^{177}W ε decay 1972Ad12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 159, 1 (2019)	30-Aug-2019

Parent: ^{177}W: E=0.0; J$^\pi$=1/2$^-$; $T_{1/2}$=132.4 min *20*; Q(ε)=2013 *28*; %ε+%β^+ decay=100.0

1972Ad12: Mass-separated source produced using the ^{181}Ta(p,5n) reaction. Measured: Eγ, Iγ, ce, $\gamma\gamma$ coin, $\gamma\gamma$(t). Detectors: Ge(Li), Si(Li), magnetic spectrometer.

Others: 1965Ad02, 1967Hu02, 1968Be43, 1969Na18, 1969AdZY, 1970Ar15, 1972Ad07, 1973Be66.

^{177}Ta Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0[#]	7/2$^+$	56.36 h *13*	J$^\pi$,$T_{1/2}$: From Adopted Levels.
70.48[@] *5*	5/2$^+$	70.2 ns *19*	$T_{1/2}$: From Adopted Levels. Values from ^{177}W ε decay are:73 ns *5* from 115γ-70.5γ(Δt) in 1976Ao02, 72.7 ns *2* in 1974Ao01, 53 ns *3* in 1972Ad12 from $\gamma\gamma$(Δt) using 70 keV transition depopulating the 5/2$^+$ level and γ rays with energies between 120-470 keV above the 5/2$^+$ level. μ: +4.7 *5* from perturbed polarization directional angular correlations in 1976Ao02 and 1974Ao01.
73.15[&] *7*	9/2$^-$	410 ns *7*	J$^\pi$,$T_{1/2}$: From Adopted Levels.
172.25[@] *6*	7/2$^+$		
186.15[a] *6*	5/2$^-$	3.62 μs *10*	$T_{1/2}$: From Adopted Levels. Other: $T_{1/2}$=3.5 μs *4* from sum of 115γ(t) and 186γ(t) (1972Ad12).
216.61[a] *6*	1/2$^-$	0.72 ns *4*	$T_{1/2}$: From 30.4ce(L)-γ(Δt) in 1972Ad12.
372.57[a] *6*	3/2$^-$	<0.1 ns	$T_{1/2}$: From 1972Ad12.
487.64[b] *6*	1/2$^+$	26 ns *3*	$T_{1/2}$: From Kx-rays-γ(Δt) in 1972Ad12.
497.44[b] *6*	3/2$^+$	0.44 ns *2*	$T_{1/2}$: From 427ce(K)-γ(Δt) in 1972Ad12.
573.01 *13*	(1/2)$^+$		J$^\pi$: 502.4γ E2 to 5/2$^+$, 939.2γ from (1/2)$^-$.
639.98[b] *6*	5/2$^+$		
690.28[d] *10*	(3/2)$^-$		
864.97[c] *6*	3/2$^+$		
948.22[c] *10*	(5/2)$^+$		
1044.80[e] *11*	3/2$^-$		
1094.03 *11*	(1/2)$^-$		
1253.08 *9*	3/2$^-$		
1476.31 *10*	(3/2)$^-$		
1476.58 *13*	(3/2)$^+$		E(level): Level introduced by 1993Br06.
1487.72 *17*	(1/2)$^-$		E(level): Level introduced by 1993Br06.
1512.44 *10*	(1/2)$^-$		
1543.46 *14*	3/2$^-$		

† From a least-squares fit to Eγ.
‡ From the decay scheme and the γ-ray transition multipolarities, unless otherwise stated.
\# K^π=7/2$^+$, π7/2[404].
@ K^π=5/2$^+$, π5/2[402].
& K^π=9/2$^-$, π9/2[514].
a K^π=1/2$^-$, π1/2[541].
b K^π=1/2$^+$, π1/2[411].
c K^π=3/2$^+$, π3/2[411].
d K^π=3/2$^-$, π3/2[532]?
e K^π=1/2$^-$, π1/2[530]?

^{177}W ε decay 1972Ad12 (continued)

ε,β^{+} radiations

E(decay)	E(level)	Iβ^{+} ‡	Iε‡	Log *ft*	I(ε+β^{+})†‡	Comments
(4.7×10^{2} *3*)	1543.46		2.58 *16*	5.97 *7*	2.58 *16*	εK=0.788 *4*; εL=0.1605 *23*; εM+=0.0510 *9*
(5.0×10^{2} *3*)	1512.44		11.4 *6*	5.39 *7*	11.4 *6*	εK=0.791 *3*; εL=0.1583 *20*; εM+=0.0502 *8*
(5.3×10^{2} *3*)	1487.72		1.67 *11*	6.27 *7*	1.67 *11*	εK=0.7936 *24*; εL=0.1568 *18*; εM+=0.0496 *7*
(5.4×10^{2} *3*)	1476.58		9.5 *5*	5.54 *6*	9.5 *5*	εK=0.7944 *23*; εL=0.1562 *17*; εM+=0.0494 *7*
(5.4×10^{2} *3*)	1476.31		5.7 *4*	5.76 *6*	5.7 *4*	εK=0.7945 *23*; εL=0.1561 *17*; εM+=0.0494 *7*
(7.6×10^{2} *3*)	1253.08		15.8 *8*	5.65 *5*	15.8 *8*	εK=0.8060 *11*; εL=0.1477 *8*; εM+=0.0463 *3*
(9.2×10^{2} *3*)	1094.03		0.4 *3*	7.4 *4*	0.4 *3*	εK=0.8105 *7*; εL=0.1445 *5*; εM+=0.04506 *18*
(9.7×10^{2} *3*)	1044.80		2.76 *19*	6.63 *4*	2.76 *19*	εK=0.8115 *6*; εL=0.1437 *5*; εM+=0.04477 *16*
(1.15×10^{3} *3*)	864.97		≤0.7	≥7.4	≤0.7	εK=0.8146 *4*; εL=0.1414 *3*; εM+=0.04395 *11*
(1.32×10^{3} *3*)	690.28		0.75 *15*	7.48 *9*	0.75 *15*	εK=0.8166 *3*; εL=0.13986 *23*; εM+=0.04336 *9*
(1.37×10^{3} *3*)	639.98		1.1 *4*	8.17^{1u} *17*	1.1 *4*	εK=0.8020 *7*; εL=0.1506 *5*; εM+=0.04740 *19*
(1.44×10^{3} *3*)	573.01		≤0.15	≥8.3	≤0.15	εK=0.8173 *2*; εL=0.13897 *21*; εM+=0.04304 *8*
(1.52×10^{3} *3*)	497.44	0.0063 *21*	4.9 *11*	6.79 *10*	4.9 *11*	av Eβ=240 *13*; εK=0.8175; εL=0.13843 *21*; εM+=0.04284 *8*
(1.53×10^{3} *3*)	487.64	0.013 *4*	9.6 *10*	6.51 *5*	9.6 *10*	av Eβ=244 *13*; εK=0.8174; εL=0.13835 *21*; εM+=0.04282 *8*
(1.64×10^{3} *3*)	372.57	0.012 *3*	3.7 *6*	6.99 *8*	3.7 *6*	av Eβ=296 *13*; εK=0.8168 *3*; εL=0.13751 *22*; εM+=0.04252 *8*
(1.80×10^{3} *3*)	216.61	0.24 *4*	32.6 *23*	6.12 *4*	32.8 *23*	av Eβ=364 *13*; εK=0.8143 *7*; εL=0.1362 *3*; εM+=0.04209 *9*

† From γ-ray transition intensity balances. Note that ε+β^{+} feeding differs significantly from 1972Ad12.

‡ Absolute intensity per 100 decays.

γ(^{177}Ta)

Iγ normalization: From ΣI(γ+ce)(g.s.)=100% and the decay scheme by assuming that there is no ε+β^+ feeding to the ground state.

