^{96}Rb β^- decay 1980JuZY

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 109, 2501 (2008)	1-Apr-2008

Parent: ^{96}Rb: E=0; $J^\pi=2^+$; $T_{1/2}$=203 ms *3*; $Q(\beta^-)$=11571 *11*; %β^- decay=100.0

Measured: γ, $\gamma\gamma$, ce (1980JuZY); $\gamma\gamma(\theta)$ (1980Ju03); γ(t) (1991Ma05,1989Ma38) delayed neutrons: 1980Lu04, 1979Ri09, 1977Re05. Other: 1979Pe17.

Delayed neutrons probability=13.3% *7* (2002Pf04).

^{96}Sr Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0	0^+	1.07 s *1*	%β^-=100 $T_{1/2}$: from 1990Ma03.
814.93 *7*	2^+	4.8 ps *28*	E(level): 815.5 in 1991MaZS. $T_{1/2}$: from 1991Ma05.
1229.28 *10*	0^+	115 ps *12*	$T_{1/2}$: from 1991Ma05.
1464.6 *5*	0^+	6.7 ns *10*	$T_{1/2}$: from 1980JuZY.
1506.84 *9*	2^+	≤6.2 ps	$T_{1/2}$: from 1991Ma05.
1628.19 *10*	(2^+)		
1792.78 *11*	4^+		
1852.13 *10*	(3)		
1975.73 *11*	(4^+)		
1994.98 *13*	$(1^+,2^+)$		
2083.98 *13*	$(1,2^+)$		
2113.41 *13*			
2120.04 *21*	(4^+)		
2150.84 *12*	$(1^+,2,3^+)$	<10.4 ps	$T_{1/2}$: from 1991Ma05.
2217.26 *16*	2		
2269.54? *21*			
2307.54 *11*	$(1,2^+)$		
2407.40 *18*			
2412.00 *18*	$(1,2^+)$		
2443.65 *13*			
2493.05 *21*			
2525.53 *19*			
2529.29 *16*			
2576.25 *21*			
2703.73 *15*			
2719.70 *16*			
2880.5 *3*			
3064.80 *16*			
3195.76 *21*			
3244.9? *3*			
3446.3? *4*			
3755.4 *3*	$(1,2^+)$		
4048.7? *4*			
4322.6? *5*			
4799.4? *4*			
5049.5? *10*			
5090.9? *5*			
5132.8? *5*			
5158.7 *4*			
5168.5 *4*	$(1,2^+)$		
5349.3? *10*			

† From least-squares fit to Eγ.
‡ From Adopted Levels.

^{96}Rb β^- decay 1980JuZY (continued)

