^{184}Ta β^- decay 1973Ya02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111,275 (2010)	1-Oct-2009

Parent: ^{184}Ta: E=0.0; J$^\pi$=(5$^-$); $T_{1/2}$=8.7 h *1*; Q(β^-)=2866 *26*; %β^- decay=100.0

Others: 1964Ve01, 1969FaZY, 1969Mo07, 1973Wa18, 1984Bu37, 2004Xu08.

1973Ya02: source from ^{186}W(d,α) using natural and 95% enriched targets and ED=14 and 18 MeV; Ge(Li) detector (FWHM=2.0 At 1332), Ge(Li) x-ray spectrometer (FWHM≈0.75 At 122), NaI and anthracene β detectors; measured Eγ, Iγ, $\gamma\gamma$ coin, Eβ, $\beta\gamma$ coin.

The decay scheme is based on that proposed by 1973Ya02.

$\beta\gamma$: see 1973Ya02.

$\gamma\gamma$: see 1973Ya02.

β endpoint energies: 1973Ya02, 1964Ve01, 1973Wa18. note that 1964Ve01 report E(β)= 1755 *20* (0.86% 17) and 2644 *28* (0.15% 3), but 1973Ya02 do not observe these groups and estimate Iβ<0.035% for them.

$\beta\gamma$(t) (β)(E(γ)>500) (1969Mo07). For $T_{1/2}$, see $\gamma\gamma$(t).

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γγ(t)    (1) (413γ)(E(γ)>500) (1969Mo07,1969FaZY)
       (2) (413γ)(1100<E(γ)<1400) (1969FaZY)
       T1/2=8.0 μs 4 (1969Mo07) (average of (1) and βγ(t) value)
       T1/2=7.70 μs 3 (1969FaZY) (average of (1) and (2))
       1969FaZY also observe a prompt component in (2).
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^{184}W Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0	0$^+$		
111.196 *19*	2$^+$		
364.05 *4*	4$^+$		
748.31 *5*	6$^+$		
903.27 *4*	2$^+$		
1005.97 *4*	3$^+$		
1130.00 *4*	(2)$^-$		
1133.83 *5*	4$^+$		
1221.29 *4*	3$^-$		
1284.99 *4*	5$^-$	7.70 μs *3*	$T_{1/2}$: from $\gamma\gamma$(t) (1969FaZY). other: 8.0 μs *4* (1969Mo07).
1294.9 *4*	5$^+$		
1345.40 *10*	(4$^-$)		
1424.94 *7*	(3)$^+$		
1446.26 *4*	6$^-$		
1501.57 *5*	7$^-$		
1536.64 *16*	(4$^+$)		
1581.46 *10*	(6$^-$)		
1676.45 *14*	(5$^+$)		
1699.02 *6*	(5)$^+$		
1746.04 *6*	(6)$^+$		
2029.86? *8*	(5$^-$,6,7$^-$)		
2389.14 *12*	(4$^-$,5,6$^-$)		
2492.66 *11*	(4$^-$,5,6)		

† From least-squares fit to Eγ.

‡ From Adopted Levels.

^{184}Ta β^- decay 1973Ya02 (continued)

β^- radiations

E(decay)	E(level)	Iβ^- †‡	Log *ft*	Comments
(3.7×10^2 *3*)	2492.66	0.34 *4*	7.43 *12*	av Eβ=107.6 *85*
(4.8×10^2 *3*)	2389.14	0.76 *8*	7.43 *10*	av Eβ=141.7 *89*
(8.4×10^2 *3*)	2029.86?	0.89 *12*	8.20 *8*	av Eβ=270.5 *99*
(1.12×10^3 *3*)	1746.04	14.7 *8*	7.43 *5*	av Eβ=381 *11* Eβ=1123 *26* (1973Ya02).
(1.17×10^3 *3*)	1699.02	82 *4*	6.75 *5*	av Eβ=399 *11* Eβ=1165 *26* (1973Ya02).
(1.19×10^3 *3*)	1676.45	0.39 *10*	9.10 *12*	av Eβ=408 *11*
(1.28×10^3 *3*)	1581.46	0.21 *12*	9.5 *3*	av Eβ=447 *11*
(1.44×10^3 *3*)	1424.94	0.50 *11*	10.10^{1u} *11*	av Eβ=505 *11*
(1.58×10^3 # *3*)	1284.99	4 *3*	8.6 *4*	av Eβ=569 *11*

† From intensity imbalance At each level.
‡ Absolute intensity per 100 decays.
# Existence of this branch is questionable.

