Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Q(β^-)=−2587 *8*; S(n)=8983 *10*; S(p)=4105 *10*; Q(α)=−1496 *15* 2012Wa38
Note: Current evaluation has used the following Q record.
Q(β^-)=−2587 *8*; S(n)=911×10[1] *11*; S(p)=4130 *30*; Q(α)=−1515 *30* 2003Au03

^{102}Ag Levels

All band information from (HI,xnγ) (1995Ra13).

Cross Reference (XREF) Flags

A ^{102}Ag IT decay
B ^{102}Cd ε decay
C (HI,xnγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[@]	XREF	Comments
0[b]	5$^{(+)}$	12.9 min *3*	ABC	%ε+%β^+=100 μ=+4.6 *7* (1989Ra17) J$^\pi$: from 1970Wa35, atomic beam, π suggested from μ and syst. T$_{1/2}$: Weighted average of 13.0 min *4* (1967Ch05), 12.8 min *5* (1970Hn03).
9.40 *7*	2$^+$	7.7 min *5*	AB	%IT=49 *5*; %ε+%β^+=51 *5* μ=+4.14 *25* μ: From 1989Ra17. %IT: %IT-branching was established by following the decay of the 556.7γ in ^{102}Pd (see 1971Hn05). J$^\pi$: from 1968Gr01, atomic beam, π from M1,E2 from 1$^+$. T$_{1/2}$: from 1967Ch05. Other: 1970Hn03.
97.45 *5*	4$^{(+)}$		BC	J$^\pi$: cascade in ^{102}Cd ε decay of 213γ(M1) 58.9γ(M1) and 97.4γ(M1), connecting 2$^+$ to 5$^+$ levels, gives apart from gs J^π=5$^+$,J^π(156.3 level)=3$^+$, and J^π(97.4 level)=4$^+$,
125.54 *10*	2$^+$,3$^+$		B	J$^\pi$: M1 γ to 2$^+$, 28γ to 4$^+$.
141.0[b]	6$^{(+)}$	3.5 ns *5*	C	T$_{1/2}$: from 141γ time correlation spectrum in ^{92}Mo(^{12}C,pn).
156.49 *6*	3$^+$		B	J$^\pi$: see 97.4 level.
181.0[b]	7$^{(+)}$		C	
186.8	(5$^+$)		C	
336.1	6$^{(+)}$		C	Branchings of the level from ^{92}Mo(^{12}C,pn).
369.98 *8*	2$^{+\#}$		B	J$^\pi$: see 97.4 level.
382.0[a]	(7$^+$)		C	
490.44 *11*	1$^{+\#}$		B	
540.59 *13*	1$^+$,2$^+$,3$^+$		B	J$^\pi$: from 531γ M1,E2 to 2$^+$; 415γ M1,E2 to 2$^+$,3$^+$. ε feeding from 0$^+$ is uncertain.
845.6[b]	8$^{(+)}$	0.35 ps *13*	C	
921.7[a]	(8$^+$)		C	
1020.1[b]	9$^{(+)}$	1.03 ps *9*	C	
