^{102}Rh ε decay (3.742 y) 1969Ge02,1970Si13

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 1745 (2009)	31-Dec-2008

Parent: ^{102}Rh: E=140; $J^\pi=6^{(+)}$; $T_{1/2}$=3.742 y *10*; Q(ε)=2323 *5*; %ε+%$β^+$ decay=100.0

Some γ-rays, observed by 1970Hu02 only, are summation peaks and therefore, have been omitted.

Because of the many close-lying doublets, the internal conversion data of 1968Ad02 and 1961Hi06 are not included.

Coincidence measurements by 1969Ko24 and 1970Ta03 are summarized on the decay scheme.

Others: 1965Ro09, 1971Fr12.

^{102}Ru Levels

E(level)‡	Jπ†	Comments
0	0^+	
475.07 *4*	2^+	
1103.14 *5*	2^+	Jπ: (628)(475)(θ) is consistent with J(D+Q)2(Q)0 for J(1103 level)=2 and δ(628γ)=60 *20*. Not consistent with J=0,1,3,4 for any δ (1970Si13).
1106.36 *6*	4^+	
1521.67 *7*	3^+	Jπ: (1049)(475)(θ) is consistent with J(D+Q)2(Q)0 for J(1521 level)=3 and δ(1047γ)=−7.0 *6*. Not consistent with J=1 or 2 for any δ. (419)(1103)(θ) is consistent with J(D+Q)2(Q)0 J(1521 level)=3 and δ(419γ)=−7.2 *1*. Not consistent with J=1 or 2 for any δ (1970Si13).
1798.76 *14*	4^+	
1873.22 *8*	6^+	Jπ: J=5 deduced by 1970Si13 from triple cascade angular correlation disagrees with adopted value.
2219.17 *7*	5^+	Jπ: γγ(θ) data are consistent with J=3 or 5, not consistent with J=4 (1970Si13).

† From Adopted Levels.

‡ From a least-squares procedure using gammas given in the data set.

ε,$β^+$ radiations

E(decay)	E(level)	Iε‡	Log *ft*	I(ε+$β^+$)‡	Comments
(244 *5*)	2219.17	67 *3*	6.21 *8*	67 *3*	εK= 0.813 *6*; εL= 0.150 *5*; εM+= 0.0370 *12*
(590 *5*)	1873.22	35 *2*	7.91 *3*	35 *2*	εK= 0.8594; εL= 0.11363 *14*; εM+= 0.02700 *4*
(664 *5*)	1798.76	0.8 *4*	9.69 *22*	0.8 *4*	εK= 0.8609; εL= 0.1124; εM+= 0.02666 *3*
(1357# *5*)	1106.36	≤4†	≥9.7	≤4	εK= 0.8657; εL= 0.1083; εM+= 0.02555

† Only upper limit can be given, because of uncertainties in γ-intensities.

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

γ(^{102}Ru)

Iγ normalization: Normalization to absolute γ-intensities is based on assumption that there is no direct $β^-$ feeding to the ^{102}Ru g.s.

E_γ†	I_γ†&	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
75.6@a *5*	0.21 *9*	1873.22	6^+	1798.76	4^+			
345.89 *12*	0.87 *10*	2219.17	5^+	1873.22	6^+			
415.25 *15*	2.1 *3*	1521.67	3^+	1106.36	4^+			
418.52 *18*	9.4‡ *10*	1521.67	3^+	1103.14	2^+	E2+M1	−7.2 *10*	
420.4 *2*	3.2 *3*	2219.17	5^+	1798.76	4^+			Mult.: α(K)exp=5.8×10^{-3} *14* (1993Fa11).

Continued on next page (footnotes at end of table)

^{102}Rh ε decay (3.742 y) 1969Ge02,1970Si13 (continued)

γ(^{102}Ru) (continued)

E_γ [†]	I_γ [†&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
475.06 *4*	95 *4*	475.07	2^+	0	0^+			
628.05 *5*	8.3 *4*	1103.14	2^+	475.07	2^+	E2(+M1)+E0	−60 *20*	Mult.: from α(K)exp=2.58×10^{-3} *11* (1993Fa11).
631.29 *5*	56 *2*	1106.36	4^+	475.07	2^+	E2		Mult.: from α(K)exp=2.43×10^{-3} *10* (1993Fa11).
692.4 *2*	1.6 *2*	1798.76	4^+	1106.36	4^+			
695.6 *3*	2.9 *4*	1798.76	4^+	1103.14	2^+			
697.49 *8*	44 *2*	2219.17	5^+	1521.67	3^+	E2		
766.84 *6*	34 *2*	1873.22	6^+	1106.36	4^+			
1046.59 *7*	34 *2*	1521.67	3^+	475.07	2^+	E2+M1	−5.7 *3*	δ: from 1989Hi12. other: −7.0 *6* (1970Si13).
1103.16 *6*	4.6 *3*	1103.14	2^+	0	0^+	E2		Mult.: from α(K)exp=6.27×10^{-4} *30* (1993Fa11).
1112.84 *7*	19 *1*	2219.17	5^+	1106.36	4^+	E2+M1	−1.1 *+6−9*	
1323.6 *5*	0.46 *8*	1798.76	4^+	475.07	2^+			

