*	N R W z	T=0
13196 *2*	0^+[i]	2.7[o] keV *4*	I NO R W z	T=0 E(level): Weighted average of 13202 *4* (α,γ), 13194 *2* (α,α), and 13198 *3* (p,p′). J^π: From $\alpha_0(\theta)$ in ^{23}Na(p,X), X=α_0. $T_{1/2}$ or Γ: Others: 12 keV *3* (α,α),(α,α′); 3 keV *1* (p,γ).
13206 *2*	(4^+)[a]	14[k] keV *3*	O	
13212.8		2.3[n] fs *12*	KL	
13260 *4*	1^-[e]	36[o] keV *3*	N R V	T=0 E(level): From (α,γ).
13268.7 *7*	$(1)^+$[e]	≈8 keV	R	
13275.5 *10*		≈2 keV	R	T=0
13335 *3*	1^-[e]	33[o] keV *3*	N R	T=0 E(level): Weighted average of 13338 *4* from (α,γ), 13334 *3* from (p,γ).
13345.7[‡] *6*	3^-	0.6 keV *2*	O R W	T=0&1 J^π: L=3 in (p,p′). $T_{1/2}$ or Γ: Other: 42 keV *3* (α,α),(α,α′).
13352			R	
13355.0 *8*	2^-[e]	15.2 keV *2*	R	
13366.9[‡] *8*	(2)	1.6 keV *7*	R U	T=1 XREF: U(13371). J^π: γ to 0^+ and $(4^-,5^+)$.
13370 *10*	0^+[i]		Z	
13390 *15*	$[7^-]$[h]		J	
13413 *4*		2.8[o] keV *3*	No	
13419.3 *8*		3.2 keV *7*	no R	T=0 $T_{1/2}$ or Γ: From (α,γ) for doublet.
13424.7[‡] *12*		3.2 keV *7*	no R	T=0 $T_{1/2}$ or Γ: From (α,γ) for doublet.
13437 *4*	3^-	15.0[o] keV *25*	No W	T=0 E(level): Weighted average of 13436 *4* (α,γ) and 13440 *7* (p,p′). J^π: L(p,p′)=3; populated in (α,γ): resonance – implies natural parity.
13446.8[‡] *8*	(1,2)	<0.4 keV	No R	T=0

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
				J^π: γ to 0^+ and 1^- and 2^+.
13450[#] *20*	6^+[f]	<15[n] keV	J L	
13452.4 *8*	2^+,(1^+)[e]	3.2 keV *7*	R	T=0
13474.9[‡] *8*	2^+,3,4^+	<1 keV	R	J^π: γ's to 2^+ and 4^+.
13482.9[‡] *8*		1.2[o] keV *3*	N R	T=0
13542.3 *8*		6.9 keV *10*	R	T=0
13585[‡]	$(1)^-$[e]	21 keV *2*	n R	T=0 $T_{1/2}$ or Γ: From (α,γ).
13587.1[‡] *10*	1^-[a]	8.0 keV *10*	nO R	T=0 J^π: Also from $\alpha_0(\theta)$ in ^{23}Na(p,X), X=α_0 T Other: and 33 keV *5* (α,α) is comparable with 21 keV *2* of 13585 level, however, the level energy 13589 *2* matches with this level.
13632.6 *11*		2.1 keV *12*	R	T=0
13677.4[‡] *9*		6.5[k] keV *17*	N R	T=0 $T_{1/2}$ or Γ: Unweighted average of 4.8 keV *8* (α,γ) and 8.2 keV *5* (p,γ).
13686[‡] *1*	2^-[e]	23 keV *3*	C O R	
13708	(3^-)[b]	≈130[k] keV	O	
13722 *4*	2^+	4.3[o] keV *3*	N R	T=0 E(level): From (α,γ). J^π: From $\alpha_0(\theta)$ in ^{23}Na(p,X), X=α_0.
13738 *1*	(2^+)[a]	13[k] keV *3*	O	
13771 *3*	5^-[e]	5.5 keV *23*	N R	T=0 E(level): Weighted average of 13768 *4* (α,γ) and 13772 *3* (p,γ). J^π: From L(p,α_0)=5 (1987Va24); $T_{1/2}$ or Γ: Unweighted average of 3.2 keV *4* (α,γ) and 7.8 keV *10* (p,γ).
13788 *10*	(4^+)[b]	≈21[k] keV	O	E(level): Weighted average of 13786 *10* from (α,α), and 13790 *10* from ^{24}Mg(α,α'). Uncertainty is the input value.
13800 *3*	0^+[i]	4.5[o] keV *7*	N R Z	T=0 XREF: Z(13790). $T_{1/2}$ or Γ: Weighted average of 4.4 keV *4* (α,γ) and 8 keV *2* (p,γ).
13813 *3*	1^-[e]	24 keV *4*	R	
13819 *2*	2^-[e]	39 keV *9*	R	T=0
13841 *3*		2.5 keV *5*	l R	
13850 *4*		<1[o] keV	l N	T=0
13882[‡] *2*	1^+[e]	2.0 keV *2*	O R	T=0 XREF: O(13868).
13886[‡] *3*	2^+[e]	38 keV *8*	O R	T=0 XREF: O(13890). Γ: Weighted average of 32 keV *8* (α,α) and 48 keV *10* (p,γ).
13893[‡] *3*	0^+[i]	13 keV *2*	N R Z	T=0 XREF: N(13885)Z(13890). Γ: weighted average of 12.0 keV *18* (α,γ) and 15 keV *3* (p,γ).
13910 *1*	4^+[a]	18[k] keV *3*	O	
13933 *2*	$(1,2,3)^+$[e]	3.0 keV *6*	R	T=0
13948 *3*	1^+[e]	4.0 keV *8*	R	T=0

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
13984 3	(1,2,3)$^+$[e]	4.9 keV 5	R	T=0
14019 4	3$^-$[e]		O R V	T=0 XREF: V(13.96E3). E(level): Weighted average of 14007 10 (α,α) and 14020 3 (p,γ).
14026[‡] 3	2$^+$[e]	5.1 keV 8	N R	T=0 $T_{1/2}$ or Γ: Weighted average of 6.2 keV 7 (α,γ) and 4.5 keV 5 (p,γ).
14037 2	(1$^-$)[a]	21[k] keV 4	O	
14060 10		<4[k] keV	O	
14079 4		24[o] keV 5	NO	E(level): Unweighted average of 14080 4 (α,γ) and 14077 (α,α). Uncertainty from (α,γ).
14081 3	1$^+$[e]	6.0 keV 6	NO R	T=0 XREF: O(14091). E(level): Weighted average of 14084 4 (α,γ) and 14080 3 (p,γ).
14101 4		1.4[o] keV 4	j NO	T=0 XREF: O(14097). E(level): From (α,γ).
14150 4	8$^+$[f]	1.8[o] keV 4	j L N	T=0 E(level): From (α,γ).
14152 4		6.2[o] keV 7	N W	T=0 E(level): From (α,γ).
14157 4			N	T=0
14165 1	(4$^+$)[a]	11.1[k] keV 19	O	
14245 4		11.3[o] keV 14	N	T=0
14264 1	(4$^+$)[a]	16[k] keV 2	O	
14329 4	4$^+$[f]	<1[o] keV	L N	T=0 E(level): From (α,γ).
14355 12	(3$^-$)[a]	112[k] keV 29	O	
14397 2	4$^+$[af]	12[k] keV 3	L O	T=0 XREF: L(14410).
14461[@] 10		46[k] keV	OP	
14500			W	
14568 10	(3$^-$,5$^-$)[a]	<13[k] keV	L O	XREF: L(14560).
14582 10		61[k] keV	O	
14648[@] 6		11[k] keV 9	L O	J^π: (4$^+$) in (^{16}O,α),(^{16}O,$\alpha\gamma$). 6$^+$ in ^{20}Ne(α,α),(α,α').
14696[@] 1	(5$^-$)[&]	9[k] keV 1	OP	J^π: L=3 in (α,α),(α,α').
14745[@] 10	(4$^+$)[b]	13[k] keV	L O	XREF: L(14740).
≈14793			I	
14928[@] 10	(0$^+$,1$^-$)[b]	≈10[k] keV	L O	XREF: L(14920).
14995 10	(4$^+$,5$^-$)[b]	≈20[k] keV	O	
15045 35	(6$^-$)		UVW	T=1 XREF: V(15.1E3)W(15137). E(level),J^π: From (e,e$'$) 1977Za02. Spin parity assignment based on form factor calculations.
≈15093			I	
15117[@] 10	(4$^+$)[b]	15[k] keV	O w	
15141[@] 10	[h]	15[k] keV	J L O w	T=0 XREF: L(15150).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
				J^π: 4^+ in (α,α),(α,α′), assigned in 1991Ab05, based on excitation function trend (visual); 6^- in ^{24}Mg(p,p′) probably for a doublet at 15137 *22*; 7^- in (^{16}O,α),(^{16}O,αγ) 15150 *20*; 9^+ in (^{14}N,d) at 15150 *15*. Appears to be more than one level.
15179 *3*	(4^+)[a]	57[k] keV *7*	O	
15214[@] *1*	(5^-)[a]	36[k] keV *3*	L Op W	XREF: L(15210)W(15200).
15233[@] *3*	(4^+)[a]	27[k] keV *6*	Op	
15266 *10*	$(1^-,3^-)$[a]	≈8[k] keV	O	
15330 *30*	0^+[i]		Z	
15354 *3*	(4^+)[a]	21[k] keV *4*	O	
15385[@] *3*	(4^+)[a]	31[k] keV *7*	O VW	XREF: W(15370).
15437.5[‡] *6*	0^+	0.7 keV *3*	QR W	T=2 J^π: In 1978Mc07, (p,p_0) and (p,α_0) via l=2 in ^{23}Na(p,p) and l=0 in ^{23}Na(p,α). $T_{1/2}$ or Γ: unweighted average of 1.02 keV *34* from (p,γ) and 0.345 keV *50* from (p,p′).
15443 *10*	(2^+)[b]	13[k] keV	O	
15484[@] *10*	(2^+)[b]	15[k] keV	I O	XREF: I(15473).
15533[@] *1*	(6^+)[a]	18[k] keV *2*	L OP W	XREF: L(15540)W(15540). $T_{1/2}$ or Γ: Other: < 15 keV ((^{16}O,α) – 1984Le21).
15570 *15*			J	
15611 *3*	(2^+)[a]	31[k] keV *8*	O	
15640 *20*	(6^+)[f]		L	
15691 *10*	(0^+)[b]	≤15[k] keV	O	
15716 *10*	(4^+)[b]		O	
15750 *15*	$[7^-,8^+]$[h]		J	
15790 *30*	0^+[i]		Z	
15793 *10*	(4^+)[b]	13[k] keV	L O	XREF: L(15800). J^π: L=2 in (α,α),(α,α′).
15828 *10*		87[k] keV	O	
15853 *10*		<13[k] keV	O	
15886 *10*	(4^+)[b]	42[k] keV	O	
15978	$(1^-,3^-)$[b]	≈35[k] keV	O	J^π: L=1 in (α,α),(α,α′).
16070[#] *20*	6^+[f]		L P	T=0
16136 *10*	(3^-)[b]	19 keV *6*	L O	XREF: L(16.15E3). $T_{1/2}$ or Γ: From ^{16}O,α) 1984Le21. Other: 29 keV (α,α),(α,α′).
16170 *10*	$(4^+,6^+)$[b]	<8[k] keV	O	J^π: L=4 in (α,α),(α,α′).
16203[@] *10*	(6^+)[a]	8[k] keV	L OP	
16278 *10*	(4^+)[a]	30[k] keV	O	
16309 *10*		10[k] keV	L O	T=0 E(level): From (α,α),(α,α′).
16333	$(4^+,6^+)$[b]		O	J^π: L=4 in (α,α),(α,α′).
16343 *10*	(4^+)[b]	13[k] keV	O	
16395 *4*	(2^+)[a]	37[k] keV *10*	O	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$ or Γ[j]	XREF	Comments
16440 *10*	(7^-)[b]	10[k] keV	l O	
16477[@] *1*	(6^+)[b]	8[k] keV *2*	l OP	J^π: L=4 in (α,α),(α,α').
16529[@] *2*	(6^+)[b]	31[k] keV	Op	J^π: L=4 in (α,α),(α,α').
16564 *10*	8^+[fh]		J L Op	T=0 E(level): From (α,α),(α,α'). J^π: Other: [10^+] in (^{14}N,d).
16602 *10*	6^+[f]	30[k] keV	L O	T=0 XREF: L(16590). E(level): Weighted average of 16605 *10* (α,α),(α,α') and 16590 *20* (^{16}O,α),(^{16}O,$\alpha\gamma$). Uncertainty is the lowest input value.
16611 *10*	(5^-)[b]	≤8[k] keV	O	
16674 *10*	6^+[f]	30[k] keV	L O	E(level): From (α,α),(α,α').
16782 *10*	$(4^+,6^+)$[b]	30[k] keV	L O	XREF: L(16.80E3). $T_{1/2}$ or Γ: < 15 keV (^{16}O,α) (1984Le21).
16844 *10*	(6^+)[b]	22[k] keV	L O	E(level): From (α,α),(α,α').
16874[@] *6*	(5^-)[a]	73[k] keV *17*	J OP	
16904 *3*		<7[n] fs	L	T=0
16929[@] *3*	(6^+)[a]	44[k] keV *6*	L O	
17017[@] *3*	(7^-)[a]	15[k] keV *10*	L OP	XREF: P(16.98E3).
17088[@] *3*	(6^+)[a]	44[k] keV *6*	OP	XREF: P(17.06E3).
17140 *2*	(5^-)[a]	26[k] keV *6*	L O	XREF: L(17.12E3).
17190 *15*	8^+[f]		J L	
17227 *2*	(4^+)[a]	17[k] keV *3*	O	
17.29×10^3[#] *4*		≈46[k] keV	L O	
17407 *10*	(6^+)[b]	20[k] keV	O	
17444 *10*	(6^+)[b]	20[k] keV	L O	E(level): From (α,α),(α,α'). J^π: Other: $(6^+,7^-)$ in (^{16}O,α),(^{16}O,$\alpha\gamma$).
17465 *10*			O	
17520 *15*			J L	E(level): From (^{14}N,d).
17623 *3*	(5^-)[a]	23[k] keV *8*	L O	XREF: L(17.59E3).
17740 *10*	(4^+)[b]	≈25[k] keV	O	
17748 *10*		≈20[k] keV	O	
17782 *10*		≈42[k] keV	O	
17840 *10*		≈42[k] keV	O	
17.90×10^3	(8^+)		L	
17948 *3*	(4^+)[b]	56[k] keV *8*	O	
17990 *10*	(6^+)[b]	≈17[k] keV	O	
18038 *3*	(5^-)[a]	50[k] keV *8*	O	
18075 *10*			O	
18097 *10*		20[k] keV	O	
18157 *10*	(5^-)[b]	20[k] keV	O	
18.16×10^3[#]	8^+[f]		L	
18169 *10*	(7^-)[b]	<8[k] keV	O	E(level): From (α,α),(α,α').
18203 *10*		≈25[k] keV	O	
18273 *10*	(7^-)[b]	≈21[k] keV	O	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$ or Γ[j]	XREF	Comments
18332 *10*		≈17[k] keV	L O	XREF: Others: AC E(level): From (α,α),(α,α′).
18423 *10*	(6^+)[b]	≈17[k] keV	O	
18465 *10*		≈13[k] keV	O	
18740 *15*			J L	XREF: L(18.70E3). E(level): From (^{14}N,d).
18.97×10^3	(8^+)[f]		L	
19.0×10^3 *3*			L	
19110 *15*	(10^+)		J L	XREF: L(19.07E3). E(level): From (^{14}N,d). Other: (19.2 *1*) × 10^3 (2001Wi18 – (^{16}O,α),(^{16}O,αγ)). From measured Eα, 2001Wi18 report the excited level energy of 19139 keV *5* and note that for particle channel an uncertainty of 100 keV was expected with a possibility of doublet. J^{π}: From 2012Di04, based on αγγ angular correlations in (^{16}O,α),(^{16}O,αγ). γ-α branching ratio 0.0007 *3* (2001Wi18).
19.2×10^3 *3*			L	
19.21×10^3 *4*	(9^-)[f]		L	
19400 *15*			J	
19.69×10^3 *3*			L	
19890 *15*			J L	XREF: L(19.92E3).
19990 *15*	(7^-)[f]	59[n] keV *5*	J L	XREF: L(19.98E3).
20.03×10^3 *3*		28[n] keV *5*	L	
20.09×10^3	(9^-)[f]	35[n] keV *13*	L	
20210 *15*	$[10^+]$[h]	35[n] keV *13*	J L	XREF: L(20.17E3).
20260 *15*	(8^+)[f]	64[n] keV *8*	J L	XREF: L(20.24E3).
20.28×10^3[#] *2*	(2^+)[g]		LM	
20.42×10^3	(9^-)[f]		L	
20.46×10^3 *1*		<15[n] keV	L	
20.53×10^3 *3*	(6^+)[f]	43[n] keV *13*	L	
20.68×10^3[#] *5*			LM	
20.83×10^3 *3*		<15[n] keV	L	
20.91×10^3 *3*		<15[n] keV	L	
20.94×10^3 *3*			L	
21.20×10^3[#] *2*	(4^+)[g]		LM	
21.29×10^3 *3*		<15[n] keV	L	
21.39×10^3 *2*	(6^+)[f]		L	
21.46×10^3 *2*			L	
21.66×10^3[#] *5*			Lm	
21.80×10^3[#] *1*		<15[n] keV	Lm	
22.3×10^3 *2*	(4^+)[g]		M	
22.4×10^3 *2*	(8)[g]		M	
22.79×10^3 *2*			L	
22.87×10^3 *1*		<15[n] keV	L	
22.93×10^3 *3*		73[n] keV *13*	L	
23.00×10^3 *2*			L	
23.10×10^3 *3*			L	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

E(level)[†]	J$^{\pi}$	$T_{1/2}$ or Γ[j]	XREF	Comments
23.19×10^3 *3*		<15[n] keV	L	
23.26×10^3 *1*		<15[n] keV	L	
23.77×10^3[#] *1*	(6$^+$,(8$^+$))[g]		LM	
24.37×10^3 *3*	(9)[g]	27[n] keV *3*	LM	
24.53×10^3[#] *5*			L	
24.60×10^3[#] *3*	(8$^+$)[g]		LM	
24.98×10^3[#] *14*	(9)[g]		LM	
25.18×10^3 *3*	(6$^+$)[g]	163[n] keV *6*	LM	XREF: M(25.1E3).
25.40×10^3 *3*			L	
25.8×10^3 *2*	(9,10)[g]		lM	
26.2×10^3 *2*	(10)[g]		lM	
26.28×10^3 *2*	(12$^+$)[f]		L	
26.45×10^3 *3*	(8$^+$)[g]	115[n] keV *20*	LM	XREF: M(26.4E3).
26.67×10^3 *3*	(12$^+$)[f]		L	
26.8×10^3 *2*	(10)[g]		M	
27.4×10^3[#] *1*			LM	
28.0×10^3[#] *1*	(10)[g]		LM	XREF: M(27.8E3).
28.5×10^3[#] *1*			L	
29.3×10^3[#] *1*	(10,12)[g]		LM	XREF: M(29.1E3).
29.7×10^3[#] *1*			L	
30.1×10^3[#] *1*	(12)[g]		LM	XREF: M(30.3E3).
31.2×10^3[#] *1*	(12)[g]		LM	
31.8×10^3[#] *1*			L	
32.6×10^3[#] *1*	(10)[g]		LM	XREF: M(32.7E3).
33.1×10^3[#] *1*			L	
37.5×10^3			M	
43.0×10^3			M	
46.4×10^3	(14$^+$,16$^+$)[g]		M	

[†] From a least squares fit to the measured γ-ray energies for levels with depopulating γ, assuming ΔE=1 keV where not given, unless where otherwise noted. Calculated Eγ were not considered in the least squares fit.
[‡] From (p,γ).
[#] From (^{16}O,α),(^{16}O,αγ).
[@] From (α,α),(α,α′):Resonance.
[&] From (α,α),(α,α′), based on measured σ(θ) and Legendre polynomial fits (1954Go70).
[a] From (α,α),(α,α′), based on fit of measured σ(θ) data (1991Ab05 or 1992Da10).
[b] From (α,α),(α,α′), assigned in 1991Ab05, based on excitation function trend (visual).
[c] From αγ angular correlations (1983Sc17,1965Sm03) (α,γ).
[d] From 1956Ba96 – ^{23}Na(p,p), based on either of the elastic scattering (p_0) or capture γ(θ) measurements.
[e] From 1987Va24 – ^{23}Na(p,p), based on the elastic and inelastic scattering through allowed channels for resonances in ^{24}Mg or capture γ(θ) measurements.
[f] From 2012Di04 – (^{16}O,α),(^{16}O,αγ), based on αγγ angular correlations, the γ cascade is 2614γ – 1633γ in ^{20}Ne, or based on αα angular correlations.
[g] From ^{12}C(^{24}Mg,2^{12}C),(^{20}Ne,2^{12}C) based on measured and projected angular correlation measurement data of the decaying state in 2001Sh08 or 2001Fr03. The periodicity of the ridges is is described by a Legendre polynomial of order of the spin of the

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{24}Mg Levels (continued)

decaying state. Parity $(-1)^J$ for the decaying state of natural parity, if the recoiling particle has spin-zero.
[h] Used for Hauser-feshbach calculations to fit the measured differential cross section data in (^{14}N,d).
[i] From 2021Ad09 (^{24}Mg(α,α')) based on comparison of differential cross sections to DWBA calculations.
[j] From (p,γ),(p,p$'$),(p,X) mainly by DSA method, except where otherwise noted.
[k] From (α,α),(α,α'), from resonance fits.
[l] From (p,p$'$),(pol p,p$'$),(pol p,p$'\gamma$), by DSA method.
[m] From (e,e$'$), from Γ_0 and adopted γ-ray branching.
[n] From (^{16}O,α),(^{16}O,$\alpha\gamma$), by DSA method.
[o] From (α,γ), by DSA method.
[p] Band(A): Prolate $K^\pi=0^+$ band.
[q] Band(B): Prolate $K^\pi=2^+$ band.

$\gamma(^{24}Mg)$

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	δ	α[e]	Comments
1368.667	2^+	1368.625 *5*	100	0	0^+	E2		5.62×10^{-5} *8*	B(E2)(W.u.)=21.07 *+48−46* $\alpha=5.62\times10^{-5}$ *8*; α(K)=9.29×10^{-6} *13*; α(L)=5.97×10^{-7} *9*; α(M)=2.21×10^{-8} *3* α(IPF)=4.63×10^{-5} *7* E_γ: From ^{24}Na β^- decay (14.956 h).
4122.853	4^+	2754.016 *11*	100	1368.667	2^+	E2		6.78×10^{-4}	B(E2)(W.u.)=35.7 *+34−29* α(K)=2.54×10^{-6} *4*; α(L)=1.632×10^{-7} *23*; α(M)=6.05×10^{-9} *9* α(IPF)=0.000675 *10* E_γ: Weighted average of 2754.007 *11* from ^{24}Na β^- decay (14.956 h), 2754.030 *14* from ^{24}Al ε decay (2.053 s). Other: 2751.8 *15* (^{3}He,dγ).
4238.35	2^+	2869.50 *6*	27.8 *8*	1368.667	2^+	M1+E2	−23 *9*	7.30×10^{-4}	B(M1)(W.u.)=8×10^{-6} *+15−4*; B(E2)(W.u.)=3.36 *27* α(K)=2.38×10^{-6} *4*; α(L)=1.528×10^{-7} *22*; α(M)=5.67×10^{-9} *8* α(IPF)=0.000727 *11* E_γ: From ^{24}Al ε decay (2.053 s). Others: 2871.0 *10* (^{24}Na β^- decay (14.956 h)) and 2869.3 *4* (^{24}Al ε decay (130.7 ms)). I_γ: weighted average of 30 *5* from ^{24}Na β^- decay (14.956 h), 30.5 *11* from ^{24}Al ε decay (2.053 s), 3E1 *3* from ^{24}Al ε decay (130.7 ms), 33 *3* from ^{25}Si β^+p decay, 24 *6* from (^{12}C,γ), 30 *3* from (α,γ), and 26.7 *6* from (p,γ). Mult.,δ: From 1960Ba19 (pol p,p′γ) and RUL − see (p,p′),(pol p,p′).
		4237.96[†] *6*	100.0 *6*	0	0^+	[E2]		1.25×10^{-3}	B(E2)(W.u.)=1.72 *+14−12* α(K)=1.330×10^{-6} *19*; α(L)=8.53×10^{-8} *12*; α(M)=3.16×10^{-9} *5* α(IPF)=0.001253 *18* E_γ: From ^{24}Al ε decay (2.053 s). I_γ: From (p,γ).
5235.16	3^+	996.83[†] *10*	2.63[†] *14*	4238.35	2^+	D+Q			Mult.,δ: +5.1 *+12−8* and +0.47 *4* (1973Le15 − (p,γ)).
		3866.15 *10*	100.0[†] *5*	1368.667	2^+	E2(+M1)	−17 *4*	1.12×10^{-3}	B(M1)(W.u.)=1.7×10^{-5} *+12−6*; B(E2)(W.u.)=2.08 *16* α(K)=1.516×10^{-6} *22*; α(L)=9.73×10^{-8} *14*; α(M)=3.61×10^{-9} *5* α(IPF)=0.001122 *16* E_γ: Weighted average of 3866.14 *10* from ^{24}Al ε decay (2.053 s), and 3867.2 *14* from (^{3}He,dγ). Mult.,δ: From (pol p,p′γ) in 1973Gl01 and RUL.
		5235[a]	10 *3*	0	0^+	[M3]			I_γ: From (^{28}Si,Xγ). B(M3)(W.u.)=1.16×10^4 *33* exceeds RUL=10.
6010.34	4^+	775.4[†] *2*	1.6[†] *2*	5235.16	3^+				
		1771.92[†] *7*	11.4 *4*	4238.35	2^+	[E2]		2.11×10^{-4}	B(E2)(W.u.)=14.9 *12* α(K)=5.50×10^{-6} *8*; α(L)=3.53×10^{-7} *5*; α(M)=1.310×10^{-8} *19*

$^{24}_{12}Mg_{12}$-19

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
								α(IPF)=0.000205 *3* I_γ: weighted average of 11.70 *29* from ^{24}Al ε decay (2.053 s), 7.5 *32* from (α,γ), and 10.5 *5* from (p,γ). Other: 15 *4* (^{28}Si,Xγ).
6010.34	4^+	1887.52[†] *20*	1.64[†] *18*	4122.853	4^+			
		4641.19[†] *9*	100.0 *5*	1368.667	2^+	[E2]	1.38×10^{-3}	B(E2)(W.u.)=1.06 *8* α(K)=1.172×10^{-6} *17*; α(L)=7.52×10^{-8} *11*; α(M)=2.79×10^{-9} *4* α(IPF)=0.001381 *20* E_γ: Other: 4636.4 *16* (^{3}He,dγ). I_γ: Weighted average of 100.0 *32* from (α,γ) and 100.0 *5* from (p,γ). Other: 100 *7* from ^{24}Al ε decay (2.053 s). Branching to g.s. could, in principle, be deduced from B(E4) ((e,e′), 1978Za07) and level lifetime.
6432.2	0^+	2194[a]	21.0 *9*	4238.35	2^+	[E2]	4.13×10^{-4}	B(E2)(W.u.)=6.8 *+15−11* α(K)=3.72×10^{-6} *6*; α(L)=2.39×10^{-7} *4*; α(M)=8.86×10^{-9} *13* α(IPF)=0.000409 *6* I_γ: Weighted average of 25 *13* from (α,γ), 21.1 *9* from (p,γ), and 20 *3* ^{24}Mg(pol p,p′γ).
		5063.2[‡‡]	100.0 *9*	1368.667	2^+	[E2]	1.51×10^{-3}	B(E2)(W.u.)=0.50 *+10−7* α(K)=1.040×10^{-6} *15*; α(L)=6.68×10^{-8} *10*; α(M)=2.48×10^{-9} *4* α(IPF)=0.001505 *21*
		6432		0	0^+	E0	8.76×10^{-3}	E_γ: From level energy difference. Mult.,α: From pair-conversion electron intensity measurements (2020Do10 – (p,p′γ)). α – estimated by the evaluators using q^2_π(E0/E2)=5.8 *8* (2020Do10) and α(5063γ – E2)=0.00151. q^2_π(E0/E2)=5.8 *8* – the ratio of the pair-conversion electron intensity (2020Do10 – (p,p′γ)). X(E0/E2)=27 *4* – absolute transition rate B(E0)/B(E2) (2020Do10 – (p,p′γ)). ρ^2(E0)=0.380 *70* – E0 transition strength (2020Do10 – (p,p′γ)).
7348.60	2^+	5979.5[†] *8*	61 *3*	1368.667	2^+			
		7347.2[†] *9*	100 *3*	0	0^+	[E2]		B(E2)(W.u.)=0.61 *+31−15*
7555.3	1^-	3316.7[a]	49 *4*	4238.35	2^+	[E1]	1.39×10^{-3}	B(E1)(W.u.)=1.9×10^{-5} *+5−4* α(K)=1.369×10^{-6} *20*; α(L)=8.79×10^{-8} *13*; α(M)=3.26×10^{-9} *5* α(IPF)=0.001393 *20*
		6185.8[a]	64 *4*	1368.667	2^+	[E1]		B(E1)(W.u.)=3.8×10^{-6} *+10−7*
		7554.0[‡]	100 *6*	0	0^+	[E1]		B(E1)(W.u.)=3.3×10^{-6} *+9−6*
7616.41	3^-	2381.0[†] *3*	7[†] *2*	5235.16	3^+	[E1]		B(E1)(W.u.)=2.6×10^{-6} *+9−8*
		3378.3[†] *8*	8.0[†] *13*	4238.35	2^+	[E1]	1.42×10^{-3}	B(E1)(W.u.)=1.04×10^{-6} *+25−21* α(K)=1.339×10^{-6} *19*; α(L)=8.59×10^{-8} *12*; α(M)=3.18×10^{-9} *5* α(IPF)=0.001420 *20*
		3493.3[a]	7.2 *14*	4122.853	4^+	[E1]	1.47×10^{-3}	B(E1)(W.u.)=8.5×10^{-7} *+22−19* α(K)=1.285×10^{-6} *18*; α(L)=8.24×10^{-8} *12*; α(M)=3.06×10^{-9} *5*

$^{24}_{12}Mg_{12}$-20

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
								α(IPF)=0.001473 *21* I_γ: weighted average of 7.4 *19* from ^{24}Al ε decay (2.053 s), 9 *4* from (α,γ), and 6.9 *14* from (p,γ).
7616.41	3^-	6246.89[†] *11*	100 *3*	1368.667	2^+	[E1]		B(E1)(W.u.)=2.06×10^{-6} *+37−28*
		7615.2[†] *9*	38 *3*	0	0^+	[E3]		B(E3)(W.u.)=5.6 *+11−8* I_γ: Unweighted average of 41.5 *28* from ^{24}Al ε decay (2.053 s), 41.4 *86* from (α,γ), and 31.9 *28* from (p,γ).
7747.7	1^+	3509.1[a]	12.9 *9*	4238.35	2^+			
		6378.1[a]	100 *3*	1368.667	2^+			
		7746.4[a]	39 *3*	0	0^+			
7812.4	$(4^-,5^+)$	1800[#]	12 *3*	6010.34	4^+			
		2577.4[†] *8*	100[c] *5*	5235.16	3^+			E_γ: Other: 2580 (^{16}O,α),(^{16}O,$\alpha\gamma$).
		3690[#]	51 *7*	4122.853	4^+			I_γ: Weighted average of 59 *9* from (^{16}O,α), 32 *9* from (α,γ), and 55 *5* from (p,γ).
8113.2	6^+	3990.0[‡]	100	4122.853	4^+	[E2]	1.17×10^{-3}	B(E2)(W.u.)=38 *+18−10* α(K)=1.449×10^{-6} *21*; α(L)=9.30×10^{-8} *13*; α(M)=3.45×10^{-9} *5* α(IPF)=0.001166 *17*
8358.1	3^-	2347.7[a]	22 *4*	6010.34	4^+	[E1]	8.77×10^{-4}	B(E1)(W.u.)=1.34×10^{-4} *+30−27* α(K)=2.14×10^{-6} *3*; α(L)=1.375×10^{-7} *20*; α(M)=5.10×10^{-9} *8* α(IPF)=0.000875 *13* I_γ: From (p,γ). Others: 13 *11* (α,γ), 52 *10* from (^{12}C,γ).
		3122.7[a]	33 *4*	5235.16	3^+	[E1]		B(E1)(W.u.)=8.6×10^{-5} *+16−13* I_γ: From (p,γ). Others: 35 *11* (α,γ), 75 *17* from (^{12}C,γ).
		6988.3[‡]	100 *7*	1368.667	2^+	[E1]		B(E1)(W.u.)=2.31×10^{-5} *+35−28* I_γ: weighted average of 100 *7* from (^{12}C,γ), 100 *11* from (α,γ), and 100 *8* from (p,γ).
		8356.5[a]	8.6 *10*	0	0^+	[E3]		B(E3)(W.u.)=10.4 *+20−17* I_γ: deduced from B(E3) in (e,e′) (1974Jo10) and adopted level half-life.
8438.4	1^-	7068.6[a]	25 *13*	1368.667	2^+	[E1]		B(E1)(W.u.)=5.1×10^{-5} *+28−22*
		8436.8[‡]	100 *13*	0	0^+	(E1)		B(E1)(W.u.)=1.20×10^{-4} *+37−24* Mult.: D from $\gamma(\theta)$ (1969Ca18 – ($\alpha,\alpha'\gamma$) and $\Delta\pi$=yes from levels scheme.
8439.29	4^+	822.0[†] *6*	0.05[†] *2*	7616.41	3^-	[E1]		B(E1)(W.u.)=0.00015 *+13−7*
		1090.67[†] *10*	0.32[†] *2*	7348.60	2^+	[E2]		B(E2)(W.u.)=59 *+43−19* B(E2)(W.u.)=59 *+43−19* upper bound exceeds RUL=100.
		2428.97[†] *15*	1.79[†] *4*	6010.34	4^+			
		3203.88[†] *8*	7.21 *16*	5235.16	3^+			I_γ: Weighted average of 7.13 *16* from ^{24}Al ε decay (2.053 s) and 7.49 *31* from (p,γ).
		4200.54[†] *13*	9.5 *5*	4238.35	2^+	[E2]	1.24×10^{-3}	B(E2)(W.u.)=2.1 *+15−6* α(K)=1.347×10^{-6} *19*; α(L)=8.64×10^{-8} *12*; α(M)=3.20×10^{-9} *5*