γ(^{184}W)

Iγ normalization: From Σ (I(γ+ce) to g.s.)=100 (No feeding to 0$^+$ g.s. expected from (5$^-$) parent.
Several of the strongest lines are reported also In 2004Xu08; source from ^{nat}W(n,p), E(n)=14 MeV.

E_γ[†]	I_γ[†d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[e]	$I_{(\gamma+ce)}$[d]	Comments
55.33 *4*	0.57[&] *14*	1501.57	7$^-$	1446.26	6$^-$	M1+E2	0.051 *17*	4.67 *12*	3.3 *7*	ce(L)/(γ+ce)=0.637 *10*; ce(M)/(γ+ce)=0.146 *5*; ce(N+)/(γ+ce)=0.0411 *13* ce(N)/(γ+ce)=0.0350 *12*; ce(O)/(γ+ce)=0.00568 *17*; ce(P)/(γ+ce)=0.000393 *10* $I_{(\gamma+ce)}$: from intensity balance at 1501 level assuming No β^- branch to that level (ΔJ=2, $\Delta\pi$=No).
63.70 *4*	2.43[a] *11*	1284.99	5$^-$	1221.29	3$^-$	E2		25.7	65.0 *20*	ce(L)/(γ+ce)=0.729 *8*; ce(M)/(γ+ce)=0.184 *4*; ce(N+)/(γ+ce)=0.0492 *10* ce(N)/(γ+ce)=0.0433 *9*; ce(O)/(γ+ce)=0.00588 *12*; ce(P)/(γ+ce)=7.85$\times10^{-6}$ *16* $I_{(\gamma+ce)}$: from intensity balance at 1221 level assuming No β^- branch to that level (ΔJ=2, $\Delta\pi$=No).
87.46 *4*	1.31 *20*	1221.29	3$^-$	1133.83	4$^+$	E1		0.529		α(K)=0.429 *6*; α(L)=0.0773 *11*; α(M)=0.01767 *25*; α(N+..)=0.00482 *7* α(N)=0.00416 *6*; α(O)=0.000624 *9*; α(P)=3.01$\times10^{-5}$ *5* I_γ: authors′ measured value is 1.07 *11*. Value shown here is based on authors′ I(87γ)/I(91γ) and I(91γ) as revised by the evaluator.
91.27 *4*	1.48[b] *9*	1221.29	3$^-$	1130.00	(2)$^-$	M1+E2	0.62 *4*	6.03	10.4 *6*	ce(K)/(γ+ce)=0.566 *8*; ce(L)/(γ+ce)=0.223 *9*; ce(M)/(γ+ce)=0.054 *3*; ce(N+)/(γ+ce)=0.0148 *8* ce(N)/(γ+ce)=0.0129 *7*; ce(O)/(γ+ce)=0.00188 *9*; ce(P)/(γ+ce)=5.69$\times10^{-5}$ *20* $I_{(\gamma+ce)}$: from intensity balance at the 1130 level assuming No β^- branch to that level (ΔJ=3).
111.192 *20*	32.9 *14*	111.196	2$^+$	0.0	0$^+$	E2		2.57		α(K)=0.721 *10*; α(L)=1.403 *20*; α(M)=0.354 *5*; α(N+..)=0.0950 *14* α(N)=0.0835 *12*; α(O)=0.01145 *16*; α(P)=5.54$\times10^{-5}$ *8*
112[f]		1536.64	(4$^+$)	1424.94	(3)$^+$					E_γ: from level scheme In fig. 7 of 1973Ya02; absent from table 1.
123.96 *8*	0.70 *5*	1130.00	(2)$^-$	1005.97	3$^+$	(E1)		0.215		α(K)=0.1765 *25*; α(L)=0.0298 *5*; α(M)=0.00679 *10*; α(N+..)=0.00187 *3* α(N)=0.001607 *23*; α(O)=0.000246 *4*; α(P)=1.297$\times10^{-5}$ *19*