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
(9.80 *9*)	1.7 *3*	497.44	3/2$^+$	487.64	1/2$^+$	[M1]		158 *5*	%Iγ=0.026 *5* α(M)=123 *4* α(N)=29.5 *10*; α(O)=4.66 *15*; α(P)=0.321 *10* E_γ: From level energy differences. I_γ: From total γ-ray intensity balances at the 487-keV and 497-keV levels and the Alaga rule in β decay to the 1/2$^+$ and 3/2$^+$ levels, where *ft*(1/2$^-$ to 3/2$^+$)/*ft*(1/2$^-$ to 1/2$^+$) = 2.0.
(13.90 *9*)	7.5 *23*	186.15	5/2$^-$	172.25	7/2$^+$	[E1]		14.8 *4*	%Iγ=0.114 *35* α(L)=11.3 *3*; α(M)=2.76 *7* α(N)=0.611 *14*; α(O)=0.0671 *15*; α(P)=0.00154 *3* E_γ: From level energy differences. I_γ: From transition γ-ray intensity balance at the 172.2-keV level.
30.45 *5*	4.39 *10*	216.61	1/2$^-$	186.15	5/2$^-$	(E2)		881	%Iγ=0.0669 *33* α(L)=670 *11*; α(M)=167 *3* α(N)=38.8 *7*; α(O)=5.03 *9*; α(P)=0.00307 *5* I_γ: From γ-ray intensity balance at 186.2 keV level, by assuming that there is no direct ε feeding to this level. Mult.: (ce(L)exp/ce(M+N+))exp=2.3 *6*,(ce(L2)/ce(L3))exp=0.77 (1972Ad12).
70.45 *5*	393 *20*	70.48	5/2$^+$	0.0	7/2$^+$	M1+E2	0.564 *3*	12.82 *19*	%Iγ=5.99 *10* α(K)=7.74 *11*; α(L)=3.87 *6*; α(M)=0.945 *15* α(N)=0.222 *4*; α(O)=0.0308 *5*; α(P)=0.000747 *11* Mult.: α(K)exp=8.1 *4*, α(L)exp=3.8 *6* and α(M)exp=0.94 *21*; (ce(L1):ce(L2):ce(L3))exp=1.00:1.29:1.17 (1972Ad12). (ce(L1):ce(L2):ce(L3))exp=84.7 *9*: 107.2 *10*:100 and (ce(M1):ce(M2):ce(M3))exp=74.5 *21*:106.2 *29*: 100 (1988La19). δ: From 1988La19; penetration parameter λ=0.6 *3*. Others: 0.56 *3* using the briccmixing program and conversion electron data in 1972Ad12; −0.10 *4* or −4.2 *8* from γγ(ω) and 0.0 *2* or 2.4 *10* from ppdac analysis in 1976Ao02; −0.096 *37* from ppdac analysis in 1974Ao01.
73.15 *9*	14 *3*	73.15	9/2$^-$	0.0	7/2$^+$	E1		0.815	%Iγ=0.21 *5* α(K)=0.658 *10*; α(L)=0.1224 *18*; α(M)=0.0279 *4* α(N)=0.00651 *10*; α(O)=0.000933 *14*; α(P)=4.21×10^{-5} *6* E_γ: Placement made by the evaluator.
101.75 *5*	29 *7*	172.25	7/2$^+$	70.48	5/2$^+$	M1+E2	+0.6 *4*	3.97 *17*	%Iγ=0.44 *11* α(K)=2.8 *6*; α(L)=0.92 *34*; α(M)=0.221 *87* α(N)=0.052 *20*; α(O)=0.0074 *25*; α(P)=0.00025 *7* Mult.,δ: α(K)exp=3.0 *9* and α(L1)exp=0.38 *11* (1972Ad12).
(113.0 *1*)	7.7 *17*	186.15	5/2$^-$	73.15	9/2$^-$	[E2]		2.30	%Iγ=0.117 *26* α(K)=0.717 *11*; α(L)=1.205 *18*; α(M)=0.302 *5*

From ENSDF

$^{177}_{73}Ta_{104}$-3

γ(^{177}Ta) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[#]	Comments
									α(N)=0.0707 *11*; α(O)=0.00935 *14*; α(P)=4.93×10^{-5} *7* E_γ: From level energy differences. Transition placed by the evaluator, based on the observed in 1972Ad12 73.15γ associated with the decay of the Iπ=9/2$^-$, π9/2[514] bandhead at 73.15 keV. I_γ: From γ-ray intensity balance at the 73.15-keV level.
115.05 *5*	530	487.64	1/2$^+$	372.57	3/2$^-$	E1		0.255	%Iγ=8.1 *4* α(K)=0.209 *3*; α(L)=0.0352 *5*; α(M)=0.00799 *12* α(N)=0.00188 *3*; α(O)=0.000277 *4*; α(P)=1.417×10^{-5} *20* Mult.: (ce(L1)/ce(L3))exp≈3.9 (1972Ad12). Other: α(K)exp (115γ doublet)=0.29 *9* (1967Hu02).
115.65 *5*	≈3100	186.15	5/2$^-$	70.48	5/2$^+$	E1		0.251	%Iγ=47.3 *21* α(K)=0.207 *3*; α(L)=0.0347 *5*; α(M)=0.00788 *11* α(N)=0.00185 *3*; α(O)=0.000273 *4*; α(P)=1.399×10^{-5} *20* Mult.: (ce(K)/ce(L))exp=5.8 *17*, (ce(L1):ce(L2):ce(L3))exp=1.00:0.27:0.29 (1972Ad12). Other: α(K)exp (115γ doublet)=0.29 *9* (1967Hu02).
142.60 *5*	84 *6*	639.98	5/2$^+$	497.44	3/2$^+$	M1+E2	0.57 *21*	1.43 *9*	%Iγ=1.28 *11* α(K)=1.10 *13*; α(L)=0.26 *3*; α(M)=0.061 *8* α(N)=0.0145 *18*; α(O)=0.00215 *21*; α(P)=0.000100 *13* Mult.,δ: α(K)exp=1.10 *14*, α(L)exp=0.26 *5* (1972Ad12).
[x]149.16 *9*	34 *5*					(M1)		1.395	%Iγ=0.52 *8* α(K)=1.160 *17*; α(L)=0.182 *3*; α(M)=0.0413 *6* α(N)=0.00987 *14*; α(O)=0.001563 *22*; α(P)=0.0001083 *16* Mult.: α(K)exp<1.3, α(L)exp<0.3 (1972Ad12).
152.23 *9*	12 *4*	639.98	5/2$^+$	487.64	1/2$^+$	[E2]		0.765	%Iγ=0.18 *6* α(K)=0.349 *5*; α(L)=0.316 *5*; α(M)=0.0789 *12* α(N)=0.0185 *3*; α(O)=0.00248 *4*; α(P)=2.41×10^{-5} *4*
155.95 *9*	240 *12*	372.57	3/2$^-$	216.61	1/2$^-$	M1+E2	0.61 *6*	1.09 *3*	%Iγ=3.66 *24* α(K)=0.83 *3*; α(L)=0.194 *6*; α(M)=0.0457 *15* α(N)=0.0108 *4*; α(O)=0.00161 *4*; α(P)=7.6×10^{-5} *3* Mult.,δ: α(K)exp=0.63 *13*, α(L)exp=0.17 *6*, (ce(L1):ce(L2):ce(L3))exp=1.0:0.5:0.3 (1972Ad12). Others: α(K)exp=0.50 *15* (1967Hu02).
159.1 *1*	8 *2*	1253.08	3/2$^-$	1094.03	(1/2)$^-$	[M1]		1.163	%Iγ=0.122 *31* α(K)=0.967 *14*; α(L)=0.1515 *22*; α(M)=0.0344 *5* α(N)=0.00822 *12*; α(O)=0.001302 *19*; α(P)=9.02×10^{-5} *13*
172.5 *2*	8 *2*	172.25	7/2$^+$	0.0	7/2$^+$	E0+M1+E2		1.6 *6*	%Iγ=0.122 *31* α(K)=0.771 *11*; α(L)=0.1206 *18*; α(M)=0.0273 *4* α(N)=0.00654 *10*; α(O)=0.001036 *15*; α(P)=7.18×10^{-5} *11* α: α(K)exp. Mult.: α(K)exp=1.6 *6* and α(L)exp≤0.38 (1972Ad12).
186.2 *2*	1000 *50*	186.15	5/2$^-$	0.0	7/2$^+$	E1		0.0730	%Iγ=15.2 *9* α(K)=0.0606 *9*; α(L)=0.00961 *14*; α(M)=0.00217 *4*

From ENSDF

γ(^{177}Ta) (continued)