$^{24}_{12}Mg_{12}$-21

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
								α(IPF)=0.001239 *18* I_γ: Weighted average of 9.3 *5* from ^{24}Al ε decay (2.053 s) and 9.7 *5* from (p,γ).
8439.29	4^+	4316.00[†] *12*	33 *3*	4122.853	4^+			I_γ: Weighted average of 30.8 *14* from ^{24}Al ε decay (2.053 s) and 36.7 *16* from (p,γ).
		7069.50[†] *12*	100.0 *17*	1368.667	2^+	[E2]		B(E2)(W.u.)=1.6 *+12−5*
8654.9	2^+	2222.3[a]	6.1 *12*	6432.2	0^+	[E2]	4.27×10^{-4}	B(E2)(W.u.)=9.0 *+32−22* α(K)=3.64×10^{-6} *5*; α(L)=2.34×10^{-7} *4*; α(M)=8.66×10^{-9} *13* α(IPF)=0.000423 *6*
		4416.1[a]	17 *3*	4238.35	2^+			I_γ: weighted average of 26 *7* from (α,γ) and 15.9 *25* from (p,γ).
		7285.0[a]	100.0 *25*	1368.667	2^+			
8864.5	2^-	3629.0[a]	2.17 *16*	5235.16	3^+	[E1]	1.53×10^{-3}	B(E1)(W.u.)=6.0×10^{-5} *+36−17* α(K)=1.226×10^{-6} *18*; α(L)=7.87×10^{-8} *11*; α(M)=2.92×10^{-9} *4* α(IPF)=0.001533 *22*
		4625.7[a]	8.9 *3*	4238.35	2^+	[E1]		B(E1)(W.u.)=1.2×10^{-4} *+7−3*
		7494.6[a]	100.0 *3*	1368.667	2^+	[E1]		B(E1)(W.u.)=0.00031 *+19−9*
		8862.7[a]	1.03 *16*	0	0^+	[M2]		B(M2)(W.u.)=0.11 *+7−4*
9003.5	2^+	1654.4[a]	12 *4*	7348.60	2^+			
		2570.9[a]	14 *6*	6432.2	0^+	[E2]	5.94×10^{-4}	B(E2)(W.u.)=13 *+6−5* α(K)=2.84×10^{-6} *4*; α(L)=1.83×10^{-7} *3*; α(M)=6.77×10^{-9} *10* α(IPF)=0.000591 *9*
		4880.1[a]	35 *10*	4122.853	4^+	[E2]	1.46×10^{-3}	B(E2)(W.u.)=1.29 *+39−34* α(K)=1.094×10^{-6} *16*; α(L)=7.02×10^{-8} *10*; α(M)=2.60×10^{-9} *4* α(IPF)=0.001454 *21*
		9001.7[a]	100 *12*	0	0^+	[E2]		B(E2)(W.u.)=0.172 *+34−26*
9146.2	1^-	4907.3[a]	53 *4*	4238.35	2^+			
		7776.2[a]	60 *4*	1368.667	2^+			
		9144.3[a]	100 *6*	0	0^+			
9284.4	$2^+,4^+$	5161	27 *4*	4122.853	4^+			E_γ: From (^{12}C,γ). I_γ: Weighted average of 18 *6* from (α,γ), and 28.2 *26* from (p,γ). Other: 60 *10* from (^{12}C,γ).
		7914.3[‡]	100 *3*	1368.667	2^+			
9299.8		1683.3[‡]	100	7616.41	3^-			
9301.07	(4^+)	1952.38[†] *20*	7.3[†] *5*	7348.60	2^+			
		5060.7[†] *8*	2.8[†] *10*	4238.35	2^+			
		5177.51[†] *20*	76[†] *8*	4122.853	4^+			
		7930.87[†] *15*	100[†] *8*	1368.667	2^+			
9305.39	0^+	7935.3[a]	100	1368.667	2^+			
9457.81	$(3)^+$	1710.0[a]	2.1 *9*	7747.7	1^+			
		2108.65[a]	1.5 *5*	7348.60	2^+			
		3447.21[a]	2.1 *3*	6010.34	4^+			

$^{24}_{12}Mg_{12}$-22

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
9457.81	(3)$^+$	4222.20[a]	12.0 *8*	5235.16	3$^+$			
		5218.81[a]	5.6 *6*	4238.35	2$^+$			
		5334.29[a]	28.4 *9*	4122.853	4$^+$			
		8087.66[a]	100.0 *17*	1368.667	2$^+$			
9516.18	4$^+$	1076.86[†] *4*	85.8[†] *17*	8439.29	4$^+$			
		1704.8[†] *8*	0.09[†] *2*	7812.4	(4$^-$,5$^+$)			
		1899.70[†] *6*	4.74[†] *12*	7616.41	3$^-$	[E1]	5.75×10^{-4}	B(E1)(W.u.)=0.00023 *+15−7* α(K)=2.89×10^{-6} *4*; α(L)=1.85×10^{-7} *3*; α(M)=6.87×10^{-9} *10* α(IPF)=0.000572 *8*
		3505.61[†] *9*	11.5[†] *4*	6010.34	4$^+$			
		4280.62[†] *13*	3.82[†] *23*	5235.16	3$^+$			I_γ: Other: 7.6 *8* in (p,γ).
		5277.2[a]	2.0 *10*	4238.35	2$^+$			
		5392.68[†] *9*	100 *6*	4122.853	4$^+$			
		8146.0[a]	0.16[†] *4*	1368.667	2$^+$	[E2]		B(E2)(W.u.)=0.00025 *+18−9*
9527.6	(6$^+$)	3517.0[‡]	100[#] *6*	6010.34	4$^+$	[E2]	1.00×10^{-3}	B(E2)(W.u.)=25 *+22−9* α(K)=1.742×10^{-6} *25*; α(L)=1.118×10^{-7} *16*; α(M)=4.15×10^{-9} *6* α(IPF)=0.000999 *14*
		5404.0[‡]	28[#] *6*	4122.853	4$^+$	[E2]	1.60×10^{-3}	B(E2)(W.u.)=0.8 *+7−3* α(K)=9.53×10^{-7} *14*; α(L)=6.12×10^{-8} *9*; α(M)=2.27×10^{-9} *4* α(IPF)=0.001601 *23*
9532.7	(2,3)$^+$	1916.0[a]	7.4 *10*	7616.41	3$^-$			
		4297.1[a]	39 *6*	5235.16	3$^+$			
		5293.7[a]	84 *6*	4238.35	2$^+$			
		8162.5[a]	100 *26*	1368.667	2$^+$			
9828.0	1$^+$	3395.2[a]	2.1 *5*	6432.2	0$^+$			
		8457.7[a]	30.3 *20*	1368.667	2$^+$			
		9825.9[&] *20*	100.0 *19*	0	0$^+$			
9965.3	1$^+$	8595.1[&] *15*	38[&] *6*	1368.667	2$^+$			
		9963.0[&] *15*	100[&] *12*	0	0$^+$			
10027.97	5$^-$	1670[@]	45.4 *22*	8358.1	3$^-$	[E2]	1.66×10^{-4}	B(E2)(W.u.)=32 *+14−8* α(K)=6.17×10^{-6} *9*; α(L)=3.96×10^{-7} *6*; α(M)=1.469×10^{-8} *21* α(IPF)=0.0001595 *23*
		2215.6[a]	7.3 *12*	7812.4	(4$^-$,5$^+$)			
		2411.2[a]	8.8 *24*	7616.41	3$^-$	[E2]	5.19×10^{-4}	B(E2)(W.u.)=1.0 *+5−3* α(K)=3.17×10^{-6} *5*; α(L)=2.03×10^{-7} *3*; α(M)=7.53×10^{-9} *11* α(IPF)=0.000515 *8*
		4017.2[a]	23 *3*	6010.34	4$^+$	[E1]	1.69×10^{-3}	B(E1)(W.u.)=1.9×10^{-5} *+9−5* α(K)=1.085×10^{-6} *16*; α(L)=6.96×10^{-8} *10*; α(M)=2.58×10^{-9} *4* α(IPF)=0.001687 *24*

$^{24}_{12}Mg_{12}$-23

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ[b]	E_f	J_f^π	Mult.[d]	α[e]	Comments
10027.97	5^-	5904.2[‡]	100 *10*	4122.853	4^+	[E1]	0.00227	B(E1)(W.u.)=2.6×10^{-5} +*11*−*6* α(K)=6.95×10^{-7} *10*; α(L)=4.46×10^{-8} *7*; α(M)=1.652×10^{-9} *24* α(IPF)=0.00227 *4*
		8657.5[a]	61 *12*	1368.667	2^+	[E3]		B(E3)(W.u.)=39 +*18*−*11*
10059.1	$(1,2)^+$	5820.0[a]	16 *4*	4238.35	2^+			
		8688.6[&] *25*	100 *4*	1368.667	2^+			
10110.9	(0^+)	8740.5[a]	100	1368.667	2^+			
10333.6	3^-	6094.4[a]	61 *11*	4238.35	2^+			
		8963[@]	100 *11*	1368.667	2^+			
10360.7	2^+	3927.9[a]	1.2 *4*	6432.2	0^+	[E2]	1.15×10^{-3}	B(E2)(W.u.)=1.0 +*6*−*4* α(K)=1.482×10^{-6} *21*; α(L)=9.51×10^{-8} *14*; α(M)=3.53×10^{-9} *5* α(IPF)=0.001144 *16*
		5124.9[a]	3.0 *7*	5235.16	3^+			
		8990.2[‡]	100 *4*	1368.667	2^+			
		10358.3[a]	72 *4*	0	0^+	[E2]		B(E2)(W.u.)=0.47 +*20*−*11*
10575.93	$(4)^+$	1059.78[†] *8*	100[†] *6*	9516.18	4^+			
		1274.71[†] *10*	37.2[†] *21*	9301.07	(4^+)			
		2136.58[†] *15*	59[†] *3*	8439.29	4^+			
		5340.3[†] *4*	40[†] *5*	5235.16	3^+			
10581.26	$(2^+,3^+,4^+)$	4570.4[a]	20.6 *8*	6010.34	4^+			
		5345.4[a]	53.4 *15*	5235.16	3^+			
		6342.0[a]	100 *3*	4238.35	2^+			
		6457.4[a]	37.6 *13*	4122.853	4^+			
		9210.6[a]	46.1 *15*	1368.667	2^+			
10659.8	$(1,2^+)$	9289.2[a]	43 *11*	1368.667	2^+			
		10657.3[a]	100 *11*	0	0^+			
10660.17	$(3^+,4^+)$	5424.2[a]	12 *3*	5235.16	3^+			
		6536.3[a]	35 *13*	4122.853	4^+			
		9289.5[a]	100 *13*	1368.667	2^+			
10679.7	0^+	3124[a]	0.6[c] *4*	7555.3	1^-			
		3331[a]	2.4[c] *4*	7348.60	2^+			
		6440[a]	14.7[c] *12*	4238.35	2^+			
		9309[a]	100[c] *3*	1368.667	2^+			
10712.2	1^+	10709.6[a]	100	0	0^+			
10731.1	2^+	5495.2[a]	10 *3*	5235.16	3^+			
		6491.8[a]	27 *3*	4238.35	2^+	(M1)		B(M1)(W.u.)=0.0023 +*16*−*7* Mult.: D from (γ,θ) in (α,γ); $\Delta\pi$=yes from level scheme.
		9360.5[a]	100 *4*	1368.667	2^+			
10820.8	$3^+,4^+$	9450.1[†] *4*	100	1368.667	2^+			
10917.2	2^+	4485[a]	0.85[c] *21*	6432.2	0^+	[E2]	1.34×10^{-3}	B(E2)(W.u.)=0.38 +*11*−*10*

$^{24}_{12}Mg_{12}$-24

$\gamma(^{24}$Mg) (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
								α(K)=1.229×10^{-6} *18*; α(L)=7.88×10^{-8} *11*; α(M)=2.92×10^{-9} *4* α(IPF)=0.001337 *19*
10917.2	2^+	4906.3[a]	1.70[c] *21*	6010.34	4^+	[E2]	1.46×10^{-3}	B(E2)(W.u.)=0.48 *+10−8* α(K)=1.086×10^{-6} *16*; α(L)=6.97×10^{-8} *10*; α(M)=2.58×10^{-9} *4* α(IPF)=0.001462 *21*
		5681.3[a]	2.77[c] *21*	5235.16	3^+			
		6677.8[a]	1.06[c] *21*	4238.35	2^+			
		6793.3[a]	34.0[c] *21*	4122.853	4^+	[E2]		B(E2)(W.u.)=1.90 *+29−24*
		9546.5[a]	100[c] *4*	1368.667	2^+			
		10914.5[a]	72[c] *4*	0	0^+	[E2]		B(E2)(W.u.)=0.38 *+6−5*
11012	$3,5^+$	2573[a]	100 *11*	8439.29	4^+			
		5001[a]	47 *9*	6010.34	4^+			
11018	2^+	1048[a]	2.5[c] *6*	9965.3	1^+			
		3270[a]	0.62[c] *12*	7747.7	1^+			
		3462[a]	0.37[c] *12*	7555.3	1^-			
		5007[a]	0.86[c] *12*	6010.34	4^+			
		5782[a]	1.5[c] *3*	5235.16	3^+			
		6779[a]	2.4[c] *4*	4238.35	2^+			
		6894[a]	1.0[c] *3*	4122.853	4^+			
		9647[a]	100[c] *3*	1368.667	2^+			
		11015[a]	14.2[c] *12*	0	0^+			
11133		3518	100	7616.41	3^-			E_γ: From (α,γ).
11165	3^-	2726[a]	5.8[c] *3*	8438.4	1^-			
		3609[a]	6.2[c] *3*	7555.3	1^-			
		5154[a]	13.1[c] *3*	6010.34	4^+			
		5929[a]	11.3[c] *3*	5235.16	3^+			
		7041[a]	1.81[c] *14*	4122.853	4^+			
		9794[a]	100[c] *3*	1368.667	2^+			
11187.3		9816.5[‡]	100	1368.667	2^+			
11207		9836[a]	100	1368.667	2^+			
11216.69	$3^+,4^+$	1700[a]	1.40[c] *12*	9516.18	4^+			
		2562[a]	0.81[c] *12*	8654.9	2^+			
		3868[a]	0.35[c] *12*	7348.60	2^+			
		5981[a]	0.93[c] *12*	5235.16	3^+			
		7093[a]	12.8[c] *12*	4122.853	4^+			
		9846[a]	100.0[c] *23*	1368.667	2^+			
11314.4	$(3,4)^+$	9943.5[†] *15*	100	1368.667	2^+			
11330		9959[a]	100	1368.667	2^+			
11391	1^-	1332[a]	1.9[c] *3*	10059.1	$(1,2)^+$			
		1426[a]	1.01[c] *14*	9965.3	1^+			

$^{24}_{12}$Mg$_{12}$-25

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	α[e]	Comments
11391	1^-	2953[a]	1.01[c] *14*	8438.4	1^-			
		3643[a]	1.45[c] *14*	7747.7	1^+			
		4958[a]	1.16[c] *14*	6432.2	0^+			
		7152[a]	2.2[c] *3*	4238.35	2^+			
		10020[a]	100[c] *3*	1368.667	2^+			
		11388[a]	36.2[c] *14*	0	0^+			
11452.8	2^+	721.7[a]	3.4[c] *5*	10731.1	2^+			
		1393.7[a]	1.14[c] *23*	10059.1	$(1,2)^+$			
		1487.5[a]	12.7[c] *7*	9965.3	1^+			
		3704.8[a]	3.2[c] *5*	7747.7	1^+			
		3836.0[a]	0.9[c] *5*	7616.41	3^-			
		4103.4[a]	1.36[c] *23*	7348.60	2^+			
		6216.7[a]	4.1[c] *5*	5235.16	3^+			
		7213.3[a]	47.7[c] *23*	4238.35	2^+			
		7328.7[a]	1.82[c] *23*	4122.853	4^+			
		10081.8[a]	100.0[c] *23*	1368.667	2^+			
		11449.8[a]	50.0[c] *23*	0	0^+			
11522	2^+	791[a]	1.59 *16*	10731.1	2^+			
		1463[a]	2.1 *3*	10059.1	$(1,2)^+$			
		1557[a]	1.11 *16*	9965.3	1^+			
		3164[a]	0.32 *16*	8358.1	3^-			
		3774[a]	1.11 *16*	7747.7	1^+			
		3905[a]	1.43 *16*	7616.41	3^-			
		5089[a]	12.2 *5*	6432.2	0^+			
		7282[a]	8.1 *3*	4238.35	2^+			
		7398[a]	7.0 *3*	4122.853	4^+			
		10151[a]	23.8 *16*	1368.667	2^+			
		11519[a]	100 *3*	0	0^+			
11600	3^-	2084[a]	21.8[c] *14*	9516.18	4^+	[E1]	7.05×10^{-4}	B(E1)(W.u.)=0.00057 *+21−13* α(K)=2.53×10^{-6} *4*; α(L)=1.622×10^{-7} *23*; α(M)=6.01×10^{-9} *9* α(IPF)=0.000702 *10*
		2299[a]	75[c] *5*	9301.07	(4^+)	[E1]		B(E1)(W.u.)=0.0015 *+5−3*
		2300[a]	5.9[c] *14*	9299.8				
		2315[a]	12.5[c] *11*	9284.4	$2^+,4^+$	[E1]		B(E1)(W.u.)=2.4×10^{-4} *+9−6*
		3242[a]	8.2[c] *7*	8358.1	3^-			
		3983[a]	100[c] *5*	7616.41	3^-			
		7476[a]	3.9[c] *5*	4122.853	4^+	[E1]		B(E1)(W.u.)=2.2×10^{-6} *+9−6*
11698.2	4^+	686[a]	1.82[c] *23*	11012	$3,5^+$			
		2397[a]	100[c] *5*	9301.07	(4^+)			
		2398[a]	1.1[c] *5*	9299.8				

Adopted Levels, Gammas (continued)

γ(^{24}Mg) (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f
11698.2	4^+	3043[a]	2.5[c] *5*	8654.9	2^+
		3259[a]	3.6[c] *5*	8439.29	4^+
		3885[a]	1.4[c] *5*	7812.4	$(4^-,5^+)$
		4349[a]	5.9[c] *5*	7348.60	2^+
		5687[a]	5.0[c] *5*	6010.34	4^+
		6462[a]	6.8[c] *5*	5235.16	3^+
		7459[a]	19.8[c] *9*	4238.35	2^+
		7574[a]	15.7[c] *9*	4122.853	4^+
		10327[a]	64[c] *5*	1368.667	2^+
11730	0^+	1765[a]	3.48[c] *22*	9965.3	1^+
		4174[a]	1.63[c] *11*	7555.3	1^-
		7490[a]	3.59[c] *22*	4238.35	2^+
		10359[a]	100.0[c] *22*	1368.667	2^+
11860	(8^+)	3747.0[‡]	100	8113.2	6^+
11862.8	1^-	4306[a]	4.4[c] *4*	7555.3	1^-
		4513[a]	1.75[c] *18*	7348.60	2^+
		7622[a]	4.4[c] *4*	4238.35	2^+
		10491[a]	65[c] *4*	1368.667	2^+
		11859[a]	100[c] *4*	0	0^+
11932.9	$(3)^+$	2631.9[a]	0.19 *7*	9301.07	(4^+)
		3068.4[a]	0.34 *7*	8864.5	2^-
		4120.5[a]	1.41 *16*	7812.4	$(4^-,5^+)$
		4583.6[a]	1.62 *19*	7348.60	2^+
		5922.0[a]	4.3 *5*	6010.34	4^+
		6696.9[a]	1.27 *21*	5235.16	3^+
		7693.4[a]	0.51 *19*	4238.35	2^+
		7808.9[a]	24.4 *24*	4122.853	4^+
		10561.9[a]	100 *10*	1368.667	2^+
11966.6	2^+	760[a]	0.9[c] *3*	11207	
		1236[a]	3.7[c] *6*	10731.1	2^+
		1908[a]	12.0[c] *6*	10059.1	$(1,2)^+$
		2001[a]	4.9[c] *6*	9965.3	1^+
		5534[a]	9.4[c] *6*	6432.2	0^+
		6731[a]	60[c] *3*	5235.16	3^+
		7727[a]	46[c] *3*	4238.35	2^+
		7842[a]	3.4[c] *3*	4122.853	4^+
		10596[a]	100[c] *6*	1368.667	2^+
		11964[a]	46[c] *3*	0	0^+
11988.5	2^+	1257.4[a]	0.9 *4*	10731.1	2^+
		1929.3[a]	1.5 *9*	10059.1	$(1,2)^+$
11988.5	2^+	2703.9[a]	2.0 *11*	9284.4	$2^+,4^+$
		2984.8[a]	1.3 *7*	9003.5	2^+
		3122.8[a]	11 *5*	8864.5	2^-
		3549.8[a]	6.3 *4*	8438.4	1^-
		4240.4[a]	11 *5*	7747.7	1^+
		4432.8[a]	3.3 *17*	7555.3	1^-
		6752.3[a]	17 *9*	5235.16	3^+
		7748.8[a]	100 *5*	4238.35	2^+
		10617.3[a]	61 *2*	1368.667	2^+
		11985.3[a]	1.7 *9*	0	0^+
12003		991[a]	19[c] *3*	11012	$3,5^+$
		3563[a]	9.5[c] *16*	8439.29	4^+
		5992[a]	30[c] *3*	6010.34	4^+
		7879[a]	100[c] *3*	4122.853	4^+
12051.3	4^+	6040[a]	6.9[c] *7*	6010.34	4^+
		6815[a]	30.6[c] *14*	5235.16	3^+
		7927[a]	100[c] *3*	4122.853	4^+
		10680[a]	1.4[c] *3*	1368.667	2^+
12119.0	4^+	2603[a]	100[c] *8*	9516.18	4^+
		6108[a]	27[c] *5*	6010.34	4^+
		7879[a]	92[c] *5*	4238.35	2^+
		7995[a]	38[c] *5*	4122.853	4^+
		10748[a]	14[c] *3*	1368.667	2^+
12128		4315[a]	100	7812.4	$(4^-,5^+)$
12162	4^+	2646[a]	17.6[c] *20*	9516.18	4^+
		3158[a]	3.9[c] *10*	9003.5	2^+
		6926[a]	5.9[c] *20*	5235.16	3^+
		7922[a]	11.8[c] *20*	4238.35	2^+
		8038[a]	100[c] *6*	4122.853	4^+
		10791[a]	57[c] *6*	1368.667	2^+
12183.3		966.6[a]	2.1 *11*	11216.69	$3^+,4^+$
		1452.2[a]	2.0 *10*	10731.1	2^+
		1822.5[a]	5.0 *25*	10360.7	2^+
		2217.9[a]	1.4 *7*	9965.3	1^+
		3528.1[a]	4.8 *24*	8654.9	2^+
		4435.2[a]	3.7 *18*	7747.7	1^+
		5750.4[a]	1.8 *10*	6432.2	0^+
		7943.5[a]	12.8 *7*	4238.35	2^+
		10812.0[a]	100 *6*	1368.667	2^+
		12180.0[a]	7 *4*	0	0^+

From ENSDF

$^{24}_{12}$Mg$_{12}$-27

Adopted Levels, Gammas (continued)

$\gamma(^{24}$Mg) (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f
12259.3	2^-	1042.6[a]	3.3 *18*	11216.69	$3^+,4^+$
		2293.9[a]	1.1 *7*	9965.3	1^+
		2431.0[a]	2.2 *11*	9828.0	1^+
		3255.6[a]	4.4 *22*	9003.5	2^+
		3394.5[a]	9 *4*	8864.5	2^-
		3819.7[a]	5.6 *28*	8439.29	4^+
		4910.2[a]	9 *4*	7348.60	2^+
		7023.0[a]	24.4 *22*	5235.16	3^+
		8019.5[a]	100 *5*	4238.35	2^+
		8135.0[a]	1.1 *7*	4122.853	4^+
		10888.0[a]	60 *2*	1368.667	2^+
		12255.9[a]	2.2 *11*	0	0^+
12340.2	3^+	1680.3[a]	1.1 *7*	10659.8	$(1,2^+)$
		3336.5[a]	5.1 *27*	9003.5	2^+
		3685.0[a]	2.4 *13*	8654.9	2^+
		4723.3[a]	9 *4*	7616.41	3^-
		4991.0[a]	29 *2*	7348.60	2^+
		7103.9[a]	47 *2*	5235.16	3^+
		8100.4[a]	100 *5*	4238.35	2^+
		8215.8[a]	4.9 *24*	4122.853	4^+
		10968.8[a]	24 *1*	1368.667	2^+
12342		4529[a]	100	7812.4	$(4^-,5^+)$
12400.3	3^+	2341.1[a]	3.9	10059.1	$(1,2)^+$
		2883.9[a]	18	9516.18	4^+
		2942.3[a]	2.8	9457.81	$(3)^+$
		3396.5[a]	4.9	9003.5	2^+
		4783.4[a]	10	7616.41	3^-
		5051.1[a]	31	7348.60	2^+
		7164.0[a]	44	5235.16	3^+
		8160.5[a]	100	4238.35	2^+
		8275.9[a]	6	4122.853	4^+
		11028.9[a]	36	1368.667	2^+
12404.9	2^+	3103.6[a]	2.4 *12*	9299.8	
		3401.1[a]	4.4 *22*	9003.5	2^+
		3540.1[a]	2.5 *13*	8864.5	2^-
		3749.7[a]	19 *1*	8654.9	2^+
		3966.1[a]	4.1 *21*	8438.4	1^-
		4046.4[a]	1.6 *8*	8358.1	3^-
		4788.0[a]	12 *6*	7616.41	3^-
		5055.7[a]	3.0 *15*	7348.60	2^+
12404.9	2^+	7168.6[a]	1.9 *10*	5235.16	3^+
		8165.1[a]	100 *5*	4238.35	2^+
		8280.5[a]	1.4 *8*	4122.853	4^+
		11033.5[a]	3.3 *17*	1368.667	2^+
		12401.5[a]	3.0 *15*	0	0^+
12443	$6^+,7^-$	2415[a]	100	10027.97	5^-
12507	4^+	5158[a]	5.8[c] *10*	7348.60	2^+
		7271[a]	15.4[c] *19*	5235.16	3^+
		8267[a]	46[c] *4*	4238.35	2^+
		8382[a]	25[c] *4*	4122.853	4^+
		11136[a]	100[c] *6*	1368.667	2^+
12527.6	1^+	1796.4[a]	1.9 *10*	10731.1	2^+
		2468.4[a]	6 *3*	10059.1	$(1,2)^+$
		2699.2[a]	2.6 *13*	9828.0	1^+
		3662.8[a]	7 *3*	8864.5	2^-
		3872.4[a]	13 *6*	8654.9	2^+
		4088.8[a]	7 *4*	8438.4	1^-
		4779.4[a]	16 *8*	7747.7	1^+
		6094.6[a]	33 *2*	6432.2	0^+
		8287.7[a]	36 *2*	4238.35	2^+
		11156.2[a]	15 *8*	1368.667	2^+
		12524.1[a]	100 *5*	0	0^+
12638.7	4^+	3180.7[a]	0.9 *5*	9457.81	$(3)^+$
		4825.8[a]	3.6 *18*	7812.4	$(4^-,5^+)$
		6627.4[a]	15.8 *8*	6010.34	4^+
		7402.3[a]	8.7 *43*	5235.16	3^+
		8398.8[a]	0.7 *4*	4238.35	2^+
		8514.2[a]	100 *5*	4122.853	4^+
		11267.2[a]	2.0 *11*	1368.667	2^+
12660.8	3^-	1930[a]	5[c] *3*	10731.1	2^+
		2602[a]	16[c] *3*	10059.1	$(1,2)^+$
		3144[a]	22[c] *3*	9516.18	4^+
		3796[a]	27[c] *5*	8864.5	2^-
		4913[a]	5[c] *3*	7747.7	1^+
		5312[a]	19[c] *3*	7348.60	2^+
		7424[a]	8[c] *3*	5235.16	3^+
		8421[a]	100[c] *11*	4238.35	2^+
		8536[a]	16[c] *3*	4122.853	4^+
		11289[a]	51[c] *5*	1368.667	2^+
12670.0	2^-	682.5[a]	0.36 *2*	11988.5	2^+

$^{24}_{12}$Mg$_{12}$-28

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	Comments
12670.0	2^-	1217.1[a]	0.17 2	11452.8	2^+		
		1462.9[a]	0.20 3	11207			
		1482.6[a]	0.19 2	11187.3			
		1752.7[a]	0.11 1	10917.2	2^+		
		1849.1[a]	0.07 1	10820.8	$3^+,4^+$		
		1938.8[a]	0.81 3	10731.1	2^+		
		1957.7[a]	0.42 2	10712.2	1^+		
		2010.1[a]	0.17 2	10659.8	$(1,2^+)$		
		2309.1[a]	0.04 2	10360.7	2^+		
		2336.4[a]	0.28 2	10333.6	3^-		
		2610.7[a]	0.25 3	10059.1	$(1,2)^+$		
		2704.5[a]	0.29 2	9965.3	1^+		
		2841.6[a]	1.02 5	9828.0	1^+		
		3137.1[a]	2.03 8	9532.7	$(2,3)^+$		
		3385.3[a]	1.12 5	9284.4	$2^+,4^+$		
		3523.5[a]	0.45 3	9146.2	1^-		
		3666.2[a]	0.67 5	9003.5	2^+		
		3805.2[a]	24.0 8	8864.5	2^-	D	Mult.: From (p,γ), $\Delta J=0$.
		4014.7[a]	0.47 3	8654.9	2^+		
		4231.1[a]	5.0 5	8438.4	1^-		
		4311.5[a]	2.35 8	8358.1	3^-		
		4921.8[a]	6.88 22	7747.7	1^+		
		5053.0[a]	0.05 2	7616.41	3^-		
		5114.1[a]	2.53 10	7555.3	1^-		
		5320.8[a]	0.07 2	7348.60	2^+		
		7433.6[a]	0.10 3	5235.16	3^+		
		8430.1[a]	100.0 13	4238.35	2^+	D	Mult.: From (p,γ), $\Delta J=0$.
		11298.5[a]	17.3 7	1368.667	2^+		
		12666.4[a]	0.42 5	0	0^+		
12807.8	2^+	6374.7[a]	1.5 8	6432.2	0^+		
		7571.4[a]	3.0 15	5235.16	3^+		
		8567.8[a]	7.6 38	4238.35	2^+		
		11436.2[a]	39 2	1368.667	2^+		
		12802.1[a]	100 5	0	0^+		
12818.1	1^+	2457.3[a]	2.6 13	10360.7	2^+		
		2989.7[a]	3.9 19	9828.0	1^+		
		3953.3[a]	6 3	8864.5	2^-		
		4162.8[a]	17 8	8654.9	2^+		
		4379.3[a]	9 5	8438.4	1^-		
		5069.8[a]	18 9	7747.7	1^+		

