^{86}Y ε decay (14.74 h) 1970Ra06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 124, 1 (2015)	30-Nov-2014

Parent: ^{86}Y: E=0.0; J$^{\pi}$=4^{-}; $T_{1/2}$=14.74 h *2*; Q(ε)=5240 *14*; %ε+%β^{+} decay=100.0

^{86}Y-Q(ε): from 2012Wa38.

1970Ra06 (also 1969Ra08): Measured Eγ, Iγ, $\gamma\gamma$ using NaI and Ge(Li) detectors and ce with a β^{-}ray spectrometer.

$\gamma\gamma(\theta)$: 1984Ak02, 1975Be59, 1970Ar03, 1962Ya01.

1969Ar25: measured Eγ, Iγ. About 85 γ rays reported. Strong γ rays agree in energy and intensity with those from 1970Ra06. A large number of weak lines listed below remain unconfirmed.

1965Va02: measured γ, ce, Eβ, Iβ, $\beta\gamma$, $\gamma\gamma$, β^{-}shape.

1962Ya01: β and shape factor.

$T_{1/2}$(^{86}Y): 1972Em01, 1951Ca46, 1951Hy24.

^{86}Sr Levels

E(level)	J$^{\pi}$†	Comments
0.0	0^{+}	
1076.76 *8*	2^{+}	
1854.26 *8*	2^{+}	
2229.89 *9*	4^{+}	
2482.02 *9*	3^{-}	
2642.27 *23*	2^{+}	
2672.98 *10*	5^{-}	
2788.5 *4*	2^{+}	This level was treated as tentative in 1970Ra06, but several other reactions confirm its existence.
2878.38 *9*	(4)$^{+}$	
2997.47 *10*	3^{-}	
3055.90 *11*	5^{-}	
3185.34 *9*	(3)$^{-}$	
3291.33 *16*	6^{-}	
3317.74 *10*	(5)$^{-}$	
3362.17 *12*	4^{+}	
3500.07 *11*	(3,4,5)$^{-}$	
3555.87 *13*	(4^{+})	
3645.05 *10*	(3^{-})	
3686.77 *20*	3^{-}	
3765.81 *10*	3^{-},4^{-},5^{-}	
3775.04? *19*	(4,5)$^{+}$	
3831.17 *13*	(3,4)$^{-}$	
3871.6 *4*	3^{-}	
3926.10 *10*	(4)$^{+}$	
3942.64 *19*	3^{-}	
3969.01 *14*	3^{-},4^{-},5^{-}	
4146.28 *23*	3,4^{+}	
4206.18 *12*	(3^{-},4,5^{-})	
4339.4? *15*		
4410.7 *5*	3^{-}	
4718.1 *17*	3,4$^{(+)}$	
4954 *6*	3,4$^{(+)}$	

† From Adopted Levels.

^{86}Y ε decay (14.74 h) 1970Ra06 (continued)