E_γ †	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	δ‡	α#	Comments
									α(N)=0.000513 *8*; α(O)=7.76×10^{-5} *11*; α(P)=4.39×10^{-6} *7* E_γ: Uncertainty assigned by the evaluator. Mult.: ce(K)/ce(L)exp=6.2 *10*, (ce(L1+L2)/ce(L3))exp=10 (1972Ad12). Other: α(K)exp (186γ doublet)=0.35 *7* (1967Hu02).
186.42 *3*	486	372.57	3/2$^-$	186.15	5/2$^-$	M1(+E2)	≤0.5	0.71 *4*	%Iγ=7.41 *33* α(K)=0.58 *5*; α(L)=0.100 *4*; α(M)=0.0231 *12* α(N)=0.0055 *3*; α(O)=0.000854 *25*; α(P)=5.3×10^{-5} *5* Mult.,δ: α(K)exp≈0.57, α(L)exp≈0.093; (ce(L1)+ce(L2)):ce(L3)exp=1.1. (1972Ad12). Other: α(K)exp (186γ doublet)=0.35 *7* (1967Hu02).
^{x}215.3 *2*	8 *2*								%Iγ=0.122 *31*
223.23 *3*	137 *6*	1476.31	(3/2)$^-$	1253.08	3/2$^-$	M1+E2	0.86 *25*	0.35 *4*	%Iγ=2.09 *13* α(K)=0.27 *4*; α(L)=0.0604 *11*; α(M)=0.0142 *4* α(N)=0.00337 *9*; α(O)=0.000501 *7*; α(P)=2.4×10^{-5} *4* Mult.,δ: α(K)exp=0.21 *4* and α(L1)exp=0.052 *8* (1972Ad12).
224.99 *3*	36 *5*	864.97	3/2$^+$	639.98	5/2$^+$	M1+E2	2.3 *4*	0.240 *15*	%Iγ=0.55 *8* α(K)=0.161 *15*; α(L)=0.0603 *9*; α(M)=0.01465 *24* α(N)=0.00345 *6*; α(O)=0.000485 *7*; α(P)=1.31×10^{-5} *15* Mult.,δ: α(K)exp=0.16 *3* (1972Ad12).
^{x}237.7 *2*	11 *2*								%Iγ=0.168 *31*
259.25 *20*	57 *4*	1512.44	(1/2)$^-$	1253.08	3/2$^-$	M1+E2	0.85 *23*	0.228 *25*	%Iγ=0.87 *7* α(K)=0.180 *24*; α(L)=0.0371 *8*; α(M)=0.00866 *13* α(N)=0.00206 *4*; α(O)=0.000310 *9*; α(P)=1.61×10^{-5} *24* Mult.,δ: α(K)exp=0.18 *2* and α(L1)+α(L2)<0.021 (1972Ad12).
271.02 *9*	245 *8*	487.64	1/2$^+$	216.61	1/2$^-$	E1		0.0283	%Iγ=3.73 *21* α(K)=0.0237 *4*; α(L)=0.00363 *5*; α(M)=0.000820 *12* α(N)=0.000194 *3*; α(O)=2.98×10^{-5} *5*; α(P)=1.79×10^{-6} *3* Mult.: α(K)exp=0.0235 was used for normalizing of the ce intensities. See 1972Ad12 for details. α(L1)exp <0.002 (1972Ad12).
^{x}277.85 *20*	22 *3*					E2		0.1035	%Iγ=0.34 *5* α(K)=0.0687 *10*; α(L)=0.0266 *4*; α(M)=0.00648 *10* α(N)=0.001524 *22*; α(O)=0.000213 *3*; α(P)=5.34×10^{-6} *8* Mult.: α(K)exp≈0.07 (1972Ad12).
280.80 *9*	54 *6*	497.44	3/2$^+$	216.61	1/2$^-$	(E1)		0.0260	%Iγ=0.82 *10* α(K)=0.0217 *3*; α(L)=0.00332 *5*; α(M)=0.000749 *11* α(N)=0.0001776 *25*; α(O)=2.73×10^{-5} *4*; α(P)=1.648×10^{-6} *24* Mult.: α(K)exp<0.056 (1972Ad12).
^{x}283.5 *5*	16 *3*								%Iγ=0.24 *5* E_γ,I_γ: From 1973Be66.
304.3 *3*	12 *4*	1253.08	3/2$^-$	948.22	(5/2)$^+$	[E1]		0.0214	%Iγ=0.18 *6* α(K)=0.0179 *3*; α(L)=0.00272 *4*; α(M)=0.000613 *9* α(N)=0.0001453 *21*; α(O)=2.24×10^{-5} *4*; α(P)=1.367×10^{-6} *20*

From ENSDF

$^{177}_{73}$Ta$_{104}$-5

γ(^{177}Ta) (continued)

E_γ†	I_γ†@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ‡	α#	Comments
x305.85 20	35 5					(E2)		0.0774	%Iγ=0.53 8 α(K)=0.0532 8; α(L)=0.0186 3; α(M)=0.00450 7 α(N)=0.001060 15; α(O)=0.0001495 22; α(P)=4.21×10^{-6} 6 Mult.: α(K)exp<0.06 (1972Ad12).
308.25 9	57 8	948.22	(5/2)$^+$	639.98	5/2$^+$	M1(+E2)	≤0.7	0.169 19	%Iγ=0.87 13 α(K)=0.139 18; α(L)=0.0232 11; α(M)=0.00529 20 α(N)=0.00126 5; α(O)=0.000197 11; α(P)=1.28×10^{-5} 17 Mult.,δ: α(K)exp=0.149 25 (1972Ad12).
311.28 9	85 9	497.44	3/2$^+$	186.15	5/2$^-$	E1		0.0202	%Iγ=1.30 15 α(K)=0.01692 24; α(L)=0.00257 4; α(M)=0.000579 9 α(N)=0.0001374 20; α(O)=2.12×10^{-5} 3; α(P)=1.298×10^{-6} 19 Mult.: α(K)exp≈0.0118 12 (1972Ad12).
x316.3 2	6 2								%Iγ=0.091 31
317.75 9	35 4	690.28	(3/2)$^-$	372.57	3/2$^-$	M1+E2	0.6 4	0.145 25	%Iγ=0.53 7 α(K)=0.119 23; α(L)=0.0206 15; α(M)=0.0047 3 α(N)=0.00113 7; α(O)=0.000175 15; α(P)=1.08×10^{-5} 23 Mult.,δ: α(K)exp=0.12 2 (1972Ad12).
367.52 4	260 15	864.97	3/2$^+$	497.44	3/2$^+$	M1		0.1171	%Iγ=3.96 29 α(K)=0.0977 14; α(L)=0.01502 21; α(M)=0.00340 5 α(N)=0.000813 12; α(O)=0.0001290 18; α(P)=9.00×10^{-6} 13 Mult.: α(K)exp=0.10 1, α(L)exp≈0.019 (1972Ad12). Other: α(K)exp=0.133 25 (1967Hu02).
377.35 5	285 15	864.97	3/2$^+$	487.64	1/2$^+$	M1		0.1092	%Iγ=4.34 30 α(K)=0.0911 13; α(L)=0.01400 20; α(M)=0.00317 5 α(N)=0.000758 11; α(O)=0.0001202 17; α(P)=8.39×10^{-6} 12 Mult.: α(K)exp=0.098 6, α(L)exp=0.0176 20 (1972Ad12). Other: α(K)exp=0.093 30 (1967Hu02).
382.3 2	42 3	1476.31	(3/2)$^-$	1094.03	(1/2)$^-$	M1		0.1054	%Iγ=0.64 5 α(K)=0.0880 13; α(L)=0.01352 19; α(M)=0.00306 5 α(N)=0.000732 11; α(O)=0.0001161 17; α(P)=8.10×10^{-6} 12 Mult.: α(K)exp=0.124 15 (1972Ad12).
388.8 4	104 6	1253.08	3/2$^-$	864.97	3/2$^+$	E1		0.01199	%Iγ=1.59 12 α(K)=0.01005 15; α(L)=0.001501 22; α(M)=0.000338 5 α(N)=8.03×10^{-5} 12; α(O)=1.244×10^{-5} 18; α(P)=7.86×10^{-7} 12 E_γ: ΔEγ estimated by the evaluator. 0.1 keV reported in 1972Ad12, but the transition is 4σ from that calculated from the level differences. Mult.: α(K)exp=0.0096 20 (1972Ad12).
417.16 5	380 20	487.64	1/2$^+$	70.48	5/2$^+$	E2		0.0322	%Iγ=5.8 4 α(K)=0.0240 4; α(L)=0.00630 9; α(M)=0.001501 21 α(N)=0.000355 5; α(O)=5.15×10^{-5} 8; α(P)=1.99×10^{-6} 3 Mult.: α(K)exp=0.026 3(1972Ad12). Other: α(K)exp=0.025 5 (1967Hu02).

