^{96}Rh ε decay (1.51 min) 2002Kl07,1983Wa06

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 109, 2501 (2008)	1-Apr-2008

Parent: ^{96}Rh: E=52.0 *1*; $J^{\pi}=3^+$; $T_{1/2}$=1.51 min *2*; Q(ε)=6393 *10*; %ε+%$β^+$ decay=40 *5*
^{96}Rh-%ε+%$β^+$ decay: 0.40 *5* deduced from the intensities of the 1.5-min γ's and the 1.5-min growth in the 9.9-min γ's.
Measured: γ, γγ (2002Kl07,1983Wa06,1975Gu01), β, βγ (1975Gu01), γ (1971Do08).
α: Additional information 1.

^{96}Ru Levels

E(level)‡	Jπ†	$T_{1/2}$†	E(level)‡	Jπ†	$T_{1/2}$†
0.0	0^+	stable	2649.97 *12*	3^-	
832.51 *9*	2^+	2.94 ps *6*	2739.86 *14*	2^+	<0.4 ps
1518.00 *12*	4^+	6.9 ps *5*	2760.14 *15*	4^+,5	<0.12 ps
1931.13 *12*	2^+	0.38 ps *3*	2996.22 *18*	$(2,3,4)^+$	
2148.73 *13*	0^+	0.46 ps *+63−18*	3076.20 *16*	3^-	
2283.96 *19*	2^+	<0.14 ps	3077.0 *5*		
2461.97 *14*	4	0.10 ps *+5−3*	3090.14 *20*	2^+	<0.13 ps
2524.78 *19*	3^+,4^+	<0.4 ps	3260.98 *19*	2^+	
2576.07 *19*	2^+		3291.5 *3*	4^+	<0.4 ps
2588.43 *15*	5^-				

† From Adopted Levels.
‡ From least-squares fit to Eγ.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+β+)†‡	Comments
(3154 *10*)	3291.5	1.3 *3*	0.44 *10*	5.53 *12*	1.7 *4*	av Eβ=953.2 *46*; εK=0.2265 *25*; εL=0.0278 *3*; εM+=0.00654 *7*
(3184 *10*)	3260.98	1.7 *4*	0.58 *13*	5.42 *11*	2.3 *5*	av Eβ=967.3 *46*; εK=0.2192 *24*; εL=0.0269 *3*; εM+=0.00633 *7*
(3355 *10*)	3090.14	1.4 *3*	0.38 *8*	5.65 *12*	1.8 *4*	av Eβ=1046.2 *47*; εK=0.1831 *20*; εL=0.02246 *24*; εM+=0.00528 *6*
(3368 *10*)	3077.0	0.36 *17*	0.10 *4*	6.25 *21*	0.46 *21*	av Eβ=1052.3 *47*; εK=0.1806 *19*; εL=0.02216 *24*; εM+=0.00521 *6*
(3449 *10*)	2996.22	2.7 *5*	0.65 *12*	5.44 *10*	3.4 *6*	av Eβ=1089.7 *47*; εK=0.1663 *17*; εL=0.02039 *21*; εM+=0.00479 *5*
(3685 *10*)	2760.14	0.53 *14*	0.094 *24*	6.34 *13*	0.62 *16*	av Eβ=1199.6 *47*; εK=0.1315 *13*; εL=0.01612 *16*; εM+=0.00379 *4*
(3705 *10*)	2739.86	3.3 *6*	0.58 *10*	5.55 *10*	3.9 *7*	av Eβ=1209.0 *47*; εK=0.1290 *13*; εL=0.01580 *16*; εM+=0.00372 *4*
(3869 *10*)	2576.07	1.9 *3*	0.28 *5*	5.91 *10*	2.2 *4*	av Eβ=1285.7 *47*; εK=0.1105 *11*; εL=0.01353 *13*; εM+=0.00318 *3*
(3920 *10*)	2524.78	6.1 *11*	0.84 *16*	5.44 *10*	6.9 *13*	av Eβ=1309.7 *47*; εK=0.1054 *10*; εL=0.01291 *12*; εM+=0.00303 *3*
(3983 *10*)	2461.97	0.61 *15*	0.079 *20*	6.48 *12*	0.69 *17*	av Eβ=1339.2 *47*; εK=0.0996 *9*; εL=0.01219 *11*; εM+=0.00287 *3*
(4161 *10*)	2283.96	1.5 *4*	0.17 *4*	6.20 *12*	1.7 *4*	av Eβ=1422.9 *48*; εK=0.0851 *8*; εL=0.01041 *9*; εM+=0.002448 *22*
(4514 *10*)	1931.13	5.8 *14*	0.46 *11*	5.82 *12*	6.3 *15*	av Eβ=1589.6 *48*; εK=0.0636 *5*; εL=0.00777 *7*; εM+=0.001827 *15*
(5612 *10*)	832.51	10 *3*	0.34 *10*	6.15 *15*	10 *3*	av Eβ=2114.1 *48*; εK=0.02941 *19*; εL=0.003590 *23*; εM+=0.000844 *6*

