^{177}Ta ε decay 1974Je02,1961We11

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

Parent: ^{177}Ta: E=0.0; $J^\pi=7/2^+$; $T_{1/2}$=56.36 h *13*; Q(ε)=1166 *3*; %ε+%$β^+$ decay=100.0

1974Je02: Source produced using the ^{175}Lu(α,2nγ) reaction. Detectors: 2 Ge(Li) detectors with energy resolution of 2.1 keV at 1333 keV. Measured: γ-ray singles, γγ coin.

1961We11: Source produced using the ^{175}Lu(α,2nγ) and Hf(p,xnγ) reactions at beam energies of 34 MeV and 11 MeV, respectively.

Others: 1960Ha18.

^{177}Hf Levels

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0#	7/2−	stable	
112.9498# *4*	9/2−	0.541 ns *14*	$T_{1/2}$: Other value measured in ^{177}Ta ε decay: 0.32 ns *3*, γce(t) (1961We11).
249.6744# *4*	11/2−	107 ps *10*	
321.3162@ *4*	9/2+	0.665 ns *16*	$T_{1/2}$: Other value measured in ^{177}Ta ε decay: 0.52 ns *3*, γγ(t) (1961We11).
426.6752@ *4*	11/2+	40 ps *3*	
508.13& *5*	5/2−		
604.49& *5*	7/2−		
745.91a *5*	(7/2)+		
805.75b *7*	3/2−		
847.41a *5*	9/2+		
872.96b *6*	(5/2)−		
948.09 *15*	(3/2−,5/2,7/2−)		
1002.83 *5*	(7/2−)		
1057.74c *5*	7/2−		

† From a least squares fit to Eγ.
‡ From Adopted Levels.
# $K^\pi=7/2^-$, ν7/2[514].
@ $K^\pi=9/2^+$, ν9/2[624].
& $K^\pi=5/2^-$, ν5/2[512].
a $K^\pi=7/2^+$, ν7/2[633].
b $K^\pi=3/2^-$, ν3/2[512].
c $K^\pi=7/2^-$, ν7/2[503].

ε,$β^+$ radiations

E(decay)	E(level)	Iε†	Log *ft*	Comments
(108 *3*)	1057.74	0.61 *17*	6.25 *13*	εK=0.481 *21*; εL=0.382 *15*; εM+=0.137 *6*
(163 *3*)	1002.83	0.023 *7*	8.24 *14*	εK=0.666 *6*; εL=0.250 *4*; εM+=0.0846 *15*
(218 *3*)	948.09	0.0014 *5*	9.81 *16*	εK=0.7252 *22*; εL=0.2067 *16*; εM+=0.0681 *6*
(319 *3*)	847.41	0.19 *6*	8.09 *14*	εK=0.7679 *8*; εL=0.1757 *6*; εM+=0.05638 *22*
(360 *3*)	805.75	≤0.0004	≥10.5[1u]	εK=0.6746 *21*; εL=0.2422 *15*; εM+=0.0832 *6*
(420 *3*)	745.91	0.56 *16*	7.90 *13*	εK=0.7864 *4*; εL=0.1623 *3*; εM+=0.05136 *11*
(562 *3*)	604.49	0.16 *5*	8.73 *14*	εK=0.7994 *2*; εL=0.1527 *2*; εM+=0.04783 *6*
(658 *3*)	508.13	0.028 *17*	9.6 *3*	εK=0.8047 *2*; εL=0.1489 *1*; εM+=0.04641 *4*
(739 *3*)	426.6752	≤0.001	≥11.2	εK=0.8080 *1*; εL=0.14647 *8*; εM+=0.04552 *3*

Continued on next page (footnotes at end of table)

^{177}Ta ε decay 1974Je02,1961We11 (continued)

ε,β+ radiations (continued)