From ENSDF

$^{177}_{73}$Ta$_{104}$-6

γ(^{177}Ta) (continued)

Eγ†	Iγ†@	Ei(level)	J^π_i	Ef	J^π_f	Mult.‡	α#	Comments
418.35 *10*	54 *10*	1512.44	(1/2)$^-$	1094.03	(1/2)$^-$	M1	0.0831	%Iγ=0.82 *16* α(K)=0.0694 *10*; α(L)=0.01063 *15*; α(M)=0.00240 *4* α(N)=0.000575 *8*; α(O)=9.12×10^{-5} *13*; α(P)=6.38×10^{-6} *9* Mult.: α(K)exp=0.056 *12* (1972Ad12).
x424.0 *1*	56 *14*					(E2)	0.0308	%Iγ=0.85 *22* α(K)=0.0231 *4*; α(L)=0.00598 *9*; α(M)=0.001422 *20* α(N)=0.000336 *5*; α(O)=4.89×10^{-5} *7*; α(P)=1.91×10^{-6} *3* Mult.: α(K)exp≈0.04 (1972Ad12).
426.98 *5*	818 *37*	497.44	3/2$^+$	70.48	5/2$^+$	M1	0.0787	%Iγ=12.5 *8* α(K)=0.0658 *10*; α(L)=0.01007 *14*; α(M)=0.00228 *4* α(N)=0.000545 *8*; α(O)=8.64×10^{-5} *13*; α(P)=6.04×10^{-6} *9* Mult.: α(K)exp=0.071 *8*, α(L)exp=0.0110 *13*, α(M)exp=0.00183 *8* (1972Ad12). Other: α(K)exp=0.071 *10* (1967Hu02).
431.45 *10*	47 *5*	1476.31	(3/2)$^-$	1044.80	3/2$^-$	[M1]	0.0766	%Iγ=0.72 *8* α(K)=0.0640 *9*; α(L)=0.00979 *14*; α(M)=0.00221 *4* α(N)=0.000530 *8*; α(O)=8.41×10^{-5} *12*; α(P)=5.88×10^{-6} *9* Mult.: α(K)exp≈0.13 and α(L)exp≈0.021 (1972Ad12).
x436.6 *1*	33 *3*							%Iγ=0.50 *5*
450.6 *2*	80 *2*	948.22	(5/2)$^+$	497.44	3/2$^+$	M1	0.0684	%Iγ=1.22 *6* α(K)=0.0571 *8*; α(L)=0.00873 *13*; α(M)=0.00197 *3* α(N)=0.000472 *7*; α(O)=7.49×10^{-5} *11*; α(P)=5.24×10^{-6} *8* Mult.: α(K)exp=0.063 *13*,α(L)exp<0.013 (1972Ad12).
x457.2 *4*	17 *1*					(M1)	0.0658	%Iγ=0.259 *19* α(K)=0.0550 *8*; α(L)=0.00840 *12*; α(M)=0.00190 *3* α(N)=0.000454 *7*; α(O)=7.21×10^{-5} *11*; α(P)=5.04×10^{-6} *8* Mult.: α(K)exp≈0.06 (1972Ad12).
467.5 *3*	44 *2*	639.98	5/2$^+$	172.25	7/2$^+$	M1	0.0621	%Iγ=0.67 *4* α(K)=0.0519 *8*; α(L)=0.00792 *12*; α(M)=0.00179 *3* α(N)=0.000428 *6*; α(O)=6.80×10^{-5} *10*; α(P)=4.76×10^{-6} *7* Mult.: α(K)exp=0.052 *14* (1972Ad12).
471.8 *1*		1044.80	3/2$^-$	573.01	(1/2)$^+$	[E1]	0.00775	%Iγ=1.22 *6* α(K)=0.00652 *10*; α(L)=0.000960 *14*; α(M)=0.000216 *3* α(N)=5.13×10^{-5} *8*; α(O)=7.99×10^{-6} *12*; α(P)=5.16×10^{-7} *8* Eγ,Iγ: The γ-ray was been observed. The energy determined from the conversion electron measurement (1972Ad12).
473.5 *2*	80 *2*	690.28	(3/2)$^-$	216.61	1/2$^-$	[M1]	0.0600	%Iγ=1.22 *6* α(K)=0.0502 *7*; α(L)=0.00765 *11*; α(M)=0.001731 *25* α(N)=0.000414 *6*; α(O)=6.57×10^{-5} *10*; α(P)=4.60×10^{-6} *7*
x497.7 *3*	8 *2*							%Iγ=0.122 *31*
x500.6 *4*	3 *1*							%Iγ=0.046 *15*
502.4 *3*	50 *5*	573.01	(1/2)$^+$	70.48	5/2$^+$	E2	0.0199	%Iγ=0.76 *8* α(K)=0.01535 *22*; α(L)=0.00351 *5*; α(M)=0.000828 *12* α(N)=0.000196 *3*; α(O)=2.89×10^{-5} *4*; α(P)=1.294×10^{-6} *19* Mult.: α(K)exp=0.0160 *34* (1972Ad12).

From ENSDF

$^{177}_{73}$Ta$_{104}$-7

$\gamma(^{177}$Ta) (continued)

E_γ[†]	I_γ[†@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[#]	Comments
504.2 *4*	8 *2*	690.28	(3/2)$^-$	186.15	5/2$^-$	[M1]	0.0510	%Iγ=0.122 *31* α(K)=0.0426 *6*; α(L)=0.00649 *10*; α(M)=0.001467 *21* α(N)=0.000351 *5*; α(O)=5.57×10^{-5} *8*; α(P)=3.90×10^{-6} *6*
528.5 *2*	147 *2*	1476.58	(3/2)$^+$	948.22	(5/2)$^+$	(E2)	0.01757	%Iγ=2.24 *10* α(K)=0.01364 *20*; α(L)=0.00302 *5*; α(M)=0.000709 *10* α(N)=0.0001681 *24*; α(O)=2.49×10^{-5} *4*; α(P)=1.155×10^{-6} *17* E_γ: Assignment made by 1993Br06. Mult.: α(K)exp=0.0088 *20* and α(L)exp=0.0044 *8* (1972Ad12). Other: α(K)exp=0.013 *4* (1967Hu02).
^{x}551.5 *6*	5 *2*							%Iγ=0.076 *31*
563.0 *4*	9 *2*	1253.08	3/2$^-$	690.28	(3/2)$^-$	E0+M1+E2	0.089 *21*	%Iγ=0.137 *31* α(K)=0.0321 *5*; α(L)=0.00486 *7*; α(M)=0.001098 *16* α(N)=0.000263 *4*; α(O)=4.17×10^{-5} *6*; α(P)=2.93×10^{-6} *5* α: α(K)exp. Mult.: α(K)exp=0.089 *21* (1972Ad12).
^{x}568.1 *3*	50 *2*					(M1)	0.0374	%Iγ=0.76 *5* α(K)=0.0313 *5*; α(L)=0.00475 *7*; α(M)=0.001073 *15* α(N)=0.000257 *4*; α(O)=4.08×10^{-5} *6*; α(P)=2.86×10^{-6} *4* Mult.: α(K)exp=0.030 *4* (1972Ad12). Other: α(K)exp=0.039 *8* (1967Hu02).
^{x}577.7 *4*	15 *4*							%Iγ=0.23 *6*
^{x}585.7 *3*	44 *3*							%Iγ=0.67 *5* E_γ,I_γ: From 1973Be66.
611.8 *2*	368 *8*	1476.58	(3/2)$^+$	864.97	3/2$^+$	E2	0.01238	%Iγ=5.61 *28* α(K)=0.00980 *14*; α(L)=0.00199 *3*; α(M)=0.000463 *7* α(N)=0.0001100 *16*; α(O)=1.651×10^{-5} *24*; α(P)=8.36×10^{-7} *12* E_γ: Assignment made by 1993Br06. Mult.: α(K)exp=0.0082 *8* and α(L)exp≈0.0014 (1972Ad12). Other: α(K)exp=0.0079 *24* (1967Hu02).
^{x}619.4 *4*	19 *4*							%Iγ=0.29 *6*
^{x}642.3 *3*	10 *4*							%Iγ=0.15 *6*
647.3 *2*	158 *4*	1512.44	(1/2)$^-$	864.97	3/2$^+$	E1	0.00397	%Iγ=2.41 *12* α(K)=0.00335 *5*; α(L)=0.000483 *7*; α(M)=0.0001083 *16* α(N)=2.58×10^{-5} *4*; α(O)=4.04×10^{-6} *6*; α(P)=2.69×10^{-7} *4* Mult.: α(K)exp=0.0044 *13* (1972Ad12). Other: α(K)exp=0.0067 *20* (1967Hu02).
672.15 *20*	121 *5*	1044.80	3/2$^-$	372.57	3/2$^-$	M1	0.0243	%Iγ=1.84 *11* α(K)=0.0204 *3*; α(L)=0.00307 *5*; α(M)=0.000694 *10* α(N)=0.0001660 *24*; α(O)=2.64×10^{-5} *4*; α(P)=1.86×10^{-6} *3* Mult.: α(K)exp=0.025 *3*, α(L)exp=0.0025 *8* (1972Ad12). Other: α(K)exp=0.027 *7* (1967Hu02).
678.5 *3*	35 *3*	1543.46	3/2$^-$	864.97	3/2$^+$	[E1]	0.00361	%Iγ=0.53 *5* α(K)=0.00304 *5*; α(L)=0.000438 *7*; α(M)=9.81×10^{-5} *14* α(N)=2.34×10^{-5} *4*; α(O)=3.66×10^{-6} *6*; α(P)=2.45×10^{-7} *4*
^{x}694.7 *3*	13 *2*							%Iγ=0.198 *32*