Continued on next page (footnotes at end of table)

^{96}Rh ε decay (1.51 min) **2002Kl07,1983Wa06 (continued)**

ε,β^+ radiations (continued)

† From intensity imbalance.
‡ Absolute intensity per 100 decays.

^{96}Rh ε decay (1.51 min) 2002Kl07,1983Wa06 (continued)

γ(^{96}Ru)

Iγ normalization: 0.0979 *4* if Iβ(g.s.)=0.

E_γ[†]	I_γ[†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α	Comments
366.3[‡] *4*		2649.97	3^-	2283.96	2^+				I_γ: I(366γ):I(1817γ)=5.5 *5*:100 *10* in 2002Kl07.
425.8[‡] *5*		3076.20	3^-	2649.97	3^-				
455.9[‡] *2*	2.6 *3*	2739.86	2^+	2283.96	2^+				I_γ: From I(456γ):I(808γ)=3.5 *2*:100 *8* in 2002Kl07 and I(808γ)=75 *6* in 1983Wa06.
471.4[‡] *5*	10 *4*	2996.22	$(2,3,4)^+$	2524.78	$3^+,4^+$				I_γ: From I(471γ):I(2163γ)=15 *5*:100 *11* in 2002Kl07 and I(808γ)=66 *7* in 1983Wa06.
487.0[‡] *5*		3076.20	3^-	2588.43	5^-				
533.7[‡] *3*	2.0 *5*	2996.22	$(2,3,4)^+$	2461.97	4				I_γ: From I(534γ):I(2163γ)=3.1 *5*:100 *11* in 2002Kl07 and I(808γ)=66 *7* in 1983Wa06.
591.1[‡] *2*	0.19 *4*	2739.86	2^+	2148.73	0^+				I_γ: From I(456γ):I(808γ)=0.25 *5*:100 *8* in 2002Kl07 and I(808γ)=75 *6* in 1983Wa06.
614.9[‡] *2*		3076.20	3^-	2461.97	4				
685.47 *10*	92 *40*	1518.00	4^+	832.51	2^+	E2		2.22×10^{-3} *4*	α(K)=0.00194 *3*; α(L)=0.000231 *4*; α(M)=4.24×10^{-5} *6*; α(N)=6.82×10^{-6} *10*; α(O)=3.42×10^{-7} *5* α(N+..)=7.16×10^{-6} *10*
718.5[‡] *2*		2649.97	3^-	1931.13	2^+				I_γ: I(718γ):I(1817γ)=4 *1*:100 *10* in 2002Kl07.
766.8 *5*	10 *3*	3291.5	4^+	2524.78	$3^+,4^+$				
808.6 *2*	75 *6*	2739.86	2^+	1931.13	2^+				
832.52 *10*	1000	832.51	2^+	0.0	0^+	E2		1.36×10^{-3} *2*	α(K)=0.001191 *17*; α(L)=0.0001395 *20*; α(M)=2.56×10^{-5} *4*; α(N)=4.12×10^{-6} *6*; α(O)=2.11×10^{-7} *3* α(N+..)=4.33×10^{-6} *6*
944.07 *10*	20 *3*	2461.97	4	1518.00	4^+	D+Q			
1006.5 *5*	22 *5*	2524.78	$3^+,4^+$	1518.00	4^+				
1070.4[‡] *1*		2588.43	5^-	1518.00	4^+	E1+M2	−0.01 *4*	3.33×10^{-4} *6*	α(K)=0.000293 *6*; α(L)=3.28×10^{-5} *6*; α(M)=5.99×10^{-6} *11*; α(N)=9.70×10^{-7} *18*; α(O)=5.18×10^{-8} *10* α(N+..)=1.022×10^{-6} *19*
1098.2 *2*	227 *10*	1931.13	2^+	832.51	2^+	E2+M1	−1.1 *1*	7.45×10^{-4} *11*	α(K)=0.000654 *10*; α(L)=7.47×10^{-5} *11*; α(M)=1.367×10^{-5} *20*; α(N)=2.21×10^{-6} *4* α(O)=1.175×10^{-7} *18*; α(N+..)=2.33×10^{-6} *4*
1131.9[‡] *2*		2649.97	3^-	1518.00	4^+				I_γ: I(1319γ):I(1817γ)=20 *2*:100 *10* in 2002Kl07.
1144.9 *2*		3076.20	3^-	1931.13	2^+				
1242.14 *10*	16 *3*	2760.14	$4^+,5$	1518.00	4^+				
1316.2[‡] *1*		2148.73	0^+	832.51	2^+	E2		5.17×10^{-4} *8*	α(K)=0.000429 *6*; α(L)=4.88×10^{-5} *7*; α(M)=8.93×10^{-6} *13*; α(N)=1.445×10^{-6} *21*; α(O)=7.65×10^{-8} *11* α(N+..)=3.05×10^{-5} *5* B(E2)(W.u.)=12 *+5−12*

