^{97}Sr β^- decay **1981PfZZ,1990Bu01**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 111, 525 (2010)	19-Nov-2009

Parent: ^{97}Sr: E=0.0; J$^\pi$=1/2$^+$; $T_{1/2}$=429 ms *5*; Q(β^-)=7470 *16*; %β^- decay=100.0

^{97}Sr-ADOPTED values for ^{97}Sr.

1981PfZZ: ^{235}U(n,F), E=th; mass separator measured: Eγ, Iγ, ce, prompt and delayed $\gamma\gamma$, $\beta\gamma$. Ge(Li); Si(Li), surface barrier detector for the fissions. ΔE, ΔIγ and unassigned gammas from priv comm to 1985Ha28.

1990Bu01: measured $T_{1/2}$ by centroid shift method.

1998Lh03,1996Lh03,1996Lh05: 1998Lh03 report data measured previously by 1996Lh03,1996Lh05 In ^{232}Th(P,Fγ) E=25 MeV reaction with IGISOL and TARDIS (12 Compton-suppressed Ge detectors); comparison with 1981PfZZ data and two new γ's found (see table).

Other: 1975Gu03.

^{97}Y Levels

E(level)†	J$^\pi$†	$T_{1/2}$‡	Comments
0.0	(1/2$^-$)	3.75† s *3*	%β^-=100.0; %β^-n=0.055 *4* %β^-,%β^-n: from Adopted Levels.
667.52 *23*	(9/2)$^+$	1.17† s *3*	%β^->99.3; %IT<0.7; %β^-n<0.08 %β^-,%IT,%β^-n: from Adopted Levels.
697.32 *20*	1/2,3/2	44 ps *3*	
953.82 *19*	(3/2$^-$,5/2$^-$)	≤4 ps	
1319.54 *19*	(5/2$^+$)	12 ps *5*	
1428.11 *20*	(5/2$^+$,7/2$^+$)	21 ps *4*	
1526.6 *4*			
1613.8? *3*	1/2,3/2		
1738.8? *4*	1/2,3/2	≤9 ps	
1799.6 *3*	(3/2$^-$)		$T_{1/2}$: 1990Bu01 give $T_{1/2}$<0.2 ps measured by centroid shift method. However, this $T_{1/2}$ gives B(E1)(W.u.)>0.014 for the [E1] 480.0 γ which is higher than the limit set by RUL.
1848.23 *24*			
1904.86 *17*	1/2$^+$,3/2$^+$	<2.3 ps	
2121.19 *20*	1/2$^+$,3/2$^+$	<7 ps	
2211.91 *18*	1/2$^+$,3/2$^+$	≤3.3 ps	
2287.4? *4*	(1/2$^+$,3/2$^+$)		
2435.9 *3*	1/2$^+$,3/2$^+$		
2558.6 *8*	1/2$^+$,3/2$^+$		

† From Adopted Levels.

‡ From $\beta\gamma\gamma$(t) by centroid shift method (1990Bu01), unless otherwise noted.

β^- radiations

Iβ^- calculated from the Iγ(absolute) balance in the level scheme.

No β^- to ^{97}Y g.s. (1981PfZZ).

Σ Iβ^-=85 *6* %. The remainder of the intensity could be accounted for by the gammas not placed in the level scheme (Σ Iγ=18 *1*).

