Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113,2187 (2012)	15-Sep-2012

Q(β^-)=1950 *10*; S(n)=7286 *7*; S(p)=12411 *9*; Q(α)=−5601 *5* 2012Wa38
Note: Current evaluation has used the following Q record 1951 9 *7286* 7 *12410* 9 −5601 4 2011AuZZ.
Q(β^-),S(n),S(p),Q(α): from 2011AuZZ; values are 1946 *9*, 7294 *6*, 12411 *9*, −5600 *14*, respectively, from 2003Au03.
For isotope shift data, see 1990Bu12.
For shell-model calculations see, e.g., 1973Wa36, 1978Ba70, 2002St06, 2003Hw01, 2009Rz01.

^{92}Sr Levels

Cross Reference (XREF) Flags

A	^{92}Rb β^- decay	D	^{208}Pb(^{18}O,Fxnγ)
B	^{93}Rb β^-n decay	E	^{159}Tb(^{36}S,fxng)
C	^{94}Zr(^{6}Li,^{8}B)	F	^{248}Cm SF decay

E(level)†	J$^\pi$#	$T_{1/2}$‡	XREF	Comments
0.0&	0^+	2.611 h *17*	ABCDEF	%β^-=100 Δ<r^2>(^{88}Sr,^{92}Sr)=0.512; uncertainty is 0.005 (statistical only), 0.021 (systematic included) (1990Bu12). For discussion of differential changes in Δ<r^2>, see 1996Li25. J$^\pi$: see comment on 815 level. $T_{1/2}$: unweighted average of 2.594 h *6* (2008Le19) and 2.627 h *9* (2003NiZY) (the weighted average is 2.604 h *15*), the two highest precision measurements available. Other GeLi data: 2.71 h *1* (1971Pa31). Other NaI scin data: 2.71 h *2* (1960Fr05), 2.84 h *22*, 2.73 h *10*, 2.79 h *19*, 2.77 h *17*, 2.74 h *18*, 2.45 h *7*, 2.57 h *7* (1956He77). The weighted average of all data is 2.667 h *16*; this rises to 2.669 h *15* if the statistical outlier datum (2.45 h *7*) is excluded. However, these averages may not be reliable since these data are discrepant. <r^2>$^{1/2}$(charge)=4.295 fm *6* (2004An14).
814.98& *3*	2^+	8 ps *3*	ABCDEF	J$^\pi$: from 1273γ-815$\gamma(\theta)$ and 1712γ-815$\gamma(\theta)$ which indicate 0-2-0$^+$ cascades; E2 γ to 0^+.
1384.79 *9*	2^+	5.1 ps *24*	ABC	J$^\pi$: 704γ-1385$\gamma(\theta)$ establishes J(2088 level)=0, J(1385 level)=2; E2 γ to 0^+ level.
1673.3& *4*	$(4)^+$		DEF	J$^\pi$: E2, ΔJ=2 858γ to 2^+ 815; energy is close to that for 4^+ level in ^{90}Sr (2000Fo13).
1778.33 *12*	$2^{(+)}$	≤5.0 ps	AB	J$^\pi$: 964γ-815$\gamma(\theta)$ allows J=2, not 1,3,4; 1778γ to 0^+.
2053.9 *6*	(2^+)		A	J$^\pi$: 1239γ-815$\gamma(\theta)$ allows J=2; datum ≈2σ from J=1,3,4 ellipses. (E2+M1) γ to 2^+.
2088.39 *17*	$0^{(+)}$		A	J$^\pi$: 704γ-1385$\gamma(\theta)$ establishes J(2088 level)=0, J(1385 level)=2; Q γ to 2^+ level.
2140.82 *14*	1^+	7.1 ps *25*	A	J$^\pi$: 756γ-$\gamma(\theta)$ allows J=1, not 2,3,4; E2+M1 γ to 2^+.
2185.0 *4*	(3^-)		DEF	J$^\pi$: analogous to 3^- states in ^{88}Sr and ^{90}Sr at 2734 and 2207, respectively; D 1371γ to 2^+ 815.
2527.18 *18*	0^+	6 ps *4*	A	J$^\pi$: 1712γ-815$\gamma(\theta)$ establishes J(2527 level)=0, J(815 level)=2; E2 γ to 2^+.
2765.7 *5*	(5^-)		DEF	J$^\pi$: energy systematics of lower-N Sr isotopes suggest a 5^- level in this vicinity (2000Fo13); D 1092γ to $(4)^+$ 1673.
2783.6 *4*			A	
2820.89 *18*	$2^{(+)}$,(1)		A	J$^\pi$: $\gamma\gamma(\theta)$ rules out J=4, favors J=2, but also permits 1,3; strong γ to 0^+ g.s. If J=2, $\gamma\gamma(\theta)$ implies δ(2007γ)<−0.53, favoring π=+.
2849.6 *6*			A	
2924.8 *7*			E	