ε,β$^+$ radiations

E(decay)	E(level)	Iβ$^+$ †	Iε†	Log *ft*	I(ε+β$^+$)†	Comments
(286‡ *15*)	4954		0.05 *5*	6.9 *5*	0.05 *5*	εK=0.8645 *7*; εL=0.1110 *6*; εM+=0.02448 *15*
(522 *14*)	4718.1		0.050 *10*	7.42 *9*	0.050 *10*	εK=0.8700 *2*; εL=0.10663 *15*; εM+=0.02338 *4*
(829 *14*)	4410.7		0.184 *21*	7.26 *6*	0.184 *21*	εK=0.8723; εL=0.10477 *6*; εM+=0.02292 *2*
(901‡ *14*)	4339.4?					
(1034 *14*)	4206.18		0.87 *7*	6.78 *4*	0.87 *7*	εK=0.8731; εL=0.10415 *4*; εM+=0.022761 *9*
(1094 *14*)	4146.28		0.69 *4*	6.93 *3*	0.69 *4*	εK=0.8732; εL=0.10402 *4*; εM+=0.022726 *8*
(1271 *14*)	3969.01	0.0038 *10*	1.38 *7*	6.764 *25*	1.38 *7*	av Eβ=114.3 *60*; εK=0.8713 *6*; εL=0.1034 *1*; εM+=0.02258 *3*
(1297 *14*)	3942.64	0.0029 *7*	0.70 *8*	7.08 *5*	0.70 *8*	av Eβ=125.5 *60*; εK=0.8701 *8*; εL=0.10322 *12*; εM+=0.02254 *3*
(1314 *14*)	3926.10	0.035 *7*	6.65 *18*	6.109 *16*	6.68 *18*	av Eβ=132.6 *60*; εK=0.8692 *9*; εL=0.10308 *13*; εM+=0.02251 *3*
(1368 *14*)	3871.6	0.0035 *6*	0.335 *24*	7.44 *4*	0.338 *24*	av Eβ=155.8 *60*; εK=0.8649 *15*; εL=0.10249 *20*; εM+=0.02238 *5*
(1409 *14*)	3831.17	0.22 *4*	14.2 *12*	5.84 *4*	14.4 *12*	av Eβ=173.0 *60*; εK=0.8603 *20*; εL=0.10188 *25*; εM+=0.02224 *6*
(1465‡ *14*)	3775.04?	0.011 *2*	0.41 *5*	7.42 *6*	0.42 *5*	av Eβ=196.9 *60*; εK=0.851 *3*; εL=0.1008 *4*; εM+=0.02200 *8*
(1474 *14*)	3765.81	0.26 *3*	9.03 *24*	6.077 *15*	9.29 *24*	av Eβ=200.8 *60*; εK=0.850 *3*; εL=0.1005 *4*; εM+=0.02195 *8*
(1553 *14*)	3686.77	0.057 *7*	1.10 *8*	7.04 *4*	1.16 *8*	av Eβ=234.6 *60*; εK=0.831 *4*; εL=0.0982 *5*; εM+=0.02144 *11*
(1595 *14*)	3645.05	0.31 *3*	4.48 *15*	6.450 *18*	4.79 *16*	av Eβ=252.4 *60*; εK=0.818 *5*; εL=0.0967 *6*; εM+=0.02110 *13* Measured Eβ=650, Iβ=2.4 (1962Ya01).
(1878 *14*)	3362.17	0.18 *2*	0.64 *5*	7.44 *4*	0.82 *6*	av Eβ=374.7 *61*; εK=0.683 *9*; εL=0.0805 *10*; εM+=0.01756 *22*
(1922 *14*)	3317.74	1.1 *2*	3.5 *5*	6.73 *7*	4.6 *7*	av Eβ=394.1 *62*; εK=0.656 *9*; εL=0.0773 *11*; εM+=0.01686 *23*
(1949‡ *14*)	3291.33	0.043 *16*	0.12 *4*	8.21 *17*	0.16 *6*	av Eβ=405.6 *62*; εK=0.640 *9*; εL=0.0753 *11*; εM+=0.01644 *23* log *ft*=8.2 is too low to be realistic for 4$^-$ to 6$^-$ β transition. Its apparent weak β feeding of 0.14% or so may be due to unobserved weak γ rays feeding this level.
(2055 *14*)	3185.34	1.9 *4*	3.7 *8*	6.76 *10*	5.6 *12*	av Eβ=452.2 *62*; εK=0.572 *9*; εL=0.0674 *11*; εM+=0.01470 *23* Measured Eβ=1043 *20*, Iβ=4.6 (1965Va02).
(2184 *14*)	3055.90	1.33 *11*	1.71 *14*	7.14 *4*	3.04 *24*	av Eβ=509.4 *63*; εK=0.491 *9*; εL=0.0578 *10*; εM+=0.01260 *22*
(2243 *14*)	2997.47	11.9 *5*	12.9 *5*	6.288 *21*	24.8 *9*	av Eβ=535.4 *63*; εK=0.457 *9*; εL=0.0537 *10*; εM+=0.01171 *22* Measured Eβ=1248 *15*, Iβ=14 (1965Va02).
(2362 *14*)	2878.38	0.69 *12*	0.55 *9*	7.70 *8*	1.24 *21*	av Eβ=588.6 *63*; εK=0.391 *8*; εL=0.0459 *9*; εM+=0.01001 *19*
(2452‡ *14*)	2788.5	0.05 *3*	0.04 *2*	8.93 *25*	0.09 *5*	av Eβ=628.9 *63*; εK=0.346 *7*; εL=0.0407 *8*; εM+=0.00887 *17*
(2567 *14*)	2672.98	5.6 *5*	2.8 *2*	7.06 *4*	8.4 *7*	av Eβ=681.1 *64*; εK=0.296 *6*; εL=0.0348 *7*; εM+=0.00758 *15*
(2598‡ *14*)	2642.27	0.05 *3*	0.02 *2*	9.2 *4*	0.07 *5*	av Eβ=695.0 *64*; εK=0.284 *6*; εL=0.0333 *7*; εM+=0.00727 *14*
(2758 *14*)	2482.02	1.7 *10*	0.6 *3*	7.80 *25*	2.3 *13*	av Eβ=767.8 *64*; εK=0.229 *5*; εL=0.0268 *5*; εM+=0.00585 *11*
(3010 *14*)	2229.89	3.6 *9*	0.83 *21*	7.74 *11*	4.4 *11*	av Eβ=883.3 *65*; εK=0.165 *3*; εL=0.0193 *4*; εM+=0.00421 *8*

Continued on next page (footnotes at end of table)

^{86}Y ε decay (14.74 h) 1970Ra06 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
						Measured Eβ=2019 *20* (1965Va02), 1960 *20* (1962Ya01); Iβ=4.6 (1965Va02).
(3386 *14*)	1854.26	0.9 *9*	0.4 *4*	9.8^{1u} *5*	1.3 *13*	av Eβ=1077.6 *65*; εK=0.238 *4*; εL=0.0281 *5*; εM+=0.00613 *10* Measured Eβ=2335 *40* (1965Va02), 2320 *50* (1962Ya01); Iβ=1.3 (1965Va02).
(4163 *14*)	1076.76	2.0 *11*	0.29 *16*	10.30^{1u} *25*	2.3 *13*	av Eβ=1436.8 *66*; εK=0.1098 *15*; εL=0.01293 *17*; εM+=0.00282 *4* Measured Eβ=3153 *40* (1965Va02), 3130 *30* (1962Ya01); Iβ=0.6 (1965Va02). Shape=2−yes (1965Va02,1962Ya01).

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

γ(^{86}Sr)

Iγ normalization: Σ (I(γ+ce) of γ rays to g.s.)=100. Direct feeding to g.s. is highly forbidden.

Following weak transitions were reported by 1969Ar25 only: 118.7 *5* (0.25 *9*), 241.7 *5* (1.01 *16*), 815.5 *15* (1.5 *5*), 909.7 *5* (2.0 *5*), 928 *1* (1.6 *4*), 1064 *1* (0.9 *4*), 1390 *2* (0.3), 1460 *1* (0.3), 1603 *2* (0.5), 1661 *2* (0.5 *2*), 1782 *1* (0.1), 1940 *3* (0.15 *5*), 2043 *2* (0.1), 2058 *2* (0.37 *13*), 2130 *2* (0.15 *7*), 2164 *2* (0.10 *5*), 2190 *3* (0.10 *3*), 2228 *3* (≤0.1), 2298 *2* (0.1), 2314 *3* (0.4 *3*), 2617 *2* (0.20 *8*), 2859 *3* (0.3 *1*), 3025 *5* (0.09), 3795 *5* (0.10 *3*), 3868 *5* (0.15), 3888 *5* (0.37), 3918 *5* (0.56). These have not been placed in a level scheme and are omitted here, since not confirmed by 1970Ra06.