From ENSDF

γ(^{177}Ta) (continued)

E_γ†	I_γ†@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	α#	Comments
^{x}707.0 *3*	11 *2*							%Iγ=0.168 *31*
^{x}711.2 *5*	16 *3*					(M1)	0.0211	%Iγ=0.24 *5* α(K)=0.01766 *25*; α(L)=0.00266 *4*; α(M)=0.000600 *9* α(N)=0.0001435 *21*; α(O)=2.28×10^{-5} *4*; α(P)=1.606×10^{-6} *23* Mult.: α(K)exp=0.028 *7* (1972Ad12).
^{x}714.0 *5*	11 *3*							%Iγ=0.17 *5*
721.6 *3*	73 *5*	1094.03	(1/2)$^-$	372.57	3/2$^-$	M1	0.0203	%Iγ=1.11 *9* α(K)=0.01703 *24*; α(L)=0.00256 *4*; α(M)=0.000578 *9* α(N)=0.0001383 *20*; α(O)=2.20×10^{-5} *3*; α(P)=1.548×10^{-6} *22* Mult.: α(K)exp=0.021 *3* (1972Ad12).
^{x}755.0 *5*	9 *2*							%Iγ=0.137 *31*
^{x}759.0 *5*	35 *5*					(M1)	0.0179	%Iγ=0.53 *8* α(K)=0.01499 *22*; α(L)=0.00225 *4*; α(M)=0.000508 *8* α(N)=0.0001215 *18*; α(O)=1.93×10^{-5} *3*; α(P)=1.361×10^{-6} *20* Mult.: α(K)exp=0.016 *3* (1972Ad12).
^{x}771.5 *5*	9 *2*							%Iγ=0.137 *31*
^{x}775.5 *5*	4 *2*							%Iγ=0.061 *31*
785.9 *4*	64 *7*	1476.31	(3/2)$^-$	690.28	(3/2)$^-$	M1	0.01638	%Iγ=0.98 *12* α(K)=0.01373 *20*; α(L)=0.00206 *3*; α(M)=0.000465 *7* α(N)=0.0001111 *16*; α(O)=1.766×10^{-5} *25*; α(P)=1.246×10^{-6} *18* Mult.: α(K)exp=0.014 *3* (1972Ad12).
^{x}789.0 *6*	4 *2*							%Iγ=0.061 *31*
793.6 *4*	36 *4*	864.97	3/2$^+$	70.48	5/2$^+$	M1(+E2)	0.01599	%Iγ=0.55 *7* α(K)=0.01340 *19*; α(L)=0.00201 *3*; α(M)=0.000453 *7* α(N)=0.0001084 *16*; α(O)=1.723×10^{-5} *25*; α(P)=1.216×10^{-6} *17* Mult.: α(K)exp=0.013 *3* (1972Ad12).
822.0 *6*	7 *2*	1512.44	(1/2)$^-$	690.28	(3/2)$^-$	[M1]	0.01463	%Iγ=0.107 *31* α(K)=0.01227 *18*; α(L)=0.00184 *3*; α(M)=0.000414 *6* α(N)=9.91×10^{-5} *14*; α(O)=1.575×10^{-5} *23*; α(P)=1.112×10^{-6} *16*
827.9 *4*	64 *4*	1044.80	3/2$^-$	216.61	1/2$^-$	M1	0.01437	%Iγ=0.98 *7* α(K)=0.01205 *17*; α(L)=0.00180 *3*; α(M)=0.000407 *6* α(N)=9.73×10^{-5} *14*; α(O)=1.547×10^{-5} *22*; α(P)=1.092×10^{-6} *16* Mult.: α(K)exp=0.013 *3* (1972Ad12).
836.2 *3*	63 *4*	1476.58	(3/2)$^+$	639.98	5/2$^+$	(E2)	0.00621	%Iγ=0.96 *7* α(K)=0.00506 *7*; α(L)=0.000888 *13*; α(M)=0.000204 *3* α(N)=4.85×10^{-5} *7*; α(O)=7.45×10^{-6} *11*; α(P)=4.35×10^{-7} *6* E_γ: Assignment made by 1993Br06. Mult.: α(K)exp<0.0048 (1972Ad12), consistent with both E1 and E2.
858.4 *3*	43 *3*	1044.80	3/2$^-$	186.15	5/2$^-$	M1	0.01313	%Iγ=0.66 *5* α(K)=0.01101 *16*; α(L)=0.001645 *23*; α(M)=0.000371 *6* α(N)=8.88×10^{-5} *13*; α(O)=1.411×10^{-5} *20*; α(P)=9.97×10^{-7} *14* Mult.: α(K)exp=0.016 *5* (1972Ad12).
877.2 *4*	75 *10*	1094.03	(1/2)$^-$	216.61	1/2$^-$	M1	0.01243	%Iγ=1.14 *16*

γ(^{177}Ta) (continued)

E_γ †	I_γ †@	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	α#	Comments
								α(K)=0.01043 *15*; α(L)=0.001558 *22*; α(M)=0.000351 *5* α(N)=8.40×10^{-5} *12*; α(O)=1.336×10^{-5} *19*; α(P)=9.44×10^{-7} *14* Mult.: α(K)exp=0.015 *3* (1972Ad12). Other: α(K)exp=0.0092 *28* (1967Hu02).
880.2 *4*	75 *10*	1253.08	3/2$^-$	372.57	3/2$^-$	M1	0.01233	%Iγ=1.14 *16* α(K)=0.01034 *15*; α(L)=0.001544 *22*; α(M)=0.000348 *5* α(N)=8.33×10^{-5} *12*; α(O)=1.324×10^{-5} *19*; α(P)=9.36×10^{-7} *14* Mult.: α(K)exp=0.015 *3* (1972Ad12).
^{x}889.5 *5*	11 *3*							%Iγ=0.17 *5*
903.5 *3*	24 *3*	1543.46	3/2$^-$	639.98	5/2$^+$	[E1]	0.00207	%Iγ=0.37 *5* α(K)=0.001748 *25*; α(L)=0.000247 *4*; α(M)=5.53×10^{-5} *8* α(N)=1.317×10^{-5} *19*; α(O)=2.08×10^{-6} *3*; α(P)=1.422×10^{-7} *20*
939.2 *3*	47 *3*	1512.44	(1/2)$^-$	573.01	(1/2)$^+$	[E1]	0.00192	%Iγ=0.72 *6* α(K)=0.001626 *23*; α(L)=0.000229 *4*; α(M)=5.13×10^{-5} *8* α(N)=1.223×10^{-5} *18*; α(O)=1.93×10^{-6} *3*; α(P)=1.324×10^{-7} *19*
978.8 *3*	21 *1*	1476.58	(3/2)$^+$	497.44	3/2$^+$	[M1]	0.00946	%Iγ=0.320 *21* α(K)=0.00794 *12*; α(L)=0.001182 *17*; α(M)=0.000266 *4* α(N)=6.37×10^{-5} *9*; α(O)=1.013×10^{-5} *15*; α(P)=7.17×10^{-7} *10* E_γ: Assignment made by 1993Br06.
990.2 *3*	50 *3*	1487.72	(1/2)$^-$	497.44	3/2$^+$	[E1]	1.74×10^{-3}	%Iγ=0.76 *6* α(K)=0.001474 *21*; α(L)=0.000207 *3*; α(M)=4.64×10^{-5} *7* α(N)=1.106×10^{-5} *16*; α(O)=1.745×10^{-6} *25*; α(P)=1.203×10^{-7} *17* E_γ: Assignment made by 1993Br06. It was placed by 1972Ad12 and 1973Be66 to depopulate 1476.2 keV level.
1000.0 *3*	33 *1*	1487.72	(1/2)$^-$	487.64	1/2$^+$	[E1]	1.71×10^{-3}	%Iγ=0.503 *27* α(K)=0.001448 *21*; α(L)=0.000204 *3*; α(M)=4.55×10^{-5} *7* α(N)=1.085×10^{-5} *16*; α(O)=1.713×10^{-6} *24*; α(P)=1.181×10^{-7} *17* E_γ: Assignment made by 1993Br06.
^{x}1004.7 *3*	23 *3*							%Iγ=0.35 *5*
1014.9 *3*	297 *6*	1512.44	(1/2)$^-$	497.44	3/2$^+$	E1	1.66×10^{-3}	%Iγ=4.53 *22* α(K)=0.001409 *20*; α(L)=0.000198 *3*; α(M)=4.43×10^{-5} *7* α(N)=1.056×10^{-5} *15*; α(O)=1.667×10^{-6} *24*; α(P)=1.150×10^{-7} *17* Mult.: α(K)exp=0.0017 *3* (1972Ad12). Other: α(K)exp=0.0021 *6* (1967Hu02).
1036.4 *3*	635 *12*	1253.08	3/2$^-$	216.61	1/2$^-$	M1	0.00821	%Iγ=9.7 *5* α(K)=0.00689 *10*; α(L)=0.001024 *15*; α(M)=0.000231 *4* α(N)=5.52×10^{-5} *8*; α(O)=8.78×10^{-6} *13*; α(P)=6.22×10^{-7} *9* Mult.: α(K)exp=0.0074 *8* and α(L)exp=0.0016 *3* (1972Ad12). Other: α(K)exp=0.0048 *6* (1967Hu02).
1045.9 *3*	26 *2*	1543.46	3/2$^-$	497.44	3/2$^+$	[E1]	1.58×10^{-3}	%Iγ=0.396 *35* α(K)=0.001334 *19*; α(L)=0.000187 *3*; α(M)=4.19×10^{-5} *6* α(N)=9.98×10^{-6} *14*; α(O)=1.576×10^{-6} *22*; α(P)=1.090×10^{-7} *16*

