^{85}Sr ε decay (67.63 min) 1980Me06,1971Vo06

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=238.79 *5*; $J^\pi=1/2^-$; $T_{1/2}$=67.63 min *4*; Q(ε)=1064.1 *28*; %ε+%β^+ decay=13.4 *4*
^{85}Sr-J^π,$T_{1/2}$: From ^{85}Sr Adopted Levels.
^{85}Sr-Q(ε): From 2012Wa38.
^{85}Sr-%ε+%β^+ decay: 100−%IT branch, %IT=86.6 *4* (see comment in ^{85}Sr IT decay).
1980Me06: Ge(Li) detectors, measured Eγ, Iγ.
1971Vo06: Measured Eγ, Iγ, I(ce), ICC. Deduced multipolarity, J, p.

^{85}Rb Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	$5/2^-$	stable	
151.191 *14*	$3/2^-$		
281.011 *23*	$1/2^-$		
731.803 *14*	$3/2^-$		
919.8 *7*	$(3/2,5/2)^-$		J^π: log *ft* value suggests $1/2^-$,$3/2^-$. See Adopted Levels for discussion.

[†] From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(383 *3*)	919.8	0.0004 *3*	8.1 *4*	εK=0.8694; εL=0.1077; εM+=0.02291 Note that log *ft*=8.1 *4* is too low for a $1/2^-$ to $5/2^-$ β transition.
(571 *3*)	731.803	0.0261 *13*	6.62 *4*	εK=0.8721; εL=0.1055; εM+=0.02239
(1022 *3*)	281.011	0.15 *5*	6.38 *13*	εK=0.8745; εL=0.1036; εM+=0.02193
(1152 *3*)	151.191	13.3 *8*	4.53 *4*	εK=0.8746; εL=0.1033; εM+=0.02186

[†] Absolute intensity per 100 decays.

γ(^{85}Rb)

Iγ normalization: From summed transition intensity to g.s.=100; beta feeding to g.s. is expected to be negligible.

E$_\gamma$[†]	I$_\gamma$[†#]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
129.82 *4*	1.5 *4*	281.011	$1/2^-$	151.191	$3/2^-$	(M1)		0.0710	α(K)=0.0627 *9*; α(L)=0.00704 *10*; α(M)=0.001165 *17*; α(N)=0.0001316 *19*
151.194 *15*	128 *3*	151.191	$3/2^-$	0.0	$5/2^-$	M1+E2	0.072 *4*	0.0481 *7*	%Iγ=12.8 *4* α(K)=0.0424 *6*; α(L)=0.00477 *7*; α(M)=0.000788 *12*; α(N)=8.89×10^{-5} *13*; α(O)=3.77×10^{-6} *6* α(K)exp=0.039 *2* (1971Vo06) Mult.: from α(K)exp. α(K)exp: Internal-conversion spectrometer, normalized to α(K) of

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γ(^{85}Rb) (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
								several isotopes with known α(K) (1971Vo06).
281.01 *3*	0.004 *2*	281.011	1/2$^-$	0.0	5/2$^-$	(E2)	0.0338	α(K)=0.0199 *3*; α(L)=0.00236 *4*; α(M)=0.000389 *6*; α(N)=4.28×10^{-5} *6*
450.79 *5*	0.107 *5*	731.803	3/2$^-$	281.011	1/2$^-$			
580.64 *5*	0.0087 *9*	731.803	3/2$^-$	151.191	3/2$^-$			
731.797 *15*	0.146 *8*	731.803	3/2$^-$	0.0	5/2$^-$			
768.5 *10*	0.0030 *25*	919.8	(3/2,5/2)$^-$	151.191	3/2$^-$			
919.8 *9*	0.0010 *5*	919.8	(3/2,5/2)$^-$	0.0	5/2$^-$			E_γ,I_γ: tentatively assigned to ^{85}Rb by 1980Me06 but this γ is confirmed in reaction studies.

[†] From 1980Me06, intensities are relative to 839 for 231.8γ from ^{85}Sr IT decay.
[‡] From Adopted Gammas.
[#] For absolute intensity per 100 decays, multiply by 0.100 *3*.
[@] 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.

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Decay Scheme

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