α(K)exp deduced from conversion spectra if mult(1077γ)=E2. α(K)exp(1077γ) from internal/external conversion spectra.

E_γ	I_γ[d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[†#]	α[e]	Comments
132.34 *10*	0.20 *1*	3317.74	(5)$^-$	3185.34	(3)$^-$				
144.5 *3*	0.038 *4*	3645.05	(3$^-$)	3500.07	(3,4,5)$^-$				
182.34[bf] *20*	0.13 *4*	3500.07	(3,4,5)$^-$	3317.74	(5)$^-$				
187.87 *13*	1.53 *5*	3185.34	(3)$^-$	2997.47	3$^-$	(M1)		0.0297	α(K)exp=0.021 *4* α(K)=0.0262 *4*; α(L)=0.00294 *5*; α(M)=0.000495 *7*; α(N+..)=6.60×10^{-5} *10* α(N)=6.20×10^{-5} *9*; α(O)=3.99×10^{-6} *6* Mult.: α(K)exp gives E1,M1; but ΔJ^π requires M1. Additional information 14.
190.80 *13*	1.23 *4*	2672.98	5$^-$	2482.02	3$^-$	E2		0.0957	α(K)exp=0.098 *7* α(K)=0.0830 *12*; α(L)=0.01071 *16*; α(M)=0.00180 *3*; α(N+..)=0.000228 *4* α(N)=0.000216 *3*; α(O)=1.134×10^{-5} *17* Additional information 7.
209.80[bf] *23*	0.48 *2*	3765.81	3$^-$,4$^-$,5$^-$	3555.87	(4$^+$)				
235.37 *23*	0.48 *2*	3291.33	6$^-$	3055.90	5$^-$				
237.9 *3*	0.16 *3*	3555.87	(4$^+$)	3317.74	(5)$^-$				
252.05 *13*	0.45 *2*	2482.02	3$^-$	2229.89	4$^+$	E1		0.00690 *10*	α(K)exp=0.0040 *8* α=0.00690 *10*; α(K)=0.00611 *9*; α(L)=0.000665 *10*; α(M)=0.0001113 *16*; α(N+..)=1.473×10^{-5} α(N)=1.386×10^{-5} *20*; α(O)=8.73×10^{-7} *13* Additional information 5.
256.4[bf] *4*	0.09 *3*	3942.64	3$^-$	3686.77	3$^-$				
264.53 *13*	0.65 *3*	3555.87	(4$^+$)	3291.33	6$^-$				
307.00 *10*	4.2 *1*	3185.34	(3)$^-$	2878.38	(4)$^+$	E1		0.00399 *6*	α(K)exp=0.0040 *4* α=0.00399 *6*; α(K)=0.00354 *5*; α(L)=0.000384 *6*; α(M)=6.43×10^{-5} *9*; α(N+..)=8.53×10^{-6} *12* α(N)=8.02×10^{-6} *12*; α(O)=5.10×10^{-7} *8* Additional information 15.
331.08 *23*	1.01 *3*	3831.17	(3,4)$^-$	3500.07	(3,4,5)$^-$	M1(+E2)	<0.7	0.0082 *12*	α(K)exp=0.0068 *13* α=0.0082 *12*; α(K)=0.0072 *10*; α(L)=0.00081 *13*;

$^{86}_{38}$Sr$_{48}$-4

$\gamma(^{86}$Sr) (continued)