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(4911 *16*)	2558.6	1.7 *4*	5.51 *11*	av Eβ=2180.9 *77*
(5034 *16*)	2435.9	4.2 *6*	5.16 *7*	av Eβ=2240.0 *77*
(5183 *16*)	2287.4?	3.1 *4*	5.35 *6*	av Eβ=2311.5 *77*

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^{97}Sr β^- decay 1981PfZZ,1990Bu01 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^- †	Log *ft*	Comments
(5258 *16*)	2211.91	40 *5*	4.27 *6*	av Eβ=2347.8 *77*
(5349 *16*)	2121.19	10.0 *12*	4.91 *6*	av Eβ=2391.5 *77*
(5565 *16*)	1904.86	17.8 *22*	4.73 *6*	av Eβ=2495.7 *77* E(decay): 5547 *40* (1984BlZN).
(5622‡ *16*)	1848.23	<0.8	>6.1	av Eβ=2522.9 *77* Iβ^-: GTOL upper limit (method 1): 1.00.
(5670 *16*)	1799.6	1.2 *5*	5.94 *19*	av Eβ=2546.4 *77*
(5731 *16*)	1738.8?	1.1 *4*	6.00 *16*	av Eβ=2575.7 *78*
(5856 *16*)	1613.8?	1.5 *3*	5.91 *9*	av Eβ=2635.9 *78*
(6042‡ *16*)	1428.11	<2.1	>5.8	av Eβ=2725.4 *78* Iβ^-: GTOL upper limit (method 1): 2.17.
(6150 *16*)	1319.54			Iβ^-: GTOL upper limit (method 1): 2.56.
(6516 *16*)	953.82	<4	>5.7	av Eβ=2953.9 *78* Iβ^-: GTOL upper limit (method 1): 5.32.
(6773 *16*)	697.32	1.1 *8*	6.3 *4*	av Eβ=3077.5 *77* Iβ^-: GTOL upper limit (method 1): 2.07.

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

$\gamma(^{97}Y)$

Iγ normalization: normalization factor=0.0250 *25* obtained from the absolute intensity measurement, Iγ(307.1γ)=10 *1* per 100 ^{97}Sr decays (1989WaZV).
Previous reports by 1981PfZZ: 1976MoZC, 1976SaYW.
All data are from 1981PfZZ, unless otherwise noted.
ΔE, ΔIγ: from 1998Lh03.

E$_\gamma$	I$_\gamma$ #	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.†	α@	Comments
109.4 *3*	10 *15*	1428.11	(5/2$^+$,7/2$^+$)	1319.54	(5/2$^+$)			
165.8‡ *6*	22‡ *8*	1904.86	1/2$^+$,3/2$^+$	1738.8?	1/2,3/2			
186.0 *3*	4 *2*	1613.8?	1/2,3/2	1428.11	(5/2$^+$,7/2$^+$)			
216.4 *3*	22 *4*	2121.19	1/2$^+$,3/2$^+$	1904.86	1/2$^+$,3/2$^+$			
273.0 *3*	20 *4*	2121.19	1/2$^+$,3/2$^+$	1848.23				
307.1 *2*	400 *40*	2211.91	1/2$^+$,3/2$^+$	1904.86	1/2$^+$,3/2$^+$	(M1)	0.00941	α(K)=0.00830 *12*; α(L)=0.000928 *13*; α(M)=0.0001587 *23*; α(N+..)=2.28×10^{-5} *4* α(N)=2.13×10^{-5} *3*; α(O)=1.482×10^{-6} *21*
310.6 *3*	65 *10*	1738.8?	1/2,3/2	1428.11	(5/2$^+$,7/2$^+$)			
^{x}352.2 *3*	40 *6*							
363.6 *4*	50 *10*	2211.91	1/2$^+$,3/2$^+$	1848.23				
365.8 *3*	140 *15*	1319.54	(5/2$^+$)	953.82	(3/2$^-$,5/2$^-$)	(E1)	0.00267	α(K)=0.00236 *4*; α(L)=0.000258 *4*; α(M)=4.40×10^{-5} *7*; α(N+..)=6.29×10^{-6} *9* α(N)=5.89×10^{-6} *9*; α(O)=4.02×10^{-7} *6*
^{x}409.0 *4*	14 *4*							
412.3 *3*	95 *10*	2211.91	1/2$^+$,3/2$^+$	1799.6	(3/2$^-$)	(E1)	0.00196	α(K)=0.001731 *25*; α(L)=0.000189 *3*; α(M)=3.22×10^{-5} *5*;

