Adopted Levels, Gammas

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

Q(β^-)=−1148 *5*; S(n)=8387 *6*; S(p)=4920 *5*; Q(α)=−1953 *19* 2012Wa38
Note: Current evaluation has used the following Q record −1137 118391 184921 7 −1952 19 2003Au03.

^{104}Ag Levels

Cross Reference (XREF) Flags

A	^{104}Ag IT decay	D	^{103}Rh(α,3nγ)
B	^{104}Cd ε decay	E	^{104}Pd(p,nγ) E=5.9-6.75 MeV
C	^{94}Mo(^{12}C,pnγ) E=50 MeV	F	^{76}Ge(^{35}Cl,α3nγ)

E(level)†	Jπ#	$T_{1/2}$@	XREF	Comments
0.0	5^+	69.2 min *10*	ABCDEF	%ε+%β^+=100 μ=+3.919 *3* (1989Di12) Jπ: from atomic beam (1969Fu11), log *ft*=5.48 to 4^+ level in ^{104}Pd. $T_{1/2}$: from 1971Mu22. Others: 70 min *3* (1959Gi63), 69 min *3* (1960Am02), 66 min *1* (1960Nu02), 73 min (1939En02). μ: others: +3.917 *8* (1985Va06), $\Delta<r^2>$=0.416 *83* (1989Di12).
6.90 *22*	2^+	33.5 min *20*	ABC E	%IT<0.07; %ε+%β^+=99.93 μ=+3.691 *3* (2010Go08) Jπ: from atomic beam (1969Fu11), M1 γ from 90.6, 1^+ level. $T_{1/2}$: from β^+ decay 1971Mu22. Others: 27 min *1* (1959Gi63), 29.8 min *5* (1960Nu02). %IT: from 1990Gu24. This value is very different from the old value (33% *5*) from 1971Mu22. μ: from β-, and γ-NMR/ON. Others: 3.7 *1* (2010Go08) from resonant laser ionization source technique, +3.7 *2* (1961Am02), 4.1 *3* (cited by 1989Ra17 from a conference report). Additional information 1.
90.56 *23*	1^+		BC E	Jπ: log *ft*≈4.2 from 0^+ parent.
112.65 *15*	$(6)^+$	<1 ns	CD F	$T_{1/2}$: from ^{103}Cd(α,nγ) (1980Lu08). Jπ: M1+E2 γ to 5^+, no γ to 2^+. $\gamma(\theta)$ in (p,nγ).
130.62 *22*	$(3)^+$		BC E	Jπ: $\gamma(\theta)$ in ^{104}Pd(p,nγ). M1 γ to 2^+.
157.34 *23*	$(2)^+$		BC E	Jπ: $\gamma(\theta)$ in ^{104}Pd(p,nγ). 66γ to 1^+ is M1.
212.00 *15*	$(7)^+$	1.4 ns *2*	CD F	μ=+4.8 *3* (1989VoZR,2005St24) $T_{1/2}$: from ^{103}Cd(α,nγ) (1980Lu08). Jπ: M1 γ to 6^+.
231.3 *3*	(3^+)		E	
258.45 *25*			D	
269.59 *20*	(4^+)		C E	
284.96 *21*			CD F	
342.67 *23*	(3^-)		E	
348.16 *24*	(1^-)		E	
384.04 *22*			C	
390.4 *4*	(4)		E	
433.66 *23*	(2^-)		E	
463.2 *3*	(3^-)		E	
480.08 *19*	$(7)^+$	20 ps *7*	CD F	Jπ: M1 γ to $(6)^+$ and M1 γ from $(8)^+$.
480.3 *3*	(2^+)		E	
502.9 *5*	(4)		E	
534.95 *25*	(3^-)		E	
570.7 *3*			E	

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Adopted Levels, Gammas (continued)

^{104}Ag Levels (continued)

