^{83}Sr ε decay 2000Sh49

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

Parent: ^{83}Sr: E=0.0; $J^\pi=7/2^+$; $T_{1/2}$=32.41 h *3*; Q(ε)=2273 *6*; %ε+%$β^+$ decay=100.0

2014In02: ^{83}Sr activity produced by proton spallation on a metallic Y target with E(p)=300 MeV followed by chemical separation. Measured Ee, Ie using a combined electrostatic electron spectrometer consisting of a retarding sphere followed by a double-pass cylindrical mirror energy analyzer.

2000Sh49,2000Yu03: ^{83}Sr activity produced in the ^{85}Rb(p,3n) reaction with E(p)=27.1 MeV followed by chemical separation. Target consisted of high-purity RbCl powder. Measured Eγ, Iγ using a Compton-suppressed HPGe detector and γγ using a planar Ge detector and a coaxial Ge detector.

1982Gr07: ^{83}Sr activity produced in the irradiation of RbCl pellets with 72-MeV protons. Stacks of targets and aluminum degraders were used and ^{83}Sr was observed down to a mean proton energy of 29 MeV. Measured Eγ, Iγ, γ(t) using a Ge(Li) detector for the energy range 80 − 2250 keV and a planar Ge detector for energies below 800 keV.

1973Br32: ^{83}Sr activity produced first through the production of ^{83}Y in the ^{65}Cu(^{22}Ne,4n), E(^{22}Ne)=85 MeV followed by β decay to ^{83}Sr. Measured Eγ, Iγ, γ(t), γγ, βγ coincidences using Ge(Li) detectors and a plastic NE102 scintillator.

Others: 1968Et01, 1972Mo16, 1972Mo40, 1982Po04.

The level scheme is that of 2000Sh49. Precise energies and intensities are reported by 1982Gr07, however, they did not construct a level scheme. There is good agreement between 1973Br32 and 2000Sh49 concerning the placement of strong transitions, however, considerable disagreement in the placement of weak transitions. These are indicated in the comments. Eight levels (760, 1044, 1054.5, 1085.5, 1808, 2020, 2147, and 2178 keV) proposed by 1973Br32 are not observed in 2000Sh49. For the most part, transitions depopulating these levels are given alternative placements in the level scheme by 2000Sh49.

A total energy release of 2270 keV *90* is calculated for this decay using the RADLST code, in good agreement with the Q value of 2273 keV *6*.

α: Additional information 1.

α: Additional information 2.

^{83}Rb Levels

E(level)[†]	J^π[#]	$T_{1/2}$[‡]	Comments
0.0	$5/2^-$	86.2 d *1*	$T_{1/2}$: from the Adopted Levels.
5.2357 *8*	$3/2^-$	71.5 ns *8*	$T_{1/2}$: from ceγ(t) in 1972Mo16.
42.0780 *20*	$9/2^+$	7.8 ms *7*	$T_{1/2}$: unpublished value reported by 1968Et01, considered questionable.
99.35 *8*	$3/2^-$	<150 ps	$T_{1/2}$: considered questionable, see the Adopted Levels. $T_{1/2}$: other: 1.2 ns, unpublished value reported by 1968Et01, considered questionable.
389.40 *7*	$3/2^-$	<130 ps	
423.613 *16*	$5/2^+$	<150 ps	
466.7 *4*			
564.57 *9*	$(3/2^-,5/2,7/2^-)$		
737.16 *6*	$7/2^-$		
793.8 *4*	$13/2^+$		
804.77 *3*	$(7/2)^+$	<60 ps	
821.62 *15*	$(3/2)^-$		
853.98 *11*	$(3/2^-,5/2,7/2^-)$		
908.00 *11*	$(3/2,5/2,7/2^-)$		
1010.34 *14*	$(3/2^-,5/2,7/2^-)$		
1035.13 *10*	$(3/2^-,5/2,7/2^-)$		
1037.68 *18*	$11/2^+$		
1083.21 *9*			
1096.53 *8*	$(7/2^+,9/2^+)$		
1102.90 *19*	$9/2^-$		
1202.07 *7*	$(5/2,7/2,9/2)^+$		
1242.93 *6*	$(5/2)^+$		
1277.5 *4*	$(3/2^-,5/2,7/2^-)$		

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^{83}Sr ε decay 2000Sh49 (continued)

^{83}Rb Levels (continued)

E(level)†	Jπ#	E(level)†	Jπ#	E(level)†	Jπ#
1296.07 *10*	(5/2,7/2⁻)	1649.4 *5*	(3/2⁻,5/2,7/2⁻)	2057.14 *12*	(7/2⁺,9/2)
1366.0 *4*	(7/2⁺,9/2)	1695.45 *13*	(7/2,9/2)⁺	2089.90 *8*	(5/2⁺,7/2⁺)
1374.6 *6*		1749.33 *8*	(5/2⁺,7/2)	2095.0 *6*	(5/2⁺,7/2,9/2)
1424.7 *4*		1798.57 *8*	(5/2)⁺	2134.86 *11*	(5/2⁺,7/2)
1597.68 *10*	(5/2,7/2⁻)	1916.41 *19*	(5/2,7/2⁻)	2189.73 *14*	9/2⁺
1606.2 *5*	(3/2,5/2,7/2⁻)	1952.04 *6*	5/2⁺		
1614.8 *4*	(5/2⁺,7/2,9/2⁺)	2036.5 *5*	(5/2,7/2⁻)		

† From a least-squares fit to Eγ, by evaluator.
‡ From delay coincidence timing in 1973Br32, except where noted.
# From the Adopted Levels.

ε,β⁺ radiations

E(decay)	E(level)	Iβ⁺ ‡	Iε‡	Log *ft*	I(ε+β⁺)†‡	Comments
(83 *6*)	2189.73		0.38 *3*	5.11 *9*	0.38 *3*	εK=0.833 *5*; εL=0.137 *4*; εM+=0.0301 *9*
(138 *6*)	2134.86		0.175 *15*	5.95 *6*	0.175 *15*	εK=0.8532 *13*; εL=0.1207 *11*; εM+=0.0261 *3*
(178 *6*)	2095.0		0.025 *3*	7.04 *7*	0.025 *3*	εK=0.8592 *8*; εL=0.1159 *6*; εM+=0.02492 *14*
(183 *6*)	2089.90		0.47 *4*	5.79 *5*	0.47 *4*	εK=0.8598 *7*; εL=0.1154 *6*; εM+=0.02481 *13*
(216 *6*)	2057.14		0.103 *10*	6.60 *5*	0.103 *10*	εK=0.8627 *5*; εL=0.1131 *4*; εM+=0.02424 *9*
(237 *6*)	2036.5		0.036 *4*	7.14 *6*	0.036 *4*	εK=0.8641 *4*; εL=0.1120 *3*; εM+=0.02397 *8*
(321 *6*)	1952.04		4.7 *4*	5.31 *4*	4.7 *4*	εK=0.8678 *2*; εL=0.10899 *16*; εM+=0.02324 *4*
(357 *6*)	1916.41		0.050 *5*	7.37 *5*	0.050 *5*	εK=0.8688 *2*; εL=0.10818 *13*; εM+=0.02304 *3*
(474 *6*)	1798.57		0.53 *7*	6.61 *6*	0.53 *7*	εK=0.8710; εL=0.10640 *7*; εM+=0.02261 *2*
(524 *6*)	1749.33		0.39 *4*	6.83 *5*	0.39 *4*	εK=0.8716; εL=0.10590 *6*; εM+=0.02249 *2*
(578 *6*)	1695.45		0.37 *4*	6.94 *5*	0.37 *4*	εK=0.8722; εL=0.10546 *5*; εM+=0.02238 *2*
(624 *6*)	1649.4		0.072 *6*	7.72 *4*	0.072 *6*	εK=0.8726; εL=0.10514 *4*; εM+=0.02230 *1*
(658 *6*)	1614.8		0.128 *14*	7.51 *5*	0.128 *14*	εK=0.8728; εL=0.10494 *4*; εM+=0.022249 *9*
(667 *6*)	1606.2		0.053 *7*	7.91 *6*	0.053 *7*	εK=0.8729; εL=0.10489 *4*; εM+=0.022238 *9*
(675 *6*)	1597.68		0.128 *15*	7.54 *6*	0.128 *15*	εK=0.8729; εL=0.10484 *4*; εM+=0.022226 *8*
(898 *6*)	1374.6		0.0053 *13*	9.17 *11*	0.0053 *13*	εK=0.8740; εL=0.10394 *2*; εM+=0.022008 *5*
(907 *6*)	1366.0		0.152 *17*	7.72 *5*	0.152 *17*	εK=0.8741; εL=0.10392 *2*; εM+=0.022001 *5*
(977 *6*)	1296.07		0.197 *17*	7.68 *4*	0.197 *17*	εK=0.8743; εL=0.10373 *2*; εM+=0.021955 *4*
(996 *6*)	1277.5		0.023 *8*	8.62 *16*	0.023 *8*	εK=0.8744; εL=0.10368 *2*; εM+=0.021944 *4*
(1030 *6*)	1242.93		1.90 *14*	6.74 *4*	1.90 *14*	εK=0.8745; εL=0.10360 *2*; εM+=0.021924 *4*
(1071 *6*)	1202.07		3.10 *23*	6.56 *4*	3.10 *23*	εK=0.8746; εL=0.10351 *2*; εM+=0.021902 *4*
(1170 *6*)	1102.90		0.010 *3*	9.13 *13*	0.010 *3*	εK=0.8745; εL=0.10328 *2*; εM+=0.021848 *4*
(1176 *6*)	1096.53		0.019 *17*	8.9 *4*	0.019 *17*	εK=0.8745; εL=0.10326 *2*; εM+=0.021844 *5*
(1235# *6*)	1037.68	<5.×10⁻⁵	<0.03	>8.7	<0.03	av Eβ=98.5 *26*; εK=0.8735 *2*; εL=0.10304 *3*; εM+=0.021793 *7*
(1238# *6*)	1035.13	<5.×10⁻⁵	<0.03	>8.7	<0.03	av Eβ=99.6 *26*; εK=0.8734 *2*; εL=0.10303 *4*; εM+=0.021790 *7*
(1263 *6*)	1010.34	0.00015 *3*	0.053 *8*	8.47 *7*	0.053 *8*	av Eβ=110.2 *26*; εK=0.8726 *3*; εL=0.10289 *4*; εM+=0.021759 *9*
(1365# *6*)	908.00	<0.0008	<0.07	>8.4	<0.07	av Eβ=153.7 *26*; εK=0.8654 *7*; εL=0.10187 *9*; εM+=0.02154 *2*
(1419 *6*)	853.98	0.0007 *4*	0.035 *20*	8.75 *25*	0.036 *20*	av Eβ=176.7 *26*; εK=0.8582 *10*; εL=0.10096 *13*; εM+=0.02134 *3*
(1451 *6*)	821.62	0.00057 *18*	0.021 *7*	8.99 *14*	0.022 *7*	av Eβ=190.4 *26*; εK=0.8525 *12*; εL=0.10025 *15*; εM+=0.02119 *4*
(1468 *6*)	804.77	0.78 *8*	25.1 *21*	5.93 *4*	25.9 *22*	av Eβ=197.6 *26*; εK=0.8491 *13*; εL=0.09982 *16*;