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Adopted Levels, Gammas (continued)

^{92}Sr Levels (continued)

E(level)†	Jπ#	XREF	Comments
3014.6 *6*		EF	Jπ: 1341γ to (4)+ 1673 so J=(2 to 6). Jπ=(4+) proposed in (^{36}S,Fxnγ) but (5,6+) in ^{248}Cm SF decay. Possible dominant configuration: π ($1p^{-1}_{3/2}$ $1p_{1/2}$)2 ν($1d^{4}_{5/2}$)2) (2002St06) if J=4.
3128.8 *7*	(6+)	EF	Jπ: 1455γ to (4)+ 1673; (5,6+) from ^{248}Cm SF decay; possible configuration: π ($1p^{-1}_{3/2}$ $1p_{1/2}$)2 ν($1d^{4}_{5/2}$)4) (2002St06).
3362.4 *5*	(5−)	EF	Jπ: 1177γ to (3−) 2185, 1689γ to (4)+ 1673; 597γ to (5−) 2766 in ^{248}Cm SF decay.
3558.5 *7*	(6−,7−)@	DEF	XREF: D(4579).
3786.0 *7*	(6−,7−)@	DEF	
4021.4 *9*	(6−,7−)@	EF	
4637.8 *5*	1	A	Jπ: log *ft*≈6.6 from 0− ^{92}Rb; γ to 2+ and 0+.
4928.5 *9*	(8−,9−)@	EF	Configuration involves (ν $g_{7/2}$)⊗(ν $h_{11/2}$) (2009Rz01).
5053.8 *4*	1	A	Jπ: log *ft*≈6.5 from 0− ^{92}Rb; γ to 2+.
5056.7 *10*		E	
5727.2 *10*		E	
5738.4 *9*	1	A	Jπ: log *ft*≈6.1 from 0− ^{92}Rb; γ to 2+ and 0+.
5893.6 *7*	1(−)	A	Jπ: log *ft*≈6.0 from 0− ^{92}Rb; γ to 2+.
5901.1 *10*	1(−)	A	Jπ: log *ft*≈6.0 from 0− ^{92}Rb; γ to 0+ and 2+.
6003.5 *7*	1−	A	Jπ: log *ft*≈5.7 from 0− ^{92}Rb; γ to 0+ and 2+.
6030.0 *8*	1−	A	Jπ: log *ft*≈5.8 from 0− ^{92}Rb; γ to 0+ and 2+.
6116.1 *10*	1−	A	Jπ: log *ft*≈5.8 from 0− ^{92}Rb; γ to 0+ and 2+.
6527.7? *12*		E	
6949.1? *7*	0−,1−	A	
7363.0 *8*	1−	A	Jπ: log *ft*≈4.0 from 0− ^{92}Rb; γ to 2(+) and 0+.

† From least-squares fit to Eγ, allowing 1 keV uncertainty in Eγ data (3 lines) for which the authors do not state the uncertainty.
‡ From βγγ(t) in Rb β− decay, except as noted.
# Values given without comment are tentative values from ^{159}Tb(^{36}S,Fxnγ), consistent with DCO measurements but suggested primarily by analogy with ^{90}Sr which exhibits a very similar level sequence.
@ From ^{248}Cm SF decay, assuming that M2 transitions are unlikely if Eγ<1200, and that such a reaction predominantly populates yrast states in the secondary fission fragments so J is expected to rise with increasing level energy.
& Band(A): π=+ sequence. Based on 0+ g.s. Principal configuration: ν $1d^{4}_{5/2}$ (2002St06).