E(level)[†]	Jπ[#]	$T_{1/2}$[@]	XREF	Comments
579.63 *24*			E	
590.2 *4*			E	
603.0 *3*			C	
644.9 *4*			E	
652.2 *3*			E	
675.5 *3*			E	
699.1 *3*	(1,2)		E	
704.9 *3*	$(1,2)^-$		E	
716.5 *3*	1^+		B E	Jπ: log *ft*≈4.3 from 0^+.
741.0 *4*			D	
747.3 *4*			E	
763.5 *3*			E	
796.82 *18*	$(8)^+$	0.25 ps *7*	CD F	Jπ: (M1) γ to $(7)^+$.
796.9 *3*	(2^-)		E	Jπ: γ's to 2^+.
801.0 *4*			D	
832.1 *3*			E	
847.3 *4*			E	
932.1 *3*			E	
945.4 *3*			E	
959.88 *18*	(6^-)		CD F	Jπ: deexcites to 6^+ and 7^+, from comparison with ^{106}Ag.
961.36 *25*			DE	
999.9 *4*			E	
1026.63 *18*	(7^-)	0.28 ns *5*	CD F	Jπ: deexcites to 7^+, from comparison with ^{106}Ag.
1048.3 *3*			E	
1061.5 *3*			E	
1077.08 *19*	$(8)^-$	0.34 ns *5*	CD F	Jπ: E1 γ to 7^+.
1081.2 *4*			D	
1094.8 *4*			E	
1113.3 *3*			E	
1118.61 *21*	(9^+)	51 ps *13*	CD F	Jπ: E2 γ to 7^+.
1185.4 *4*			E	
1252.4 *3*	$(9)^-$	7.4 ps *15*	CD F	$T_{1/2}$: from 1989Vo13. Other: ≤0.4 ns (1980Lu08) in ^{103}Rh(α,3nγ). Jπ: M1 γ to 8^-.
1273.40 *25*			D	
1310.1 *4*			D	
1598.6[&] *4*	$(10)^-$	0.74 ps *20*	CD F	Jπ: M1 γ to 9^-.
1931.3[&] *4*	$(11)^-$	0.63 ps *15*	CD F	Jπ: M1 γ to 10^-.
2180.6 *11*	(11^+)	0.74 ps *23*	CD F	Jπ: E2 γ to (9^+).
2375.6[&] *4*	$(12)^-$	0.22 ps *4*	CD F	Jπ: M1 γ to 11^-.
2819.8[&] *5*	$(13)^-$	0.21 ps *4*	CD F	Jπ: from band consideration.
3040.4[a] *9*	(12^-)		F	
3301.1[&] *5*	$(14)^-$	0.24 ps *4*	CD F	$T_{1/2}$: weighted average of 0.29 ps *5* (1989Vo13) and 0.21 ps *4* (2004Da14). (B. Singh, Jan 15, 2016). Jπ: M1 γ to 13^-.
3350.6[a] *8*	(13^-)		F	
3647.7[a] *9*	(14^-)		F	
3668.5 *5*	$(^-)$		C	
3809.6[&] *5*	(15^-)	0.21 ps *4*	CD F	Jπ: member of a well-developed Δ′ J=1 sequence. $T_{1/2}$: weighted average of 0.20 ps *4* (1989Vo13) and 0.22 ps *4* (2004Da14). (B. Singh, Jan 15, 2016).
4096.7[a] *14*	(15^-)		F	
4330.2[&] *6*	(16^-)	0.24 ps *4*	CD F	Jπ: member of a well-developed Δ′ J=1 sequence. $T_{1/2}$: weighted average of 0.25 ps *5* (1989Vo13) and 0.24 ps *4* (2004Da14). (B. Singh, Jan 15, 2016).

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Adopted Levels, Gammas (continued)

^{104}Ag Levels (continued)

E(level)†	Jπ#	$T_{1/2}$@	XREF	Comments
4424.1[b] 9	14^+‡		F	
4623.7[a] 17	(16^-)		F	
4785.4[b] 9	15^+‡		F	
4900.4[&] 8	(17^-)		C F	Jπ: member of a well-developed Δ′ J=1 sequence.
5166.0[b] 10	16^+‡		F	
5528.8[&] 10	(18^-)		F	
5572.0[b] 14	17^+‡	0.27 ps 5	F	$T_{1/2}$: from DSAM (2004Da14).
6052.0[b] 17	18^+‡	0.21 ps 4	F	$T_{1/2}$: from DSAM (2004Da14).
6596.0[b] 20	19^+‡	0.194 ps 28	F	$T_{1/2}$: from DSAM (2004Da14). Additional information 2.
7159.0[b] 22	20^+‡		F	

† Level energy from least-squares adjustment.
‡ From γ(θ) and the neutron decay of the $5/2^+$,$1/2^+$,$3/2^+$ isobaric-analog resonance and Hauser-Feshbach comparisons (2004Da14).
# Simultaneous fits to γ(θ), linear polarization, versus nuclear spin alignment and mixing ratios in (^{12}C,pnγ), unless indicated otherwise.
@ $T_{1/2}$ for levels ≥479 are from 1989Vo13 in ^{94}Mo(^{12}C,pnγ) and/or from 2004Da14 in ^{76}Ge(^{35}Cl,α3nγ); method: DSAM.
& Band(A): Magnetic-rotational band. Probable configuration=$\pi g_{9/2}\otimes\nu h_{11/2}$.
a Band(B): Possible Magnetic-rotational band. Possible configuration=$\pi[g_{9/2}]\otimes\nu[(g_{7/2}d_{5/2})^2(h_{11/2})]$.
b Band(C): Magnetic-rotational band. Possible configuration=$\pi g_{9/2}\otimes\nu[(g_{7/2}d_{5/2})^1h^2_{11/2}]$ or $\pi g_{9/2}\otimes\nu[(g_{7/2}d_{5/2})^3h^2_{11/2}]$.