β^- radiations

E(decay)	E(level)	Iβ^- †‡	Log *ft*	Comments
(6222# *11*)	5349.3?	0.148 *24*	6.69 *7*	av Eβ=2815.4 *54*
(6403 *11*)	5168.5	0.90 *12*	5.97 *6*	av Eβ=2902.6 *54*
(6412 *11*)	5158.7	1.25 *16*	5.83 *6*	av Eβ=2907.3 *54*
(6438# *11*)	5132.8?	0.27 *4*	6.50 *7*	av Eβ=2919.8 *54*
(6480# *11*)	5090.9?	0.30 *5*	6.47 *8*	av Eβ=2940.0 *54*
(6522# *11*)	5049.5?	0.45 *8*	6.30 *8*	av Eβ=2960.0 *54*
(6772# *11*)	4799.4?	0.48 *6*	6.35 *6*	av Eβ=3080.7 *54*
(7248# *11*)	4322.6?	0.27 *4*	6.73 *7*	av Eβ=3310.7 *54*
(7522# *11*)	4048.7?	0.211 *24*	6.91 *5*	av Eβ=3442.7 *53*
(7816 *11*)	3755.4	1.25 *13*	6.22 *5*	av Eβ=3584.1 *53* E(decay): 8750 *200* from βγ in 1982Pa24.
(8125# *11*)	3446.3?	1.40 *16*	6.25 *5*	av Eβ=3733.1 *53*
(8326# *11*)	3244.9?	0.48 *6*	6.76 *6*	av Eβ=3830.1 *53*
(8375 *11*)	3195.76	1.12 *12*	6.40 *5*	av Eβ=3853.8 *53*
(8506 *11*)	3064.80	1.53 *13*	6.30 *4*	av Eβ=3916.8 *53*
(8691 *11*)	2880.5	1.22 *13*	6.44 *5*	av Eβ=4005.6 *53*
(8851 *11*)	2719.70	0.70 *5*	6.72 *4*	av Eβ=4083.0 *53*
(8867 *11*)	2703.73	1.31 *9*	6.45 *3*	av Eβ=4090.6 *53*
(8995 *11*)	2576.25	2.03 *24*	6.29 *6*	av Eβ=4152.0 *53*
(9042 *11*)	2529.29	0.98 *9*	6.61 *4*	av Eβ=4174.6 *53*
(9045 *11*)	2525.53	0.48 *5*	6.93 *5*	av Eβ=4176.4 *53*
(9078 *11*)	2493.05	0.86 *8*	6.68 *4*	av Eβ=4192.0 *53*
(9127 *11*)	2443.65	0.62 *8*	6.83 *6*	av Eβ=4215.8 *53*
(9159 *11*)	2412.00	1.34 *13*	6.50 *5*	av Eβ=4231.0 *53*
(9164 *11*)	2407.40	1.12 *7*	6.58 *3*	av Eβ=4233.2 *53*
(9263 *11*)	2307.54	2.52 *17*	6.25 *3*	av Eβ=4281.2 *53*
(9301# *11*)	2269.54?	0.211 *24*	7.34 *5*	av Eβ=4299.5 *53*
(9354 *11*)	2217.26	2.33 *20*	6.31 *4*	av Eβ=4324.6 *53* E(decay): 8420 *210* from βγ in 1982Pa24.
(9420 *11*)	2150.84	3.5 *3*	6.14 *4*	av Eβ=4356.6 *53*
(9451 *11*)	2120.04	1.83 *20*	6.43 *5*	av Eβ=4371.4 *53*
(9458 *11*)	2113.41	3.32 *20*	6.18 *3*	av Eβ=4374.6 *53*
(9487 *11*)	2083.98	2.13 *13*	6.37 *3*	av Eβ=4388.7 *53*
(9576 *11*)	1994.98	3.9 *3*	6.13 *4*	av Eβ=4431.5 *53*
(9595 *11*)	1975.73	2.37 *15*	6.35 *3*	av Eβ=4440.7 *53*
(9719 *11*)	1852.13	4.4 *6*	6.11 *6*	av Eβ=4500.1 *53*
(9778 *11*)	1792.78	3.7 *4*	6.19 *5*	av Eβ=4528.6 *53*
(9943 *11*)	1628.19	7.0 *8*	5.95 *5*	av Eβ=4607.7 *53* E(decay): 10110 *250* from βγ in 1982Pa24.
(10064 *11*)	1506.84	7.6 *7*	5.94 *4*	av Eβ=4665.9 *53*
(10106 *11*)	1464.6	1.11 *16*	6.78 *7*	av Eβ=4686.2 *53*
(10342 *11*)	1229.28	0.8 *3*	6.97 *17*	av Eβ=4799.1 *53*
(10756 *11*)	814.93	20.9 *24*	5.63 *5*	av Eβ=4997.8 *53*

† From intensity imbalance. Because of the large Q(β^-)value and the many weak gamma rays that may not have been measured, these intensities and the derived log *ft* values should be taken as approximate.

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

$\gamma(^{96}Sr)$

Iγ normalization: I(815γ)=78% *2* (1982Kr11).