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^{83}Sr ε decay 2000Sh49 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
						εM+=0.02110 *4*
(1479# *6*)	793.8	<0.00039	<0.012	>9.3	<0.012	av Eβ=202.3 *26*; εK=0.8467 *14*; εL=0.09953 *17*; εM+=0.02104 *4*
(1536 *6*)	737.16	0.0011 *9*	0.021 *18*	9.0 *4*	0.022 *19*	av Eβ=226.4 *26*; εK=0.8321 *18*; εL=0.09775 *22*; εM+=0.02066 *5*
(1849 *6*)	423.613	3.2 *3*	11.5 *9*	6.47 *4*	14.7 *12*	av Eβ=361.4 *27*; εK=0.684 *4*; εL=0.0801 *5*; εM+=0.01692 *10*
(1884# *6*)	389.40	<0.044	<0.14	>8.4	<0.18	av Eβ=376.3 *27*; εK=0.662 *4*; εL=0.0775 *5*; εM+=0.01638 *10*
(2231 *6*)	42.0780	11 *3*	12 *4*	6.63 *14*	23 *7*	av Eβ=529.3 *27*; εK=0.439 *4*; εL=0.0513 *5*; εM+=0.01083 *9*
(2273 *6*)	0.0	12.4 *11*	11.1 *10*	6.66 *4*	23.5 *20*	av Eβ=548.1 *27*; εK=0.415 *4*; εL=0.0484 *4*; εM+=0.01023 *9* I(ε+β+): from Iγ(γ±).

† From an intensity balance at each level, except where noted.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{83}Rb)

Iγ normalization, I(γ+ce) normalization: From Iγ(γ±)=160 *5* (2000Sh49) taking Iγ(762γ)=100. Other: Iγ(γ±)=163 *16* (1968Et01).

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡g]	α	$I_{(\gamma+ce)}$ [h]	Comments
5.2357 *8*		5.2357	3/2$^-$	0.0	5/2$^-$	M1+E2	2.6×10^{-5} *2*	99.5	21.1 *5*	ce(L)/(γ+ce)=0.836 *7*; ce(M)/(γ+ce)=0.138 *3*; ce(N)/(γ+ce)=0.0154 *3*; ce(O)/(γ+ce)=0.000633 *13* α(L)=84.0 *12*; α(M)=13.89 *22*; α(O)=0.0637 *9* L1/L2=9.1 *2* (2014In02); L1/L3=16.8 *4* (2014In02); L1/(L2+L3)=5.9 *1* (2014In02), 9.6 *16* (1972Mo16); L/M=6.3 *2* (2014In02), 5.5 *5* (1972Mo16); M1/(M2+M3)=24.0 *23* (2014In02). E_γ: from 2014In02. Other: 5.23 *9* (1972Mo16). $I_{(\gamma+ce)}$: from intensity balance assuming no direct population of the 5.2-keV level. From ΔJ=2,Δπ=yes, Iβ(5.2)<0.25.
42.078 *2*	6.2 *6*	42.0780	9/2$^+$	0.0	5/2$^-$	M2		38.7 *8*		α(K)=31.8 *7*; α(L)=5.77 *12*; α(M)=0.985 *21*; α(N)=0.1071 *22*; α(O)=0.00388 *8* K/L=5.2 *2*, L/M=5.5 *6* (1972Mo16), α(K)exp=29.3 *35*, K/L=5.5 *1*, L1/(L2+L3)=2.8 *2*, K/M=30 *2* (1968Et01). E_γ: from 2014In02. Other: 42.33 *15* 1972Mo16. I_γ: deduced from I(γ+ce)=247 (2000Sh49) and α. Others: 5.3 *5* (1973Br32).
94.11[e] *10*	1.42 *10*	99.35	3/2$^-$	5.2357	3/2$^-$	M1+E2	0.29 *5*	0.25 *3*		α(K)=0.218 *23*; α(L)=0.028 *4*; α(M)=0.0047 *7*; α(N)=0.00051 *7*; α(O)=1.83×10^{-5} *17* α(K)exp=0.22 *2* (1968Et01). I_γ: deduced from I(γ+ce)=1.77 (2000Sh49) and α. Others: 1.52 *6* (1982Gr07), 1.37 *10* (1973Br32).
153.55	0.043 *4*	1952.04	5/2$^+$	1798.57	(5/2)$^+$					
x156.8[f] *3*	0.13[f] *6*									
159.75[e] *10*	0.41 *5*	1242.93	(5/2)$^+$	1083.21						I_γ: others: 0.37 *3* (1982Gr07), 0.51 *8* (1973Br32).

$^{83}_{37}$Rb$_{46}$-4

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ[†]	I_γ[#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡g]	α	Comments
172.5	0.059 *6*	737.16	7/2⁻	564.57	(3/2⁻,5/2,7/2⁻)				
243.9	0.050 *5*	1037.68	11/2⁺	793.8	13/2⁺				
269.5	0.040 *4*	1366.0	(7/2⁺,9/2)	1096.53	(7/2⁺,9/2⁺)				
270.8	0.030 *3*	1695.45	(7/2,9/2)⁺	1424.7					
289.53	0.12 *2*	853.98	(3/2⁻,5/2,7/2⁻)	564.57	(3/2⁻,5/2,7/2⁻)				
290.04[e] *10*	1.36 *20*	389.40	3/2⁻	99.35	3/2⁻	M1+E2	1.3 *+8−6*	0.016 *4*	α(K)=0.014 *3*; α(L)=0.0016 *4*; α(M)=0.00027 *7*; α(N)=3.0×10^{-5} *7*; α(O)=1.19×10^{-6} *24* α(K)exp=0.014 *2*, K/(L+M)=10 *2* (1968Et01). I_γ: others: 1.46 *11* (1982Gr07), 1.78 *24* (1973Br32).
291.61	0.087 *9*	1096.53	(7/2⁺,9/2⁺)	804.77	(7/2)⁺				
298.02	0.092 *10*	1035.13	(3/2⁻,5/2,7/2⁻)	737.16	7/2⁻				
328.4	0.020 *2*	1366.0	(7/2⁺,9/2)	1037.68	11/2⁺				
343.4	0.030 *3*	908.00	(3/2,5/2,7/2⁻)	564.57	(3/2⁻,5/2,7/2⁻)				
345.80	0.030 *3*	1952.04	5/2⁺	1606.2	(3/2,5/2,7/2⁻)				
354.32	0.20 *2*	1952.04	5/2⁺	1597.68	(5/2,7/2⁻)				
365.5	0.025 *3*	1102.90	9/2⁻	737.16	7/2⁻				
371.9	0.020 *2*	1614.8	(5/2⁺,7/2,9/2⁺)	1242.93	(5/2)⁺				
381.17[cd] *3*	6.7[c] *7*	804.77	(7/2)⁺	423.613	5/2⁺	M1+E2	>2.9	0.00790 *22*	α(K)=0.00696 *20*; α(L)=0.000796 *23*; α(M)=0.000131 *4*; α(N)=1.46×10^{-5} *5*; α(O)=5.87×10^{-7} *16* α(K)exp=0.0071 *3*, K/(L+M)=7.4 for 381.2 and 381.5-keV doublet transitions (1968Et01). I_γ: other: 8.3 *8* (1982Po04).
381.53[cd] *3*	52.3[c] *20*	423.613	5/2⁺	42.0780	9/2⁺	E2		0.00806	α(K)=0.00710 *10*; α(L)=0.000813 *12*; α(M)=0.0001340 *19*; α(N)=1.489×10^{-5} *21* α(O)=5.98×10^{-7} *9* α(K)exp=0.0071 *3*, K/(L+M)=7.4 for 381.2 and 381.5-keV doublet transitions (1968Et01). I_γ: other: 46.9 *16* (1982Po04).
384.18	0.19 *2*	389.40	3/2⁻	5.2357	3/2⁻				
389.37[e] *10*	5.6 *3*	389.40	3/2⁻	0.0	5/2⁻	E2(+M1)	4.3 *25*	0.0074 *6*	α(K)=0.0065 *6*; α(L)=0.00074 *7*; α(M)=0.000122 *11*; α(N)=1.36×10^{-5} *12*; α(O)=5.5×10^{-7} *5* α(K)exp=0.0065 *5*, K/(L+M)=8 *2* (1968Et01). I_γ: others: 5.52 *20* (1982Gr07), 5.2 *4* (1973Br32).

$^{83}_{37}Rb_{46}$-5

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ[†]	I_γ[#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡g]	α	Comments
394.47	0.026 *3*	2089.90	(5/2$^+$,7/2$^+$)	1695.45	(7/2,9/2)$^+$				
395.62	0.21 *2*	1597.68	(5/2,7/2$^-$)	1202.07	(5/2,7/2,9/2)$^+$				
418.37[d] *3*	15.7 *5*	423.613	5/2$^+$	5.2357	3/2$^-$	E1		1.64×10^{-3}	α(K)=0.001452 *21*; α(L)=0.0001557 *22*; α(M)=2.56×10^{-5} *4*; α(N)=2.90×10^{-6} *4* α(O)=1.238×10^{-7} *18* α(K)exp=0.0014 *2* (1968Et01). I_γ: others: 14.7 *5* (1982Po04), 15.4 *4* (1982Gr07), 16.9 *12* (1973Br32).
423.63[d] *3*	5.4 *2*	423.613	5/2$^+$	0.0	5/2$^-$	E1		1.58×10^{-3}	α(K)=0.001406 *20*; α(L)=0.0001508 *22*; α(M)=2.48×10^{-5} *4*; α(N)=2.81×10^{-6} *4* α(O)=1.200×10^{-7} *17* α(K)exp=0.0016 *4* (1968Et01). I_γ: others: 5.3 *2* (1982Po04), 5.41 *12* (1982Gr07), 5.25 *38* (1973Br32).
438.16[e] *10*	2.90 *15*	1242.93	(5/2)$^+$	804.77	(7/2)$^+$	M1(+E2)	<0.40	0.00337 *15*	α(K)=0.00298 *13*; α(L)=0.000325 *15*; α(M)=5.37×10^{-5} *25*; α(N)=6.1×10^{-6} *3*; α(O)=2.62×10^{-7} *10* α(K)exp=0.0027 *4* (1968Et01). I_γ: others: 2.85 *11* (1982Gr07), 3.02 *21* (1973Br32). Mult.,δ: D+Q from γγ(θ) with A_2=+0.35 *6*, A_4=+0.08 *11* for 438γ-762γ cascade (1973Br32). Mult.,δ: other: from γγ(θ) in 1973Br32, 0.03≤ δ ≤0.37.
440.85	0.042 *4*	908.00	(3/2,5/2,7/2$^-$)	466.7					
445.69	0.058 *6*	1010.34	(3/2$^-$,5/2,7/2$^-$)	564.57	(3/2$^-$,5/2,7/2$^-$)				
461.82	0.072 *7*	466.7		5.2357	3/2$^-$				
470.69	0.026 *3*	1035.13	(3/2$^-$,5/2,7/2$^-$)	564.57	(3/2$^-$,5/2,7/2$^-$)				
484.5	0.020 *2*	908.00	(3/2,5/2,7/2$^-$)	423.613	5/2$^+$				
493.45	0.15 *2*	1695.45	(7/2,9/2)$^+$	1202.07	(5/2,7/2,9/2)$^+$				
494.1	0.050 *5*	2189.73	9/2$^+$	1695.45	(7/2,9/2)$^+$				
506.4	0.26 *3*	1749.33	(5/2$^+$,7/2)	1242.93	(5/2)$^+$				
518.5	0.11 *1*	908.00	(3/2,5/2,7/2$^-$)	389.40	3/2$^-$				
537.12	0.034 *4*	2134.86	(5/2$^+$,7/2)	1597.68	(5/2,7/2$^-$)				
547.3	0.030 *3*	1749.33	(5/2$^+$,7/2)	1202.07	(5/2,7/2,9/2)$^+$				
555.63	0.027 *3*	1798.57	(5/2)$^+$	1242.93	(5/2)$^+$				
559.35[e] *10*	0.73 *3*	564.57	(3/2$^-$,5/2,7/2$^-$)	5.2357	3/2$^-$				I_γ: others: 0.74 *3* (1982Gr07), 0.64 *9* (1973Br32).
561.22	0.073 *8*	1366.0	(7/2$^+$,9/2)	804.77	(7/2)$^+$				