γ(^{184}W) (continued)

E_γ[†]	I_γ[†][d]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	α[e]	Comments
(127.86[#])	0.0031[#] *13*	1133.83	4$^+$	1005.97	3$^+$	E2(+M1)	>2.8	1.56 *6*	α(K)=0.61 *8*; α(L)=0.72 *3*; α(M)=0.180 *7*; α(N+..)=0.0485 *19* α(N)=0.0426 *17*; α(O)=0.00589 *21*; α(P)=4.9×10^{-5} *9*
151.08 *12*	0.22 *4*	1284.99	5$^-$	1133.83	4$^+$	[E1]		0.1286	α(K)=0.1062 *15*; α(L)=0.01744 *25*; α(M)=0.00397 *6*; α(N+..)=0.001095 *16* α(N)=0.000942 *14*; α(O)=0.0001454 *21*; α(P)=8.02×10^{-6} *12*
161.269 *15*	4.4 *12*	1446.26	6$^-$	1284.99	5$^-$	M1+E2	0.53 *7*	1.09 *3*	α(K)=0.85 *4*; α(L)=0.183 *6*; α(M)=0.0430 *15*; α(N+..)=0.0120 *4* α(N)=0.0103 *4*; α(O)=0.00160 *4*; α(P)=8.5×10^{-5} *4* E_γ: from Adopted Gammas.
≈162	2.3[c] *10*	1699.02	(5)$^+$	1536.64	(4$^+$)	[M1]		1.202	α(K)≈0.998; α(L)≈0.1580; α(M)≈0.0360; α(N+..)≈0.01018 α(N)≈0.00866; α(O)≈0.001413; α(P)≈0.0001006
191.0 *5*	0.05 *2*	1536.64	(4$^+$)	1345.40	(4$^-$)	[E1]		0.0704 *11*	α(K)=0.0584 *9*; α(L)=0.00934 *15*; α(M)=0.00212 *4*; α(N+..)=0.000588 *10* α(N)=0.000505 *8*; α(O)=7.87×10^{-5} *13*; α(P)=4.55×10^{-6} *7*
203.7 *5*	0.04 *2*	1424.94	(3)$^+$	1221.29	3$^-$	[E1]		0.0598 *10*	α(K)=0.0496 *8*; α(L)=0.00789 *13*; α(M)=0.00179 *3*; α(N+..)=0.000497 *8* α(N)=0.000426 *7*; α(O)=6.67×10^{-5} *11*; α(P)=3.90×10^{-6} *6*
215.34 *6*	15.8 *16*	1221.29	3$^-$	1005.97	3$^+$	E1		0.0519	α(K)=0.0431 *6*; α(L)=0.00682 *10*; α(M)=0.001549 *22*; α(N+..)=0.000430 *6* α(N)=0.000369 *6*; α(O)=5.78×10^{-5} *9*; α(P)=3.41×10^{-6} *5*
216.54 *5*	2.4 *3*	1501.57	7$^-$	1284.99	5$^-$	E2		0.237	α(K)=0.1362 *19*; α(L)=0.0764 *11*; α(M)=0.0189 *3*; α(N+..)=0.00513 *8* α(N)=0.00448 *7*; α(O)=0.000635 *9*; α(P)=1.096×10^{-5} *16*
226.74 *4*	9.2 *5*	1130.00	(2)$^-$	903.27	2$^+$	E1+M2+E3		0.059 *5*	α(K)=0.059; α(L)=0.042; α(M)=0.0132; α(N+..)=0.00088
(230.56[#])	0.027[#] *4*	1133.83	4$^+$	903.27	2$^+$	E2		0.193	α(K)=0.1150 *17*; α(L)=0.0592 *9*; α(M)=0.01465 *21*; α(N+..)=0.00397 *6* α(N)=0.00347 *5*; α(O)=0.000494 *7*; α(P)=9.37×10^{-6} *14*
244.44 *6*	4.9 *6*	1746.04	(6)$^+$	1501.57	7$^-$	[E1]		0.0378	α(K)=0.0314 *5*; α(L)=0.00492 *7*; α(M)=0.001116 *16*; α(N+..)=0.000310 *5* α(N)=0.000266 *4*; α(O)=4.19×10^{-5} *6*; α(P)=2.53×10^{-6} *4*
252.85 *4*	61 *4*	364.05	4$^+$	111.196	2$^+$	E2		0.1437	α(K)=0.0898 *13*; α(L)=0.0411 *6*; α(M)=0.01011 *15*; α(N+..)=0.00275 *4* α(N)=0.00240 *4*; α(O)=0.000344 *5*; α(P)=7.45×10^{-6} *11*
≈253	6.8 *20*	1699.02	(5)$^+$	1446.26	6$^-$	[E1]		0.0347	α(K)≈0.0289; α(L)≈0.00451; α(M)≈0.001022; α(N+..)≈0.000284 α(N)≈0.000244; α(O)≈3.84×10^{-5}; α(P)≈2.33×10^{-6} I_γ: from $\gamma\gamma$ coin (1973Ya02).
274.07 *7*	0.60 *6*	1699.02	(5)$^+$	1424.94	(3)$^+$	[E2]		0.1118	α(K)=0.0724 *11*; α(L)=0.0300 *5*; α(M)=0.00737 *11*; α(N+..)=0.00201 *3* α(N)=0.001747 *25*; α(O)=0.000252 *4*; α(P)=6.10×10^{-6} *9*

