^{100}Rb β^-n decay 2001Lh02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

Parent: ^{100}Rb: E=0; J^π=(4$^-$); $T_{1/2}$=51 ms *8*; Q(β^-n)=8203 *20*; %β^-n decay=26 *8*
^{100}Rb-Q(β^-n): From 2017Wa10.
^{100}Rb-%β^-n=26 *8* (2001Lh02). Other: 6 *3* (1986Wa17).
Based on XUNDL compiled by G. Reed and B. Singh.
Additional information 1.
^{100}Rb source was produced by U(p,f) at 600 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma$(t) using Ge detectors.

^{99}Sr Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0	3/2$^+$		
90.8 *1*	(5/2$^+$)	0.6 ns	$T_{1/2}$: From 2001Lh02.
215.95 *15*	(7/2$^+$)		
377.91 *22*	(9/2$^+$)		
422.74 *18*	(5/2$^-$)		
534.64 *22*	(7/2$^-$)		
569.9 *3*	(11/2$^+$)		
682.3 *3*	(9/2$^-$)		
854.77 *25*			
862.1? *5*			
993.55 *22*			
1062.7 *4*			
1072.1 *3*			
1106.1 *3*			
1151.9 *3*			
1181.0 *4*			
1195.7 *4*			g.s. transition from this level is unclear due to contribution of 1197.4γ from ^{100}Sr.
1240.6? *8*			
1328.0? *8*			
1382.6? *9*			
1427.1? *10*			

† Deduced by evaluators from least-squares fit to Eγ's.
‡ From Adopted Levels Gammas.

$\gamma(^{99}Sr)$

Iγ normalization: Σ(I(γ+ce) of γ's to g.s.)=26 *8*, using %β^-n=26 *8* (2001Lh02).

Eγ	Iγ@	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	δ†#	α‡	Comments
90.8 *1*	100	90.8	(5/2$^+$)	0	3/2$^+$	[M1+E2]	0.171 *13*	0.247 *7*	α(K)=0.215 *6*; α(L)=0.0266 *9*; α(M)=0.00449 *15* α(N)=0.000550 *18*; α(O)=3.20×10^{-5} *7* B(M1)(W.u.)=0.0382; B(E2)(W.u.)=128 *19*
111.9& *5*	0.6& *3*	534.64	(7/2$^-$)	422.74	(5/2$^-$)				γ-ray not adopted.
111.9& *5*	0.6& *3*	682.3	(9/2$^-$)	569.9	(11/2$^+$)				

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^{100}Rb β^-n decay 2001Lh02 (continued)

$\gamma(^{99}Sr)$ (continued)