[†] γ-ray energies and intensities are from 1969Ge02, unless noted otherwise.
[‡] Uncertainty given by the evaluator. The value given in the paper seems to be a misprint.
[#] γ-multipolarities and mixing ratios are from γγ(θ) results of 1970Si13, unless noted otherwise.
[@] Observed by 1969Ko24 only.
[&] Absolute intensity per 100 decays.
[a] Placement of transition in the level scheme is uncertain.

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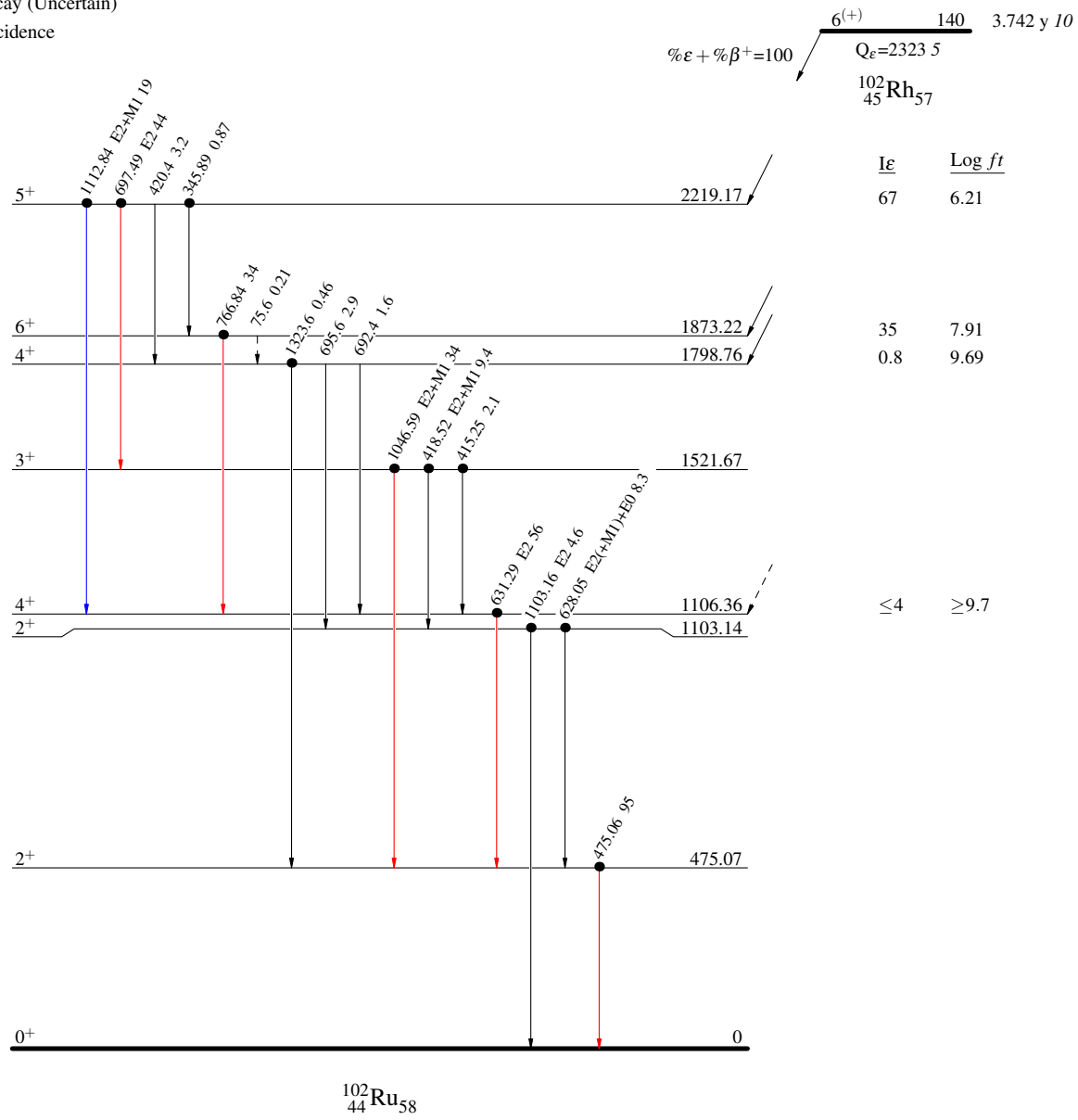
Legend

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

Decay Scheme

Intensities: Relative I_γ



$^{102}_{44}Ru_{58}$