γ(^{184}W) (continued)

E_γ[†]	I_γ[†d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[e]	Comments
(279.0[#])	<0.001[#]	1284.99	5^-	1005.97	3^+	[M2]		1.111	α(K)=0.867 *13*; α(L)=0.187 *3*; α(M)=0.0444 *7*; α(N+..)=0.01259 *18* α(N)=0.01074 *15*; α(O)=0.001729 *25*; α(P)=0.0001136 *16*
294.99 *12*	0.67 *10*	1424.94	$(3)^+$	1130.00	$(2)^-$	E1		0.0238	α(K)=0.0199 *3*; α(L)=0.00306 *5*; α(M)=0.000694 *10*; α(N+..)=0.000193 *3* α(N)=0.0001656 *24*; α(O)=2.62×10^{-5} *4*; α(P)=1.630×10^{-6} *23*
296.46 *10*	0.96 *14*	1581.46	(6^-)	1284.99	5^-				
299.79 *7*	0.65 *7*	1746.04	$(6)^+$	1446.26	6^-	[E1]		0.0229	α(K)=0.0191 *3*; α(L)=0.00294 *5*; α(M)=0.000667 *10*; α(N+..)=0.000186 *3* α(N)=0.0001591 *23*; α(O)=2.52×10^{-5} *4*; α(P)=1.571×10^{-6} *22*
315.4 *4*	0.41 *10*	1536.64	(4^+)	1221.29	3^-				
318.04 *6*	31.7 *8*	1221.29	3^-	903.27	2^+	E1+M2	−0.020 *10*	0.0202 *5*	α(K)=0.0168 *4*; α(L)=0.00259 *7*; α(M)=0.000587 *16*; α(N+..)=0.000164 *5* α(N)=0.000140 *4*; α(O)=2.23×10^{-5} *7*; α(P)=1.40×10^{-6} *4*
331.06 *12*	0.17 *4*	1676.45	(5^+)	1345.40	(4^-)				
339.53 *10*	0.26 *5*	1345.40	(4^-)	1005.97	3^+	[E1]		0.0170 *3*	
354.0 *2*	0.20 *8*	1699.02	$(5)^+$	1345.40	(4^-)	[E1]		0.01544	α(K)=0.01291 *19*; α(L)=0.00196 *3*; α(M)=0.000444 *7*; α(N+..)=0.0001241 *18* α(N)=0.0001061 *15*; α(O)=1.689×10^{-5} *24*; α(P)=1.077×10^{-6} *16*
359.2 *3*	0.15 *4*	2389.14	$(4^-,5,6^-)$	2029.86?	$(5^-,6,7^-)$				
[x]371.09 *10*	0.36 *6*								
381.6 *5*	0.23 *12*	1676.45	(5^+)	1294.9	5^+				
(381.82[#] *14*)	0.29[#] *3*	1284.99	5^-	903.27	2^+	[E3]		0.1579	α(K)=0.0827 *12*; α(L)=0.0570 *8*; α(M)=0.01438 *21*; α(N+..)=0.00392 *6* α(N)=0.00342 *5*; α(O)=0.000490 *7*; α(P)=9.34×10^{-6} *14*
384.28 *5*	17.3 *5*	748.31	6^+	364.05	4^+	E2		0.0418	α(K)=0.0302 *5*; α(L)=0.00885 *13*; α(M)=0.00213 *3*; α(N+..)=0.000585 *9* α(N)=0.000507 *8*; α(O)=7.54×10^{-5} *11*; α(P)=2.69×10^{-6} *4*
(385.52[#])	<0.010[#]	1133.83	4^+	748.31	6^+	[E2]		0.0414	α(K)=0.0300 *5*; α(L)=0.00876 *13*; α(M)=0.00211 *3*; α(N+..)=0.000579 *9* α(N)=0.000502 *7*; α(O)=7.46×10^{-5} *11*; α(P)=2.67×10^{-6} *4*
414.01 *5*	100	1699.02	$(5)^+$	1284.99	5^-	E1[@]		0.01078	α(K)=0.00903 *13*; α(L)=0.001356 *19*; α(M)=0.000306 *5*; α(N+..)=8.58×10^{-5} *12* α(N)=7.33×10^{-5} *11*; α(O)=1.172×10^{-5} *17*; α(P)=7.62×10^{-7} *11* Mult.: from α(K)exp=0.0113 *14* (1984Bu37).