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ[b]	E_f	J_f^π
12818.1	1^+	6385.0[a]	18 *9*	6432.2	0^+
		7581.6[a]	2.6 *13*	5235.16	3^+
		8578.1[a]	54 *3*	4238.35	2^+
		11446.5[a]	26 *13*	1368.667	2^+
		12814.4[a]	100 *5*	0	0^+
12846.9	$(3^-,4^+)$	6835.5[a]	6.1 *31*	6010.34	4^+
		7610.4[a]	4.1 *20*	5235.16	3^+
		8606.9[a]	100 *5*	4238.35	2^+
		8722.3[a]	73 *4*	4122.853	4^+
		11475.3[a]	20 *10*	1368.667	2^+
12854	$(1^+,2^+,3^+)$	7618[a]	52 *3*	5235.16	3^+
		8614[a]	100 *5*	4238.35	2^+
		11482[a]	18 *9*	1368.667	2^+
		12850[a]	9 *5*	0	0^+
12861	$2^+,3^-$	3560[a]	52[c] *4*	9301.07	(4^+)
		4422[a]	40[c] *4*	8438.4	1^-
		6850[a]	100[c] *4*	6010.34	4^+
		8736[a]	19[c] *4*	4122.853	4^+
12895.1	1^+	4239.8[a]	4.2 *21*	8654.9	2^+
		5146.8[a,f]	6.9 *35*	7747.7	1^+
		7658.6[a]	16.7 *8*	5235.16	3^+
		8655.1[a]	11 *6*	4238.35	2^+
		11523.4[a]	100 *6*	1368.667	2^+
12921.6	$(2^+,3^-,4^+)$	3636.9[a]	24 *12*	9284.4	$2^+,4^+$
		4266.3[a]	14 *7*	8654.9	2^+
		4563.0[a]	59 *3*	8358.1	3^-
		7685.1[a]	100 *5*	5235.16	3^+
		8681.6[a]	72 *4*	4238.35	2^+
		8797.0[a]	52 *3*	4122.853	4^+
		11549.9[a]	24 *12*	1368.667	2^+
12955.5	1^+	1502.6[a]	0.06 *1*	11452.8	2^+
		2243.2[a]	0.016 *5*	10712.2	1^+
		2275.7[a]	0.021 *4*	10679.7	0^+
		2594.6[a]	1.43 *5*	10360.7	2^+
		2844.4[a]	0.123 *6*	10110.9	(0^+)
		2896.2[a]	0.157 *7*	10059.1	$(1,2)^+$
		2990.0[a]	0.029 *4*	9965.3	1^+
		3127.1[a]	0.89 *2*	9828.0	1^+
		3649.8[a]	0.81 *2*	9305.39	0^+
		3809.0[a]	0.65 *2*	9146.2	1^-

$^{24}_{12}Mg_{12}$-30

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Mult.[d]	Comments
12955.5	1^+	3951.6[a]	0.030 *2*	9003.5	2^+		
		4090.6[a]	0.31 *1*	8864.5	2^-		
		4300.2[a]	0.20 *1*	8654.9	2^+		
		4516.6[a]	0.064 *5*	8438.4	1^-		
		5206.6[a]	0.014 *2*	7747.7	1^+		
		5605.1[a]	0.16 *6*	7348.60	2^+		
		6521.4[a]	1.17 *4*	6432.2	0^+		
		8714.8[a]	1.12 *4*	4238.35	2^+		
		11583.2[a]	100.0 *5*	1368.667	2^+		
		12951.1[a]	9.6 *4*	0	0^+		
12963.9	2^-	2904.6[a]	4.1	10059.1	$(1,2)^+$		
		7727.4[a]	21	5235.16	3^+		
		8723.8[a]	4.1	4238.35	2^+		
		11592.2[a]	100	1368.667	2^+		
		12960.1[a]	8.2	0	0^+		
13029.8	$2^+,3^-$	2668.9[a]	1.0	10360.7	2^+		
		3571.7[a]	4.1	9457.81	$(3)^+$		
		3729.7[a]	3.1	9299.8			
		4025.9[a]	8	9003.5	2^+		
		4374.5[a]	4.1	8654.9	2^+		
		4590.9[a]	3.1	8438.4	1^-		
		5412.7[a]	22	7616.41	3^-		
		7793.3[a]	100	5235.16	3^+		
		8789.7[a]	49	4238.35	2^+		
		8905.2[a]	6.1	4122.853	4^+		
		11658.1[a]	3.5	1368.667	2^+		
13048	0^+	3082[a]	70[c] *7*	9965.3	1^+		
		3220[a]	100[c] *7*	9828.0	1^+	D	Mult.: From $\gamma\gamma(\theta)$ (1978Fi08 − (α,γ)).
		4609[a]	30[c] *5*	8438.4	1^-		
		5300[a]	23[c] *5*	7747.7	1^+		
		5492[a]	14[c] *5*	7555.3	1^-		
13050.0	4^+	922.0[a]	0.040 *4*	12128			
		1719.0[a]	0.021 *7*	11330			
		1833.2[a]	0.32 *1*	11216.69	$3^+,4^+$		
		2229.1[a]	0.052 *5*	10820.8	$3^+,4^+$		
		2389.7[a]	0.30 *1*	10660.17	$(3^+,4^+)$		
		2468.6[a]	2.28 *7*	10581.26	$(2^+,3^+,4^+)$		
		3021.8[a]	0.52 *2*	10027.97	5^-		
		3591.9[a]	2.52 *8*	9457.81	$(3)^+$		
		3748.6[a]	0.09 *3*	9301.07	(4^+)		

From ENSDF

$^{24}_{12}Mg_{12}$-31

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f
13050.0	4^+	3749.9[a]	0.35 3	9299.8	
		3765.3[a]	0.139 6	9284.4	$2^+,4^+$
		5237.0[a]	0.20 1	7812.4	$(4^-,5^+)$
		5432.9[a]	0.013 4	7616.41	3^-
		7038.6[a]	1.83 6	6010.34	4^+
		7813.5[a]	1.58 6	5235.16	3^+
		8925.4[a]	100.0 2	4122.853	4^+
		11678.3[a]	0.09 1	1368.667	2^+
13057	5^-	2723[a]	16[c] 3	10333.6	3^-
		4698[a]	15[c] 3	8358.1	3^-
		5440[a]	16[c] 3	7616.41	3^-
		8932[a]	100[c] 5	4122.853	4^+
13088.8	2^+	3804.1[a]	27	9284.4	$2^+,4^+$
		4433.5[a]	6	8654.9	2^+
		4730.2[a]	67	8358.1	3^-
		7077.3[a]	10	6010.34	4^+
		7852.3[a]	100	5235.16	3^+
		8848.7[a]	40	4238.35	2^+
		8964.2[a]	63	4122.853	4^+
		11717.1[a]	20	1368.667	2^+
		13085.0[a]	0.7	0	0^+
13212.8		5099.0[‡]	100	8113.2	6^+
13345.7	3^-	1824[a]	1.9	11522	2^+
		2685.7[a]	19	10659.8	$(1,2^+)$
		3887.6[a]	19	9457.81	$(3)^+$
		4045.5[a]	28	9299.8	
		4341.8[a]	2.8	9003.5	2^+
		4905.9[a]	100	8439.29	4^+
		5728.6[a]	33	7616.41	3^-
		5996.3[a]	6	7348.60	2^+
		8109.1[a]	2.8	5235.16	3^+
		9105.5[a]	25	4238.35	2^+
		9220.9[a]	31	4122.853	4^+
		11973.8[a]	8	1368.667	2^+
		13341.7[a]	0.8	0	0^+
13366.9	(2)	2785[a]	100	10581.26	$(2^+,3^+,4^+)$
		5554[a]	35	7812.4	$(4^-,5^+)$
		11995[a]	9	1368.667	2^+
		13363[a]	9	0	0^+
13446.8	(1,2)	2056[a]	65 3	11391	1^-

Adopted Levels, Gammas (continued)

$\gamma(^{24}Mg)$ (continued)

E_i(level)	J^π_i	E_γ	I_γ[b]	E_f	J^π_f	Comments
13446.8	(1,2)	5008[a]	21 *10*	8438.4	1^-	
		9323[a]		4122.853	4^+	
		12075[a]	100 *4*	1368.667	2^+	
		13443[a]	23 *1*	0	0^+	
13474.9	2^+,3,4^+	7463[a]	60 *3*	6010.34	4^+	
		8238[a]	100 *5*	5235.16	3^+	
		9350[a]	15 *7*	4122.853	4^+	
		12103[a]	7 *4*	1368.667	2^+	
13771	5^-	5412[a]	100[c] *10*	8358.1	3^-	
		9646[a]	72[c] *10*	4122.853	4^+	
14081	1^+	3069[a]	40[c] *4*	11012	3,5^+	
		4779[a]	2.2[c] *9*	9301.07	(4^+)	
		8069[a]	80[c] *7*	6010.34	4^+	
		9956[a]	100[c] *7*	4122.853	4^+	
14150	8^+	4620[#] *25*	100[#] *4*	9527.6	(6^+)	
		6040[#] *25*	33[#] *4*	8113.2	6^+	
16904		5043[a]	100	11860	(8^+)	
19110	(10^+)	5856[a,f]	100	13212.8		E_γ: Tentatively placed in 2001Wi18 (($^{16}O,\alpha$),($^{16}O,\alpha\gamma$)) with a measured energy 5927 keV *5*.

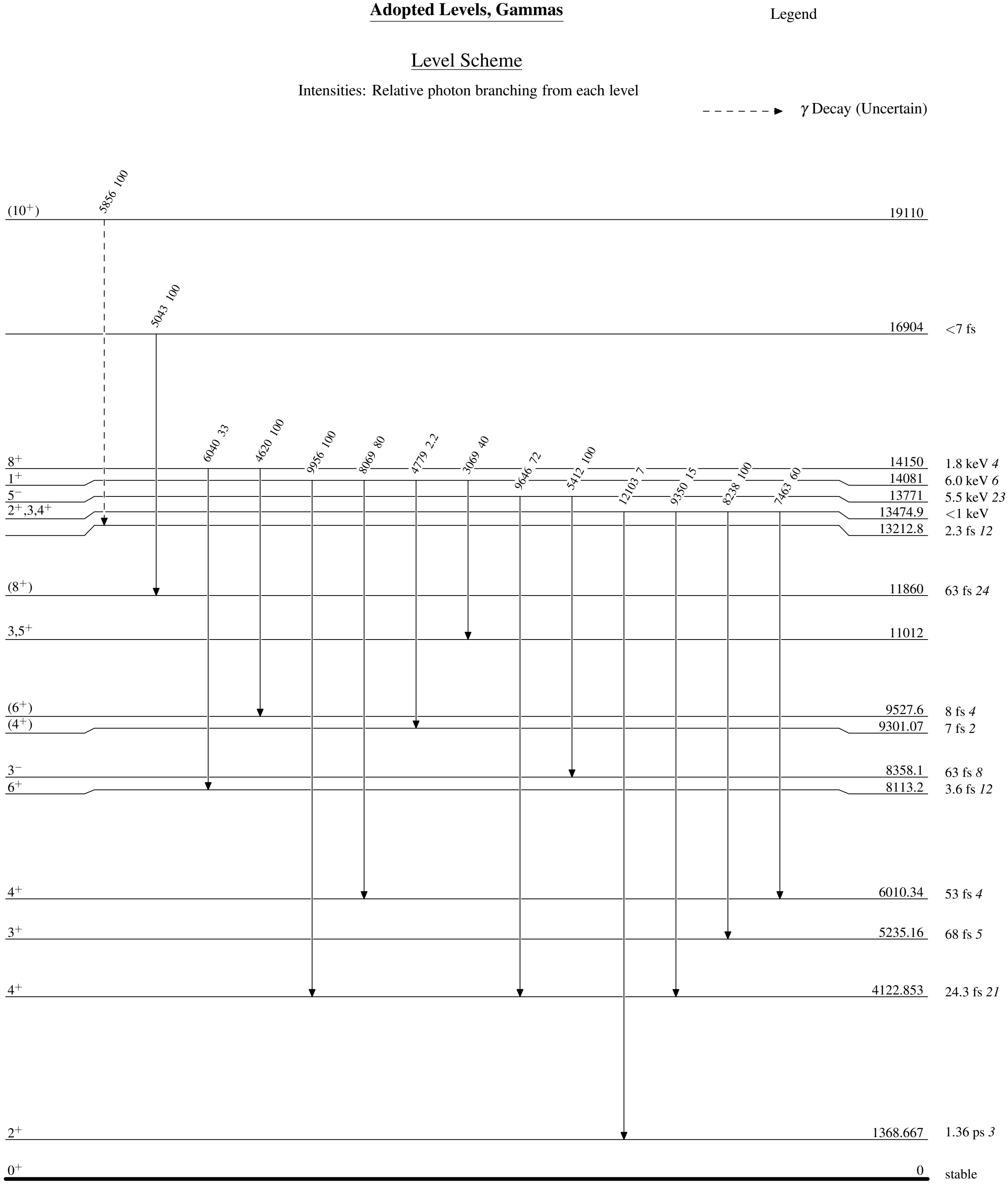
[†] From ^{24}Al ε decay (2.053 s).
[‡] From ($^{24}Mg,^{12}C\gamma$).
[#] From ($^{16}O,\alpha$),($^{16}O,\alpha\gamma$).
[@] From ($^{12}C,\gamma$).
[&] From ^{24}Al ε decay (130.7 ms).
[a] From level energy difference, recoil energy subtracted. Not considered in the least-squares fit.
[b] From (p,γ), except where otherwise noted.
[c] From (α,γ).
[d] From ^{24}Na β^- decay (14.956 h), except where otherwise noted.
[e] Additional information 1.
[f] Placement of transition in the level scheme is uncertain.

$^{24}_{12}Mg_{12}$-33

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

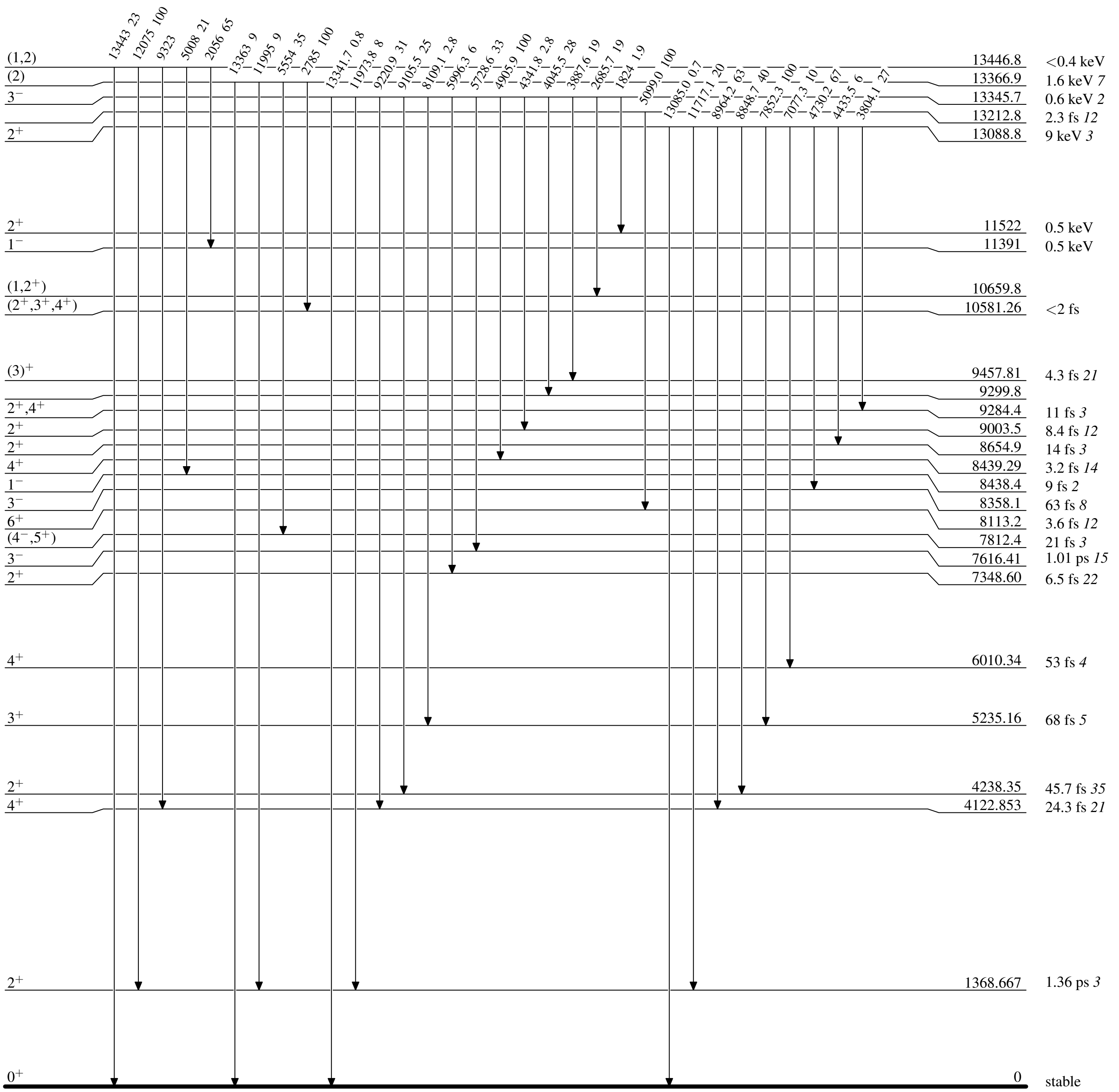


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

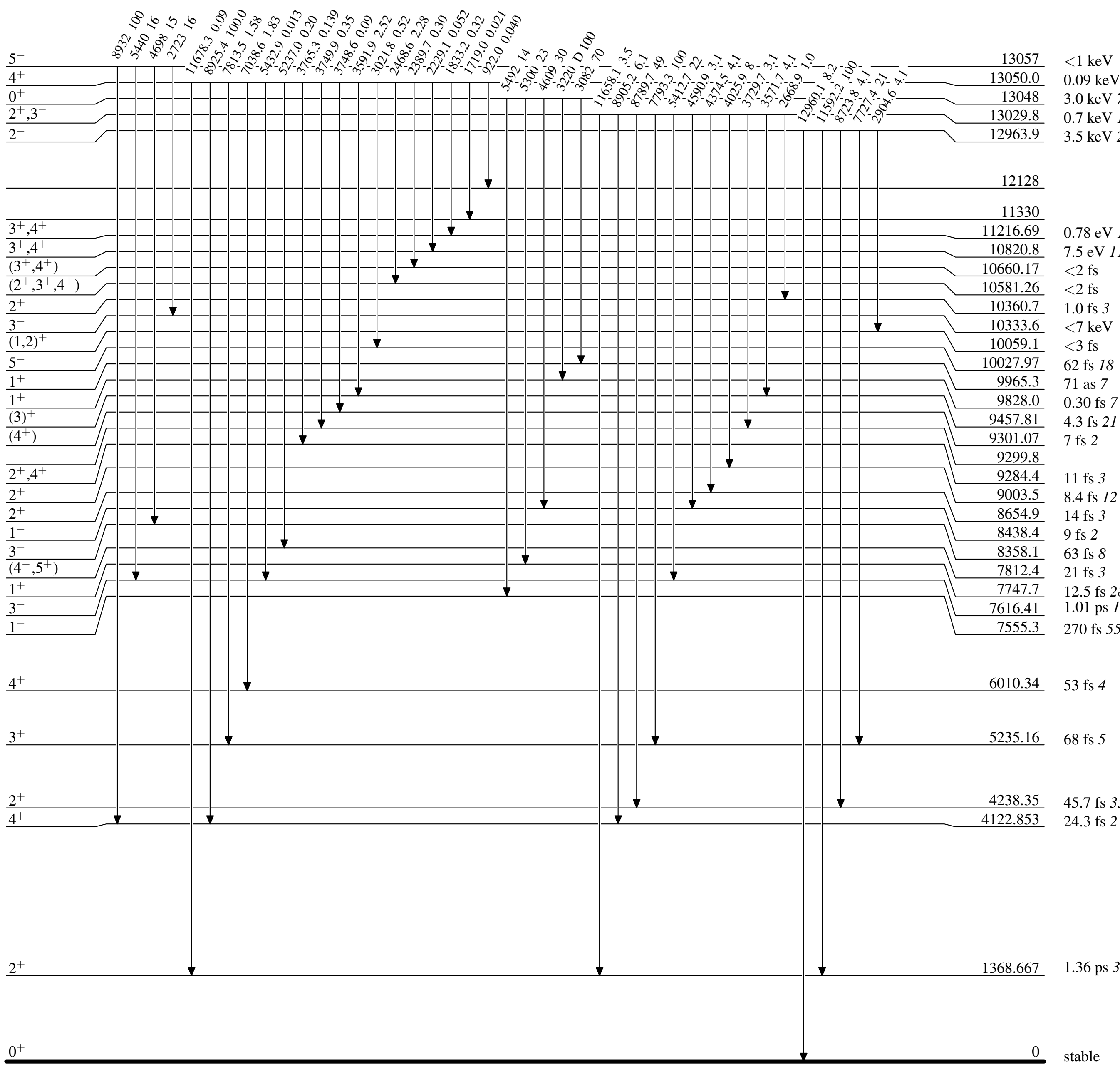


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{24}_{12}Mg_{12}$

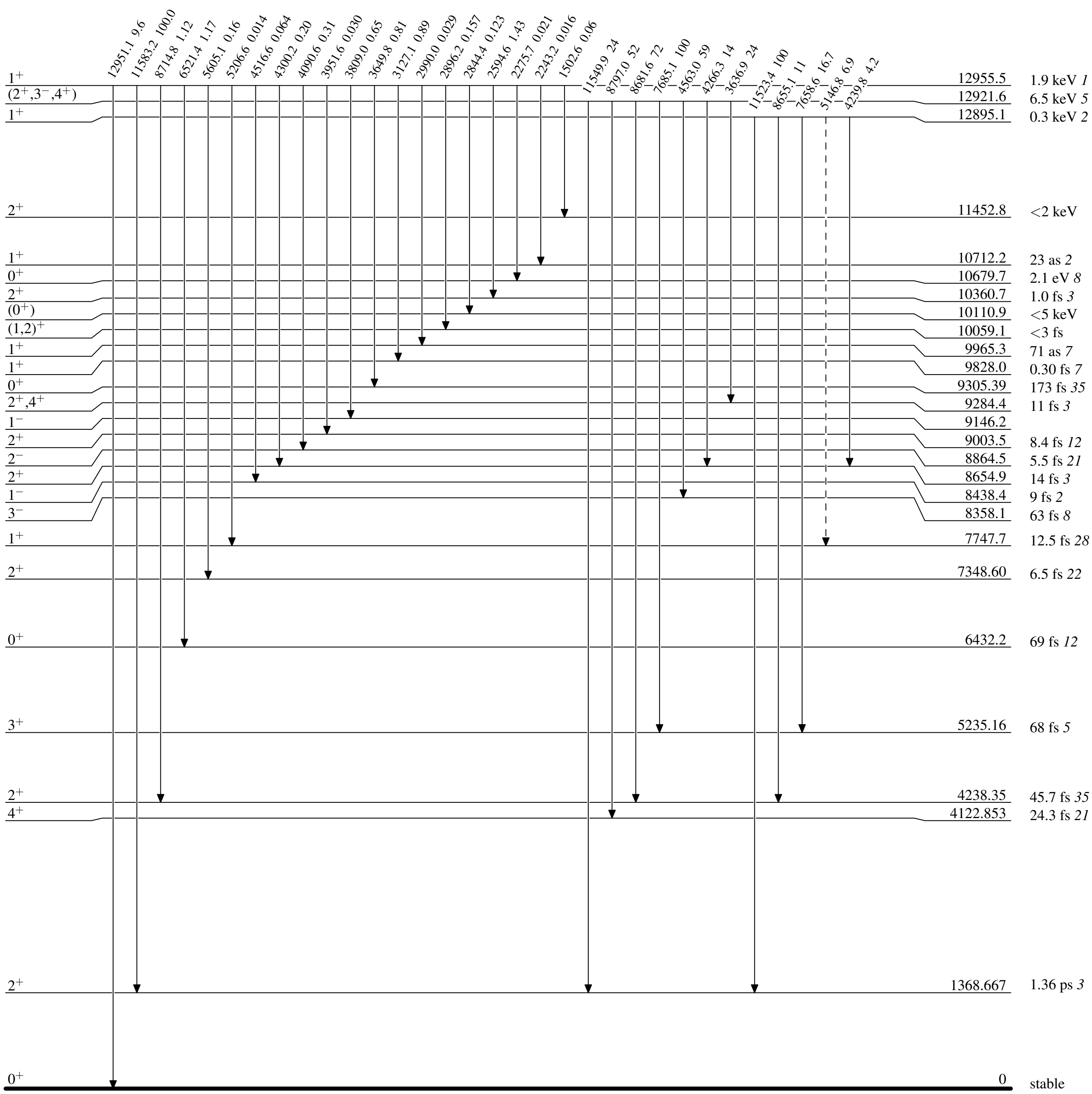
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