$^{83}_{37}Rb_{46}$-6

γ(^{83}Rb) (continued)

E_γ †	I_γ #h	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α	Comments
564.45[e] *20*	0.29 *3*	564.57	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$			I_γ: others: 0.32 *6* (1982Gr07), 0.40 *9* for multiply placed transition, also placed as depopulating a 1808-keV level (1973Br32).
568.00	0.013 *2*	1035.13	(3/2$^-$,5/2,7/2$^-$)	466.7				
577.18	0.030 *3*	1952.04	5/2$^+$	1374.6				
599.12	0.018 *2*	1695.45	(7/2,9/2)$^+$	1096.53	(7/2$^+$,9/2$^+$)			
611.4	0.020 *2*	1035.13	(3/2$^-$,5/2,7/2$^-$)	423.613	5/2$^+$			
630.9[e] *3*	0.087 *9*	1424.7		793.8	13/2$^+$			E_γ,I_γ: 1982Gr07 observe Eγ=630.9 *3* with Iγ=0.10 *2*, while 1973Br32 place a 630.8 *6* transition with Iγ=0.12 *4* as depopulating a 1054-keV level.
637.39	0.057 *6*	1202.07	(5/2,7/2,9/2)$^+$	564.57	(3/2$^-$,5/2,7/2$^-$)			I_γ: others: 0.13 *4* (1982Gr07), 0.18 *5* for multiply placed transition, also placed as tentatively depopulating the 737-keV level (1973Br32).
639.13	0.051 *5*	1649.4	(3/2$^-$,5/2,7/2$^-$)	1010.34	(3/2$^-$,5/2,7/2$^-$)			
645.8[e] *2*	0.18 *2*	1035.13	(3/2$^-$,5/2,7/2$^-$)	389.40	3/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=645.8 *2* with Iγ=0.160 *15*, while 1973Br32 place a 645.5 *4* transition with Iγ=0.27 *6* as depopulating the 1749-keV level.
652.81[e] *10*	0.28 *3*	1749.33	(5/2$^+$,7/2)	1096.53	(7/2$^+$,9/2$^+$)			E_γ,I_γ: 1982Gr07 observe Eγ=652.8 with Iγ=0.25 *3*, while 1973Br32 place a 652.5 *4* transition with Iγ=0.33 *8* as depopulating the 1695-keV level.
657.68	0.32 *4*	1695.45	(7/2,9/2)$^+$	1037.68	11/2$^+$			E_γ,I_γ: likely corresponds to Eγ=657.73 *15* with Iγ=0.29 *5* observed in 1982Gr07.
659.53	0.81 *6*	1083.21		423.613	5/2$^+$			E_γ,I_γ: likely corresponds to Eγ=659.6 *4* with Iγ=0.80 *6* observed in 1982Gr07. 1973Br32 observe a 659.1 *3* transition with Iγ=1.21 *14* which they multiply place from 760-, 1083-, and 1695-keV levels.
673.04	0.074 *8*	1096.53	(7/2$^+$,9/2$^+$)	423.613	5/2$^+$			
674.41	0.16 *2*	1952.04	5/2$^+$	1277.5	(3/2$^-$,5/2,7/2$^-$)			E_γ,I_γ: 1982Gr07 observe Eγ=674.0 *3* with Iγ=0.23 *2*, while 1973Br32 place a Eγ=673.9 *4* transition with Iγ=0.23 *3* as depopulating the 1916-keV level.
678.31	0.154 *17*	1242.93	(5/2)$^+$	564.57	(3/2$^-$,5/2,7/2$^-$)			I_γ: others: 0.164 *17* (1982Gr07), 0.18 *2* (1973Br32).
x682.9[f] *4*	0.07[f] *6*							
695.06	0.019 *2*	737.16	7/2$^-$	42.0780	9/2$^+$	[E1]	4.88×10^{-4}	α(K)=0.000433 *6*; α(L)=4.61×10^{-5} *7*; α(M)=7.59×10^{-6} *11*; α(N)=8.61×10^{-7} *12*; α(O)=3.72×10^{-8} *6*
709.1[e] *4*	0.054 *5*	1952.04	5/2$^+$	1242.93	(5/2)$^+$			E_γ,I_γ: 1982Gr07 observe Eγ=709.1 *4* with Iγ=0.050 *8*, while 1973Br32 place a Eγ=710.6 *6* transition with Iγ=0.09 *2* as depopulating the 1749-keV level.
713.00	0.023 *2*	1277.5	(3/2$^-$,5/2,7/2$^-$)	564.57	(3/2$^-$,5/2,7/2$^-$)			
715.34[e] *10*	0.337 *20*	1798.57	(5/2)$^+$	1083.21				I_γ: others: 0.340 *15* (1982Gr07), 0.33 *3* (1973Br32).
722.28	0.044 *4*	821.62	(3/2)$^-$	99.35	3/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=722.7 *5* with Iγ=0.053 *15*, while 1973Br32 place a 722.4 *6* transition with Iγ=0.05 *2* as depopulating a 1808-keV level.
723.72	0.016 *2*	2089.90	(5/2$^+$,7/2$^+$)	1366.0	(7/2$^+$,9/2)			

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [‡g]	α	Comments
731.95[e] *10*	0.30 *3*	737.16	7/2⁻	5.2357	3/2⁻	[E2]		1.16×10⁻³	α(K)=0.001029 *15*; α(L)=0.0001126 *16*; α(M)=1.86×10⁻⁵ *3*; α(N)=2.09×10⁻⁶ *3*; α(O)=8.87×10⁻⁸ *13* I_γ: others: 0.278 *11* (1982Gr07), 0.27 *3* (1973Br32).
737.13[e] *10*	0.87 *3*	737.16	7/2⁻	0.0	5/2⁻				I_γ: others: 0.850 *25* (1982Gr07), 0.71 *5* (1973Br32).
737.3	0.020 *2*	1202.07	(5/2,7/2,9/2)⁺	466.7					
749.96	0.14 *2*	1952.04	5/2⁺	1202.07	(5/2,7/2,9/2)⁺				
751.71	0.19 *2*	793.8	13/2⁺	42.0780	9/2⁺	[E2]		1.08×10⁻³	α(K)=0.000959 *14*; α(L)=0.0001049 *15*; α(M)=1.729×10⁻⁵ *25*; α(N)=1.95×10⁻⁶ *3* α(O)=8.28×10⁻⁸ *12*
[x]753.3[f] *4*	0.30[f] *10*								
754.56	0.10 *1*	853.98	(3/2⁻,5/2,7/2⁻)	99.35	3/2⁻				
[x]759.1[f] *4*	1.38[f] *25*								
762.65[d] *10*	100 *5*	804.77	(7/2)⁺	42.0780	9/2⁺	E2(+M1)	≥2.0	1.03×10⁻³ *2*	α(K)=0.000913 *18*; α(L)=9.95×10⁻⁵ *20*; α(M)=1.64×10⁻⁵ *4*; α(N)=1.85×10⁻⁶ *4*; α(O)=7.89×10⁻⁸ *14* α(K)exp=0.00095 *5* (1968Et01). δ: other: 1.6 ≤ δ ≤16 from γγ(θ) in 1973Br32.
764.82	0.22 *2*	2189.73	9/2⁺	1424.7					
768.90	0.026 *3*	2134.86	(5/2⁺,7/2)	1366.0	(7/2⁺,9/2)				
775.77	0.021 *2*	1242.93	(5/2)⁺	466.7					
778.44[e] *10*	6.6 *3*	1202.07	(5/2,7/2,9/2)⁺	423.613	5/2⁺	M1,E2		0.00093 *6*	α(K)=0.00083 *6*; α(L)=8.9×10⁻⁵ *7*; α(M)=1.47×10⁻⁵ *11*; α(N)=1.67×10⁻⁶ *12*; α(O)=7.2×10⁻⁸ *4* α(K)exp=0.00096 *20* (1968Et01). I_γ: others: 6.62 *25* (1982Gr07), 6.5 *5* (1973Br32).
792.97	0.12 *2*	1597.68	(5/2,7/2⁻)	804.77	(7/2)⁺				E_γ,I_γ: likely corresponds to Eγ=793.4 *4* with Iγ=0.14 *2* observed in 1982Gr07.
795.34	0.076 *8*	1649.4	(3/2⁻,5/2,7/2⁻)	853.98	(3/2⁻,5/2,7/2⁻)				
804.65[e] *15*	0.31 *3*	804.77	(7/2)⁺	0.0	5/2⁻	[E1]		3.57×10⁻⁴	α(K)=0.000317 *5*; α(L)=3.37×10⁻⁵ *5*; α(M)=5.54×10⁻⁶ *8*; α(N)=6.29×10⁻⁷ *9*; α(O)=2.73×10⁻⁸ *4*

$^{83}_{37}Rb_{46}$-8

γ(^{83}Rb) (continued)