From ENSDF

$^{177}_{73}$Ta$_{104}$-10

^{177}W ε decay 1972Ad12 (continued)

γ(^{177}Ta) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	α [#]	Comments
^{x}1052.5 *5*	11 *2*							%Iγ=0.168 *31*
1055.8 *3*	40 *3*	1543.46	3/2$^-$	487.64	1/2$^+$	[E1]	1.55×10^{-3}	%Iγ=0.61 *5* α(K)=0.001312 *19*; α(L)=0.000184 *3*; α(M)=4.11×10^{-5} *6* α(N)=9.80×10^{-6} *14*; α(O)=1.549×10^{-6} *22*; α(P)=1.071×10^{-7} *15*
1066.9 *3*	192 *5*	1253.08	3/2$^-$	186.15	5/2$^-$	M1	0.00764	%Iγ=2.93 *15* α(K)=0.00641 *9*; α(L)=0.000952 *14*; α(M)=0.000214 *3* α(N)=5.13×10^{-5} *8*; α(O)=8.16×10^{-6} *12*; α(P)=5.79×10^{-7} *9* Mult.: α(K)exp=0.0057 *6* (1972Ad12). Other: α(K)exp=0.0048 *11* (1967Hu02).
^{x}1082.9 *4*	9 *3*							%Iγ=0.14 *5*
^{x}1090.1 *4*	10 *3*							%Iγ=0.15 *5*
1103.7 *4*	17 *2*	1476.31	(3/2)$^-$	372.57	3/2$^-$	[M1]	0.00703	%Iγ=0.259 *33* α(K)=0.00590 *9*; α(L)=0.000875 *13*; α(M)=0.000197 *3* α(N)=4.71×10^{-5} *7*; α(O)=7.50×10^{-6} *11*; α(P)=5.32×10^{-7} *8*; α(IPF)=3.39×10^{-7} *8*
1115.2 *4*	8 *3*	1487.72	(1/2)$^-$	372.57	3/2$^-$	[M1]	0.00685	%Iγ=0.12 *5* α(K)=0.00575 *8*; α(L)=0.000852 *12*; α(M)=0.000192 *3* α(N)=4.59×10^{-5} *7*; α(O)=7.31×10^{-6} *11*; α(P)=5.18×10^{-7} *8*; α(IPF)=5.39×10^{-7} *12* Eγ: Assignment made by 1993Br06.
1140.5 *3*	49 *2*	1512.44	(1/2)$^-$	372.57	3/2$^-$	(M1)	0.00648	%Iγ=0.75 *5* α(K)=0.00544 *8*; α(L)=0.000806 *12*; α(M)=0.000182 *3* α(N)=4.34×10^{-5} *6*; α(O)=6.91×10^{-6} *10*; α(P)=4.90×10^{-7} *7*; α(IPF)=1.333×10^{-6} *23* Mult.: α(K)exp≈0.006 (1972Ad12).
^{x}1166.8 *6*	8 *3*							%Iγ=0.12 *5*
1170.9 *3*	33 *3*	1543.46	3/2$^-$	372.57	3/2$^-$	M1	0.00608	%Iγ=0.50 *5* α(K)=0.00510 *8*; α(L)=0.000755 *11*; α(M)=0.0001700 *24* α(N)=4.07×10^{-5} *6*; α(O)=6.47×10^{-6} *9*; α(P)=4.59×10^{-7} *7*; α(IPF)=3.26×10^{-6} *6* Mult.: α(K)exp≈0.0046 *4* (1972Ad12).
1182.5 *3*	230 *5*	1253.08	3/2$^-$	70.48	5/2$^+$	E1	1.28×10^{-3}	%Iγ=3.51 *17* α(K)=0.001071 *15*; α(L)=0.0001494 *21*; α(M)=3.34×10^{-5} *5* α(N)=7.96×10^{-6} *12*; α(O)=1.259×10^{-6} *18*; α(P)=8.77×10^{-8} *13*; α(IPF)=1.400×10^{-5} *22* Mult.: α(K)exp=0.00109 *22* (1972Ad12).
^{x}1213.1 *4*	4 *1*							%Iγ=0.061 *15*
^{x}1220.1 *4*	13 *1*							%Iγ=0.198 *18*
^{x}1245.6 *4*	9 *1*							%Iγ=0.137 *16*
1253.7 *4*	9 *1*	1253.08	3/2$^-$	0.0	7/2$^+$	[M2]	0.01230	%Iγ=0.137 *16* α(K)=0.01021 *15*; α(L)=0.001617 *23*; α(M)=0.000368 *6* α(N)=8.81×10^{-5} *13*; α(O)=1.396×10^{-5} *20*; α(P)=9.71×10^{-7} *14*; α(IPF)=3.75×10^{-6} *6*

$\gamma(^{177}$Ta) (continued)