1045.59 *16*	1$^{+\#}$		B	
1200.8	9$^{(+)}$		C	
1369.0 *4*	1$^{+\#}$		B	
1449.0 *4*	1$^{+\#}$		B	
1548.8[&]	(8$^-$)	154 ps *28*	C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{102}Ag Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[@]	XREF	Comments
1706.2[&]	(9⁻)	3.7 ps *12*	C	
1727.2 *7*	(1⁺)[#]		B	
1765.8[b]	(10⁺)	0.27 ps *9*	C	
1837.8[a]	(10⁺)		C	
1896.0[b]	11(+)	1.78 ps *67*	C	
1965.4 *8*	1⁺[#]		B	
2103.9[&]	(10⁻)	0.34 ps *8*	C	Level branching from ^{92}Mo(^{12}C,pn) because in (^{16}O,^{89}Y) 555γ 1.
2117	(9⁻,10⁻)	<2.8 ns	C	Jπ: J^π=9⁻ favored from DCO, 10⁻ from systematics. $T_{1/2}$: from time correlation spectrum in ^{92}Mo(^{12}C,pn).
2179?	(10⁻)		C	
2203.5			C	
2377.7[c]	(10⁻)		C	Jπ: J^π=10⁻ suggested from corresponding bandhead state in ^{106}Ag.
2453.4[&]	(11⁻)	0.44 ps *10*	C	
2533?	(11⁻)		C	
2614.5[c]	(11⁻)		C	Jπ: J^π=11⁻ suggested from DCO and corresponding states in ^{106}Ag.
2618.5			C	
2689?			C	
2847.0[b]	13(+)		C	
2889.0[c]	(12⁻)		C	Jπ: J^π=12⁻ suggested from DCO and corresponding states in ^{106}Ag.
2919.8[&]	(12⁻)	0.47 ps *7*	C	Data of different (HI,xnγ) reactions for branching of this level are in mutual disagreement (see 1983Tr01 and 1995Ra13).
2937	(12⁻)		C	
3042.6[b]	12(+)		C	
3157.1[c]	13(−)		C	Jπ: J^π=13⁻ suggested from DCO and corresponding states in ^{106}Ag.
3194.5[&]	(13⁻)	1.50 ps *33*	C	$T_{1/2}$: the evaluators have correlated the $T_{1/2}$(274.5γ)=1.50 ps *33* with the 3194.5-keV level (1995Ra13) and not with a 3661.9-keV level 1.
3407.2[&]	(13⁻)		C	
3711.7[&]	(14⁻)		C	Jπ: J^π=14⁻ suggested from DCO and corresponding states in ^{106}Ag. Branching is not reliable because 554.8 is a member of a complex 102.
4094.5[b]	14(+)		C	
4178.1[&]	(15⁻)		C	
4680.8[&]	(16⁻)		C	
4745.5?			C	
5164.0[&]	(17⁻)		C	
5644.1[&]	(18⁻)		C	
6107.5[&]	(19⁻)		C	