γ(^{184}W) (continued)

E_γ [†]	I_γ [†d]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [‡]	α [e]	Comments
461.06 *5*	14.8 *4*	1746.04	(6)$^+$	1284.99	5$^-$	E1 [@]		0.00848 *12*	α(K)=0.00711 *10*; α(L)=0.001059 *15*; α(M)=0.000239 *4*; α(N+..)=6.70×10^{-5} *10* α(N)=5.72×10^{-5} *8*; α(O)=9.18×10^{-6} *13*; α(P)=6.05×10^{-7} *9* Mult.: from α(K)exp=0.0084 *19* (1984Bu37).
^{x}516.59 *20*	0.42 *5*								
528.28 *6*	1.38 *15*	2029.86?	(5$^-$,6,7$^-$)	1501.57	7$^-$				
536.71 *6*	17.7 *6*	1284.99	5$^-$	748.31	6$^+$	E1+M2+E3		0.0068 *1*	α(K)=0.0057; α(L)=0.00086; α(M)=0.000195; α(N+..)=0.000025
(539.22 [#] *25*)	0.16 [#] *2*	903.27	2$^+$	364.05	4$^+$	E2		0.01744	α(K)=0.01349 *19*; α(L)=0.00303 *5*; α(M)=0.000716 *10*; α(N+..)=0.000198 *3* α(N)=0.0001710 *24*; α(O)=2.62×10^{-5} *4*; α(P)=1.238×10^{-6} *18*
^{x}576.3 *5*	0.14 *4*								
641.99 *10*	1.95 *16*	1005.97	3$^+$	364.05	4$^+$	M1+E2	−8.5 *8*	0.01183 *18*	α(K)=0.00938 *14*; α(L)=0.00188 *3*; α(M)=0.000440 *7*; α(N+..)=0.0001224 *18* α(N)=0.0001052 *15*; α(O)=1.636×10^{-5} *24*; α(P)=8.69×10^{-7} *13*
^{x}655.3 *2*	0.35 *3*								
769.76 *8*	1.25 *9*	1133.83	4$^+$	364.05	4$^+$	M1+E2	−6.3 *+20−32*	0.0080 *4*	α(K)=0.0065 *3*; α(L)=0.00119 *4*; α(M)=0.000275 *9*; α(N+..)=7.68×10^{-5} *24* α(N)=6.59×10^{-5} *20*; α(O)=1.04×10^{-5} *4*; α(P)=6.0×10^{-7} *3*
^{x}785.8 *5*	0.11 *3*								
792.07 *5*	20.2 *5*	903.27	2$^+$	111.196	2$^+$	M1+E2	−16.8 *5*	0.00733 *11*	α(K)=0.00593 *9*; α(L)=0.001082 *16*; α(M)=0.000251 *4*; α(N+..)=7.00×10^{-5} *10* α(N)=6.00×10^{-5} *9*; α(O)=9.45×10^{-6} *14*; α(P)=5.50×10^{-7} *8*
807.68 *10*	0.67 *8*	2389.14	(4$^-$,5,6$^-$)	1581.46	(6$^-$)				
^{x}851.1 *4*	0.07 *4*								
857.24 *10*	0.93 *6*	1221.29	3$^-$	364.05	4$^+$	E1		0.00238 *4*	α(K)=0.00201 *3*; α(L)=0.000288 *4*; α(M)=6.46×10^{-5} *9*; α(N+..)=1.82×10^{-5} *3* α(N)=1.550×10^{-5} *22*; α(O)=2.52×10^{-6} *4*; α(P)=1.758×10^{-7} *25*
894.77 *5*	14.8 *4*	1005.97	3$^+$	111.196	2$^+$	M1+E2	−13.2 *9*	0.00569 *8*	α(K)=0.00464 *7*; α(L)=0.000808 *12*; α(M)=0.000186 *3*; α(N+..)=5.21×10^{-5} *8* α(N)=4.46×10^{-5} *7*; α(O)=7.08×10^{-6} *10*; α(P)=4.32×10^{-7} *6*
903.29 *5*	20.8 *5*	903.27	2$^+$	0.0	0$^+$	E2		0.00554 *8*	α(K)=0.00452 *7*; α(L)=0.000786 *11*; α(M)=0.000181 *3*; α(N+..)=5.07×10^{-5} *7* α(N)=4.34×10^{-5} *6*; α(O)=6.89×10^{-6} *10*; α(P)=4.20×10^{-7} *6*