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α	Comments
								I_γ: others: 0.284 *14* (1982Gr07), 0.24 *4* (1973Br32).
808.7[e] *3*	0.17 *2*	908.00	(3/2,5/2,7/2$^-$)	99.35	3/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=808.7 *3* with Iγ=0.136 *10*, 808.5 *8* transition with Iγ=0.08 *4* unplaced by 1973Br32.
812.32	0.021 *2*	2089.90	(5/2$^+$,7/2$^+$)	1277.5	(3/2$^-$,5/2,7/2$^-$)			
816.34	0.17 *2*	821.62	(3/2)$^-$	5.2357	3/2$^-$			
819.29[e] *10*	2.8 *1*	1242.93	(5/2)$^+$	423.613	5/2$^+$	M1,E2	0.00082 *5*	α(K)=0.00073 *4*; α(L)=7.9×10^{-5} *5*; α(M)=1.30×10^{-5} *8*; α(N)=1.48×10^{-6} *9*; α(O)=6.4×10^{-8} *3* α(K)exp=0.0011 *4* (1968Et01). I_γ: others: 2.80 *7* (1982Gr07), 2.80 *16* (1973Br32).
821.59	0.023 *2*	821.62	(3/2)$^-$	0.0	5/2$^-$			
827.81	0.015 *2*	1649.4	(3/2$^-$,5/2,7/2$^-$)	821.62	(3/2)$^-$			
x831[f] *1*	0.02[f] *2*							
x838[f] *1*	0.03[f] *3*							
838.78	0.018 *2*	2134.86	(5/2$^+$,7/2)	1296.07	(5/2,7/2$^-$)			E_γ,I_γ: 1973Br32 tentatively place a 838 *1* transition with Iγ=0.03 *3* as depopulating the 1598-keV level.
846.87[b]	0.19[b] *2*	2089.90	(5/2$^+$,7/2$^+$)	1242.93	(5/2)$^+$			
848.66[b]	0.59[b] *6*	853.98	(3/2$^-$,5/2,7/2$^-$)	5.2357	3/2$^-$			
853.42[a]	0.20[a] *2*	1242.93	(5/2)$^+$	389.40	3/2$^-$	[E1]	3.16×10^{-4}	α(K)=0.000281 *4*; α(L)=2.98×10^{-5} *5*; α(M)=4.91×10^{-6} *7*; α(N)=5.57×10^{-7} *8*; α(O)=2.42×10^{-8} *4*
853.98[a]	0.27[a] *3*	853.98	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$			
868.6[e] *4*	0.063 *6*	1952.04	5/2$^+$	1083.21				I_γ: others: 0.049 *15* (1982Gr07), 0.09 *2* (1973Br32).
877.63	0.082 *8*	1614.8	(5/2$^+$,7/2,9/2$^+$)	737.16	7/2$^-$			E_γ,I_γ: 1973Br32 place a 879.1 *4* transition with Iγ=0.12 *2* as depopulating the 1916-keV level.
887.90	0.050 *5*	1277.5	(3/2$^-$,5/2,7/2$^-$)	389.40	3/2$^-$			E_γ,I_γ: 888.1 *9* transition with Iγ=0.07 *4* unplaced by 1973Br32.
890.8[e] *3*	0.45 *5*	1695.45	(7/2,9/2)$^+$	804.77	(7/2)$^+$			I_γ: others: 0.46 *5* (1982Gr07), 0.56 *6* for multiply placed transition, also placed as depopulating the level at 2135 keV (1973Br32).
892.96	0.048 *5*	2095.0	(5/2$^+$,7/2,9/2)	1202.07	(5/2,7/2,9/2)$^+$			
902.64	0.18 *2*	908.00	(3/2,5/2,7/2$^-$)	5.2357	3/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=902.95 *30* with Iγ=0.24 *13*, while 1973Br32 place a 903.2 *4* transition with Iγ=0.21 *2* as depopulating a 2147-keV level.
906.55[&]	0.30[&] *3*	1296.07	(5/2,7/2$^-$)	389.40	3/2$^-$			

$^{83}_{37}Rb_{46}$-9

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡g]	α	Comments
907.6[&]	0.021[&] *2*	1374.6		466.7					
907.94[&]	0.72[&] *7*	908.00	(3/2,5/2,7/2$^-$)	0.0	5/2$^-$				
916.91 *10*	0.47 *5*	1952.04	5/2$^+$	1035.13	(3/2$^-$,5/2,7/2$^-$)				E_γ,I_γ: 1982Gr07 observe Eγ=916.91 *4* with Iγ=0.441 *13*, while 1973Br32 place a 916.9 *3* transition with Iγ=0.43 *4* as depopulating a 2020-keV level.
[x]930.0[e] *2*	0.166[e] *12*								
935.8[e] *4*	0.052 *5*	1035.13	(3/2$^-$,5/2,7/2$^-$)	99.35	3/2$^-$				E_γ,I_γ: 1982Gr07 observe Eγ=935.8 *4* with Iγ=0.095 *20*, while 1973Br32 place a 935.4 *4* transition with Iγ=0.15 *3* as depopulating a 2178-keV level.
941.94	0.031 *3*	1952.04	5/2$^+$	1010.34	(3/2$^-$,5/2,7/2$^-$)				
944.56[e] *10*	0.44 *4*	1749.33	(5/2$^+$,7/2)	804.77	(7/2)$^+$				I_γ: others: 0.460 *15* (1982Gr07), 0.49 *4* (1973Br32), for a multiply placed transition, also placed as depopulating 1044- and 2147-keV levels.
987.60	0.032 *3*	2189.73	9/2$^+$	1202.07	(5/2,7/2,9/2)$^+$				
993.22	0.17 *2*	2089.90	(5/2$^+$,7/2$^+$)	1096.53	(7/2$^+$,9/2$^+$)				
993.78	1.2 *2*	1798.57	(5/2)$^+$	804.77	(7/2)$^+$	M1+E2	3.4 *22*	5.42×10^{-4} *12*	α(K)=0.000480 *11*; α(L)=5.18×10^{-5} *13*; α(M)=8.54×10^{-6} *21*; α(N)=9.67×10^{-7} *23*; α(O)=4.17×10^{-8} *8* I_γ: others: <2.04 (1982Gr07) and <2.08 (1973Br32) for doublet transition, also placed from the 1038-keV level. Mult.: D+Q from A_2=+0.35 *4*, A_4=−0.08 *7* for 994γ-762γ cascade (1973Br32); Δπ=no from level scheme. δ: from γγ(θ) in 1973Br32, 1.2 ≤ δ ≤5.6.
995.55	0.54 *5*	1037.68	11/2$^+$	42.0780	9/2$^+$				I_γ: others: <2.04 (1982Gr07) and <2.08 (1973Br32) for doublet transition, also placed from the 1799-keV level.
1005.1[e] *2*	0.094 *10*	1010.34	(3/2$^-$,5/2,7/2$^-$)	5.2357	3/2$^-$				E_γ: 1982Gr07 observe Eγ=1005.1 *2* with Iγ=0.073 *7*, while 1973Br32 place a 1005.4 *5* transition with Iγ=0.08 *3* as depopulating the 2090-keV level.
1010.35[e] *20*	0.13 *2*	1010.34	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$				E_γ,I_γ: 1982Gr07 observe Eγ=1010.35 *20* with Iγ=0.093 *7*, while 1973Br32 place a 1010.8 *4* transition with Iγ=0.11 *3* as depopulating the 1749-keV level.
1019.45[e] *15*	0.18 *2*	2057.14	(7/2$^+$,9/2)	1037.68	11/2$^+$				I_γ: others: 0.16 *3* (1982Gr07), 0.23 *3* (1973Br32).
1029.63	0.011 *1*	1035.13	(3/2$^-$,5/2,7/2$^-$)	5.2357	3/2$^-$				
1035.04	0.13 *2*	1035.13	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$				E_γ,I_γ: 1982Gr07 observe Eγ=1035.4 *4* with

$^{83}_{37}Rb_{46}$-10

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ †	I_γ #h	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	δ ‡g	α	Comments
									Iγ=0.12 *2*, while 1973Br32 place a 1035.3 *4* transition with Iγ=0.15 *4* as depopulating the 2090-keV level.
1038.23	0.30 *3*	2134.86	(5/2$^+$,7/2)	1096.53	(7/2$^+$,9/2$^+$)				Eγ,Iγ: 1982Gr07 observe Eγ=1038.55 *25* with Iγ=0.29 *3*, while 1973Br32 place a 1038.8 *3* transition with Iγ=0.20 *7* as depopulating a 1044-keV level.
1044.03[e] *10*	1.17 *10*	1952.04	5/2$^+$	908.00	(3/2,5/2,7/2$^-$)				Eγ,Iγ: 1982Gr07 observe Eγ=1044.0 with Iγ=1.16 *4*, while 1973Br32 multiply place a 1044.3 *3* transition with Iγ=1.20 *16* as depopulating 1044-, 1085.5, and 2147-keV levels.
1050.24	0.32 *4*	1614.8	(5/2$^+$,7/2,9/2$^+$)	564.57	(3/2$^-$,5/2,7/2$^-$)				Eγ,Iγ: 1982Gr07 observe Eγ=1050.6 *3* with Iγ=0.375 *15*, while 1973Br32 place a 1050.7 *4* transition with Iγ=0.35 *5* as depopulating the 2135-keV level.
1054.45[e] *10*	0.72 *4*	1096.53	(7/2$^+$,9/2$^+$)	42.0780	9/2$^+$				Eγ,Iγ: 1982Gr07 observe Eγ=1054.45 with Iγ=0.68 *2*, while 1973Br32 place a 1054.7 *3* transition with Iγ=0.72 *7* as depopulating a 1054-keV level.
x1078.8[f] *14*	0.02[f] *2*								
1084.76	0.040 *4*	1649.4	(3/2$^-$,5/2,7/2$^-$)	564.57	(3/2$^-$,5/2,7/2$^-$)				
1086.67	0.098 *10*	2189.73	9/2$^+$	1102.90	9/2$^-$	[E1]		1.97×10^{-4}	α(K)=0.0001754 *25*; α(L)=1.86×10^{-5} *3*; α(M)=3.05×10^{-6} *5*; α(N)=3.47×10^{-7} *5*; α(O)=1.513×10^{-8} *22* Eγ,Iγ: 1982Gr07 observe Eγ=1086.3 *3* with Iγ=0.116 *18*, while 1973Br32 place a 1086.5 *4* transition with Iγ=0.13 *2* as depopulating a 1085.5-keV level.
1098.05[e] *10*	0.87 *3*	1952.04	5/2$^+$	853.98	(3/2$^-$,5/2,7/2$^-$)				Eγ,Iγ: 1982Gr07 observe Eγ=1098.1 with Iγ=0.86 *3*, while 1973Br32 place a 1098.4 *3* transition with Iγ=0.89 *6* as depopulating the 1103-keV level.
1102.9[e] *2*	0.11 *2*	1102.90	9/2$^-$	0.0	5/2$^-$	E2		4.29×10^{-4}	α(K)=0.000380 *6*; α(L)=4.09×10^{-5} *6*; α(M)=6.74×10^{-6} *10*; α(N)=7.64×10^{-7} *11*; α(O)=3.30×10^{-8} *5* Iγ: others: 0.096 *7* (1982Gr07), 0.09 *2* for multiply placed transition, also placed as tentatively depopulating a level at 2147 keV (1973Br32). Mult.: from the Adopted Levels.
x1125.6[e] *3*	0.055[e] *8*								
1130.41[e] *15*	0.14 *1*	1952.04	5/2$^+$	821.62	(3/2)$^-$				Eγ: 1982Gr07 observe Eγ=1130.41 *15* with