E(decay)	E(level)	Iε†	Log *ft*	Comments
(845 *3*)	321.3162	1.4 *4*	8.18 *13*	εK=0.8112; εL=0.14412 *6*; εM+=0.04466 *3*
(916 *3*)	249.6744	0.014 *14*	10.7[1u] *5*	εK=0.7882 *2*; εL=0.1608 *2*; εM+=0.05098 *5*
(1053 *3*)	112.9498	35 *11*	6.98 *14*	εK=0.8156; εL=0.14095 *4*; εM+=0.04350 *2*
(1166 *3*)	0.0	62 *9*	6.83 *7*	εK=0.8172; εL=0.13973 *3*; εM+=0.04305 *1* Iε: From %I(β+)=2.9×10^{-4} *3* in 1961We11 and ε(gs)/β+(gs)=2.15×10^{+5} *24*, deduced from theory using Q(ε)=1166 keV *3* (2017Wa10).

† Absolute intensity per 100 decays.

^{177}Ta ε decay 1974Je02,1961We11 (continued)

γ(^{177}Hf)

Iγ normalization: From I(ε+β$^+$)(g.s.)=62 *9* and Σ Ti(g.s.)=2560 *260* from the decay scheme.

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[#]	Comments
71.6418 *6*	1.58 *13*	321.3162	9/2$^+$	249.6744	11/2$^-$	E1+M2	−0.018 *9*	0.89 *4*	%Iγ=0.023 *6* α(K)=0.711 *24*; α(L)=0.136 *9*; α(M)=0.0311 *22* α(N)=0.0072 *6*; α(O)=0.00101 *8*; α(P)=4.5×10^{-5} *4* I$_\gamma$: From Iγ(71.7γ)/Iγ(208γ)=0.0158 *5* in adopted gammas and Iγ(208γ)=100 *8*.
96.3 *1*	0.97 *15*	604.49	7/2$^-$	508.13	5/2$^-$	M1+E2	0.7 *3*	4.34 *10*	%Iγ=0.014 *4* α(K)=2.8 *6*; α(L)=1.2 *4*; α(M)=0.28 *9* α(N)=0.065 *20*; α(O)=0.0088 *24*; α(P)=0.00023 *5* Mult.,δ: From α(L)exp=1.2 *3* (1974Je02).
105.3589 *4*	0.69 *8*	426.6752	11/2$^+$	321.3162	9/2$^+$	M1+E2	−0.330 *13*	3.39	%Iγ=0.0102 *29* α(K)=2.67 *4*; α(L)=0.555 *11*; α(M)=0.129 *3* α(N)=0.0304 *7*; α(O)=0.00443 *9*; α(P)=0.000226 *4*
112.9498 *4*	7.7×10^2 *8*	112.9498	9/2$^-$	0.0	7/2$^-$	M1+E2	−4.77 *19*	2.23	%Iγ=11.4 *27* α(K)=0.805 *13*; α(L)=1.085 *16*; α(M)=0.270 *4* α(N)=0.0627 *9*; α(O)=0.00798 *12*; α(P)=5.14×10^{-5} *9*
129.9 *1*	0.11 *2*	1002.83	(7/2$^-$)	872.96	(5/2)$^-$	[M1]		1.90	%Iγ=0.0016 *5* α(K)=1.580 *23*; α(L)=0.246 *4*; α(M)=0.0555 *8* α(N)=0.01319 *19*; α(O)=0.00202 *3*; α(P)=0.0001342 *19*
136.7245 *5*	0.768 *6*	249.6744	11/2$^-$	112.9498	9/2$^-$	M1+E2	−3.31 *15*	1.130 *17*	%Iγ=0.0114 *29* α(K)=0.540 *10*; α(L)=0.450 *7*; α(M)=0.1113 *17* α(N)=0.0259 *4*; α(O)=0.00334 *5*; α(P)=3.57×10^{-5} *9* I$_\gamma$: From Iγ(136.7γ)/Iγ(249.7γ)=0.2327 *19* in adopted gammas and Iγ(249.7γ)=3.3 *3*.
142.4 *2*	0.058 *9*	948.09	(3/2$^-$,5/2,7/2$^-$)	805.75	3/2$^-$				%Iγ=0.00086 *26*
177.0007 *4*	0.197 *23*	426.6752	11/2$^+$	249.6744	11/2$^-$	[E1]		0.0808	%Iγ=0.0029 *8* α(K)=0.0672 *10*; α(L)=0.01057 *15*; α(M)=0.00238 *4* α(N)=0.000558 *8*; α(O)=8.15×10^{-5} *12*; α(P)=4.42×10^{-6} *7* I$_\gamma$: from Iγ(177γ)/Iγ(105γ)=0.286 *3* in adopted gammas and Iγ(105γ)=0.69 *8*.
197.1 *1*	0.31 *3*	1002.83	(7/2$^-$)	805.75	3/2$^-$	[E2]		0.302	%Iγ=0.0046 *13* α(K)=0.1741 *25*; α(L)=0.0974 *14*; α(M)=0.0239 *4* α(N)=0.00557 *8*; α(O)=0.000730 *11*; α(P)=1.138×10^{-5} *16*