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^{97}Sr β^- decay 1981PfZZ,1990Bu01 (continued)

$\gamma(^{97}Y)$ (continued)

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[@]	Comments
								α(N+..)=4.61×10^{-6} *7* α(N)=4.32×10^{-6} *6*; α(O)=2.96×10^{-7} *5*
420.3 *3*	40 *10*	1848.23		1428.11	(5/2$^+$,7/2$^+$)			
^{x}471.0 *3*	17 *4*							
474.1 *5*	105 *12*	1428.11	(5/2$^+$,7/2$^+$)	953.82	(3/2$^-$,5/2$^-$)			
477.1 *5*	35 *10*	1904.86	1/2$^+$,3/2$^+$	1428.11	(5/2$^+$,7/2$^+$)			
480.0 *3*	145 *15*	1799.6	(3/2$^-$)	1319.54	(5/2$^+$)			
^{x}508.1 *5*	54 *10*							
528.2 *5*	47 *8*	1848.23		1319.54	(5/2$^+$)			
531.0 *4*	30 *10*	2435.9	1/2$^+$,3/2$^+$	1904.86	1/2$^+$,3/2$^+$			
585.2 *5*	30 *10*	1904.86	1/2$^+$,3/2$^+$	1319.54	(5/2$^+$)			
622.5 *5*	19 *7*	1319.54	(5/2$^+$)	697.32	1/2,3/2			
652.2 *3*	455 *50*	1319.54	(5/2$^+$)	667.52	(9/2)$^+$	(E2)	0.00183	α(K)=0.001613 *23*; α(L)=0.000182 *3*; α(M)=3.11×10^{-5} *5*; α(N+..)=4.42×10^{-6} *7* α(N)=4.15×10^{-6} *6*; α(O)=2.79×10^{-7} *4*
667.5 *5*	<2	667.52	(9/2)$^+$	0.0	(1/2$^-$)			
^{x}682.0 *5*	20 *4*							
685.6 *5*	20 *10*	2211.91	1/2$^+$,3/2$^+$	1526.6				
697.3 *3*	243 *25*	697.32	1/2,3/2	0.0	(1/2$^-$)			
730.7[‡] *5*	29[‡] *6*	1428.11	(5/2$^+$,7/2$^+$)	697.32	1/2,3/2			
760.5 *2*	51 *5*	1428.11	(5/2$^+$,7/2$^+$)	667.52	(9/2)$^+$			
801.6 *3*	210 *20*	2121.19	1/2$^+$,3/2$^+$	1319.54	(5/2$^+$)			
829.5 *5*	20 *5*	1526.6		697.32	1/2,3/2			
^{x}872.2 *5*	14 *5*							
892.2 *3*	178 *18*	2211.91	1/2$^+$,3/2$^+$	1319.54	(5/2$^+$)			
^{x}905.0 *4*	6 *2*							
951.0 *4*	82 *20*	1904.86	1/2$^+$,3/2$^+$	953.82	(3/2$^-$,5/2$^-$)			
953.8 *3*	854 *80*	953.82	(3/2$^-$,5/2$^-$)	0.0	(1/2$^-$)			
^{x}982.4 *5*	38 *5*							
^{x}1072.4 *5*	12 *4*							
1167.5 *4*	61 *8*	2121.19	1/2$^+$,3/2$^+$	953.82	(3/2$^-$,5/2$^-$)			
^{x}1248.0 *6*	20 *5*							
1258.0 *3*	385 *40*	2211.91	1/2$^+$,3/2$^+$	953.82	(3/2$^-$,5/2$^-$)			
1423.2 *5*	12 *3*	2121.19	1/2$^+$,3/2$^+$	697.32	1/2,3/2			
^{x}1439.2 *5*	44 *6*							
1514.8 *5*	79 *8*	2211.91	1/2$^+$,3/2$^+$	697.32	1/2,3/2			
1613.0 *5*	56 *10*	1613.8?	1/2,3/2	0.0	(1/2$^-$)			
^{x}1629.0 *8*	5 *3*							
^{x}1647.5 *8*	14 *5*							
^{x}1667.5 *5*	17 *5*							
1738.3 *5*	22 *4*	2435.9	1/2$^+$,3/2$^+$	697.32	1/2,3/2			
^{x}1846.0 *10*	13 *5*							
1862.0 *10*	18 *5*	2558.6	1/2$^+$,3/2$^+$	697.32	1/2,3/2			
1905.0 *3*	1000	1904.86	1/2$^+$,3/2$^+$	0.0	(1/2$^-$)	[E1]	6.42×10^{-4}	α(K)=7.87×10^{-5} *11*; α(L)=8.40×10^{-6} *12*; α(M)=1.431×10^{-6} *20*; α(N+..)=0.000554 *8* α(N)=1.93×10^{-7} *3*; α(O)=1.366×10^{-8} *20*; α(IPF)=0.000554 *8*
^{x}1984.0 *5*	34 *8*							