γ(^{104}Ag)

E_i(level)	J^π_i	E_γ	I_γ†	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
6.90	2^+	6.9 4	100	0.0	5^+	[M3]		1.0×10^8 4	B(M3)(W.u.)=0.0003 3 α: Δα from ΔE γ.
90.56	1^+	83.7 2	100	6.90	2^+	M1		0.700	
112.65	$(6)^+$	112.5 2	100	0.0	5^+	M1+E2	0.3 2	0.36 5	B(M1)(W.u.)>0.0089
130.62	$(3)^+$	123.7 2	100	6.90	2^+	M1		0.233	
157.34	$(2)^+$	66.8 2	100 8	90.56	1^+	M1		1.34	
		150.5 3	5 1	6.90	2^+	M1		0.136	
212.00	$(7)^+$	99.25 20	100 5	112.65	$(6)^+$	M1+E2	0.4 2	0.56 9	B(M1)(W.u.)=0.0085 20; B(E2)(W.u.)=1.2×10^2 11
		212.1 2	7 1	0.0	5^+	[E2]			B(E2)(W.u.)=1.4 3
231.3	(3^+)	74.0 3		157.34	$(2)^+$				
		224.4 3		6.90	2^+				
258.45		145.8 2	100	112.65	$(6)^+$				
269.59	(4^+)	139.0 2		130.62	$(3)^+$				
		179.0 3		90.56	1^+				
		269.7 3		0.0	5^+				
284.96		72.8 2	100	212.00	$(7)^+$				
342.67	(3^-)	185.3 3		157.34	$(2)^+$				
		212.1 3		130.62	$(3)^+$				
		252.1 3		90.56	1^+				
		335.8 3		6.90	2^+				
348.16	(1^-)	257.6 3		90.56	1^+				
		341.2 3		6.90	2^+				
384.04		114.5 2	100	269.59	(4^+)				
390.4	(4)	159.1 3		231.3	(3^+)				
		233.1 3		157.34	$(2)^+$				

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Adopted Levels, Gammas (continued)

$\gamma(^{104}Ag)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
433.66	(2^-)	85.5 *3*		348.16	(1^-)		
		91.0 *3*		342.67	(3^-)		
		276.3 *3*		157.34	$(2)^+$		
		303.0 *3*		130.62	$(3)^+$		
		343.1 *3*		90.56	1^+		
		426.8 *3*		6.90	2^+		
463.2	(3^-)	115.1 *3*		348.16	(1^-)		
		120.5 *3*		342.67	(3^-)		
		305.8 *3*		157.34	$(2)^+$		
		332.5 *3*		130.62	$(3)^+$		
480.08	$(7)^+$	367.4 *2*	100	112.65	$(6)^+$	(M1)	B(M1)(W.u.)=0.022 *8*
480.3	(2^+)	249.0 *3*		231.3	(3^+)		
		323.0 *3*		157.34	$(2)^+$		
		389.8 *3*		90.56	1^+		
		473.4 *3*		6.90	2^+		
502.9	(4)	112.5 *3*		390.4	(4)		
534.95	(3^-)	192.3 *3*		342.67	(3^-)		
		377.6 *3*		157.34	$(2)^+$		
		404.3 *3*		130.62	$(3)^+$		
		528.1 *3*		6.90	2^+		
570.7		413.4 *3*		157.34	$(2)^+$		
		440.1 *3*		130.62	$(3)^+$		
		563.8 *3*		6.90	2^+		
579.63		145.9 *3*		433.66	(2^-)		
		422.3 *3*		157.34	$(2)^+$		
		449.0 *3*		130.62	$(3)^+$		
		489.0 *3*		90.56	1^+		
		572.7 *3*		6.90	2^+		
590.2		583.3 *3*		6.90	2^+		
603.0		219.0 *2*	100	384.04			
644.9		296.7 *3*		348.16	(1^-)		
652.2		218.6 *3*		433.66	(2^-)		
		494.8 *3*		157.34	$(2)^+$		
		645.2 *3*		6.90	2^+		
675.5		544.9 *3*		130.62	$(3)^+$		
		668.6 *3*		6.90	2^+		
699.1	(1,2)	119.4 *3*		579.63			
		265.4 *3*		433.66	(2^-)		
		351.0 *3*		348.16	(1^-)		
		356.4 *3*		342.67	(3^-)		
704.9	$(1,2)^-$	170.0 *3*		534.95	(3^-)		
		241.8 *3*		463.2	(3^-)		
		271.3 *3*		433.66	(2^-)		
		362.2 *3*		342.67	(3^-)		
716.5	1^+	559.1 *3*	32 *2*	157.34	$(2)^+$		
		626.0 *3*	11 *1*	90.56	1^+		
		709.6 *3*	100 *6*	6.90	2^+		
741.0		456.0 *3*	3.0 *8*	284.96			
747.3		740.4 *3*		6.90	2^+		
763.5		183.8 *3*		579.63			
		228.5 *3*		534.95	(3^-)		
		329.8 *3*		433.66	(2^-)		
		415.3 *3*		348.16	(1^-)		
		756.6 *3*		6.90	2^+		
796.82	$(8)^+$	316.7 *2*	100 *5*	480.08	$(7)^+$	(M1)	B(M1)(W.u.)=1.7 *5*
		584.8 *2*	62 *6*	212.00	$(7)^+$		