E_γ	I_γ[d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[†#]	α[e]	Comments
									α(M)=0.000136 *21*; α(N+..)=1.8×10^{-5} *3* α(N)=1.70×10^{-5} *25*; α(O)=1.07×10^{-6} *13* Additional information 23.
355.07 *26*	0.12 *3*	2997.47	3$^-$	2642.27	2$^+$				
370.28 *17*	1.00 *5*	3926.10	(4)$^+$	3555.87	(4$^+$)				
380.4 *3*	0.55 *4*	4146.28	3,4$^+$	3765.81	3$^-$,4$^-$,5$^-$				
382.86 *23*	4.40 *14*	3055.90	5$^-$	2672.98	5$^-$				
425.97 *23*	0.37 *2*	3926.10	(4)$^+$	3500.07	(3,4,5)$^-$				
439.5 *3*	0.24 *8*	3317.74	(5)$^-$	2878.38	(4)$^+$				
443.13 *10*	20.5 *6*	2672.98	5$^-$	2229.89	4$^+$	E1+M2	+0.083 *11*	0.00159 *3*	α(K)exp=0.00129 *8* α=0.00159 *3*; α(K)=0.00141 *3*; α(L)=0.000153 *3*; α(M)=2.57×10^{-5} *5*; α(N+..)=3.42×10^{-6} *7* α(N)=3.21×10^{-6} *7*; α(O)=2.06×10^{-7} *4* Additional information 8. (443γ)(1153γ)(θ): A_2=−0.017 *9*, A_4=+0.008 *16* (1984Ak02). (443γ)(1153γ)(1077γ)(θ): A_2=−0.016 *13*, A_4=+0.001 *22* (1984Ak02).
444.18 *23*	0.78[c] *20*	3500.07	(3,4,5)$^-$	3055.90	5$^-$				
448.10[‡bf] *10*	0.09 *3*	3765.81	3$^-$,4$^-$,5$^-$	3317.74	(5)$^-$				
469.24 *25*	0.36 *3*	3969.01	3$^-$,4$^-$,5$^-$	3500.07	(3,4,5)$^-$				
503.0[f] *4*	0.11 *4*	3291.33	6$^-$	2788.5	2$^+$	[M4]			E_γ: evaluators treat the placement of this γ as highly questionable since it is not confirmed in (α,2nγ) (1983Fi05), (^{9}Be,5nγ) (2014Li25) and (^{13}C,3nγ) (2014KuZZ) experiments; and due to implied and unlikely M4 multipolarity.
512.42[a]	&	3185.34	(3)$^-$	2672.98	5$^-$				
515.18 *20*	5.93 *17*	2997.47	3$^-$	2482.02	3$^-$	M1,E2		0.0029 *5*	α(K)exp=0.0026 *5* α=0.0029 *5*; α(K)=0.0026 *4*; α(L)=0.00029 *5*; α(M)=4.8×10^{-5} *9*; α(N+..)=6.4×10^{-6} *11* α(N)=6.0×10^{-6} *10*; α(O)=3.8×10^{-7} *6* Additional information 11.
580.57 *10*	5.80 *17*	3765.81	3$^-$,4$^-$,5$^-$	3185.34	(3)$^-$	(M1)		0.00186 *3*	α(K)exp=0.00134 *19* α=0.00186 *3*; α(K)=0.001644 *23*; α(L)=0.000179 *3*; α(M)=3.01×10^{-5} *5*; α(N+..)=4.03×10^{-6} *6* α(N)=3.78×10^{-6} *6*; α(O)=2.47×10^{-7} *4* Additional information 21.
608.29 *10*	2.44 *18*	3926.10	(4)$^+$	3317.74	(5)$^-$	E1+M2	0.21 *7*	0.00089 *13*	α(K)exp=0.00079 *9* α=0.00089 *13*; α(K)=0.00078 *12*; α(L)=8.5×10^{-5} *13*; α(M)=1.43×10^{-5} *22*; α(N+..)=1.9×10^{-6} *3* α(N)=1.8×10^{-6} *3*; α(O)=1.16×10^{-7} *18* Additional information 26.

$^{86}_{38}$Sr$_{48}$-5

$\gamma(^{86}Sr)$ (continued)

E_γ	I_γ[d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[†#]	α[e]	Comments
618.2 *4*	0.26 *4*	3291.33	6^-	2672.98	5^-				
627.72 *10*	39.5 *12*	2482.02	3^-	1854.26	2^+	E1+M2	−0.065 *24*	0.000675 *17*	α(K)exp=0.00061 *4* α=0.000675 *17*; α(K)=0.000599 *15*; α(L)=6.45×10^{-5} *17*; α(M)=1.08×10^{-5} *3*; α(N+..)=1.44×10^{-6} *4* α(N)=1.36×10^{-6} *4*; α(O)=8.80×10^{-8} *23* Additional information 6. (628γ)(1854γ)(θ): A_2=−0.123 *10*, A_4=+0.02 *1* (1984Ak02). (628γ)(777γ)(1077γ)(θ): A_2=−0.049 *21*, A_4=+0.005 *20* (1984Ak02).
634.78[‡bf] *10*	0.11 *3*	3926.10	$(4)^+$	3291.33	6^-				
644.82[a]	2.65[c] *40*	3317.74	$(5)^-$	2672.98	5^-	(M1+E2)	+0.27 *6*	0.001483 *23*	α=0.001483 *23*; α(K)=0.001313 *20*; α(L)=0.0001428 *23*; α(M)=2.40×10^{-5} *4*; α(N+..)=3.21×10^{-6} α(N)=3.02×10^{-6} *5*; α(O)=1.97×10^{-7} *3* Additional information 17. (645γ)(443)(1153γ)(θ): A_2=+0.103 *20*, A_4=+0.005 *33* (1984Ak02). δ: +0.27 *6* or −1.2 *3*.
645.87[a]	11.1[c] *13*	3831.17	$(3,4)^-$	3185.34	$(3)^-$	(M1)		0.001457 *21*	α(K)exp=0.00117 *8* α=0.001457 *21*; α(K)=0.001291 *18*; α(L)=0.0001401 *20*; α(M)=2.35×10^{-5} *4*; α(N+..)=3.15×10^{-6} α(N)=2.96×10^{-6} *5*; α(O)=1.94×10^{-7} *3* α(K)exp: for 644.82γ+645.87γ. Additional information 24.
648.6 *10*	&	2878.38	$(4)^+$	2229.89	4^+				
689.29 *25*	0.21 *4*	3362.17	4^+	2672.98	5^-				
[x]702.2 *6*	0.3 *1*								
703.33 *10*	18.7 *5*	3185.34	$(3)^-$	2482.02	3^-	M1+E2	+0.25 *5*	0.001215 *18*	α(K)exp=0.00099 *5* α=0.001215 *18*; α(K)=0.001076 *16*; α(L)=0.0001167 *17*; α(M)=1.96×10^{-5} *3*; α(N+..)=2.63×10^{-6} α(N)=2.46×10^{-6} *4*; α(O)=1.614×10^{-7} *24* Additional information 16. δ: or −2.4 *3*. (703γ)(628γ)(θ): A_2=−0.088 *4*, A_4=−0.024 *9* (1984Ak02).
709.90 *10*	3.18 *9*	3765.81	$3^-,4^-,5^-$	3055.90	5^-	M1,E2		0.00127 *9*	α(K)exp=0.00102 *27* α=0.00127 *9*; α(K)=0.00112 *8*; α(L)=0.000123 *10*; α(M)=2.06×10^{-5} *17*; α(N+..)=2.75×10^{-6} *21* α(N)=2.59×10^{-6} *20*; α(O)=1.67×10^{-7} *10* Additional information 22.
719.17 *23*	0.27 *4*	3775.04?	$(4,5)^+$	3055.90	5^-				
740.81 *13*	1.65 *6*	3926.10	$(4)^+$	3185.34	$(3)^-$				