$^{83}_{37}Rb_{46}$-11

$\gamma(^{83}Rb)$ (continued)

E_γ[†]	I_γ[#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡g]	α	Comments
									Iγ=0.133 *8*, while 1973Br32 place a 1130.7 *4* transition with Iγ=0.13 *3* as depopulating a 1695-keV level.
1147.33[e] *10*	4.28 *11*	1952.04	5/2+	804.77	(7/2)+	M1+E2	4.7 *24*	3.95×10^{-4}	α(K)=0.000348 *5*; α(L)=3.73×10^{-5} *6*; α(M)=6.15×10^{-6} *9*; α(N)=6.98×10^{-7} *10*; α(O)=3.02×10^{-8} *5* I_γ: others: 4.28 *11* (1982Gr07), 4.13 *22* (1973Br32). δ: from γγ(θ) in 1973Br32, 2.3 ≤ δ ≤7.0. Mult.: D+Q from A_2=+0.203 *11*, A_4=+0.103 *24* for 1147γ-762γ cascade (1973Br32); Δπ=no from level scheme.
1151.97	0.017 *2*	2189.73	9/2+	1037.68	11/2+				
1159.97[e] *10*	5.1 *2*	1202.07	(5/2,7/2,9/2)+	42.0780	9/2+				I_γ: others: 4.94 *15* (1982Gr07), 5.14 *26* (1973Br32).
1174.08[e] *15*	0.17 *2*	1597.68	(5/2,7/2−)	423.613	5/2+				I_γ: others: 0.135 *7* (1982Gr07), 0.19 *2* (1973Br32).
[x]1178.6[e] *4*	0.032[e] *8*								
1184.54	0.018 *2*	1749.33	(5/2+,7/2)	564.57	(3/2−,5/2,7/2−)				
1191.10	0.014 *2*	1614.8	(5/2+,7/2,9/2+)	423.613	5/2+				
1200.75	0.14 *2*	1242.93	(5/2)+	42.0780	9/2+	[E2]		3.64×10^{-4}	α(K)=0.000315 *5*; α(L)=3.38×10^{-5} *5*; α(M)=5.57×10^{-6} *8*; α(N)=6.32×10^{-7} *9*; α(O)=2.74×10^{-8} *4*
1201.94	0.42 *4*	1202.07	(5/2,7/2,9/2)+	0.0	5/2−				I_γ: others: 0.529 *16* (1982Gr07), 0.57 *4* (1973Br32).
1208.17	0.062 *7*	1597.68	(5/2,7/2−)	389.40	3/2−				I_γ: others: 0.068 *7* (1982Gr07), 0.02 *1* (1973Br32).
1214.88[e] *15*	0.85 *5*	1952.04	5/2+	737.16	7/2−	[E1]		2.15×10^{-4}	α(K)=0.0001431 *20*; α(L)=1.512×10^{-5} *22*; α(M)=2.49×10^{-6} *4*; α(N)=2.83×10^{-7} *4* α(O)=1.235×10^{-8} *18* I_γ: others: 0.80 *3* (1982Gr07), 0.76 *4* for multiply placed transition, also placed as depopulating a level at 2020 keV (1973Br32).
1231.85	0.0080 *8*	2036.5	(5/2,7/2−)	804.77	(7/2)+				
1233.94	0.067 *7*	1798.57	(5/2)+	564.57	(3/2−,5/2,7/2−)				I_γ: others: 0.125 *20* (1982Gr07), 0.09 *2* (1973Br32).
1237.72[e] *15*	0.76 *3*	1242.93	(5/2)+	5.2357	3/2−	[E1]		2.24×10^{-4}	α(K)=0.0001385 *20*; α(L)=1.462×10^{-5} *21*; α(M)=2.41×10^{-6} *4*; α(N)=2.74×10^{-7} *4* α(O)=1.195×10^{-8} *17* I_γ: others: 0.70 *3* (1982Gr07), 0.75 *5* (1973Br32).
1242.87[e] *15*	0.270 *15*	1242.93	(5/2)+	0.0	5/2−	[E1]		2.27×10^{-4}	α(K)=0.0001374 *20*; α(L)=1.451×10^{-5} *21*;

$^{83}_{37}Rb_{46}$-12

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ †	I_γ #h	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	α	Comments
								α(M)=2.39×10^{-6} *4*; α(N)=2.72×10^{-7} *4* α(O)=1.186×10^{-8} *17* I_γ: others: 0.241 *10* (1982Gr07), 0.26 *2* (1973Br32).
1252.45[e] *20*	0.049 *7*	2057.14	(7/2$^+$,9/2)	804.77	(7/2)$^+$			I_γ: others: 0.048 *7* (1982Gr07), 0.05 *2* (1973Br32).
1271.81	0.23 *3*	1695.45	(7/2,9/2)$^+$	423.613	5/2$^+$			I_γ: others: 0.22 *3* (1982Gr07), 0.27 *2* (1973Br32).
1272.39	0.061 *6*	1277.5	(3/2$^-$,5/2,7/2$^-$)	5.2357	3/2$^-$			
1275.34	0.029 *3*	1374.6		99.35	3/2$^-$			
1277.49	0.133 *15*	1277.5	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=1277.8 *4* with Iγ=0.095 *15*, 1277.8 *4* transition with Iγ=0.15 *2* unplaced by 1973Br32.
1285.02	0.30 *3*	2089.90	(5/2$^+$,7/2$^+$)	804.77	(7/2)$^+$			E_γ,I_γ: likely corresponds to Eγ=1285.11 *15* with Iγ=0.261 *14* observed in 1982Gr07.
1290.23	0.016 *2*	2095.0	(5/2$^+$,7/2,9/2)	804.77	(7/2)$^+$			
1296.06 *10*	0.457 *20*	1296.07	(5/2,7/2$^-$)	0.0	5/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=1296.1 with Iγ=0.435 *14*, while 1973Br32 place a 1296.5 *3* transition with Iγ=0.46 *4* as depopulating the 2056-keV level.
1319.84	0.013 *2*	2057.14	(7/2$^+$,9/2)	737.16	7/2$^-$			
1323.78[@]	0.48[@] *5*	1366.0	(7/2$^+$,9/2)	42.0780	9/2$^+$			
1325.62[@]	0.256[@] *25*	1749.33	(5/2$^+$,7/2)	423.613	5/2$^+$			
1330.03	0.026 *3*	2134.86	(5/2$^+$,7/2)	804.77	(7/2)$^+$			E_γ,I_γ: 1973Br32 place a 1331.6 *8* transition with Iγ=0.05 *3* as depopulating the 2090-keV level.
1352.46	0.034 *4*	2089.90	(5/2$^+$,7/2$^+$)	737.16	7/2$^-$			
1374.97[e] *15*	0.180 *20*	1798.57	(5/2)$^+$	423.613	5/2$^+$			I_γ: others: 0.154 *7* (1982Gr07), 0.21 *3* (1973Br32).
1382.73	0.13 *2*	1424.7		42.0780	9/2$^+$			E_γ,I_γ: 1982Gr07 observe a doublet Eγ=1382.6 *6* and Eγ=1384.9 5 with combined Iγ=0.512 *20*, Eγ=1382.6 *6* with Iγ=0.16 *4* unplaced by 1973Br32.
1384.83	0.34 *4*	2189.73	9/2$^+$	804.77	(7/2)$^+$			E_γ,I_γ: 1982Gr07 observe a doublet Eγ=1382.6 *6* and Eγ=1384.9 5 with combined Iγ=0.512 *20*, while 1973Br32 place a 1385.4 *4* transition with Iγ=0.35 *7* as depopulating a 1808-keV level.
1387.38	0.085 *9*	1952.04	5/2$^+$	564.57	(3/2$^-$,5/2,7/2$^-$)			
1395.96	0.031 *3*	2189.73	9/2$^+$	793.8	13/2$^+$	[E2]	3.10×10^{-4}	α(K)=0.000230 *4*; α(L)=2.45×10^{-5} *4*; α(M)=4.04×10^{-6} *6*; α(N)=4.58×10^{-7} *7*; α(O)=1.99×10^{-8} *3* E_γ,I_γ: 1982Gr07 observe a single 1396.7 *8* transition with Iγ=0.061 *8* which could correspond to the closely spaced 1396.0-and 1397.6- keV transitions observed by 2000Sh49.
1397.56	0.041 *4*	2134.86	(5/2$^+$,7/2)	737.16	7/2$^-$			E_γ,I_γ: 1982Gr07 observe a single 1396.7 *8* transition with Iγ=0.061 *8* which could correspond to the closely spaced 1396.0-and 1397.6- keV transitions observed by 2000Sh49.
[x]1440.9[e] *3*	0.095[e] *7*							
1452.50	0.027 *7*	2189.73	9/2$^+$	737.16	7/2$^-$	[E1]	3.29×10^{-4}	α(K)=0.0001051 *15*; α(L)=1.108×10^{-5} *16*;

$^{83}_{37}Rb_{46}$-13

γ(^{83}Rb) (continued)