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Adopted Levels, Gammas (continued)

$\gamma(^{104}Ag)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
796.9	(2$^-$)	639.5 *3*		157.34	(2)$^+$				
		790.0 *3*		6.90	2$^+$				
801.0		589.0 *3*	100	212.00	(7)$^+$				
832.1		483.9 *3*		348.16	(1$^-$)				
		825.2 *3*		6.90	2$^+$				
847.3		499.2 *3*		348.16	(1$^-$)				
		616.0 *3*		231.3	(3$^+$)				
932.1		589.3 *3*		342.67	(3$^-$)				
		774.8 *3*		157.34	(2)$^+$				
945.4		365.7 *3*		579.63					
		602.8 *3*		342.67	(3$^-$)				
959.88	(6$^-$)	219.0		741.0					
		575.9 *2*	33	384.04					
		675 *1*	100	284.96					
		748.0 *5*	100	212.00	(7)$^+$				
		847.2 *2*	33	112.65	(6)$^+$				
961.36		481.3 *3*		480.08	(7)$^+$				
		613.1 *3*		348.16	(1$^-$)				
		804.1 *3*		157.34	(2)$^+$				
999.9		869.3 *3*		130.62	(3)$^+$				
1026.63	(7$^-$)	66.8 *2*	62	959.88	(6$^-$)				
		741.5 *2*	37	284.96					
		814.6 *2*	100	212.00	(7)$^+$				
1048.3		891.1 *3*		157.34	(2)$^+$				
		1041.3 *3*		6.90	2$^+$				
1061.5		713.2 *3*		348.16	(1$^-$)				
		718.9 *3*		342.67	(3$^-$)				
1077.08	(8)$^-$	50.3 *2*	21 *2*	1026.63	(7$^-$)	[M1]		3.1	B(M1)(W.u.)=0.054 *11*
		280.4 *2*	13	796.82	(8)$^+$				B(M1)(W.u.)=0.054 *11*
		865.1 *2*	100 *15*	212.00	(7)$^+$	E1			B(E1)(W.u.)=7.0×10^{-7} *16*
1081.2		284.4 *3*	100	796.82	(8)$^+$				
1094.8		1087.9 *3*	100	6.90	2$^+$				
1113.3		955.9 *3*		157.34	(2)$^+$				
		1022.7 *3*		90.56	1$^+$				
1118.61	(9$^+$)	321.6 *2*	20 *2*	796.82	(8)$^+$				
		906.8 *2*	100 *5*	212.00	(7)$^+$	E2			B(E2)(W.u.)=0.52 *14*
1185.4		1178.5 *3*		6.90	2$^+$				
1252.4	(9)$^-$	175.3 *2*	100	1077.08	(8)$^-$	M1+(E2)	<0.5	0.1	B(M1)(W.u.)>0.32; B(E2)(W.u.)<3.5×10^3
1273.40		1061.4 *2*	100	212.00	(7)$^+$				
1310.1		233.0 *3*	100	1077.08	(8)$^-$				
1598.6	(10)$^-$	346.2 *2*	100 *5*	1252.4	(9)$^-$	M1			B(M1)(W.u.)=0.57 *16*
		521 *1*	25 *3*	1077.08	(8)$^-$				
1931.3	(11)$^-$	332.7 *2*	100 *5*	1598.6	(10)$^-$	M1+E2			
		679.0 *5*	24 *3*	1252.4	(9)$^-$				
2180.6	(11$^+$)	1062.0	100	1118.61	(9$^+$)	(E2)			B(E2)(W.u.)=19 *6*
2375.6	(12)$^-$	444.3 *2*	100 *5*	1931.3	(11)$^-$	(M1)			B(M1)(W.u.)=0.91 *18*
		777.0 *5*	25 *3*	1598.6	(10)$^-$				
2819.8	(13)$^-$	444.3 *2*	100 *5*	2375.6	(12)$^-$				
		888 *1*	18 *2*	1931.3	(11)$^-$				
3040.4	(12$^-$)	1109	100	1931.3	(11)$^-$				
3301.1	(14)$^-$	481.3 *2*	100 *5*	2819.8	(13)$^-$	M1			B(M1)(W.u.)=0.65 *11* Additional information 3.
		926 *1*	26 *3*	2375.6	(12)$^-$				
3350.6	(13$^-$)	310 *1*	86 *9*	3040.4	(12$^-$)				
		975 *1*	100 *8*	2375.6	(12)$^-$				

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Adopted Levels, Gammas (continued)

γ(^{104}Ag) (continued)

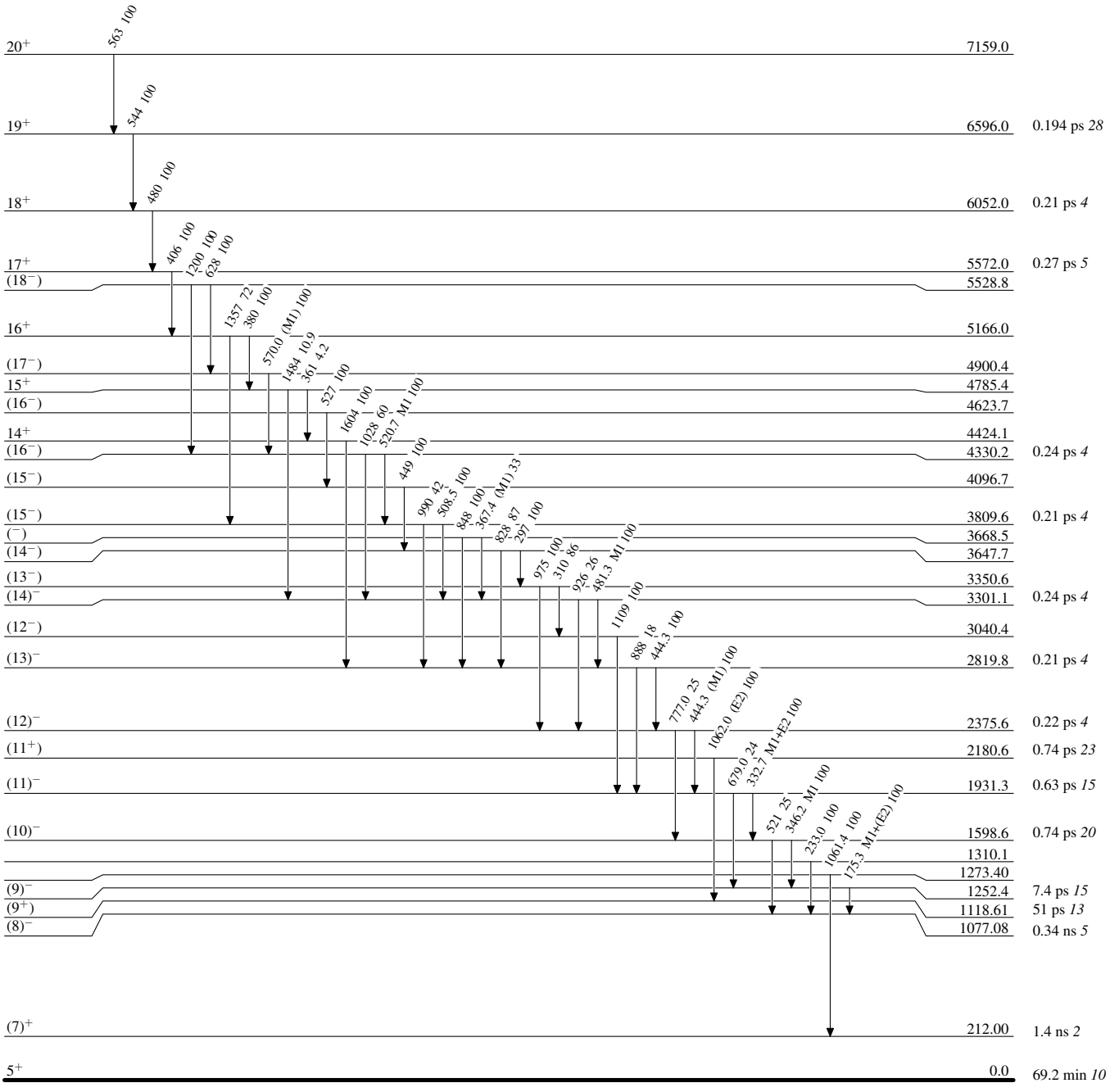
E_i(level)	J_i^π	E_γ	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
3647.7	(14$^-$)	297 *1*	100 *8*	3350.6	(13$^-$)		
		828 *1*	87 *9*	2819.8	(13)$^-$		
3668.5	($^-$)	367.4 *2*	33	3301.1	(14)$^-$	(M1)	
		848 *1*	100	2819.8	(13)$^-$		
3809.6	(15$^-$)	508.5 *2*	100 *5*	3301.1	(14)$^-$		
		990 *1*	42 *6*	2819.8	(13)$^-$		
4096.7	(15$^-$)	449 *1*	100	3647.7	(14$^-$)		
4330.2	(16$^-$)	520.7 *2*	100 *20*	3809.6	(15$^-$)	M1	B(M1)(W.u.)=0.41 *11* Additional information 4.
		1028 *1*	60 *20*	3301.1	(14)$^-$		
4424.1	14$^+$	1604 *1*	100	2819.8	(13)$^-$		
4623.7	(16$^-$)	527 *1*	100	4096.7	(15$^-$)		
4785.4	15$^+$	361 *1*	4.2 *5*	4424.1	14$^+$		
		1484 *1*	10.9 *12*	3301.1	(14)$^-$		
4900.4	(17$^-$)	570.0 *5*	100	4330.2	(16$^-$)	(M1)	
5166.0	16$^+$	380 *1*	100 *8*	4785.4	15$^+$		
		1357	72 *9*	3809.6	(15$^-$)		
5528.8	(18$^-$)	628 *1*	100	4900.4	(17$^-$)		Positive parities for initial and final levels as listed in table i of 2004Da14 seem to be misprints.
		1200 *1*	100	4330.2	(16$^-$)		
5572.0	17$^+$	406 *1*	100	5166.0	16$^+$		
6052.0	18$^+$	480 *1*	100	5572.0	17$^+$		
6596.0	19$^+$	544 *1*	100	6052.0	18$^+$		
7159.0	20$^+$	563 *1*	100	6596.0	19$^+$		