$^{96}_{44}Ru_{52}$-3

^{96}Rh ε decay (1.51 min) 2002Kl07,1983Wa06 (continued)

γ(^{96}Ru) (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α	Comments
1330.5 *10*	<5	3260.98	2^+	1931.13	2^+				
1451.9 *5*	43 *7*	2283.96	2^+	832.51	2^+	(M1+E2)	+0.12 *3*	4.89×10^{-4} *7*	α(K)=0.000380 *6*; α(L)=4.28×10^{-5} *6*; α(M)=7.83×10^{-6} *11*; α(N)=1.271×10^{-6} *18*; α(O)=6.87×10^{-8} *10* α(N+..)=5.80×10^{-5} *9*
1479.0 *5*	11 *4*	2996.22	$(2,3,4)^+$	1518.00	4^+				
1557.4[‡] *3*		3076.20	3^-	1518.00	4^+				
1559.0 *5*	12 *5*	3077.0		1518.00	4^+				
1692.3 *2*	178 *10*	2524.78	$3^+,4^+$	832.51	2^+				
1743.1[@] *5*	41[@] *6*	2576.07	2^+	832.51	2^+	D+Q			
1743.1[@] *5*	41[@] *6*	3260.98	2^+	1518.00	4^+				
1773.4 *5*	15 *5*	3291.5	4^+	1518.00	4^+				
1817.5[‡] *1*		2649.97	3^-	832.51	2^+				
1907.5 *2*	23 *4*	2739.86	2^+	832.51	2^+				
1930.9[‡] *2*	13.6 *23*	1931.13	2^+	0.0	0^+				
2163.8 *2*	66 *7*	2996.22	$(2,3,4)^+$	832.51	2^+				
2244.0[‡] *5*		3076.20	3^-	832.51	2^+				
2257.6 *2*	47 *6*	3090.14	2^+	832.51	2^+				
2283.9 *5*	3.7 *20*	2283.96	2^+	0.0	0^+				
2428.3 *2*	13 *3*	3260.98	2^+	832.51	2^+				
2459.1 *5*	20 *3*	3291.5	4^+	832.51	2^+				
2576.1 *2*	16 *3*	2576.07	2^+	0.0	0^+				
[x]2840.2 *5*	8 *2*								
3090.1 *5*	1.0 *5*	3090.14	2^+	0.0	0^+				
[x]3119.1 *5*	5 *1*								
3261.5 *5*	3.6 *10*	3260.98	2^+	0.0	0^+				