$^{86}_{38}Sr_{48}$-6

^{86}Y ε decay (14.74 h) 1970Ra06 (continued)

γ(^{86}Sr) (continued)

E_γ	I_γ[d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[†#]	α[e]	Comments
767.63 *13*	2.9[c] *4*	2997.47	3^-	2229.89	4^+				
768.25[a]	0.39[c] *13*	3765.81	$3^-,4^-,5^-$	2997.47	3^-				
777.37 *10*	27.2 *7*	1854.26	2^+	1076.76	2^+	M1+E2	+0.251 *17*	0.000971 *14*	α(K)exp=0.00093 *8* α=0.000971 *14*; α(K)=0.000860 *12*; α(L)=9.31×10^{-5} *13*; α(M)=1.563×10^{-5} *22*; α(N+..)=2.10×10^{-6} α(N)=1.97×10^{-6} *3*; α(O)=1.290×10^{-7} *18* Additional information 2. (777γ)(1077γ)(θ): A_2=+0.065 *15*, A_4=+0.02 *3* (1984Ak02).
783.56 *26*	0.32 *4*	3969.01	$3^-,4^-,5^-$	3185.34	$(3)^-$				
826.02 *13*	4.0 *1*	3055.90	5^-	2229.89	4^+	E1(+M2)	+0.012 *19*	0.000364 *6*	α(K)exp=0.00032 *11* α=0.000364 *6*; α(K)=0.000323 *5*; α(L)=3.46×10^{-5} *5*; α(M)=5.81×10^{-6} *9*; α(N+..)=7.77×10^{-7} *12* α(N)=7.29×10^{-7} *11*; α(O)=4.76×10^{-8} *7* Additional information 13. (826γ)(1153γ)(θ): A_2=−0.060 *16*, A_4=+0.11 *27* (1984Ak02). (826γ)(1153γ)(1077γ)(θ): A_2=−0.066 *21*, A_4=+0.01 *4* (1984Ak02).
833.72[a]	1.8[c] *4*	3831.17	$(3,4)^-$	2997.47	3^-				
835.67[a]	5.3[c] *7*	3317.74	$(5)^-$	2482.02	3^-	(E2)		0.00086 *4*	α(K)exp=0.00064 *5* α=0.00086 *4*; α(K)=0.00076 *4*; α(L)=8.3×10^{-5} *4*; α(M)=1.39×10^{-5} *7*; α(N+..)=1.85×10^{-6} *9* α(N)=1.74×10^{-6} *8*; α(O)=1.13×10^{-7} *4* α(K)exp: for 833.72γ+835.67γ. Additional information 18.
882.96 *17*	0.3 *1*	3555.87	(4^+)	2672.98	5^-				
887.40 *17*	0.53 *5*	3765.81	$3^-,4^-,5^-$	2878.38	$(4)^+$				
955.35 *20*	1.26 *5*	3185.34	$(3)^-$	2229.89	4^+				
971.43 *18*	0.33 *4*	3969.01	$3^-,4^-,5^-$	2997.47	3^-				
1017.93 *23*	0.22 *14*	3500.07	$(3,4,5)^-$	2482.02	3^-				
1024.04 *10*	4.6 *2*	2878.38	$(4)^+$	1854.26	2^+	(E2)		0.000540 *11*	α(K)exp=0.00041 *4* α=0.000540 *11*; α(K)=0.000479 *10*; α(L)=5.18×10^{-5} *13*; α(M)=8.69×10^{-6} *21*; α(N+..)=1.164×10^{-6} α(N)=1.092×10^{-6} *24*; α(O)=7.13×10^{-8} *12* Additional information 9.
1076.63 *10*	100	1076.76	2^+	0.0	0^+	E2		0.000489 *7*	α(K)exp=0.00041 *4* α=0.000489 *7*; α(K)=0.000433 *6*; α(L)=4.70×10^{-5} *7*; α(M)=7.89×10^{-6} *11*; α(N+..)=1.054×10^{-6} *15* α(N)=9.90×10^{-7} *14*; α(O)=6.41×10^{-8} *9* Additional information 1.
1087.6 *5*	0.05 *1*	3317.74	$(5)^-$	2229.89	4^+				

$^{86}_{38}$Sr$_{48}$-7

$\gamma(^{86}$Sr) (continued)