From ENSDF

^{184}Ta β^- decay 1973Ya02 (continued)

$\gamma(^{184}W)$ (continued)

E_γ †	I_γ †d	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡	α e	Comments
920.93 *5*	44.4 *11*	1284.99	5^-	364.05	4^+	E1+M2+E3		0.0030 *2*	α(K)=0.0024; α(L)=0.00039; α(M)=0.000088; α(N+..)=0.000030
930.9 *5*	0.11 *3*	1294.9	5^+	364.05	4^+				
942.9 *4*	0.14 *3*	2389.14	$(4^-,5,6^-)$	1446.26	6^-				
980.6 *8*	0.06 *2*	1345.40	(4^-)	364.05	4^+				
1018.75 *9*	0.52 *5*	1130.00	$(2)^-$	111.196	2^+	(E1)			
1022.62 *8*	0.87 *6*	1133.83	4^+	111.196	2^+	E2		0.00431 *6*	α(K)=0.00354 *5*; α(L)=0.000591 *9*; α(M)=0.0001356 *19*; α(N+..)=3.80×10^{-5} *6* α(N)=3.25×10^{-5} *5*; α(O)=5.19×10^{-6} *8*; α(P)=3.29×10^{-7} *5*
1043.1 *8*	≈0.01	2389.14	$(4^-,5,6^-)$	1345.40	(4^-)				
1046.4 *6*	0.06 *2*	2492.66	$(4^-,5,6)$	1446.26	6^-				
1060.7 *4*	0.10 *3*	1424.94	$(3)^+$	364.05	4^+	E2		0.00401 *6*	α(K)=0.00330 *5*; α(L)=0.000545 *8*; α(M)=0.0001248 *18*; α(N+..)=3.50×10^{-5} *5* α(N)=2.99×10^{-5} *5*; α(O)=4.79×10^{-6} *7*; α(P)=3.06×10^{-7} *5*
1093.8 *10*	0.03 *2*	2389.14	$(4^-,5,6^-)$	1294.9	5^+				
1104.4 *3*	0.06 *3*	2389.14	$(4^-,5,6^-)$	1284.99	5^-				
1110.12 *8*	3.10 *10*	1221.29	3^-	111.196	2^+	E1+M2	+0.08 *3*	0.00159 *10*	α(K)=0.00134 *8*; α(L)=0.000191 *13*; α(M)=4.3×10^{-5} *3*; α(N+..)=1.37×10^{-5} *9* α(N)=1.03×10^{-5} *8*; α(O)=1.68×10^{-6} *12*; α(P)=1.19×10^{-7} *9*; α(IPF)=1.65×10^{-6} *3*
x1115.8 *9*	0.03 *1*								
1172.1 *5*	0.34 *10*	1536.64	(4^+)	364.05	4^+				
1173.77 *8*	6.6 *5*	1284.99	5^-	111.196	2^+	(E3)		0.00698 *10*	α(K)=0.00556 *8*; α(L)=0.001090 *16*; α(M)=0.000254 *4*; α(N+..)=7.19×10^{-5} *10* α(N)=6.11×10^{-5} *9*; α(O)=9.63×10^{-6} *14*; α(P)=5.59×10^{-7} *8*; α(IPF)=6.64×10^{-7} *10*
1207.67 *10*	0.41 *4*	2492.66	$(4^-,5,6)$	1284.99	5^-				
1221.27 *14*	0.13 *2*	1221.29	3^-	0.0	0^+	(E3)		0.00639 *9*	α(K)=0.00511 *8*; α(L)=0.000982 *14*; α(M)=0.000229 *4*; α(N+..)=6.61×10^{-5} *10* α(N)=5.49×10^{-5} *8*; α(O)=8.68×10^{-6} *13*; α(P)=5.12×10^{-7} *8*; α(IPF)=2.01×10^{-6} *3*
1312.2 *4*	0.14 *4*	1676.45	(5^+)	364.05	4^+				
1313.6 *2*	0.46 *7*	1424.94	$(3)^+$	111.196	2^+	E2		0.00266 *4*	α(K)=0.00220 *3*; α(L)=0.000345 *5*; α(M)=7.84×10^{-5} *11*; α(N+..)=4.19×10^{-5} *6* α(N)=1.88×10^{-5} *3*; α(O)=3.04×10^{-6} *5*; α(P)=2.04×10^{-7} *3*; α(IPF)=1.99×10^{-5} *3*
1334.9 *3*	0.07 *2*	1699.02	$(5)^+$	364.05	4^+				
1425.54 *20*	0.23 *2*	1536.64	(4^+)	111.196	2^+				