$^{177}_{72}Hf_{105}$-3

^{177}Ta ε decay 1974Je02,1961We11 (continued)

γ(^{177}Hf) (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[#]	Comments
208.3662 *4*	100 *8*	321.3162	9/2$^+$	112.9498	9/2$^-$	E1+M2	+0.076 *19*	0.068 *9*	%Iγ=1.5 *4* α(K)=0.055 *7*; α(L)=0.0094 *15*; α(M)=0.0022 *4* α(N)=0.00051 *9*; α(O)=7.5×10^{-5} *13*; α(P)=4.3×10^{-6} *8*
210.2 *5*	0.5 *3*	1057.74	7/2$^-$	847.41	9/2$^+$	[E1]		0.0519	%Iγ=0.007 *5* α(K)=0.0433 *7*; α(L)=0.00670 *11*; α(M)=0.001509 *24* α(N)=0.000354 *6*; α(O)=5.21×10^{-5} *8*; α(P)=2.91×10^{-6} *5* E_γ,I_γ: From 1961We11. The uncertainty in Eγ was assigned by the evaluator.
249.6742 *6*	3.3 *3*	249.6744	11/2$^-$	0.0	7/2$^-$	E2		0.1395	%Iγ=0.049 *13* α(K)=0.0905 *13*; α(L)=0.0375 *6*; α(M)=0.00911 *13* α(N)=0.00213 *3*; α(O)=0.000284 *4*; α(P)=6.23×10^{-6} *9*
256.9 *1*	0.093 *9*	1002.83	(7/2$^-$)	745.91	(7/2)$^+$	[E1]		0.0313	%Iγ=0.0014 *4* α(K)=0.0262 *4*; α(L)=0.00399 *6*; α(M)=0.000896 *13* α(N)=0.000211 *3*; α(O)=3.12×10^{-5} *5*; α(P)=1.80×10^{-6} *3*
268.5[&] *2*	0.014 *4*	872.96	(5/2)$^-$	604.49	7/2$^-$	[M1]		0.251	%Iγ=0.00021 *8* α(K)=0.209 *3*; α(L)=0.0321 *5*; α(M)=0.00725 *11* α(N)=0.001724 *25*; α(O)=0.000265 *4*; α(P)=1.764×10^{-5} *25*
283.2 *1*	0.059 *6*	604.49	7/2$^-$	321.3162	9/2$^+$	[E1]		0.0246	%Iγ=0.00088 *24* α(K)=0.0206 *3*; α(L)=0.00311 *5*; α(M)=0.000700 *10* α(N)=0.0001648 *24*; α(O)=2.45×10^{-5} *4*; α(P)=1.430×10^{-6} *20*
297.7 *1*	0.14 *1*	805.75	3/2$^-$	508.13	5/2$^-$	M1+E2	1.2 *4*		%Iγ=0.0021 *6* α(K)=0.098 *21*; α(L)=0.0213 *11*; α(M)=0.00497 *19* α(N)=0.00117 *5*; α(O)=0.000168 *11*; α(P)=7.8×10^{-6} *19* Mult.,δ: From α(K)exp=0.10 *2* (1974Je02).
311.9 *2*	0.052 *9*	1057.74	7/2$^-$	745.91	(7/2)$^+$	[E1]		0.0194	%Iγ=0.00077 *24* α(K)=0.01630 *23*; α(L)=0.00245 *4*; α(M)=0.000550 *8* α(N)=0.0001295 *19*; α(O)=1.93×10^{-5} *3*; α(P)=1.142×10^{-6} *16*
313.7250 *5*	0.071 *8*	426.6752	11/2$^+$	112.9498	9/2$^-$	E1+M2	+0.06 *5*	0.021 *6*	%Iγ=0.00105 *30* α(K)=0.018 *5*; α(L)=0.0028 *9*; α(M)=0.00063 *20* α(N)=0.00015 *5*; α(O)=2.2×10^{-5} *8*; α(P)=1.3×10^{-6} *5* I_γ: from Iγ(314γ)/Iγ(105γ)=0.1035 *11* in adopted gammas and Iγ(105γ)=0.69 *8*.
319.3 *1*	0.25 *3*	745.91	(7/2)$^+$	426.6752	11/2$^+$	[E2]		0.0658	%Iγ=0.0037 *11* α(K)=0.0465 *7*; α(L)=0.01484 *21*; α(M)=0.00356 *5* α(N)=0.000833 *12*; α(O)=0.0001140 *16*; α(P)=3.36×10^{-6} *5*
321.3159 *6*	2.10 *17*	321.3162	9/2$^+$	0.0	7/2$^-$	E1+M2	+0.175 *10*	0.0354 *21*	%Iγ=0.031 *8* α(K)=0.0289 *16*; α(L)=0.0050 *4*; α(M)=0.00116 *8* α(N)=0.000274 *18*; α(O)=4.1×10^{-5} *3*; α(P)=2.52×10^{-6} *17* I_γ: from Iγ(321γ)/Iγ(208γ)=0.0210 *4* in adopted gammas and Iγ(208γ)=100 *8*.
354.9 *1*	0.20 *3*	604.49	7/2$^-$	249.6744	11/2$^-$	E2		0.0485	%Iγ=0.0030 *9*