E_γ	I_γ[d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[†#]	α[e]	Comments
1092.68 *13*	0.84 *5*	3765.81	$3^-,4^-,5^-$	2672.98	5^-				
1102.02 *23*	0.24 *3*	3775.04?	$(4,5)^+$	2672.98	5^-				
1133.3 *10*	0.36 *3*	3362.17	4^+	2229.89	4^+				
1142.3[bf] *10*	0.12 *4*	2997.47	3^-	1854.26	2^+				
1150.34[a]	&	4206.18	$(3^-,4,5^-)$	3055.90	5^-				
1153.05 *10*	37.0 *11*	2229.89	4^+	1076.76	2^+	E2		0.000423 *6*	α(K)exp=0.000373 *26* α=0.000423 *6*; α(K)=0.000372 *6*; α(L)=4.03×10^{-5} *6*; α(M)=6.76×10^{-6} *10*; α(N+..)=3.95×10^{-6} *6* α(N)=8.48×10^{-7} *12*; α(O)=5.51×10^{-8} *8*; α(IPF)=3.05×10^{-6} *5* δ(M3/E2)=−0.008 *13* from γγ(θ). Additional information 4. (1153γ)(1077γ)(θ): A_2=+0.089 *15*, A_4=+0.01 *3* (1984Ak02).
1154.0 *15*	&	4339.4?		3185.34	$(3)^-$				
1163.03 *10*	1.43 *5*	3645.05	(3^-)	2482.02	3^-	M1+E2(+E0)		0.000414 *7*	α(K)exp=0.0014 *8* α=0.000414 *7*; α(K)=0.000364 *6*; α(L)=3.92×10^{-5} *7*; α(M)=6.58×10^{-6} *11*; α(N+..)=4.3×10^{-6} *5* α(N)=8.27×10^{-7} *13*; α(O)=5.42×10^{-8} *8*; α(IPF)=3.4×10^{-6} *5* Additional information 19. Mult.: α(K)exp suggests possible E0 admixture.
1253.11 *10*	1.86 *6*	3926.10	$(4)^+$	2672.98	5^-	E1(+M2)	0.2 *2*	0.00026 *6*	α(K)exp=0.00018 *5* α=0.00026 *6*; α(K)=0.00017 *6*; α(L)=1.8×10^{-5} *6*; α(M)=3.0×10^{-6} *10*; α(N+..)=7.6×10^{-5} *8* α(N)=3.7×10^{-7} *13*; α(O)=2.5×10^{-8} *8*; α(IPF)=7.5×10^{-5} *8* Additional information 27.
1270.16 *13*	0.79 *12*	3500.07	$(3,4,5)^-$	2229.89	4^+				
1283.96 *13*	0.35 *13*	3765.81	$3^-,4^-,5^-$	2482.02	3^-				
[x]1294.9 *3*	0.35 *10*								
1296.03 *23*	0.66 *4*	3969.01	$3^-,4^-,5^-$	2672.98	5^-				
1327.5 *5*	0.11 *5*	4206.18	$(3^-,4,5^-)$	2878.38	$(4)^+$				
1349.15 *10*	3.57 *11*	3831.17	$(3,4)^-$	2482.02	3^-	M1,E2		0.000336 *6*	α(K)exp=0.00024 *4* α=0.000336 *6*; α(K)=0.000267 *4*; α(L)=2.87×10^{-5} *4*; α(M)=4.81×10^{-6} *7*; α(N+..)=3.6×10^{-5} *4* α(N)=6.05×10^{-7} *9*; α(O)=3.98×10^{-8} *7*; α(IPF)=3.5×10^{-5} *4* Additional information 25.
1404.8 *4*	0.22 *6*	2482.02	3^-	1076.76	2^+				
1415.20 *23*	0.40 *11*	3645.05	(3^-)	2229.89	4^+				
1507.86 *10*	0.43 *5*	3362.17	4^+	1854.26	2^+				
1533.19 *13*	0.27 *4*	4206.18	$(3^-,4,5^-)$	2672.98	5^-				
1535.67 *13*	0.14 *4*	3765.81	$3^-,4^-,5^-$	2229.89	4^+				

$^{86}_{38}Sr_{48}$-8

γ(^{86}Sr) (continued)

E_γ	I_γ[d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[†#]	α[e]	Comments
1564.4[bf] *5*	0.22 *6*	2642.27	2+	1076.76	2+				
1696.25 *13*	0.77 *2*	3926.10	(4)+	2229.89	4+				
1711.6 *7*	0.21 *4*	2788.5	2+	1076.76	2+				
1724.15 *10*	0.67 *5*	4206.18	(3−,4,5−)	2482.02	3−				
1790.90 *10*	1.21 *5*	3645.05	(3−)	1854.26	2+	E1+M2	−0.16 *7*	0.000558 *9*	α=0.000558 *9*; α(K)=8.6×10^{-5} *6*; α(L)=9.1×10^{-6} *6*; α(M)=1.53×10^{-6} *11*; α(N+..)=0.000462 *12* α(N)=1.93×10^{-7} *13*; α(O)=1.27×10^{-8} *9*; α(IPF)=0.000462 *12* (1791γ)(1854γ)(θ): A_2=−0.20 *5*, A_4=+0.06 *9* (1984Ak02).
1801.70 *10*	2.00 *6*	2878.38	(4)+	1076.76	2+	(E2)		0.000368 *16*	α(K)exp=0.00013 *4* α=0.000368 *16*; α(K)=0.0001511 *24*; α(L)=1.614×10^{-5} *24*; α(M)=2.71×10^{-6} *4*; α(N+..)=0.000198 α(N)=3.41×10^{-7} *6*; α(O)=2.25×10^{-8} *4*; α(IPF)=0.000198 *17* Additional information 10.
1854.38 *13*	20.8 *6*	1854.26	2+	0.0	0+	(E2)[@]		0.000399 *6*	α(K)exp=0.000147 *23* α=0.000399 *6*; α(K)=0.0001423 *20*; α(L)=1.521×10^{-5} *22*; α(M)=2.55×10^{-6} *4*; α(N+..)=0.000239 α(N)=3.21×10^{-7} *5*; α(O)=2.11×10^{-8} *3*; α(IPF)=0.000238 *4* Additional information 3.
1920.72 *13*	25.2 *8*	2997.47	3−	1076.76	2+	E1(+M2)	−0.011 *26*	0.000648 *9*	α(K)exp=0.000072 *14* α=0.000648 *9*; α(K)=7.24×10^{-5} *11*; α(L)=7.66×10^{-6} *11*; α(M)=1.284×10^{-6} *19*; α(N+..)=0.000567 *8* α(N)=1.617×10^{-7} *24*; α(O)=1.068×10^{-8} *16*; α(IPF)=0.000567 *8* Additional information 12. (1921γ)(1077γ)(θ): A_2=−0.120 *23*, A_4=+0.03 *5* (1984Ak02).
[x]1969.1 *7*	0.06 *1*								
2017.1 *6*	0.16 *2*	3871.6	3−	1854.26	2+				
2088.09 *25*	0.30 *3*	3942.64	3−	1854.26	2+				
2108.9 *3*	0.06 *1*	3185.34	(3)−	1076.76	2+				
2180.8 *10*	0.04 *1*	4410.7	3−	2229.89	4+				
2291.8 *5*	0.15 *1*	4146.28	3,4+	1854.26	2+				
2482.08 *17*	0.14 *1*	2482.02	3−	0.0	0+	[E3]			
2555.3 *17*	0.033 *10*	4410.7	3−	1854.26	2+				
2567.97 *18*	2.73 *13*	3645.05	(3−)	1076.76	2+	E1+M2	+0.187 *14*	0.001028 *15*	α=0.001028 *15*; α(K)=5.02×10^{-5} *9*; α(L)=5.31×10^{-6} *9*; α(M)=8.90×10^{-7} *15*; α(N+..)=0.000972 *14* α(N)=1.121×10^{-7} *19*; α(O)=7.42×10^{-9} *13*; α(IPF)=0.000972 *14* (2568γ)(1077γ)(θ): A_2=+0.08 *4*, A_4=−0.03 *7* (1984Ak02). Additional information 20.

