

Adopted Levels, Gammas

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

$Q(\beta^-)=1950$ 10; $S(n)=7286$ 7; $S(p)=12411$ 9; $Q(\alpha)=-5601$ 5 [2012Wa38](#)

Note: Current evaluation has used the following Q record 1951 9 7286 7 12410 9 -5601 4 [2011AuZZ](#).

$Q(\beta^-)$, $S(n)$, $S(p)$, $Q(\alpha)$: 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 LevelsCross Reference (XREF) Flags

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

E(level) [†]	J ^π #	T _{1/2} [‡]	XREF	Comments
0.0 ^{&}	0 ⁺	2.611 h 17	ABCDEF	$\% \beta^- = 100$ $\Delta \langle r^2 \rangle (^{88}\text{Sr}, ^{92}\text{Sr}) = 0.512$; uncertainty is 0.005 (statistical only), 0.021 (systematic included) (1990Bu12). For discussion of differential changes in $\Delta \langle r^2 \rangle$, see 1996Li25 . J^π : 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. $\langle r^2 \rangle^{1/2}(\text{charge}) = 4.295$ fm 6 (2004An14).
814.98 ^{&} 3	2 ⁺	8 ps 3	ABCDEF	J^π : from 1273 γ -815 $\gamma(\theta)$ and 1712 γ -815 $\gamma(\theta)$ which indicate 0-2-0 ⁺ cascades; E2 γ to 0 ⁺ .
1384.79 9	2 ⁺	5.1 ps 24	ABC	J^π : 704 γ -1385 $\gamma(\theta)$ establishes J(2088 level)=0, J(1385 level)=2; E2 γ to 0 ⁺ level.
1673.3 ^{&} 4	(4) ⁺		DEF	J^π : E2, $\Delta J=2$ 858 γ to 2 ⁺ 815; energy is close to that for 4 ⁺ level in ^{90}Sr (2000Fo13).
1778.33 12	2 ⁽⁺⁾	≤5.0 ps	AB	J^π : 964 γ -815 $\gamma(\theta)$ allows J=2, not 1,3,4; 1778 γ to 0 ⁺ .
2053.9 6	(2 ⁺)		A	J^π : 1239 γ -815 $\gamma(\theta)$ allows J=2; datum $\approx 2\sigma$ from J=1,3,4 ellipses. (E2+M1) γ to 2 ⁺ .
2088.39 17	0 ⁽⁺⁾		A	J^π : 704 γ -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^π : 756 γ - $\gamma(\theta)$ allows J=1, not 2,3,4; E2+M1 γ to 2 ⁺ .
2185.0 4	(3 ⁻)		DEF	J^π : analogous to 3 ⁻ states in ^{88}Sr and ^{90}Sr at 2734 and 2207, respectively; D 1371 γ to 2 ⁺ 815.
2527.18 18	0 ⁺	6 ps 4	A	J^π : 1712 γ -815 $\gamma(\theta)$ establishes J(2527 level)=0, J(815 level)=2; E2 γ to 2 ⁺ .
2765.7 5	(5 ⁻)		DEF	J^π : energy systematics of lower-N Sr isotopes suggest a 5 ⁻ level in this vicinity (2000Fo13); D 1092 γ to (4) ⁺ 1673.
2783.6 4			A	
2820.89 18	2 ⁽⁺⁾ , (1)		A	J^π : $\gamma\gamma(\theta)$ 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 $\delta(2007\gamma) < -0.53$, favoring $\pi=+$.
2849.6 6			A	
2924.8 7			E	

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Adopted Levels, Gammas (continued) ^{92}Sr Levels (continued)