γ(^{92}Sr)

E_i(level)	J^π_i	E_γ†	I_γ†	E_f	J^π_f	Mult.	δ‡	Comments
814.98	2+	814.98 *3*	100	0.0	0+	E2		B(E2)(W.u.)=8 *3* Other Eγ: 814.4 in ^{208}Pb(^{18}O,Fxnγ). Mult.: Q ΔJ=2 from γγ(θ) in ^{248}Cm SF decay; not M2 from RUL.
1384.79	2+	569.8 *1*	100 *6*	814.98	2+	(M1+E2)	+0.21 *2*	B(M1)(W.u.)=0.014 *7*; B(E2)(W.u.)=1.9 *10* Mult.: D+Q from γγ(θ); adopted Δπ=no.
		1384.6 *3*	65 *12*	0.0	0+	E2		B(E2)(W.u.)=0.35 *18* Mult.: Q to 0+ in γγ(θ); not M2 from RUL.
1673.3	(4)+	858.4@ *5*	100	814.98	2+	E2		Mult.: Q from DCO ratio in ^{159}Tb(^{36}S,Fxnγ); partial $T_{1/2}$<5 ns because seen in prompt coin in ^{248}Cm SF decay, so not M2 from RUL.
1778.33	2(+)	393.5 *1*	83 *4*	1384.79	2+	(M1)		B(M1)(W.u.)≥0.029 Mult.: D from γγ(θ) in β− decay; Δπ=(no) from level scheme.

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Adopted Levels, Gammas (continued)

$\gamma(^{92}Sr)$ (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	δ[‡]	Comments
1778.33	$2^{(+)}$	963.5 *2*	100 *9*	814.98	2^+	(E2+M1)	+1.7 *+13−15*	B(E2)(W.u.)≥1.2 Mult.: Q(+D) with significant Q component (from $\gamma\gamma(\theta)$).
		1778.3 *10*	24 *13*	0.0	0^+			
2053.9	(2^+)	1238.9 *6*	100	814.98	2^+	(E2+M1)		Mult.: Q(+D) from $\gamma\gamma(\theta)$ with large Q component. δ: <−3.3 or >+11.8.
2088.39	$0^{(+)}$	703.6 *3*	47 *10*	1384.79	2^+	(E2)		Mult.: Q from $\gamma\gamma(\theta)$; J=0 to $J^\pi=2^+$ transition.
		1273.4 *2*	100 *13*	814.98	2^+	(E2)		Mult.: Q from $\gamma\gamma(\theta)$; J=0 to $J^\pi=2^+$ transition.
2140.82	1^+	756.0 *2*	81 *7*	1384.79	2^+	M1(+E2)	−0.09 *3*	B(M1)(W.u.)=0.0032 *12*; B(E2)(W.u.)=0.05 *4* Mult.: D(+Q) from $\gamma\gamma(\theta)$; adopted $\Delta\pi$=no.
		1325.8 *2*	100 *12*	814.98	2^+	E2+M1	−0.27 *5*	B(M1)(W.u.)=0.0007 *3*; B(E2)(W.u.)=0.030 *16* Mult.: D+Q from $\gamma\gamma(\theta)$; not E1+M2 from RUL.
2185.0	(3^-)	512.2[#]		1673.3	$(4)^+$			
		1370.0[@] *5*		814.98	2^+	D		Other Eγ: 1371.1 in ^{208}Pb(^{18}O,Fxnγ). Mult.: D ΔJ=1 from $\gamma\gamma(\theta)$ in ^{248}Cm SF decay.
2527.18	0^+	386.1 *3*	5.8 *10*	2140.82	1^+	(M1)		B(M1)(W.u.)=0.0035 *25* Mult.,δ: pure D from $\gamma\gamma(\theta)$ in β^- decay: $\Delta\pi$=no from level scheme.
		1712.3 *2*	100 *8*	814.98	2^+	E2		B(E2)(W.u.)=0.25 *17* Mult.,δ: pure Q from $\gamma\gamma(\theta)$; not M2 from RUL.
2765.7	(5^-)	580.7[@] *5*	58.0[@] *17*	2185.0	(3^-)			
		1092.3[@] *5*	100.0[@] *22*	1673.3	$(4)^+$	D		Mult.: from DCO ratio in ^{159}Tb(^{36}S,Fxnγ).
2783.6		1399.0 *6*	76 *24*	1384.79	2^+			
		1968.6 *6*	100 *29*	814.98	2^+			
2820.89	$2^{(+)}$,(1)	2006.5 *5*	12 *3*	814.98	2^+			Mult=Q(+D), δ<−0.53 if J(2821 level)=2; from β^- decay.
		2820.6 *2*	100 *7*	0.0	0^+			
2849.6		1071.4	33	1778.33	$2^{(+)}$			
		1464.7 *6*	100 *33*	1384.79	2^+			
2924.8		1251.4[@] *5*	100	1673.3	$(4)^+$			
3014.6		1341.2[@] *5*	100	1673.3	$(4)^+$			Eγ: for contaminated line; Eγ=1342.3 in ^{248}Cm SF decay.
3128.8	(6^+)	1455.4[@] *5*	100	1673.3	$(4)^+$			
3362.4	(5^-)	597.2		2765.7	(5^-)			Eγ: from ^{248}Cm SF decay.
		1177.4[@] *5*	100[@] *3*	2185.0	(3^-)			
		1689.0[@] *5*	36.4[@] *21*	1673.3	$(4)^+$			
3558.5	$(6^-,7^-)$	792.8[@] *5*	100	2765.7	(5^-)			Eγ: for contaminated line; 792.8 from ^{248}Cm SF decay also. γ is placed differently in ^{208}Pb(^{18}O,Fxnγ) (feeding a 3786 level), implying a 4579 level