From ENSDF

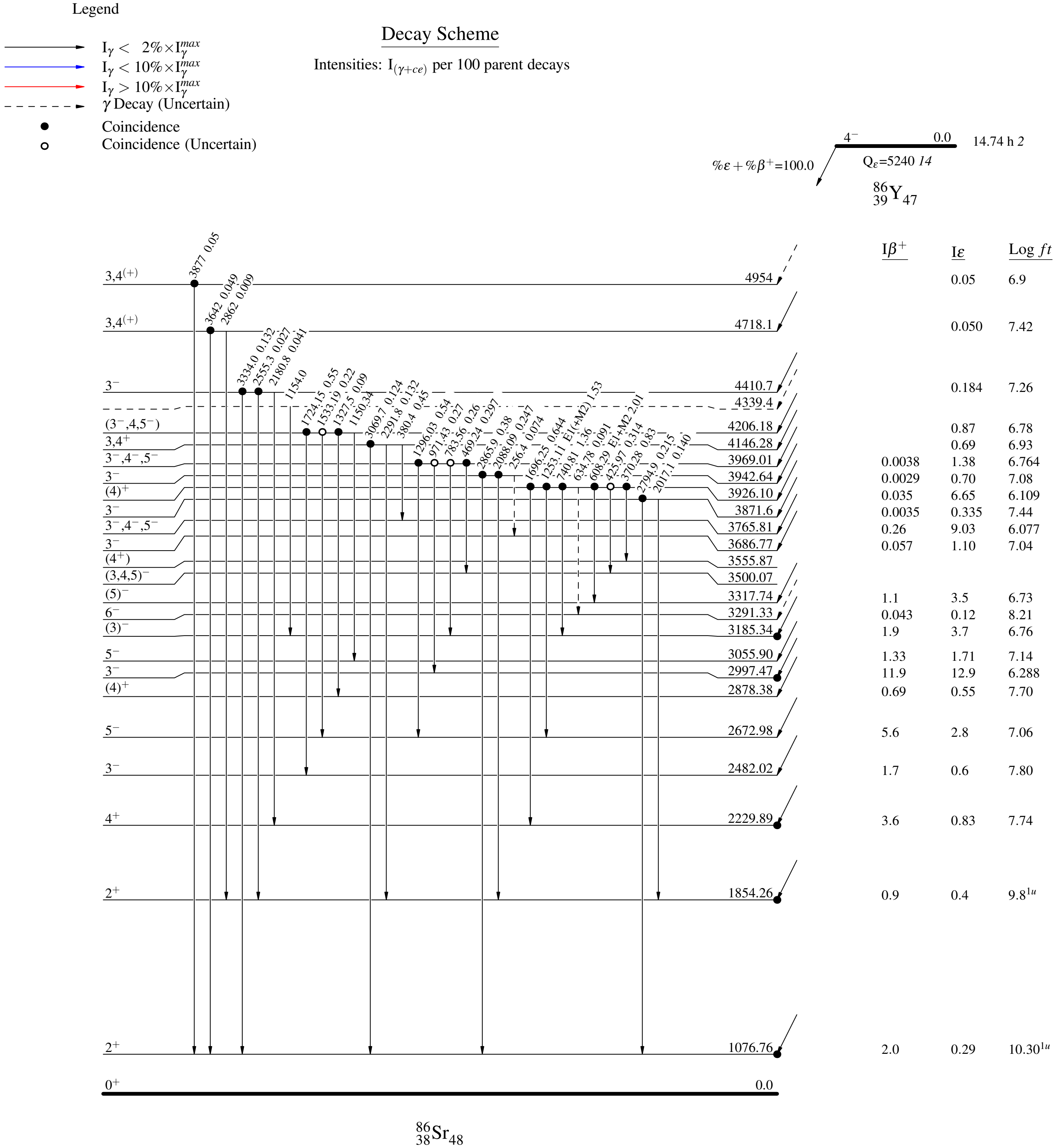
$^{86}_{38}$Sr$_{48}$-9

γ(^{86}Sr) (continued)