† From 1973Ya02, except as noted.

γ(^{184}W) (continued)

‡ From Adopted Gammas, except as noted.

γ not observed In β^- decay. Iγ calculated from branching in Adopted Gammas; Eγ from level energy difference.

@ From I(ce(K)) (1984Bu37) and Iγ (1973Ya02), normalized so α(K)exp(253)=α(K)(E2 theory)=0.0898.

& from I(γ+ce), α. The authors′ measured value of 1.2 *3* results in a negative β^-feeding to the 1446 level and a β^-feeding of 2.6% to the 1501 level. Based on log *ft*>11 for a second forbidden non-unique transition, one can deduce I(β^- to the 1501 level)<0.001%. From the observed branching of the 55γ in 169-d ^{184}Re decay, one can deduce Iγ(55γ)=0.59 *10* in Ta decay, in good agreement with the value adopted here.

[a] from I(γ+ce) and α. The authors′ measured value of 3.5 *4* results in a large negative β^-branch to the 1221 level (−20% 8) and a β^-branch of 24% 8 to the 1285 level, in disagreement with the directly measured value of 0.7% (1973Ya02). From the observed I(921γ)/I(63.7γ)=18.7 *9* In Adopted Gammas, one expects Iγ(63.7γ)=2.37 *13* for Ta β^- decay, in good agreement with the value deduced here by the evaluator.

[b] from I(γ+ce) and α. The authors′ measured value of 1.17 *11* results in a β^-feeding of 1.5% to the 1130 level, in disagreement with the expected negligible feeding based on ΔJ=3. From the observed branching of the 91.3γ in 169-d ^{184}Re decay, one deduces Iγ(91.3γ)=1.44 *10* for Ta decay, in good agreement with the value adopted here.

[c] from $\gamma\gamma$ coin (1973Ya02). however, 1984Bu37 report an upper limit for 162ce(K) which, combined with this Iγ, implies an α(K)exp several times lower than that from M1 or E2 theory; consequently, they conclude that Iγ(162) from 1973Ya02 is overestimated, possibly due to the complexity of the γ spectrum.