[†] From a least squares procedure using adopted gammas.
[‡] Unless noted otherwise, from γ(θ), γ lin pol and α(K)exp and observed band structure in different (HI,xnγ) reactions.
[#] log *ft* indicates allowed transition from 0⁺ ^{102}Cd g.s.
[@] Unless noted otherwise, from a reanalysis of the results of 1989Vo13 obtained by Doppler-shift attenuation or plunger method (1992Le10).
[&] Member of a ΔJ=1 band based on J^π=(8⁻) level at 1548.8 keV.
[a] Member of a ΔJ=1 band based on J^π=(7⁺) level at 383 keV.
[b] Member of a ΔJ=1 band based on J^π=5(+) g.s.
[c] Member of a ΔJ=1 band based on J^π=(10⁻) level at 2377 keV.

Adopted Levels, Gammas (continued)

γ(^{102}Ag)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	δ	α[#]	Comments
9.40	2$^+$	(9.40 *8*)	100	0	5$^{(+)}$	(M3)		1.154×10^7	B(M3)(W.u.)=1.63 *23* E_γ: from ^{102}Cd ε decay (1991Ke08).
97.45	4$^{(+)}$	97.46 *5*	100	0	5$^{(+)}$	M1		0.451	
125.54	2$^+$,3$^+$	116.13 *8*	100	9.40	2$^+$	M1		0.276	
141.0	6$^{(+)}$	141.0	100	0	5$^{(+)}$	M1+E2	0.8 *3*	0.26 *5*	B(M1)(W.u.)=0.0011 *4*; B(E2)(W.u.)=32 *16*
156.49	3$^+$	59.05 *5*	100 *4*	97.45	4$^{(+)}$	M1		1.89	
		147.09 *10*	36 *5*	9.40	2$^+$	M1+E2			Mult.: No δ given in ^{102}Cd ε decay.
		156.1 *3*	17 *6*	0	5$^{(+)}$				
181.0	7$^{(+)}$	40.0	100	141.0	6$^{(+)}$	(M1)		5.90	α(K)=5.11; α(L)=0.644; α(M)=0.1226
186.8	(5$^+$)	89.7 *2*	100 *19*	97.45	4$^{(+)}$	(M1)		0.569	
		187.2 *2*	70 *19*	0	5$^{(+)}$	(M1)		0.074 *8*	
336.1	6$^{(+)}$	149.2 *2*	100 *12*	186.8	(5$^+$)	M1		0.138	
		336.1 *2*	46 *10*	0	5$^{(+)}$	(M1)		0.0163	α(K)exp=0.014 *4*
369.98	2$^+$	213.50 *9*	100 *9*	156.49	3$^+$	M1		0.053	
		244.4 *7*	3.2 *1*	125.54	2$^+$,3$^+$				
		360.58 *10*	75 *4*	9.40	2$^+$	E2		0.0171	
382.0	(7$^+$)	46.0 *2*	100	336.1	6$^{(+)}$	M1		3.94	α(K)=3.416; α(L)=0.4294; α(M)=0.082
490.44	1$^+$	120.4 *2*	4.6 *3*	369.98	2$^+$	M1		0.249	
		481.0 *2*	100	9.40	2$^+$	M1,E2			
540.59	1$^+$,2$^+$,3$^+$	384	2.0 *8*	156.49	3$^+$				
		415.05 *15*	100 *7*	125.54	2$^+$,3$^+$	M1,E2			
		531.2 *2*	13.3 *16*	9.40	2$^+$	M1,E2			
845.6	8$^{(+)}$	463.4		382.0	(7$^+$)	M1			
		664.6	100	181.0	7$^{(+)}$	M1+E2	−0.8 *9*		B(M1)(W.u.)=0.13 *13*; B(E2)(W.u.)=1.7×10^2 *+25−7*
921.7	(8$^+$)	540.1 *2*	100	382.0	(7$^+$)	(M1+E2)			Mult.: No δ given in (HI,xnγ).
1020.1	9$^{(+)}$	174.5	13.6 *3*	845.6	8$^{(+)}$	M1+E2	+0.14 *22*	0.092 *11*	B(M1)(W.u.)=0.46 *5*; B(E2)(W.u.)=3.E+2 *+9−3*
		839.1	100 *7*	181.0	7$^{(+)}$	E2			B(E2)(W.u.)=41 *4*
1045.59	1$^+$	505.00	55 *4*	540.59	1$^+$,2$^+$,3$^+$	M1,E2			
		555[@]	<17	490.44	1$^+$				
		675.65 *20*	30.4 *17*	369.98	2$^+$				
		920 *1*	<0.43	125.54	2$^+$,3$^+$				
		1036.1 *3*	100 *4*	9.40	2$^+$				
1200.8	9$^{(+)}$	279.5 *2*	100 *16*	921.7	(8$^+$)	M1		0.0261	I_γ: taken from 1995Ra13.
		819.8 *3*	20 *33*	382.0	(7$^+$)	E2			I_γ: taken from 1995Ra13.
1369.0	1$^+$	322.5	<3.00	1045.59	1$^+$				
		998.6 *7*	4.8 *10*	369.98	2$^+$				
		1359.2 *3*	100 *10*	9.40	2$^+$				
1449.0	1$^+$	1079.1 *5*	36 *13*	369.98	2$^+$				
		1439.6 *5*	100 *14*	9.40	2$^+$				
1548.8	(8$^-$)	703.9 *3*	100 *23*	845.6	8$^{(+)}$	E1			B(E1)(W.u.)=1.4×10^{-6} *3*