$^{177}_{72}Hf_{105}$-4

^{177}Ta ε decay 1974Je02,1961We11 (continued)

γ(^{177}Hf) (continued)

E_γ †	I_γ ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	α#	Comments
									α(K)=0.0352 *5*; α(L)=0.01019 *15*; α(M)=0.00243 *4* α(N)=0.000570 *8*; α(O)=7.88×10^{-5} *11*; α(P)=2.59×10^{-6} *4* Mult.: α(K)exp=0.06 *2* and α(L)exp=0.03 *2* (1974Je02).
365.1& *2*	0.017 *4*	872.96	(5/2)$^-$	508.13	5/2$^-$	[M1]		0.1098	%Iγ=0.00025 *9* α(K)=0.0918 *13*; α(L)=0.01397 *20*; α(M)=0.00315 *5* α(N)=0.000748 *11*; α(O)=0.0001150 *17*; α(P)=7.69×10^{-6} *11*
395.2 *1*	0.56 *5*	508.13	5/2$^-$	112.9498	9/2$^-$	E2		0.0359	%Iγ=0.0083 *23* α(K)=0.0267 *4*; α(L)=0.00706 *10*; α(M)=0.001676 *24* α(N)=0.000393 *6*; α(O)=5.49×10^{-5} *8*; α(P)=1.99×10^{-6} *3* Mult.: α(K)exp=0.036 *5* (1974Je02).
398.3 *2*	0.060 *9*	1002.83	(7/2$^-$)	604.49	7/2$^-$	[M1]		0.0872	%Iγ=0.00089 *27* α(K)=0.0729 *11*; α(L)=0.01107 *16*; α(M)=0.00249 *4* α(N)=0.000593 *9*; α(O)=9.11×10^{-5} *13*; α(P)=6.10×10^{-6} *9*
420.8 *1*	3.3 *3*	847.41	9/2$^+$	426.6752	11/2$^+$	M1+E2	0.6 *4*	0.063 *11*	%Iγ=0.049 *13* α(K)=0.052 *10*; α(L)=0.0086 *9*; α(M)=0.00194 *19* α(N)=0.00046 *5*; α(O)=7.0×10^{-5} *8*; α(P)=4.3×10^{-6} *9* Mult.,δ: From α(K)exp=0.051 *9* and α(L)exp=0.011 *3* (1974Je02).
424.6 *1*	11.0 *10*	745.91	(7/2)$^+$	321.3162	9/2$^+$	M1(+E2)	≤0.7	0.066 *8*	%Iγ=0.16 *4* α(K)=0.055 *7*; α(L)=0.0087 *7*; α(M)=0.00197 *14* α(N)=0.00047 *4*; α(O)=7.1×10^{-5} *6*; α(P)=4.6×10^{-6} *6* Mult.,δ: From α(K)exp=0.058 *6* and α(L)exp=0.010 *2* (1974Je02), and K/L=6.0 *9* (1961We11).
439.9 *2*	0.037 *8*	948.09	(3/2$^-$,5/2,7/2$^-$)	508.13	5/2$^-$				%Iγ=0.00055 *18*
453.2 *1*	0.24 *3*	1057.74	7/2$^-$	604.49	7/2$^-$	M1(+E2)	0.4 *4*	0.057 *10*	%Iγ=0.0036 *10* α(K)=0.047 *9*; α(L)=0.0074 *9*; α(M)=0.00167 *18* α(N)=0.00040 *5*; α(O)=6.1×10^{-5} *8*; α(P)=3.9×10^{-6} *8* Mult.,δ: From α(K)exp=0.047 *7* (1974Je02).
491.5 *1*	3.3 *3*	604.49	7/2$^-$	112.9498	9/2$^-$	M1(+E2)	<0.6	0.046 *4*	%Iγ=0.049 *13* α(K)=0.039 *4*; α(L)=0.0060 *4*; α(M)=0.00135 *9* α(N)=0.000320 *20*; α(O)=4.9×10^{-5} *4*; α(P)=3.2×10^{-6} *3* Mult.,δ: From α(K)exp=0.042 *4* and α(L)exp=0.0064 *7* (1974Je02), and K/L=6.5 *7* (1961We11).
494.7 *1*	0.45 *4*	1002.83	(7/2$^-$)	508.13	5/2$^-$	[M1]		0.0494	%Iγ=0.0067 *18* α(K)=0.0414 *6*; α(L)=0.00624 *9*; α(M)=0.001405 *20* α(N)=0.000334 *5*; α(O)=5.13×10^{-5} *8*; α(P)=3.45×10^{-6} *5*
508.1 *1*	7.5 *6*	508.13	5/2$^-$	0.0	7/2$^-$	M1+E2	0.7 *4*	0.037 *7*	%Iγ=0.111 *30* α(K)=0.031 *6*; α(L)=0.0050 *7*; α(M)=0.00112 *14* α(N)=0.00027 *4*; α(O)=4.0×10^{-5} *6*; α(P)=2.5×10^{-6} *6* Mult.,δ: From α(K)exp=0.031 *3* and α(L)exp=0.0050 *5* (1974Je02), and K/L=6.11 *46*, K/(M+N)=18.5 *29* and L/(M+N)=3.0 *5* (1961We11).

