^{94}Rh ε decay (25.8 s) 1980Ox01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 107, 2423 (2006)	1-Jan-2006

Parent: ^{94}Rh: E=x+0.0; $J^\pi=(8^+)$; $T_{1/2}$=25.8 s *2*; Q(ε)=9.6×10^3 *4*; %ε+%β^+ decay=100.0

1980Ox01: isotope produced by ^{96}Ru(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 Eγ, Iγ, γγ.

1980No06: isotope produced by ^{58}Ni(^{40}Ca,n3p). Enriched target. E=135 MeV and 160 MeV. Ge(Li) detectors, FWHM=2 keV to 3 keV at 1.33 MeV. Measured Eγ, Iγ, γγ.

All quoted information is from 1980Ox01. The 1980No06 data, though less precise, agree with 1980Ox01 within the uncertainty limits.

^{94}Ru Levels

E(level)	J^π†	$T_{1/2}$†
0	0^+	51.8 min *6*
1430.71 *10*	2^+	
2186.91 *15*	4^+	
2498.62 *17*	6^+	65 ns *2*
2625.02 *21*	5^-	0.51 ns *5*
2644.72 *20*	8^+	71 μs *4*
3658.4 *4*	(7^-)	

† 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
(5.9×10^3 *4*)	3658.4	1.69 *19*	0.048 *14*	6.50 *18*	1.74 *19*	av Eβ=2.27×10^3; εK=0.024 *7*; εL=0.0029 *8*
(7.0×10^3 *4*)	2644.72	94 *7*	1.6 *4*	5.13 *15*	96 *7*	av Eβ=2.76×10^3; εK=0.014 *4*; εL=0.0017 *4*
(7.0×10^3@ *4*)	2625.02	1.8 *4*	0.029 *9*	6.86 *17*	1.8‡ *4*	av Eβ=2.77×10^3; εK=0.014 *3*; εL=0.0017 *4*

† Approximate values obtained assuming x=0.
‡ Feeding negligible since transition is third forbidden. Unplaced γ transitions account for missing intensity.
# Absolute intensity per 100 decays.
@ Existence of this branch is questionable.

γ(^{94}Ru)

Iγ normalization: From ΣI$_g$(GS)=100.

Eγ	Iγ‡	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.†	α#	Comments
126.4 *2*	0.85 *10*	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*
146.1 *1*	75 *5*	2644.72	8^+	2498.62	6^+	E2	0.335	α=0.335; α(K)=0.278 *9*; α(L)=0.0471 *15*; α(M)=0.0087 *3*; α(N+..)=0.00155 *5*

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γ(^{94}Ru) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[#]	Comments
311.7 *1*	97.3 *35*	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*
438.1 *2*	2.75 *30*	2625.02	5^-	2186.91	4^+	E1	0.00231	α=0.00231; α(K)=0.00203 *6*; α(L)=0.00023 *1*
756.2 *1*	100 *3*	2186.91	4^+	1430.71	2^+	(E2)	0.00174	α=0.00174; α(K)=0.00151 *5*; α(L)=0.00018 *1*
1033.4 *3*	1.7 *2*	3658.4	(7^-)	2625.02	5^-	(E2)	0.00083	α=0.00083; α(K)=0.00072 *2*
1430.7 *1*	100	1430.71	2^+	0	0^+	(E2)	0.00041	α=0.00041; α(K)=0.00036 *1*
[x]2099.5 *10*	1.9 *2*							
[x]2124.5[@] *10*	1.1 *2*							
[x]2631.6[@] *10*	1.0 *2*							
[x]2778.6[@] *10*	0.8 *2*							
[x]2966.0 *10*	0.9 *2*							
[x]3007.7[@] *10*	0.7 *1*							
[x]3210.3[@] *10*	0.9 *1*							
[x]3256.0[@] *10*	1.4 *1*							

[†] From adopted gammas.
[‡] 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

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