^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

Parent: ^{182}Re: E=0+x; $J^{\pi}=2^+$; $T_{1/2}$=14.14 h *45*; Q(ε)=2.80×10^3 *10*; %ε+%$β^+$ decay=100.0

^{182}Re-J^{π},$T_{1/2}$: From ^{182}Re Adopted Levels. Half-life is based on new measurement reported in 2014Ma43 and 2011Bo01.

^{182}Re-E: x=60 *100* (2012Au07) from beta decay results.

^{182}Re-Q(ε): From 2012Wa38.

1971Ga37, 1970Ag07 (both papers from the same group): measured conversion electrons using an iron-free $\pi\sqrt{2}\beta$ spectrometer.

1969Ga23: Measured Eγ, Iγ, γγ and γ(ce) coin. Deduced conversion coefficients from their γ-ray data and ce data of 1961Ha23 and 1964Ba43.

1969Sa25: Measured Eγ, Iγ, γγ. Deduced conversion coefficients from their γ-ray data and ce data from 1961Ha23.

1980Sp01: Measured γ(θ,temp), nuclear orientation at low temperature.

1961Ha23: Measured ce.

Others:

1964Ba43: Measured ce. Relative electron intensities measured for about 14 transitions from 734 to 1189 keV. No conversion coefficients given.

1963Ba37: Measured Eβ.

1959Ga15: Measured Eγ, Iγ.

The decay scheme is primarily proposed by 1971Ga37.

^{182}W Levels

E(level)†	J^{π}‡	E(level)†	J^{π}‡	E(level)†	J^{π}‡	E(level)†	J^{π}‡
0.0	0^+	1373.91 *5*	3^-	2057.47 *7*	1^+	2208.94 *18*	3^-
100.11 *4*	2^+	1442.83 *11*	4^+	2109.80 *21*	$(2^-,3^-)$	2240.83 *15*	(3^+)
329.42 *5*	4^+	1487.61 *5*	4^-	2116.4 *3*		2274.73 *6*	$(3)^-$
1221.49 *5*	2^+	1553.33 *5*	4^-	2147.98 *17*	(3^-)	2316.1 *22*	
1257.45 *5*	2^+	1856.02 *7*	(2^+)	2173.3 *3*			
1289.24 *5*	2^-	1871.17 *15*	1^-	2184.12 *6*	$(2^-,3^-)$		
1331.24 *6*	3^+	2023.66 *5*	3^-	2207.17 *15*	(3^-)		

† From least-squares fit to Eγ data. The 1857.3γ was not used in the fitting procedure due to poor agreement in energy.

‡ From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iε‡	Log *ft*†	I(ε+$β^+$)‡	Comments
(4.8×10^2 *10*)	2316.1	0.0304 *22*	8.9 *3*	0.0304 *22*	εK=0.793 *13*; εL=0.157 *9*; εM+=0.050 *4*
(5.3×10^2 *10*)	2274.73	0.72 *10*	7.6 *3*	0.72 *10*	εK=0.796 *11*; εL=0.155 *8*; εM+=0.049 *3*
(5.6×10^2 *10*)	2240.83	0.083 *11*	8.6 *2*	0.083 *11*	εK=0.798 *9*; εL=0.153 *7*; εM+=0.0485 *25*
(5.9×10^2 *10*)	2208.94	0.20 *8*	8.3 *3*	0.20 *8*	εK=0.800 *8*; εL=0.152 *6*; εM+=0.0481 *22*
(5.9×10^2 *10*)	2207.17	0.31 *8*	8.1 *3*	0.31 *8*	εK=0.800 *8*; εL=0.152 *6*; εM+=0.0481 *22*
(6.2×10^2 *10*)	2184.12	2.59 *22*	7.19 *20*	2.59 *22*	εK=0.801 *8*; εL=0.151 *6*; εM+=0.0478 *20*
(6.3×10^2 *10*)	2173.3	0.042 *7*	9.0 *2*	0.042 *7*	εK=0.801 *7*; εL=0.151 *5*; εM+=0.0477 *19*
(6.5×10^2 *10*)	2147.98	0.250 *20*	8.3 *2*	0.250 *20*	εK=0.802 *7*; εL=0.150 *5*; εM+=0.0474 *18*
(6.8×10^2 *10*)	2116.4	0.80 *11*	7.8 *2*	0.80 *11*	εK=0.803 *6*; εL=0.149 *5*; εM+=0.0471 *16*
(6.9×10^2 *10*)	2109.80	0.35 *9*	8.2 *2*	0.35 *9*	εK=0.804 *6*; εL=0.149 *4*; εM+=0.0470 *15*
(7.4×10^2 *10*)	2057.47	2.01 *15*	7.5 *2*	2.01 *15*	εK=0.805 *5*; εL=0.148 *4*; εM+=0.0465 *13*
(7.8×10^2 *10*)	2023.66	3.10 *21*	7.3 *2*	3.10 *21*	εK=0.806 *5*; εL=0.147 *4*; εM+=0.0463 *12*
(9.3×10^2 *10*)	1871.17	0.63 *5*	8.2 *2*	0.63 *5*	εK=0.810 *3*; εL=0.1447 *22*; εM+=0.0453 *8*
(9.4×10^2 *10*)	1856.02	0.50 *6*	8.3 *2*	0.50 *6*	εK=0.810 *3*; εL=0.1445 *21*; εM+=0.0452 *8*

Continued on next page (footnotes at end of table)

^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*†	I(ε+β+)‡	Comments
(1.31×10^3 *10*)	1487.61		2.1 *4*	8.8^{1u} *2*	2.1 *4*	εK=0.800 *4*; εL=0.1521 *25*; εM+=0.0481 *10*
(1.36×10$^{3\#}$ *10*)	1442.83		<0.42	>8.7	<0.42	εK=0.8153 *10*; εL=0.1404 *11*; εM+=0.0437 *4*
(1.43×10^3 *10*)	1373.91	0.03 *5*	29 *3*	6.9 *1*	29 *3*	av Eβ=236 *58*; εK=0.8155 *6*; εL=0.1399 *10*; εM+=0.0435 *4*
(1.47×10^3 *10*)	1331.24	0.0003 *5*	0.21 *14*	9.0 *3*	0.21 *14*	av Eβ=255 *58*; εK=0.8154 *8*; εL=0.1396 *10*; εM+=0.0434 *4*
(1.51×10^3 *10*)	1289.24	0.08 *9*	37 *4*	6.8 *1*	37 *4*	av Eβ=274 *58*; εK=0.8153 *12*; εL=0.1393 *10*; εM+=0.0433 *4*
(1.54×10^3 *10*)	1257.45	0.002 *3*	0.93 *17*	8.4 *1*	0.93 *17*	av Eβ=288 *57*; εK=0.8151 *15*; εL=0.1391 *10*; εM+=0.0432 *4*
(1.58×10$^{3\#}$ *10*)	1221.49	<0.01	<4	>7.8	<4	av Eβ=304 *57*; εK=0.8148 *19*; εL=0.1388 *11*; εM+=0.0431 *4*
(2.70×10^3 *10*)	100.11	1.6 *6*	14 *5*	7.7 *2*	16 *5*	av Eβ=798 *57*; εK=0.738 *18*; εL=0.122 *4*; εM+=0.0378 *10*

† Energy of the isomer was assumed as 80 keV *80* for the purpose of deducing log *ft* values.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{182}W)

Iγ normalization: Σ(I(γ+ce) of γs to g.s.)=100.
q_K(E0/E2)=ratios of K-conversion intensities of E0 and E2 transitions.
Additional unplaced transitions were reported by all authors. Only those unplaced transitions are listed here which are reported by more than one author.
For A_2 values from γ(θ,temp), see ^{182}Re ε decay (64.0 h).

E_γ[‡]	I_γ[#c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[b]	Comments
(67.75)	120 *5*	1289.24	2⁻	1221.49	2⁺	E1		0.202	α(L)=0.1563 *22*; α(M)=0.0358 *5* α(N)=0.00840 *12*; α(O)=0.001234 *18*; α(P)=5.51×10^{-5} *8* E_γ,I_γ,Mult.: based on values in Adopted Levels, Gammas dataset. This most intense but lowest-energy transition is not reported in this decay.
84.68 *5*	8.4 *7*	1373.91	3⁻	1289.24	2⁻	M1+E2	+0.326 *11*	7.66	α(K)=5.84 *9*; α(L)=1.40 *3*; α(M)=0.331 *8* α(N)=0.0790 *19*; α(O)=0.0121 *3*; α(P)=0.000593 *9*
100.12 *5*	45 *3*	100.11	2⁺	0.0	0⁺	E2		3.89	α(K)=0.878 *13*; α(L)=2.28 *4*; α(M)=0.576 *9* α(N)=0.1357 *20*; α(O)=0.0186 *3*; α(P)=7.07×10^{-5} *10* ΔIγ(absolute)=0.4 per 100 decays.
113.70 *5*	1.3 *2*	1487.61	4⁻	1373.91	3⁻	M1+E2	+0.36 *1*	3.18	α(K)=2.49 *4*; α(L)=0.529 *9*; α(M)=0.1241 *22* α(N)=0.0297 *6*; α(O)=0.00462 *8*; α(P)=0.000250 *4*
116.40 *5*	1.1 *3*	1373.91	3⁻	1257.45	2⁺	E1		0.253	α(K)=0.208 *3*; α(L)=0.0353 *5*; α(M)=0.00806 *12* α(N)=0.00191 *3*; α(O)=0.000291 *4*; α(P)=1.510×10^{-5} *22*
152.43 *5*	22.0 *19*	1373.91	3⁻	1221.49	2⁺	E1		0.1258	α(K)=0.1038 *15*; α(L)=0.01703 *24*; α(M)=0.00387 *6* α(N)=0.000919 *13*; α(O)=0.0001421 *20*; α(P)=7.85×10^{-6} *11* α(K)exp=0.17 *5* for 151.1γ+152.4γ+154.0γ (1971Ga37).
156.38 *5*	1.7 *3*	1487.61	4⁻	1331.24	3⁺	E1		0.1177	α(K)=0.0972 *14*; α(L)=0.01590 *23*; α(M)=0.00362 *5* α(N)=0.000858 *12*; α(O)=0.0001328 *19*; α(P)=7.38×10^{-6} *11*
179.38 *5*	0.92 *17*	1553.33	4⁻	1373.91	3⁻	M1+E2	+1.3 *2*	0.62 *4*	α(K)=0.42 *5*; α(L)=0.149 *5*; α(M)=0.0363 *13* α(N)=0.0086 *3*; α(O)=0.00127 *4*; α(P)=3.9×10^{-5} *5*
198.36 *5*	0.55 *8*	1487.61	4⁻	1289.24	2⁻	E2		0.317	α(K)=0.1725 *25*; α(L)=0.1097 *16*; α(M)=0.0273 *4* α(N)=0.00646 *9*; α(O)=0.000910 *13*; α(P)=1.363×10^{-5} *20*
222.08 *5*	2.17 *17*	1553.33	4⁻	1331.24	3⁺	E1		0.0480	α(K)=0.0399 *6*; α(L)=0.00630 *9*; α(M)=0.001430 *20* α(N)=0.000340 *5*; α(O)=5.34×10^{-5} *8*; α(P)=3.17×10^{-6} *5*
229.32 *5*	8 *1*	329.42	4⁺	100.11	2⁺	E2		0.196	α(K)=0.1167 *17*; α(L)=0.0605 *9*; α(M)=0.01497 *21* α(N)=0.00354 *5*; α(O)=0.000505 *7*; α(P)=9.50×10^{-6} *14*
264.08 *5*	0.90 *12*	1553.33	4⁻	1289.24	2⁻	E2		0.1254	α(K)=0.0799 *12*; α(L)=0.0347 *5*; α(M)=0.00852 *12* α(N)=0.00202 *3*; α(O)=0.000291 *4*; α(P)=6.69×10^{-6} *10*
470.26 *5*	6.3 *3*	2023.66	3⁻	1553.33	4⁻	M1+E2	0.6 *1*	0.055 *3*	α(K)=0.0455 *25*; α(L)=0.0075 *3*; α(M)=0.00171 *6* α(N)=0.000412 *15*; α(O)=6.6×10^{-5} *3*; α(P)=4.5×10^{-6} *3* α(K)exp=0.051 *14* (1970Ag07). L1/L2≈13 (1971Ga37).
536.04 *5*	0.65 *10*	2023.66	3⁻	1487.61	4⁻	M1+E2	0.7 *2*	0.037 *4*	α(K)=0.031 *4*; α(L)=0.0051 *4*; α(M)=0.00116 *9* α(N)=0.000279 *21*; α(O)=4.5×10^{-5} *4*; α(P)=3.0×10^{-6} *4* α(K)exp=0.044 *13* (1970Ag07).

$^{182}_{74}W_{108}$-3

^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25 (continued)

γ(^{182}W) (continued)

E_γ[‡]	I_γ[#c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[b]	Comments
555 *1*	0.35 *10*	2109.80	(2⁻,3⁻)	1553.33	4⁻	(E2)		0.01627	α(K)=0.01264 *19*; α(L)=0.00279 *5*; α(M)=0.000658 *10* α(N)=0.0001571 *24*; α(O)=2.41×10⁻⁵ *4*; α(P)=1.161×10⁻⁶ *17* α(K)exp<0.018 (1970Ag07).
598.56 *5*	1.23 *13*	1856.02	(2⁺)	1257.45	2⁺	(M1)		0.0354	α(K)=0.0296 *5*; α(L)=0.00453 *7*; α(M)=0.001027 *15* α(N)=0.000247 *4*; α(O)=4.04×10⁻⁵ *6*; α(P)=2.92×10⁻⁶ *4* α(K)exp=0.035 *13* (1970Ag07).
649.73 *5*	1.06 *15*	2023.66	3⁻	1373.91	3⁻	M1+E2	0.8 *2*	0.0219 *23*	α(K)=0.0181 *19*; α(L)=0.00293 *24*; α(M)=0.00067 *6* α(N)=0.000161 *13*; α(O)=2.60×10⁻⁵ *22*; α(P)=1.76×10⁻⁶ *20* α(K)exp=0.028 *12* (1970Ag07).
734.53 *5*	1.18 *14*	2023.66	3⁻	1289.24	2⁻	M1+E2	1.0 *3*	0.0148 *22*	α(K)=0.0122 *19*; α(L)=0.00199 *24*; α(M)=0.00045 *6* α(N)=0.000109 *13*; α(O)=1.76×10⁻⁵ *22*; α(P)=1.18×10⁻⁶ *19* α(K)exp=0.026 *12* (1970Ag07).
787.11 *5*	0.95 *18*	2274.73	(3)⁻	1487.61	4⁻	(M1)		0.01763	α(K)=0.01474 *21*; α(L)=0.00224 *4*; α(M)=0.000506 *7* α(N)=0.0001219 *17*; α(O)=2.00×10⁻⁵ *3*; α(P)=1.446×10⁻⁶ *21* α(K)exp=0.019 *13* (1970Ag07).
800[&] *1*	0.47[&] *12*	2057.47	1⁺	1257.45	2⁺				
810.24 *5*	1.20 *14*	2184.12	(2⁻,3⁻)	1373.91	3⁻	(M1)		0.01639	α(K)=0.01371 *20*; α(L)=0.00208 *3*; α(M)=0.000470 *7* α(N)=0.0001132 *16*; α(O)=1.85×10⁻⁵ *3*; α(P)=1.343×10⁻⁶ *19* α(K)exp=0.014 *7* (1970Ag07).
835.98 *5*	1.45 *15*	2057.47	1⁺	1221.49	2⁺	(M1+E2)	≈0.8	≈0.01177	α(K)≈0.00979; α(L)≈0.001538; α(M)≈0.000350 α(N)≈8.42×10⁻⁵; α(O)≈1.366×10⁻⁵; α(P)≈9.48×10⁻⁷ α(K)exp=0.015 *8* (1971Ga37,1970Ag07).
894.85 *5*	6.6 *5*	2184.12	(2⁻,3⁻)	1289.24	2⁻	(M1)		0.01276	α(K)=0.01068 *15*; α(L)=0.001613 *23*; α(M)=0.000365 *6* α(N)=8.79×10⁻⁵ *13*; α(O)=1.440×10⁻⁵ *21*; α(P)=1.045×10⁻⁶ *15* α(K)exp=0.013 *2* (1971Ga37). Additional information 1.
900.80 *5*	1.11 *19*	2274.73	(3)⁻	1373.91	3⁻	(M1+E2)	≈0.5	≈0.01116	α(K)≈0.00932; α(L)≈0.001427; α(M)≈0.000324 α(N)≈7.79×10⁻⁵; α(O)≈1.271×10⁻⁵; α(P)≈9.06×10⁻⁷ α(K)exp=0.015 *5* (1971Ga37), 0.025 *16* (1970Ag07).
927.99 *5*	1.62 *17*	1257.45	2⁺	329.42	4⁺	E2		0.00524	α(K)=0.00429 *6*; α(L)=0.000738 *11*; α(M)=0.0001698 *24* α(N)=4.07×10⁻⁵ *6*; α(O)=6.47×10⁻⁶ *9*; α(P)=3.98×10⁻⁷ *6*
959.81 *5*	1.7 *4*	1289.24	2⁻	329.42	4⁺	E3+M2	−5.5 *+19−10*	0.0116 *7*	α(K)=0.0090 *6*; α(L)=0.00196 *8*; α(M)=0.000463 *17* α(N)=0.000111 *4*; α(O)=1.73×10⁻⁵ *7*; α(P)=9.3×10⁻⁷ *6*
1001.8 *1*	≈0.7	1331.24	3⁺	329.42	4⁺	E2+M1	−8.9 *+18−21*	0.00455 *8*	α(K)=0.00374 *6*; α(L)=0.000627 *10*; α(M)=0.0001437 *23* α(N)=3.45×10⁻⁵ *6*; α(O)=5.50×10⁻⁶ *9*; α(P)=3.48×10⁻⁷ *6*

$^{182}_{74}W_{108}$-4

^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25 (continued)

γ(^{182}W) (continued)

E_γ[‡]	I_γ[#c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[b]	Comments
1044.5 *1*	0.55 *7*	1373.91	3⁻	329.42	4⁺	E1+M2(+E3)	0.46 *9*	0.0051 *12*	α(K)=0.0042 *10*; α(L)=0.00067 *16*; α(M)=0.00015 *4* α(N)=3.7×10^{-5} *9*; α(O)=6.0×10^{-6} *14*; α(P)=4.2×10^{-7} *10*
1113.4[a] *1*	1.1[a] *2*	1442.83	4⁺	329.42	4⁺	E2+M1(+E0)	+5.6 *+13−10*	0.00376 *8*	α(K)=0.00311 *7*; α(L)=0.000504 *10*; α(M)=0.0001150 *22* α(N)=2.76×10^{-5} *6*; α(O)=4.43×10^{-6} *9*; α(P)=2.89×10^{-7} *7*; α(IPF)=3.53×10^{-7} *6* E0 admixture: q_K(E0/E2)=0.41 *9* (1975We22).
1121.4 *1*	100	1221.49	2⁺	100.11	2⁺	E2+M1+E0	+30 *+6−4*	0.00359	α(K)=0.00297 *5*; α(L)=0.000483 *7*; α(M)=0.0001104 *16* α(N)=2.65×10^{-5} *4*; α(O)=4.25×10^{-6} *6*; α(P)=2.76×10^{-7} *4*; α(IPF)=4.75×10^{-7} *7* E0 admixture: q_K(E0/E2)=0.19 *6* (1975We22), also 1990Ka35.
1189.2 *1*	47.3 *19*	1289.24	2⁻	100.11	2⁺	E1+M2+E3		0.0047 *3*	δ(M2/E1)=+0.48 *3*; δ(E3/E1)=−0.67 *5* Mult.,α: 59% *4* E1, 14% *1* M2 and 27% *3* E3. Conversion coefficient deduced for this admixture.
1221.5 *1*	78 *3*	1221.49	2⁺	0.0	0⁺	E2		0.00305	α(K)=0.00252 *4*; α(L)=0.000402 *6*; α(M)=9.15×10^{-5} *13* α(N)=2.20×10^{-5} *3*; α(O)=3.53×10^{-6} *5*; α(P)=2.34×10^{-7} *4*; α(IPF)=6.76×10^{-6} *10* ΔIγ(absolute)=1.4 per 100 decays.
1231.1 *1*	4.11 *20*	1331.24	3⁺	100.11	2⁺	E2+M1	−33 *+6−9*	0.00300	α(K)=0.00249 *4*; α(L)=0.000395 *6*; α(M)=9.01×10^{-5} *13* α(N)=2.16×10^{-5} *3*; α(O)=3.48×10^{-6} *5*; α(P)=2.31×10^{-7} *4*; α(IPF)=7.87×10^{-6} *11* α(K)exp=0.0025 *3* (1971Ga37).
1257.3 *1*	4.39 *19*	1257.45	2⁺	0.0	0⁺	E2		0.00289	α(K)=0.00239 *4*; α(L)=0.000378 *6*; α(M)=8.60×10^{-5} *12* α(N)=2.07×10^{-5} *3*; α(O)=3.33×10^{-6} *5*; α(P)=2.21×10^{-7} *3*; α(IPF)=1.118×10^{-5} *16*
1273.8 *1*	1.66 *14*	1373.91	3⁻	100.11	2⁺	E1+M2+E3		0.00132 *12*	δ(M2/E1)=+0.36 *10*; δ(E3/E1)=−0.28 *12* α(K)=0.00107 *10*; α(L)=0.000153 *16*; α(M)=3.4×10^{-5} *4* α(N)=8.2×10^{-6} *9*; α(O)=1.34×10^{-6} *14*; α(P)=9.6×10^{-8} *10*; α(IPF)=4.83×10^{-5} *8* Mult.,α: 81% *5* E1, 12% *4* M2 and 7% *2* E3. Conversion coefficient deduced for this admixture from BrIcc code.
1289.3 *1*	3.85 *17*	1289.24	2⁻	0.0	0⁺	M2		0.01230	α(K)=0.01019 *15*; α(L)=0.001630 *23*; α(M)=0.000372 *6* α(N)=8.97×10^{-5} *13*; α(O)=1.465×10^{-5} *21*; α(P)=1.047×10^{-6} *15*; α(IPF)=5.97×10^{-6} *9* ΔIγ(absolute)=0.08 per 100 decays.
1373.9 *1*	0.56 *6*	1373.91	3⁻	0.0	0⁺	E3		0.00496	α(K)=0.00400 *6*; α(L)=0.000728 *11*; α(M)=0.0001685 *24* α(N)=4.05×10^{-5} *6*; α(O)=6.44×10^{-6} *9*; α(P)=3.97×10^{-7} *6*; α(IPF)=1.252×10^{-5} *18*
[x]1410.4 *3*	0.12 *2*								
[x]1523 *2*	≈0.05								
[x]1537 *2*	≈0.05								
1543 *2*	≈0.05	1871.17	1⁻	329.42	4⁺	[E3]		0.00391	α(K)=0.00316 *5*; α(L)=0.000549 *8*; α(M)=0.0001265 *19*

$^{182}_{74}W_{108}$-5

^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25 (continued)

γ(^{182}W) (continued)

E_γ[‡]	I_γ[#c]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[b]	Comments
									α(N)=3.04×10^{-5} *5*; α(O)=4.86×10^{-6} *7*; α(P)=3.11×10^{-7} *5*; α(IPF)=3.77×10^{-5} *7*
[x]1558 *2*	0.24 *3*								
1756.0 *2*	0.19 *4*	1856.02	(2$^+$)	100.11	2$^+$				α(K)exp>0.0012 (1971Ga37).
[x]1757.0									α(K)exp>0.00046 (1971Ga37).
1771.0 *2*	1.01 *10*	1871.17	1$^-$	100.11	2$^+$	E1		1.04×10^{-3}	α(K)=0.000562 *8*; α(L)=7.77×10^{-5} *11*; α(M)=1.740×10^{-5} *25* α(N)=4.18×10^{-6} *6*; α(O)=6.84×10^{-7} *10*; α(P)=4.98×10^{-8} *7*; α(IPF)=0.000383 *6* α(K)exp=0.00055 *16* (1971Ga37).
1818.8 *2*	0.33 *3*	2147.98	(3$^-$)	329.42	4$^+$	(E1)		1.05×10^{-3}	α(K)=0.000537 *8*; α(L)=7.43×10^{-5} *11*; α(M)=1.664×10^{-5} *24* α(N)=4.00×10^{-6} *6*; α(O)=6.54×10^{-7} *10*; α(P)=4.76×10^{-8} *7*; α(IPF)=0.000418 *6* α(K)exp=0.00054 *24* (1971Ga37).
1857.3 *2*	0.099 *7*	1856.02	(2$^+$)	0.0	0$^+$	(E2)		1.59×10^{-3}	α(K)=0.001162 *17*; α(L)=0.0001723 *25*; α(M)=3.89×10^{-5} *6* α(N)=9.35×10^{-6} *13*; α(O)=1.522×10^{-6} *22*; α(P)=1.073×10^{-7} *15*; α(IPF)=0.000210 *3* α(K)exp=0.0014 *8* (1971Ga37). E_γ: poor fit in the level scheme, deviates by 1 keV.
1871.2 *2*	0.91 *7*	1871.17	1$^-$	0.0	0$^+$	E1		1.06×10^{-3}	α(K)=0.000513 *8*; α(L)=7.09×10^{-5} *10*; α(M)=1.587×10^{-5} *23* α(N)=3.81×10^{-6} *6*; α(O)=6.24×10^{-7} *9*; α(P)=4.55×10^{-8} *7*; α(IPF)=0.000457 *7* α(K)exp=0.00054 *20* (1971Ga37).
1877.6 *2*	0.19 *6*	2207.17	(3$^-$)	329.42	4$^+$	(E1+M2)	0.8 *+4−3*	0.00256 *77*	α(K)=0.00186 *70*; α(L)=2.8×10^{-4} *11*; α(M)=6.4×10^{-5} *25* α(N)=1.54×10^{-5} *60*; α(O)=2.52×10^{-6} *98*; α(P)=1.83×10^{-7} *71*; α(IPF)=0.00034 *7* α(K)exp=0.0021 *13* (1971Ga37).
1879.6 *2*	0.17 *5*	2208.94	3$^-$	329.42	4$^+$	E1		1.06×10^{-3}	α(K)=0.000509 *8*; α(L)=7.04×10^{-5} *10*; α(M)=1.575×10^{-5} *22* α(N)=3.78×10^{-6} *6*; α(O)=6.19×10^{-7} *9*; α(P)=4.52×10^{-8} *7*; α(IPF)=0.000463 *7* α(K)exp=0.0005 *3* (1971Ga37).
1911.8 *2*	0.139 *24*	2240.83	(3$^+$)	329.42	4$^+$	(M1)		0.00230	α(K)=0.001659 *24*; α(L)=0.000245 *4*; α(M)=5.52×10^{-5} *8* α(N)=1.330×10^{-5} *19*; α(O)=2.18×10^{-6} *3*; α(P)=1.602×10^{-7} *23*; α(IPF)=0.000322 *5* α(K)exp=0.0021 *8* (1971Ga37).
1957.4 *2*	1.43 *10*	2057.47	1$^+$	100.11	2$^+$	(M1+E2)	1.0 *+6−4*	0.00186 *17*	α(K)=0.00131 *13*; α(L)=0.000193 *18*; α(M)=4.4×10^{-5} *4* α(N)=1.05×10^{-5} *10*; α(O)=1.72×10^{-6} *17*; α(P)=1.24×10^{-7} *13*; α(IPF)=0.000303 *23* α(K)exp=0.0022 *7* (1971Ga37).
2010.1 *3*	0.30 *4*	2109.80	(2$^-$,3$^-$)	100.11	2$^+$	(E1+M2)	0.9 *+7−4*	0.00250 *85*	α(K)=0.00176 *80*; α(L)=2.7×10^{-4} *13*; α(M)=6.0×10^{-5} *28* α(N)=1.45×10^{-5} *68*; α(O)=2.4×10^{-6} *11*; α(P)=1.73×10^{-7} *81*; α(IPF)=3.9×10^{-4} *10* α(K)exp=0.0019 *11* (1971Ga37).
2016.3 *3*	2.5 *3*	2116.4		100.11	2$^+$				α(K)exp=0.0020 *6* (1971Ga37).

$^{182}_{74}W_{108}$-6

^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25 (continued)

γ(^{182}W) (continued)

E_γ ‡	I_γ #c	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	α b	Comments
x2033.3 3	≈0.07								α(K)exp≈0.00066 (1971Ga37).
2047.3 3	0.36 3	2147.98	(3⁻)	100.11	2⁺	(E1+M2)	1.0 +10−5	0.00258 89	α(K)=0.00183 84; α(L)=2.8×10⁻⁴ 13; α(M)=6.3×10⁻⁵ 30 α(N)=1.51×10⁻⁵ 72; α(O)=2.5×10⁻⁶ 12; α(P)=1.80×10⁻⁷ 85; α(IPF)=3.9×10⁻⁴ 12 α(K)exp=0.0020 8 (1971Ga37).
2057.4 3	2.90 23	2057.47	1⁺	0.0	0⁺				α(K)exp=0.0044 13 (1971Ga37). %Iγ=0.93 9 (intensity per 100 decays).
2073.2 3	0.13 2	2173.3		100.11	2⁺				α(K)exp≈0.002 (1971Ga37).
2084.0 3	0.204 21	2184.12	(2⁻,3⁻)	100.11	2⁺				α(K)exp=0.0008 4 (1971Ga37).
x2099 3	≈0.08								α(K)exp<0.00039 (1971Ga37).
2106.8@ 5	<0.82@	2207.17	(3⁻)	100.11	2⁺				α(K)exp>0.00050 (1971Ga37).
2108.6@ 5	<0.82@	2208.94	3⁻	100.11	2⁺				α(K)exp>0.0004 (1971Ga37).
2109.3@ 5	<0.82@	2109.80	(2⁻,3⁻)	0.0	0⁺	[M2,E3]		0.00303 80	α(K)=0.00235 66; α(L)=3.64×10⁻⁴ 95; α(M)=8.3×10⁻⁵ 22 α(N)=1.99×10⁻⁵ 52; α(O)=3.25×10⁻⁶ 86; α(P)=2.31×10⁻⁷ 68; α(IPF)=0.000211 16 α(K)exp>0.0011 (1971Ga37).
2140.3 2	0.121 21	2240.83	(3⁺)	100.11	2⁺	(M1)		0.00197	α(K)=0.001265 18; α(L)=0.000186 3; α(M)=4.19×10⁻⁵ 6 α(N)=1.010×10⁻⁵ 15; α(O)=1.658×10⁻⁶ 24; α(P)=1.219×10⁻⁷ 17; α(IPF)=0.000464 7 α(K)exp=0.0017 8 (1971Ga37).
2148& 3	0.088 19	2147.98	(3⁻)	0.0	0⁺	[E3]		0.00218	α(K)=0.001633 24; α(L)=0.000259 4; α(M)=5.90×10⁻⁵ 9 α(N)=1.419×10⁻⁵ 21; α(O)=2.30×10⁻⁶ 4; α(P)=1.573×10⁻⁷ 23; α(IPF)=0.000209 3
2175.2 3	0.147 21	2274.73	(3)⁻	100.11	2⁺	E1		1.14×10⁻³	α(K)=0.000402 6; α(L)=5.53×10⁻⁵ 8; α(M)=1.238×10⁻⁵ 18 α(N)=2.97×10⁻⁶ 5; α(O)=4.87×10⁻⁷ 7; α(P)=3.57×10⁻⁸ 5; α(IPF)=0.000671 10 α(K)exp<0.00039 (1971Ga37).
x2189& 3	0.055 15								
2207.7 3	0.33 3	2207.17	(3⁻)	0.0	0⁺	(E3)		0.00209	α(K)=0.001548 22; α(L)=0.000244 4; α(M)=5.56×10⁻⁵ 8 α(N)=1.336×10⁻⁵ 19; α(O)=2.17×10⁻⁶ 3; α(P)=1.488×10⁻⁷ 21; α(IPF)=0.000229 4 α(K)exp=0.0014 7 (1971Ga37).
2216& 3	≈0.07&	2316.1		100.11	2⁺				
x2230& 3	0.034 10								
2316& 3	0.025& 5	2316.1		0.0	0⁺				

$^{182}_{74}W_{108}$-7

γ(^{182}W) (continued)

† From Adopted Gammas.
‡ From ce data of 1971Ga37 (also 1970Ag07), unless otherwise stated.
# Weighted averages of values from 1969Ga23 and 1969Sa25. The uncertainties from 1969Ga23 were increased substantially to reflect poor agreement of data with those from 1969Sa25. For ΔIγ(absolute) combine 5.1% in quadrature with ΔIγ(rel), except as noted.
@ Energy from ce data of 1971Ga37. The γ-ray intensity is 0.82 *5* combined for Eγ=2109.3 *10* (1969Sa25), 0.82 *8* for 2110 *2* (1969Ga23) corresponding to a triplet (2106.8+2108.6+2109.3) from conversion electron data.
& From 1969Ga23.
a From 1969Sa25.
b Theoretical values from BrIcc v2.3b (16-Dec-2014) 2008Ki07, "Frozen Orbitals" approximation. If mixing ratio δ is not given, it was assumed as 1.0 for E2/M1 and E3/M2 and 0.10 for others.
c For absolute intensity per 100 decays, multiply by 0.320 *16*.
x γ ray not placed in level scheme.

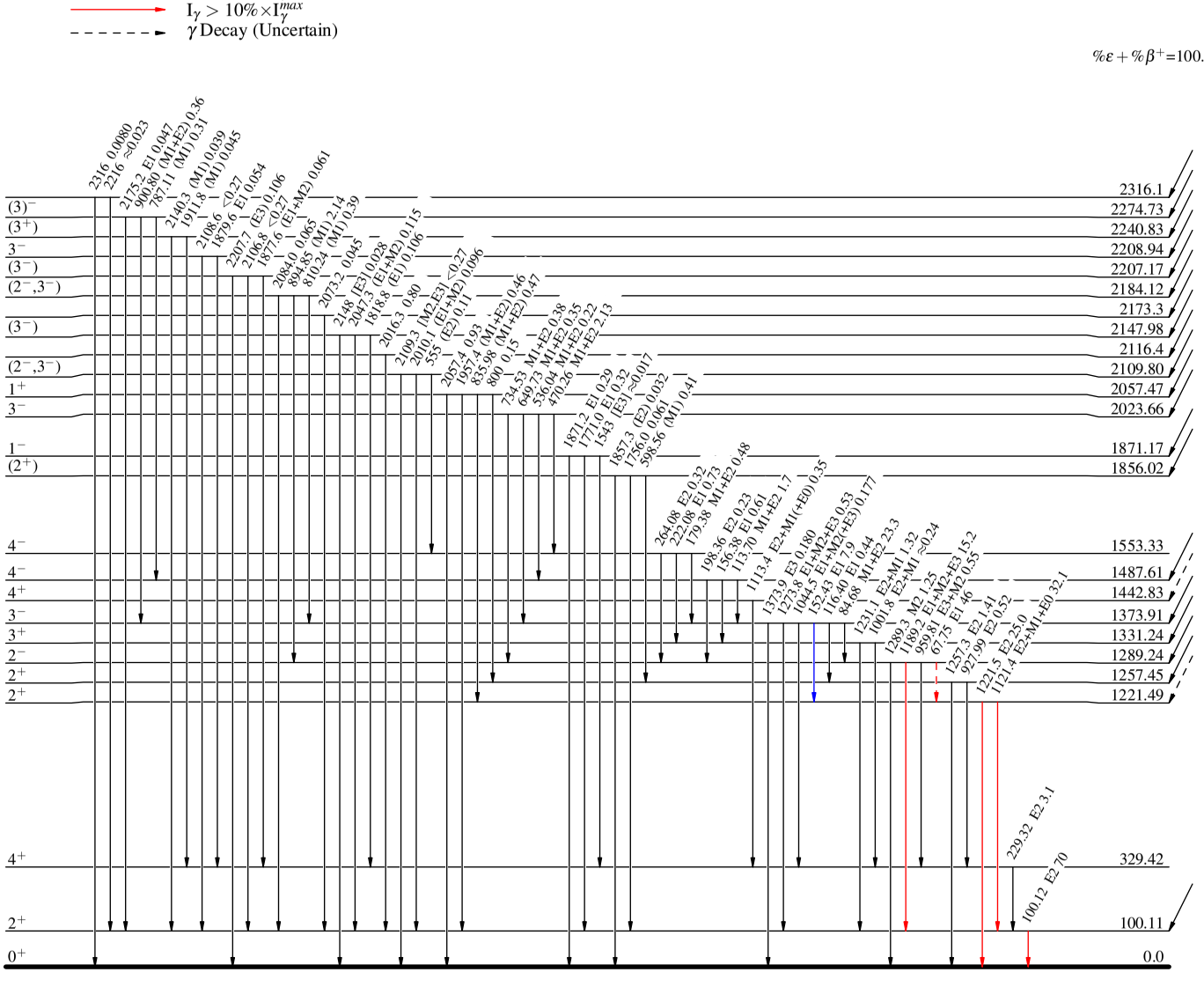
^{182}Re ε decay (14.14 h) 1971Ga37,1969Ga23,1969Sa25

Decay Scheme

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

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)



	Iβ+	Iε	Log *ft*
		0.0304	8.9
		0.72	7.6
		0.083	8.6
		0.20	8.3
		0.31	8.1
		2.59	7.19
		0.042	9.0
		0.250	8.3
		0.80	7.8
		0.35	8.2
		2.01	7.5
		3.10	7.3
		0.63	8.2
		0.50	8.3
		2.1	8.8[1u]
		<0.42	>8.7
	0.03	29	6.9
	0.0003	0.21	9.0
	0.08	37	6.8
	0.002	0.93	8.4
	<0.01	<4	>7.8
	1.6	14	7.7

$^{182}_{74}W_{108}$

$^{182}_{74}W_{108}$-9