$^{177}_{72}Hf_{105}$-5

γ(^{177}Hf) (continued)

E_γ †	I_γ ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult. †	δ †	α #	Comments
526.1 *1*	1.8 *2*	847.41	9/2$^+$	321.3162	9/2$^+$	M1+E2	0.77 *15*	0.0328 *25*	%Iγ=0.027 *7* α(K)=0.0271 *22*; α(L)=0.00440 *24*; α(M)=0.00100 *6* α(N)=0.000237 *13*; α(O)=3.59×10^{-5} *21*; α(P)=2.22×10^{-6} *19* Mult.,δ: From α(K)exp=0.027 *2* and α(L)exp=0.0046 *8* (1974Je02).
549.6 *1*	0.64 *5*	1057.74	7/2$^-$	508.13	5/2$^-$	M1(+E2)	0.3 *3*	0.036 *5*	%Iγ=0.0095 *26* α(K)=0.030 *4*; α(L)=0.0046 *4*; α(M)=0.00103 *9* α(N)=0.000244 *22*; α(O)=3.7×10^{-5} *4*; α(P)=2.5×10^{-6} *4* Mult.,δ: From α(K)exp=0.030 *3* (1974Je02).
597.7 *1*	1.0 *8*	847.41	9/2$^+$	249.6744	11/2$^-$	E1		0.00449	%Iγ=0.015 *12* α(K)=0.00379 *6*; α(L)=0.000544 *8*; α(M)=0.0001216 *17* α(N)=2.88×10^{-5} *4*; α(O)=4.36×10^{-6} *7*; α(P)=2.77×10^{-7} *4* Mult.: From α(K)exp=0.005 *3* (1974Je02).
604.4 *1*	2.3 *3*	604.49	7/2$^-$	0.0	7/2$^-$	(E2)		0.01220	%Iγ=0.034 *10* α(K)=0.00970 *14*; α(L)=0.00193 *3*; α(M)=0.000448 *7* α(N)=0.0001055 *15*; α(O)=1.533×10^{-5} *22*; α(P)=7.51×10^{-7} *11* Mult.: From α(K)exp=0.0092 *10* and α(L)exp≤0.002 (1974Je02).
632.9 *1*	3.1 *3*	745.91	(7/2)$^+$	112.9498	9/2$^-$	E1		0.00399	%Iγ=0.046 *13* α(K)=0.00337 *5*; α(L)=0.000482 *7*; α(M)=0.0001077 *15* α(N)=2.55×10^{-5} *4*; α(O)=3.86×10^{-6} *6*; α(P)=2.47×10^{-7} *4* Mult.: From α(K)exp=0.0033 *4* (1974Je02).