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Adopted Levels, Gammas (continued)

γ(^{92}Sr) (continued)

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	Comments
							which has not been adopted by the evaluator.
3786.0	(6$^-$,7$^-$)	771.3[@] *5*	≥24[@]	3014.6			E_γ: for contaminated line. Other Eγ: 771.3 in ^{248}Cm SF decay.
		1020.6[#]	100 *3*	2765.7	(5$^-$)		Other Eγ: 1020.2 *5* in ^{159}Tb(^{36}S,Fxnγ), but may be a doublet in that reaction; 1020.8 in ^{248}Cm SF decay. I_γ: from ^{159}Tb(^{36}S,Fxnγ).
4021.4	(6$^-$,7$^-$)	235.4[@] *5*	59.6[@] *22*	3786.0	(6$^-$,7$^-$)	(D)	E_γ: for contaminated line. Mult.: from DCO ratio in ^{159}Tb(^{36}S,Fxnγ).
		658.9[@] *5*	100[@] *4*	3362.4	(5$^-$)		
4637.8	1	1816.7 *5*	27 *6*	2820.89	2$^{(+)}$,(1)		
		2860.3 *21*	12 *12*	1778.33	2$^{(+)}$		
		3823.6 *16*	16 *10*	814.98	2$^+$		
		4637.7 *9*	100 *13*	0.0	0$^+$		
4928.5	(8$^-$,9$^-$)	1142.5[@] *5*	100[@] *4*	3786.0	(6$^-$,7$^-$)		
		1799.6[@&] *5*	31[@] *3*	3128.8	(6$^+$)		
5053.8	1	2232.0 *5*	100 *25*	2820.89	2$^{(+)}$,(1)		
		2913.2 *6*	92 *25*	2140.82	1$^+$		
		3670.8 *12*	54 *25*	1384.79	2$^+$		
		4240.4 *16*	42 *25*	814.98	2$^+$		
5056.7		1035.3[@] *5*	100	4021.4	(6$^-$,7$^-$)		
5727.2		798.7[@] *5*	100	4928.5	(8$^-$,9$^-$)		
5738.4	1	4922.6 *11*	100 *18*	814.98	2$^+$		
		5739.4 *14*	64 *24*	0.0	0$^+$		
5893.6	1$^{(-)}$	3110.0 *7*	100 *30*	2783.6			
		4508.2 *12*	63 *17*	1384.79	2$^+$		
5901.1	1$^{(-)}$	5086.2 *12*	93 *43*	814.98	2$^+$		
		5900.6 *14*	100 *29*	0.0	0$^+$		
6003.5	1$^-$	5188.1 *8*	100 *17*	814.98	2$^+$		
		6004.1 *15*	24 *8*	0.0	0$^+$		
6030.0	1$^-$	3502.0 *16*	33 *21*	2527.18	0$^+$		
		5215.1 *10*	100 *36*	814.98	2$^+$		
		6030.0 *15*	73 *21*	0.0	0$^+$		
6116.1	1$^-$	5301.7 *13*	100 *32*	814.98	2$^+$		
		6114.8 *15*	100 *32*	0.0	0$^+$		
6527.7?		800.5[@&] *5*	100	5727.2			
6949.1?	0$^-$,1$^-$	1895.1[&] *6*	53 *16*	5053.8	1		
		4809.3[&] *15*	100 *50*	2140.82	1$^+$		
7363.0	1$^-$	4835.9 *11*	62 *16*	2527.18	0$^+$		
		5584.2 *11*	100 *20*	1778.33	2$^{(+)}$		

