^{103}Pd ε decay (16.991 d)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

Parent: ^{103}Pd: E=0.0; J^π=5/2$^+$; $T_{1/2}$=16.991 d *19*; Q(ε)=543.1 *8*; %ε decay=100.0

1969Gr13: ^{103}Pd activity from ^{102}Pd(n,γ), ^{103}Rh(p,n), ^{103}Rh(d,2n). Measured: $T_{1/2}$, Eγ, Iγ, Ice, I-Auger. Deduced: ^{103}Rh levels, log *ft*, J^π, α. Natural and enriched targets.

1969Zo02: ^{103}Pd activity from ^{102}Rh(d,2n). Enriched target. Measured: Eγ, 7Iγ, γγ(θ), Ice, α. Deduced: ^{103}Rh levels, J^π.

1976Ma37: ^{103}Pd activity from ^{102}Pd(n,γ). Enriched target. Measured: Eγ, Iγ, Xγ-coin. Deduced: ^{103}Rh levels, log *ft*, J^π, α, δ, B(E2), B(M1).

Others: 1954Ri09, 1955Sa16, 1955Av11, 1970NiZV, 1974HeYW.

^{103}Rh Levels

E(level)[‡]	J^π[†]	$T_{1/2}$
0.0	1/2$^-$	stable
39.748 *8*	7/2$^+$	
93.038 *13*	9/2$^+$	
295.00 *5*	3/2$^-$	
357.43 *4*	5/2$^-$	
536.832 *15*	5/2$^+$	

† From Adopted Levels.
‡ Calculated from the given gammas using a least-squares procedure.

ε radiations

E(decay)	E(level)	Iε[†]	Log *ft*	Comments
(6.3 *8*)	536.832	0.0040 *2*	5.1 *2*	εL=0.52 *9*; εM+=0.48 *9* Additional information 1.
(185.7 *8*)	357.43	0.0248 *8*	8.5 *2*	εK=0.8393 *2*; εL=0.1291 *2*; εM+=0.03159 *4*
(248.1 *8*)	295.00	0.00044 *11*	10.5 *1*	εK=0.8476; εL=0.12266 *6*; εM+=0.02977 *2*
(503.4 *8*)	39.748	99.9 *1*	5.8 *2*	εK=0.8589; εL=0.11382 *2*; εM+=0.027312 *4*
(543.1[‡] *8*)	0.0	≤0.1	≥8.9[1u]	εK=0.8443; εL=0.12520 *4*; εM+=0.03055 *1*

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{103}Rh)

Iγ normalization: From ΣI(γ+ce) to g.s.=100 assuming negligible (<0.1%) ε transition to g.s. (5/2$^+$ to 1/2$^-$ transition).
α(K)exp=ce(K)(1969Gr13)/Iγ(1976Ma37) normalized to α(K)exp(295γ)=0.0186 from ^{103}Ru β$^-$ decay.

E_γ[†]	I_γ[†‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	Comments
39.748 *8*	100	39.748	7/2$^+$	0.0	1/2$^-$	E3	1404 *20*	α(K)= 139.4; α(L)= 1043; α(M)= 210.5 Eγ: from 1969Gr13. Mult.: from L1:L2:L3 ratios and K/L=0.143 *12* (1969Gr13). Other: K/L=0.135 *22* (1976Ma37).
53.29 *1*	0.04 *4*	93.038	9/2$^+$	39.748	7/2$^+$			

Continued on next page (footnotes at end of table)

^{103}Pd ε decay (16.991 d) (continued)

γ(^{103}Rh) (continued)

E_γ [†]	I_γ [†‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	Comments
62.41 *3*	1.52 *5*	357.43	5/2⁻	295.00	3/2⁻	M1	1.314 *19*	α(L)exp=0.15 *3* α(K)= 1.151; α(L)= 0.1414; α(M)= 0.0263; α(N+..)=0.00513 E_γ: others: 62.30 *12* (1969Gr13), 62.5 *1* (1974HeYW). Mult.: from α(L)exp and L1/(L2+L3).
241.88 *5*	0.0007 *7*	536.832	5/2⁺	295.00	3/2⁻			
294.98 *15*	4.1 *1*	295.00	3/2⁻	0.0	1/2⁻			
317.72 *5*	0.022 *1*	357.43	5/2⁻	39.748	7/2⁺			
357.45 *8*	32.3 *10*	357.43	5/2⁻	0.0	1/2⁻	E2	0.01588 *23*	α(K)exp=0.010 *2* α(K)=0.01369; α(L)=0.00180; α(M)=0.00034 E_γ: others: 356.98 *9* (1969Gr13), 357.5 *1* (1974HeYW). Mult.: From 1976Ma37.
443.79 *5*	0.022 *1*	536.832	5/2⁺	93.038	9/2⁺			
497.080 *13*	5.8 *2*	536.832	5/2⁺	39.748	7/2⁺			

† From 1976Ma37, unless noted otherwise.
‡ Additional information 2.
# From 1976Ma37 if not noted otherwise.
@ For absolute intensity per 100 decays, multiply by 6.83×10^{-4} *7*.
& 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.

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Decay Scheme

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