^{101}Rb β^- decay 1995Lh04,1992Ba28

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2006

Parent: ^{101}Rb: E=0.0; $J^\pi=(3/2^+)$; $T_{1/2}=0.032$ s *4*; $Q(\beta^-)=11.81\times10^3$ *11*; $\%\beta^-$ decay=100.0

Mass separated from fission products at ISOLDE (CERN) (1995Lh04,1992Ba28).

Measured: γ, $\gamma\gamma$, pn branching (1995Lh04), $\beta\gamma$ coin (1992Ba28).

The level scheme is as given by 1995Lh04.

1995Lh04 adopt a Pn of 28% 4 and a β branching of 72%.

^{101}Sr Levels

E(level)	J^π[†]	$T_{1/2}$[‡]	Comments
0.0	$(5/2^-)$	118 ms *3*	
111.6 *8*	$(7/2^-)$	0.2 ns *3*	
271.1 *7*	$(3/2^+)$	0.1 ns *2*	
363.2 *7*	$(5/2^+)$	0.4 ns *4*	
363.9 *13*	$(1/2^+)$	1.4 ns *9*	
487.8?	$(7/2^+)$		J^π: Assuming similar moment of inertia for ^{99}Sr and ^{101}Sr, possible member of a rotational band. E(level): This questionable level was not adopted.
595.9 *13*			
648.3?	$(9/2^+)$		J^π,E(level): see 487.8 level.
1362.9 *8*	$(3/2^+)$		

[†] From log *ft* and syst. The authors suggest also assignment to Nilsson orbitals and strong deformation.

[‡] From 1995Lh04, except for the g.s.

β^- radiations

E(decay)	E(level)	$I\beta^-$[†]	Log *ft*	Comments
$(1.045\times10^4$ *11*)	1362.9	17	4.9	av Eβ=4848 *53*
$(1.121\times10^4$ *11*)	595.9	3	5.8	av Eβ=5216 *53*
$(1.145\times10^4$ *11*)	363.9	4	5.7	av Eβ=5327 *53*
$(1.145\times10^4$ *11*)	363.2	18	5.0	av Eβ=5327 *53*
$(1.154\times10^4$ *11*)	271.1	26	4.8	av Eβ=5371 *53*
$(1.181\times10^4$ *11*)	0.0	<3	>5.9	$I\beta^-$: from assumption that the transition is first forbidden and thus log *ft* >5.9.

[†] For absolute intensity per 100 decays, multiply by 1.438.

$\gamma(^{101}Sr)$

Iγ normalization: from ΣTI(γ's to gs)=72% 4 and Iβ to g.s.=0.

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[‡]	Comments
92.2 *2*	3.5 *12*	363.2	$(5/2^+)$	271.1	$(3/2^+)$	[M1]	0.203	α(K)=0.179 *3*; α(L)=0.0205 *4*; α(M)=0.00345 *6*; α(N+..)=0.000458 *7* α(N)=0.000431 *7*; α(O)=2.73×10^{-5} *5* B(M1)(W.u.)=0.005 *+6−5*
92.8 *2*	7.8 *16*	363.9	$(1/2^+)$	271.1	$(3/2^+)$	[M1]	0.200	α(K)=0.176 *3*; α(L)=0.0201 *3*; α(M)=0.00339 *6*; α(N+..)=0.000450 *7*

Continued on next page (footnotes at end of table)

^{101}Rb β^- decay 1995Lh04,1992Ba28 (continued)

$\gamma(^{101}Sr)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[‡]	Comments

									α(N)=0.000423 *7*; α(O)=2.69×10^{-5} *4*
									ce(K)/(γ+ce)=0.147;
									ce(L)/(γ+ce)=0.0167;
									ce(M)/(γ+ce)=0.00283;
									ce(N)/(γ+ce)=0.00045
									B(M1)(W.u.)=0.016 *11*

111.6 *2*	28 *3*	111.6	(7/2$^-$)	0.0	(5/2$^-$)	M1+E2	0.22	0.1458 *22*	α(K)=0.1273 *19*; α(L)=0.01556 *24*; α(M)=0.00262 *4*; α(N+..)=0.000340 *6* α(N)=0.000322 *5*; α(O)=1.88×10^{-5} *3* B(M1)(W.u.)=0.07 *+11−7* δ: Assumed for energy balance (1995Lh04).
124.7 *5*	≈3	487.8?	(7/2$^+$)	363.2	(5/2$^+$)				
[x]134.5 *5*	6 *4*								
160.4 *5*	≈3	648.3?	(9/2$^+$)	487.8?	(7/2$^+$)				
[x]160.9 *4*	3.8 *16*								
216.5 *5*	≈3	487.8?	(7/2$^+$)	271.1	(3/2$^+$)				
232.7 *4*	7.6 *24*	595.9		363.2	(5/2$^+$)				
251.6 *2*	31 *3*	363.2	(5/2$^+$)	111.6	(7/2$^-$)				
271.2 *1*	100	271.1	(3/2$^+$)	0.0	(5/2$^-$)	[E1]		0.00562	α(K)=0.00498 *7*; α(L)=0.000541 *8*; α(M)=9.06×10^{-5} *13*; α(N+..)=1.200×10^{-5} *17* α(N)=1.129×10^{-5} *16*; α(O)=7.14×10^{-7} *10* B(E1)(W.u.)=0.0002 *+4−2*
363.1 *3*	13.4 *21*	363.2	(5/2$^+$)	0.0	(5/2$^-$)				
1091.8 *5*	26 *8*	1362.9	(3/2$^+$)	271.1	(3/2$^+$)				
1362.9 *4*	14 *3*	1362.9	(3/2$^+$)	0.0	(5/2$^-$)				

[†] For absolute intensity per 100 decays, multiply by 0.45.
[‡] 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.
[x] γ ray not placed in level scheme.

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Decay Scheme

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