E_γ	I_γ #	E_i(level)	J^π_i	E_f	J^π_f	Mult.†	δ‡	α&	$I_{(\gamma+ce)}$@	Comments
235.1 *5*		1464.6	0^+	1229.28	0^+	E0			0.48 *4*	Mult.: transition highly converted since no corresponding γ was seen. $T_{1/2}$=6.7 ns excludes high mult.
320.6 *2*	0.25 *3*	2113.41		1792.78	4^+					
345.4 *2*	0.21 *4*	1852.13	(3)	1506.84	2^+					
347.3 *2*	0.37 *5*	1975.73	(4^+)	1628.19	(2^+)					
366.8 *2*	0.11 *2*	1994.98	$(1^+,2^+)$	1628.19	(2^+)					
^{x}374.5 *2*	0.19 *3*									
398.9 *1*	0.48 *4*	1628.19	(2^+)	1229.28	0^+					
414.3 *1*	3.6 *3*	1229.28	0^+	814.93	2^+	E2		0.00659		α(K)=0.00580 *9*; α(L)=0.000669 *10*; α(M)=0.0001123 *16*; α(N)=1.386×10^{-5} *20* α(O)=8.37×10^{-7} *12*; α(N+..)=1.470×10^{-5} *21*
455.5 *1*	0.56 *5*	2307.54	$(1,2^+)$	1852.13	(3)					
469.0 *1*	1.57 *15*	1975.73	(4^+)	1506.84	2^+					
485.2 *2*	0.9 *1*	2113.41		1628.19	(2^+)					
^{x}522.7 *2*	0.25 *3*									
555.4 *3*	0.84 *7*	2407.40		1852.13	(3)					
577.3 *2*	0.22 *3*	2083.98	$(1,2^+)$	1506.84	2^+					
606.6 *2*	1.47 *15*	2113.41		1506.84	2^+					
644.0 *1*	1.3 *1*	2150.84	$(1^+,2,3^+)$	1506.84	2^+					
650.5 *10*	0.8 *2*	1464.6	0^+	814.93	2^+	E2		0.00172		α(K)=0.001517 *23*; α(L)=0.0001691 *25*; α(M)=2.84×10^{-5} *5*; α(N)=3.54×10^{-6} *6*; α(O)=2.23×10^{-7} *4* α(N+..)=3.76×10^{-6} *6*
673.3 *3*	0.20 *5*	2525.53		1852.13	(3)					
677.2 *2*	0.25 *5*	2529.29		1852.13	(3)					
692.0 *1*	10.2 *6*	1506.84	2^+	814.93	2^+	M1+E2	+2.0 *11*	0.00141 *8*		α(K)=0.00125 *7*; α(L)=0.000138 *9*; α(M)=2.32×10^{-5} *14*; α(N)=2.89×10^{-6} *17*; α(O)=1.84×10^{-7} *9* α(N+..)=3.08×10^{-6} *18*
732.8 *2*	0.42 *4*	2525.53		1792.78	4^+					
765.9 *3*	0.21 *3*	1994.98	$(1^+,2^+)$	1229.28	0^+					
813.2 *2*	9.0 *10*	1628.19	(2^+)	814.93	2^+	(M1+E2)	+0.58 *+17−12*	8.94×10^{-4} *16*		α(K)=0.000792 *14*; α(L)=8.60×10^{-5} *16*; α(M)=1.44×10^{-5} *3*; α(N)=1.81×10^{-6} *4*; α(O)=1.183×10^{-7} *19* α(N+..)=1.93×10^{-6} *4*

$^{96}_{38}Sr_{58}$-3

$\gamma(^{96}$Sr) (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[‡]	α[&]	Comments
815.0 *1*	100.00 *5*	814.93	2^+	0	0^+	E2		9.49×10^{-4}	α(K)=0.000839 *12*; α(L)=9.23×10^{-5} *13*; α(M)=1.550×10^{-5} *22*; α(N)=1.94×10^{-6} *3* α(O)=1.239×10^{-7} *18*; α(N+..)=2.06×10^{-6} *3*
854.5 *3*	0.72 *5*	2083.98	(1,2^+)	1229.28	0^+				
867.8 *2*	0.27 *3*	2719.70		1852.13	(3)				
936.8 *1*	0.8 *1*	2443.65		1506.84	2^+				
[x]968.1 *2*	0.22 *3*								
977.8 *1*	6.5 *5*	1792.78	4^+	814.93	2^+				
987.9 *2*	0.23 *3*	2217.26	2	1229.28	0^+				
[x]1027.9 *3*	0.26 *3*								
1037.3 *1*	8.4 *7*	1852.13	(3)	814.93	2^+				
1075.9 *3*	0.29 *3*	2703.73		1628.19	(2^+)				
[x]1131.0 *3*	0.15 *2*								
1160.6 *2*	1.1 *1*	1975.73	(4^+)	814.93	2^+				
1180.0 *2*	4.2 *3*	1994.98	(1^+,2^+)	814.93	2^+	M1+E2		4.03×10^{-4}	α(K)=0.000353 *5*; α(L)=3.80×10^{-5} *6*; α(M)=6.38×10^{-6} *10*; α(N)=8.02×10^{-7} *12*; α(O)=5.25×10^{-8} *8* α(N+..)=5.7×10^{-6} *7* δ: −0.53 +*15*−*20* if J(1994.98 level)=1.
1196.6 *2*	0.39 *4*	2703.73		1506.84	2^+				
1212.5 *2*	0.53 *5*	3064.80		1852.13	(3)				
[x]1220.2 *3*	0.21 *3*								
[x]1252.8 *3*	0.23 *3*								
1269.0 *2*	0.38 *4*	2083.98	(1,2^+)	814.93	2^+				
1298.5 *2*	1.63 *17*	2113.41		814.93	2^+				
1305.1 *2*	2.34 *25*	2120.04	(4^+)	814.93	2^+				
1335.9 *2*	3.2 *3*	2150.84	(1^+,2,3^+)	814.93	2^+				
1402.4 *2*	2.76 *25*	2217.26	2	814.93	2^+	D+(Q)	+0.7 *8*		
[x]1439.2 *3*	0.23 *3*								
1454.6[a] *2*	0.27 *3*	2269.54?		814.93	2^+				
1492.6 *2*	0.91 *9*	2307.54	(1,2^+)	814.93	2^+				
1506.9 *2*	5.7 *5*	1506.84	2^+	0	0^+				
1592.4 *2*	0.59 *6*	2407.40		814.93	2^+				
1596.9 *4*	0.17 *3*	2412.00	(1,2^+)	814.93	2^+				
1628.2 *2*	1.1 *1*	1628.19	(2^+)	0	0^+				
[x]1650.1 *3*	0.34 *4*								
1678.1 *2*	1.1 *1*	2493.05		814.93	2^+				
1714.3 *2*	1.0 *1*	2529.29		814.93	2^+				
[x]1756.5 *3*	0.42 *4*								
1761.3 *2*	2.6 *3*	2576.25		814.93	2^+				
[x]1770.8 *3*	0.23 *3*								
1888.9 *2*	1.0 *1*	2703.73		814.93	2^+				
1904.5 *2*	0.63 *6*	2719.70		814.93	2^+				
[x]1964.4 *4*	0.22 *3*								

