^{85}Y ε decay (2.68 h) 1976Li02,1975Ba49

History

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

Parent: ^{85}Y: E=0.0; $J^\pi=(1/2)^-$; $T_{1/2}$=2.68 h *5*; Q(ε)=3261 *19*; %ε+%β^+ decay=100.0

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

^{85}Y-Q(ε): From 2012Wa38.

1976Li02: measured γ singles and coincidences.

1975Ba49: source produced by ^{84}Sr(p,γ).

Others: 1971Ar17, 1966Ho04, 1963Do07, 1962Pa02.

The decay scheme seems incomplete since the highest level populated is at 1560 keV whereas Q value is 3260 keV; γ transitions from possible levels higher than 1560 keV may have missed detection.

^{85}Sr Levels

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0	$9/2^+$	64.849 d *7*	
231.65 *7*	$7/2^+$		
238.77 *18*	$1/2^-$	67.63 min *4*	%IT=86.6 *4*; %ε+%β^+=13.4 *4*
743.20 *22*	$3/2^-$		
936.8 *3*	$5/2^-$		
1152.67 *22*	$3/2^-$		
1516.9 *5*	(1/2,3/2)		
1559.4 *5*	(1/2,3/2)		

† From least-squares fit to Eγ data.

‡ From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*†	I($\varepsilon+\beta^+$)†‡	Comments
(1702 *19*)	1559.4	0.041 *12*	0.33 *9*	6.9 *1*	0.37 *10*	av Eβ=298.3 *82*; εK=0.776 *9*; εL=0.0916 *11*; εM+=0.02000 *23*
(1744 *19*)	1516.9	0.032 *6*	0.21 *3*	7.1 *1*	0.24 *4*	av Eβ=316.6 *83*; εK=0.756 *10*; εL=0.0892 *12*; εM+=0.01947 *25*
(2108 *19*)	1152.67	3.8 *4*	6.2 *6*	5.82 *5*	10.0 *10*	av Eβ=475.9 *84*; εK=0.538 *12*; εL=0.0633 *15*; εM+=0.0138 *3*
(2518 *19*)	743.20	38 *3*	21 *2*	5.43 *5*	59 *5*	av Eβ=658.8 *86*; εK=0.317 *9*; εL=0.0372 *10*; εM+=0.00810 *22*
(3022 *19*)	238.77	24 *6*	5.6 *13*	6.2 *1*	30 *7*	av Eβ=888.9 *88*; εK=0.162 *4*; εL=0.0190 *5*; εM+=0.00414 *11* I($\varepsilon+\beta^+$): deduced from intensity balance at 238.77-keV level with the consideration of %ε+%β^+=13.4 from this isomer.

† All $\varepsilon+\beta^+$ feedings should be considered as upper limits and corresponding log *ft* values as lower limits since the decay scheme is not considered complete in view of possible unobserved γ transitions from levels above 1.6 MeV.

‡ Absolute intensity per 100 decays.

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$\gamma(^{85}Sr)$

Iγ normalization: From Iγ(504γ)/Iγ(231γ)=0.71 *5* and %Iγ(231γ)=83.9% *4* (see ^{85}Sr IT decay dataset).

E_γ †	I_γ ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	α&	$I_{(\gamma+ce)}$@	Comments
(7.12 *25*)		238.77	1/2$^-$	231.65	7/2$^+$	[E3]		2.02×10^7 *12*	143 *10*	α(L)=1.66×10^7 *10*; α(M)=3.31×10^6 *19*; α(N)=3.17×10^5 *18*; α(O)=63 *4* E_γ: from level-energy difference. $I_{(\gamma+ce)}$: Ti(7γ)=Ti(231γ)=143 *10*.
215.9 *4*	0.32 *3*	1152.67	3/2$^-$	936.8	5/2$^-$					
231.65 *7*	140 *10*	231.65	7/2$^+$	0.0	9/2$^+$	M1+E2	−0.45 *6*	0.0224 *12*		α(K)=0.0196 *11*; α(L)=0.00228 *14*; α(M)=0.000383 *23*; α(N)=4.7×10^{-5} *3* I_γ: it is assumed that Iγ=140 *10* in 1976Li02 is corrected for time dependence.
238.77 *24*	0.56 *10*	238.77	1/2$^-$	0.0	9/2$^+$	M4		1.95		α(K)=1.61 *3*; α(L)=0.288 *5*; α(M)=0.0500 *9*; α(N)=0.00599 *10*; α(O)=0.000302 *5*
409.5 *3*	1.40 *10*	1152.67	3/2$^-$	743.20	3/2$^-$					
504.44 *14*	100	743.20	3/2$^-$	238.77	1/2$^-$					
698.00 *20*	0.3	936.8	5/2$^-$	238.77	1/2$^-$					I_γ: deduced from level scheme.
913.89 *14*	15.0 *8*	1152.67	3/2$^-$	238.77	1/2$^-$					
1278.1 *4*	0.40 *4*	1516.9	(1/2,3/2)	238.77	1/2$^-$					
1320.6 *4*	0.61 *15*	1559.4	(1/2,3/2)	238.77	1/2$^-$					

† Weighted average of measurements by 1976Li02, 1975Ba49, and 1970HoZU (as given in earlier Nuclear Data Sheets of 1971Ho42).
‡ From 1976Li02.
# From Adopted Gammas unless indicated otherwise.
@ For absolute intensity per 100 decays, multiply by 0.60 *5*.
& 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.

$^{85}_{38}Sr_{47}$-2

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Decay Scheme

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