E(level) [†]	J ^π #	XREF	Comments
3014.6 6		EF	J ^π : 1341γ to (4) ⁺ 1673 so J=(2 to 6). J ^π =(4 ⁺) proposed in (³⁶ S,Fxnγ) but (5,6 ⁺) in ²⁴⁸ Cm SF decay. Possible dominant configuration: π (1p _{3/2} ⁻¹ 1p _{1/2}) ₂ ν(1d _{5/2} ⁴) ₂ (2002St06) if J=4.
3128.8 7	(6 ⁺)	EF	J ^π : 1455γ to (4) ⁺ 1673; (5,6 ⁺) from ²⁴⁸ Cm SF decay; possible configuration: π (1p _{3/2} ⁻¹ 1p _{1/2}) ₂ ν(1d _{5/2} ⁴) ₄ (2002St06).
3362.4 5	(5 ⁻)	EF	J ^π : 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	J ^π : 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	J ^π : log ft≈6.5 from 0 ⁻ ⁹² Rb; γ to 2 ⁺ .
5056.7 10		E	
5727.2 10		E	
5738.4 9	1	A	J ^π : log ft≈6.1 from 0 ⁻ ⁹² Rb; γ to 2 ⁺ and 0 ⁺ .
5893.6 7	1 ⁽⁻⁾	A	J ^π : log ft≈6.0 from 0 ⁻ ⁹² Rb; γ to 2 ⁺ .
5901.1 10	1 ⁽⁻⁾	A	J ^π : log ft≈6.0 from 0 ⁻ ⁹² Rb; γ to 0 ⁺ and 2 ⁺ .
6003.5 7	1 ⁻	A	J ^π : log ft≈5.7 from 0 ⁻ ⁹² Rb; γ to 0 ⁺ and 2 ⁺ .
6030.0 8	1 ⁻	A	J ^π : log ft≈5.8 from 0 ⁻ ⁹² Rb; γ to 0 ⁺ and 2 ⁺ .
6116.1 10	1 ⁻	A	J ^π : 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	J ^π : log ft≈4.0 from 0 ⁻ ⁹² Rb; γ to 2 ⁽⁺⁾ and 0 ⁺ .

[†] From least-squares fit to E_γ, allowing 1 keV uncertainty in E_γ 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 ¹⁵⁹Tb(³⁶S,Fxnγ), consistent with DCO measurements but suggested primarily by analogy with ⁹⁰Sr which exhibits a very similar level sequence.

@ From ²⁴⁸Cm SF decay, assuming that M2 transitions are unlikely if E_γ<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_{5/2}⁴ (2002St06).

γ(⁹²Sr)

E _i (level)	J _i ^π	E _γ [†]	I _γ [†]	E _f	J _f ^π	Mult.	δ [‡]	Comments
814.98	2 ⁺	814.98 3	100	0.0	0 ⁺	E2		B(E2)(W.u.)=8 3 Other E _γ : 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. B(E2)(W.u.)=0.35 18 Mult.: Q to 0 ⁺ in γγ(θ); not M2 from RUL.
		1384.6 3	65 12	0.0	0 ⁺	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.
1673.3	(4) ⁺	858.4@ 5	100	814.98	2 ⁺	E2		B(M1)(W.u.)≥0.029 Mult.: D from γγ(θ) in β ⁻ decay; Δπ=(no) from level scheme.
1778.33	2 ⁽⁺⁾	393.5 1	83 4	1384.79	2 ⁺	(M1)		

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Adopted Levels, Gammas (continued)

$\gamma(^{92}\text{Sr})$ (continued)								
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult.	$\delta^\ddagger$	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 $\gamma\gamma(\theta)$).
2053.9	(2^+)	1778.3 10 1238.9 6	24 13 100	0.0 0 ⁺ 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 [#] 1370.0 [@] 5		1673.3 (4) ⁺ 814.98 2^+		D		Other E_γ : 1371.1 in $^{208}\text{Pb}(^{18}\text{O}, \text{Fxn}\gamma)$. Mult.: D $\Delta J=1$ 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 1092.3 [@] 5	58.0 [@] 17 100.0 [@] 22	2185.0 (3) ⁻ 1673.3 (4) ⁺		D		Mult.: from DCO ratio in $^{159}\text{Tb}(^{36}\text{S}, \text{Fxn}\gamma)$.
2783.6		1399.0 6 1968.6 6	76 24 100 29	1384.79 2^+ 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 1464.7 6	33 100 33	1778.33 $2^{(+)}$ 1384.79 2^+				
2924.8		1251.4 [@] 5	100	1673.3 (4) ⁺				
3014.6		1341.2 [@] 5	100	1673.3 (4) ⁺				E_γ : for contaminated line; $E_\gamma=1342.3$ in ^{248}Cm SF decay.
3128.8	(6^+)	1455.4 [@] 5	100	1673.3 (4) ⁺				
3362.4	(5^-)	597.2 1177.4 [@] 5		2765.7 (5) ⁻ 2185.0 (3) ⁻				E_γ : from ^{248}Cm SF decay.
		1689.0 [@] 5	100 [@] 3 36.4 [@] 21	1673.3 (4) ⁺				
3558.5	$(6^-, 7^-)$	792.8 [@] 5	100	2765.7 (5) ⁻				E_γ : for contaminated line; 792.8 from ^{248}Cm SF decay also. γ is placed differently in $^{208}\text{Pb}(^{18}\text{O}, \text{Fxn}\gamma)$ (feeding a 3786 level), implying a 4579 level

