

⁹⁴Rh ε decay (70.6 s) 1980Ox01

Type	Author	History	Citation	Literature Cutoff Date
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Parent: ⁹⁴Rh: E=0.0; J^π=(4⁺); T_{1/2}=70.6 s 6; Q(ε)=9.6×10³ 4; %ε+%β⁺ decay=100.0

Source produced by ⁹⁶Ru(p,3n) reaction. Enriched target. E=40 MeV. Ge(Li) detectors, FWHM=2.4 keV and 1.9 keV at 1.3 MeV.

Hyperpure germanium x-ray spectrometer, FWHM=0.22 keV at 14 keV. Measured E_γ, I_γ, γγ.

⁹⁴Ru Levels

E(level)	J ^π †	T _{1/2} †
0.0	0 ⁺	51.8 min 6
1430.71 10	2 ⁺	
2186.91 15	4 ⁺	
2498.62 17	6 ⁺	65 ns 2
2503.22 23	(3,4,5)	
2625.02 21	5 ⁻	0.51 ns 5
3117.6 4	(3,4,5)	
3177.9 4	(3,4,5)	
3255.0 4	(3,4,5)	

† From Adopted Levels.

ε,β⁺ radiations

T_{1/2}: Deduced from intensity balance. Approximate values due to incompleteness of decay scheme.

E(decay)	E(level)	Iβ ⁺ †	Iε †	Log ft	I(ε+β ⁺) †	Comments
(6.3×10 ³ 4)	3255.0	4.6 3	0.10 3	6.66 16	4.7 3	av Eβ=2.47×10 ³ ; εK=0.019 5; εL=0.0023 6
(6.4×10 ³ 4)	3177.9	1.86 20	0.040 11	7.08 16	1.90 20	av Eβ=2.50×10 ³ ; εK=0.018 5; εL=0.0022 6
(6.5×10 ³ 4)	3117.6	4.1 3	0.086 22	6.76 16	4.2 3	av Eβ=2.53×10 ³ ; εK=0.018 5; εL=0.0022 6
(7.0×10 ³ 4)	2625.02	5.7 6	0.093 23	6.79 15	5.8 6	av Eβ=2.77×10 ³ ; εK=0.014 3; εL=0.0017 4
6.4×10 ³ 4	2503.22	30.2 10	0.46 10	6.11 14	30.7 10	av Eβ=2.83×10 ³ ; εK=0.013 3; εL=0.0016 4 E(decay): β ⁺ measured using magnetic spectrometer.
(7.1×10 ³ ‡ 4)	2498.62	7 3	0.1 1	6.75 23	7 3	av Eβ=2.83×10 ³ ; εK=0.013 3; εL=0.0016 4
(7.4×10 ³ 4)	2186.91	27 6	0.35 11	6.27 17	27 6	av Eβ=2.99×10 ³ ; εK=0.0113 24; εL=0.0014 3
(8.2×10 ³ 4)	1430.71	18 5	0.17 6	6.67 17	18 5	av Eβ=3.35×10 ³ ; εK=0.0082 15; εL=0.00100 19

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

γ(⁹⁴Ru)

I_γ normalization: from ΣI_g(GS)=100.

E _γ	I _γ ‡	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. †	α [#]	Comments
126.4 2	4.5 2	2625.02	5 ⁻	2498.62	6 ⁺	E1	0.0709	α=0.0709; α(K)=0.0621 19; α(L)=0.00724 22; α(M)=0.00132 4; α(N+...)=0.00024 1
311.7 1	12 3	2498.62	6 ⁺	2186.91	4 ⁺	E2	0.0237	α=0.0237; α(K)=0.0204 7; α(L)=0.00270 9; α(M)=0.00050 2

Continued on next page (footnotes at end of table)

^{94}Rh ε decay (70.6 s) **1980Ox01** (continued) $\gamma(^{94}\text{Ru})$ (continued)

E_γ	I_γ^\ddagger	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	$\alpha^\#$	Comments
438.1 2	7.1 3	2625.02	5 ⁻	2186.91	4 ⁺	E1	0.00231	$\alpha=0.00231$; $\alpha(\text{K})=0.00203$ 6; $\alpha(\text{L})=0.00023$ I
492.6 3	4.2 3	3117.6	(3,4,5)	2625.02	5 ⁻			
552.9 3	1.9 2	3177.9	(3,4,5)	2625.02	5 ⁻			
756.2 1	51 5	2186.91	4 ⁺	1430.71	2 ⁺	(E2)	0.00174	$\alpha=0.00174$; $\alpha(\text{K})=0.00151$ 5; $\alpha(\text{L})=0.00018$ I
1068.1 3	4.7 3	3255.0	(3,4,5)	2186.91	4 ⁺			
1072.5 2	30.7 10	2503.22	(3,4,5)	1430.71	2 ⁺			
^x 1110.7 2	2.9 2							
1430.7 1	100	1430.71	2 ⁺	0.0	0 ⁺	(E2)	0.00041	$\alpha=0.00041$; $\alpha(\text{K})=0.00036$ I
^x 1539.7 3	4.33 15							
^x 1804.3 10	2.2 2							
^x 1902.5 10	2.2 2							
^x 2124.5 [@] 10	1.5 2							
^x 2631.6 [@] 10	1.4 3							
^x 2677.8 10	1.4 2							
^x 2778.6 [@] 10	1.1 3							
^x 3007.7 [@] 10	1.0 2							
^x 3210.3 [@] 10	1.3 2							
^x 3256.0 [@] 10	2.0 2							

[†] From Adopted Levels.

[‡] Absolute intensity per 100 decays.

[#] 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.

[@] Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

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Decay Scheme

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

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

$^{94}_{45}\text{Rh}_{49}$ (4+) 0.0 70.6 s 6
 $Q_\epsilon = 9.6 \times 10^3$ 4
 $\% \epsilon + \% \beta^+ = 100$