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α	Comments
								α(M)=1.82×10^{-6} *3*; α(N)=2.07×10^{-7} *3*; α(O)=9.08×10^{-9} *13*
								E_γ,I_γ: likely corresponds to Eγ=1452.5 *4* with Iγ=0.027 *7* observed in 1982Gr07.
1492.78	0.065 *7*	1916.41	(5/2,7/2$^-$)	423.613	5/2$^+$			E_γ,I_γ: 1982Gr07 observe Eγ=1492.1 *3* with Iγ=0.053 *7*.
1506.91	0.022 *2*	1606.2	(3/2,5/2,7/2$^-$)	99.35	3/2$^-$			
1525.22	0.0050 *5*	2089.90	(5/2$^+$,7/2$^+$)	564.57	(3/2$^-$,5/2,7/2$^-$)			
1528.33[e] *15*	0.330 *15*	1952.04	5/2$^+$	423.613	5/2$^+$			I_γ: others: 0.308 *13* (1982Gr07), 0.32 *3* (1973Br32).
1562.51[e] *15*	6.0 *2*	1952.04	5/2$^+$	389.40	3/2$^-$	[E1]	4.02×10^{-4}	α(K)=9.31×10^{-5} *13*; α(L)=9.81×10^{-6} *14*; α(M)=1.615×10^{-6} *23*; α(N)=1.84×10^{-7} *3*; α(O)=8.04×10^{-9} *12*
1572.70	0.043 *4*	1614.8	(5/2$^+$,7/2,9/2$^+$)	42.0780	9/2$^+$			I_γ: others: 5.88 *14* (1982Gr07), 6.6 *4* (1973Br32).
1592.31	0.039 *6*	1597.68	(5/2,7/2$^-$)	5.2357	3/2$^-$			I_γ: others: 0.046 *6* (1982Gr07), 0.08 *2* (1973Br32).
1597.64[e] *15*	0.111 *8*	1597.68	(5/2,7/2$^-$)	0.0	5/2$^-$			I_γ: others: 0.107 *8* (1982Gr07), 0.12 *3* (1973Br32).
1600.97	0.20 *2*	1606.2	(3/2,5/2,7/2$^-$)	5.2357	3/2$^-$			
1606.07	0.0080 *10*	1606.2	(3/2,5/2,7/2$^-$)	0.0	5/2$^-$			E_γ,I_γ: 1606.0 *7* transition with Iγ=0.03 *2* unplaced by 1973Br32.
1612.70	0.034 *4*	2036.5	(5/2,7/2$^-$)	423.613	5/2$^+$			E_γ,I_γ: 1973Br32 place a 1612.7 *5* transition with Iγ=0.05 *2* as depopulating a 2178-keV level.
[x]1624.7[f] *8*	0.03[f] *2*							
1647.21	0.080 *8*	2036.5	(5/2,7/2$^-$)	389.40	3/2$^-$			
1649.40	0.086 *10*	1649.4	(3/2$^-$,5/2,7/2$^-$)	0.0	5/2$^-$			E_γ,I_γ: 1982Gr07 observe Eγ=1649.5 *5* with Iγ=0.120 *10*, while 1973Br32 place a 1648.8 *5* transition with Iγ=0.07 *1* as depopulating the 1749-keV level.
1653.31[e] *15*	0.253 *10*	1695.45	(7/2,9/2)$^+$	42.0780	9/2$^+$			I_γ: others: 0.225 *10* (1982Gr07), 0.27 *3* (1973Br32).
1666.20[e] *15*	0.28 *2*	2089.90	(5/2$^+$,7/2$^+$)	423.613	5/2$^+$			I_γ: others: 0.260 *8* (1982Gr07), 0.27 *3* for multiply placed transition, also placed as tentatively depopulating the level at 2056 keV (1973Br32).
1707.15	0.077 *6*	1749.33	(5/2$^+$,7/2)	42.0780	9/2$^+$			I_γ: others: 0.077 *6* (1982Gr07), 0.10 *2* (1973Br32).
1711.15[e] *20*	0.111 *10*	2134.86	(5/2$^+$,7/2)	423.613	5/2$^+$			I_γ: others: 0.100 *7* (1982Gr07), 0.13 *2* (1973Br32).
1749.25[e] *25*	0.091 *10*	1749.33	(5/2$^+$,7/2)	0.0	5/2$^-$			I_γ: others: 0.077 *6* (1982Gr07), 0.09 *2* (1973Br32).
1756.5[e] *2*	0.075 *6*	1798.57	(5/2)$^+$	42.0780	9/2$^+$	[E2]	3.58×10^{-4}	α(K)=0.0001458 *21*; α(L)=1.547×10^{-5} *22*; α(M)=2.55×10^{-6} *4*; α(N)=2.90×10^{-7} *4* α(O)=1.267×10^{-8} *18*
1765.84	0.059 *6*	2189.73	9/2$^+$	423.613	5/2$^+$	[E2]	3.60×10^{-4}	I_γ: others: 0.066 *6* (1982Gr07), 0.08 *2* (1973Br32). α(K)=0.0001444 *21*; α(L)=1.531×10^{-5} *22*; α(M)=2.52×10^{-6} *4*; α(N)=2.87×10^{-7} *4* α(O)=1.254×10^{-8} *18*
								E_γ,I_γ: 1982Gr07 observe Eγ=1765.7 *4* with Iγ=0.050 *6*, while 1973Br32 place a 1765.2 *5* transition with Iγ=0.08 *3* as depopulating a 1808-keV level.

$^{83}_{37}Rb_{46}$-14

^{83}Sr ε decay 2000Sh49 (continued)

γ(^{83}Rb) (continued)

E_γ [†]	I_γ [#h]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	α	Comments
[x]1777.9[e] *3*	0.077[e] *8*							
1793.23	0.038 *6*	1798.57	$(5/2)^+$	5.2357	$3/2^-$	[E1]	5.58×10^{-4}	α(K)=7.47×10^{-5} *11*; α(L)=7.86×10^{-6} *11*; α(M)=1.294×10^{-6} *19*; α(N)=1.473×10^{-7} *21*; α(O)=6.46×10^{-9} *9* E_γ,I_γ: 1982Gr07 observe Eγ=1793.25 *25* with Iγ=0.042 *6*.
1798.55[e] *15*	0.101 *9*	1798.57	$(5/2)^+$	0.0	$5/2^-$	[E1]	5.62×10^{-4}	α(K)=7.44×10^{-5} *11*; α(L)=7.82×10^{-6} *11*; α(M)=1.288×10^{-6} *18*; α(N)=1.466×10^{-7} *21*; α(O)=6.43×10^{-9} *9* I_γ: others: 0.091 *7* (1982Gr07), 0.14 *4* (1973Br32).
[x]1873.74[e] *15*	0.094[e] *7*							
1911.15[e] *20*	0.112 *10*	1916.41	$(5/2,7/2^-)$	5.2357	$3/2^-$			I_γ: others: 0.100 *6* (1982Gr07), 0.14 *2* (1973Br32).
1916.4	0.010 *1*	1916.41	$(5/2,7/2^-)$	0.0	$5/2^-$			
1946.66	0.065 *6*	1952.04	$5/2^+$	5.2357	$3/2^-$	[E1]	6.61×10^{-4}	α(K)=6.59×10^{-5} *10*; α(L)=6.92×10^{-6} *10*; α(M)=1.139×10^{-6} *16*; α(N)=1.296×10^{-7} *19*; α(O)=5.69×10^{-9} *8* I_γ: others: 0.24 *4* (1982Gr07), 0.19 *2* (1973Br32).
1952.06[e] *15*	2.70 *10*	1952.04	$5/2^+$	0.0	$5/2^-$	[E1]	6.65×10^{-4}	α(K)=6.56×10^{-5} *10*; α(L)=6.89×10^{-6} *10*; α(M)=1.134×10^{-6} *16*; α(N)=1.291×10^{-7} *18*; α(O)=5.66×10^{-9} *8* I_γ: others: 2.58 *7* (1982Gr07), 2.90 *16* (1973Br32).
2014.98[e] *15*	0.143 *10*	2057.14	$(7/2^+,9/2)$	42.0780	$9/2^+$			E_γ,I_γ: 1982Gr07 observe Eγ=2015.0 with Iγ=0.153 *10*, while 1973Br32 place a 2015.0 *4* transition with Iγ=0.15 *2* as depopulating a 2020-keV level.
2030.99	0.0120 *12*	2036.5	$(5/2,7/2^-)$	5.2357	$3/2^-$			
2047.81[e] *15*	0.320 *10*	2089.90	$(5/2^+,7/2^+)$	42.0780	$9/2^+$			I_γ: others: 0.316 *10* (1982Gr07), 0.36 *3* for multiply placed transition, also placed as tentatively depopulating a level at 2147 keV (1973Br32).
2052.93	0.028 *6*	2095.0	$(5/2^+,7/2,9/2)$	42.0780	$9/2^+$			E_γ,I_γ: likely corresponds to Eγ=2053.4 *3* with Iγ=0.022 *6* observed in 1982Gr07.
2089.94[e] *15*	0.400 *20*	2089.90	$(5/2^+,7/2^+)$	0.0	$5/2^-$			I_γ: others: 0.405 *20* (1982Gr07), 0.47 *3* (1973Br32).
2092.46	0.0050 *5*	2134.86	$(5/2^+,7/2)$	42.0780	$9/2^+$			
2134.89 *15*	0.093 *7*	2134.86	$(5/2^+,7/2)$	0.0	$5/2^-$			I_γ: others: 0.090 *7* (1982Gr07), 0.10 *2* (1973Br32).
2147.64[e] *15*	0.56 *4*	2189.73	$9/2^+$	42.0780	$9/2^+$			E_γ,I_γ: 1982Gr07 observe Eγ=2147.64 with Iγ=0.570 *17*, while 1973Br32 place a 2147.6 *4* transition with Iγ=0.62 *4* as depopulating a 2147-keV level.

[†] From 2000Sh49, except where noted. 2000Sh49 give no indication of uncertainty on γ-ray energies.

[‡] From α(K)exp and ce ratios, except where noted.

[#] From 2000Sh49, except where noted. 2000Sh49 quote I(γ+ce) values, however, as the experimental setup only measured γ-rays, and for many transitions, the multipolarity is unknown, the evaluator assumes that values correspond to Iγ values. A few exceptions for the low energy transitions are noted in the comments. 2000Sh49 provide no information on ΔIγ. In cases where Iγ is consistent with the measurements of 1982Gr07, the uncertainty is taken from 1982Gr07. For all other transitions, an ≈10% uncertainty is added by the evaluator.

[@] A single transition with Eγ=1324.45 *20*, Iγ=0.68 *3* and Eγ=1324.6 *4*, Iγ=0.85 *9* is observed by 1982Gr07 and 1973Br32, respectively, and placed from the

$^{83}_{37}Rb_{46}$-15

γ(^{83}Rb) (continued)

1749-keV level by 1973Br32. 2000Sh49 observe a closely spaced doublet of Eγ=1323.8, Iγ=0.478 from the 1366-keV level and Eγ=1325.62, Iγ=0.258 from the 1749-keV level. The sum of the two intensities from 2000Sh49 is in good agreement with the intensities of the single transitions measured in 1982Gr07, 1973Br32, suggesting the possibility of doublet transitions in those works.

[&] A single transition with Eγ=907.7, Iγ=1.01 *4* and Eγ=907.8 *3*, Iγ=1.10 *8* is observed by 1982Gr07 and 1973Br32, respectively, and placed from the 1952-keV level by 1973Br32. 2000Sh49 observe a closely spaced triplet of Eγ=907.94, Iγ=0.722 from the 908-keV level, Eγ=907.6, Iγ=0.021 from the 1375-keV level, and Eγ=906.6, Iγ=0.30 from the 1296-keV level. The sum of the intensities from 2000Sh49 is in good agreement with the intensities of the single transitions measured in 1982Gr07, 1973Br32, suggesting the possibility of triplet transitions in those works.

[a] A single transition with Eγ=853.8, Iγ=0.431 *15* and Eγ=853.8 *3*, Iγ=0.45 *5* is observed by 1982Gr07 and 1973Br32, respectively, and multiply placed from the 1243- and 2057-keV levels by 1973Br32. 2000Sh49 observe a closely spaced doublet of Eγ=854.0, Iγ=0.27 from the 854-keV level and Eγ=853.4, Iγ=0.20 from the 1243-keV level. The sum of the two intensities from 2000Sh49 is in good agreement with the intensities of the single transitions measured in 1982Gr07, 1973Br32, suggesting the possibility of doublet transitions in those works.

[b] A single transition with Eγ=848.4, Iγ=0.765 *20* and Eγ=848.4 *3*, Iγ=0.72 *7* is observed by 1982Gr07 and 1973Br32, respectively, and placed from the 1952-keV level by 1973Br32. 2000Sh49 observe a closely spaced doublet of Eγ=846.9, Iγ=0.19 from the 2090-keV level and Eγ=848.7, Iγ=0.59 from the 854-keV level. The sum of the two intensities from 2000Sh49 is in good agreement with the intensities of the single transitions measured in 1982Gr07, 1973Br32, suggesting the possibility of doublet transitions in those works.