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γ(^{96}Sr) (continued)

E_γ	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f
1994.8 *3*	0.44 *5*	1994.98	(1$^+$,2$^+$)	0	0$^+$
[x]1999.9 *3*	0.27 *3*				
[x]2034.9 *7*	0.09 *3*				
2065.5 *3*	1.57 *16*	2880.5		814.93	2$^+$
2083.9 *3*	1.41 *15*	2083.98	(1,2$^+$)	0	0$^+$
[x]2146.7 *5*	0.58 *6*				
2196.5[a] *4*	0.27 *3*	4048.7?		1852.13	(3)
2250.0 *2*	1.43 *15*	3064.80		814.93	2$^+$
2307.1 *2*	1.76 *18*	2307.54	(1,2$^+$)	0	0$^+$
[x]2323.9 *3*	0.19 *3*				
2380.8 *2*	1.43 *15*	3195.76		814.93	2$^+$
2412.0 *2*	1.55 *16*	2412.00	(1,2$^+$)	0	0$^+$
2429.9[a] *3*	0.62 *7*	3244.9?		814.93	2$^+$
[x]2476.6 *3*	0.73 *8*				
[x]2493.6 *4*	0.46 *6*				
[x]2512.0 *2*	0.45 *6*				
[x]2541.4 *5*	0.26 *4*				
2631.3[a] *4*	1.8 *2*	3446.3?		814.93	2$^+$
[x]2751.4 *2*	1.1 *2*				
[x]2815.6 *4*	0.52 *6*				
2940.1 *3*	0.64 *7*	3755.4	(1,2$^+$)	814.93	2$^+$
[x]3021.8 *7*	0.25 *4*				
[x]3047.2 *4*	0.40 *6*				
[x]3050.3 *4*	0.51 *6*				
3365.4 *5*	0.72 *8*	5158.7		1792.78	4$^+$
3375.2 *5*	0.39 *6*	5168.5	(1,2$^+$)	1792.78	4$^+$
3507.6[a] *5*	0.34 *5*	4322.6?		814.93	2$^+$
[x]3513.7 *5*	0.32 *5*				
[x]3527.1 *7*	0.42 *6*				
3756.1 *5*	0.96 *15*	3755.4	(1,2$^+$)	0	0$^+$
3842.4[a] *10*	0.19 *3*	5349.3?		1506.84	2$^+$
3903.4[a] *5*	0.34 *5*	5132.8?		1229.28	0$^+$
[x]3906.9 *5*	0.30 *5*				
[x]3933.7 *5*	0.30 *5*				
3984.4[a] *4*	0.62 *8*	4799.4?		814.93	2$^+$
[x]4105.6 *7*	0.27 *7*				
[x]4228.0 *10*	0.43 *10*				
4234.5[a] *10*	0.58 *10*	5049.5?		814.93	2$^+$
4275.9[a] *5*	0.39 *6*	5090.9?		814.93	2$^+$
4344.2 *5*	0.88 *18*	5158.7		814.93	2$^+$
4355.0 *7*	0.59 *12*	5168.5	(1,2$^+$)	814.93	2$^+$
[x]4446.8 *13*	0.50 *15*				
[x]4604.8 *13*	0.28 *12*				
[x]5020.3 *20*	0.13 *6*				
5167.3 *10*	0.17 *7*	5168.5	(1,2$^+$)	0	0$^+$
[x]5232.7 *10*	0.16 *8*				
[x]5357.6 *10*	0.2 *2*				
[x]5420.0 *15*	0.2 *1*				