E_γ	I_γ [d]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]
2610.11 *20*	1.50 *9*	3686.77	3^-	1076.76	2^+	
2641.9 *4*	0.20 *5*	2642.27	2^+	0.0	0^+	
2790.0 *10*	0.013 *7*	2788.5	2^+	0.0	0^+	
2794.9 *4*	0.25 *2*	3871.6	3^-	1076.76	2^+	
[x]2827.7 *8*	0.07 *2*					
2862 *3*	0.011 *5*	4718.1	$3,4^{(+)}$	1854.26	2^+	
2865.9 *3*	0.46 *8*	3942.64	3^-	1076.76	2^+	
2997.6 *5*	0.010 *5*	2997.47	3^-	0.0	0^+	[E3]
3069.7 *4*	0.14 *2*	4146.28	$3,4^+$	1076.76	2^+	
3334.0 *5*	0.15 *2*	4410.7	3^-	1076.76	2^+	
3642 *2*	0.05 *1*	4718.1	$3,4^{(+)}$	1076.76	2^+	
3877 *6*	0.06 *5*	4954	$3,4^{(+)}$	1076.76	2^+	

† Spin sequences and δ values deduced from evaluator′s (in 1988Mu14) analysis. Large-δ solutions have not been considered for E1+M2 and E2+M3 transitions.
‡ Uncertainty increased by evaluator from 20 eV to 0.1 keV.
# From ce data of 1970Ra06 and $\gamma\gamma(\theta)$ data of 1984Ak02 and 1970Ar03, except as noted otherwise.
@ α(K)exp allows M1 or E2, adopted ΔJ^π excludes M1.
& Very weak.
a From level-energy difference.
b Assignment to ^{86}Y ε decay is uncertain.
c From $\gamma\gamma$ coin.
d For absolute intensity per 100 decays, multiply by 0.825 *4*.
e 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.
f Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{86}Y ε decay (14.74 h) 1970Ra06



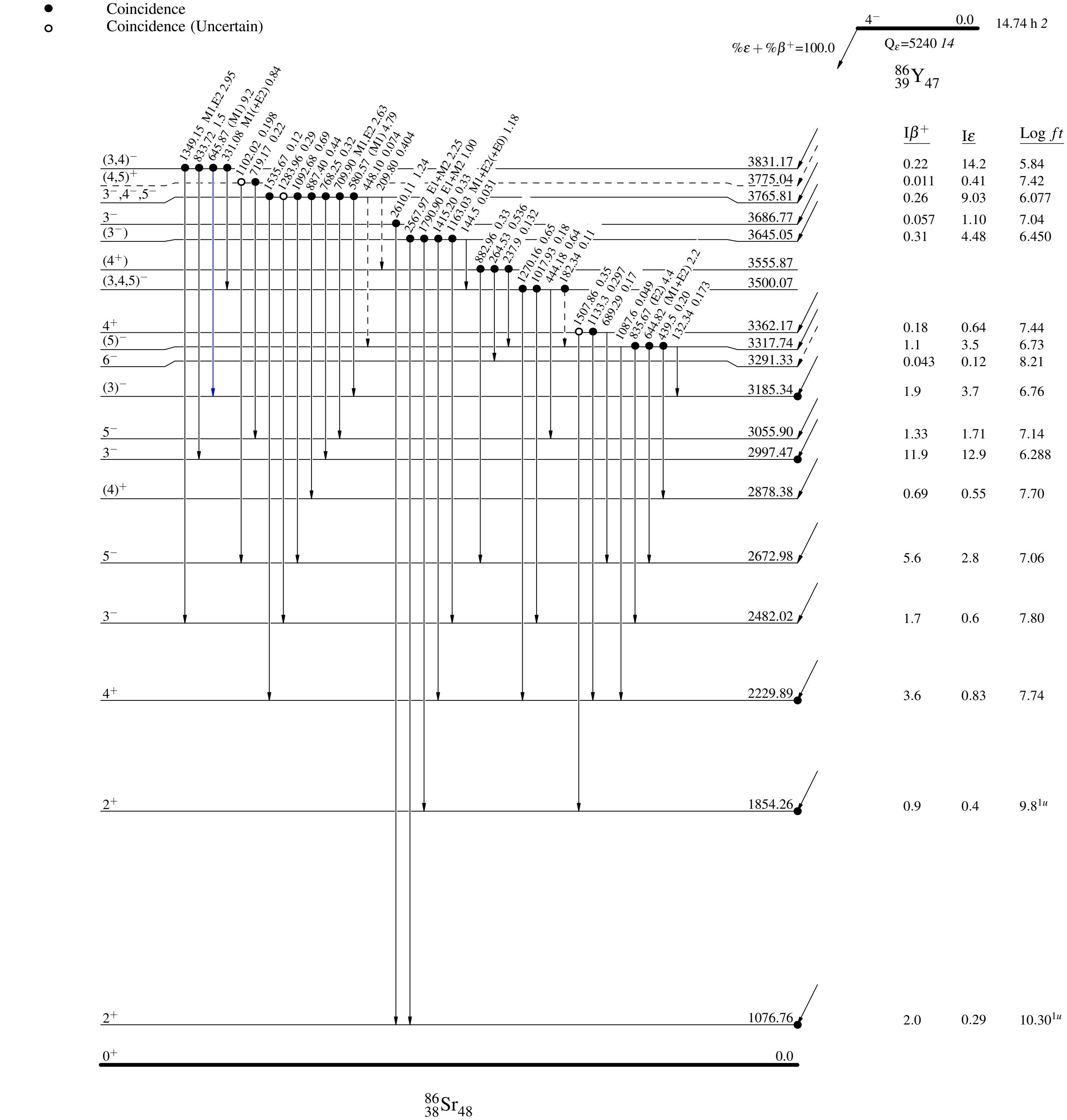
^{86}Y ε decay (14.74 h) 1970Ra06

Decay Scheme (continued)

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

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)



^{86}Y ε decay (14.74 h) 1970Ra06

Decay Scheme (continued)

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