681.5 *1*	0.08 *1*	1002.83	(7/2$^-$)	321.3162	9/2$^+$	[E1]		0.00343	%Iγ=0.00119 *34* α(K)=0.00290 *4*; α(L)=0.000413 *6*; α(M)=9.22×10^{-5} *13* α(N)=2.18×10^{-5} *3*; α(O)=3.31×10^{-6} *5*; α(P)=2.13×10^{-7} *3*
734.4 *1*	4.2 *4*	847.41	9/2$^+$	112.9498	9/2$^-$	E1		0.00295	%Iγ=0.062 *17* α(K)=0.00250 *4*; α(L)=0.000354 *5*; α(M)=7.91×10^{-5} *11* α(N)=1.87×10^{-5} *3*; α(O)=2.85×10^{-6} *4*; α(P)=1.84×10^{-7} *3* Mult.: From α(K)exp<0.0037 (1974Je02). ce intensity is from 734γ doublet.
736.4 *1*	1.7 *2*	1057.74	7/2$^-$	321.3162	9/2$^+$	E1		0.00294	%Iγ=0.025 *7* α(K)=0.00248 *4*; α(L)=0.000352 *5*; α(M)=7.86×10^{-5} *11* α(N)=1.86×10^{-5} *3*; α(O)=2.83×10^{-6} *4*; α(P)=1.83×10^{-7} *3* Mult.: From α(K)exp<0.0093 (1974Je02).
745.9 *1*	22.0 *18*	745.91	(7/2)$^+$	0.0	7/2$^-$	E1		0.00286	%Iγ=0.33 *9* α(K)=0.00242 *4*; α(L)=0.000343 *5*; α(M)=7.66×10^{-5} *11* α(N)=1.81×10^{-5} *3*; α(O)=2.76×10^{-6} *4*; α(P)=1.79×10^{-7} *3* Mult.: From α(K)exp=0.0023 *3* (1974Je02).
760.0 *1*	0.071 *7*	872.96	(5/2)$^-$	112.9498	9/2$^-$	[E2]		0.00727	%Iγ=0.00105 *29* α(K)=0.00590 *9*; α(L)=0.001055 *15*; α(M)=0.000242 *4* α(N)=5.72×10^{-5} *8*; α(O)=8.45×10^{-6} *12*; α(P)=4.61×10^{-7} *7*
805.7 *1*	0.29 *3*	805.75	3/2$^-$	0.0	7/2$^-$	[E2]		0.00641	%Iγ=0.0043 *12* α(K)=0.00523 *8*; α(L)=0.000913 *13*; α(M)=0.000209 *3* α(N)=4.94×10^{-5} *7*; α(O)=7.32×10^{-6} *11*; α(P)=4.08×10^{-7} *6*