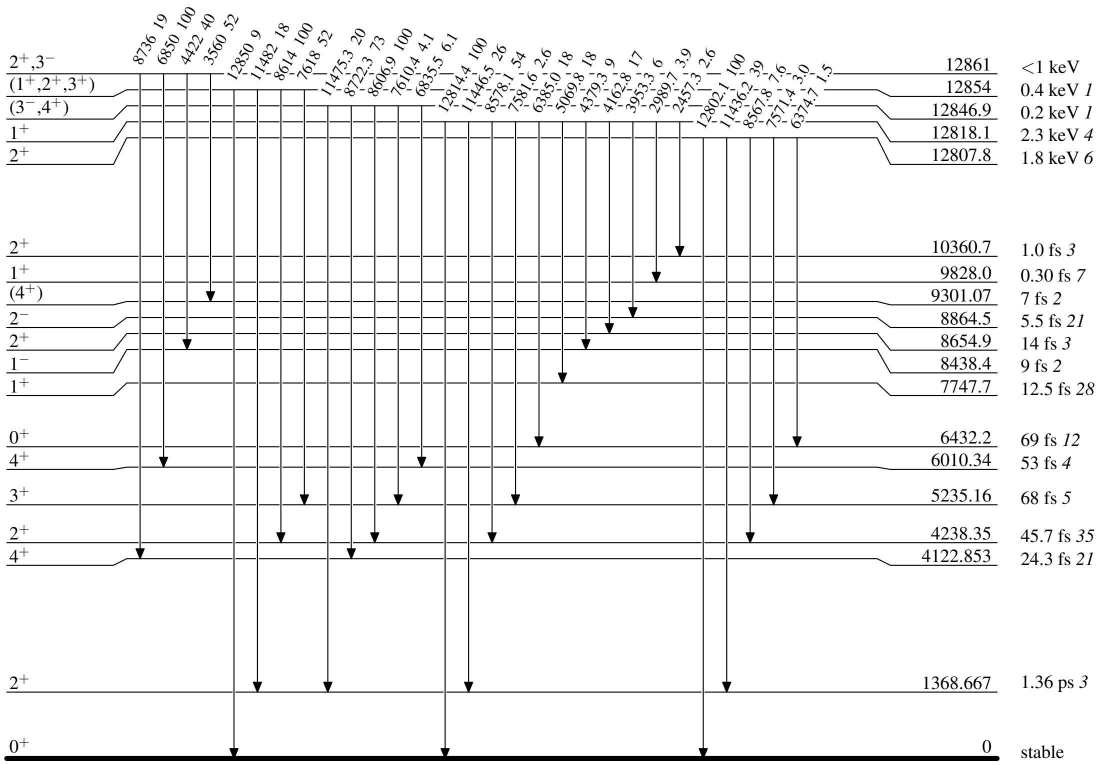


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

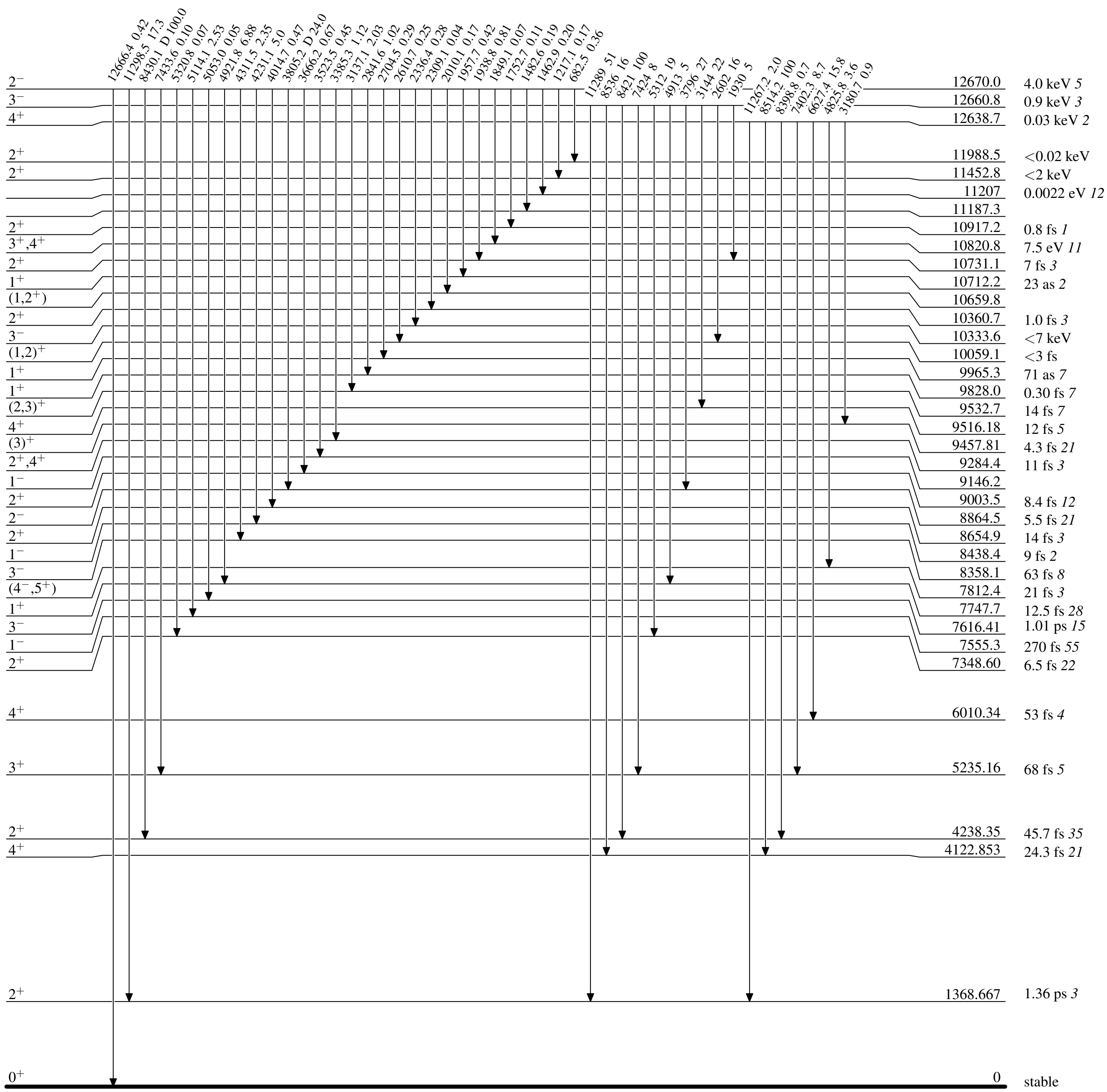


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

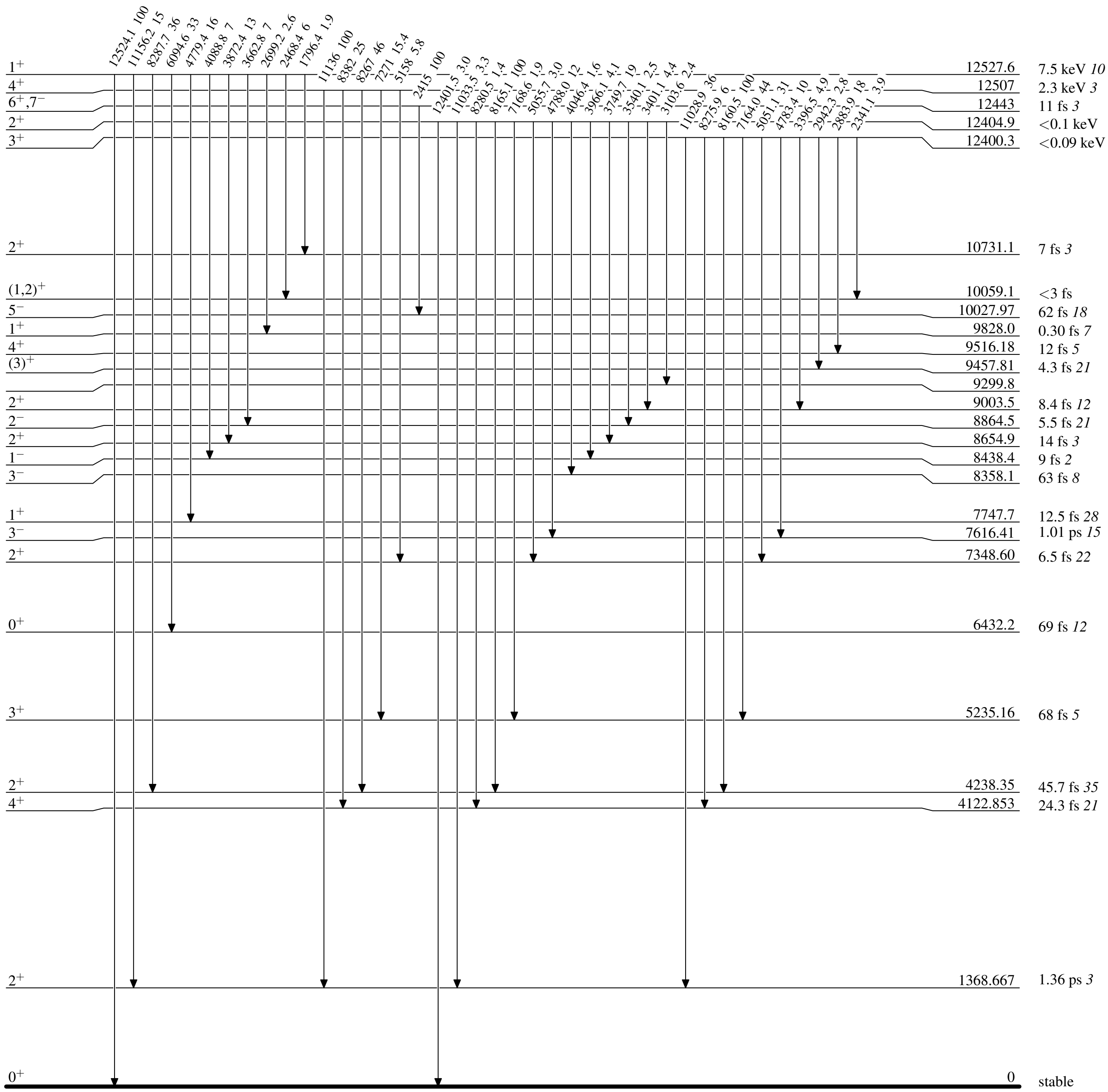


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

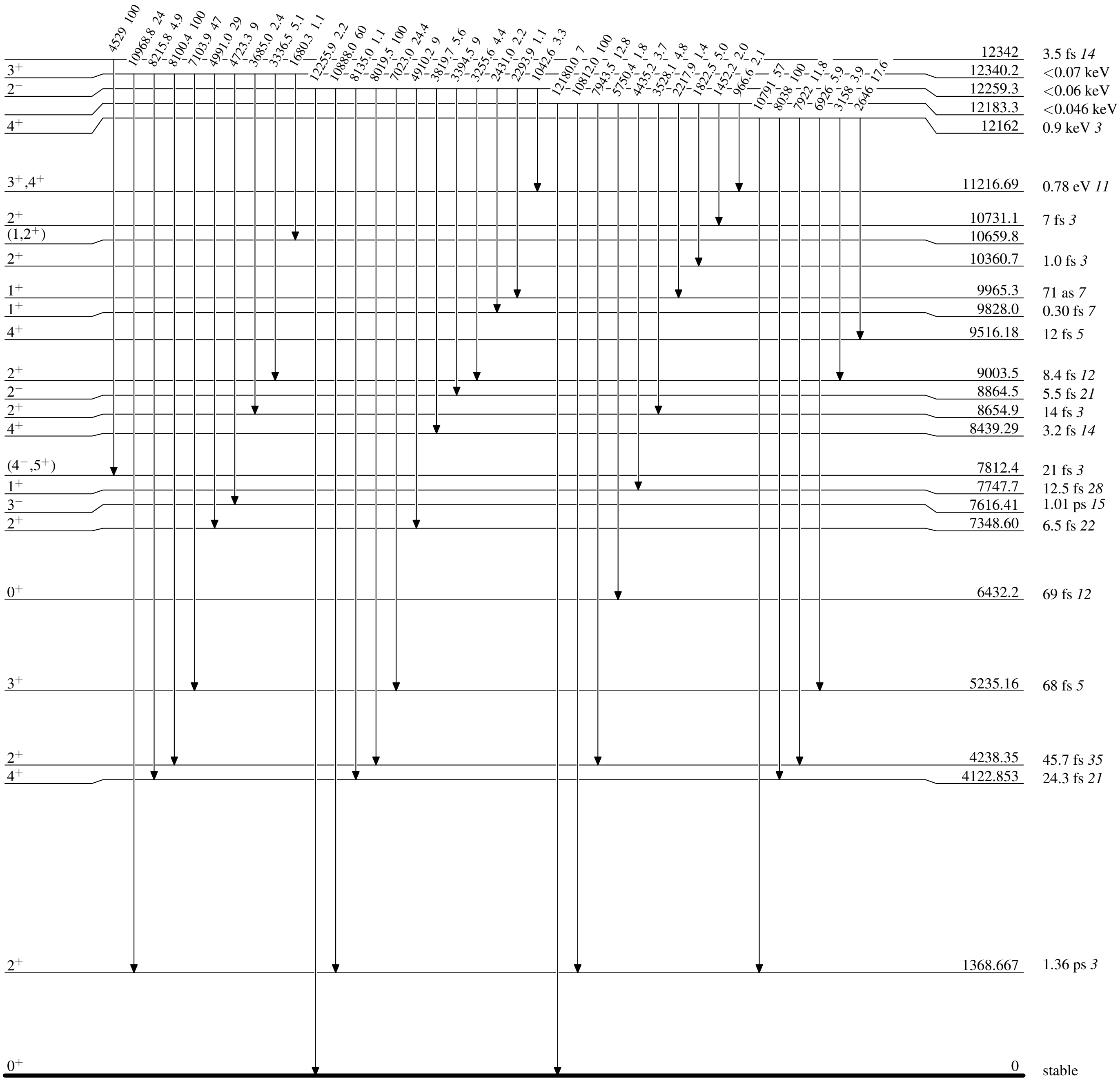


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

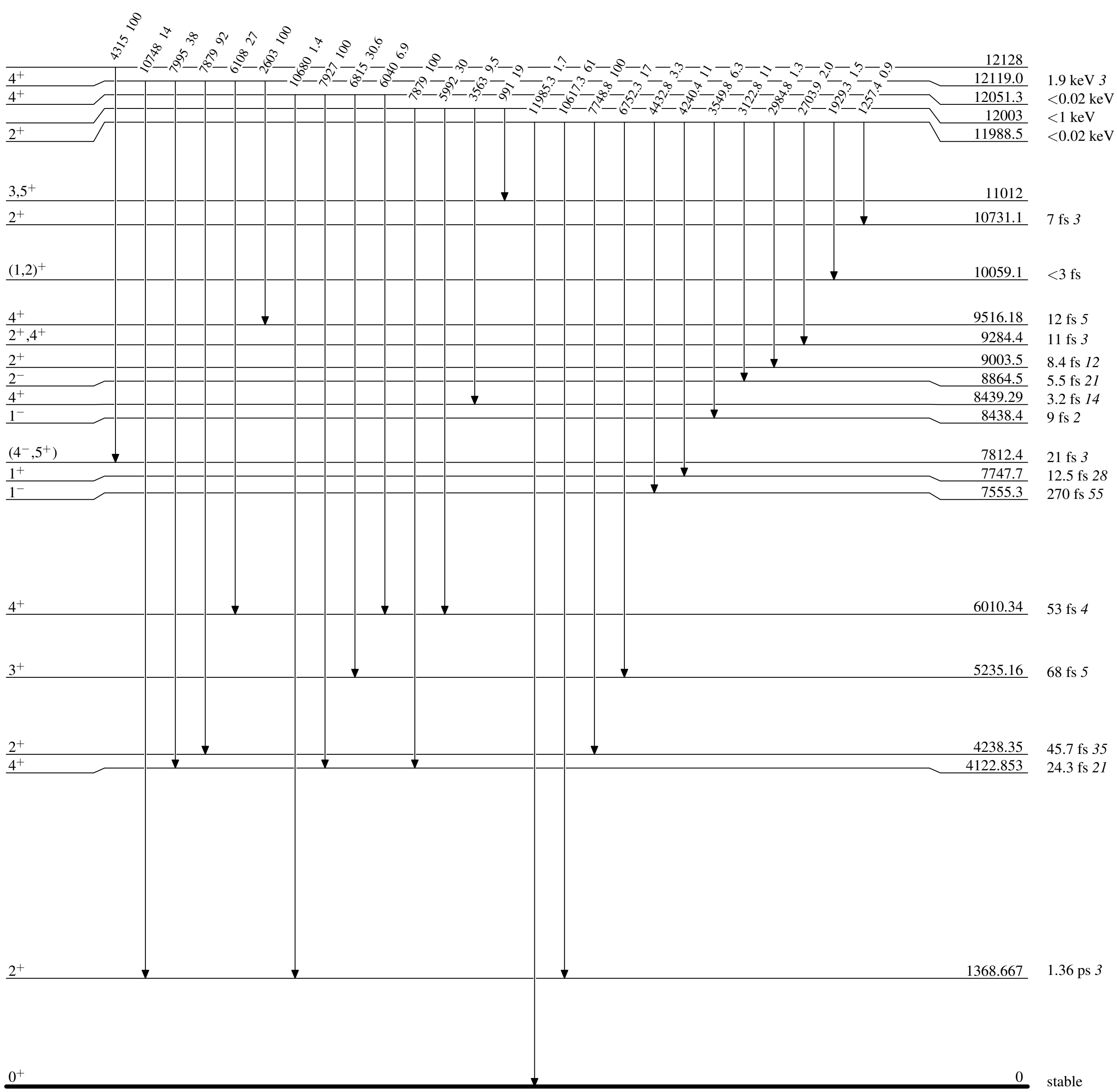


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

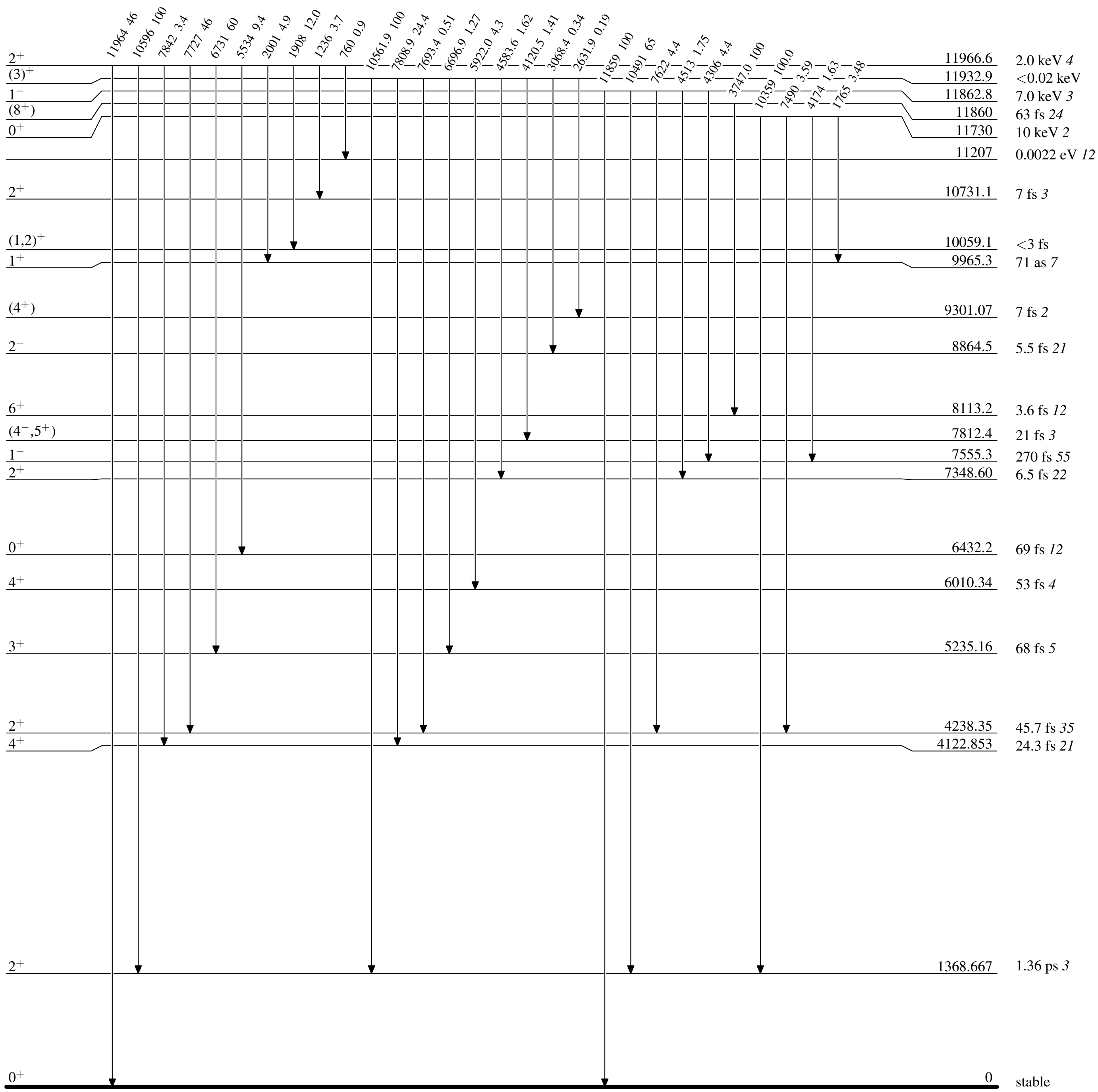


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

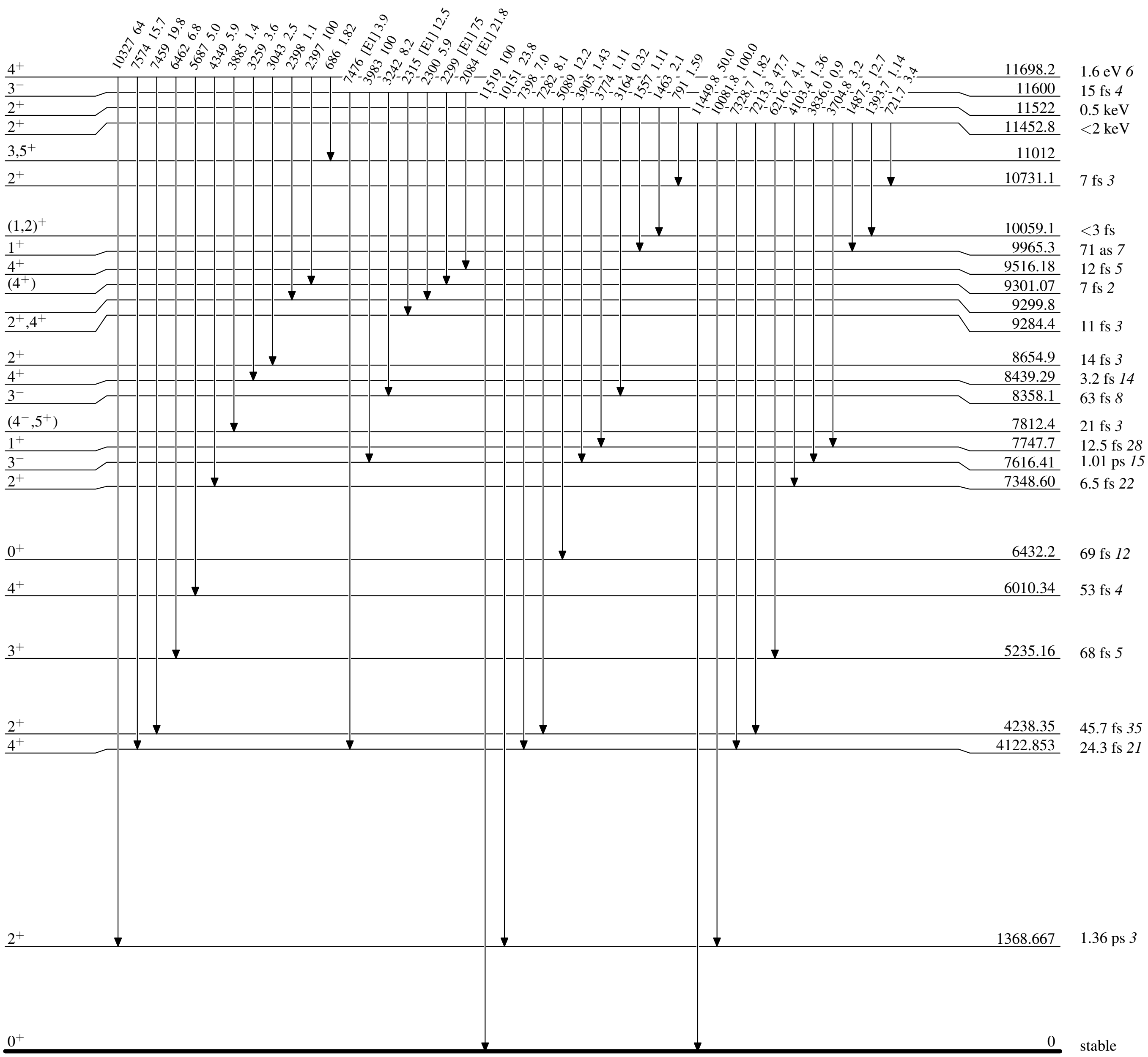


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

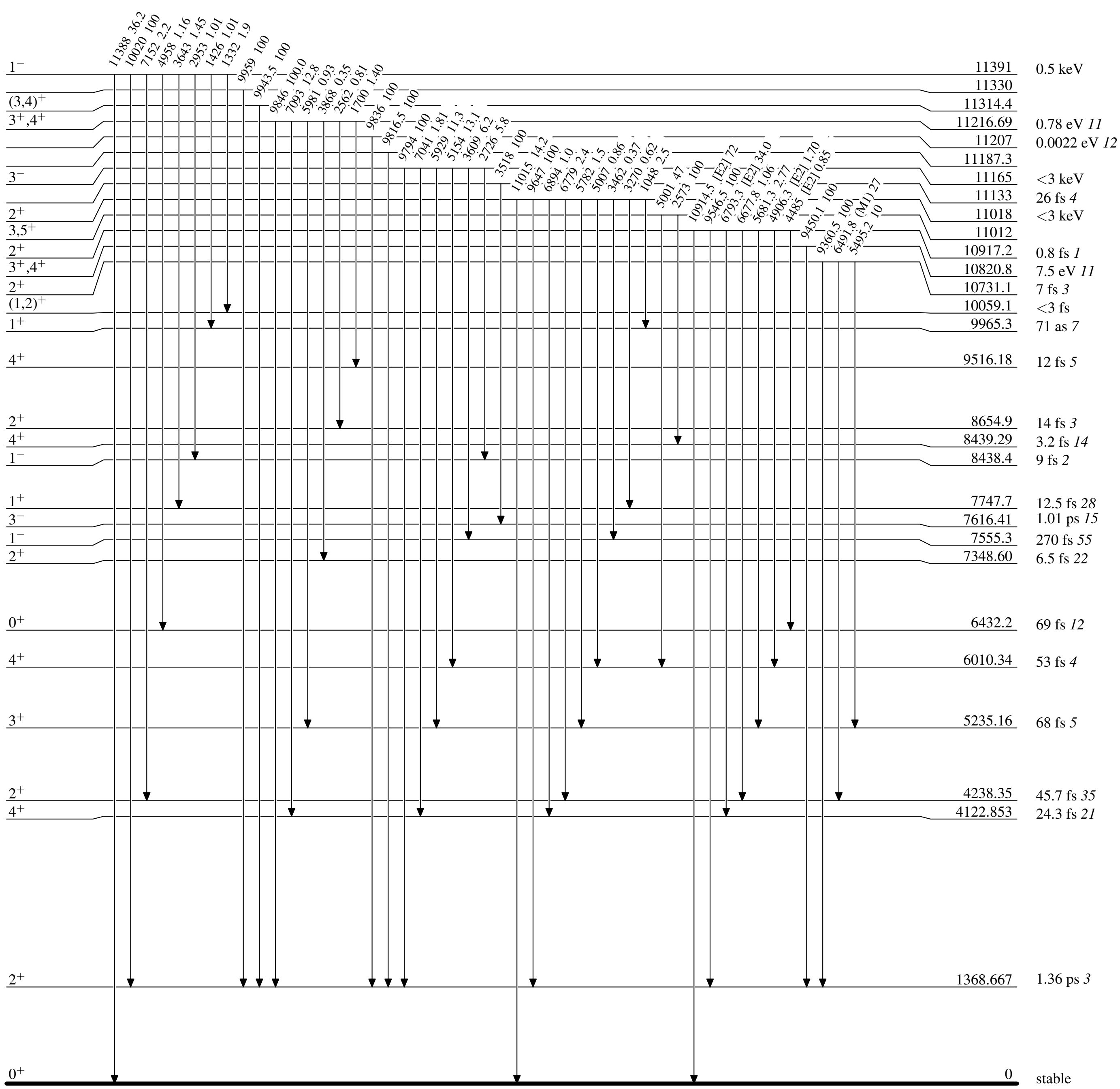


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

Level Scheme (continued)

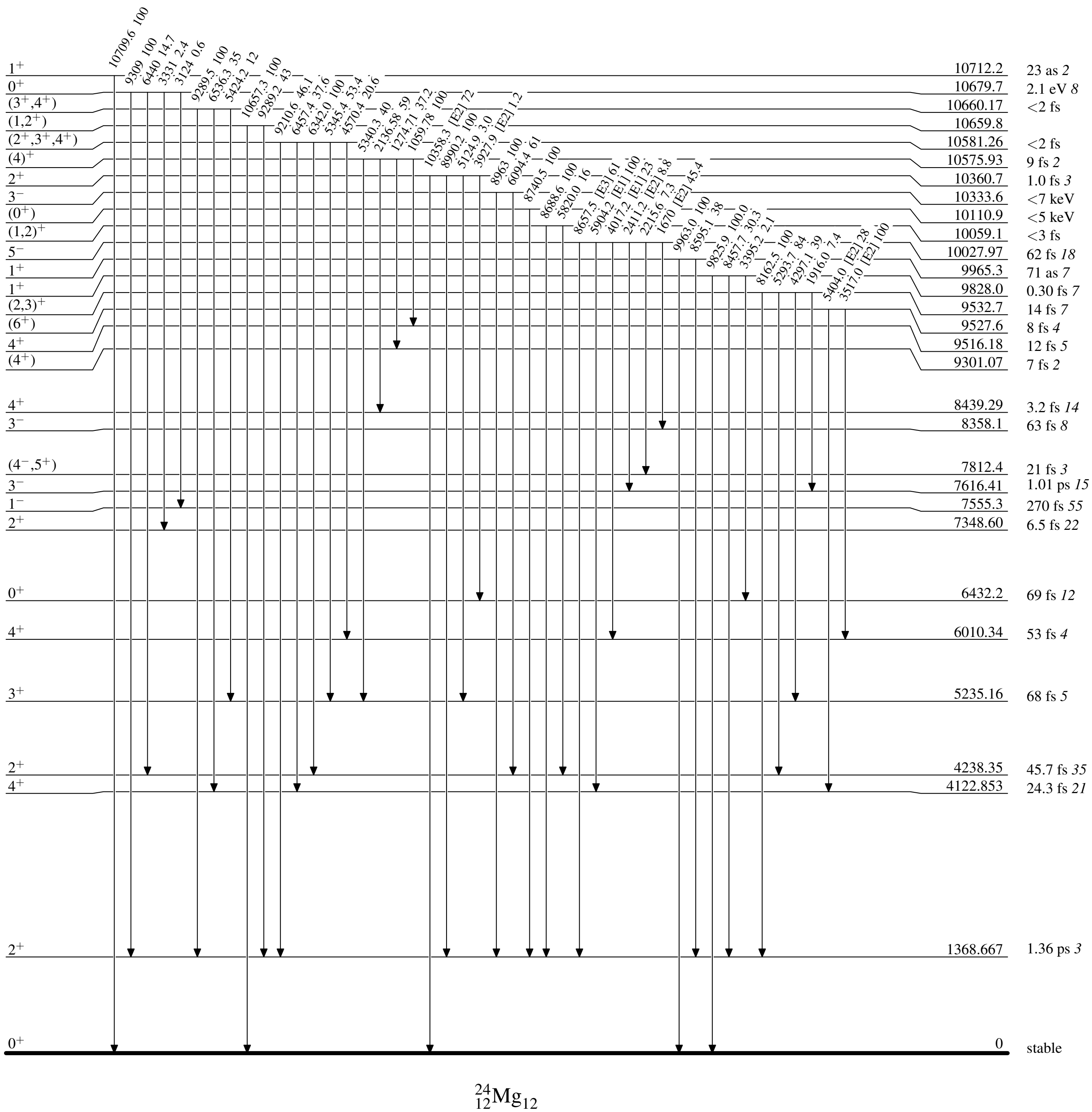
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

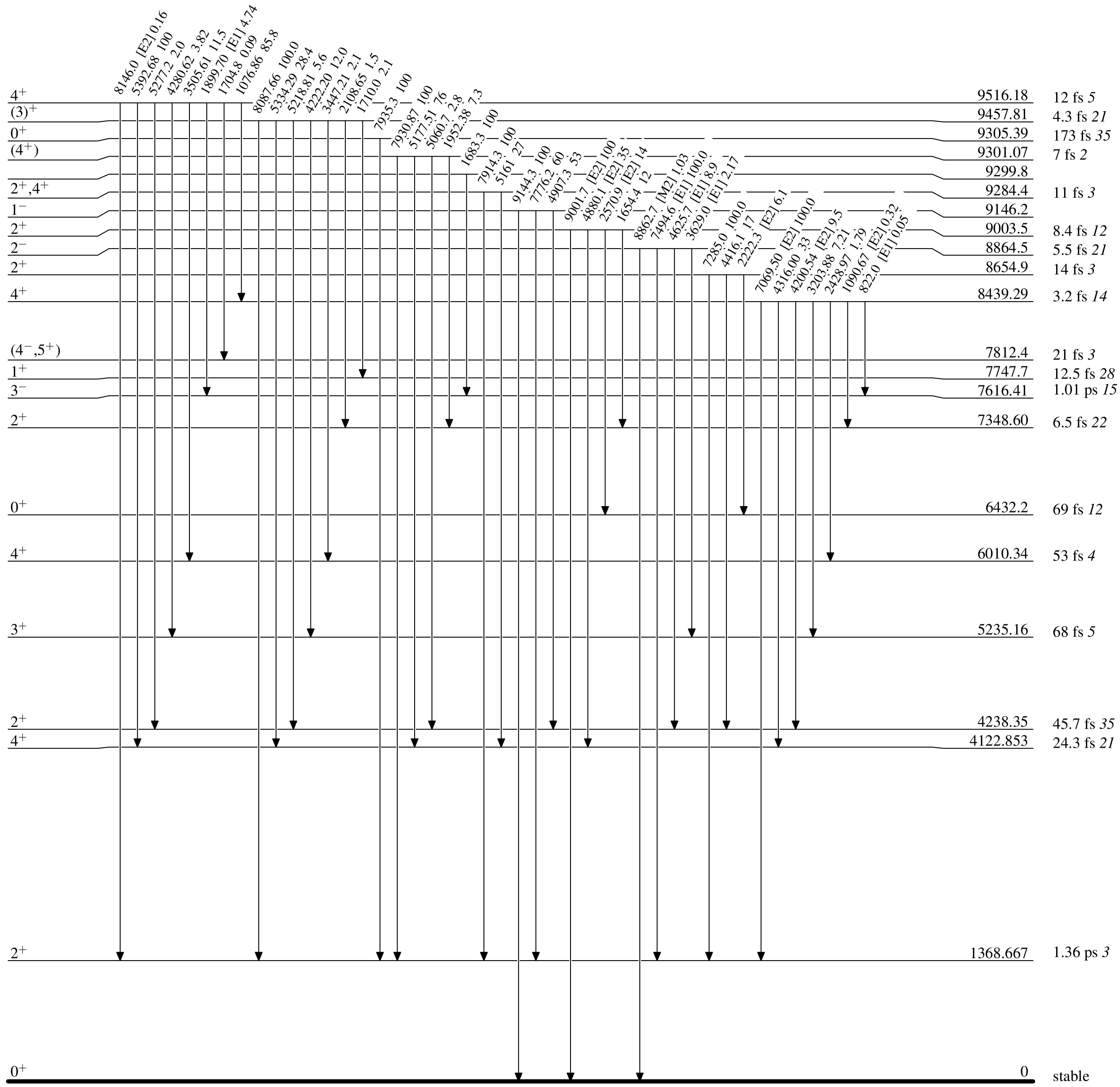
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

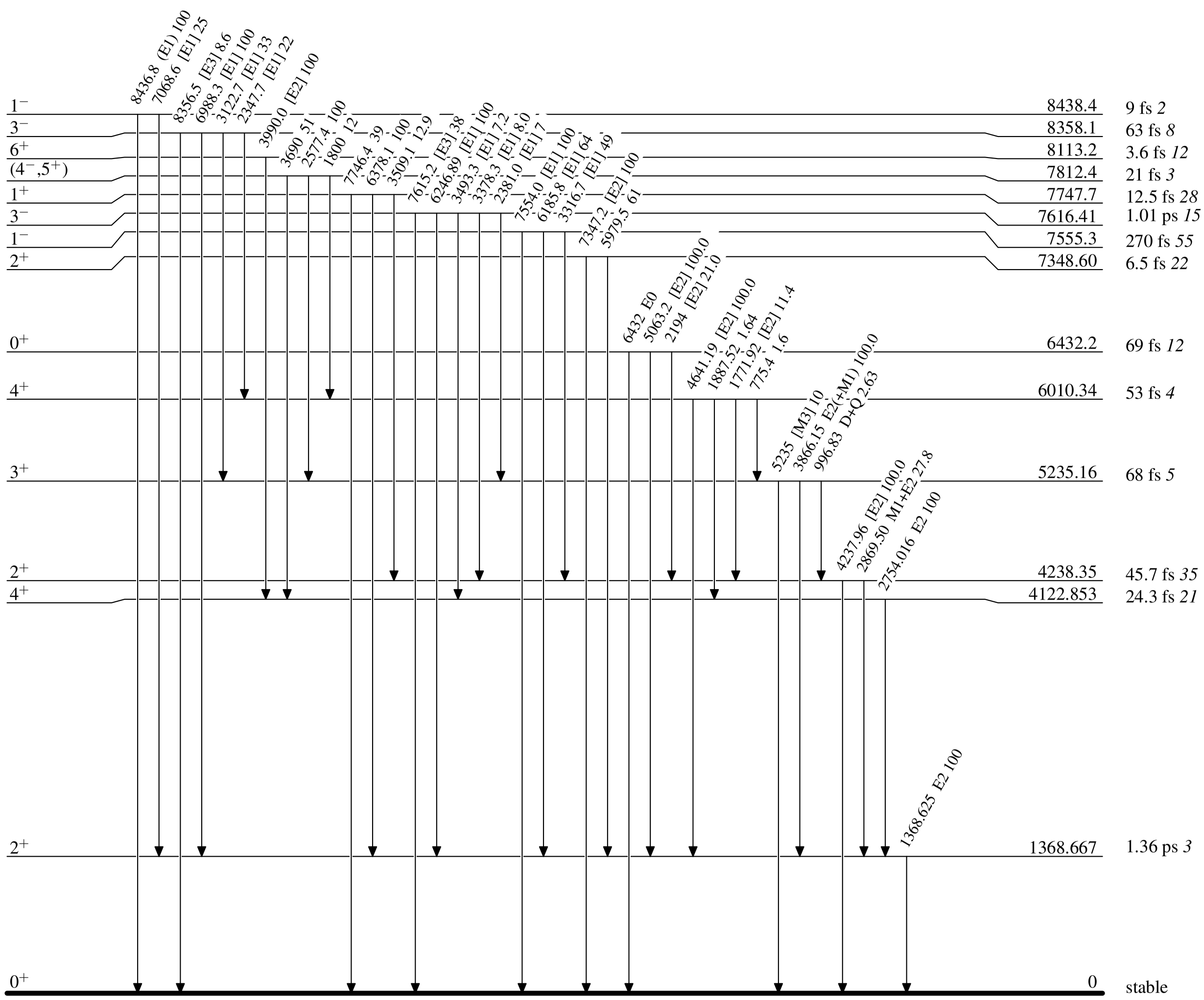


$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

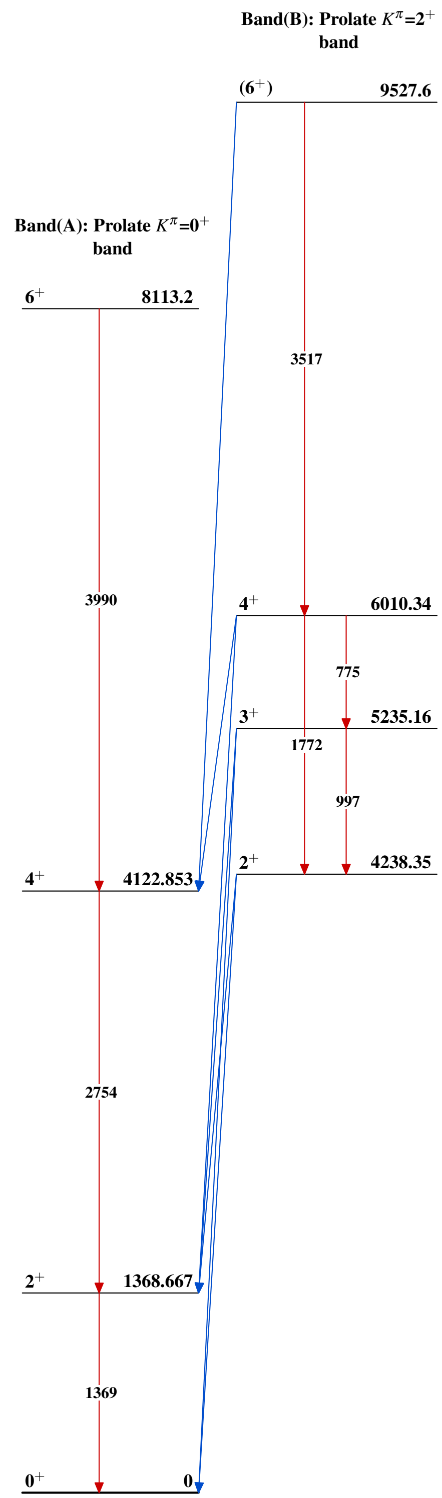
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas



$^{24}_{12}Mg_{12}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia and A. M. Hurst	NDS 134,1 (2016)	1-Feb-2016

Q(β^-)=−4004.43 *6*; S(n)=11093.09 *4*; S(p)=14145.7 *12*; Q(α)=−10614.8 *1* 2012Wa38

Other reactions:
^{14}C(^{14}C,2nγ): 2002Ta10.
^{24}Mg(^{18}O,^{16}O): 1980Be43.
^{26}Mg(π+,π+),(π+,π-): 1993Cl07.
^{26}Mg(n,n),(n,n′): 1983Ta09.
^{26}Mg(d,d): 1987Nu01,1983Vo08,1979To20.
^{26}Mg(t,t): 1987Pe09,1986Pe13,1983Ko18,1982Sc21.
^{26}Mg(^{3}He,^{3}He): 1989Va09,1982Ve13,1980Tr02.
^{26}Mg(HI,HI): 1989Ru05,1988Ot08,1987Wi09,1986Ci06,1982Fu09, 1982Sp05,1981Fu04,1980St06.
^{27}Al(^{13}C,^{14}N): 1988Va08,1987Ad07.
^{28}Si(^{18}O,^{20}Ne): 1979Me12.
^{29}Si(n,α): 2011Zh22,2010Zh44.
^{208}Pb(^{26}Mg,^{26}Mg), E=200 MeV: 1991He09.
Production cross section 0.394 mb *44*, from ^{136}Xe spallation by proton – 2007Na31.
^{26}Mg from bombarding ^{28}Si with protons, E=1 GeV, and 2p emission – 2004Va22.
^{26}Mg from fragmentation reactions at relativistic energies – 2001Ge05.