E_γ	I_γ[@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ[†#]	α[‡]	Comments
125.1 *2*	40 *6*	215.95	(7/2$^+$)	90.8	(5/2$^+$)	[M1+E2]	0.164 *16*	0.0972 *24*	α(K)=0.0853 *21*; α(L)=0.0100 *3*; α(M)=0.00169 *5* α(N)=0.000209 *6*; α(O)=1.28×10^{-5} *3* I$_\gamma$: about 50% contribution from ^{99}Sr decay has been subtracted.
147.6[a] *5*	0.7 *4*	682.3	(9/2$^-$)	534.64	(7/2$^-$)				
161.9 *3*	11.1 *13*	377.91	(9/2$^+$)	215.95	(7/2$^+$)	[M1+E2]	0.160 *18*	0.0472 *11*	α(K)=0.0415 *9*; α(L)=0.00476 *12*; α(M)=0.000802 *20* α(N)=9.99×10^{-5} *24*; α(O)=6.26×10^{-6} *13*
192.0 *4*	2.8 *12*	569.9	(11/2$^+$)	377.91	(9/2$^+$)	[M1+E2]	0.13 *4*	0.0292 *9*	α(K)=0.0257 *8*; α(L)=0.00291 *10*; α(M)=0.000489 *17* α(N)=6.11×10^{-5} *20*; α(O)=3.89×10^{-6} *11*
215.9 *3*	10.8 *15*	215.95	(7/2$^+$)	0	3/2$^+$				
287.2 *3*	7.4 *13*	377.91	(9/2$^+$)	90.8	(5/2$^+$)				
304.4 *4*	0.9 *4*	682.3	(9/2$^-$)	377.91	(9/2$^+$)				
318.7 *3*	5.7 *6*	534.64	(7/2$^-$)	215.95	(7/2$^+$)				
332.0 *2*	7.9 *9*	422.74	(5/2$^-$)	90.8	(5/2$^+$)				
353.9 *3*	2.6 *5*	569.9	(11/2$^+$)	215.95	(7/2$^+$)				
422.8 *4*	14.0 *21*	422.74	(5/2$^-$)	0	3/2$^+$				
443.8 *3*	6.7 *8*	534.64	(7/2$^-$)	90.8	(5/2$^+$)				
466.4[a] *5*	0.3 *2*	682.3	(9/2$^-$)	215.95	(7/2$^+$)				
646.2[a] *4*	0.9 *4*	862.1?		215.95	(7/2$^+$)				
683.7 *4*	3.9 *13*	1106.1		422.74	(5/2$^-$)				
764.0 *3*	5.7 *8*	854.77		90.8	(5/2$^+$)				
777.4 *3*	1.8 *4*	993.55		215.95	(7/2$^+$)				
846.8 *3*	2.1 *5*	1062.7		215.95	(7/2$^+$)				
854.7 *4*	6.1 *8*	854.77		0	3/2$^+$				
902.9 *3*	4.9 *6*	993.55		90.8	(5/2$^+$)				
936.0 *3*	1.9 *4*	1151.9		215.95	(7/2$^+$)				
965.1 *5*	1.8 *4*	1181.0		215.95	(7/2$^+$)				
971.4[a] *9*	1.0 *5*	1062.7		90.8	(5/2$^+$)				
981.3 *4*	2.3 *5*	1072.1		90.8	(5/2$^+$)				
993.7 *5*	2.0 *4*	993.55		0	3/2$^+$				
1015.0 *4*	2.1 *5*	1106.1		90.8	(5/2$^+$)				
1060.9 *7*	1.0 *5*	1151.9		90.8	(5/2$^+$)				Transition masked in singles by 1059.5γ in ^{100}Zr.
1072.1 *4*	2.8 *7*	1072.1		0	3/2$^+$				
1090.1 *5*	1.0 *5*	1181.0		90.8	(5/2$^+$)				
1104.9 *4*	3.1 *7*	1195.7		90.8	(5/2$^+$)				
1112.0[a] *7*	0.8 *4*	1328.0?		215.95	(7/2$^+$)				
1149.8[a] *8*	1.0 *5*	1240.6?		90.8	(5/2$^+$)				
1211.1[a] *9*	0.5 *3*	1427.1?		215.95	(7/2$^+$)				
1291.8[a] *9*	0.7 *4*	1382.6?		90.8	(5/2$^+$)				

† From 2001Lh02.
‡ Additional information 2.
# If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

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^{100}Rb β^-n decay 2001Lh02 (continued)

$\gamma(^{99}Sr)$ (continued)

@ For absolute intensity per 100 decays, multiply by 0.16 *5*.
& Multiply placed with undivided intensity.
a Placement of transition in the level scheme is uncertain.