[c] A single transition with Eγ=381.5, Iγ=58.2 *13* and Eγ=381.6 *3*, Iγ=66 *3* is observed by 1982Gr07 and 1973Br32, respectively, and placed from the 424-keV level by 1973Br32. 2000Sh49 observe a closely spaced doublet of Eγ=381.09, Iγ=6.7 from the 805-keV level and Eγ=381.52, Iγ=53 from the 424-keV level. The sum of the two intensities from 2000Sh49 is in good agreement with the intensities of the single transitions measured in 1982Gr07, 1973Br32, suggesting the possibility of doublet transitions in those works.

[d] From 1982Po04.

[e] From 1982Gr07. Authors provide a general statement that ΔEγ≤0.1 keV for Eγ below 1500 keV and ≤0.15 keV for higher energies, for cases where no uncertainty is given.

[f] From 1973Br32. Not observed in the subsequent works of 1982Gr07 or 2000Sh49. Assignment to ^{83}Sr ε decay is questionable.

[g] If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

[h] For absolute intensity per 100 decays, multiply by 0.267 *18*.

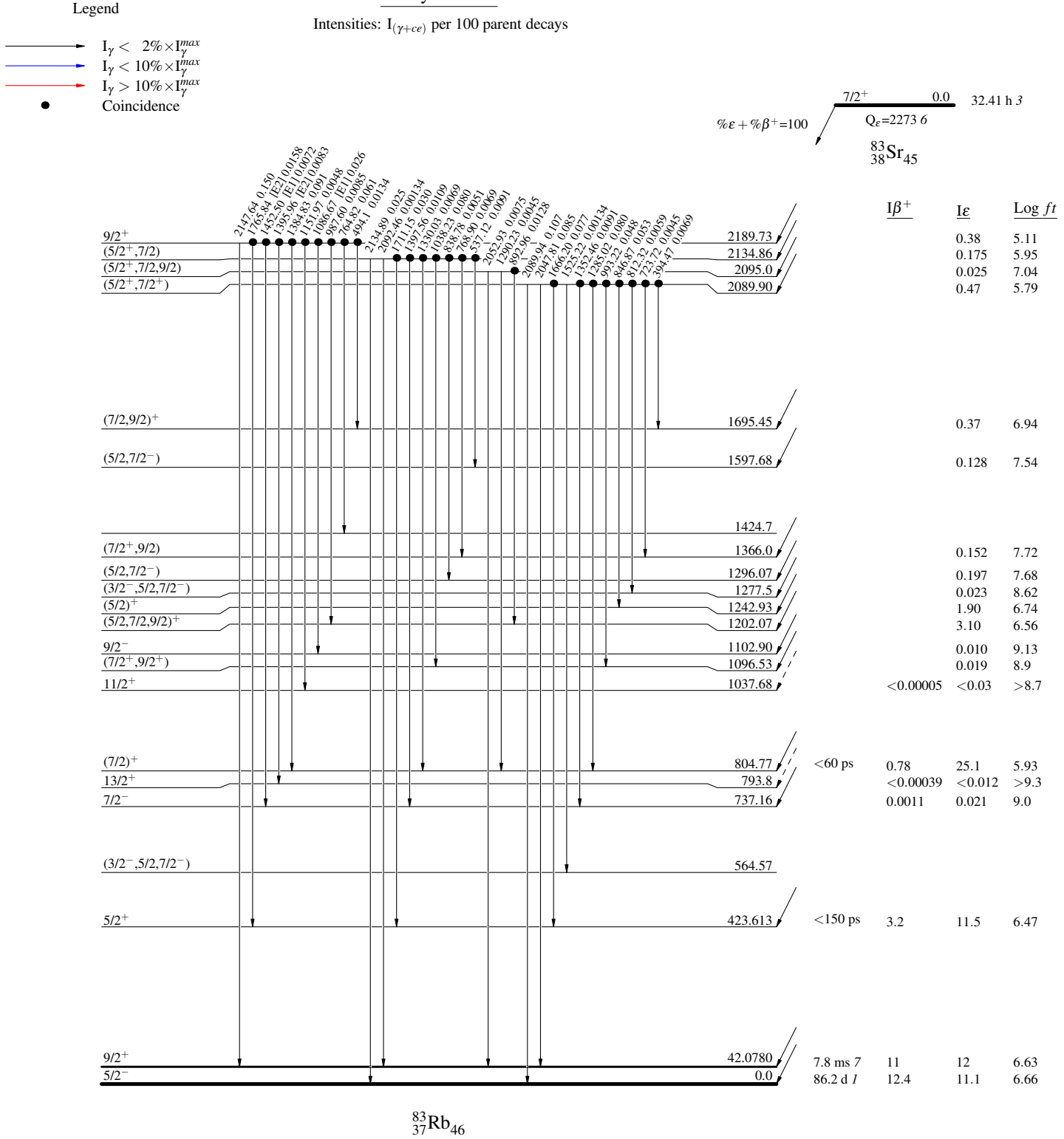
[x] γ ray not placed in level scheme.

$^{83}_{37}Rb_{46}$-16

^{83}Sr ε decay 2000Sh49

Decay Scheme

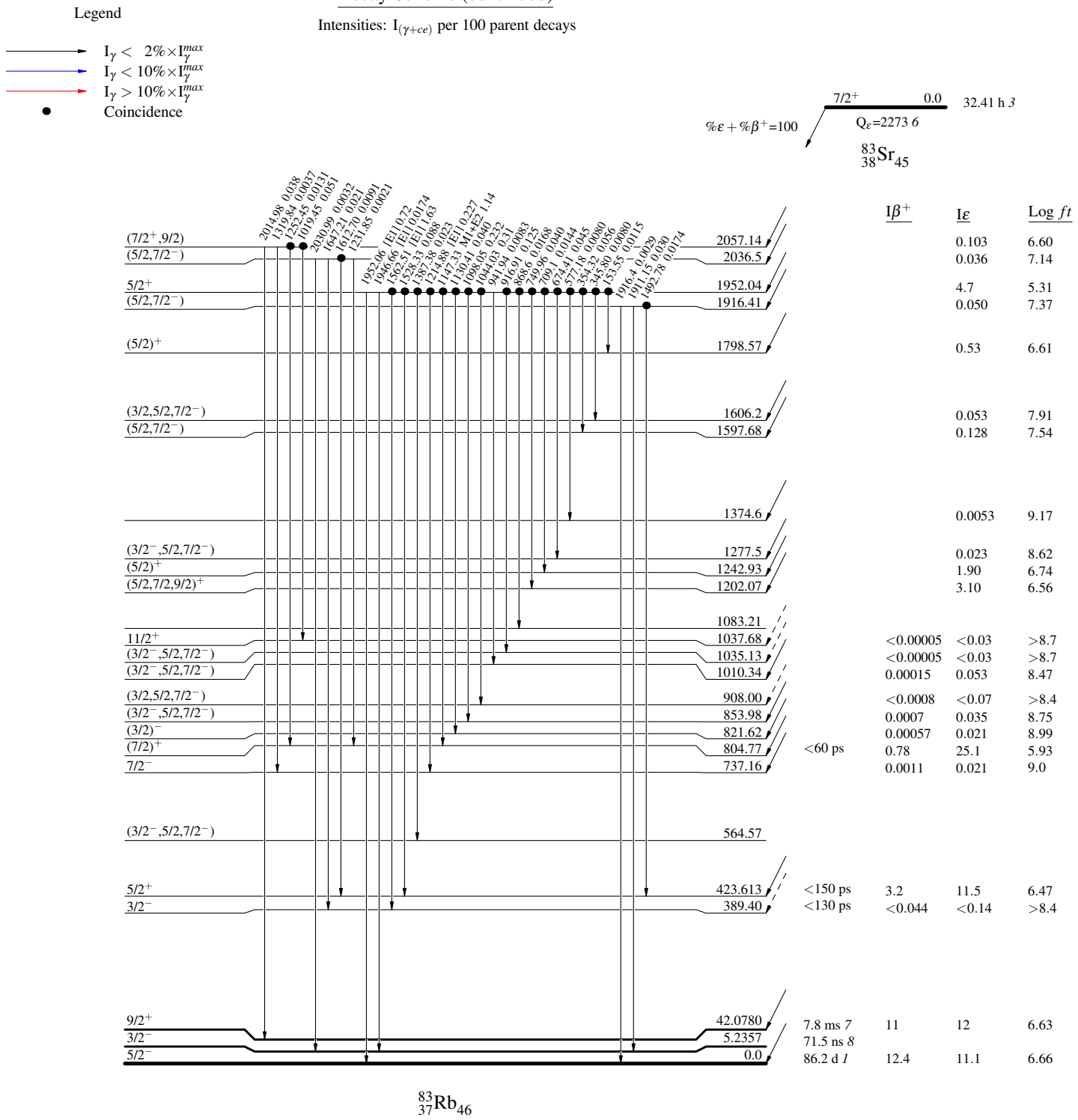
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{83}Sr ε decay 2000Sh49

