Adopted Levels, Gammas

History

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

Q(β^-)=11400.2 62; S(n)=4823 17; S(p)=14099 SY; Q(α)=−9775 SY 2017Wa10

Estimated uncertainties (2017Wa10): 298 forr S(p) and 298 for Q(α).

^{99}Rb isotope was identified in 1971Tr02 from ^{238}U(p,F),E=50 MeV at Orsay, with a half-life measurement of 76 ms, longer than several other half-life measurements.

Delayed-neutron decay to excited states of ^{98}Sr was studied by 1982Kr11.

^{99}Rb Levels

Cross Reference (XREF) Flags

A   Coulomb excitation

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	XREF	Comments
0.0[#]	(3/2$^+$)	54 ms 4	A	%β^-=100; %β^-n=19.8 20; %β^-2n=?
				%β^-n: Recommended value from 1993Ru01. Others: 20.5% 30, 13.0% 15 (both from 1987PfZX), 20.7% 13 (1986ReZU), 13.1% 18 (1984Ma39), 15% 3 (1979Pe01).
				J$^{\pi}$: Tentative assignment based on syst for deformed odd-A Rb.
				T$_{1/2}$: LWM (Limitation of relative statisical weight method (1994Ka08)) average of 54.2 ms 13 (2011Ni01), 50.3 ms 7 (1993Ru01), 58 ms 2 (1986ReZS, 1986ReZU, earlier value of 55 ms 2 in 1983Re10), 59 ms 1 (1984Pf01), 52 ms 5 (1983Wo10), 59 ms 4 (1979Pe01), 59 ms 4 (1978Ko29). Others: 76 ms 5 (1971Tr02); 55 ms 2 (1983Re10), superseded by 1986ReZS, 1986ReZU.
				Theoretical T$_{1/2}$=40.4 ms, %β^-n=27.5, %β^-2n=0.03 (2003Mo09).
65[#] 1	(5/2$^+$)		A	
183[#] 1	(7/2$^+$)		A	
287[#] 1	(9/2$^+$)		A	
509[#] 1	(11/2$^+$)		A	

[†] From Coulomb excitation.

[‡] The 65 and all above levels are assigned (2015So20) spin-parities based on comparison with a similar structure in ^{97}Rb. See also theoretical calculations by 2010Ro31 which predict prolate ground state with π3/2[431] Nilsson configuration.

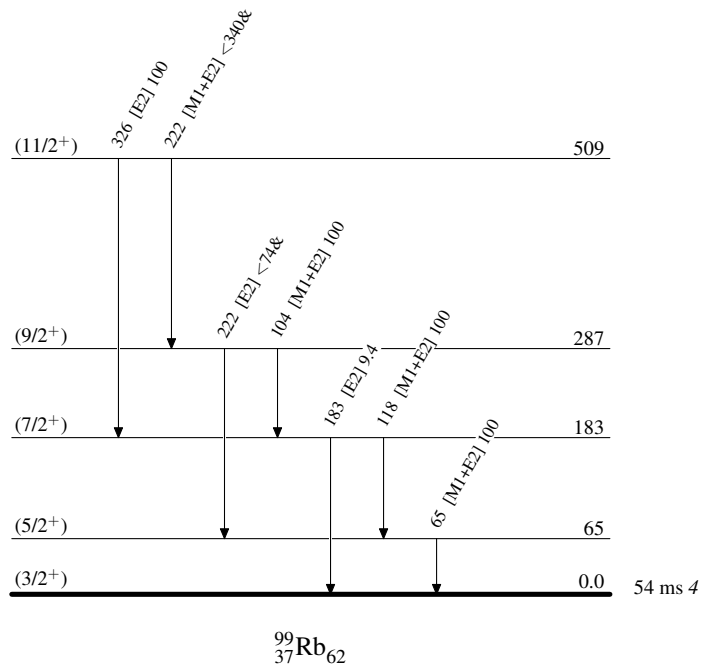[#] Band(A): Ground-state band. Transitional quadrupole moment Q$_0$=2.8 +4−6.