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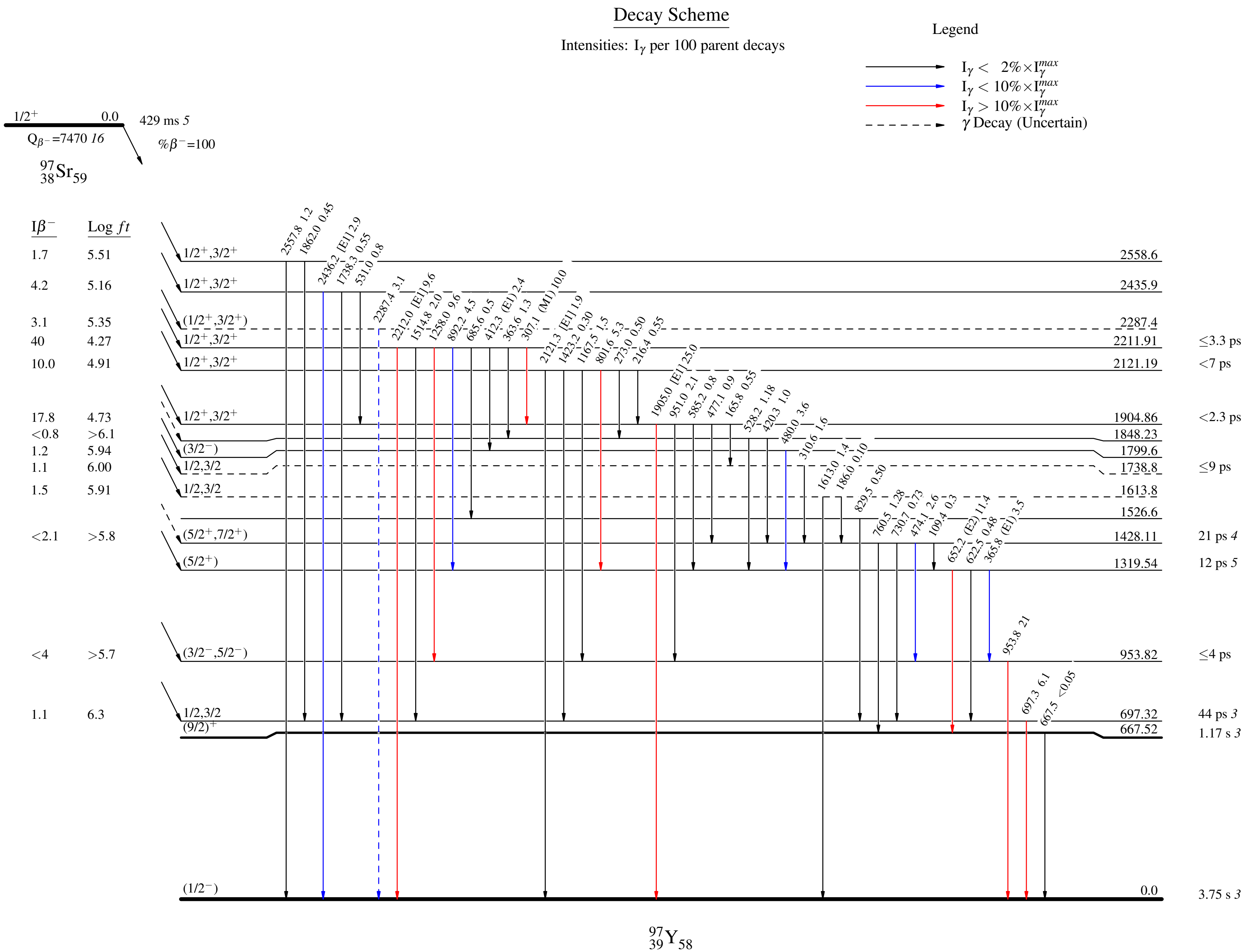
^{97}Sr β^- decay 1981PfZZ,1990Bu01 (continued)