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



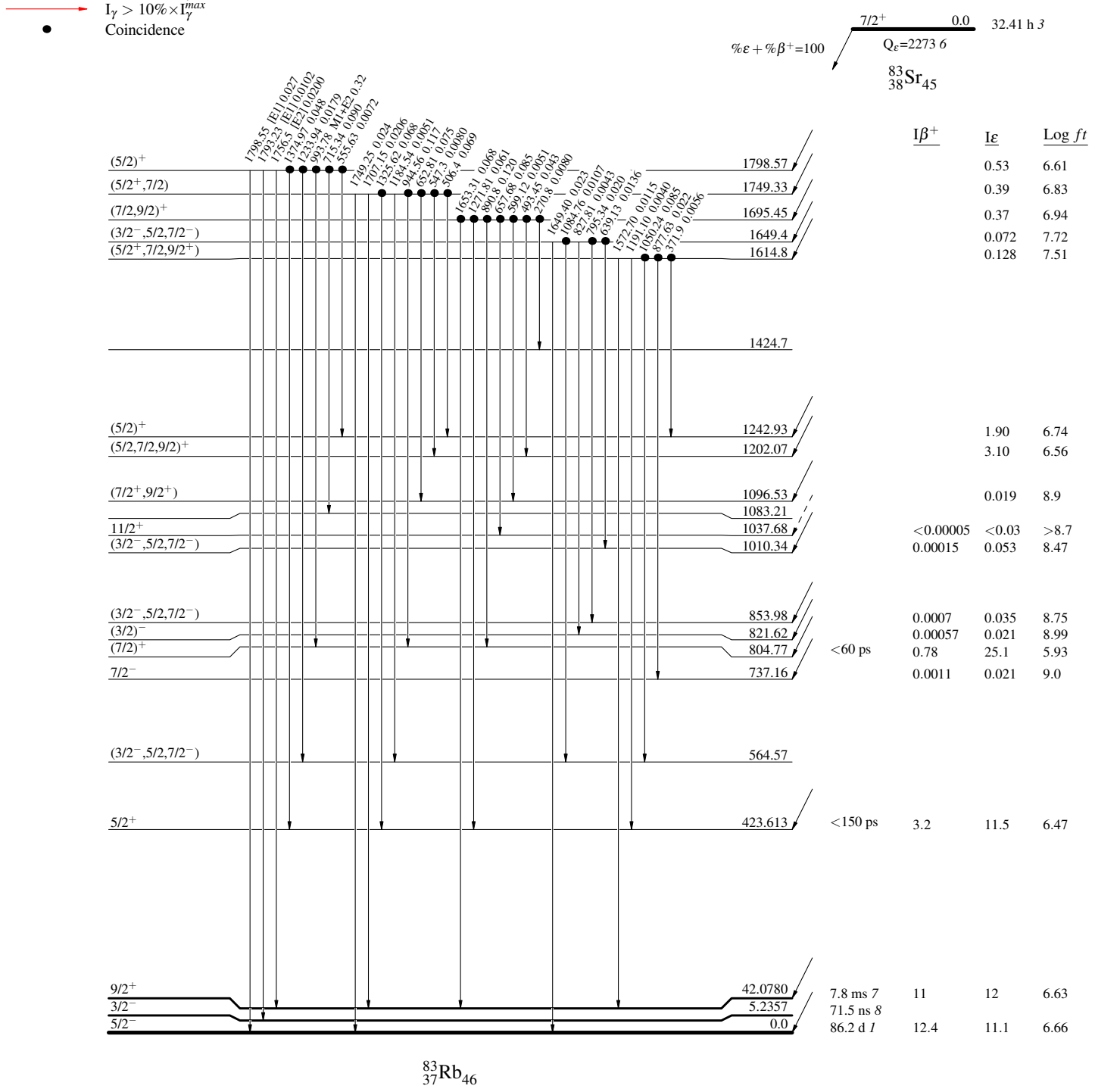
	Iβ+	Iε	Log *ft*
2057.14		0.103	6.60
2036.5		0.036	7.14
1952.04		4.7	5.31
1916.41		0.050	7.37
1798.57		0.53	6.61
1606.2		0.053	7.91
1597.68		0.128	7.54
1374.6		0.0053	9.17
1277.5		0.023	8.62
1242.93		1.90	6.74
1202.07		3.10	6.56
1083.21			
1037.68	<0.00005	<0.03	>8.7
1035.13	<0.00005	<0.03	>8.7
1010.34	0.00015	0.053	8.47
908.00	<0.0008	<0.07	>8.4
853.98	0.0007	0.035	8.75
821.62	0.00057	0.021	8.99
804.77 <60 ps	0.78	25.1	5.93
737.16	0.0011	0.021	9.0
564.57			
423.613 <150 ps	3.2	11.5	6.47
389.40 <130 ps	<0.044	<0.14	>8.4
42.0780 7.8 ms 7	11	12	6.63
5.2357 71.5 ns 8			
0.0 86.2 d 1	12.4	11.1	6.66

$^{83}_{37}Rb_{46}$

^{83}Sr ε decay 2000Sh49

Decay Scheme (continued)

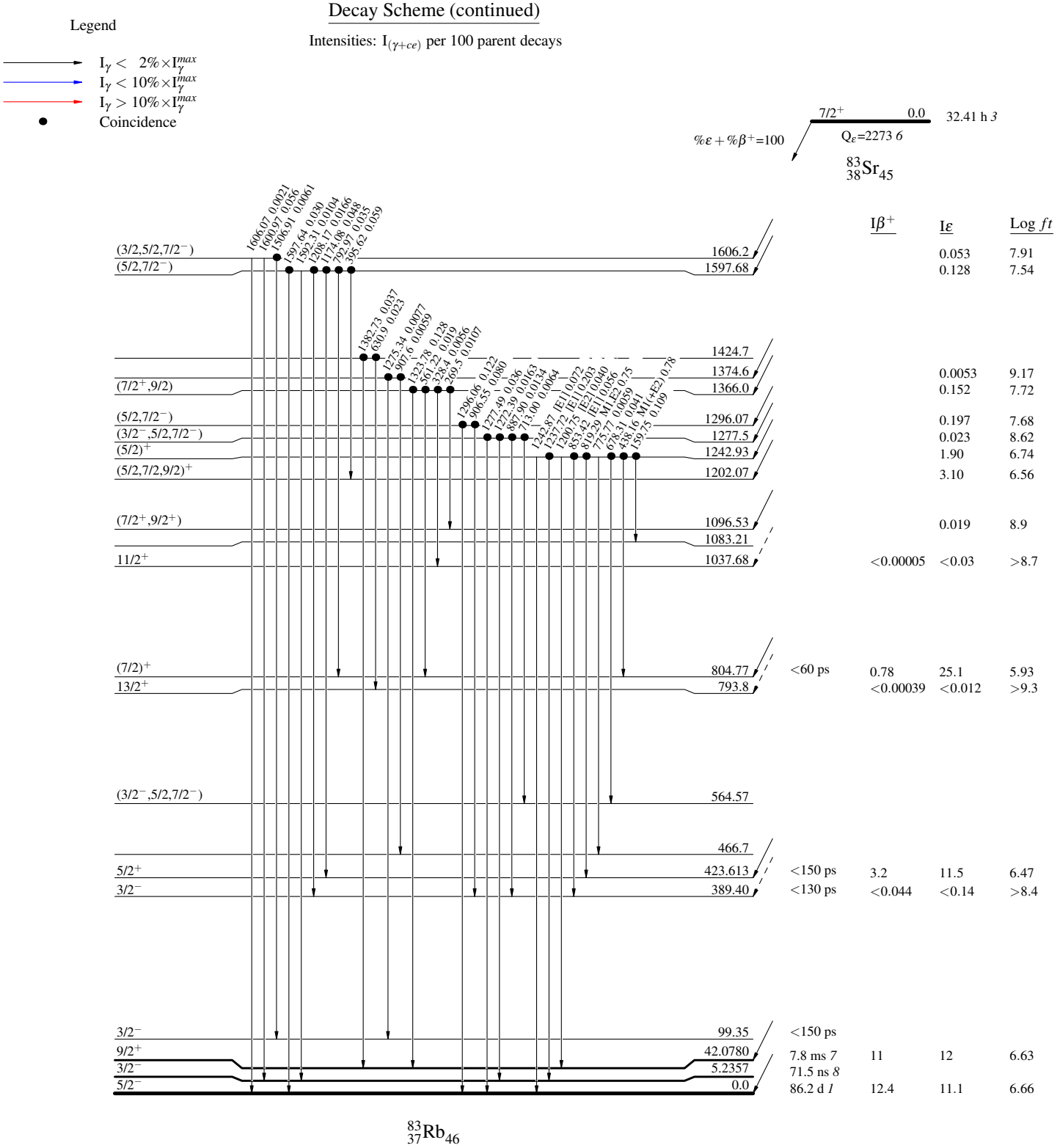
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{83}Sr ε decay 2000Sh49

Decay Scheme (continued)

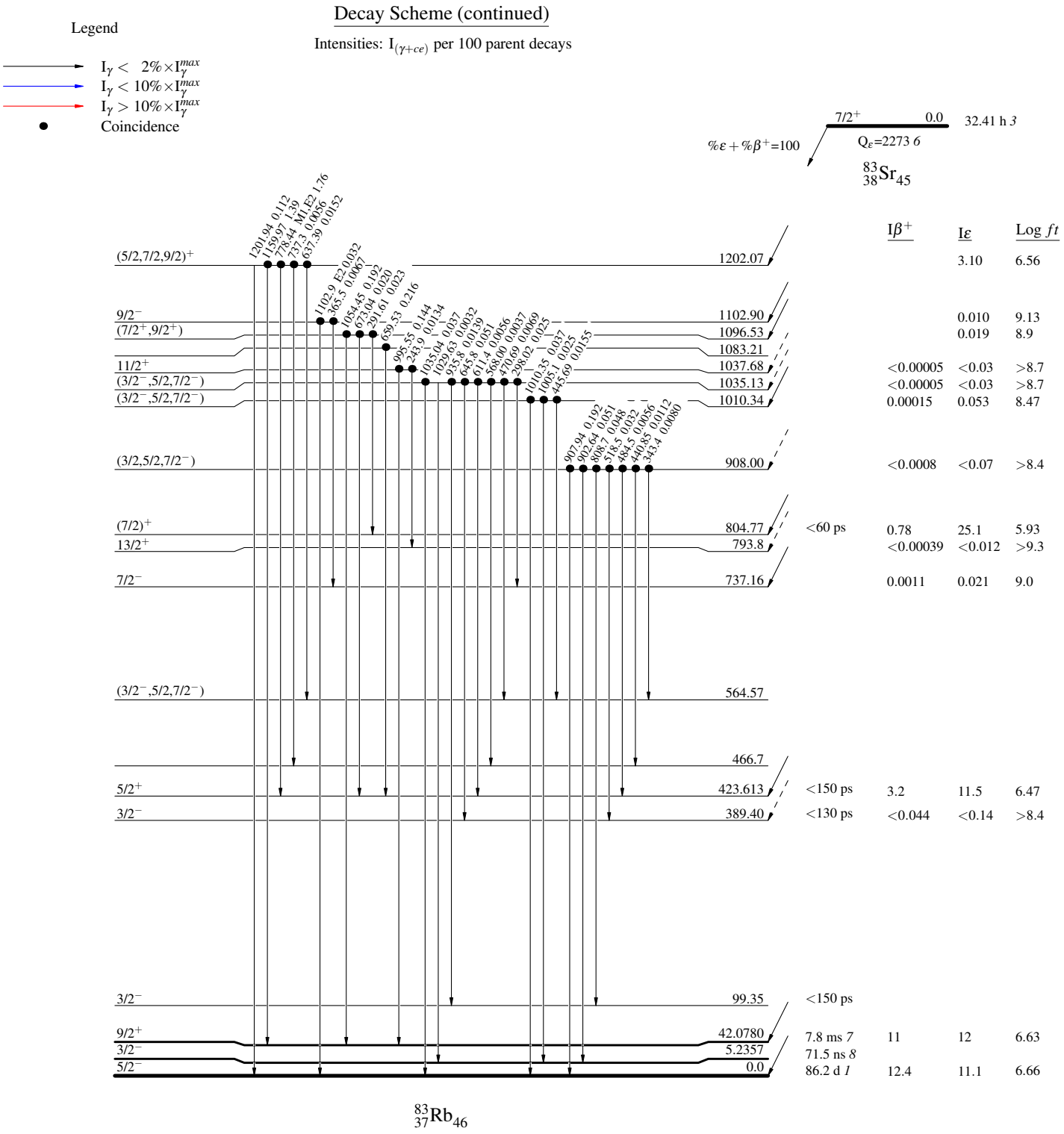
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{83}Sr ε decay 2000Sh49

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{83}Sr ε decay 2000Sh49

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays