^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

Parent: ^{148}Tb: E=0.0; $J^\pi=2^-$; $T_{1/2}$=60 min *1*; Q(ε)=5738 *13*; %ε+%$β^+$ decay=100.0

1993KrZW,1992KrZN: measured Eγ, Iγ, γγ coin, ce, γ(θ) from oriented nuclei. The following levels with their assigned J^π by these authors have not been placed in the level scheme because their placement was not shown: scheme: 3521, 3795 ($1,2^+$), 4274 (2^+,3,4^+), 4338 (3^-,4^+), 4559 (1^-,2^+), 4862 (2^-,3,4), 4960, 5018 (3,4), 5061 (3^-,4^+), 5303, 5400 (3^-,4^+).

Measured: γ, γγ (1973Kr10,1973Vy01,1973Vy02,1974Ne01,1979ShZF,1985Ti03), γ(θ) (1985Ti01), ce (1973Vy01,1979ShZF), $β^+$ (1961Bo19,1975PyZZ), Gamow-Teller strength distribution (2003NaZV, 2001AlZY).

Decay scheme is that of 1979ShZF and 1985Ti03.

Level scheme is incomplete and the evaluated Iβ and Iε, especially for the weak transitions, are less reliable.

^{148}Gd Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0.0	0^+	2188.67 *4*	2^+	2632.81 *9*	5^-	3130.87 *16*	$(1,2^+)$
784.433 *15*	2^+	2233.60 *4*	3^-	2700.06 *7*	$(1^-,2^+)$	3295.03 *15*	$(1,2^+)$
1273.490 *18*	3^-	2310.97 *5*	2^+	2872.89 *7*	$(2^-,3,4^+)$	3574.94 *21*	$(1^-,2^+)$
1416.376 *20*	4^+	2424.10 *9*	$3^+,4^+$@	2886.31 *10*	$(2^+,3,4^+)$	4051.0 *6*	$(2^+,3,4^+)$
1834.59 *5*	$2^+,3^+$#	2503.70 *6*	$(1,2,3)^-$	2915.51 *8*	3^-	4068.24 *25*	(1)
1863.445 *24*	2^+	2505.80 *4*	3^-	3065		4542.27 *22*	
1912.98 *7*	4^-	2522.03 *11*	4^+	3076.12 *24*			
2082.00 *7*	5^-	2614.59 *5*	2^+	3089.65 *8*	$(1^-,2^+)$		

† From a least-squares fit to Eγ.

‡ From Adopted Levels; supported by internal conversion data and γ(θ) of oriented nuclei from this decay.

From γ(θ) from oriented nuclei (1993KrZW).

@ From γ(θ) of oriented nuclei.

ε,$β^+$ radiations

$β^+$ with Eβ=4610 *80* (Iβ=1.00, Iβ/ce(K)(784γ)≈10), 3840 *150* (0.47), 2730 *300* (0.75) (1975PyZZ); 4600, 2600 (1961Bo19) were observed. However, from ε/$β^+$=1.541 *93* (to 1864 level) follows Q+=5290 *50*; therefore, Eβ+(g.s.)=4270 *45* (1985Ti01).

Level scheme is incomplete and the evaluated Iβ and Iε, especially for the weak transitions, are less reliable.

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(1196 *13*)	4542.27		0.81 *6*	6.72 *4*	0.81 *6*	εK=0.8334 *1*; εL=0.12899 *9*; εM+=0.03758 *3*
(1670 *13*)	4068.24	0.0047 *7*	0.60 *7*	7.16 *6*	0.60 *7*	av Eβ=303.1 *57*; εK=0.8298 *5*; εL=0.1258 *2*; εM+=0.03653 *4*
(1687 *13*)	4051.0	0.0048 *20*	0.55 *22*	7.20 *18*	0.55 *22*	av Eβ=310.7 *58*; εK=0.8292 *5*; εL=0.1256 *2*; εM+=0.03648 *4*
(2163 *13*)	3574.94	0.028 *3*	0.45 *5*	7.51 *5*	0.48 *5*	av Eβ=519.8 *58*; εK=0.7899 *18*; εL=0.1183 *3*; εM+=0.03431 *9*
(2443 *13*)	3295.03	0.045 *6*	0.35 *4*	7.72 *6*	0.40 *5*	av Eβ=643.5 *58*; εK=0.744 *3*; εL=0.1110 *4*; εM+=0.03216 *12*
(2607 *13*)	3130.87	0.173 *13*	0.96 *7*	7.35 *4*	1.13 *8*	av Eβ=716.6 *58*; εK=0.710 *3*; εL=0.1057 *5*; εM+=0.03062 *13*
(2648 *13*)	3089.65	0.205 *16*	1.04 *8*	7.32 *4*	1.25 *9*	av Eβ=735.0 *58*; εK=0.701 *3*; εL=0.1043 *5*; εM+=0.03020 *14*
(2662 *13*)	3076.12	0.084 *12*	0.42 *6*	7.73 *7*	0.50 *7*	av Eβ=741.0 *58*; εK=0.698 *3*; εL=0.1038 *5*; εM+=0.03006 *14*

Continued on next page (footnotes at end of table)

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(2822 *13*)	2915.51	0.426 *19*	1.56 *6*	7.202 *20*	1.99 *8*	av Eβ=812.9 *59*; εK=0.660 *4*; εL=0.0979 *5*; εM+=0.02836 *15*
(2852 *13*)	2886.31	0.20 *2*	0.71 *9*	7.56 *6*	0.91 *11*	av Eβ=826.0 *59*; εK=0.653 *4*; εL=0.0968 *5*; εM+=0.02804 *15*
(2865 *13*)	2872.89	0.342 *19*	1.17 *6*	7.342 *25*	1.51 *8*	av Eβ=832.0 *59*; εK=0.649 *4*; εL=0.0963 *5*; εM+=0.02789 *15*
(3038 *13*)	2700.06	0.369 *13*	0.95 *3*	7.483 *17*	1.32 *4*	av Eβ=909.8 *59*; εK=0.605 *4*; εL=0.0896 *6*; εM+=0.02593 *15*
(3105 *13*)	2632.81	0.17 *1*	0.41 *2*	7.872 *25*	0.58 *3*	av Eβ=940.2 *59*; εK=0.587 *4*; εL=0.0869 *6*; εM+=0.02516 *15*
(3123 *13*)	2614.59	0.82 *4*	1.86 *10*	7.216 *25*	2.68 *14*	av Eβ=948.4 *59*; εK=0.583 *4*; εL=0.0862 *6*; εM+=0.02495 *15*
(3216 *13*)	2522.03	0.14 *1*	0.84 *6*	9.17[1u] *4*	0.98 *7*	av Eβ=994.9 *57*; εK=0.7162 *21*; εL=0.1089 *4*; εM+=0.03166 *11*
(3232 *13*)	2505.80	0.89 *4*	1.71 *7*	7.282 *21*	2.60 *11*	av Eβ=997.6 *59*; εK=0.554 *4*; εL=0.0819 *6*; εM+=0.02370 *15* ε/β+=3.43 *77* (1985Ti01).
(3234 *13*)	2503.70	0.73 *5*	1.40 *9*	7.37 *3*	2.13 *13*	av Eβ=998.6 *59*; εK=0.553 *4*; εL=0.0818 *6*; εM+=0.02368 *15*
(3314 *13*)	2424.10	0.39 *3*	0.68 *6*	7.71 *4*	1.07 *9*	av Eβ=1034.7 *59*; εK=0.533 *4*; εL=0.0787 *5*; εM+=0.02277 *15*
(3427 *13*)	2310.97	0.722 *22*	1.08 *3*	7.534 *16*	1.80 *5*	av Eβ=1086.1 *60*; εK=0.503 *4*; εL=0.0743 *5*; εM+=0.02150 *15*
(3504 *13*)	2233.60	0.84 *4*	1.15 *6*	7.528 *24*	1.99 *10*	av Eβ=1121.3 *60*; εK=0.484 *4*; εL=0.0714 *5*; εM+=0.02065 *15* Iε: ε/β+=3.23 *88* (1985Ti01).
(3549 *13*)	2188.67	1.82 *4*	2.33 *5*	7.230 *14*	4.15 *9*	av Eβ=1141.8 *60*; εK=0.473 *4*; εL=0.0697 *5*; εM+=0.02016 *14*
(3825 *13*)	1912.98	1.05 *6*	0.98 *6*	7.67 *3*	2.03 *12*	av Eβ=1267.9 *60*; εK=0.407 *3*; εL=0.0600 *5*; εM+=0.01734 *13*
3.75×10^3 *30*	1863.445	9.36 *18*	8.34 *16*	6.754 *12*	17.7 *3*	av Eβ=1290.7 *60*; εK=0.396 *3*; εL=0.0583 *5*; εM+=0.01686 *13* Iε: ε/β+=1.541 *93*; εK(exp)/β+=1.265 *100* (1985Ti01). Iβ+: Iβ+(rel)=0.75.
(3903 *13*)	1834.59	0.44 *2*	0.38 *1*	8.101 *19*	0.82 *3*	av Eβ=1303.9 *60*; εK=0.390 *3*; εL=0.0574 *5*; εM+=0.01659 *13*
(4322 *13*)	1416.376	2.79 *10*	4.22 *15*	8.992[1u] *19*	7.01 *24*	av Eβ=1485.3 *59*; εK=0.504 *3*; εL=0.0756 *4*; εM+=0.02191 *12*
(4465 *13*)	1273.490	6.3 *3*	3.2 *2*	7.294 *25*	9.5 *5*	av Eβ=1563.0 *61*; εK=0.2838 *21*; εL=0.0417 *4*; εM+=0.01204 *9*
(4954 *13*)	784.433	21.8 *13*	7.5 *5*	7.02 *3*	29.3 *18*	av Eβ=1790.7 *61*; εK=0.2156 *16*; εL=0.03159 *23*; εM+=0.00913 *7* Iβ+: Iβ+(rel)=0.47 (1975PyZZ).
(5738 *13*)	0.0	≈3.0	≈1.5	≈9.9[1u]	≈4.5	av Eβ=2127.6 *60*; εK=0.2725 *16*; εL=0.04045 *24*; εM+=0.01171 *7* I(ε+β+): from Iβ+/ce(K)(784γ)≈10 (1975PyZZ), ε/β+ ratio, and sum of Iγ, Iε+Iβ+ to g.s.=100.

† Absolute intensity per 100 decays.

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

γ(^{148}Gd)

Iγ normalization: from Iβ$^+$/ce(K)(784γ)≈10 to g.s. (1975PyZZ), and Σ Iγ, Iβ$^+$, Iε to g.s.=100.
α(K)exp were normalized to α(K)(784γ)=0.0039 (E2) (1979ShZF,1993KrZW).

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [a]	Comments
142.878 *14*	0.367 *17*	1416.376	4$^+$	1273.490	3$^-$	E1		0.1116	α(K)=0.0941 *14*; α(L)=0.01368 *20*; α(M)=0.00296 *5* α(N)=0.000672 *10*; α(O)=9.98×10^{-5} *14*; α(P)=5.53×10^{-6} *8* Mult.: α(K)exp=0.120 *24* (1973Vy01).
382.0[#] *8*	0.18[#] *9*	2886.31	(2$^+$,3,4$^+$)	2503.70	(1,2,3)$^-$				
489.049 *12*	23.5 *5*	1273.490	3$^-$	784.433	2$^+$	E1+M2	+0.18 *9*	0.008 *3*	α(K)=0.0063 *25*; α(L)=0.0009 *4*; α(M)=0.00020 *9* α(N)=4.6×10^{-5} *21*; α(O)=7.E−6 *4*; α(P)=4.5×10^{-7} *21* Mult.: α(K)exp=0.0046 *3* (1979ShZF,1993KrZW), α(L)exp=0.00062 *9* (1993KrZW). δ: from 1993KrZW, 1992KrZN. A$_2$=0.00 *16* (1993KrZW,1992KrZN).
589.9[#] *7*	0.71[#] *4*	1863.445	2$^+$	1273.490	3$^-$				
631.947 *17*	12.65 *25*	1416.376	4$^+$	784.433	2$^+$	E2		0.00772	α(K)=0.00638 *9*; α(L)=0.001044 *15*; α(M)=0.000230 *4* α(N)=5.25×10^{-5} *8*; α(O)=7.88×10^{-6} *11*; α(P)=4.36×10^{-7} *6* Mult.: α(K)exp=0.0066 *4* (1979ShZF,1993KrZW), α(L)exp=0.00112 *13* (1993KrZW). A$_2$=−0.39 *15* (1992KrZN).
639.47 *7*	3.14 *12*	1912.98	4$^-$	1273.490	3$^-$	M1		0.01362	α(K)=0.01159 *17*; α(L)=0.001595 *23*; α(M)=0.000345 *5* α(N)=7.94×10^{-5} *12*; α(O)=1.236×10^{-5} *18*; α(P)=8.44×10^{-7} *12* Mult.: α(K)exp=0.0086 *8* (1979ShZF), 0.0087 *8* (1993KrZW).
784.430 *16*	100.0 *19*	784.433	2$^+$	0.0	0$^+$	E2		0.00466	α(K)=0.00390 *6*; α(L)=0.000597 *9*; α(M)=0.0001305 *19* α(N)=2.99×10^{-5} *5*; α(O)=4.53×10^{-6} *7*; α(P)=2.69×10^{-7} *4* Mult.: α(K)exp=0.0039 (1979ShZF,1993KrZW) normalization value; α(L)exp=0.00062 *4* (1993KrZW), α(M)exp=0.000149 *17* (1993KrZW). A$_2$=−0.73 *24* (1992KrZN).
808.56 *7*	0.524 *22*	2082.00	5$^-$	1273.490	3$^-$	E2		0.00435	α(K)=0.00365 *6*; α(L)=0.000554 *8*; α(M)=0.0001210 *17* α(N)=2.77×10^{-5} *4*; α(O)=4.21×10^{-6} *6*; α(P)=2.51×10^{-7} *4* A$_2$=−0.21 *16* (1992KrZN).
[x]841.59 *16*	0.316 *22*								
915.30 *12*	0.36 *4*	2188.67	2$^+$	1273.490	3$^-$				
960.09[c] *7*	1.28[c] *11*	2233.60	3$^-$	1273.490	3$^-$	M1+E2		0.0040 *11*	α(K)=0.0034 *9*; α(L)=0.00048 *11*; α(M)=0.000103 *23*

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

γ(^{148}Gd) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [a]	Comments
									α(N)=2.4×10^{-5} *6*; α(O)=3.7×10^{-6} *9*; α(P)=2.4×10^{-7} *7* Mult.: α(K)exp=0.0043 *9* (1979ShZF), 0.0043 *10* (1993KrZW). δ: +0.02 *+21−14* or +1.3 *+4−5* (1993KrZW). A_2=−0.45 *13* (1993KrZW,1992KrZN).
960.09[cd] *7*	1.28[c] *11*	2872.89	(2$^-$,3,4$^+$)	1912.98	4$^-$				
1002.48 *9*	0.399 *24*	2915.51	3$^-$	1912.98	4$^-$	M1,E2		0.0036 *9*	α(K)=0.0031 *8*; α(L)=0.00043 *10*; α(M)=9.3×10^{-5} *21* α(N)=2.1×10^{-5} *5*; α(O)=3.3×10^{-6} *8*; α(P)=2.2×10^{-7} *6* Mult.: α(K)exp=0.0030 *14* (1979ShZF,1993KrZW). A_2=0.02 *24* (1992KrZN,1993KrZW).
1007.72[c] *9*	0.77[c] *7*	2424.10	3$^+$,4$^+$	1416.376	4$^+$	M1+E2		0.0036 *9*	α(K)=0.0031 *8*; α(L)=0.00042 *10*; α(M)=9.2×10^{-5} *21* α(N)=2.1×10^{-5} *5*; α(O)=3.3×10^{-6} *8*; α(P)=2.2×10^{-7} *6* Mult.: α(K)exp=0.0033 *8* (1979ShZF,1993KrZW). δ: −1.2 *8* if J$^\pi$=3$^+$; +0.6 *8* if J$^\pi$=4$^+$. A_2=−0.44 *15* if J$^\pi$=3$^+$, −0.46 *15* if J$^\pi$=4$^+$ (1992KrZN,1993KrZW).
1007.72[c] *9*	0.77[c] *7*	3089.65	(1$^-$,2$^+$)	2082.00	5$^-$				
1050.15 *4*	0.965 *33*	1834.59	2$^+$,3$^+$	784.433	2$^+$	E2+M3		0.00266 *18*	α(K)=0.00225 *15*; α(L)=0.000325 *24*; α(M)=7.1×10^{-5} *6* α(N)=1.62×10^{-5} *12*; α(O)=2.49×10^{-6} *19*; α(P)=1.58×10^{-7} *13* Mult.: α(K)exp=0.0023 *8* (1979ShZF,1993KrZW). δ: +3 *+4−1* or −0.12 *19* if J$^\pi$=2$^+$ or +0.31 *12* if J$^\pi$=3$^+$ (1993KrZW). A_2=−0.27 *23* if J$^\pi$=2$^+$; −0.23 *19* if J$^\pi$=3$^+$ (1993KrZW).
1079.025 *25*	13.6 *3*	1863.445	2$^+$	784.433	2$^+$	M1+E2	+4.6 *+35−14*	0.00242 *8*	α(K)=0.00205 *7*; α(L)=0.000291 *8*; α(M)=6.31×10^{-5} *17* α(N)=1.45×10^{-5} *4*; α(O)=2.23×10^{-6} *7*; α(P)=1.42×10^{-7} *5* Mult.: α(K)exp=0.00162 *11* (1979ShZF,1993KrZW). δ: from 1985Ti01 (γγ(θ)). Other:>+4 (1993KrZW). A_2=0.030 *20* (1993KrZW,1992KrZN).

$^{148}_{64}Gd_{84}$-4

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

γ(^{148}Gd) (continued)

E_γ [†]	I_γ [‡ b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [a]	Comments
1089.41 *3*	2.68 *6*	2505.80	3^-	1416.376	4^+	E1		9.69×10^{-4}	α(K)=0.000832 *12*; α(L)=0.0001082 *16*; α(M)=2.32×10^{-5} *4* α(N)=5.33×10^{-6} *8*; α(O)=8.27×10^{-7} *12*; α(P)=5.60×10^{-8} *8* Mult.: α(K)exp=0.0014 *4* (1979ShZF,1993KrZW).
1105.65 *11*	0.73 *4*	2522.03	4^+	1416.376	4^+	M1+E2		0.0029 *7*	α(K)=0.0025 *6*; α(L)=0.00034 *8*; α(M)=7.4×10^{-5} *16* α(N)=1.7×10^{-5} *4*; α(O)=2.6×10^{-6} *6*; α(P)=1.8×10^{-7} *5*; α(IPF)=3.89×10^{-7} *22* Mult.: α(K)exp=0.0023 *7* (1979ShZF,1993KrZW). δ: −0.18 *20* or +1.5 *+10−6* (1993KrZW). A_2=−0.30 *16* (1993KrZW).
x1167 [#d]	0.13 [#] *4*								
x1215.0 [#] *6*	0.20 [#] *4*								
1230 [#d]	0.39 [#] *14*	3065		1834.59	$2^+,3^+$				
1230.18 *5*	0.98 *4*	2503.70	$(1,2,3)^-$	1273.490	3^-	E2,M1		0.0023 *5*	α(K)=0.0020 *5*; α(L)=0.00027 *6*; α(M)=5.8×10^{-5} *12* α(N)=1.3×10^{-5} *3*; α(O)=2.1×10^{-6} *5*; α(P)=1.4×10^{-7} *4*; α(IPF)=9.6×10^{-6} *6* Mult.: α(K)exp=0.0022 *10* (1979ShZF).
1248.2 [#] *8*	0.24 [#] *6*	2522.03	4^+	1273.490	3^-				
1342.2 [#] *6*	0.20 [#] *9*	2614.59	2^+	1273.490	3^-				
1404.22 *4*	2.54 *6*	2188.67	2^+	784.433	2^+	M1+E2		0.0018 *4*	α(K)=0.0015 *3*; α(L)=0.00020 *4*; α(M)=4.3×10^{-5} *8* α(N)=9.9×10^{-6} *18*; α(O)=1.5×10^{-6} *3*; α(P)=1.04×10^{-7} *22*; α(IPF)=4.7×10^{-5} *3* Mult.: α(K)exp=0.0020 *5* (1979ShZF,1993KrZW). δ: +2.0 *+10−7* or +0.04 *+19−14* (1993KrZW). A_2=−0.47 *18* (1993KrZW,1992KrZN).
1426.49 *8*	0.33 *2*	2700.06	$(1^-,2^+)$	1273.490	3^-				
1449.16 *4*	1.08 *4*	2233.60	3^-	784.433	2^+	E1+M2	+0.09 *10*	0.00078 *10*	α(K)=0.00053 *9*; α(L)=6.8×10^{-5} *13*; α(M)=1.5×10^{-5} *3* α(N)=3.4×10^{-6} *7*; α(O)=5.2×10^{-7} *10*; α(P)=3.6×10^{-8} *7*; α(IPF)=0.000167 *5* δ: from 1993KrZW,1992KrZN. A_2=0.17 *18* (1993KrZW,1992KrZN).
1470.1 [#] *8*	0.15 [#] *6*	2886.31	$(2^+,3,4^+)$	1416.376	4^+				
1526.45 *7*	0.76 *3*	2310.97	2^+	784.433	2^+	M1+E2		0.0015 *3*	α(K)=0.00123 *22*; α(L)=0.00017 *3*; α(M)=3.6×10^{-5} *6* α(N)=8.2×10^{-6} *14*; α(O)=1.28×10^{-6} *23*; α(P)=8.7×10^{-8} *17*; α(IPF)=8.9×10^{-5} *6*

$^{148}_{64}Gd_{84}$-5

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

γ(^{148}Gd) (continued)

E_γ [†]	I_γ [‡b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [@]	δ [&]	α [a]	Comments
									δ: +2.4 +22−10 or −0.0 2 (1993KrZW,1992KrZN). A_2=−0.40 25 (1993KrZW,1992KrZN).
1599.39 6	1.28 4	2872.89	(2⁻,3,4⁺)	1273.490	3⁻				
1639.66 22	0.50 7	2424.10	3⁺,4⁺	784.433	2⁺				
1641.98 21	0.53 7	2915.51	3⁻	1273.490	3⁻				
x1679 [#d]	0.33 [#] 5								
1719.63 20	1.73 11	2503.70	(1,2,3)⁻	784.433	2⁺				
1722.5 3	0.41 11	2505.80	3⁻	784.433	2⁺				E_γ: Differ by 3σ from value calculated as ΔE_{levels}.
1737.9 [#] 6	0.20 [#] 4	2522.03	4⁺	784.433	2⁺				
1802.62 24	0.60 8	3076.12		1273.490	3⁻				
1816.06 9	0.53 3	3089.65	(1⁻,2⁺)	1273.490	3⁻				
1830.14 4	2.17 12	2614.59	2⁺	784.433	2⁺	M1+E2		0.00120 16	α(K)=0.00084 12; α(L)=0.000112 16; α(M)=2.4×10⁻⁵ 4 α(N)=5.5×10⁻⁶ 8; α(O)=8.6×10⁻⁷ 13; α(P)=5.9×10⁻⁸ 10; α(IPF)=0.000223 16 I_γ: from 1985Ti03. 2.49 7 (1979ShZF). δ: +2.5 +14−8, or −0.03 5 (1993KrZW). A_2=−0.38 18 (1992KrZN,1993KrZW).
1848.36 8	0.69 3	2632.81	5⁻	784.433	2⁺				
1863.39 4	6.69 13	1863.445	2⁺	0.0	0⁺				
1915.54 19	0.48 3	2700.06	(1⁻,2⁺)	784.433	2⁺	M1+E2	+0.8 6	0.00119 10	α(K)=0.00078 8; α(L)=0.000104 10; α(M)=2.25×10⁻⁵ 21 α(N)=5.2×10⁻⁶ 5; α(O)=8.1×10⁻⁷ 8; α(P)=5.6×10⁻⁸ 6; α(IPF)=0.000269 13 A_2=−0.88 28 (1992KrZN,1993KrZW).
x1988.7 4	0.39 5								
2089 1	0.52 8	2872.89	(2⁻,3,4⁺)	784.433	2⁺				
2101.87 10	0.75 6	2886.31	(2⁺,3,4⁺)	784.433	2⁺				I_γ: from 1985Ti03.
2131.14 11	1.44 5	2915.51	3⁻	784.433	2⁺	E1+M2	−0.19 7	0.00101 3	α(K)=0.00031 4; α(L)=4.0×10⁻⁵ 5; α(M)=8.6×10⁻⁶ 11 α(N)=1.97×10⁻⁶ 24; α(O)=3.1×10⁻⁷ 4; α(P)=2.1×10⁻⁸ 3; α(IPF)=0.000650 16 A_2=−0.18 21 (1992KrZN,1993KrZW).
2155.33 25	0.37 6	4068.24	(1)	1912.98	4⁻				I_γ: from 1985Ti03.
x2168.0 4	0.37 5								
2188.65 7	2.04 7	2188.67	2⁺	0.0	0⁺				A_2=−0.78 21 (1992KrZN).
x2247.32 12	0.39 4								
x2288.10 15	0.48 4								
2301.44 21	0.30 3	3574.94	(1⁻,2⁺)	1273.490	3⁻				
2311.03 7	1.38 4	2310.97	2⁺	0.0	0⁺				A_2=−0.43 23 (1992KrZN).
x2331.92 15	0.61 3								
2345.1 [#] 8	0.52 [#] 7	3130.87	(1,2⁺)	784.433	2⁺				
x2362.9 3	0.68 4								
x2485.94 15	0.63 5								
2510.56 15	0.36 3	3295.03	(1,2⁺)	784.433	2⁺				
x2593.3 6	0.31 12								

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03 (continued)

γ(^{148}Gd) (continued)

E_γ †	I_γ ‡ b	E_i(level)	J_i^π	E_f	J_f^π	E_γ †	I_γ ‡ b	E_i(level)	J_i^π	E_f	J_f^π
2614.3 *6*	0.82 *6*	2614.59	2^+	0.0	0^+	3266.4# *10*	0.41# *25*	4051.0	$(2^+,3,4^+)$	784.433	2^+
2634.6# *10*	0.16# *4*	4051.0	$(2^+,3,4^+)$	1416.376	4^+	3269.2 *3*	0.66 *5*	4542.27		1273.490	3^-
2700.57 *20*	0.76 *3*	2700.06	$(1^-,2^+)$	0.0	0^+	3295.5# *10*	0.12# *4*	3295.03	$(1,2^+)$	0.0	0^+
2777.5# *10*	≈0.08#	4051.0	$(2^+,3,4^+)$	1273.490	3^-	x3552.9 *5*	0.35 *4*				
2794.6# *10*	0.19# *4*	4068.24	(1)	1273.490	3^-	3574.6# *10*	0.27# *4*	3574.94	$(1^-,2^+)$	0.0	0^+
x2858.5 *5*	0.33 *8*					x3644.9 *5*	0.44 *5*				
x2871.8 *7*	0.45 *8*					x3685.8 *5*	0.60 *5*				
3090.5# *15*	0.19# *6*	3089.65	$(1^-,2^+)$	0.0	0^+	x3983.7 *5*	0.35 *4*				
3125.4 *3*	0.31 *4*	4542.27		1416.376	4^+	4066.8# *10*	0.16# *4*	4068.24	(1)	0.0	0^+
3130.89 *16*	0.82 *6*	3130.87	$(1,2^+)$	0.0	0^+						

† From 1979ShZF, except as indicated otherwise.
‡ Relative intensity from 1979ShZF, except as indicated otherwise.
# From 1985Ti03.
@ From adopted gammas; supported by internal conversion data and γ(θ) of oriented nuclei from this decay.
& From adopted gammas; supported by γ(θ) from 1993KrZW, 1992KrZN from this decay.
a Additional information 1.
b For absolute intensity per 100 decays, multiply by ≈0.84.
c Multiply placed with undivided intensity.
d Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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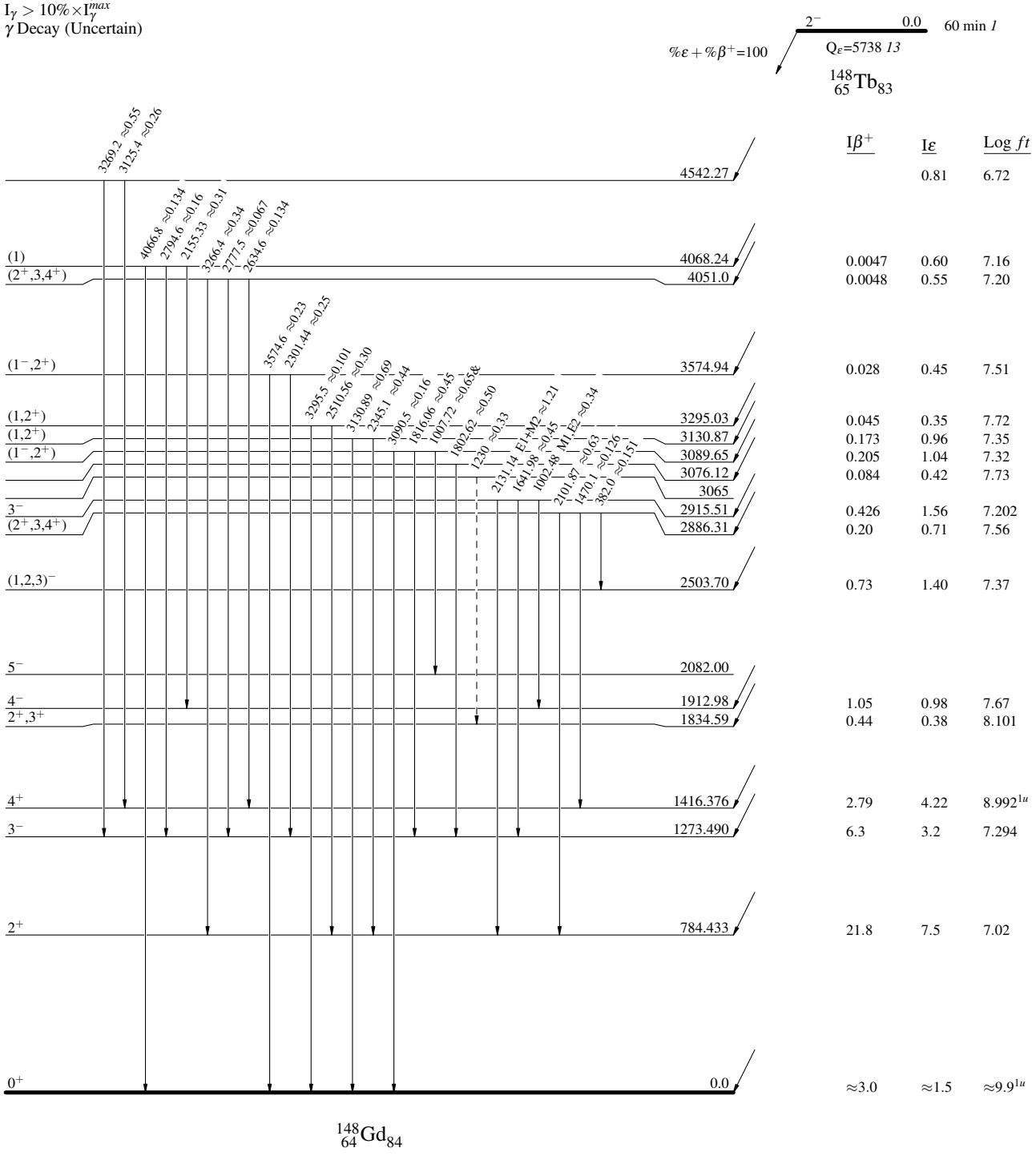
^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given

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)