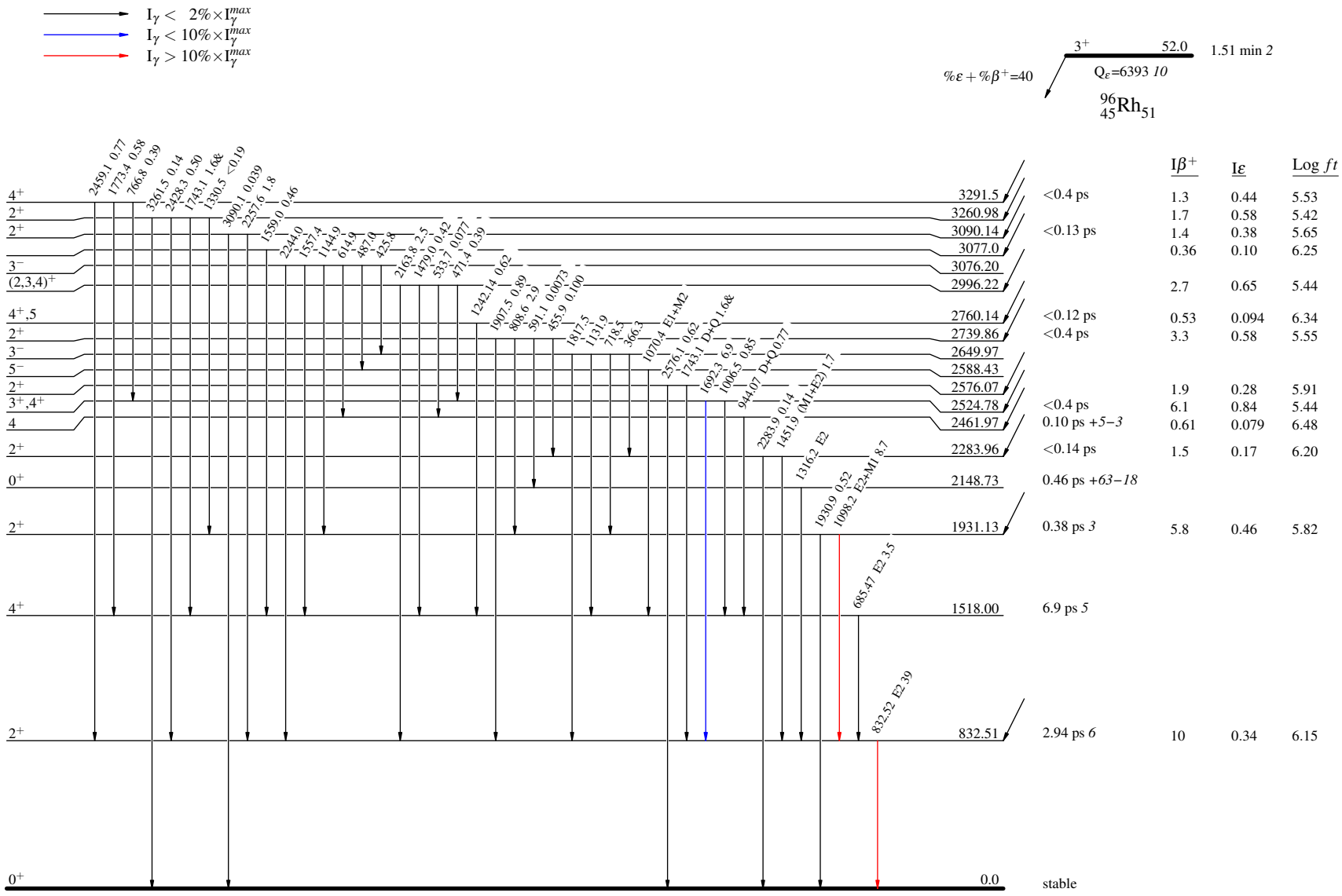
[†] From 1983Wa06, except as noted.
[‡] From 2002Kl07 (mixed source).
[#] For absolute intensity per 100 decays, multiply by 0.039 *5*.
[@] Multiply placed with undivided intensity.
[x] γ ray not placed in level scheme.

$^{96}_{44}Ru_{52}$-4

^{96}Rh ε decay (1.51 min) 2002Kl07,1983Wa06

Decay Scheme

Intensities: I_γ per 100 parent decays
& Multiply placed: undivided intensity given



	Iβ+	Iε	Log *ft*
	1.3	0.44	5.53
	1.7	0.58	5.42
	1.4	0.38	5.65
	0.36	0.10	6.25
	2.7	0.65	5.44
	0.53	0.094	6.34
	3.3	0.58	5.55
	1.9	0.28	5.91
	6.1	0.84	5.44
	0.61	0.079	6.48
	1.5	0.17	6.20
	5.8	0.46	5.82
	10	0.34	6.15

$^{96}_{44}Ru_{52}$

$^{96}_{44}Ru_{52}$-5