[†] From $\gamma\gamma(\theta)$ and RUL.

[‡] From $\gamma\gamma(\theta)$ if the 814.9γ is E2.

[#] For absolute intensity per 100 decays, multiply by 0.78 *2*.

[@] Absolute intensity per 100 decays.

[&] 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.

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

[x] γ ray not placed in level scheme.

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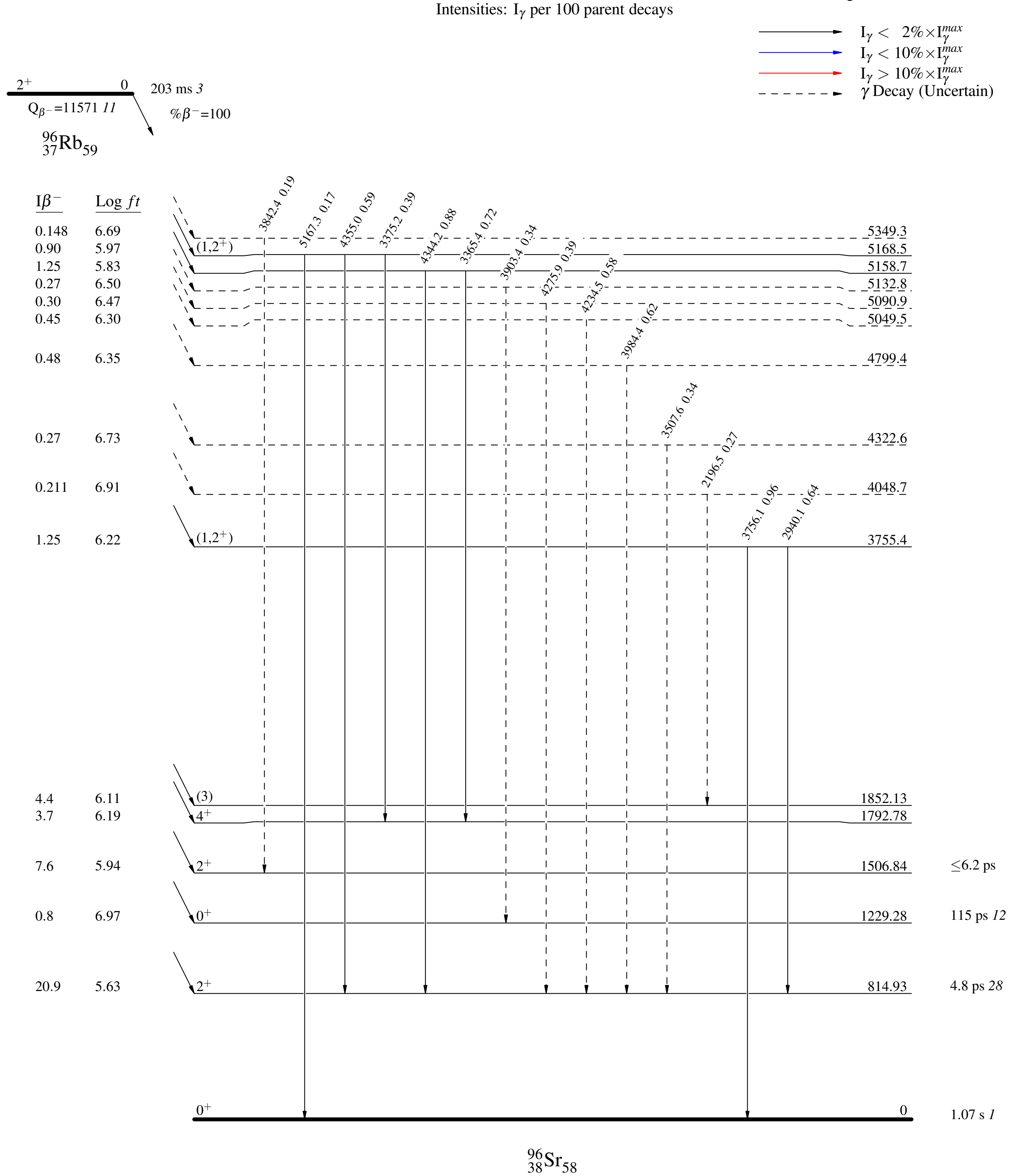
Decay Scheme