[†] From ^{92}Rb β^- decay, except as noted.
[‡] From $\gamma\gamma(\theta)$ in Rb β^- decay.
[#] From ^{208}Pb(^{18}O,Fxnγ).
[@] From ^{159}Tb(^{36}S,Fxnγ).
[&] Placement of transition in the level scheme is uncertain.

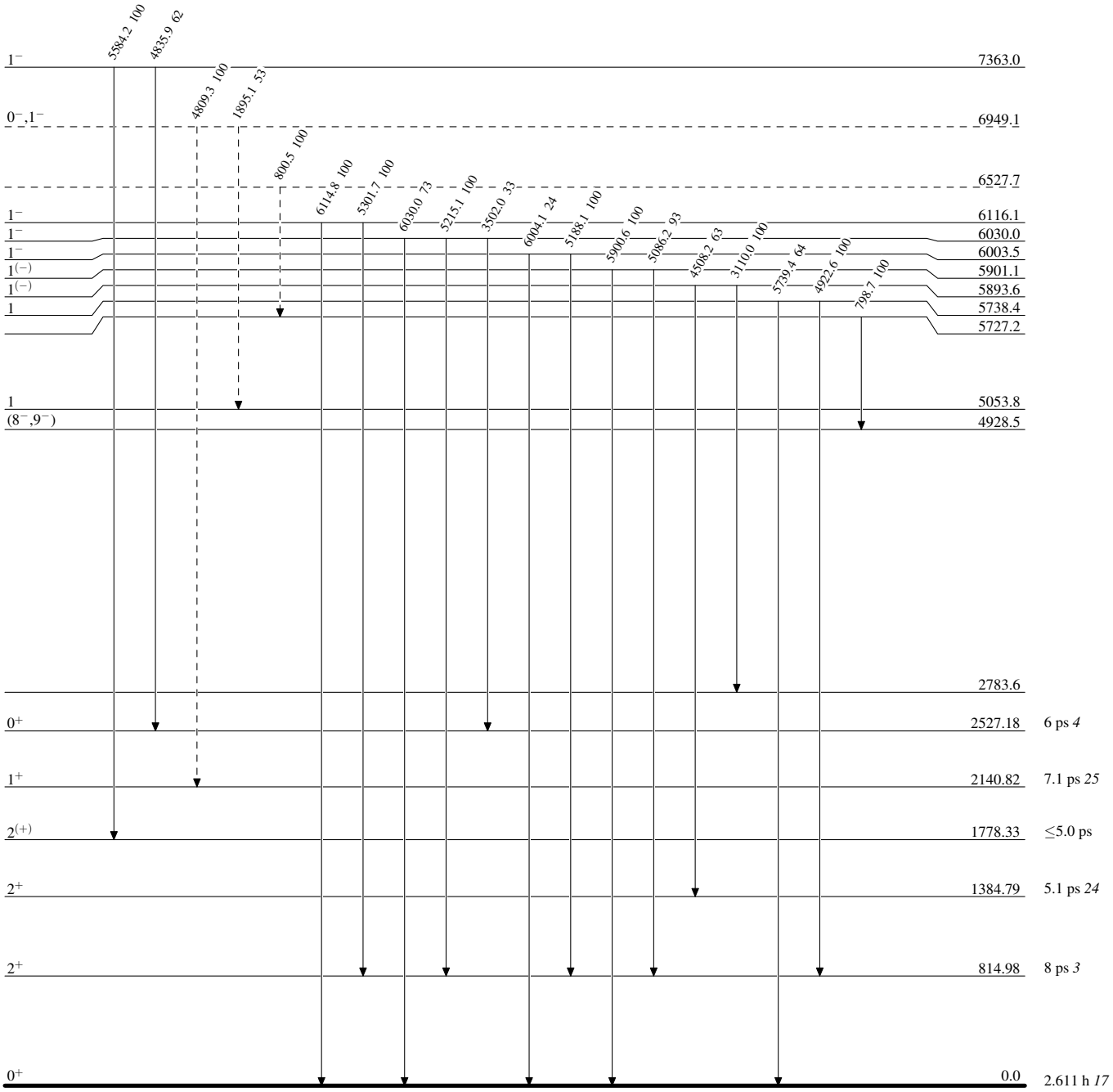
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{92}_{38}Sr_{54}$