^{26}Mg Levels

Cross Reference (XREF) Flags

A	^{26}Na β^- decay	H	^{24}Mg(t,p)	O	^{26}Mg(e,e′)
B	^{26}Al ε decay (7.17×10^5 y)	I	^{25}Mg(n,γ) E=thermal	P	^{26}Mg(p,p′),(p,p′γ)
C	^{26}Al ε decay (6.3460 s)	J	^{25}Mg(n,γ),(n,n):res	Q	^{26}Mg(α,$\alpha'\gamma$),^{22}Ne(α,n)
D	^{27}Na β^-n decay	K	^{25}Mg(d,p)	R	^{27}Al(μ^-,νnγ)
E	^{18}O(^{13}C,αnγ)	L	^{25}Mg(α,^{3}He)	S	^{27}Al(d,^{3}He)
F	^{22}Ne(^{6}Li,d)	M	^{26}Mg(pol γ,γ'),(γ,γ')	T	^{27}Al(t,α)
G	^{23}Na(α,pγ)	N	^{26}Mg(γ,n):res	U	^{28}Si(μ^-,νpnγ)

E(level)[†]	J$^\pi$	T$_{1/2}$[d]	XREF	Comments
0.0	0$^+$	stable	ABCDEFGHI KLM OPQRSTU	J$^\pi$: L=0 in (t,p). Optical spectroscopy (1931Mu02,2013Ma15). Charge radius=2.99 fm *4* (2014Wa14). Matter radius=3.0340 fm *26* quoted in 2012Yo01 from literature.
1808.74 *4*	2$^+$	476 fs *21*	AB DE GHI KLM OPQR TU	μ=+1.0 *3*; Q=−0.14 *3* μ: From 1981Sp04, 2014StZZ. Q: Also −0.10 *3*, both from 1982Sp05, 2014StZZ. J$^\pi$: L=2 in (t,p) and (p,p′). T$_{1/2}$: From mean lifetime of 687 fs *30*: Weighted average of 653 fs *39* (1981Dy01 – (^{23}Na,P)), 700 fs *50* and 730 fs *30* (1977Sc36), 654 fs *34* (1982Sp05), and 683 fs *75* (1983Ko18 – (t,t′)). Uncertainty – lowest input value.
2938.33 *4*	2$^+$	141 fs *8*	AB E GHI KLM OPQR TU	J$^\pi$: L=2 in (t,p) and (p,p′). T$_{1/2}$: From mean lifetime 204 fs *12* (1981Dy01 – (^{23}Na,P)).
3082.9 *20*			E	
3420.2 *17*			E	
3564.9 *19*			E	
3588.56 *9*	0$^+$	6.45 ps *48*	E GHI KLM OPQR TU	J$^\pi$: L=0 in (t,p).

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J^{π}	$T_{1/2}$[d]	XREF	Comments
				$T_{1/2}$: From mean lifetime of 9.3 ps *7*: Weighted average of 9.6 ps *12* (1974Be08), 9.5 ps *7* (1974Be43), and 9.29 ps *23* (1984Bh03) – all from (α,p). Uncertainty – lowest input value.
3941.57 *4*	3^+	0.83 ps *12*	A E GHI KL OP R TU	J^{π}: 3 in (p,p′) and 1003.25γ M1+E2 to 2^+. $T_{1/2}$: From unweighted mean lifetime values of 1.38 ps *11* (1974Be08 – (α,p)) and 1.02 fs *13* (1981Dy01 – (^{23}Na,P)).
4318.89 *5*	4^+	272 fs *16*	A E GHI L oPQR TU	J^{π}: 4 in (p,p′),(p,p′γ). Natural parity in (α,α′). $T_{1/2}$: From mean lifetime of 392 fs *23* (1981Dy01 – (^{23}Na,P)).
4332.52 *5*	2^+	20 fs *3*	A E GHI LM OPQR U	J^{π}: (2) in (p,p′),(p,p′γ), β^- from 3^+ in ^{26}Na β^- Decay, natural parity in (α,α′). $T_{1/2}$: From mean lifetime of 29 fs *4* (1981Dy01 – (^{23}Na,P)).
4350.09 *4*	3^+	105 fs *28*	A E G I L OPQR	J^{π}: 3 in (p,p′),(p,p′γ), M1+E2 γ to 2^+. $T_{1/2}$: From mean lifetime of 150 fs *40*: Weighted average of 180 fs *55* (1972Du05 – (α,p)), 90 fs *40* (1968Ha18 – (p,p′)), 160 fs *55* (1975Wa10 – (α,α′)). Uncertainty – lowest input value.
4644.9 *13*			E	
4835.13 *5*	2^+	28 fs *6*	A E GHI KL P R T	J^{π}: L=2 in (t,p). $T_{1/2}$: From mean lifetime 41 fs *8* (1981Dy01 – (^{23}Na,P)). Other value: 37 fs *8* (1986Gl06 – (α,p).
4901.44 *7*	4^+	29 fs *6*	A E GHI KL OPQR T	J^{π}: From 1969Ca18 (α,α′γ) – α-γ angular correlation. L=4 in (p,p′),(p,p′γ). $T_{1/2}$: From mean lifetime 42 fs *8* (1981Dy01 – (^{23}Na,P)). Other value: 34 fs *8* (1986Gl06 – (α,p).
4972.30 *13*	0^+	446 fs *70*	GHI KLM OPQR T	J^{π}: L=0 in (t,p). $T_{1/2}$: From mean lifetime of 644 fs *100*: Weighted average of 760 fs *240* (1972Du05 – (α,p)), 540 fs *250* (1968Ha18 – (p,p′)), 640 fs *100* (1975Wa10 – (α,α′)). Uncertainty – lowest input value.
5180.5 *7*			E	
5291.74 *6*	2^+	<10 fs	A E GHI KLM OPQR T	J^{π}: L=2 in (e,e′) and (p,p′),(p,p′γ), L=(2) in (t,p), natural parity in (α,α′). $T_{1/2}$: From 1981Dy01 – (^{23}Na,P). Other values: 15.9 fs *76* (1986Gl06 – (α,p)), <35 fs (1968Ha18 – (p,p′)), 100 fs *60* (1975Wa10 – (α,α′)).
5476.05 *7*	4^+	21 fs *6*	A E GHI KL OPQR T	J^{π}: L=4 in (t,p). $T_{1/2}$: From mean lifetime of 30 fs *8*: Weighted average of 35 fs *15* (1974Be08 – (α,p)) and 28 fs *9* (1986Gl06 – (α,p)). Other values: <70 fs (1972Du05 – (α,p)), <50 fs (1975Wa10 – (α,α′)).
5691.08 *19*	(1^+)	<8 fs	E G I L PQR T	J^{π}: From 1990Ya07 – (α,^{3}He), based on cross section measurement and DWBA calculations. Possible unnatural parity in (α,α′). J^{π}: From (1986Gl06 – (α,p)). Other values: <35 fs (1972Du05), 70 fs *50* (1986Gl06) – both from (α,p)).
5711.2 *8*	$(1^+,2^+)$		E H K T	J^{π}: L=2 in (d,p), γ to 0^+.
5715.91 *8*	4^+	53 fs *16*	A E G I L OPQ	J^{π}: β^- from 3^+ in ^{26}Na β^- Decay, natural parity in (α,α′), γ transitions to 3^+, 2^+; L=4 in (e,e′). $T_{1/2}$: From mean lifetime of 77 fs *23*: weighted average of 125 fs *35* (1974Be08 – (α,p)), 48 fs *23* (1986Gl06 – (α,p)), and 220 fs *100* (1975Wa10 – (α,α′)). Other mean lifetime: <50 fs (1972Du05 – (α,p)).
6125.47 *5*	3^+	14 fs *6*	A E GHI KL OPQ ST	J^{π}: From angular distribution measurements and analysis in

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[d]	XREF	Comments
				1990Ya07 – (α,^{3}He) and from (e,e′). Unnatural parity in (α,α').
6256.2 *14*	0^+	53 fs *31*	E GH KL OPQ T	E(level): From ((α,$\alpha\gamma$) – 1975Na06), also in ((α,pγ) – 1986Gl06). J^π: L=0 in (t,p). $T_{1/2}$: From mean lifetime of 77 fs *45*: Weighted average of 60 fs *50* (1968Ha18 – (p,p′)), 90 fs *45* (1975Wa10 – (α,α')). Uncertainty – lowest input value.
6483.2 *15*			E	
6622.94 *14*	(4^+)	19 fs *5*	A E G L PQ ST	E(level): Weighted average of 6621 *3* (1976Mo27 – (p,p′)), 6623 *1* (1986Gl06 – (α,$\pi\gamma$)), and 6621 *2* (1975Na06 – (α,$\alpha\gamma$)). J^π: From (α,$\pi\gamma$)), based on particle-γ-ray angular correlation. $T_{1/2}$: Other: <70 fs (1975Wa10 – (α,α')).
6634.2 *3*		≤7 fs	E G I	
6745.13 *15*	2^+	16 fs *8*	A GHI KL PQ ST	J^π: L=2 in (p,p′),(p,p′γ). $T_{1/2}$: From mean lifetime of 23 fs *11* (1986Gl06 – (α,p)). Other mean lifetime values: 80 fs *40* (1968Ha18 – (p,p′)), <50 fs (1975Wa10 – (α,α')).
6876.42 *5*	3^-	83 fs *35*	GHI KL OPQ ST	J^π: L=3 in (t,p). $T_{1/2}$: From mean lifetime of 120 fs *50*: Weighted average of 100 fs *60* (1968Ha18 – (p,p′)) and 150 fs *75* (1975Wa10 – (α,α')).
6951.7 *16*			E	
6971.8 *20*	(4^+)		E	J^π: 3030γ D+Q to 3^+; Parity from shell model calculations.
6978.3[‡] *8*	(5^+)	14 fs *5*	E G PQ ST	J^π: From γ-decay and γ-feeding (Table 26.12a in 1990En08).
7061.90 *20*	1^-	≤7 fs	HI L oPQ ST	J^π: L=1 in (t,p).
7099.68 *13*	2^+	≤14 fs	A E HI LM oPQ ST	J^π: L=2 in (t,p).
7200 *20*	$(0,1)^+$		P	J^π: From 1989Cr02 (p,p′), based on measured cross section and calculation.
7246.49[‡] *17*	3^+[b]	≤7 fs	A OP ST	
7261.40 *4*		≤7 fs	E HI K P T	XREF: T(7252).
7282.82 *6*	(4^-)	24 fs *8*	E HI KL P S	J^π: From (α,pγ) and γ-feeding.
7348.86 *6*	3^-		GHI KL PQ ST	J^π: L=3 in (t,p). Natural parity (α,^{3}He).
7371.36 *17*	2^+[b]		A G I OPQ ST	
7396.0[‡] *10*	(5^+)	≤14 fs	E GH PQ ST	J^π: 1680γ (M1+E2) to 4^+. D+Q γ from 5 at 9064.
7428[#] *3*	$(0,1)^+$		H P S	J^π: From 1989Cr02 (p,p′), based on measured cross section and calculation.
7541.71 *6*	(2^-)	≤7 fs	E HI K P T	J^π: From R(θ) with gate on ΔJ=2 transition and pol values (2014Bh03 – (^{13}C,$\alpha n\gamma$)).
7677[‡] *1*	(4^+)	≤11 fs	GH L P ST	J^π: γ-transition to 4^+,3^+; Natural parity (α,^{3}He).
7696.8 *8*	$1^{(-)}$		HI LM OP S	J^π: From 1993Ve03 (d,^{3}He); 1^+ in 1990Ya07 – (α,^{3}He).
7725.8 *4*	3^+[b]		A G I K OP ST	XREF: T(7716).
7773.7[‡] *6*	(4^+)	≤7 fs	A E KL P ST	XREF: T(7762). J^π: From R(θ) with gate on ΔJ=2 transition and pol values (2014Bh03 – (^{13}C,$\alpha n\gamma$)).
7817.8[@] *7*	$(2,3)^+$		A H K oPQ T	J^π: L=0+2 in (d,p).
7824[@] *3*	3^-[b]		G L oP RS	J^π: Natural parity (α,^{3}He).
7840[‡] *2*	2^+		G o	J^π: γ transitions to 0^+, 2^+, and 4^+.
7851 *3*			P	
7950.0[‡] *20*	5^-	14 fs *6*	E H KL P ST	J^π: From 1989Se01 (pol p,p′), based on angular distributions and analyzing power.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[d]	XREF	Comments
8034[@] 2			G P ST	L=6 in (p,p′),(p,p′γ) probably erroneous.
8052.4 7	$2^{(+)}$		GHI P RS	J^π: L=2 in (t,p). L=1 in (d,^{3}He).
8184.93 15	3^-[b]		G I L OPQ ST	
8201.1 7	(6^+)	≤14 fs	E G PQ S	E(level): Weighted average of 8201 2 (1975Na06 – (α,α′γ) and 8202 1 (1986Gl0 – (α,pγ)). J^π: 1223γ d to (5^+), γ to 4^+.
8227.31 24	1^-[b]	1.0[e] fs 2	GHI M OP ST	XREF: H(8240). J^π: L=1 in (t,p).
8250.58 16	(3^+)[b]		G I L OP S	J^π: Natural parity in (α,^{3}He) does not agree.
8399 3			P T	XREF: T(8384).
8458.9 4	3^+[b]		G I OP ST	J^π: L=2 in (d,^{3}He).
8464 2			G	
8472.3[‡] 16	(6^+)	≤14 fs	E G PQ S	J^π: 1494γ D+Q to (5^+), γ transitions to 4^+.
8503.7 3	1^-		G I M P ST	XREF: T(8488). J^π: In (pol γ,γ), based on angular correlation and polarization measurements (2009Lo06).
8532.1 4	(2^+)[b]		G I OP ST	XREF: T(8518).
8576[#] 3			P ST	XREF: T(8566).
8625[‡] 1	5^-	29 fs 6	GH L PQ ST	XREF: T(8611). J^π: From 1989Se01 (pol p,p′), based on angular distributions and analyzing power. Also in (α,pγ). Natural parity (α,^{3}He).
8670[‡] 1	(3,5)	≤7 fs	G P ST	XREF: T(8660). J^π: 3193γ and 4350.7γ D+Q to 4^+.
8705.6 3	$(2\text{ to }4)^+$		G I L PQRST	J^π: L=2 in (d,^{3}He) and from γ decay.
8863.8 4	2^+		GHI P ST	J^π: L=2 in (t,p).
8903.52 9	(2^+)[b]		E G I L OP ST	XREF: L(8914)T(8889).
8930[‡] 2			GH P ST	XREF: T(8917).
8959.4 5	1^-		I M P S	J^π: In (pol γ,γ), based on angular correlation and polarization measurements (2009Lo06).
9020[‡] 2			G T	
9043.4 9	$3^{(+)}$[b]		G I L OP RS	J^π: Natural parity (α,^{3}He) does not agree. Also L=1 in (d,^{3}He).
9064[@] 2	5^+	≤7 fs	G PQ S	J^π: From 1986Gl06 – (α,pγ), 1668γ D+Q to (5^+), γ transition to 4^+.
9111.2[‡] 5	6^+	≤11 fs	G PQ ST	J^π: From 1986Gl06 – (α,pγ), γ transitions to 4^+, (5^+).
9139.5 13	1		M	J^π: From (γ,γ′).
9169[‡] 3	(6^-)[&]	26 fs 8	E G L P ST	
9206[‡] 2			G T	
9238.9 8	$1^{(+)}$	314[e] as 40	I LM OP ST	XREF: L(9256). J^π: From (γ,γ′) based on angular correlation and polarization measurements. Also in 1989Cr02 – (p,p′). Uncertain parity by evaluators for L=1 in (d,^{3}He).
9261[‡] 2	(4^+)		GH P	J^π: L=4 in (t,p); γ to 3^+.
9281[#] 3	(2^+)[b]		oP	
9291[‡] 2			G o T	
9304 2			G oP	
9316[@] 2			G P	
9325.57 20	$(2^+\text{ to }4^+)$		G I L P	J^π: γ to 2^+, 3^+, and 4^+.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[d]	XREF	Comments
9371[‡] 2	4^+		GH p T	J^π: L=4 in (t,p).
9383[‡] 1	6^+	≤7 fs	fG p S	J^π: $(4^+,6^+)$ in 1986Gl06 (α,pγ); 2404.6γ d to (5^+) and 2759.9γ and 3666.8γ Q to 4^+.
9427.8 4	3^+[b]		fG I OP ST	
9471[‡] 2	(1 to 5)$^+$		G P ST	J^π: L=2 in (d,^{3}He), γ to 3^+.
9540.3[@] 15	5^+	≤14 fs	E G P ST	J^π: From 1986Gl06 (α,pγ). 2562γ d to (5^+), 5221γ D+Q to 4^+.
9563.5 8	1^+	563[e] as 99	LM P T	E(level),J^π: From 2009Lo06 – (γ,γ)). Spin and parity based on angular correlation and polarization measurements.
9574.06 11	(2^- to 4)		G I P S	J^π: From γ decay.
9579[#] 3	4^+		H P	J^π: L=4 in (t,p).
9590 2			G	
9617.0 9	(1 to 3)$^-$		I P ST	J^π: L=1 in (d,^{3}He); γ to 2^+.
9681[‡] 2	(0 to 5)$^+$		G P ST	J^π: L=2 in (d,^{3}He).
9714[#] 3			L OP T	
9770.8 9	$1^{(-)}$		M	J^π: From (γ,γ').
9771[‡] 2			G P T	
9779[#] 3	1^+		L P	J^π: From 1989Cr02 – (p,p′) – angular distribution measurements.
9814[‡] 2			G Op T	
9829.5[‡] 14	$(5,7)^+$	37 fs 10	E G p T	J^π: From 1986Gl06 – (α,pγ) – angular distribution measurements.
9856.8[#] 4	2^+		HI OP	J^π: L=2 in (t,p).
9883[#] 3			P T	
9900.3[@] 10	3^+[b]		G OP	
9927[‡] 2			G T	
9939[‡] 2			G P	
9967[@] 2	2^+		GH P T	J^π: L=2 in (t,p).
9982[‡] 2			fG p	
9989[‡] 1	(6^+)	≤7 fs	fG p	J^π: (M1+E2) γ to (5^+) and (6^+).
10040[@] 2	5^-		GH P T	J^π: L=5 in (t,p).
10069[‡] 2			G T	
10102.5 4	1^-		I M P	J^π: From (γ,γ').
10126.7 6	4^+		GHI P T	XREF: G(10122)H(10108). J^π: L=4 in (t,p).
10136 3			P	
10147.1 1	1^+	112[e] as 15	LM P	E(level),J^π: From (γ,γ').
10159[#] 3	0^+		H P	J^π: L=0 in (t,p).
10184[‡] 2			G o	
10219.9 9			I oP T	
10234 2			G	
10271[#] 3	2^+		H P T	J^π: L=2 in (t,p).
10319.5 7	1^+	345[e] as 83	M P T	E(level),J^π: From (γ,γ').
10328 3			P	
10341[#] 3			L P	J^π: 1^+ in (α,^{3}He).
10349.4 9	(0^+ to 4^+)		G I P	J^π: γ to 2^+.
10362.26 21	(2^+ to 4^+)		G I P T	J^π: γ to 2^+, 3^+, 4^+.
10377 2			G	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J$^{\pi}$	T$_{1/2}$[d]	XREF	Comments
10400 *15*			T	
10414[#] *3*	4^{+}		H P T	J$^{\pi}$: L=4 in (t,p).
10487[#] *3*			oP T	
10493[#] *3*	2^{+}		oP	J$^{\pi}$: From (e,e′). Note for doublet.
10516[#] *3*	(2^{+})		H oP T	J$^{\pi}$: L=(2) in (t,p).
10529[@] *2*			G P	
10567 *3*			f P	
10573.3 *8*	1^{-}	0.20 eV *5*	M	J$^{\pi}$: From (γ,γ').
10576 *2*			fG	
10600.1 *4*	(1^{+} to 4^{+})		G I P	XREF: G(10590). J$^{\pi}$: From γ decay.
10647.3 *8*	1^{+}	97[e] as *5*	LM P	E(level),J$^{\pi}$: From (γ,γ')).
10650 *1*	(4^{-} to 7^{-})	21 fs *6*	G	J$^{\pi}$: From γ decay.
10681.9 *3*			P	
10693 *3*			G L P	
10707[@] *3*			G P	
10718.75 *9*			P	
10726 *3*			P	
10745.98 *12*			P	
10767[@] *2*			G P	
10805.9 *4*	(0^{+} to 4^{+})		f I M P	J$^{\pi}$: γ to 2^{+}.
10824[#] *3*	(2^{+})		f OP	J$^{\pi}$: From (e,e′).
10881 *3*			P	
10893 *3*			P	
10915 *3*			P	
10927[#] *3*	+		L P	J$^{\pi}$: Natural parity from (α,^{3}He).
10945[@] *3*			G J P	
10949.1 *8*	1^{-}	1.87 eV *30*	M	E(level),J$^{\pi}$: From (γ,γ').
10978[#] *3*			oP	
10998[#] *3*			oP	
11012[@] *3*			G oP	
11048 *3*			P	
11084 *3*			P	
11114 *3*	(2^{+})		J P	J$^{\pi}$: Assignment in 2012Ma14 ((n,γ),(n,n):res, based on R-matrix analysis.
11142 *6*			Q	
11153.5 *10*	1^{+}[a]		J MN P	E(level),J$^{\pi}$: From (γ,γ').
11162.93 *7*	2^{+}[c]	5.08 keV *8*	J	
11169.30 *7*	(3^{+})[c]	1.56 keV *8*	J	
11171[#] *3*			J L P	
11183.06 *6*	(1^{-})[c]	0.6 eV *2*	J	
11189.24 *6*	3^{+}[c]	5.24 keV *4*	J	
11191 *2*			G J	
11196.51 *6*		2 eV *1*	J	
11243.36 *6*	(2^{-})[c]	5.520 keV *20*	J	
11274.13 *5*	(2)$^{+}$[c]	0.590 keV *20*	J	
11280.03 *5*	4$^{(-)}$[c]	1.730 keV *20*	J	
11285.52 *7*	1^{-}[c]	1.41 keV *6*	J	
11286.24 *5*	(2^{+})[c]	0.7 eV *7*	J	
11289.06 *4*	(2^{-})[c]	2 eV *1*	J	
11293.28 *5*		0.230 eV *20*	J	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

E(level)[†]	J^π	$T_{1/2}$[d]	XREF	Comments
11296.04 *9*	(2^-)	12.40 keV *10*	J	J^π: Spin assignment based on χ^2 in 2012Ma14 ((n,γ),(n,n):res).
11310.57 *4*	(1^-)[c]	0.4 eV *2*	J q	
11326.15 *6*	(1^-)	0.3 eV *2*	J q	
11328.20 *7*	(1^-)[c]	50 eV *20*	J	
11329.11 *4*			FG J	E(level): From (n,γ),(n,n):res.
11336.88 *5*	(1^-)[c]	0.1 eV *1*	J	
11344.77 *7*	$4^{(-)}$[c]	3.49 keV *6*	J	
11361.84 *23*	(2^+)[c]	3.29 keV *5*	J	
11392.57 *5*	(5^+)[c]	240 eV *10*	J	
11441.08 *6*	4^+[c]	2.020 keV *40*	J Q	
11457 *2*			FG	
11465.62 *8*	(5^-)[c]	8.91 keV *8*	J Q	XREF: Q(11461).
11500.09 *5*	(1^-)[c]	25 eV *10*	J Q	
11526.82 *10*	(3^-)[c]	3.00 keV *10*	J Q	
11570 *2*			G	
11587.99 *7*	(2^-)[c]	1.80 keV *10*	J	
11608.29 *6*	(4^-)[c]	0.84 keV *4*	J	
11611 *5*			f Q	
11630 *2*			Q	
11646 *5*		<3 keV	f Q	
11749 *10*			Q	
11795 *10*		<3 keV	Q	
11827 *2*		<3 keV	F Q	
11890 *2*		<3 keV	Q	
11909 *2*		6 keV *1*	Q	
11945 *10*	(6^-)[&]		L P	E(level): From (α,^{3}He).
12049 *2*		6 keV *2*	Q	
12088 *2*			G	
12110 *2*		25 keV *2*	Q	
12141 *2*		15 keV *2*	Q	
12196 *2*			G	
12345 *2*	0	40 keV *5*	Q	
12479[‡] *2*	(6^-)[&]		G L P	XREF: L(12512).
12865 *10*	(6^-)[&]		L P	E(level): From (α,^{3}He).
12958 *10*			L	
13958 *10*			L	
14542 *10*	(6^-)[&]		L P	E(level): From (α,^{3}He).
16580 *10*	(6^-)[&]		L P	E(level): From (α,^{3}He).
18050 *50*	(6^-)[&]		P	T=2

[†] From a least-squares fit to γ-ray energies, except otherwise noted. γ rays without uncertainty were calculated after the fit. Source of excited level energies for particle data sets are noted. During least-squares fit, the uncertainty for 1384.70γ from 5716 keV level 958.81γ from 4901 keV level were doubled to obtain the χ^2 value below normalized χ^2=1.33. Yet 892.85γ from 4835, 569.67γ from 4901, 2776.82γ from 5716, and 1223.35γ from 6125 yield poor fit including aforementioned γ rays.

[‡] From 1986Gl06 (α,pγ).

[#] From 1976Mo27 – (p,p′),(p,p′γ).

[@] Weighted average of data from (1976Mo27 – (p,p′)) and (1986Gl06 – (α,pγ)).

[&] From 1989Se01 (pol p,p′), based on measured angular distributions and analyzing power.

[a] Assignment in 2012Ma14 (n,γ),(n,n):res, based on R-matrix analysis.

[b] From (e,e′), based on form factors, γ decay and shell model calculations.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{26}Mg Levels (continued)

[c] Assignment in 2012Ma14 (n,γ),(n,n):res, based on R-matrix analysis.
[d] From 1986Gl06 (α,pγ), except otherwise noted.
[e] Deduced by evaluators from Γ_0 in 1984Be26 – (γ,γ').