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γ(^{177}Hf) (continued)

E_γ †	I_γ ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult. †	δ †	α #	Comments
847.4 *1*	2.9 *3*	847.41	9/2$^+$	0.0	7/2$^-$	E1		0.00223	%Iγ=0.043 *12* α(K)=0.00189 *3*; α(L)=0.000266 *4*; α(M)=5.93×10^{-5} *9* α(N)=1.405×10^{-5} *20*; α(O)=2.14×10^{-6} *3*; α(P)=1.402×10^{-7} *20* Mult.: From α(K)exp=0.0015 *2* (1974Je02).
873.0 *1*	0.092 *9*	872.96	(5/2)$^-$	0.0	7/2$^-$	[M1]		0.01166	%Iγ=0.0014 *4* α(K)=0.00980 *14*; α(L)=0.001448 *21*; α(M)=0.000325 *5* α(N)=7.73×10^{-5} *11*; α(O)=1.190×10^{-5} *17*; α(P)=8.07×10^{-7} *12*
944.8 *1*	5.9 *5*	1057.74	7/2$^-$	112.9498	9/2$^-$	M1(+E2)	<0.3	0.00937 *25*	%Iγ=0.088 *24* α(K)=0.00787 *21*; α(L)=0.00116 *3*; α(M)=0.000261 *7* α(N)=6.21×10^{-5} *15*; α(O)=9.56×10^{-6} *24*; α(P)=6.47×10^{-7} *18* Mult.,δ: From α(K)exp=0.0079 *8* and α(L)exp=0.0016 *2* (1974Je02).
1002.8 *1*	0.11 *1*	1002.83	(7/2$^-$)	0.0	7/2$^-$	[M1]		0.00826	%Iγ=0.0016 *4* α(K)=0.00695 *10*; α(L)=0.001022 *15*; α(M)=0.000229 *4* α(N)=5.45×10^{-5} *8*; α(O)=8.40×10^{-6} *12*; α(P)=5.71×10^{-7} *8*
1057.8 *1*	31.0 *30*	1057.74	7/2$^-$	0.0	7/2$^-$	M1(+E2)	<0.5	0.0069 *4*	%Iγ=0.46 *13* α(K)=0.0058 *4*; α(L)=0.00085 *5*; α(M)=0.000192 *10* α(N)=4.56×10^{-5} *23*; α(O)=7.0×10^{-6} *4*; α(P)=4.7×10^{-7} *3* Mult.,δ: From α(K)exp=0.0057 *5* and α(L)exp=0.0010 *1* (1974Je02).

† From adopted gammas. The conversion electron coefficients in 1974Je02 were deduced using the electron intensities from 1961We11 and the γ-ray intensities from 1974Je02. The electron intensities were normalized to reproduce α(249.7γ,E2)=0.09.

‡ From 1974Je02, normalized to Iγ(208γ)=100, unless otherwise stated.

Additional information 1.

@ For absolute intensity per 100 decays, multiply by 0.015 *4*.

& Placement of transition in the level scheme is uncertain.