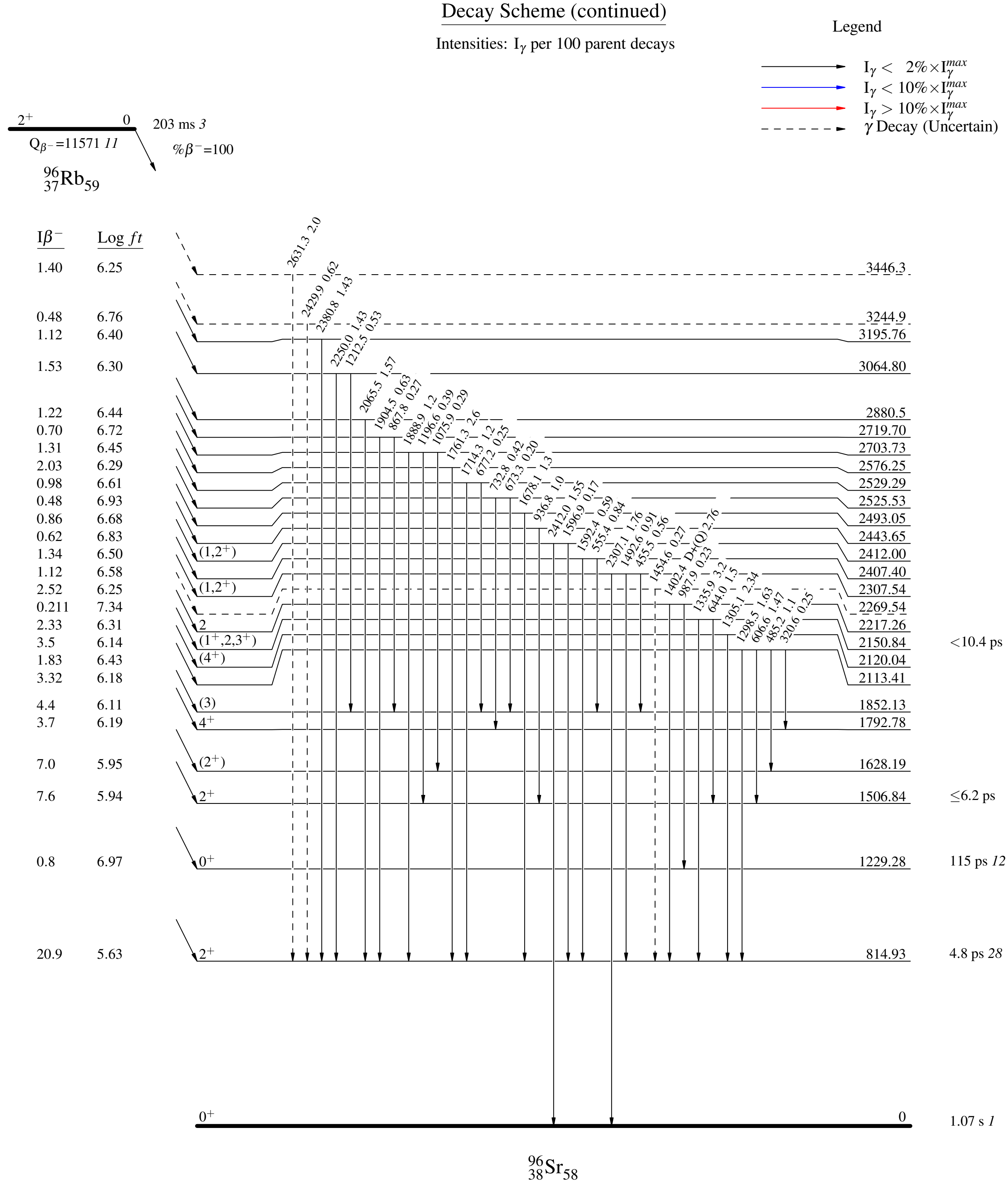
Intensities: I_γ per 100 parent decays



^{96}Rb β^- decay 1980JuZY

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays



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Decay Scheme (continued)

Intensities: I_γ per 100 parent decays