$^{102}_{47}Ag_{55}$-3

Adopted Levels, Gammas (continued)

γ(^{102}Ag) (continued)

E_i(level)	J_i^π	E_γ †	I_γ †	E_f	J_f^π	Mult.‡	δ	α#	Comments
1548.8	(8⁻)	1367.8	91 *23*	181.0	7(+)	E1			B(E1)(W.u.)=5.9×10^{-7} *11*
1706.2	(9⁻)	157.5 *2*	100 *10*	1548.8	(8⁻)	M1+(E2)	<0.2	0.126 *2*	B(M1)(W.u.)>0.13; B(E2)(W.u.)<3.6×10^2
		686.2 *2*	4.8 *24*	1020.1	9(+)	(E1)			B(E1)(W.u.)=2.9×10^{-5} *10*
		860.7 *2*	21 *5*	845.6	8(+)	E1			B(E1)(W.u.)=0.00010 *4*
1727.2	(1⁺)	1717.8 *7*	100	9.40	2⁺				
1765.8	(10⁺)	745.7	100	1020.1	9(+)	D			B(M1)(W.u.)=0.20 *7*
1837.8	(10⁺)	638.0	100	1200.8	9(+)	M1			
1896.0	11(+)	130.2 *3*	3.8 *19*	1765.8	(10⁺)				
		875.9	100 *8*	1020.1	9(+)	E2			B(E2)(W.u.)=22 *9*
1965.4	1⁺	1956.0 *7*	100	9.40	2⁺				
2103.9	(10⁻)	397.7 *2*	100 *11*	1706.2	(9⁻)	M1		0.0107	α(K)exp=0.008 *2* B(M1)(W.u.)=0.098 *23*
		555.0 *2*	11.5 *4*	1548.8	(8⁻)				
		1084.0 *4*		1020.1	9(+)				
2117	(9⁻,10⁻)	13.0	100	2103.9	(10⁻)				
2179?	(10⁻)	473.2@ *2*	100	1706.2	(9⁻)				
2203.5		1183.4	100	1020.1	9(+)				
2377.7	(10⁻)	260.8	100	2117	(9⁻,10⁻)	M1			
2453.4	(11⁻)	349.4 *2*	100 *12*	2103.9	(10⁻)	M1		0.0147	α(K)exp=0.015 *4* B(M1)(W.u.)=0.37 *9*
		748.0 *3*	7 *4*	1706.2	(9⁻)	E2			B(E2)(W.u.)=1.3×10^2 *3*
2533?	(11⁻)	354.2@ *2*	100	2179?	(10⁻)				
2614.5	(11⁻)	236.8	100	2377.7	(10⁻)	M1		0.0401	
2618.5		415.1	100	2203.5					
2689?		510.3@ *2*	100	2179?	(10⁻)				
2847.0	13(+)	951.0	100	1896.0	11(+)	E2			
2889.0	(12⁻)	274.5	100	2614.5	(11⁻)	M1		0.0273	
2919.8	(12⁻)	466.6	100	2453.4	(11⁻)	M1			B(M1)(W.u.)=0.46 *7*
		816.2		2103.9	(10⁻)	E2			
2937	(12⁻)	403.7 *2*	100	2533?	(11⁻)				
3042.6	12(+)	196.0 *2*	100 *21*	2847.0	13(+)	E2		0.133	
		1147.0		1896.0	11(+)	M1			
3157.1	13(−)	268.1	100	2889.0	(12⁻)	(M1+E2)			Mult.: No δ given in (HI,xnγ).
3194.5	(13⁻)	274.5	100	2919.8	(12⁻)	M1		0.0273	B(M1)(W.u.)=0.69 *16*
3407.2	(13⁻)	487.2	100	2919.8	(12⁻)	M1			
		954.0	33	2453.4	(11⁻)				
3711.7	(14⁻)	304.8 *3*	100 *21*	3407.2	(13⁻)	M1		0.0209	
		517.4 *2*	84 *18*	3194.5	(13⁻)	M1			
		555.0 *2*	34 *11*	3157.1	13(−)				E_γ: member of complex multiplet together with 555.1γ and ^{101,102}Pd impurities at almost the same energy.
4094.5	14(+)	1247.4 *3*	100	2847.0	13(+)	M1			

$^{102}_{47}Ag_{55}$-4

Adopted Levels, Gammas (continued)

$\gamma(^{102}Ag)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.[‡]	Comments
4178.1	(15$^-$)	466.6 *2*	100	3711.7	(14$^-$)	M1	E_γ: member of unresolved multiplet in (HI,xnγ).
4680.8	(16$^-$)	503.0 *3*	100	4178.1	(15$^-$)		
4745.5?		651.0[@] *3*	100	4094.5	14$^{(+)}$		
5164.0	(17$^-$)	483.2 *3*	100	4680.8	(16$^-$)	(M1+E2)	E_γ: member of doublet with 480.1γ in ^{89}Y(^{16}O,3nγ). Mult.: No δ given in (HI,xnγ).
5644.1	(18$^-$)	480.1	100	5164.0	(17$^-$)	(M1+E2)	E_γ: member of doublet with 483.2γ in ^{89}Y(^{16}O,3nγ). Mult.: No δ given in (HI,xnγ).
6107.5	(19$^-$)	463.4	100	5644.1	(18$^-$)		

[†] Weighted average of data from ^{102}Cd ε decay and (HI,xnγ) reactions if both available. If not data of individual data sets used.

[‡] Multipolarities are from α(K)exp and K/L+M in ^{102}Cd ε decay and $\gamma(\theta)$, γ lin pol and α(K)exp in (HI,xnyp). Some possibilities are ruled out by using the adopted J^π assignments. It is assumed in ^{89}Y(^{16}O,3nγ) (1995Ra13) that stretched quadrupole transitions are E2 and intraband dipole transitions M1.