E_γ [†]	I_γ [†@]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	α [#]	Comments
1259.7 *4*	8 *1*	1476.31	(3/2)$^-$	216.61	1/2$^-$	[M1]	0.00509	%Iγ=0.122 *16* α(K)=0.00426 *6*; α(L)=0.000630 *9*; α(M)=0.0001417 *20* α(N)=3.39×10^{-5} *5*; α(O)=5.40×10^{-6} *8*; α(P)=3.84×10^{-7} *6*; α(IPF)=1.592×10^{-5} *24*
1271.1 *5*	3 *1*	1487.72	(1/2)$^-$	216.61	1/2$^-$	E0+M1	0.13 *6*	%Iγ=0.046 *15* α(K)=0.00417 *6*; α(L)=0.000616 *9*; α(M)=0.0001386 *20* α(N)=3.32×10^{-5} *5*; α(O)=5.28×10^{-6} *8*; α(P)=3.75×10^{-7} *6*; α(IPF)=1.81×10^{-5} *3* E_γ: Assignment made by 1993Br06. α: α(K)exp. Mult.: α(K)exp=0.13 *6* and α(L)exp=0.033 *20* (1972Ad12).
^{x}1276.3 *4*	8 *2*							%Iγ=0.122 *31*
1290.1 *5*	4 *1*	1476.31	(3/2)$^-$	186.15	5/2$^-$	[M1]	0.00481	%Iγ=0.061 *15* α(K)=0.00402 *6*; α(L)=0.000593 *9*; α(M)=0.0001336 *19* α(N)=3.20×10^{-5} *5*; α(O)=5.09×10^{-6} *8*; α(P)=3.62×10^{-7} *5*; α(IPF)=2.20×10^{-5} *4*
1296.1 *3*	30 *1*	1512.44	(1/2)$^-$	216.61	1/2$^-$	E0+M1	0.033 *5*	%Iγ=0.457 *25* α(K)=0.00398 *6*; α(L)=0.000587 *9*; α(M)=0.0001321 *19* α(N)=3.16×10^{-5} *5*; α(O)=5.03×10^{-6} *7*; α(P)=3.58×10^{-7} *5*; α(IPF)=2.33×10^{-5} *4* α: α(K)exp. Mult.: α(K)exp=0.033 *5* and α(L)≈0.0067 (1972Ad12).
1301.8 *4*	15 *1*	1487.72	(1/2)$^-$	186.15	5/2$^-$	[E2]	0.00258	%Iγ=0.229 *18* α(K)=0.00213 *3*; α(L)=0.000330 *5*; α(M)=7.48×10^{-5} *11* α(N)=1.78×10^{-5} *3*; α(O)=2.79×10^{-6} *4*; α(P)=1.83×10^{-7} *3*; α(IPF)=1.81×10^{-5} *3* E_γ: Assignment made by 1993Br06.
^{x}1322.0 *5*	3 *1*							%Iγ=0.046 *15*
1326.8 *3*	33 *2*	1512.44	(1/2)$^-$	186.15	5/2$^-$	[E2]	0.00249	%Iγ=0.50 *4* α(K)=0.00206 *3*; α(L)=0.000317 *5*; α(M)=7.19×10^{-5} *10* α(N)=1.714×10^{-5} *24*; α(O)=2.69×10^{-6} *4*; α(P)=1.765×10^{-7} *25*; α(IPF)=2.27×10^{-5} *4*
1357.5 *4*	11 *1*	1543.46	3/2$^-$	186.15	5/2$^-$	[M1]	0.00427	%Iγ=0.168 *17* α(K)=0.00355 *5*; α(L)=0.000523 *8*; α(M)=0.0001178 *17* α(N)=2.82×10^{-5} *4*; α(O)=4.48×10^{-6} *7*; α(P)=3.19×10^{-7} *5*; α(IPF)=3.97×10^{-5} *6*
1406.1 *3*	17 *2*	1476.58	(3/2)$^+$	70.48	5/2$^+$	[M1]	0.00393	%Iγ=0.259 *33* α(K)=0.00326 *5*; α(L)=0.000480 *7*; α(M)=0.0001080 *16* α(N)=2.58×10^{-5} *4*; α(O)=4.11×10^{-6} *6*; α(P)=2.93×10^{-7} *5*; α(IPF)=5.61×10^{-5} *8* E_γ: Assignment made by 1993Br06.

† From 1972Ad12, unless otherwise stated.

‡ From experimental conversion coefficients and subshell ratios, unless otherwise stated. The δ values were deduced using the briccmixing program, unless otherwise stated.

\# Additional information 1.

@ For absolute intensity per 100 decays, multiply by 0.0152 *7*.

^{x} γ ray not placed in level scheme.