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Adopted Levels, Gammas (continued)

$\gamma(^{92}\text{Sr})$ (continued)							Comments
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult.	
3786.0	(6 ⁻ , 7 ⁻)	771.3 @ 5	≥ 24 @	3014.6			which has not been adopted by the evaluator. E _γ : for contaminated line. Other E _γ : 771.3 in ²⁴⁸ Cm SF decay.
		1020.6 #	100 3	2765.7	(5 ⁻)		Other E _γ : 1020.2 5 in ¹⁵⁹ Tb(³⁶ S, Fxn γ), but may be a doublet in that reaction; 1020.8 in ²⁴⁸ Cm SF decay.
4021.4	(6 ⁻ , 7 ⁻)	235.4 @ 5	59.6 @ 22	3786.0	(6 ⁻ , 7 ⁻)	(D)	I _γ : from ¹⁵⁹ Tb(³⁶ S, Fxn γ). E _γ : for contaminated line. Mult.: from DCO ratio in ¹⁵⁹ Tb(³⁶ S, Fxn γ).
4637.8	1	658.9 @ 5	100 @ 4	3362.4	(5 ⁻)		
		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 ⁹²Rb β^- decay, except as noted.

[‡] From $\gamma\gamma(\theta)$ in Rb β^- decay.

From ²⁰⁸Pb(¹⁸O, Fxn γ).

@ From ¹⁵⁹Tb(³⁶S, Fxn γ).

& Placement of transition in the level scheme is uncertain.

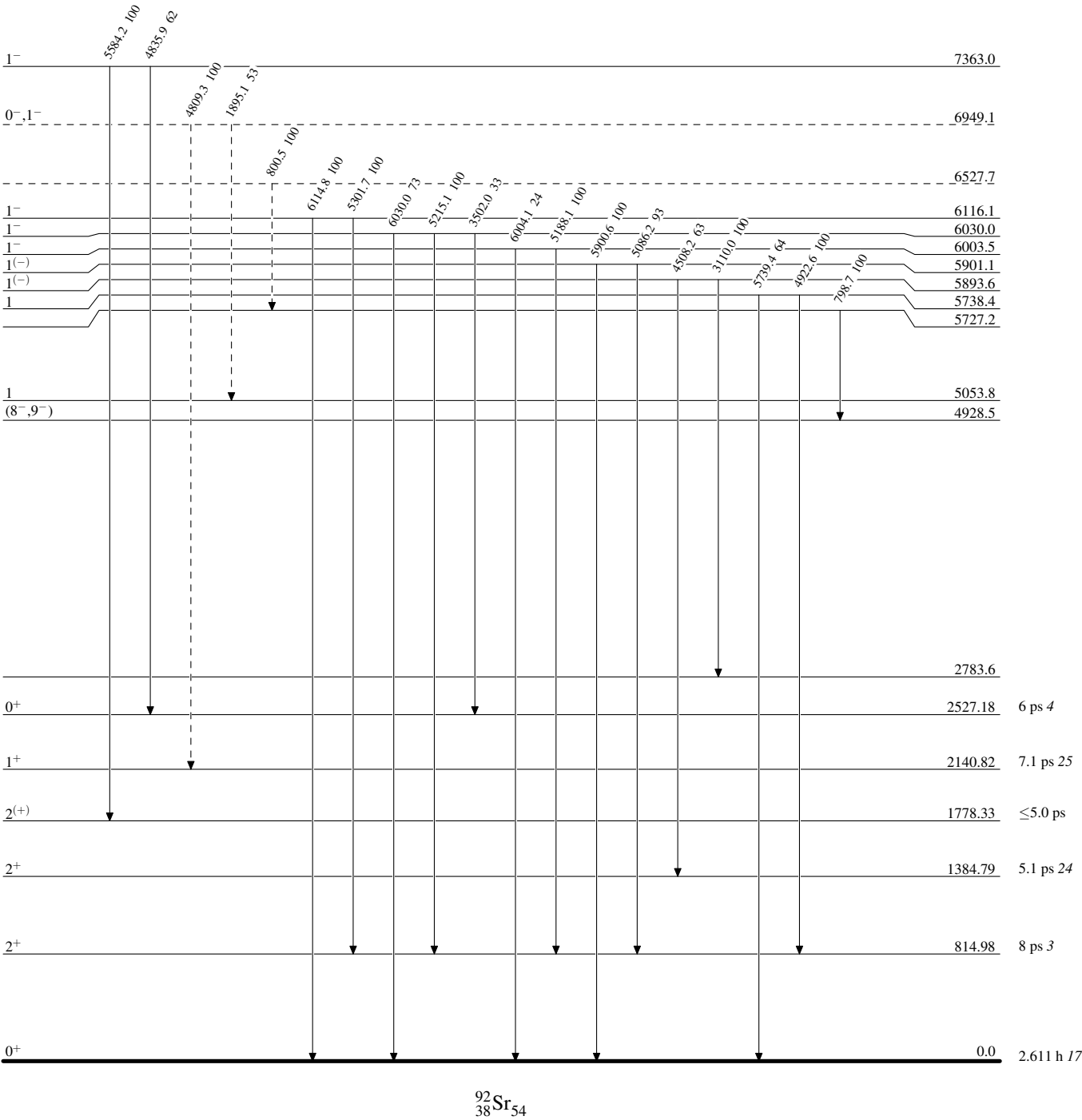
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

-----▶ γ Decay (Uncertain)

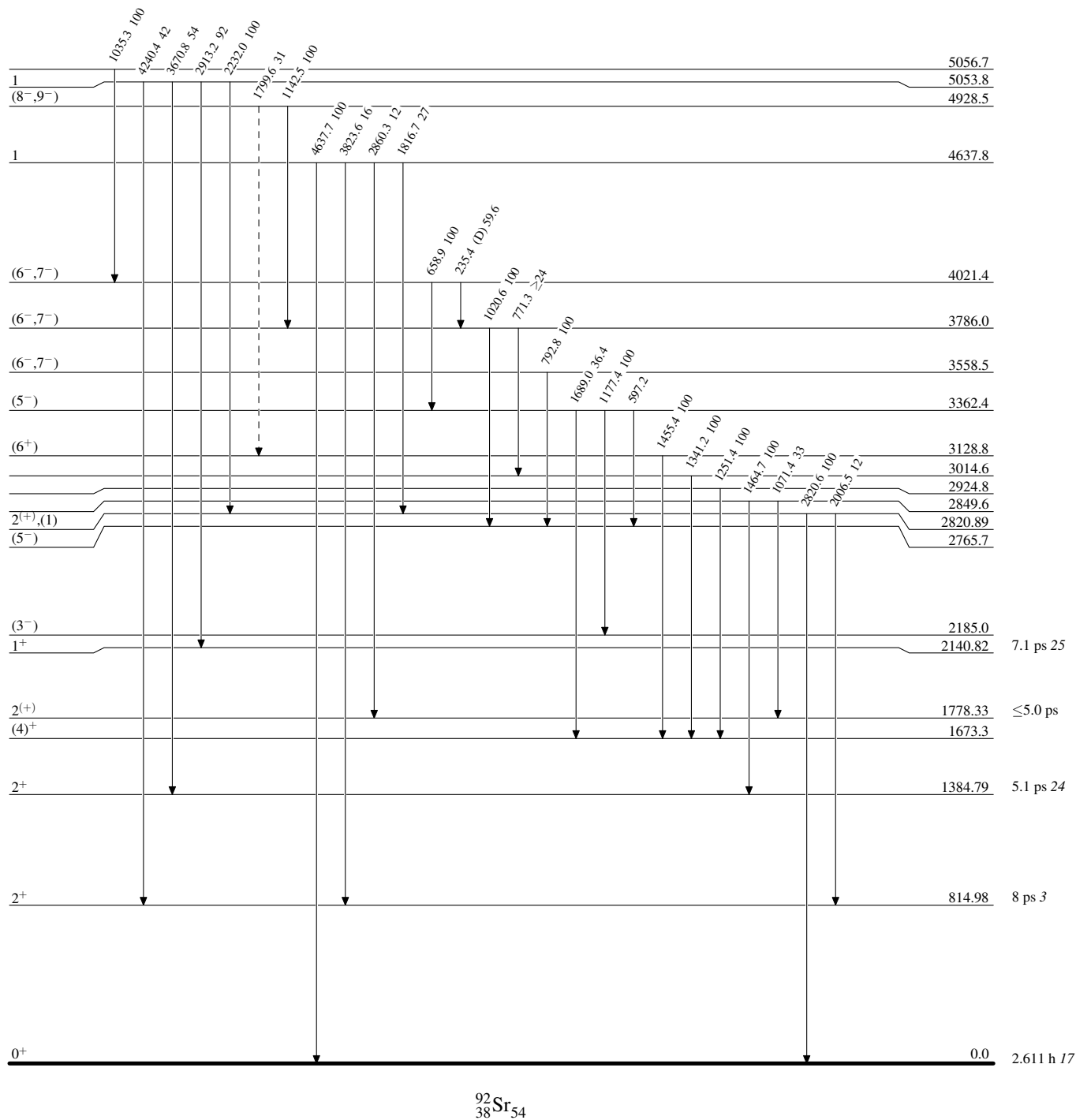


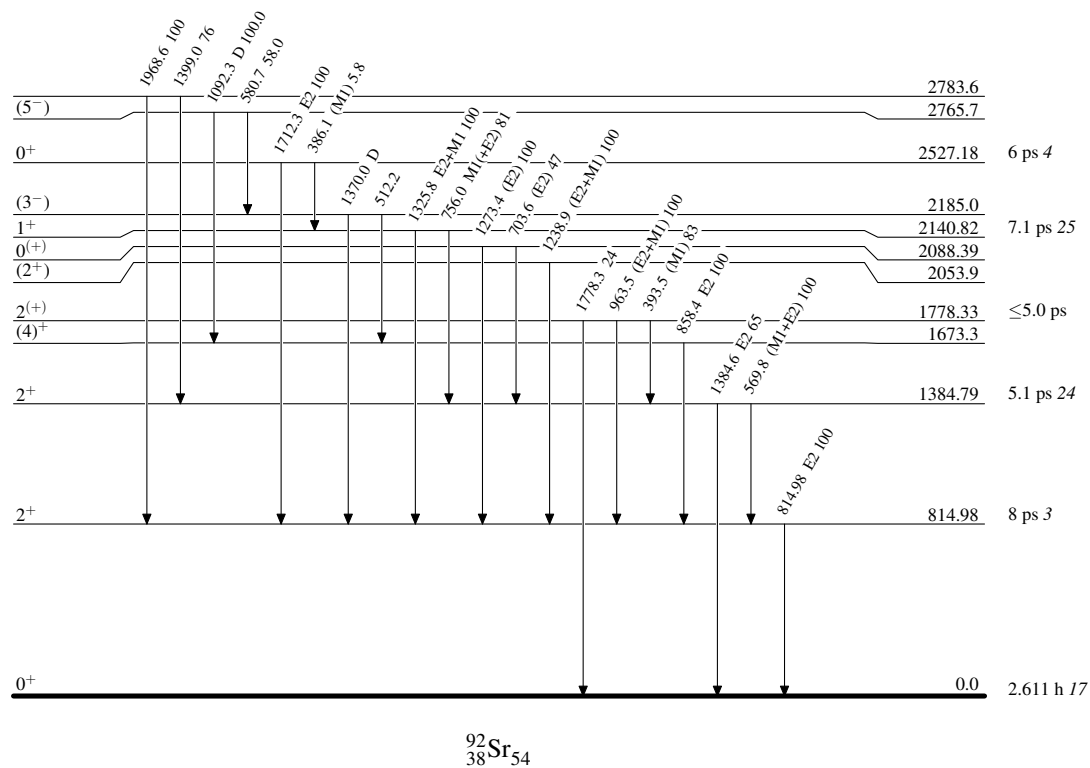
Adopted Levels, Gammas

Legend

Level Scheme (continued)

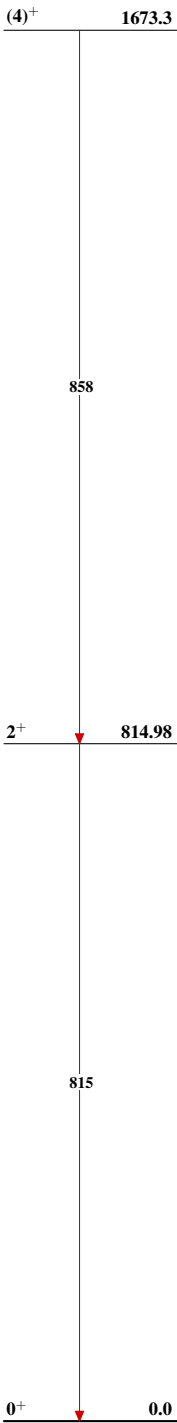
Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)



Adopted Levels, Gammas

Band(A): $\pi=+$ sequence



$^{92}_{38}\text{Sr}_{54}$