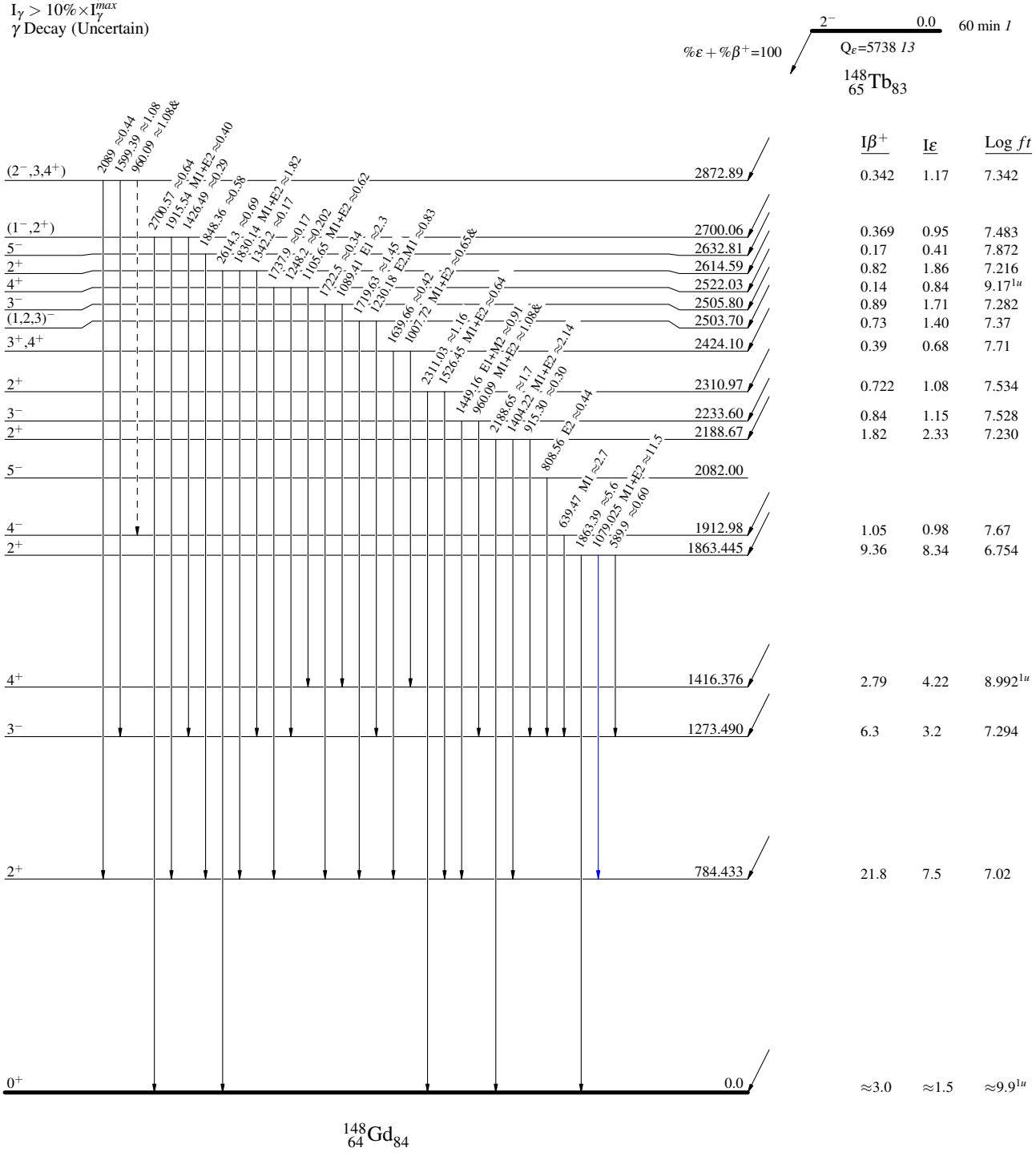
$^{148}_{64}Gd_{84}$

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given

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)

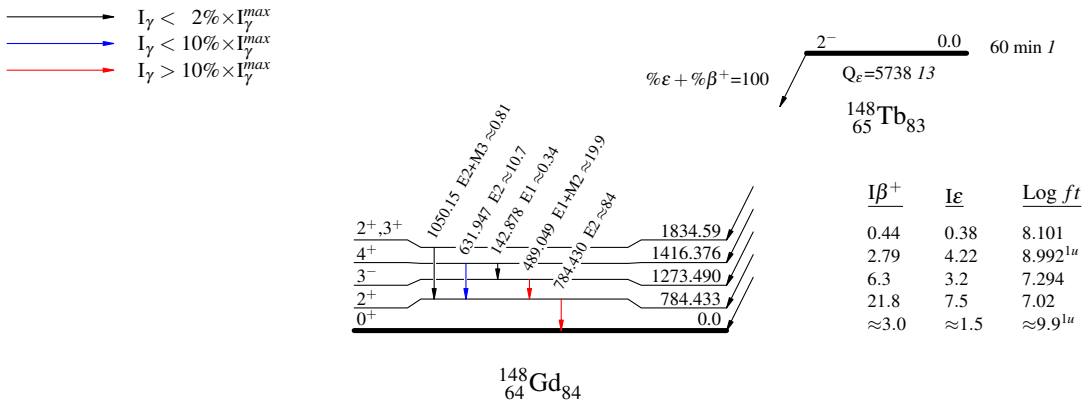


	Iβ⁺	Iε	Log *ft*
2872.89	0.342	1.17	7.342
2700.06	0.369	0.95	7.483
2632.81	0.17	0.41	7.872
2614.59	0.82	1.86	7.216
2522.03	0.14	0.84	9.17[1u]
2505.80	0.89	1.71	7.282
2503.70	0.73	1.40	7.37
2424.10	0.39	0.68	7.71
2310.97	0.722	1.08	7.534
2233.60	0.84	1.15	7.528
2188.67	1.82	2.33	7.230
2082.00			
1912.98	1.05	0.98	7.67
1863.445	9.36	8.34	6.754
1416.376	2.79	4.22	8.992[1u]
1273.490	6.3	3.2	7.294
784.433	21.8	7.5	7.02
0.0	≈3.0	≈1.5	≈9.9[1u]

^{148}Tb ε decay (60 min) 1979ShZF,1985Ti03

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
& Multiply placed: undivided intensity given



Iβ+	Iε	Log *ft*
0.44	0.38	8.101
2.79	4.22	8.992[1u]
6.3	3.2	7.294
21.8	7.5	7.02
≈3.0	≈1.5	≈9.9[1u]