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
1808.74	2^+	1808.68 *4*	100	0.0	0^+	E2		B(E2)(W.u.)=13.4 *6*
2938.33	2^+	1129.61 *4*	100.0 *6*	1808.74	2^+	M1+E2	−0.12 *2*	B(M1)(W.u.)=0.096 *6*; B(E2)(W.u.)=6.1 *21* δ: From 1963Br15 − (p,p′γ). Other values: −0.16 *4* (1975Wa10 − (α,$\alpha'\gamma$)), −0.11 *6* (1977Ki02 − (p,p′γ)), −0.09 *5* (1969Ca18 − (α,α')).
		2938.15 *5*	10.7 *6*	0.0	0^+	E2		B(E2)(W.u.)=0.39 *4*
3082.9		1274.1[#] *20*	100	1808.74	2^+			
3420.2		1611.4[#] *17*	100	1808.74	2^+	D+Q[#]		
3564.9		1756.1[#] *19*	100	1808.74	2^+			
3588.56	0^+	1779.74 *8*	100	1808.74	2^+	E2		B(E2)(W.u.)=1.07 *8*
3941.57	3^+	1003.25 *4*	100.0 *16*	2938.33	2^+	M1+E2	−0.05 *4*	B(M1)(W.u.)=0.0162 *24*; B(E2)(W.u.)=0.23 *+37−22* δ: Weighted average of −0.06 *6* (1968FeZY), −0.04 *5* (1974Na22), and −0.05 *10* (1975Wa06).
		2132.71 *4*	61.3 *16*	1808.74	2^+	M1		B(M1)(W.u.)=0.00104 *16*
4318.89	4^+	1380.88 *18*	1.85 *11*	2938.33	2^+			E_γ,I_γ: From ^{26}Na β^- decay (2005Gr07).
		2510.01 *5*	100 *2*	1808.74	2^+	[E2]		B(E2)(W.u.)=4.5 *3*
4332.52	2^+	1394.28 *7*	19.3 *10*	2938.33	2^+			
		2523.69 *6*	100.0 *13*	1808.74	2^+			
		4332.2 *3*	7.6 *8*	0.0	0^+	[E2]		B(E2)(W.u.)=0.24 *5*
4350.09	3^+	409.4[f] *5*	0.041[f] *25*	3941.57	3^+			E_γ,I_γ: More precise 409.22γ *20* in ^{26}Na β^- decay (2005Gr07) yield poor fit. Branching from ^{26}Na β^- decay (2005Gr07).
		1411.72 *4*	93 *4*	2938.33	2^+	M1+E2	−0.31 *6*	B(M1)(W.u.)=0.033 *9*; B(E2)(W.u.)=9 *4* δ: From 1974Na22. Other value: −0.31 *16* (1975Wa10).
		2541.18 *6*	100 *4*	1808.74	2^+	M1+E2	−0.10 *4*	B(M1)(W.u.)=0.0066 *18*; B(E2)(W.u.)=0.06 *5* δ: Weighted average of −0.11 *6* (1968FeZY), −0.09 *6* (1974Na22).
4644.9		2836.0[#] *13*	100	1808.74	2^+	D+Q[#]		
4835.13	2^+	485.05[@] *9*	2.77[@] *5*	4350.09	3^+			
		502.73[@] *9*	2.65[@] *4*	4332.52	2^+			I_γ: 2.1 *4* in (n,γ).
		892.85[@] *19*	0.26[@] *4*	3941.57	3^+			
		1896.72 *5*	100.0[@] *4*	2938.33	2^+	M1		B(M1)(W.u.)=0.096 *21*
		3026.6[@] *5*	4.19[@] *15*	1808.74	2^+			I_γ: 4.8 *5* in (n,γ).
		4834.61 *18*	10.8[@] *9*	0.0	0^+	E2		B(E2)(W.u.)=0.15 *4* I_γ: 13.1 *12* in (n,γ).
4901.44	4^+	551.28[@] *13*	1.61[@] *14*	4350.09	3^+			
		569.67[@] *25*	0.67[@] *11*	4332.52	2^+			
		582.46[@] *21*	0.88[@] *18*	4318.89	4^+			
		958.81[@] *12*	3.9[@] *5*	3941.57	3^+			
		1962.99[@] *24*	1.89[@] *14*	2938.33	2^+	[E2]		B(E2)(W.u.)=2.5 *6*

$^{26}_{12}Mg_{14}$-9

Adopted Levels, Gammas (continued)

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
4901.44	4^+	3092.31 *11*	100 *1*	1808.74	2^+	[E2]		B(E2)(W.u.)=14 *3*
4972.30	0^+	2033.88 *12*	100 *4*	2938.33	2^+	E2		B(E2)(W.u.)=7.4 *13*
		3163.35	8[b] *4*	1808.74	2^+	E2		B(E2)(W.u.)=0.06 *4*
5180.5		1238.9[#] *7*	100	3941.57	3^+			
5291.74	2^+	456.0[@] *4*	1.9[@] *7*	4835.13	2^+			
		1350.20 *16*	3.4 *7*	3941.57	3^+	[M1]		B(M1)(W.u.)>0.026
		2353.27 *5*	100.0 *14*	2938.33	2^+			
		3482.2 *5*	6.6 *9*	1808.74	2^+			E_γ: Weighted average of data from (n,γ) and ^{26}Na β^- decay (2005Gr07).
		5291.1 *5*	3.9 *7*	0.0	0^+	E2		B(E2)(W.u.)>0.10
5476.05	4^+	640.5[@] *3*	19[@] *6*	4835.13	2^+			
		1157.23 *6*	100 *4*	4318.89	4^+	M1+E2	+0.09 *7*	B(M1)(W.u.)=0.34 *10*; B(E2)(W.u.)=12 *+19−11* δ: From 1975Wa10. Other: +0.05 *19* (1974Na22).
		1534.49 *15*	51 *4*	3941.57	3^+	M1+E2	−0.27 *4*	B(M1)(W.u.)=0.071 *22*; B(E2)(W.u.)=12 *5* δ: From 1974Na22. Other: −0.27 *15* (1975Wa10).
		3667.4 *5*	25 *2*	1808.74	2^+	[E2]		B(E2)(W.u.)=1.1 *4* E_γ: Weighted average of data from (n,γ) and ^{26}Na β^- decay (2005Gr07).
5691.08	(1^+)	1358.4 *9*	6 *2*	4332.52	2^+			
		2752.56 *25*	46 *3*	2938.33	2^+			
		3882.0 *3*	100 *5*	1808.74	2^+			
		5691.1 *9*	11 *3*	0.0	0^+	D		
5711.2	$(1^+,2^+)$	2122.5[#] *8*	100	3588.56	0^+			
5715.91	4^+	240.12[@] *11*	2.16[@] *17*	5476.05	4^+			
		424.3[@] *3*	0.38[@] *9*	5291.74	2^+			
		1365.54 *20*	95.1[@] *4*	4350.09	3^+	M1+E2	−0.17 *3*	B(M1)(W.u.)=0.036 *10*; B(E2)(W.u.)=3.1 *14* δ: Weighted average of −0.18 *3* (1974Na22), −0.05 *12* (1975Wa10).
		1384.70[@] *16*	4.41[@] *17*	4332.52	2^+			
		1774.0 *9*	100 *5*	3941.57	3^+	M1+E2	−0.12 *4*	B(M1)(W.u.)=0.017 *5*; B(E2)(W.u.)=0.4 *2* δ: From 1974Na22.
		2776.82 *20*	51.4[@] *14*	2938.33	2^+	[E2]		B(E2)(W.u.)=1.7 *5*
		3906.8[@] *7*	3.35[@] *22*	1808.74	2^+			
6125.47	3^+	409.4[f] *5*	0.10[f] *5*	5715.91	4^+			E_γ,I_γ: More precise 409.22γ *20* in ^{26}Na β^- decay (2005Gr07) yield poor fit. Branching from ^{26}Na β^- decay (2005Gr07).
		833.47 *21*	3.4 *4*	5291.74	2^+			E_γ: Unweighted average of data from (n,γ) and ^{26}Na β^- decay (2005Gr07).
		1223.35[@] *15*	1.3 *3*	4901.44	4^+			
		1290.40 *7*	5.2 *4*	4835.13	2^+			
		1775.31 *5*	100.0 *14*	4350.09	3^+	[M1]		B(M1)(W.u.)=0.20 *9*
		1792.87 *12*	6.5 *6*	4332.52	2^+			
		2183.83 *6*	13.7 *7*	3941.57	3^+			

$^{26}_{12}Mg_{14}$-10

$\gamma(^{26}\mathrm{Mg})$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
6125.47	3^+	3187.14 28	5.8 6	2938.33	2^+			
		4316.39 24	4.8 6	1808.74	2^+			
6256.2	0^+	565.1[#] 13	8 4	5691.08	(1^+)	D		
		4447.1	100 4	1808.74	2^+	E2		B(E2)(W.u.)=1.2 8
6483.2		1302.7[#] 13		5180.5				
6622.94	(4^+)	1146.9[‡]	19[b] 2	5476.05	4^+	[M1]		B(M1)(W.u.)=0.063 18
		1721.39[@] 20	100[@] 4	4901.44	4^+	M1(+E2)	−0.26[e] +60−10	B(M1)(W.u.)=0.09 4; B(E2)(W.u.)=12 +52−8
		2272.7[@] 3	43.8[@] 18	4350.09	3^+			
		2290.2[@] 3	26.2[@] 14	4332.52	2^+	[E2]		B(E2)(W.u.)=12 4
		2304.2[@] 3	37.6[@] 18	4318.89	4^+			I_γ: Other: 23 4 (α,pγ).
		4813.7[@] 10	3.8[@] 5	1808.74	2^+			
6634.2		3695.63 25	100 1	2938.33	2^+			
		4825.0[‡]	6[b] 1	1808.74	2^+			
6745.13	2^+	1453.16[@] 17	24[@] 4	5291.74	2^+			
		3807.0 5	100[@] 6	2938.33	2^+			E_γ: Weighted average of data from (n,γ) and ^{26}Na β^- decay (2005Gr07). I_γ: Other: 59 6 (n,γ).
		4936.3 3	99[@] 8	1808.74	2^+			
		6743.9[@] 21	1.9[@] 5	0.0	0^+			
6876.42	3^-	2041.44 16	4.7 6	4835.13	2^+			
		2543.7 4	6.1 9	4332.52	2^+			
		2557.2 3	4.4 4	4318.89	4^+			
		2934.8 6	4.2 9	3941.57	3^+	[E1]		B(E1)(W.u.)=1.1×10^{-5} 5
		3937.80 11	26.2 12	2938.33	2^+			
		5067.13 4	100.0 19	1808.74	2^+			
6951.7		1771.1[#] 14	100	5180.5				
6971.8	(4^+)	3030.0[#] 20	100	3941.57	3^+	D+Q[#]		
6978.3	(5^+)	1263.7[#] 21	8 2	5715.91	4^+			
		1501.8[#] 10	100 8	5476.05	4^+	M1+E2	−0.21[e] 5	B(M1)(W.u.)=0.22 9; B(E2)(W.u.)=24 15
		2076.8	22 4	4901.44	4^+	M1+E2	−1.0[e] 6	B(M1)(W.u.)=0.010 7; B(E2)(W.u.)=13 9
		2628.1	9 2	4350.09	3^+	[E2]		B(E2)(W.u.)=3.2 14
		2660.0[#] 20	34 4	4318.89	4^+	M1+E2	−0.4[e] 2	B(M1)(W.u.)=0.012 5; B(E2)(W.u.)=1.5 12
		3036.5	28 4	3941.57	3^+	E2		B(E2)(W.u.)=4.8 19
7061.90	1^-	3472.9 3	94 8	3588.56	0^+	[E1]		B(E1)(W.u.)>0.00089
		4122.9 6	28 6	2938.33	2^+			
		5252.9 3	56 8	1808.74	2^+	[E1]		B(E1)(W.u.)>0.00015
		7060.6 7	100 14	0.0	0^+			

$^{26}_{12}\mathrm{Mg}_{14}$-11

Adopted Levels, Gammas (continued)

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
7099.68	2^+	2264.25 *21*	40 *6*	4835.13	2^+			
		3158.4 *6*	18 *4*	3941.57	3^+			
		4160.96 *20*	100 *10*	2938.33	2^+			
		5290.3 *5*	32 *4*	1808.74	2^+			
		7098.9 *5*	10 *4*	0.0	0^+			I_γ: Other: 26 *4* – ^{26}Na β^- decay (2005Gr07).
7246.49	3^+	1953.6[@] *7*	11[@] *5*	5291.74	2^+			
		2411.5[@] *3*	100[@] *4*	4835.13	2^+			I_γ: Other: 40 *8* (α,pγ).
		2896.4[@] *4*	97[@] *5*	4350.09	3^+			
		2913.7[@] *4*	59[@] *4*	4332.52	2^+			I_γ: Other: 100 *16* (α,pγ).
		2927.2[@] *5*	22[@] *3*	4318.89	4^+			I_γ: Other: 76 *16* (α,pγ).
		3304.6[@] *5*	51[@] *3*	3941.57	3^+			I_γ: Other: 96 *16* (α,pγ).
		4308.1[@] *8*	42[@] *3*	2938.33	2^+			
		5436.1[@] *13*	3.6[@] *7*	1808.74	2^+			
7261.40		2426.09 *6*	25.1 *8*	4835.13	2^+			
		2911.12 *19*	8.0 *6*	4350.09	3^+			
		2928.56 *17*	9.4 *6*	4332.52	2^+			
		3319.66 *5*	47.4 *18*	3941.57	3^+			
		4322.68 *8*	15.2 *8*	2938.33	2^+			
		5452.03 *4*	100.0 *25*	1808.74	2^+			
7282.82	(4^-)	1567.06 *11*	9.2 *8*	5715.91	4^+			
		2381.28 *15*	10.2 *10*	4901.44	4^+			
		2932.5 *4*	18.2 *20*	4350.09	3^+			
		2963.61 *9*	62 *4*	4318.89	4^+	(E1+M2)	+0.5 *4*	B(E1)(W.u.)=0.00031 *15*; B(M2)(W.u.)=4.E+1 *+6−3*
		3341.01 *7*	100 *4*	3941.57	3^+	[E1]		B(E1)(W.u.)=0.00043 *15*
7348.86	3^-	1873.1 *5*	1.5 *4*	5476.05	4^+			
		2513.52 *8*	42 *3*	4835.13	2^+			
		3016.18 *23*	11.9 *12*	4332.52	2^+			
		3029.6 *8*	3.2 *4*	4318.89	4^+			
		4410.15 *5*	100 *4*	2938.33	2^+			
		5539.53 *15*	31.5 *19*	1808.74	2^+			
7371.36	2^+	1245.68[@] *24*	38[@] *5*	6125.47	3^+			
		2080.0[@] *6*	5.1[@] *16*	5291.74	2^+			
		3021.9 *4*	27 *4*	4350.09	3^+			E_γ: Weighted average of data from (n,γ) and ^{26}Na β^- decay (2005Gr07).
		3039.1[@] *5*	6.3[@] *10*	4332.52	2^+			
		3428.7 *4*	100 *15*	3941.57	3^+			E_γ: Other: 3430.2 *5* (2005Gr07) – ^{26}Na β^- decay.
		5562.9 *9*	27 *4*	1808.74	2^+			
		7369.8 *7*	54 *15*	0.0	0^+			
7396.0	(5^+)	1680.0[#] *10*	100 *6*	5715.91	4^+	(M1+E2)	−0.14 *2*	B(M1)(W.u.)>0.16; B(E2)(W.u.)>4.6

$^{26}_{12}Mg_{14}$-12

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[c]	δ	Comments
7396.0	(5+)	2494.4	36 *4*	4901.44	4+			
		3045.7	26 *2*	4350.09	3+			
		3076.9	14 *4*	4318.89	4+			
		3454.2	24 *2*	3941.57	3+			
7541.71	(2−)	3191.2 *6*	8.7 *11*	4350.09	3+			
		3208.98 *8*	100 *4*	4332.52	2+			
		3599.86 *14*	38 *3*	3941.57	3+			
		4602.93 *7*	84 *4*	2938.33	2+			
		5732.37 *15*	39 *3*	1808.74	2+			
7677	(4+)	1551.5	35 *4*	6125.47	3+			
		1961.0	100 *8*	5715.91	4+			
		2775.4	44 *6*	4901.44	4+			
		3357.9	29 *4*	4318.89	4+			
7696.8	1(−)	4757.6[&]	37[&] *13*	2938.33	2+			
		5887.9[&]	17[&] *5*	1808.74	2+			
		7695.6 *8*	100[&] *31*	0.0	0+			
7725.8	3+	3406.9[@] *5*	100 *4*	4318.89	4+			
		3783.7[@] *7*	19 *4*	3941.57	3+			I_γ: Other: 50 *7* – (2005Gr07) – ^{26}Na β^- decay.
		5915.5[@] *16*	20[@] *4*	1808.74	2+			
7773.7	(4+)	2297.5	30 *8*	5476.05	4+			
		2938.4	30 *8*	4835.13	2+			
		3454.7[@] *9*	20 *6*	4318.89	4+			
		3831.7[@] *7*	100 *14*	3941.57	3+			
		4834.9	20 *6*	2938.33	2+			
7817.8	(2,3)+	3485.0[@] *7*	100[@] *15*	4332.52	2+			
		6008.7[@] *16*	67[@] *9*	1808.74	2+			
7824	3−	3882	100 *13*	3941.57	3+			
		4885	100 *13*	2938.33	2+			
		6015	50 *10*	1808.74	2+			
7840	2+	3521	47 *10*	4318.89	4+			
		4251	100 *12*	3588.56	0+	E2		
		4901	63 *12*	2938.33	2+			
		6030.5	23 *7*	1808.74	2+			
7950.0	5−	2234.0[#] *20*	47 *5*	5715.91	4+	E1+M2	−0.19 *15*	B(E1)(W.u.)=0.0015 *7*; B(M2)(W.u.)=5.E+1 *+8−4*
		3633.8[#] *10*	100 *5*	4318.89	4+	E1+M2	+0.13 *11*	B(E1)(W.u.)=0.0008 *4*; B(M2)(W.u.)=5 *+8−4*
8034		5095	100	2938.33	2+			
8052.4	2(+)	6242.9 *7*	100	1808.74	2+			
8184.93	3−	5245.9 *3*	28 *4*	2938.33	2+			

$^{26}_{12}Mg_{14}$-13

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[a]	E_f	J^{π}_f	Mult.[c]	δ	Comments
8184.93	3^-	6375.38 *16*	100 *4*	1808.74	2^+			
8201.1	(6^+)	1223.0 *14*	44 *4*	6978.3	(5^+)	D[e]		
		3299.5 *10*	78 *7*	4901.44	4^+			
		3881.8 *10*	100 *9*	4318.89	4^+			
8227.31	1^-	6417.9 *3*	85 *6*	1808.74	2^+			
		8225.6 *4*	100 *6*	0.0	0^+			
8250.58	(3^+)	5311.66 *16*	100 *6*	2938.33	2^+			
		6441.1 *8*	3.9 *8*	1808.74	2^+			
8458.9	3^+	4139.7 *5*	55 *8*	4318.89	4^+			
		6649.1 *7*	100 *6*	1808.74	2^+			
8464		4144.8	100	4318.89	4^+			
8472.3	(6^+)	1494.0[#] *14*	38 *5*	6978.3	(5^+)	D+Q[e]	−0.32[e] *10*	
		3570.6	100 *6*	4901.44	4^+			
		4153.1	21 *3*	4318.89	4^+			
8503.7	1^-	6694.0 *7*	39 *6*	1808.74	2^+			
		8502.2 *3*	100 *6*	0.0	0^+			
8532.1	(2^+)	4181.9 *7*	66 *11*	4350.09	3^+			
		5593.2 *4*	100 *13*	2938.33	2^+			
		6722.1 *7*	47 *9*	1808.74	2^+			
8625	5^-	2002	100 *4*	6622.94	(4^+)	E1+M2	+0.03[e] *1*	B(E1)(W.u.)=0.0028 *6*; B(M2)(W.u.)=2.9 *21*
		4305.7	18 *4*	4318.89	4^+	E1[d]		B(E1)(W.u.)=5.1×10^{-5} *16*
8670	(3,5)	3193.7	54 *8*	5476.05	4^+	D+Q	<+0.5	δ: also, >−0.5. Measured values: +0.35 *15* (for J=3); −0.13 *+7−26* (for J=5).
		4350.7	100 *8*	4318.89	4^+	D+Q	<+0.13	δ: also, >−0.13. Measured values: +0.03 *+3−9* (for J=3); +0.09 *+4−9* (for J=5).
8705.6	$(2\text{ to }4)^+$	3229.3	29[b] *7*	5476.05	4^+			
		4355.3 *6*	12 *3*	4350.09	3^+			E_{γ},I_{γ}: γ-ray energy from (n,γ). Branching normalized to Iγ of 5766γ in 1992Wa06 and (α,pγ).
		4386.3	100[b] *11*	4318.89	4^+			
		4763.6	64[b] *9*	3941.57	3^+			
		5766.6 *3*	29[b] *7*	2938.33	2^+			
8863.8	2^+	5924.8 *4*	69 *8*	2938.33	2^+			
		7054.0 *6*	100 *8*	1808.74	2^+			
8903.52	(2^+)	1554.8 *4*	7.9 *14*	7348.86	3^-			
		1620.8 *3*	21 *2*	7282.82	(4^-)			
		1642.09 *25*	22 *2*	7261.40				
		3611.5 *4*	30 *3*	5291.74	2^+			
		4001.8 *3*	30 *3*	4901.44	4^+			
		4553.02 *13*	100 *7*	4350.09	3^+			
		4961.42 *22*	97 *7*	3941.57	3^+			

From ENSDF

$^{26}_{12}Mg_{14}$-14

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
8903.52	(2+)	5964.31 20	36 3	2938.33	2+			
8930		2307	50 11	6622.94	(4+)			
		3214	100 14	5715.91	4+			
		3453.7	75 14	5476.05	4+			
		4987.9	53 11	3941.57	3+			
8959.4	1−	7149.4[&]	64[&] 7	1808.74	2+			
		8957.7 5	100[&] 12	0.0	0+			
9020		4701	100	4318.89	4+			
9043.4	3(+)	6104.3 9	100	2938.33	2+			
9064	5+	1668	26 5	7396.0	(5+)	D+Q[e]	+0.6[e] 4	
		4162	26 5	4901.44	4+			
		4744.7	100 8	4318.89	4+	D[e]		
9111.2	6+	1715	16[b] 4	7396.0	(5+)	[M1]		B(M1)(W.u.)>0.032
		2488	16[b] 4	6622.94	(4+)	[E2]		B(E2)(W.u.)>9.4
		3635	100[b] 12	5476.05	4+	[E2]		B(E2)(W.u.)>8.8
		4209.4	32[b] 6	4901.44	4+	[E2]		B(E2)(W.u.)>1.4
		4792	36[b] 6	4318.89	4+	[E2]		B(E2)(W.u.)>0.80
9139.5	1	9137.8	100	0.0	0+			
9169	(6−)	1218.7[#] 23	100[b] 7	7950.0	5−	M1+E2[d]	−0.14[e] 6	B(M1)(W.u.)=0.25 8; B(E2)(W.u.)=18 17
		1773	39[b] 6	7396.0	(5+)	E1+M2[d]	+0.07[e] 5	B(E1)(W.u.)=0.0011 4; B(M2)(W.u.)=8 +12−7
		1886	24[b] 4	7282.82	(4−)	[E2]		B(E2)(W.u.)=26 10
		2190.6	22[b] 4	6978.3	(5+)	[E1]		B(E1)(W.u.)=0.00034 13
9206		4887	100	4318.89	4+			
9238.9	1(+)	5649.5[&]	23[&] 5	3588.56	0+			
		9237.1 8	100[&] 20	0.0	0+	M1		B(M1)(W.u.)=0.072 9
9261	(4+)	5319	100	3941.57	3+			
9291		7481	100	1808.74	2+			
9304		4985	100	4318.89	4+			
9316		4983	100	4332.52	2+			
9325.57	(2+ to 4+)	4424.2 8	27 4	4901.44	4+			
		4489.4 9	27 4	4835.13	2+			
		4975.3 9	32 5	4350.09	3+			
		4992.4 8	48 5	4332.52	2+			
		5383.8 7	16 3	3941.57	3+			
		6386.34 23	100 8	2938.33	2+			
9371	4+	5429	100	3941.57	3+			
9383	6+	1182	15[b] 3	8201.1	(6+)			
		2404.6	74[b] 10	6978.3	(5+)	D+Q[e]	−0.14[e] 6	

From ENSDF

$^{26}_{12}Mg_{14}$-15

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[c]	δ	Comments
9383	6^+	2759.9	38[b] *5*	6622.94	(4^+)	Q[e]		
		3666.8	100[b] *13*	5715.91	4^+	Q[e]		
		5063.6	28[b] *5*	4318.89	4^+			
9427.8	3^+	5077.4 *9*	23 *6*	4350.09	3^+			
		6488.6 *4*	100 *8*	2938.33	2^+			
		7617.8 *7*	33 *5*	1808.74	2^+			
9471	$(1\ \text{to}\ 5)^+$	5529	100	3941.57	3^+			
9540.3	5^+	2562	5.3[b] *16*	6978.3	(5^+)	D[e]		
		3824.0[#] *20*	23[b] *3*	5715.91	4^+			
		4638.4	34[b] *7*	4901.44	4^+			
		5221.0[#] *20*	100[b] *10*	4318.89	4^+	D+Q[e]	+0.06[e] *5*	
9563.5	1^+	7753.1[&]	49[&] *11*	1808.74	2^+			
		9561.6[&]	100[&] *21*	0.0	0^+	M1		
9574.06	$(2^-\ \text{to}\ 4)$	2290.8 *4*	14.0 *24*	7282.82	(4^-)			
		2697.7 *3*	24.4 *24*	6876.42	3^-			
		3448.8 *7*	20.7 *24*	6125.47	3^+			
		5223.37 *12*	100 *9*	4350.09	3^+			
		5632.3 *6*	14.6 *18*	3941.57	3^+			
9590		6651	100[b] *13*	2938.33	2^+			
		7780	67[b] *13*	1808.74	2^+			
9617.0	$(1\ \text{to}\ 3)^-$	7807.0 *9*	100	1808.74	2^+			
9681	$(0\ \text{to}\ 5)^+$	7871	100	1808.74	2^+			
9770.8	$1^{(-)}$	7961.1[&]	69[&] *14*	1808.74	2^+			
		9768.8[&]	100[&] *19*	0.0	0^+			
9771		4869	100[b] *16*	4901.44	4^+			
		5452	100[b] *16*	4318.89	4^+			
9814		5495	100	4318.89	4^+			
9829.5	$(5,7)^+$	1357.2	6.7[b] *11*	8472.3	(6^+)			
		1628.3[#] *12*	100.0[b] *22*	8201.1	(6^+)	M1(+E2)	<+0.24	B(M1)(W.u.)>0.084; B(E2)(W.u.)<18 δ: also, >−0.24. Measured values: +0.19 *+5−11* (for $J^\pi=5^+$); −0.03 *+1−4* (for $J^\pi=7^+$).
		2433.4	5.6[b] *11*	7396.0	(5^+)			
9856.8	2^+	5020.7 *8*	62 *10*	4835.13	2^+			
		5523.6 *7*	100 *12*	4332.52	2^+			
		5915.8 *9*	31 *10*	3941.57	3^+			
		9854.5 *7*	43 *10*	0.0	0^+			
9900.3	3^+	6961	100	2938.33	2^+			

$^{26}_{12}Mg_{14}$-16

Adopted Levels, Gammas (continued)

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f	Mult.[c]	δ	Comments
9927		5025	100	4901.44	4^+			
9939		5619	100	4318.89	4^+			
9967	2^+	5065	100[b] 9	4901.44	4^+			
		7028	67[b] 9	2938.33	2^+			
9982		6040	100	3941.57	3^+			
9989	(6^+)	1517	25[b] 4	8472.3	(6^+)	(M1+E2)[e]	−0.17[e] 10	B(M1)(W.u.)>0.15
		3011	100[b] 7	6978.3	(5^+)	(M1+E2)[e]	−0.09[e] 5	B(M1)(W.u.)>0.078
		5669.5	20[b] 4	4318.89	4^+	[E2]		B(E2)(W.u.)>0.42
10040	5^-	4323.7	100[b] 13	5715.91	4^+			
		5138.0	51[b] 9	4901.44	4^+			
		5720.4	71[b] 9	4318.89	4^+			
10069		5167	100	4901.44	4^+			
10102.5	1^-	7162.4 9	35 9	2938.33	2^+			
		10100.5 4	100 13	0.0	0^+			
10126.7	4^+	7187.4 8	52 9	2938.33	2^+			
		8316.4 8	100 13	1808.74	2^+			
10147.1	1^+	8337.9[&]	43[&] 3	1808.74	2^+			
		10145.0[&]	100[&] 9	0.0	0^+	M1		
10184		5282	100	4901.44	4^+			
10219.9		8409.7 9	100	1808.74	2^+			
10234		5332	100	4901.44	4^+			
10319.5	1^+	7378.4[&]	67[&] 19	2938.33	2^+			
		10317.3[&]	100[&] 22	0.0	0^+	M1		
10349.4	$(0^+$ to $4^+)$	8539.2 9	100	1808.74	2^+			
10362.26	$(2^+$ to $4^+)$	3261.8 4	62 5	7099.68	2^+			
		4886.3 5	46 8	5476.05	4^+			
		6011.2 5	49 8	4350.09	3^+			
		8552.2 3	100 10	1808.74	2^+			
10377		4661	100	5715.91	4^+			
10529		4813	100[b] 17	5715.91	4^+			
		6196	67[b] 17	4332.52	2^+			
10573.3	1^-	5600.4	100[&] 17	4972.30	0^+			
		10571.0	89[&] 19	0.0	0^+			
10576		2044	85[b] 8	8532.1	(2^+)			
		3597	100[b] 8	6978.3	(5^+)			
10600.1	$(1^+$ to $4^+)$	3500.6 9	0.06 2	7099.68	2^+			
		6249.7 9	31 8	4350.09	3^+			

$^{26}_{12}Mg_{14}$-17

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[a]	E_f	J_f^π	Mult.[c]
10600.1	(1+ to 4+)	6267.0 *6*	100 *17*	4332.52	2+	
		6657.3 *5*	86 *17*	3941.57	3+	
		7660.4 *9*	39 *6*	2938.33	2+	
10647.3	1+	3547.4	1.41[&] *14*	7099.68	2+	
		5355.0	1.84[&] *15*	5291.74	2+	
		5674.4	1.84[&] *15*	4972.30	0+	
		7707.7	7.3[&] *4*	2938.33	2+	
		8837.0	1.76[&] *21*	1808.74	2+	
		10645.0	100[&] *4*	0.0	0+	M1
10650	(4− to 7−)	1481	56[b] *8*	9169	(6−)	
		3254	100[b] *8*	7396.0	(5+)	
10693		3297	100	7396.0	(5+)	
10707		4991	100	5715.91	4+	
10767		6416	100[b] *9*	4350.09	3+	
		7827	45[b] *9*	2938.33	2+	
10805.9	(0+ to 4+)	8995.5 *4*	100[&] *12*	1808.74	2+	
		10803.3	28[&] *8*	0.0	0+	
10945		1562	16[b] *4*	9383	6+	
		1776	100[b] *9*	9169	(6−)	
		2320	48[b] *7*	8625	5−	
10949.1	1−	6615.6	18.9[&] *18*	4332.52	2+	
		7359.4	8.2[&] *13*	3588.56	0+	
		8009.4	23.7[&] *23*	2938.33	2+	
		9138.7	100[&] *6*	1808.74	2+	
		10946.6	24[&] *4*	0.0	0+	
11012		6110	61[b] *12*	4901.44	4+	
		6692	100[b] *12*	4318.89	4+	
11153.5	1+	6180.4	14[&] *4*	4972.30	0+	
		6820.0	11.2[&] *16*	4332.52	2+	
		7563.8	16[&] *4*	3588.56	0+	
		9343.0	4.2[&] *6*	1808.74	2+	
		11150.9	100[&] *12*	0.0	0+	
11191		3241	72[b] *14*	7950.0	5−	

$^{26}_{12}Mg_{14}$-18

Adopted Levels, Gammas (continued)

$\gamma(^{26}Mg)$ (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[a]	E_f	J^π_f
11191		5474	100[b] *14*	5715.91	4^+
11329.11		3933	100[b] *8*	7396.0	(5^+)
		4350	56[b] *8*	6978.3	(5^+)
11457		6555	100	4901.44	4^+
11570		3098	100[b] *15*	8472.3	(6^+)
		4174	82[b] *15*	7396.0	(5^+)
12088		4692	79[b] *15*	7396.0	(5^+)
		5109	100[b] *15*	6978.3	(5^+)
12196		3723	45[b] *8*	8472.3	(6^+)
		3995	100[b] *8*	8201.1	(6^+)
12479	(6^-)	2649	100[b] *10*	9829.5	$(5,7)^+$
		4278	64[b] *10*	8201.1	(6^+)

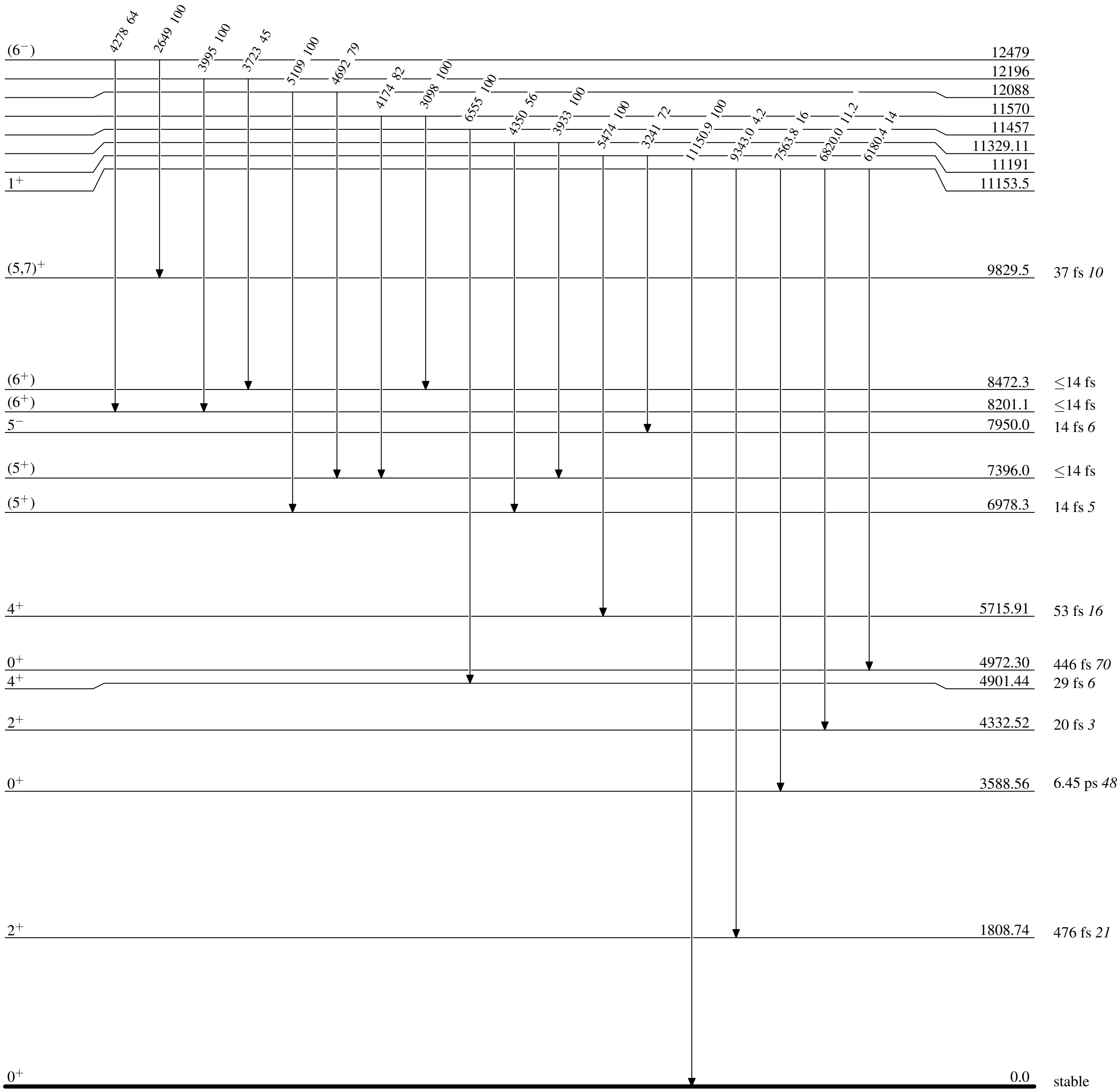
† From (n,γ), except otherwise noted.
‡ From level energy differences. Recoil energy subtracted.
# From $(^{13}C,\alpha n\gamma)$.
@ From ^{26}Na β^- decay (2005Gr07).
& From (pol γ,γ'),(γ,γ').
[a] Relative photon branching from each level.
[b] γ-ray branching from $(\alpha,p\gamma)$ 1986Gl06.
[c] Based on reported mixing ratio and RUL. Details are noted as comments.
[d] From $(\alpha,p\gamma)$ and recommended upper limits for γ-ray transition strengths.
[e] From $(\alpha,p\gamma)$ – 1986Gl06.
[f] Multiply placed with intensity suitably divided.