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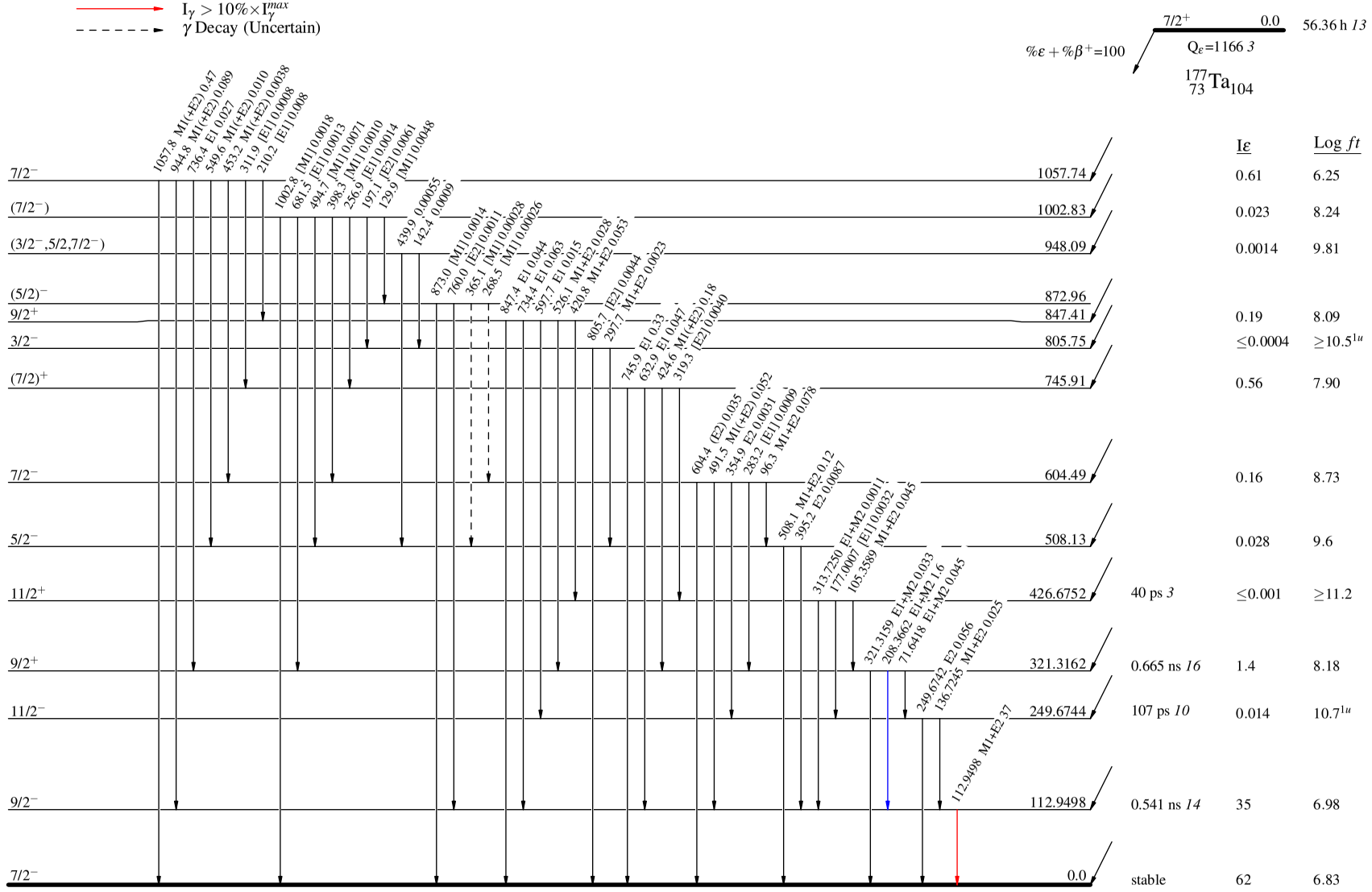
^{177}Ta ε decay 1974Je02,1961We11

Decay Scheme

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



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