

¹⁰⁴Rh β⁻ decay (42.3 s)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 108,2035 (2007)	30-Mar-2007

Parent: ¹⁰⁴Rh: E=0.0; J^π=1⁺; T_{1/2}=42.3 s 4; Q(β⁻)=2440 5; %β⁻ decay=99.6

See also ¹⁰⁴Rh ε decay.

Activity from ¹⁰³Rh(d,p), ¹⁰³Rh(n,γ).

Measured γ (1971Do10,1970Ok03), γγ, γγ(θ) (1972Ok01,1972Si08)Ge(Li), NaI detectors. Others: 1967Fe03, 1959Gi63, 1955Jo25, 1953Jo09.

¹⁰⁴Pd Levels

E(level)	J ^π †	Comments
0.0	0 ⁺	
555.81 4	2 ⁺	
1323.1?		
1333.59 8	0 ⁺	
1341.68 5	2 ⁺	J ^π : J=2 from γγ(θ) (1972Ko01,1972Si08).
1792.86 6	0 ⁺	
1793.83 9	2 ⁺	
1821.2?	3 ⁺	
2244.9? 3	2 ⁺	

† From Adopted Levels.

β⁻ radiations

E(decay)	E(level)	Iβ ⁻ †	Log ft	Comments
(195‡ 5)	2244.9?	≤0.00045	≥6.0	av Eβ= 55.5 25
(646 5)	1793.83	0.010 1	6.3 1	av Eβ= 211 3
(647 5)	1792.86	0.075 8	5.5 1	av Eβ= 212 3
				Eβ=640., Iβ=0.11 (1955Bu33).
(1098 5)	1341.68	0.0003 1	8.7 1	av Eβ= 394 4
(1106 5)	1333.59	0.0066 7	7.36 2	av Eβ= 397 4
(1884 5)	555.81	1.90 20	5.80 1	av Eβ= 739 4
				Eβ=1880., Iβ=1.85% (1955Bu33).
(2440 5)	0.0	98.0 5	4.55 1	av Eβ= 995 4
				Eβ=2440., Iβ=98% (1955Bu33).
				ΔIβ: adopted by the evaluator.

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

γ(¹⁰⁴Pd)

Iγ normalization: from Σ I(γ+ce)+Iβ branching to g.s.=99.55 10 and Iβ(g.s.)=98.0 5.

E _γ †	I _γ †‡	E _i (level)	J _i ^π	E _f	J _f ^π
451.16 12	0.31 3	1792.86	0 ⁺	1341.68	2 ⁺
460.5# 4	≈0.18	1792.86	0 ⁺	1333.59	0 ⁺

Continued on next page (footnotes at end of table)

$^{104}\text{Rh} \beta^-$ decay (42.3 s) (continued) $\gamma(^{104}\text{Pd})$ (continued)

E_γ †	I_γ †‡	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	Comments
479.1# 7	0.15	1821.2?	3 ⁺	1341.68	2 ⁺		
488.5# 3	0.14	1821.2?	3 ⁺	1333.59	0 ⁺		
497.8# 8	0.11	1821.2?	3 ⁺	1323.1?			
555.81 4	100	555.81	2 ⁺	0.0	0 ⁺	E2	Mult.: from adopted level.
767.1# 1	0.56	1323.1?		555.81	2 ⁺		
777.77 7	0.31 3	1333.59	0 ⁺	555.81	2 ⁺		
785.88 5	0.18 2	1341.68	2 ⁺	555.81	2 ⁺		
1237.05 5	3.3 3	1792.86	0 ⁺	555.81	2 ⁺		
1238.02#	≈0.5	1793.83	2 ⁺	555.81	2 ⁺		I_γ : deduced from 33.5-min ^{104}Ag decay.
1341.67 7	0.14 2	1341.68	2 ⁺	0.0	0 ⁺		
1689.1# 3	0.022 6	2244.9?	2 ⁺	555.81	2 ⁺		
1793.83 9	0.051 6	1793.83	2 ⁺	0.0	0 ⁺		

† From [1972Si08](#).

‡ For absolute intensity per 100 decays, multiply by 0.020 5.

Placement of transition in the level scheme is uncertain.

$^{104}\text{Rh} \beta^-$ decay (42.3 s)

Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - - γ Decay (Uncertain)
- Coincidence