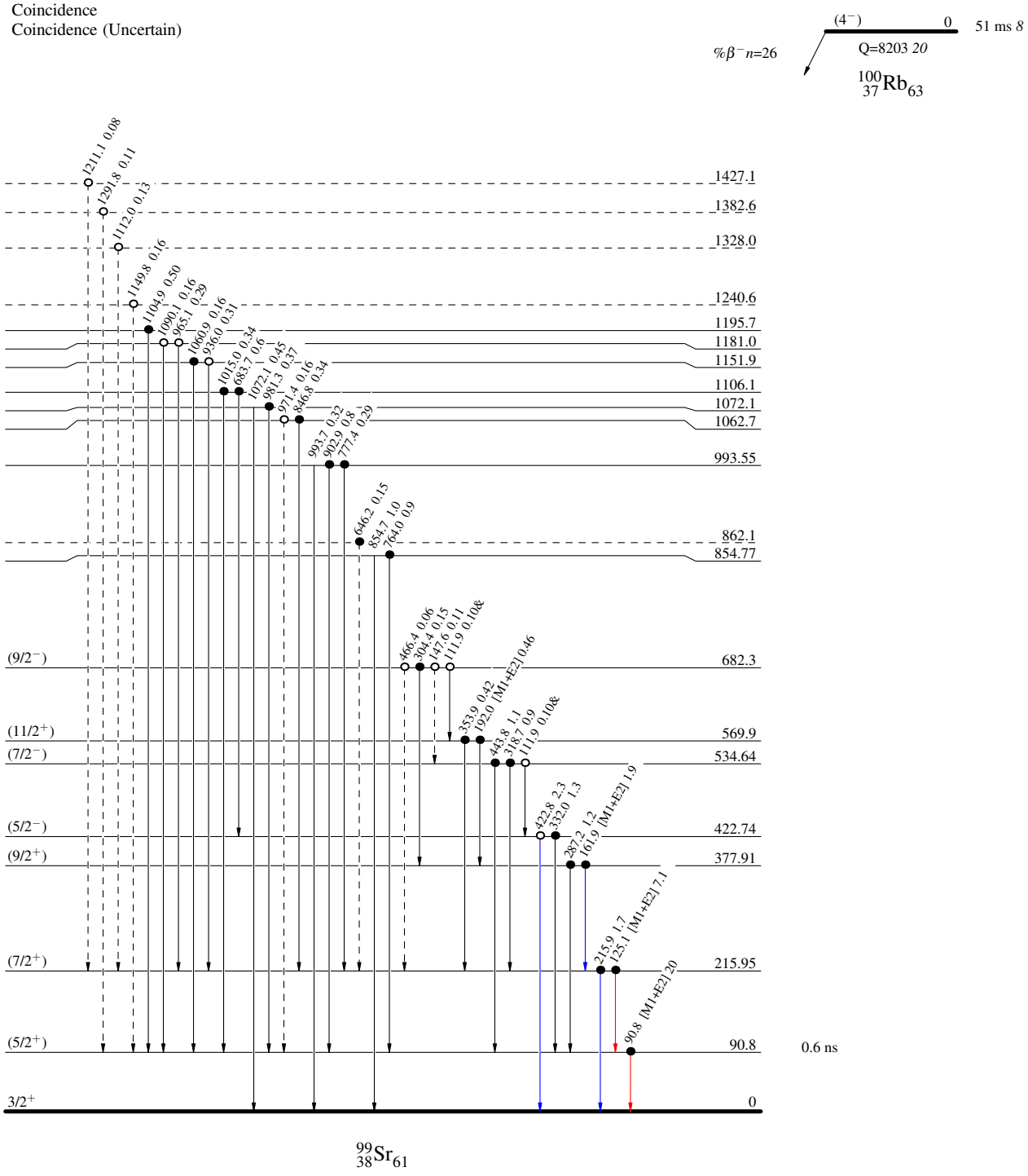
Delayed Neutrons (^{99}Sr)

E(^{99}Sr)	I(n)†
0	≈50.0
90.8	12.0
215.95	8.6
377.91	5.2
422.74	5.8
534.64	4.1
569.9	1.8
682.3	0.6

† For absolute intensity per 100 decays, multiply by 0.26 *8*.

^{100}Rb β^-n decay 2001Lh02

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given

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)