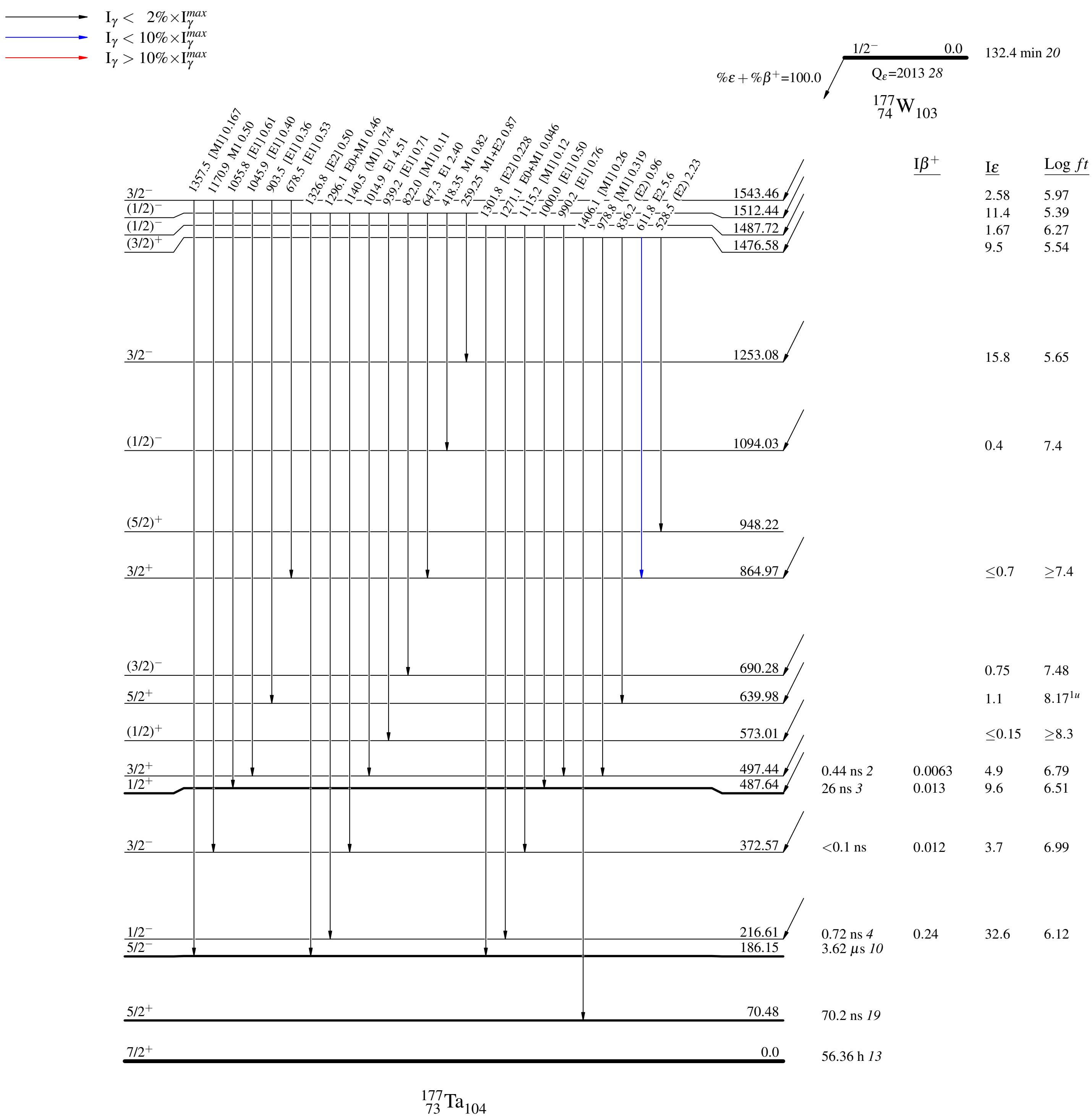
$^{177}_{73}$Ta$_{104}$-12

^{177}W ε decay 1972Ad12

Decay Scheme

Intensities: I_γ per 100 parent decays

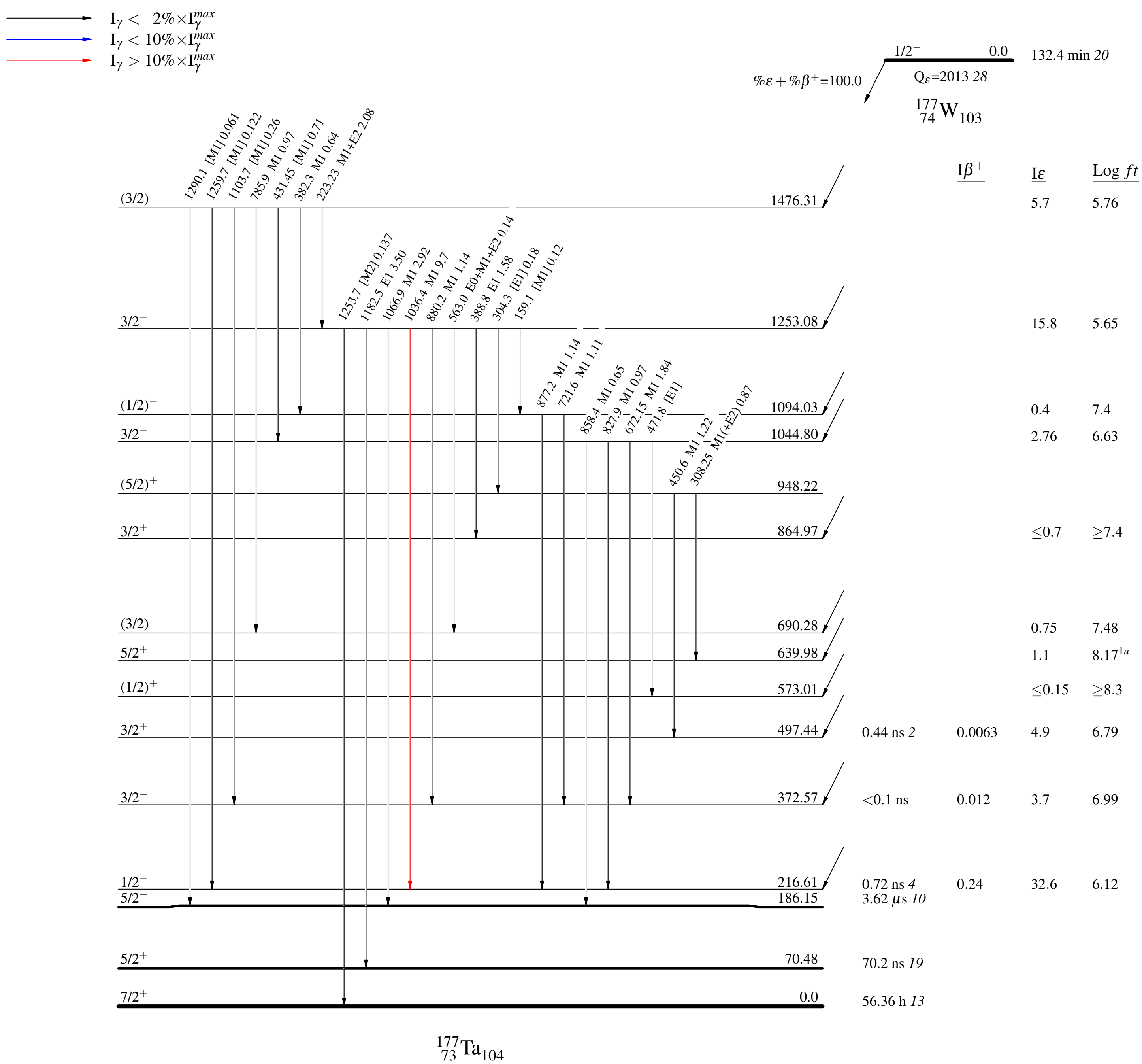
Legend

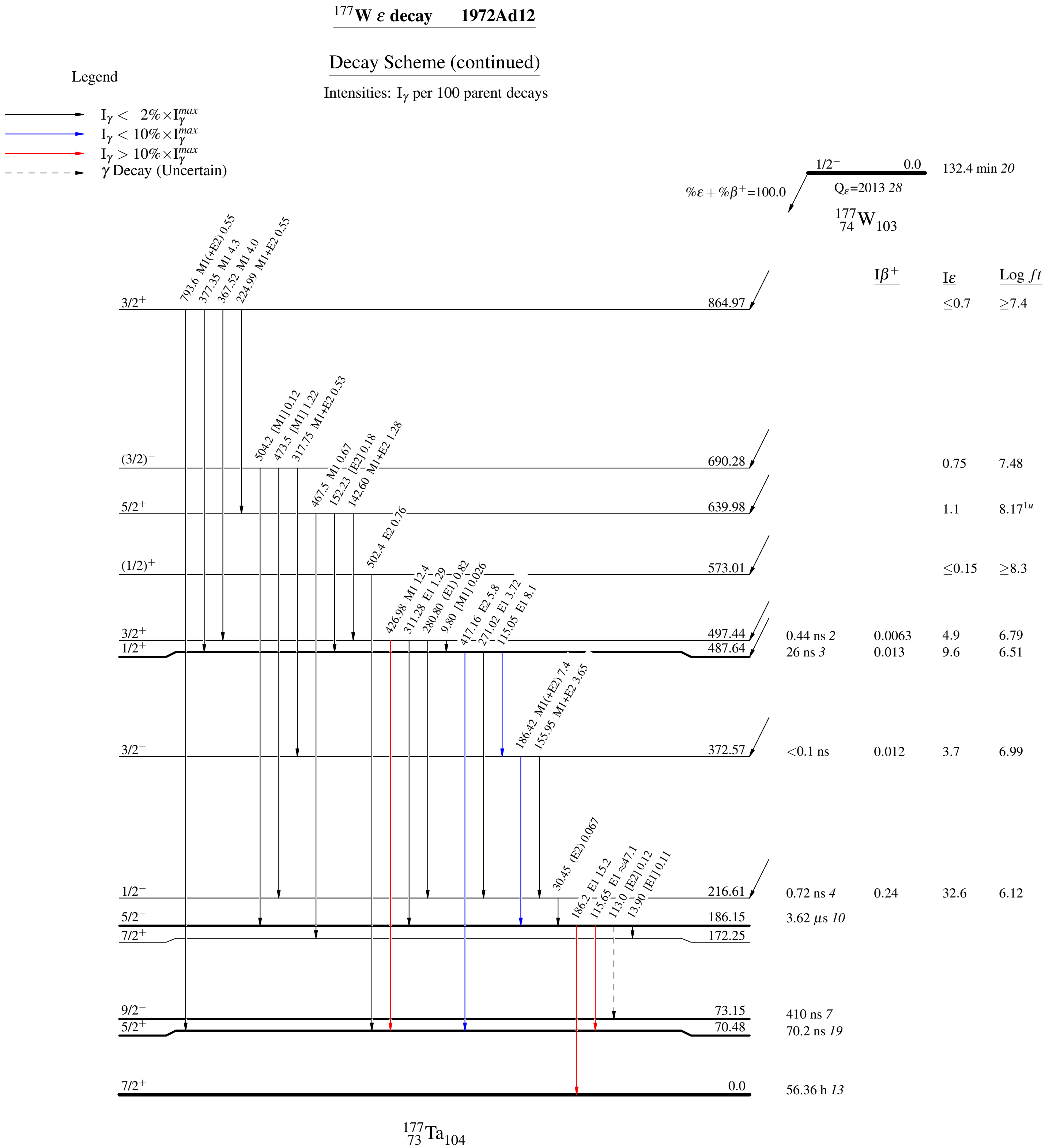


^{177}W ε decay 1972Ad12

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays





^{177}W ε decay 1972Ad12
Decay Scheme (continued)
Intensities: I_γ 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)
1/2− 0.0 132.4 min 20
%ε+%β+=100.0
Qε=2013 28
$^{177}_{74}W_{103}$
Iβ+ Iε Log ft
3/2+ 864.97 ≤0.7 ≥7.4
793.6 M1(+E2) 0.55
377.35 M1 4.3
367.52 M1 4.0
224.99 M1+E2 0.55
(3/2)− 690.28 0.75 7.48
504.2 [M1] 0.12
473.5 [M1] 1.22
317.75 M1+E2 0.53
5/2+ 639.98 1.1 8.17[1u]
467.5 M1 0.67
152.23 [E2] 0.18
142.60 M1+E2 1.28
(1/2)+ 573.01 ≤0.15 ≥8.3
502.4 E2 0.76
3/2+ 497.44 0.44 ns 2 0.0063 4.9 6.79
1/2+ 487.64 26 ns 3 0.013 9.6 6.51
426.98 M1 12.4
311.28 E1 1.29
280.80 (E1) 0.82
9.80 [M1] 0.026
417.16 E2 5.8
271.02 E1 3.72
115.05 E1 8.1
3/2− 372.57 <0.1 ns 0.012 3.7 6.99
186.42 M1(+E2) 7.4
155.95 M1+E2 3.65
1/2− 216.61 0.72 ns 4 0.24 32.6 6.12
30.45 (E2) 0.067
186.2 E1 15.2
115.65 E1 ≈47.1
113.0 [E2] 0.12
13.90 [E1] 0.11
5/2− 186.15 3.62 μs 10
7/2+ 172.25
9/2− 73.15 410 ns 7
5/2+ 70.48 70.2 ns 19
7/2+ 0.0 56.36 h 13
$^{177}_{73}Ta_{104}$

^{177}W ε decay 1972Ad12

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays