^{166}W ε decay 1989Hi04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 1103 (2008)	1-Mar-2008

Parent: ^{166}W: E=0.0; $J^\pi=0^+$; $T_{1/2}$=19.2 s *6*; Q(ε)=4206 *30*; %ε+%$β^+$ decay=99.965 *12*

^{166}Ta Levels

E(level)	J^π †	Comments
0	$(2)^+$	
125.79 *18*	1^+	
298.3 *3*		
350.34 *25*		E(level): relative order of the 45.8 and 224.6 transitions is not established. The reverse order would define a level at 171.6.
395.93 *20*	1^+	J^π: log *ft*<5.9 from 0^+ independent of multipolarities assumed for transitions deexciting the 396 level.

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(3.81×10^3 *3*)	395.93	3.4 *5*	6.6 *10*	4.87 *7*	10.0 *15*	av Eβ=1259 *14*; εK=0.546 *6*; εL=0.0883 *10*; εM+=0.0271 *3*
(3.86×10^3‡ *3*)	350.34	<0.3	<0.5	>6.0	<0.8	av Eβ=1280 *14*; εK=0.537 *6*; εL=0.0868 *10*; εM+=0.0267 *3*
(3.91×10^3‡ *3*)	298.3	<0.3	<0.4	>6.1	<0.7	av Eβ=1304 *14*; εK=0.527 *6*; εL=0.0851 *10*; εM+=0.0262 *3*
(4.08×10^3 *3*)	125.79	36 *4*	54 *7*	4.02 *6*	90 *11*	av Eβ=1382 *14*; εK=0.493 *6*; εL=0.0796 *10*; εM+=0.0245 *3*

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{166}Ta)

Iγ normalization: The basis of the intensity normalization is that negligible ε+$β^+$ feeding to the ground state is expected (ΔJ=(2), Δπ=No), so Σ (I(γ+ce) to g.s.)=100.
γγ coin (Ta K x ray)(125.8γ, 395.9γ).

E_γ	I_γ‡	E_i(level)	J_i^π	E_f	Mult.	α#	Comments
45.8 *4*	1.4 *4*	395.93	1^+	350.34	[M1]	7.21 *22*	α(L)=5.59 *17*; α(M)=1.27 *4*; α(N+..)=0.355 *11* α(N)=0.303 *9*; α(O)=0.0480 *15*; α(P)=0.00331 *10* Additional information 3. Mult.: if placement of 46γ is correct, E2 is ruled out because it would imply negative ε+$β^+$ feeding of the 350 level; M1 would imply No ε+$β^+$ branch to 350 level.
97.7 *4*	1.9 *2*	395.93	1^+	298.3	[M1,E2]†	4.4 *4*	α(K)=2.4 *15*; α(L)=1.5 *9*; α(M)=0.37 *23*; α(N+..)=0.10 *6* α(N)=0.09 *6*; α(O)=0.012 *7*; α(P)=0.00022 *15* Additional information 4. E_γ: 97.7 from fig. 3 of 1989Hi04, consistent with E(level) difference. Eγ=97.1 from table 4 appears to Be a misprint.

Continued on next page (footnotes at end of table)

^{166}W ε decay 1989Hi04 (continued)

$\gamma(^{166}Ta)$ (continued)

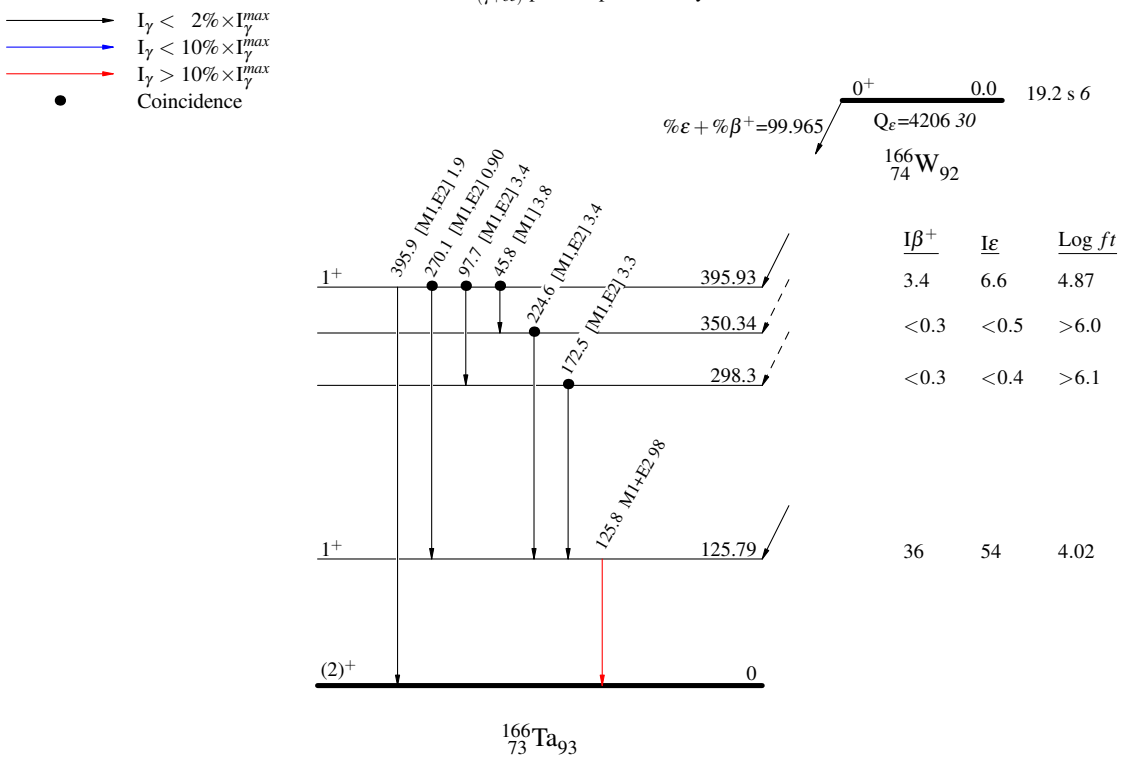
E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[#]	Comments
125.8 *2*	100	125.79	1^+	0	$(2)^+$	M1+E2	0.8 *+8−5*	1.98 *24*	α(K)=1.4 *5*; α(L)=0.47 *15*; α(M)=0.11 *4*; α(N+..)=0.031 *10* α(N)=0.027 *9*; α(O)=0.0038 *11*; α(P)=0.00012 *5* Mult.,δ: from α(K)exp=1.4 *4*.
172.5 *3*	5.8 *7*	298.3		125.79	1^+	[M1,E2][†]		0.71 *22*	α(K)=0.5 *3*; α(L)=0.15 *4*; α(M)=0.037 *10*; α(N+..)=0.0099 *23* α(N)=0.0086 *21*; α(O)=0.00124 *21*; α(P)=4.E−5 *3* Additional information 1.
224.6 *2*	7.8 *5*	350.34		125.79	1^+	[M1,E2]		0.32 *13*	α(K)=0.25 *13*; α(L)=0.0595 *20*; α(M)=0.0141 *11*; α(N+..)=0.00384 *20* α(N)=0.00333 *22*; α(O)=0.000491 *9*; α(P)=2.2×10^{-5} *13* Additional information 2.
270.1 *2*	2.3 *2*	395.93	1^+	125.79	1^+	[M1,E2]		0.19 *8*	α(K)=0.15 *8*; α(L)=0.032 *3*; α(M)=0.0075 *4*; α(N+..)=0.00207 *13* α(N)=0.00179 *10*; α(O)=0.00027 *3*; α(P)=1.3×10^{-5} *8*
395.9 *3*	5.4 *14*	395.93	1^+	0	$(2)^+$	[M1,E2]		0.07 *3*	α(K)=0.05 *3*; α(L)=0.0099 *25*; α(M)=0.0023 *5*; α(N+..)=0.00063 *15* α(N)=0.00054 *13*; α(O)=8.3×10^{-5} *23*; α(P)=5.E−6 *3* coincident with K x ray(Ta) only.

[†] From intensity balance assuming no $\varepsilon+\beta^+$ feeding to 298.3 level.
[‡] For absolute intensity per 100 decays, multiply by 0.33 *3*.
[#] 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.

^{166}W ε decay 1989Hi04

Decay Scheme

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



	Iβ+	Iε	Log *ft*
395.93	3.4	6.6	4.87
350.34	<0.3	<0.5	>6.0
298.3	<0.3	<0.4	>6.1
125.79	36	54	4.02