γ(^{99}Rb)

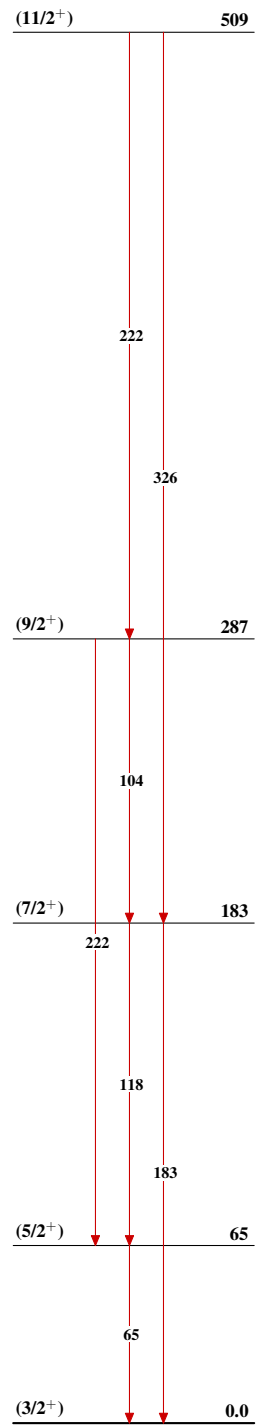| E$_i$(level)	J$^{\pi}_i$	E$_{\gamma}$	I$_{\gamma}$	E$_f$	J$^{\pi}_f$	Mult.	α[†]	Comments
65	(5/2$^+$)	65	100	0.0	(3/2$^+$)	[M1+E2]	2.6 21	α(K)=2.1 17; α(L)=0.41 37; α(M)=0.068 60 α(N)=0.0068 59; α(O)=1.5×10^{-4} 12
183	(7/2$^+$)	118	100 6	65	(5/2$^+$)	[M1+E2]	0.31 22	α(K)=0.27 19; α(L)=0.037 28; α(M)=0.0061 47 α(N)=6.5×10^{-4} 48; α(O)=2.1×10^{-5} 14
		183	9.4 21	0.0	(3/2$^+$)	[E2]	0.1054	α(K)=0.0916 13; α(L)=0.01165 17; α(M)=0.00192 3 α(N)=0.000207 3; α(O)=7.33×10^{-6} 11
287	(9/2$^+$)	104	100 48	183	(7/2$^+$)	[M1+E2]	0.49 36	α(K)=0.41 30; α(L)=0.061 48; α(M)=0.0100 79 α(N)=0.00105 81; α(O)=3.2×10^{-5} 22
		222[‡]	<74[‡]	65	(5/2$^+$)	[E2]	0.0524	α(K)=0.0457 7; α(L)=0.00561 8; α(M)=0.000924 13 α(N)=0.0001006 14; α(O)=3.72×10^{-6} 6

Adopted Levels, Gammas (continued)

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

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	$\alpha^\dagger$	Comments
509	$(11/2^+)$	222‡	<340‡	287	$(9/2^+)$	[M1+E2]	0.035 18	α(K)=0.031 16; α(L)=0.0036 20; α(M)=6.0×10^{-4} 33
								α(N)=6.6×10^{-5} 35; α(O)=2.5×10^{-6} 12
		326	100 34	183	$(7/2^+)$	[E2]	0.01364	α(K)=0.01199 17; α(L)=0.001394 20; α(M)=0.000230 4
								α(N)=2.54×10^{-5} 4; α(O)=1.001×10^{-6} 14

† Additional information 1.
‡ Multiply placed with undivided intensity.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

$^{99}_{37}$Rb$_{62}$

Adopted Levels, Gammas

Band(A): Ground-state band

$(11/2^+)$	509

222

326

$(9/2^+)$	287

104

$(7/2^+)$	183

222

118

183

$(5/2^+)$	65

65

$(3/2^+)$	0.0

${}^{99}_{37}\text{Rb}_{62}$