^{85}Sr ε decay (64.849 d)   1980Me06,1990Je03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 116, 1 (2014)	31-Dec-2013

Parent: ^{85}Sr: E=0.0; J^π=9/2$^+$; $T_{1/2}$=64.849 d 7; Q(ε)=1064.1 28; %ε+%β^+ decay=100.0

^{85}Sr-J^π,$T_{1/2}$: From ^{85}Sr Adopted Levels.

^{85}Sr-Q(ε): From 2012Wa38.

1980Me06: Ge(Li) detectors, measured Eγ, Iγ.

1990Je03: measured intensities of $\gamma\gamma$ cascades from 514-keV isomer.

Additional information 1.

^{85}Rb Levels

E(level)	$J^{\pi\dagger}$	$T_{1/2}$	Comments
0.0	5/2$^-$	stable	
151.18 3	3/2$^-$		
280.98 6	1/2$^-$		
514.0084 19	9/2$^+$	1.015 μs 1	$T_{1/2}$: (x ray)γ(t) (1972Mi23). Others: 1.003 μs 9 (1971DeZB) and 0.980 μs 20 (1964Lo02).
868.06 3	7/2$^-$	<0.45 μs	$T_{1/2}$: (x ray)γ(t) (1974Va02).
951.0 5	5/2$^+$		

† From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	I$\varepsilon^\dagger$	Log ft	Comments
(113‡ 3)	951.0	$\leq$0.00003	$\geq$11.2	εK= 0.8471 10; εL= 0.1256 8; εM+= 0.02731 20 I($\varepsilon+\beta^+$): from Iγ(951), see also comment on 951γ.
(196 3)	868.06	0.0123 7	9.12 3	εK= 0.8611; εL= 0.11432 23; εM+= 0.02454 6
(550 3)	514.0084	96 4	6.16 2	εK= 0.8719; εL= 0.10567; εM+=0.022428
(783‡ 3)	280.98	$\leq$0.0005	$\geq$11.8	εK= 0.8736; εL= 0.10434; εM+=0.022104 ΔJ^π implies third-forbidden unique β transition.
(913‡ 3)	151.18	<0.0012	>11.6	εK= 0.8746; εL= 0.10352; εM+=0.021905
(1064‡ 3)	0.0	<8	>8.5^{1u}	εK= 0.8708; εL= 0.10655; εM+=0.022650 I($\varepsilon+\beta^+$): from log $f^{1u}t$>8.5.

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

$\gamma(^{85}$Rb)

Iγ normalization: From log $f^{1u}t$(g.s.)>8.5 follows Iε(g.s.)<8. For normalization purposes, Iε has been assigned as 4 4.

E$_\gamma$	I$_\gamma^\ddagger$	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.†	$\delta^\dagger$	$\alpha^\#$	Comments
129.80 5	$\leq$0.0005	280.98	1/2$^-$	151.18	3/2$^-$	(M1)		0.0710	α(K)=0.0627 9; α(L)=0.00704 10; α(M)=0.001165 17; α(N)=0.0001316 19
151.18 3	0.0012 9	151.18	3/2$^-$	0.0	5/2$^-$	M1+E2	0.072 4	0.0481 7	α(K)=0.0424 6; α(L)=0.00477 7;

Continued on next page (footnotes at end of table)

^{85}Sr ε decay (64.849 d)   1980Me06,1990Je03 (continued)

$\gamma(^{85}$Rb) (continued)

E_γ	$I_\gamma^\ddagger$	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	$\alpha^\#$	Comments
								α(M)=0.000788 *12*; α(N)=8.89×10^{-5} *13*; α(O)=3.77×10^{-6} *6*
233$^@$	≤0.00004	514.0084	9/2$^+$	280.98	1/2$^-$	[M4]	1.99	I$_\gamma$: from 1990Je03.
354.06 *5*	0.0005 *2*	868.06	7/2$^-$	514.0084	9/2$^+$			
362.82	0.00143 *24*	514.0084	9/2$^+$	151.18	3/2$^-$	E3	0.0338	α(K)=0.0291 *4*; α(L)=0.00391 *6*; α(M)=0.000647 *9*; α(N)=6.96×10^{-5} *10* I$_\gamma$: from 1990Je03. Other: 0.0006 *3* (1962Al11).
514.0048 *22*	99.7	514.0084	9/2$^+$	0.0	5/2$^-$	M2	0.0071 *2*	α(K)=0.00628 *9*; α(L)=0.000711 *10*; α(M)=0.0001177 *17*; α(N)=1.332×10^{-5} *19* E$_\gamma$: as recommended by 2000He14 based on curved-crystal measurement of 1983Ku03. Others: 514.004.92 *50* (1993Ch32,HPGe detector), 1988Al01, 513.997 *2* (1980Me06), 513.996 *16* (1971He20,Ge), 513.98 *3* (1968Le03,Ge). Mult.: from α(K)exp=0.0059 *3* (1971Vo06), ce spectrum normalized to α(K) of several isotopes with known α(K).
716.87 *5*	0.00032 *3*	868.06	7/2$^-$	151.18	3/2$^-$			
868.06 *5*	0.0125 *5*	868.06	7/2$^-$	0.0	5/2$^-$			E$_\gamma$: weighted average of 1974Va02, 1978Th06, 1971Bu08, and 1980Me06.
951.0 *5*	≤0.00003	951.0	5/2$^+$	0.0	5/2$^-$			E$_\gamma$,I$_\gamma$: γ tentatively assigned to ^{85}Rb by 1980Me06 but assignment is confirmed by other experiments.

† From Adopted Gammas.
‡ For absolute intensity per 100 decays, multiply by 0.96 *4*.
$^\#$ 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.

^{85}Sr ε **decay (64.849 d)**   **1980Me06,1990Je03**

Decay Scheme

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

Legend

— ► I$_\gamma$ < 2%×I$_\gamma^{max}$
— ► I$_\gamma$ < 10%×I$_\gamma^{max}$
— ► I$_\gamma$ > 10%×I$_\gamma^{max}$
- - - ► γ Decay (Uncertain)

%ε + %β^+=100.0

9/2$^+$ 0.0   64.849 d 7

Q$_\varepsilon$=1064.1 *28*

$^{85}_{38}$Sr$_{47}$

Iε Log ft

Level	J$^\pi$	Energy	Half-life	Iε	Log ft
	5/2$^+$	951.0		≤0.00003	≥11.2
	7/2$^-$	868.06	<0.45 μs	0.0123	9.12
	9/2$^+$	514.0084	1.015 μs *1*	96	6.16
	1/2$^-$	280.98		≤0.0005	≥11.8
	3/2$^-$	151.18		<0.0012	>11.6
	5/2$^-$	0.0	stable	<8	>8.5^{1u}

951.0 <0.000030
868.06 0.0120
716.87 0.00031
354.06 0.00058
514.0048 M2.96
362.82 E3 0.00142
233 [M4] <0.00013
129.80 (M1) <0.00052
151.18 M1+E2 0.0012

$^{85}_{37}$Rb$_{48}$