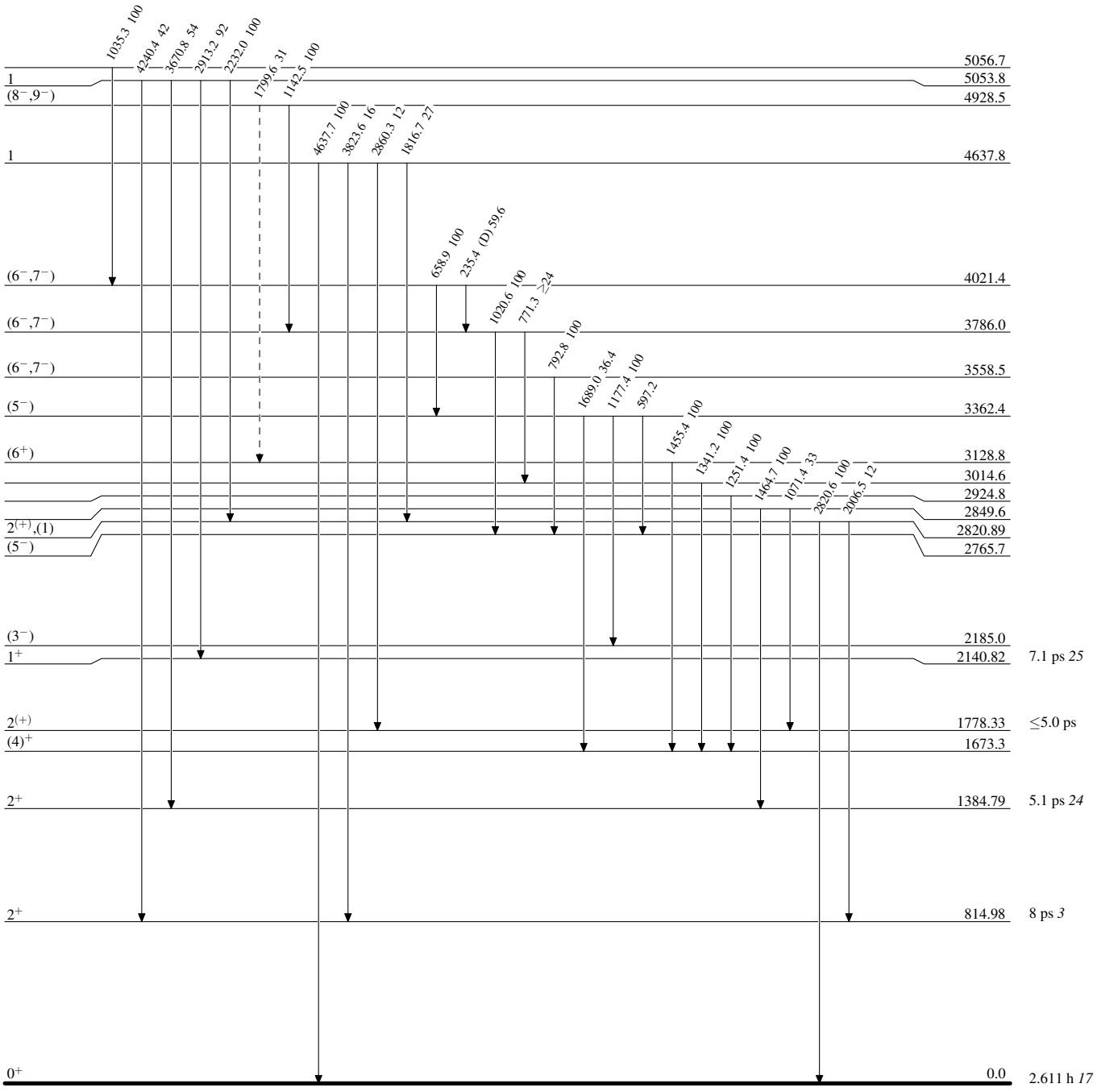
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

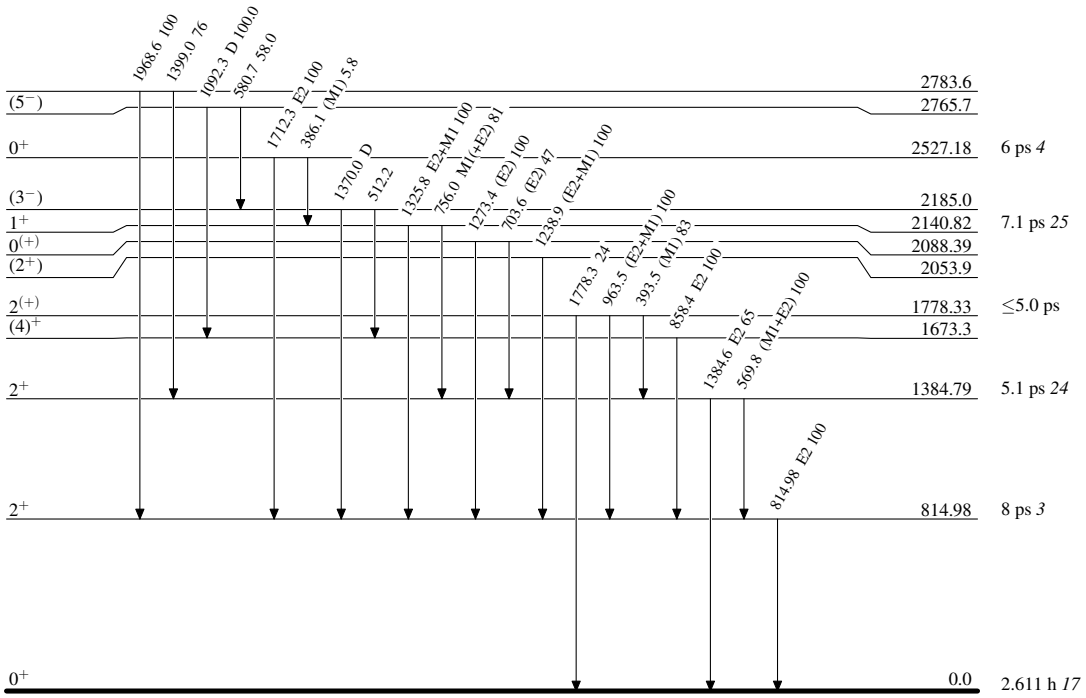


$^{92}_{38}Sr_{54}$

Adopted Levels, Gammas

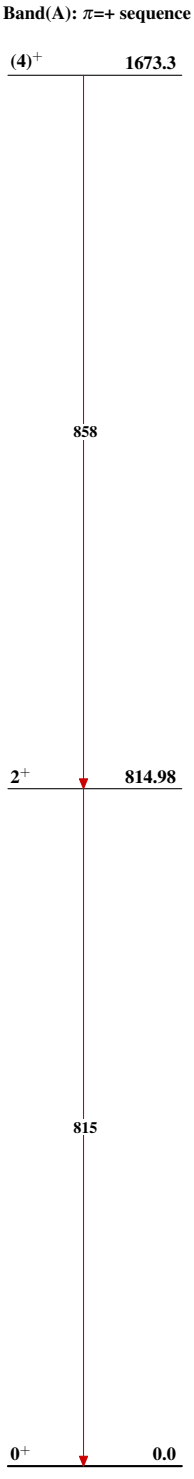
Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{92}_{38}Sr_{54}$

Adopted Levels, Gammas



$^{92}_{38}Sr_{54}$