[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

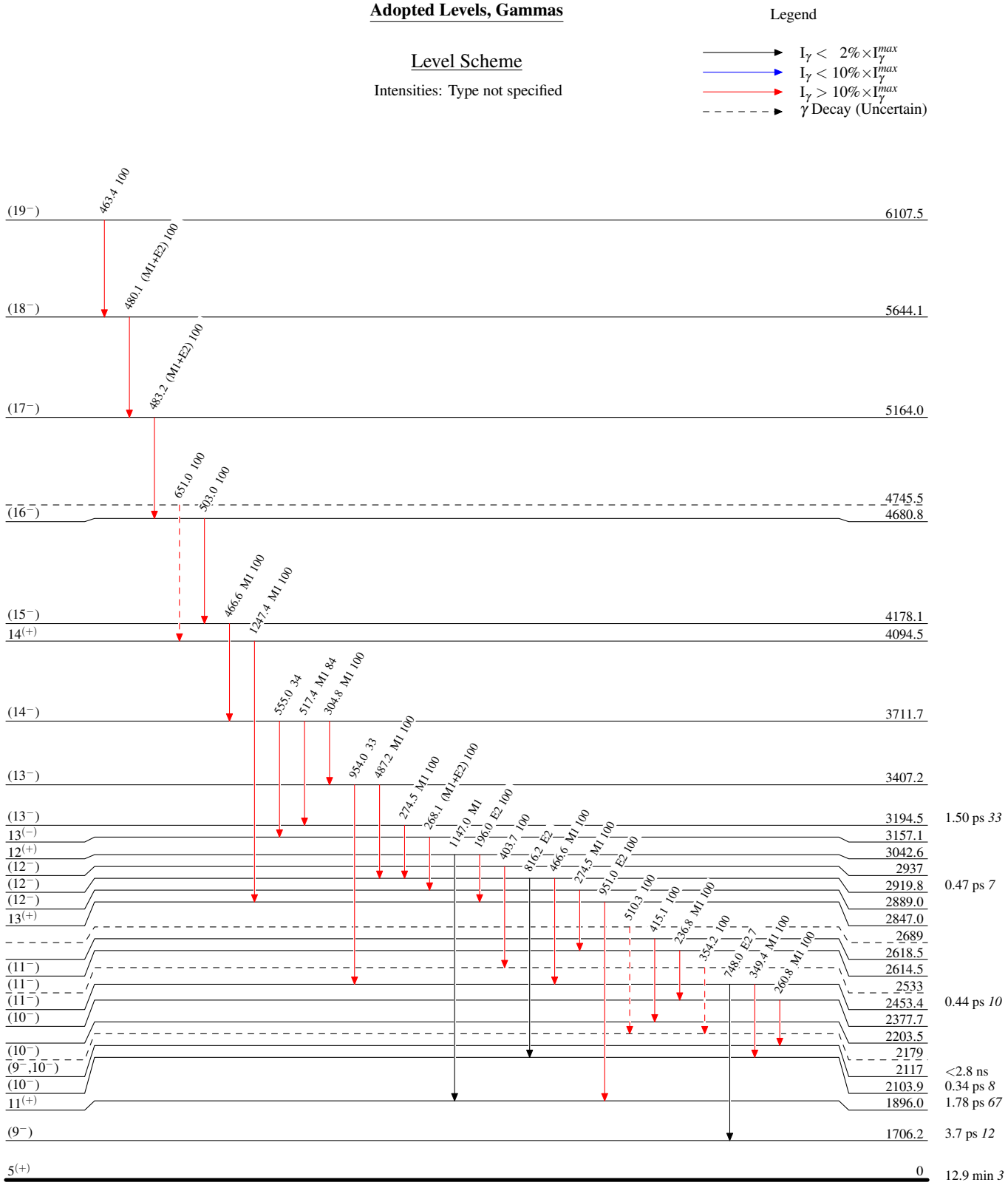
[@] Placement of transition in the level scheme is uncertain.