[†] Relative photon branching from each level.
[‡] From α(K)exp in ^{94}Mo(^{12}C,pnγ) and ^{104}Cd ε decay.
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with "Frozen Orbitals" approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

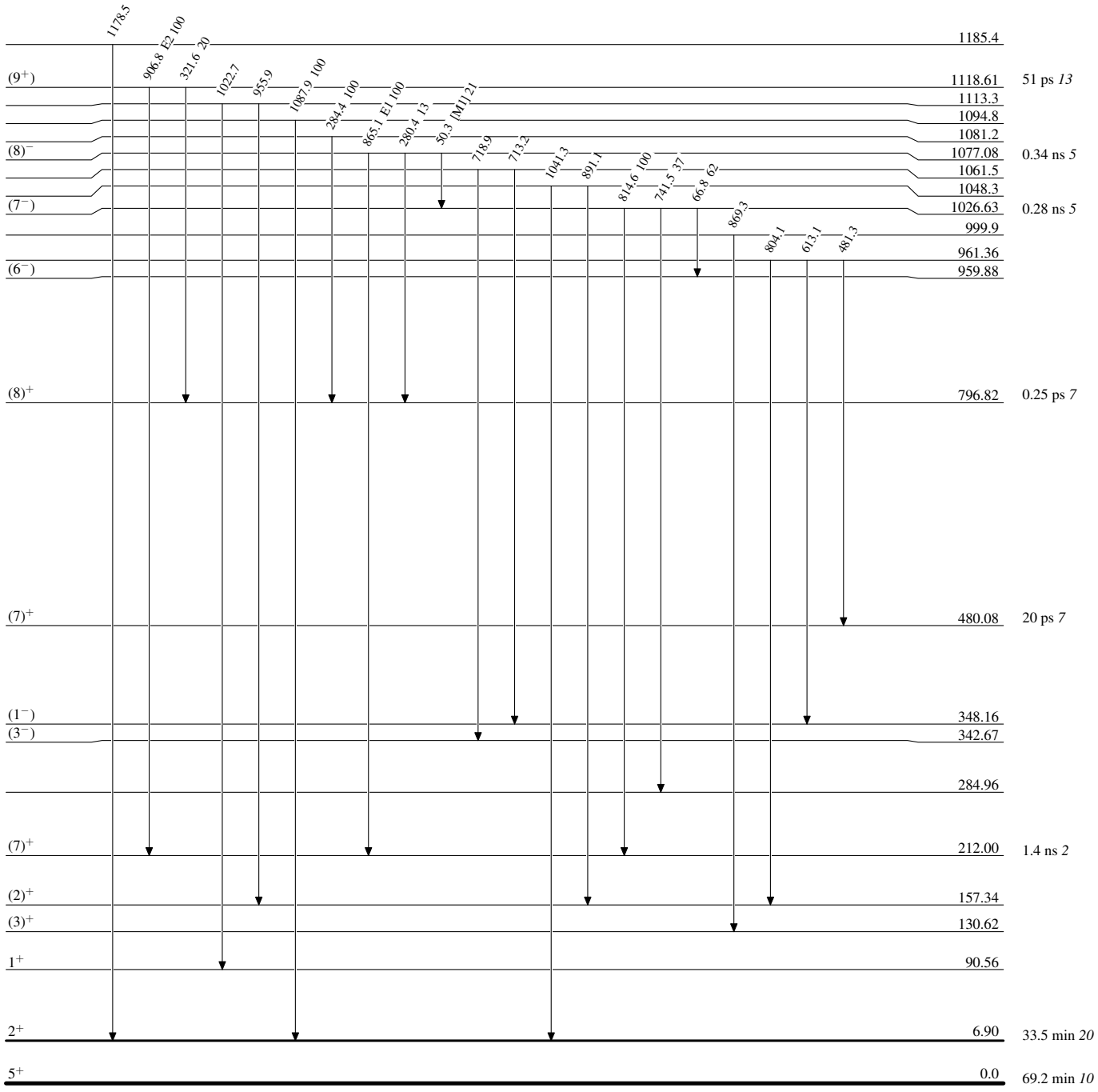


$^{104}_{47}Ag_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

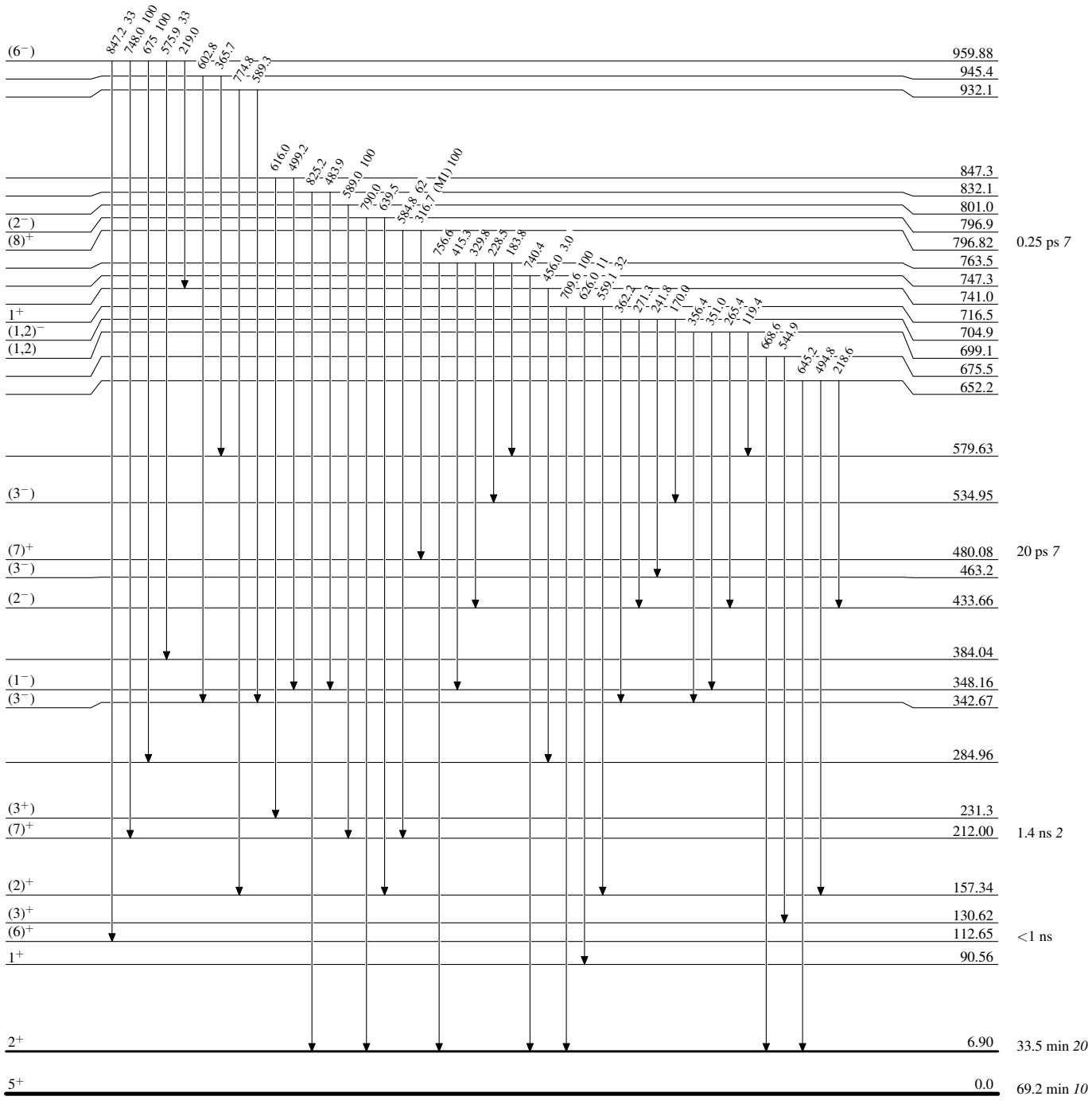


$^{104}_{47}Ag_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

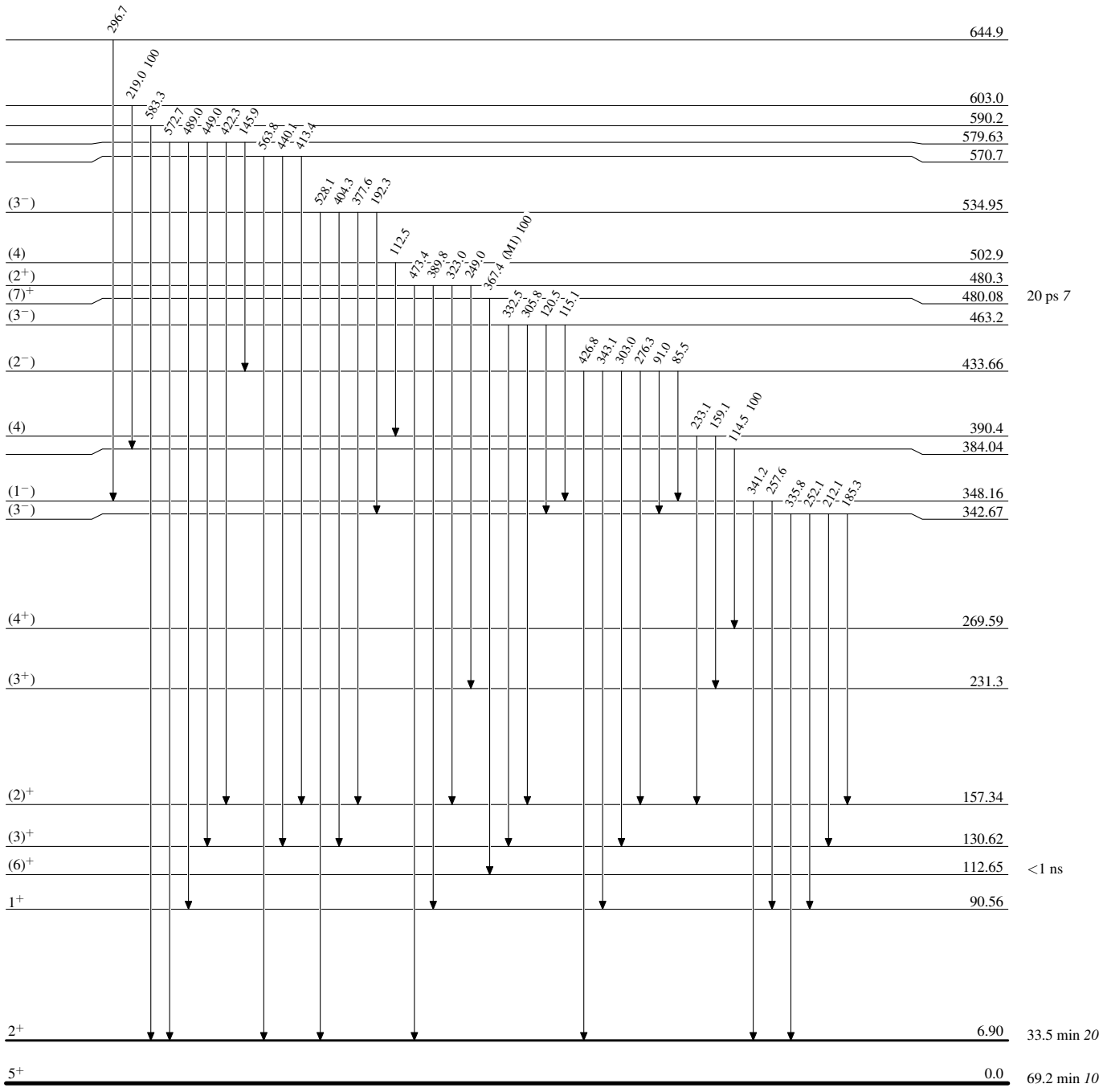


$^{104}_{47}Ag_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level

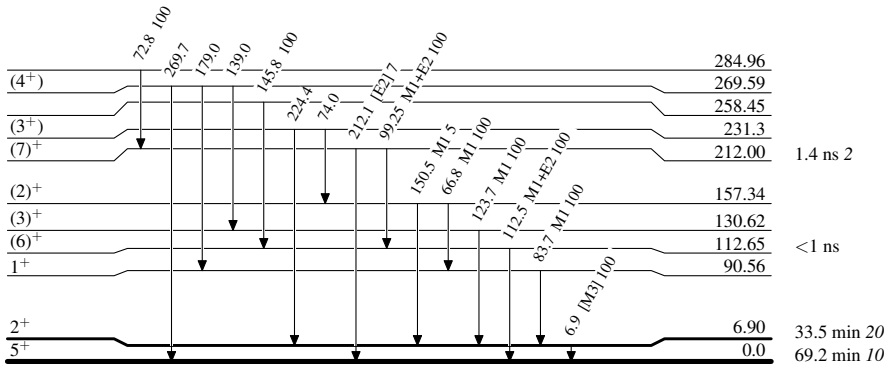


$^{104}_{47}Ag_{57}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{104}_{47}Ag_{57}$

Adopted Levels, Gammas