$^{26}_{12}Mg_{14}$-19

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

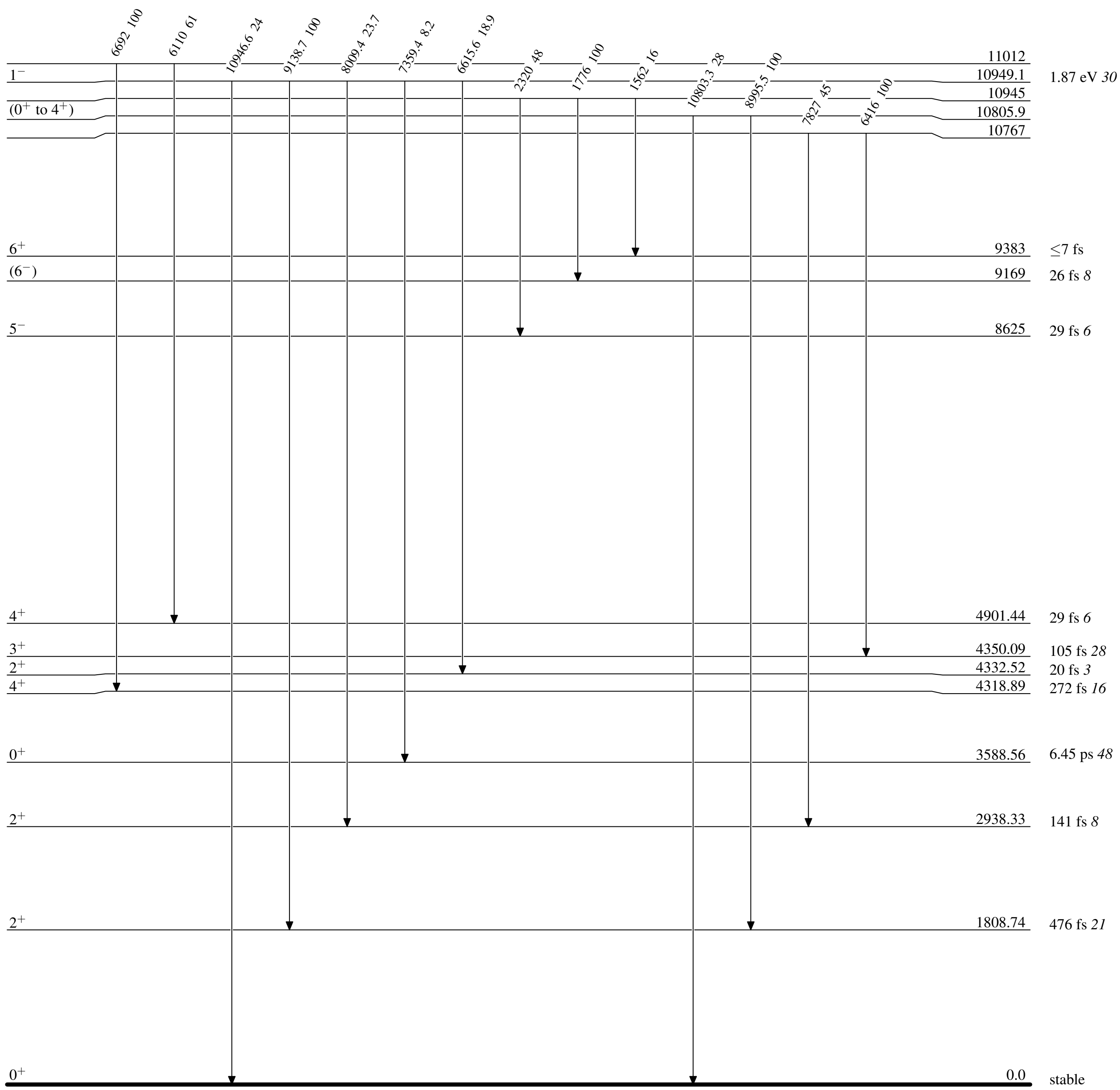


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

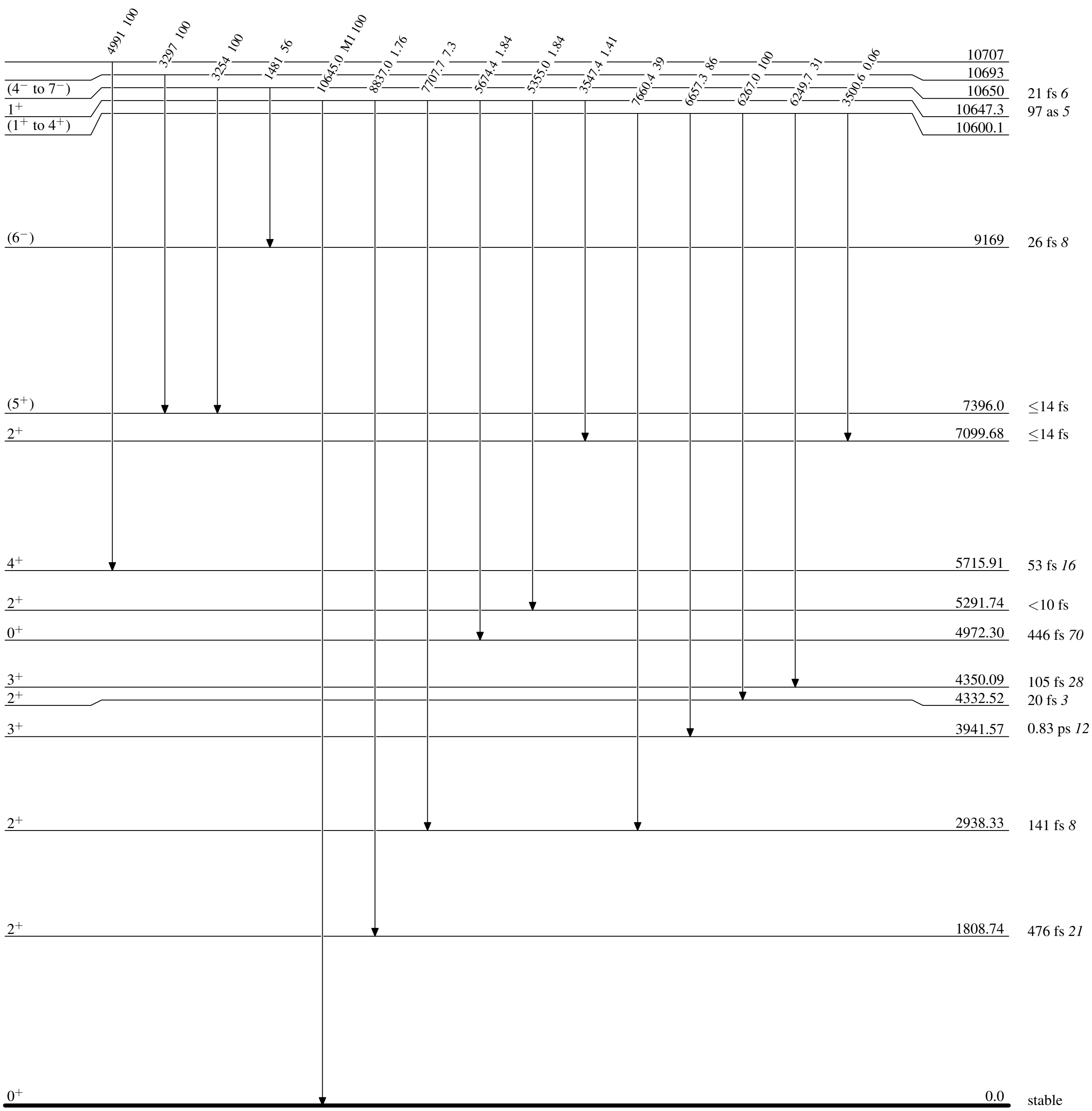


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

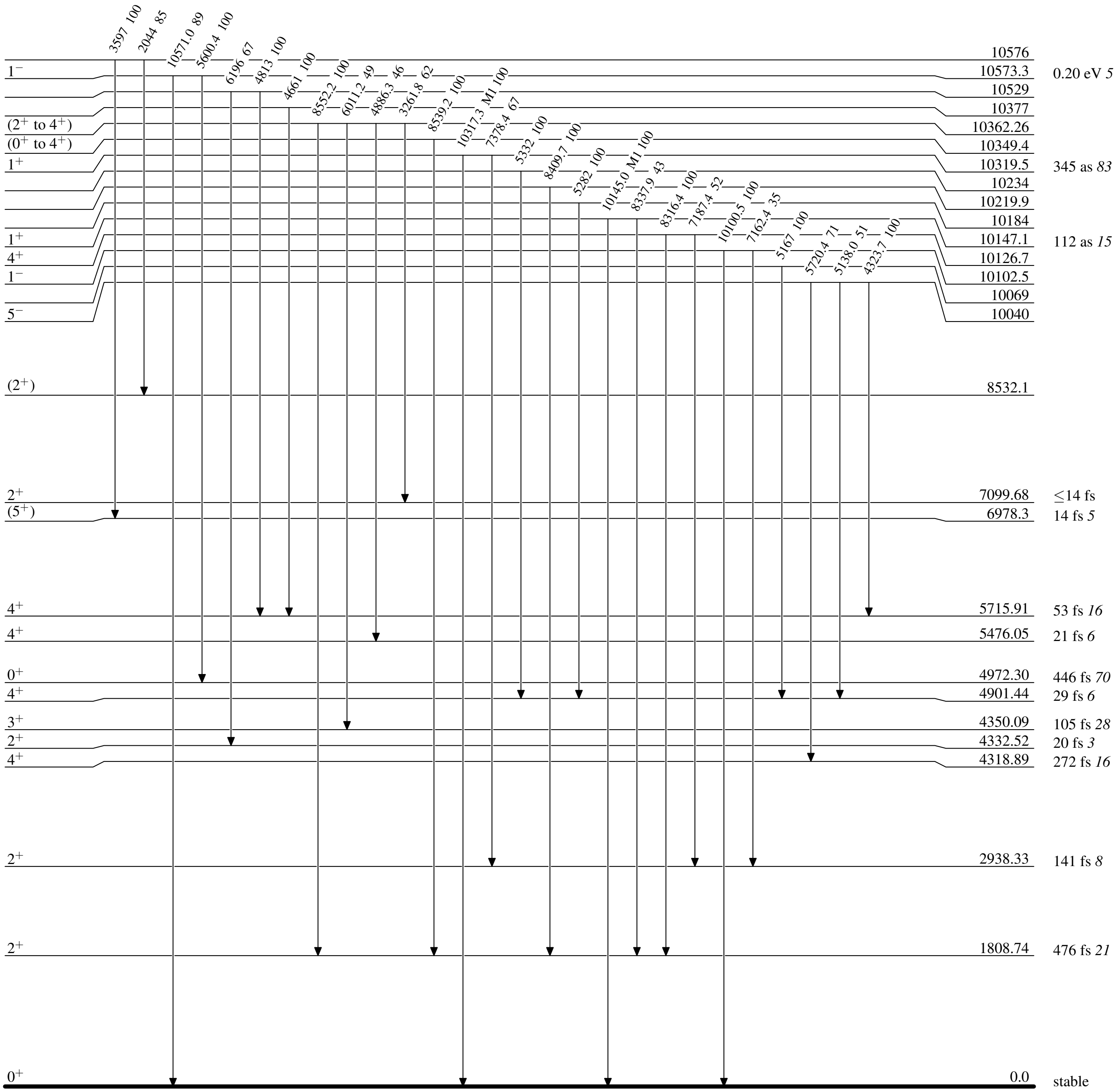


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

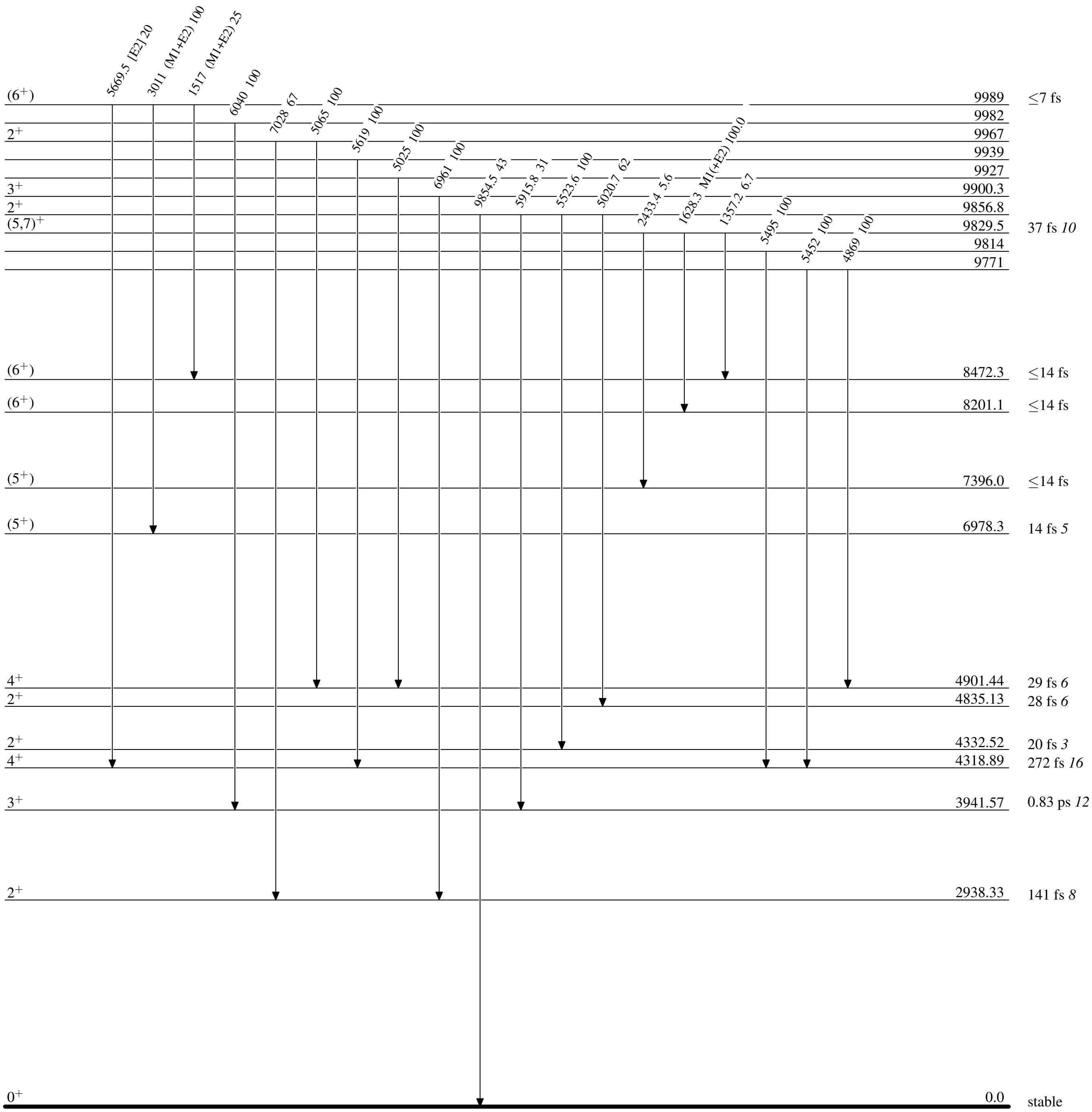


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

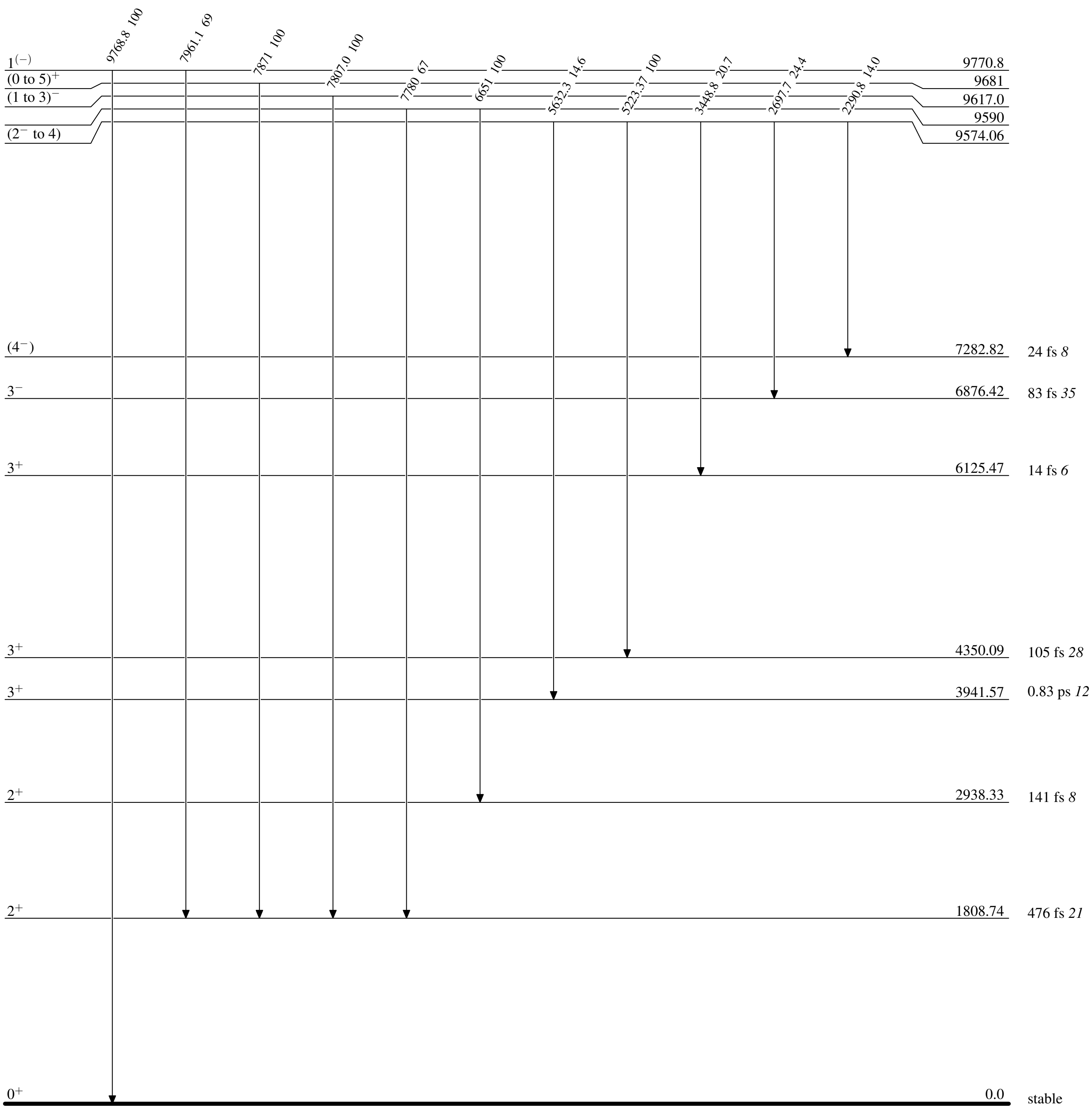


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

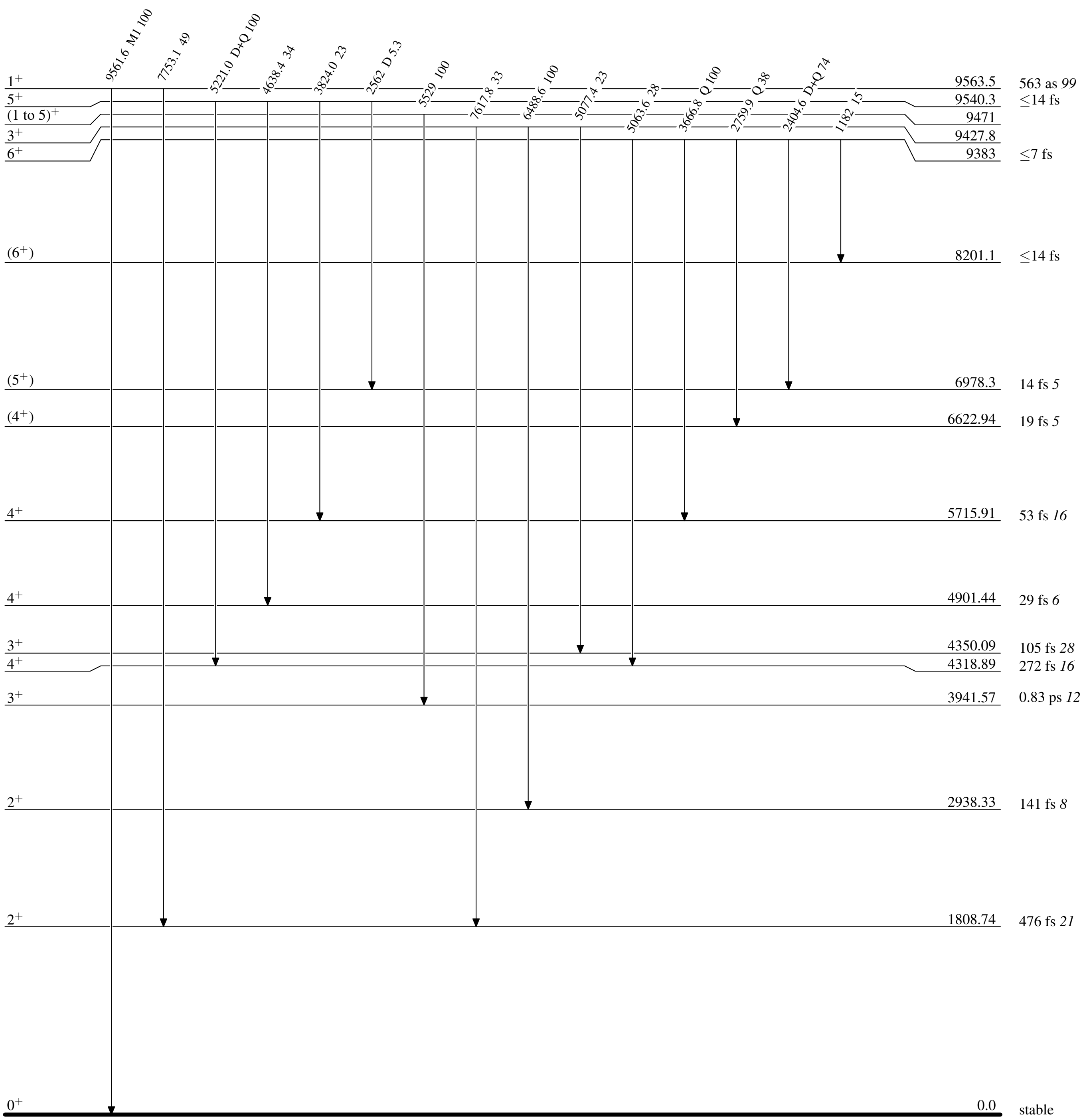


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

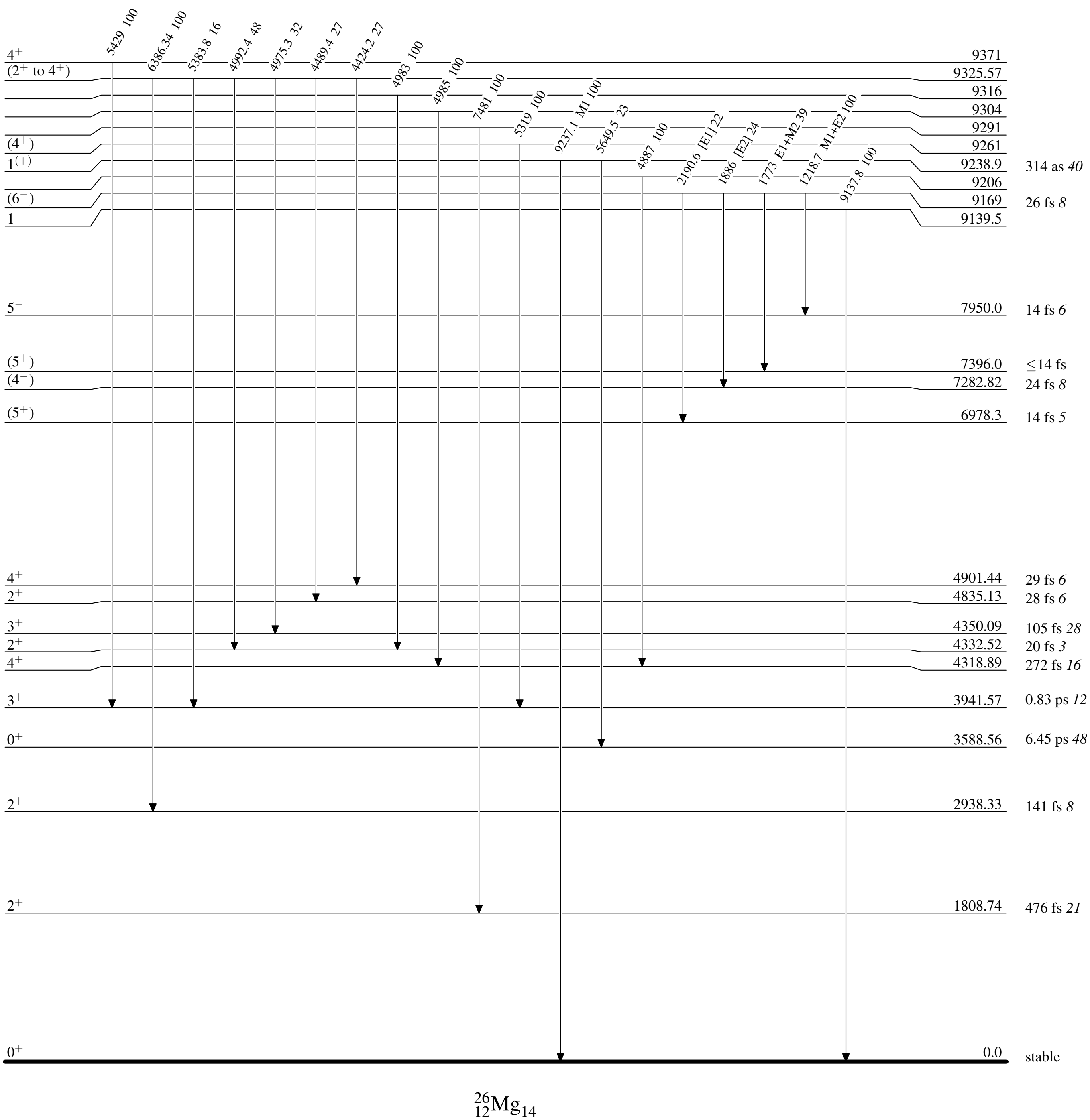


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

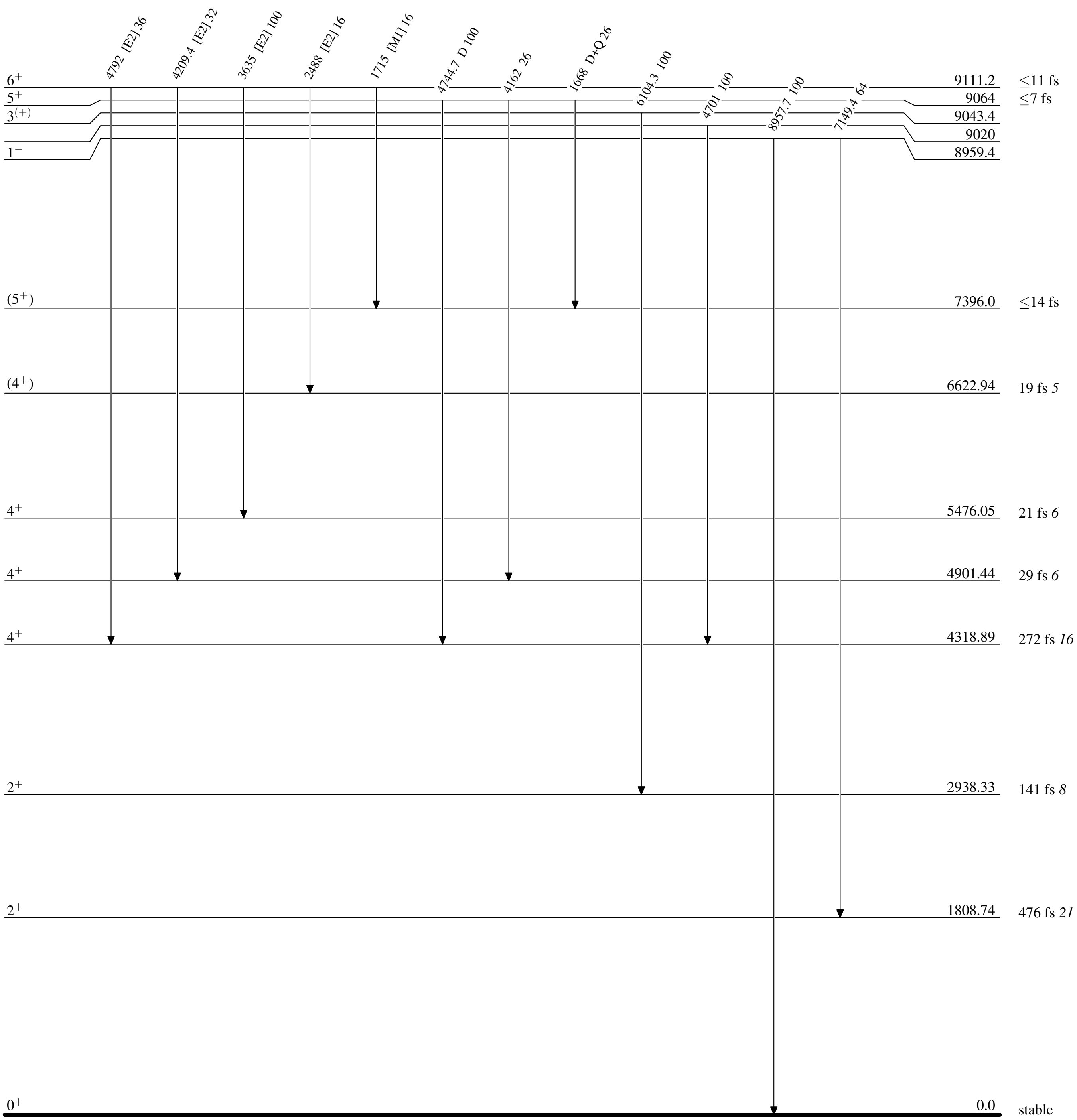
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

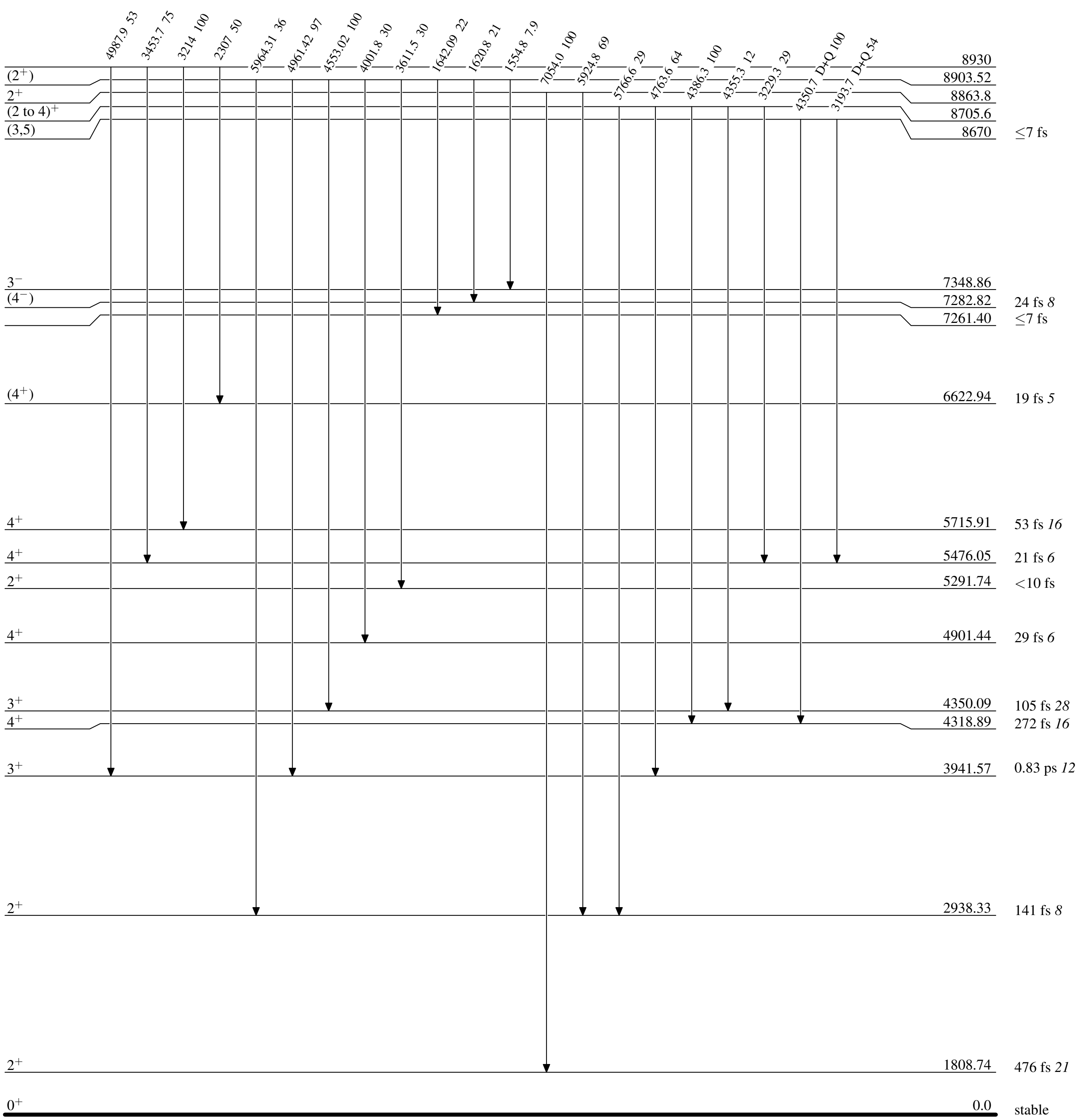
Intensities: Relative photon branching from each level



Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

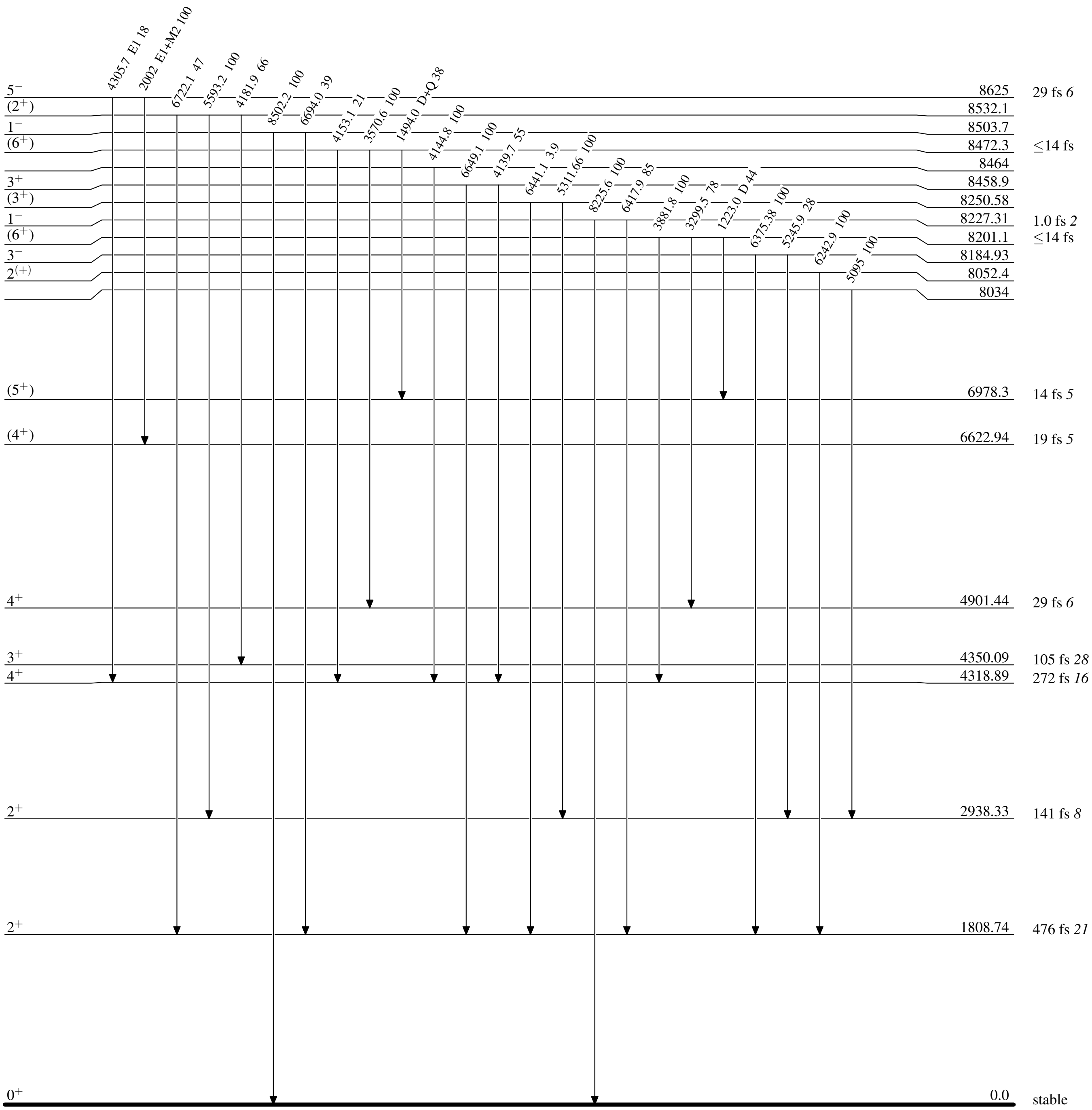


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

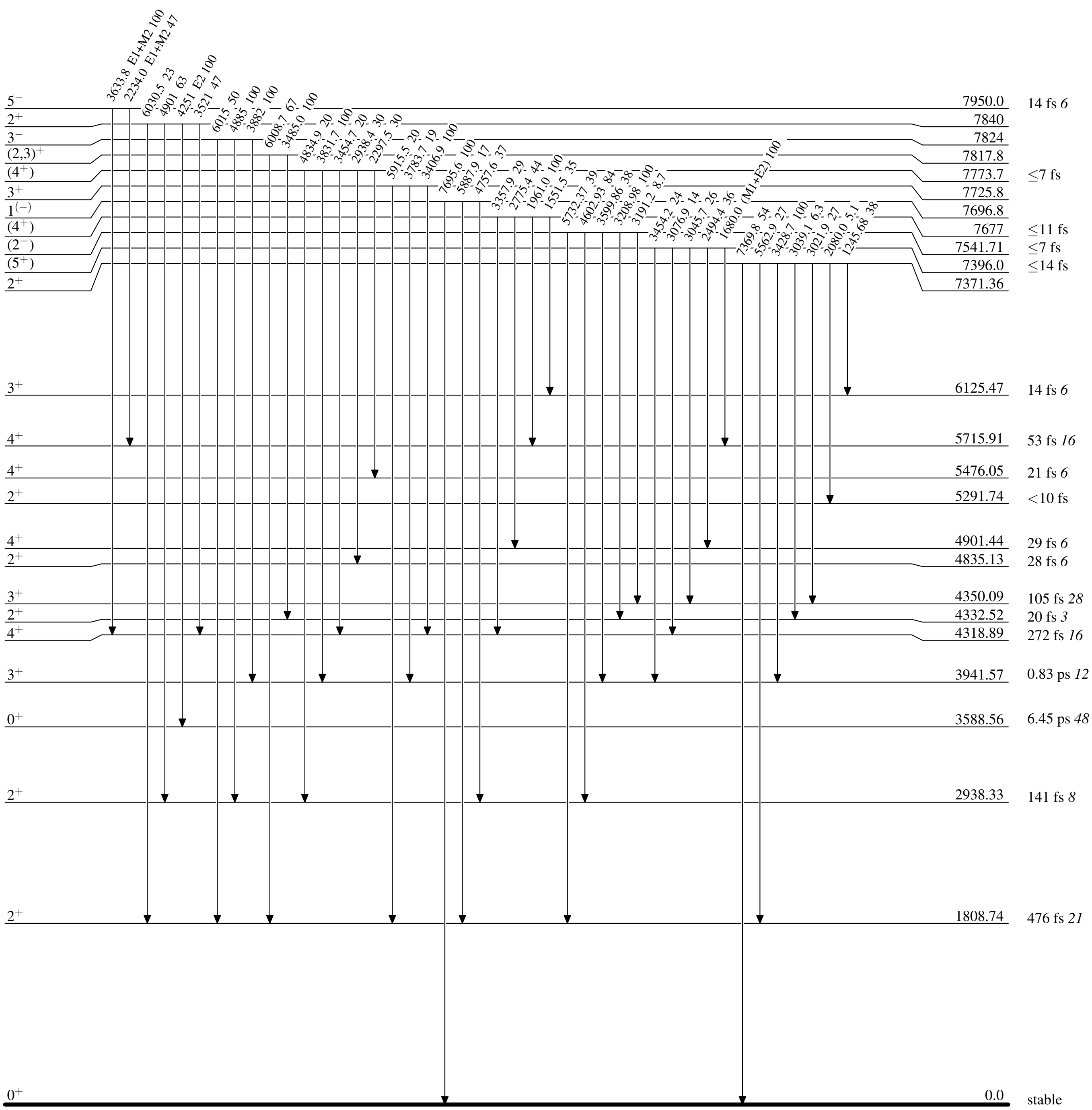


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

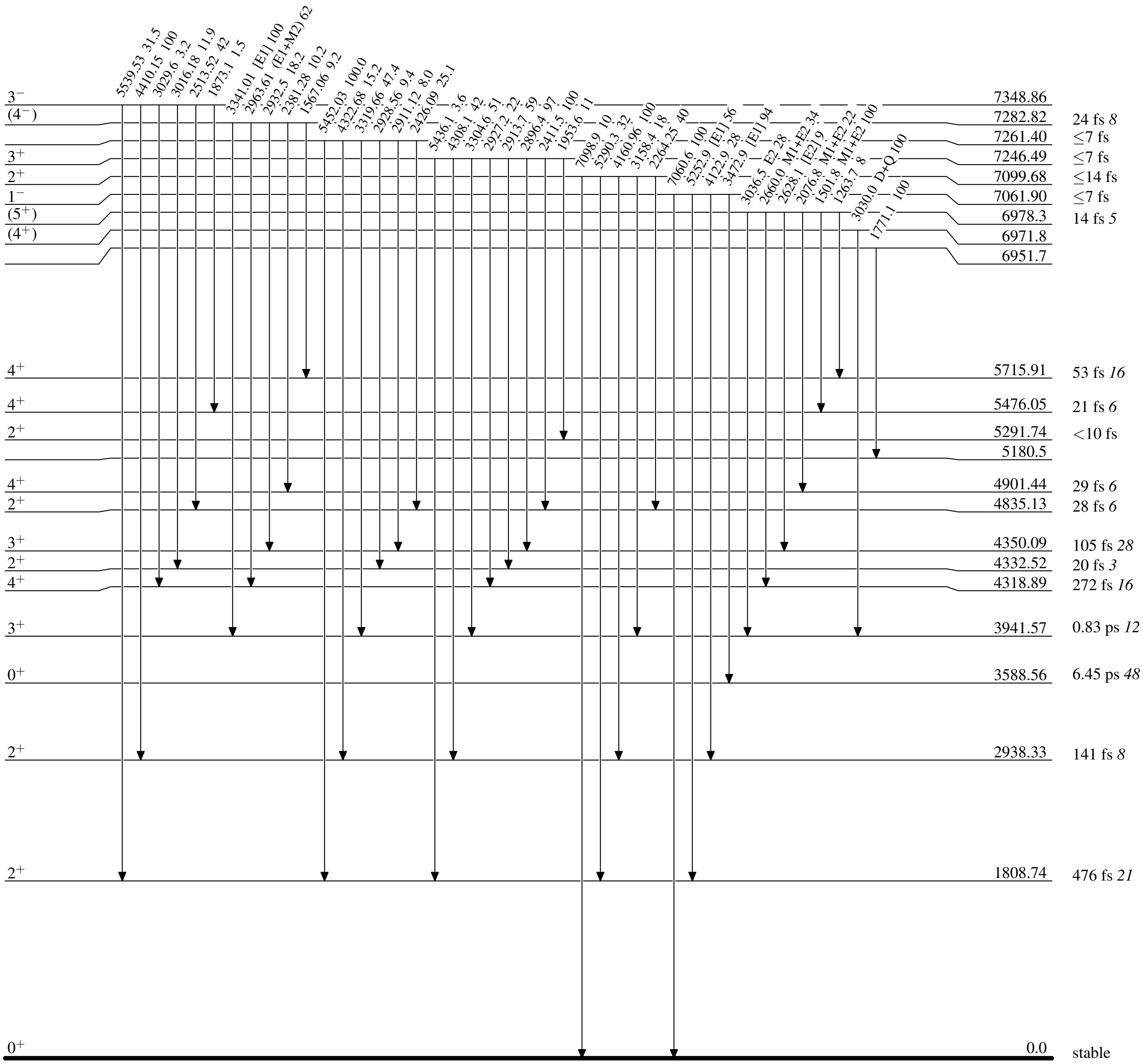


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

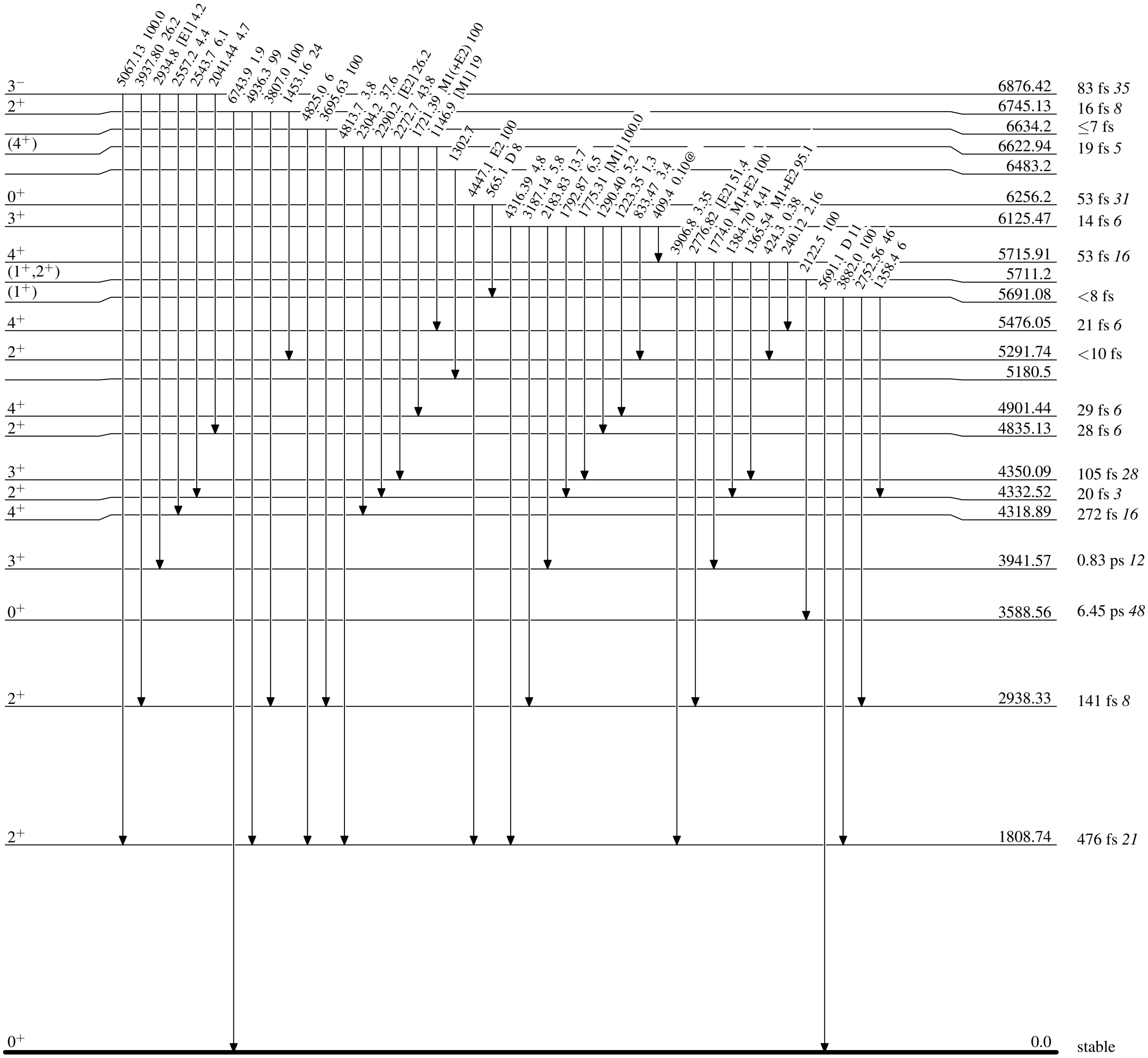


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided

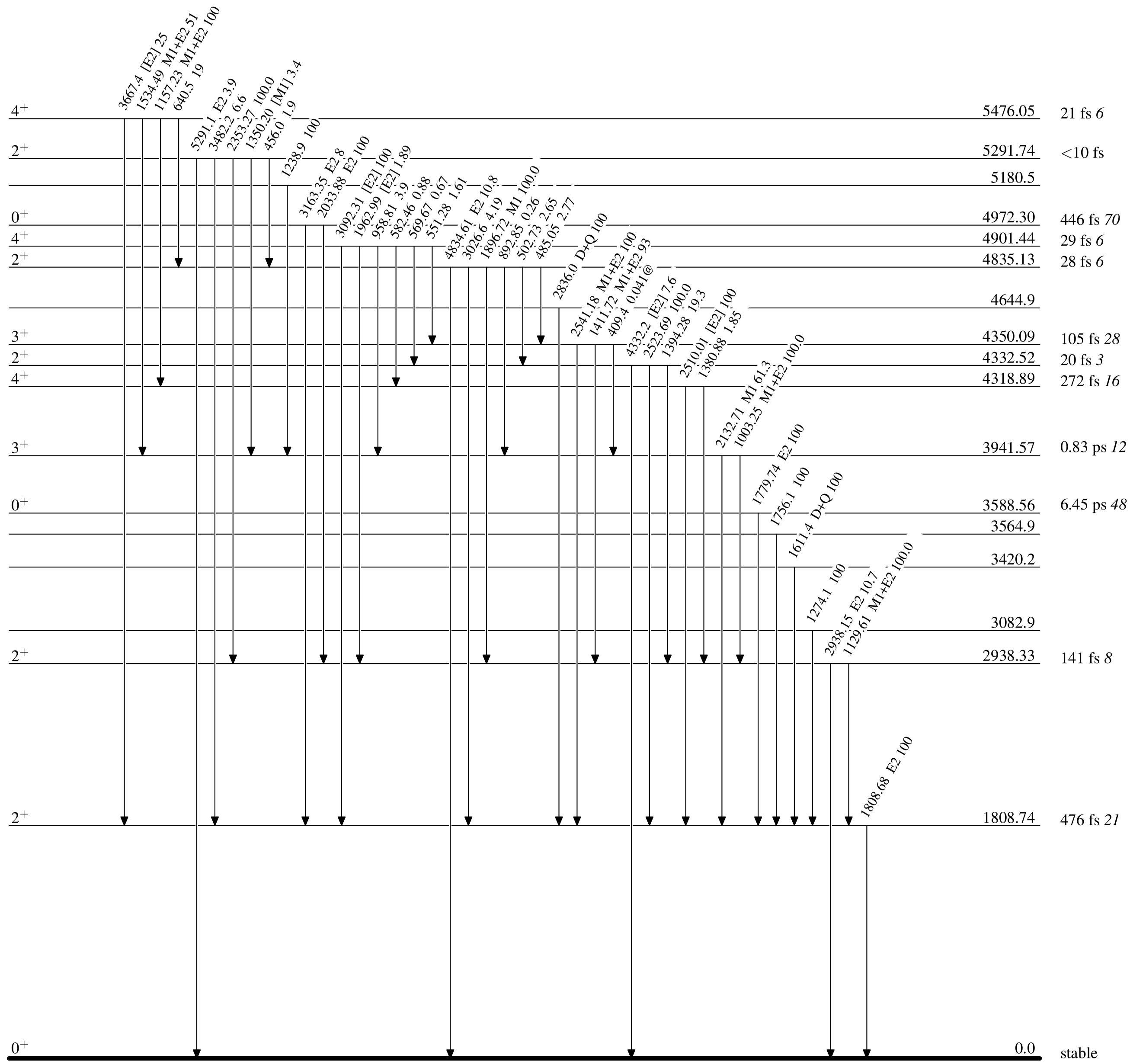


$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level
@ Multiply placed: intensity suitably divided



$^{26}_{12}Mg_{14}$

Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 114, 1189 (2013)	1-Apr-2013

Q(β^-)=1831.8 *20*; S(n)=8503.4 *20*; S(p)=16790 *4*; Q(α)=−11492.0 *21* 2012Wa38

^{28}Mg production cross sections are reported in:
2012Zh06: ^{9}Be(^{40}Ar,X), E=57 MeV/nucleon.
2011Ti03: ^{nat}Cr(p,X), E=248 to 2605 MeV; ^{56}Fe(p,X), E=249 to 2605 MeV.
2011Ti04: ^{nat}Ni(p,X), E=599 to 2605 MeV ^{93}Nb(p,X), E=1599- and 2605 MeV.
2011Ti05: ^{nat}W(p,X), E=1199-, 1599-, 2605-MeV ^{nat}Ta(p,X), E=1199-, 1598-, 2605-MeV.
2008Ti05: ^{56}Fe(p,X), E=300 to 2600 MeV.
2007No13: ^{9}Be(^{40}Ar,X), E=90A MeV, and ^{181}Ta(^{40}Ar,X), E=94A MeV.
2003Ya20: Cu(^{40}Ar,X), Cu(^{20}Ne,X), E=100 and 230 MeV/nucleon.
2000Da06: ^{124}Sn(p,X), E=8.1 GeV.
2000Ka25: ^{232}Th(γ,F)^{28}Mg, E=12$^-$, 16.5-, 24-MeV bremsstrahlung. Other: 2000Ma75.
1997Fo01: ^{208}Pb(^{37}Cl,X), E=230 MeV.
1997Vo03: ^{56}Fe(p,X), E=800 MeV.

2006Kh08: ^{28}Mg beam, 55.93 MeV/nucleon, bombarded a Si target, measured σ=2069 mb *186* for Si(^{28}Ne,X) reaction and a square reduced absorption radius r_0^2=1.11 fm^2 *10* is deduced and used to study the isospin dependence.

^{28}Mg Levels

Cross Reference (XREF) Flags

A	^{28}Na β^- decay	D	Coulomb excitation
B	^{29}Na β^-n decay	E	^{150}Nd(^{26}Mg,^{28}Mg)
C	^{26}Mg(t,pγ)		

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[@]	XREF	Comments
0.0	0$^+$	20.915 h *9*	ABCDE	%β^-=100 δ<r^2>(^{26}Mg,^{28}Mg)=+0.216 fm^2 *9* (statistical) *27* (systematic) (2012Yo01). Charge radius <r^2>$^{1/2}$=3.0695 fm *14* (statistical) *51* (systematic) (2012Yo01). $T_{1/2}$: from 1991Ko34. Other values: 20.88 h *6* (1963We19) and 20.93 h *4* (1974Ro18).
1473.54 *10*	2$^+$	1.2 ps *1*	ABCDE	$T_{1/2}$: Other: 0.93 ps *15* (Coulomb excitation).
3862.15 *14*	0$^+$	0.55 ps *7*	ABC	
4021.0 *5*	4$^+$	105 fs *35*	A C E	
4554.6 *5*	2$^+$	<0.03 ps	ABC	
4561.0 *5*	1$^+$		ABC	J$^\pi$: From ^{28}Na β^- decay.
4878.6 *13*	2$^+$	<0.08 ps	A C	
5171.3 *4*	3$^-$	0.11 ps *9*	A C E	
5184.6 *7*			C	
5193.1 *5*	1	<0.02 ps	A C	
5270.2 *4*	1$^+$	<0.1 ps	A C	J$^\pi$: 1974Ra15 (t,pγ) presents J$^\pi$=1$^-$ in the decay scheme, however, from ^{28}Na β^- decay, 1984Gu19 assigns J$^\pi$=1$^+$.
5470.1 *5*	2		A C	
5672.7 *5*	2$^+$		C	
5702.1 *7*	0$^+$	0.21 ps *3*	C	
5916.9 *11*	(0,1,2)$^+$[#]		A C	
6135 *15*			C	
6416 *15*			C	
6516 *15*			C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{28}Mg Levels (continued)

E(level)†	J$^{\pi}$‡	XREF	Comments
6544.9 *5*	(2^+)#	A C	
6599 *15*		C	
6708 *15*		C	
6759 *15*		C	
7200.9 *7*	$(0,1,2)^+$#	A	
7462.0 *4*	(2^+)#	A	
8439.4? *11*	(6^+)	E	J$^{\pi}$: 4418γ to 4^+ state.

† From a least-squares fit to measured γ-ray energies. ΔE=1 keV is assumed for 4418γ and used in the fitting. Calculated γ-ray energies are obtained after the fitting.
‡ From L values in ^{26}Mg(t,pγ), except otherwise noted.
# From ^{28}Na β^- decay, based on the angular distribution measurements of β and γ-ray emissions.
@ From ^{26}Mg(t,pγ), except otherwise noted.

$\gamma(^{28}$Mg)

E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$†	I$_{\gamma}$†	E$_f$	J$^{\pi}_f$	Mult.†	δ†	Comments
1473.54	2^+	1473.5‡ *1*	100	0.0	0^+	E2		B(E2)(W.u.)=13.4 *12*
3862.15	0^+	2388.5 *1*	100	1473.54	2^+	E2		B(E2)(W.u.)=2.6 *4* E$_{\gamma}$: Weighted average of data from 2012Ku11, 1984Gu19 (^{28}Na β^- decay), ^{29}Na β^-n decay and ^{26}Mg(t,pγ).
4021.0	4^+	2547.7 *6*	100	1473.54	2^+	(E2)		B(E2)(W.u.)=10 *4* E$_{\gamma}$: Weighted average of data from 2012Ku11 (^{28}Na β^- decay) and ^{26}Mg(t,pγ).
4554.6	2^+	533.6	<2	4021.0	4^+			
		692.4	<2	3862.15	0^+			
		3082.6 *13*	100	1473.54	2^+	M1+E2	+0.04 *3*	B(M1)(W.u.)>0.024 E$_{\gamma}$: Using the Limitation of Relative Statistical Weight (LWM) averaging method of data 3081.3 keV *3* (2012Ku11), 3087.4 keV *9* (1984Gu19) of ^{28}Na β^- decay, 3083.4 keV *7* (t,pγ), and 3080.9 keV *10* (^{29}Na β^-n decay).
		4553.8	<3	0.0	0^+			
4561.0	1^+	3087.3 *5*	100	1473.54	2^+			E$_{\gamma}$: Weighted average of data from 2012Ku11, 1984Gu19 in ^{28}Na β^- decay and ^{29}Na β^-n decay.
4878.6	2^+	324	<2.5	4554.6	2^+			
		857.6	<2.5	4021.0	4^+			
		1016.4	<4	3862.15	0^+			
		3404.9‡ *13*	100 *4*	1473.54	2^+	M1+E2	+0.35 *6*	B(M1)(W.u.)>0.0046; B(E2)(W.u.)>0.18
		4877 *10*	25 *4*	0.0	0^+	E2		B(E2)(W.u.)>0.097
5171.3	3^-	292.7	<1	4878.6	2^+			
		616.7	3 *1*	4554.6	2^+			
		1150.5 *4*	38 *2*	4021.0	4^+	(E1)		B(E1)(W.u.)=0.0012 *10* E$_{\gamma}$: Weighted average of 1150.3 keV *4* (t,pγ) and 1151.6 keV *11* (2012Ku11 – ^{28}Na β^- decay).
		3696.8 *6*	100 *2*	1473.54	2^+	(E1)		B(E1)(W.u.)=9.E−5 *8* E$_{\gamma}$: Weighted average of 3697.5 keV *7* (t,pγ) and 3694.2 keV *13* (2012Ku11 – ^{28}Na β^- decay).
5193.1	1	314.5	<1	4878.6	2^+			

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

$\gamma(^{28}Mg)$ (continued)

E_i(level)	J^π_i	E_γ †	I_γ †	E_f	J^π_f	Mult. †	δ †	Comments
5193.1	1	638.5	<1.1	4554.6	2^+			
		1330.9	2.9 *6*	3862.15	0^+			
		3719	11.4 *11*	1473.54	2^+			
		5192.6‡ *5*	100.0 *11*	0.0	0^+			
5270.2	1^+	5269.6‡ *4*	100	0.0	0^+			
5470.1	2	3996.3 *5*	100.0	1473.54	2^+			E_γ: Weighted average of 3996.5 keV *5* (t,pγ) and 3994.9 keV *15* (2012Ku11 – ^{28}Na β^- decay).
		5469	<2	0.0	0^+			
5672.7	2^+	1118	21 *5*	4554.6	2^+			
		1651.6	<7.3	4021.0	4^+			
		1810.4	<5.9	3862.15	0^+			
		4198.5	100 *6*	1473.54	2^+	M1(+E2)	+0.3 *+2−6*	
		5671.5	26 *6*	0.0	0^+	E2		
5702.1	0^+	431.9	17.5 *15*	5270.2	1^+			
		1141	100.0 *19*	4561.0	1^+			
		4227.9	28.5 *16*	1473.54	2^+	[E2]		B(E2)(W.u.)=0.077 *12*
5916.9	$(0,1,2)^+$	4443.0‡ *11*	100	1473.54	2^+			
6544.9	(2^+)	1373.4‡ *2*	<50	5171.3	3^-			
		1990.7‡ *5*	100 *50*	4554.6	2^+			
7200.9	$(0,1,2)^+$	2007.7‡ *4*	100	5193.1	1			
7462.0	(2^+)	2191.7‡ *3*	100 *13*	5270.2	1^+			
		2290.9‡ *6*	<13	5171.3	3^-			
		2906.9‡ *6*	75 *13*	4554.6	2^+			
8439.4?	(6^+)	4418#		4021.0	4^+			

† From $^{26}Mg(t,p\gamma)$, except otherwise noted. The γ rays without uncertainty are calculated by the evaluator from level energy (after a least-squares fit to measured γ rays) differences and recoil energy subtraction.
‡ From ^{28}Na β^- decay.
# Placement of transition in the level scheme is uncertain.

Legend

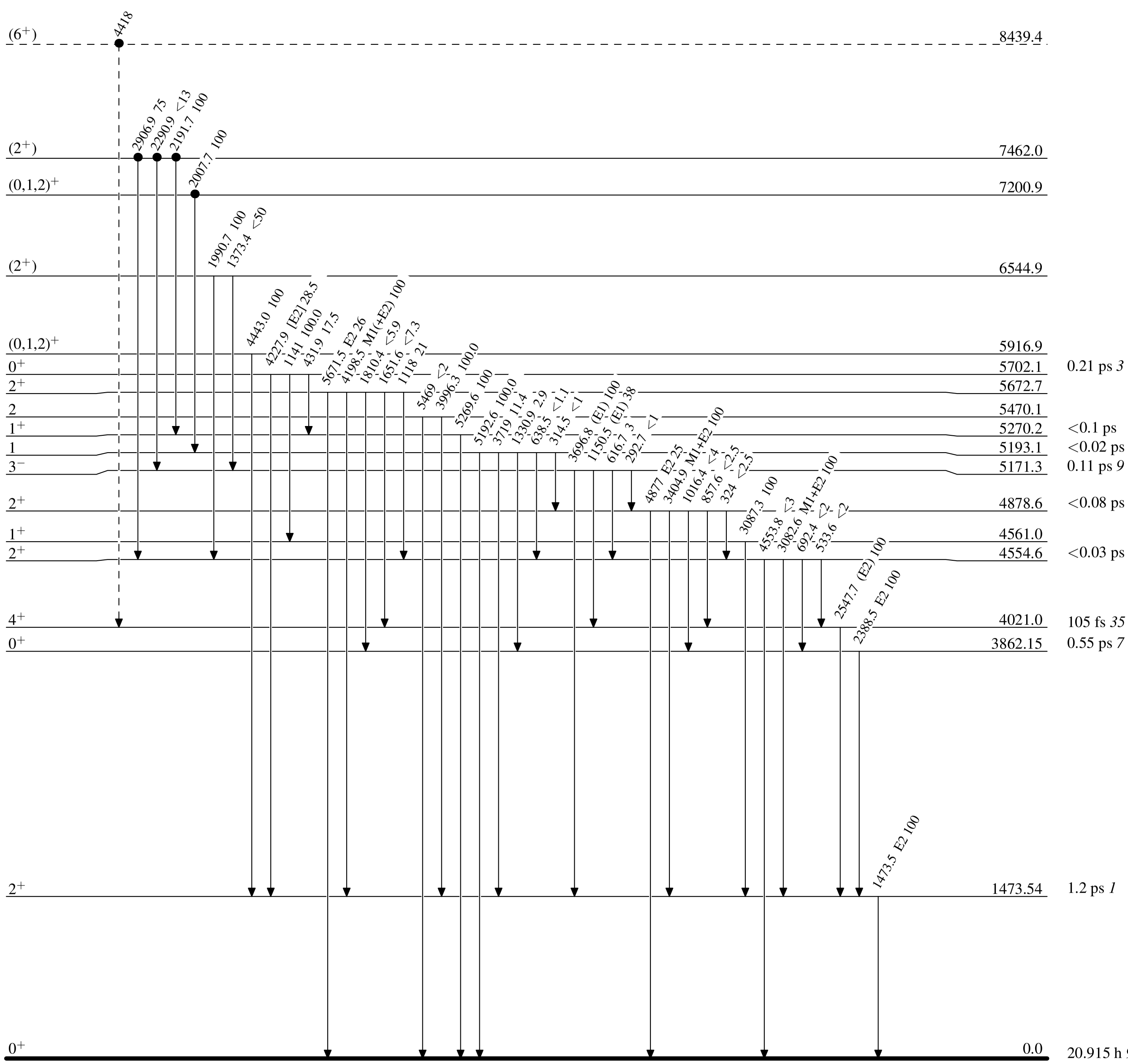
Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

Coincidence



$^{28}_{12}Mg_{16}$