$\gamma(^{97}Y)$ (continued)

E_γ	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[†]	α[@]	Comments
[x]2047.5 *10*	16 *5*							
2121.3 *4*	74 *10*	2121.19	1/2$^+$,3/2$^+$	0.0	(1/2$^-$)	[E1]	7.83×10^{-4}	α(K)=6.69×10^{-5} *10*; α(L)=7.13×10^{-6} *10*; α(M)=1.215×10^{-6} *17*; α(N+..)=0.000708 *10* α(N)=1.638×10^{-7} *23*; α(O)=1.160×10^{-8} *17*; α(IPF)=0.000707 *10*
2212.0 *4*	385 *30*	2211.91	1/2$^+$,3/2$^+$	0.0	(1/2$^-$)	[E1]	8.39×10^{-4}	α(K)=6.29×10^{-5} *9*; α(L)=6.70×10^{-6} *10*; α(M)=1.141×10^{-6} *16*; α(N+..)=0.000768 *11* α(N)=1.539×10^{-7} *22*; α(O)=1.090×10^{-8} *16*; α(IPF)=0.000768 *11*
[x]2256.2 *6*	22 *5*							
2287.4[&] *4*	125 *10*	2287.4?	(1/2$^+$,3/2$^+$)	0.0	(1/2$^-$)			
2436.2 *6*	115 *10*	2435.9	1/2$^+$,3/2$^+$	0.0	(1/2$^-$)	[E1]	9.73×10^{-4}	α(K)=5.46×10^{-5} *8*; α(L)=5.81×10^{-6} *9*; α(M)=9.90×10^{-7} *14*; α(N+..)=0.000911 *13* α(N)=1.336×10^{-7} *19*; α(O)=9.47×10^{-9} *14*; α(IPF)=0.000911 *13*
[x]2510.3 *10*	10 *5*							
2557.8 *10*	48 *10*	2558.6	1/2$^+$,3/2$^+$	0.0	(1/2$^-$)			
[x]2603.3 *8*	28 *7*							
[x]2688.2 *8*	50 *10*							
[x]2767.5 *8*	72 *15*							
[x]2800.0 *10*	19 *5*							
[x]2821.0 *10*	21 *6*							
[x]2900.0 *10*	88 *15*							
[x]2929.0 *10*	30 *8*							

[†] Multipolarities were deduced by 1981PfZZ from conversion electron measurements (data not given).
[‡] From 1998Lh03.
[#] For absolute intensity per 100 decays, multiply by 0.0250 *25*.
[@] 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.
[x] γ ray not placed in level scheme.

^{97}Sr β^- decay 1981PfZZ,1990Bu01



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