$^{102}_{47}Ag_{55}$-5

Adopted Levels, Gammas

Level Scheme

Intensities: Type not specified

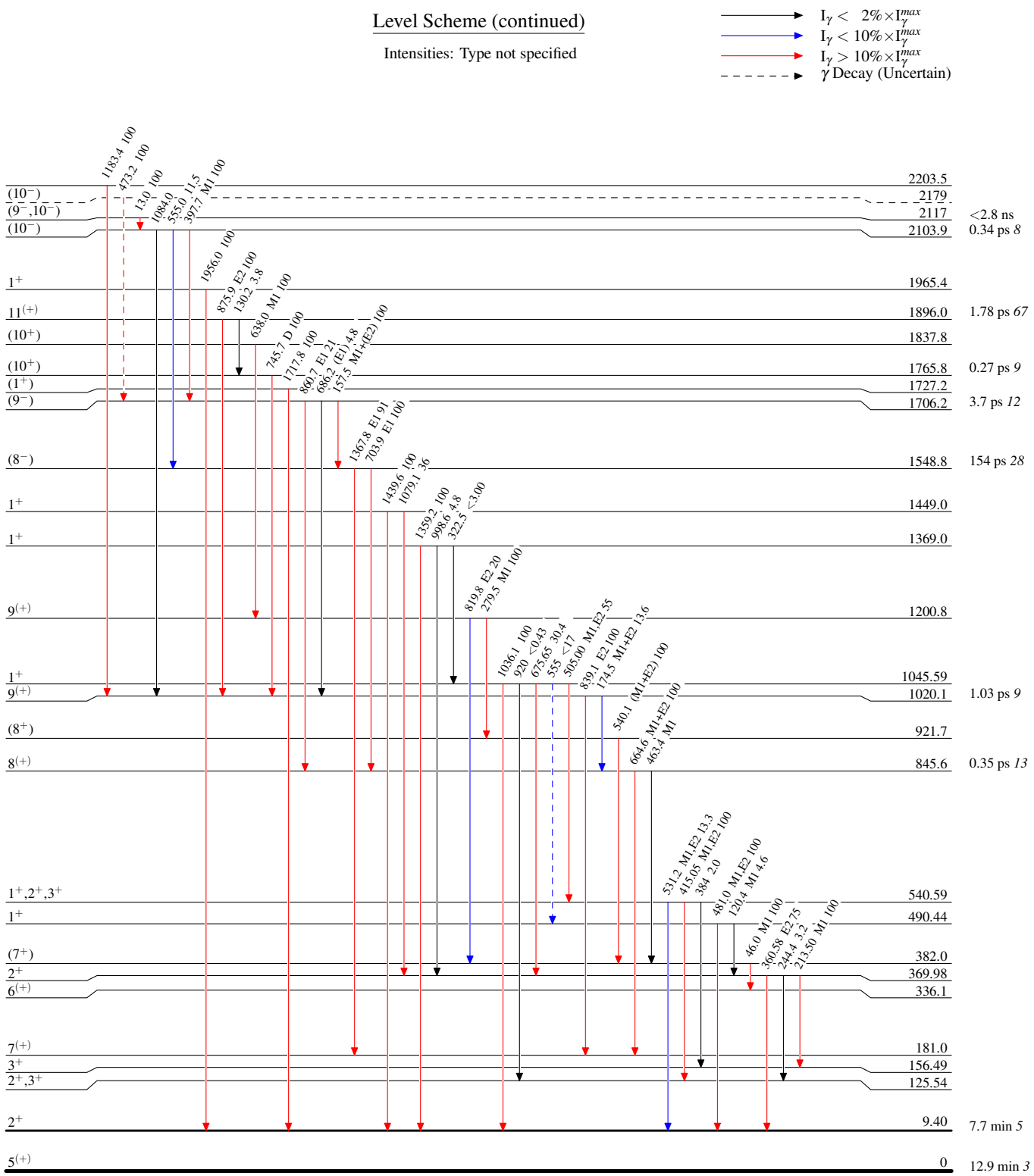


$^{102}_{47}Ag_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified

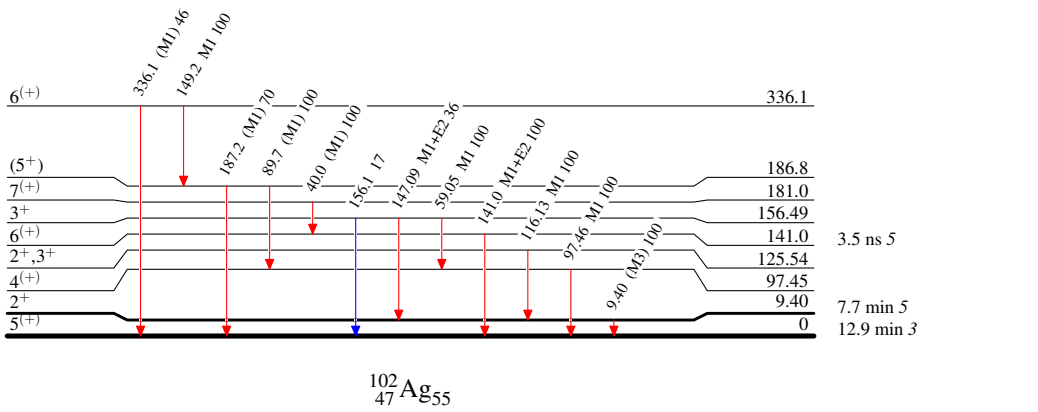


$^{102}_{47}Ag_{55}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Type not specified



$^{102}_{47}Ag_{55}$