[d] For absolute intensity per 100 decays, multiply by 0.72 *3*.

[e] 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.

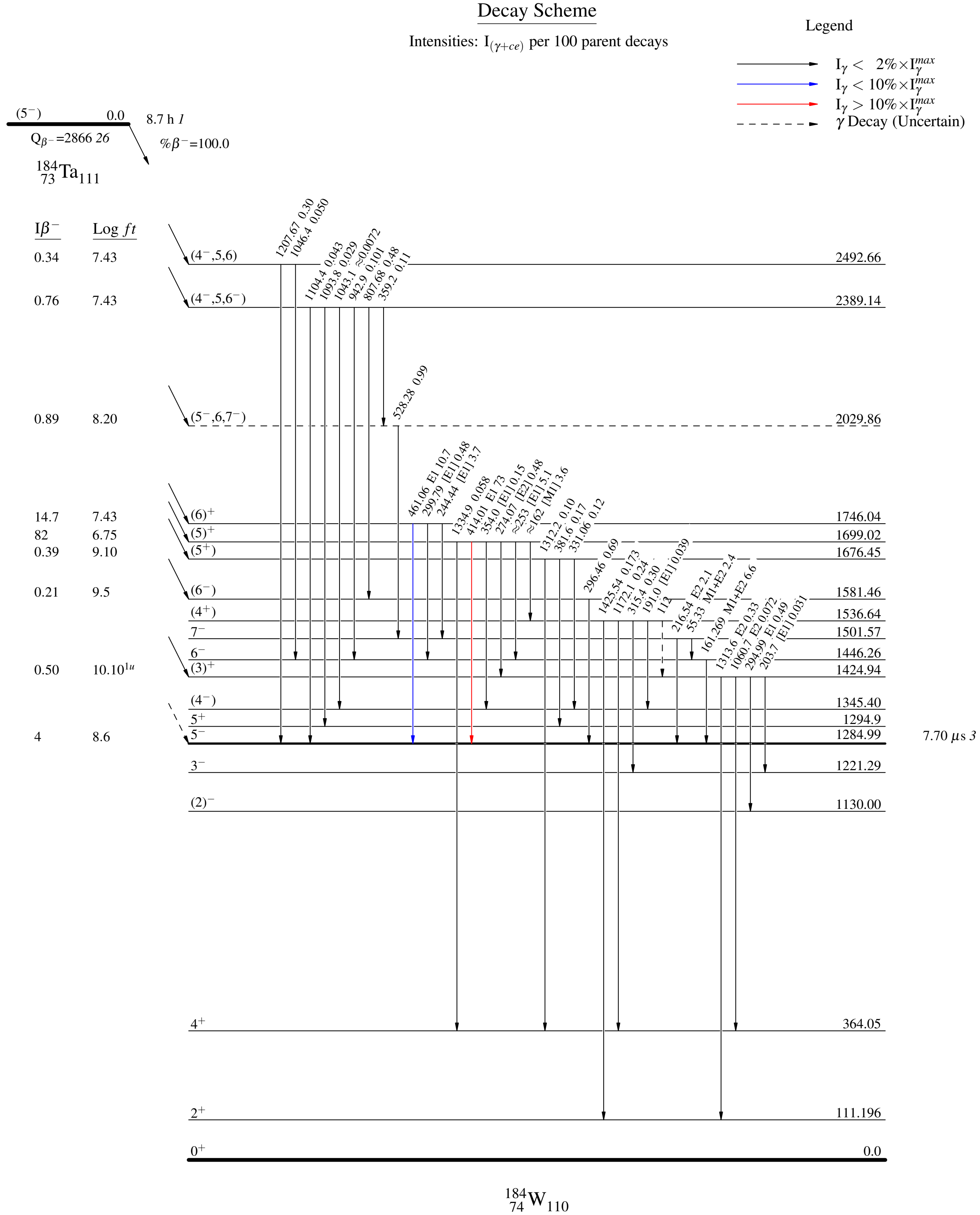
[f] Placement of transition in the level scheme is uncertain.

[x] γ ray not placed in level scheme.

^{184}Ta β^- decay 1973Ya02

Decay Scheme

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



^{184}Ta β^- decay 1973Ya02

Decay Scheme (continued)

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