^{168}W ε decay 1990Me12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 111, 1807 (2010)	15-Jun-2010

Parent: ^{168}W: E=0.0; $J^\pi=0^+$; $T_{1/2}$=50.9 s *19*; Q(ε)=3500 *30*; %ε+%$β^+$ decay=100.0

The decay scheme and all data are from 1990Me12. No multipolarities are known but, provided %ε+$β^+$ to 179 level is >2, log *ft*<5.9 and the transition is allowed; given the relative strength of the 178γ, this condition is satisfied and $J^\pi=1^+$ can Be assigned to the 178 level. provided %ε+$β^+$ to the 352 level is >1.4, this branch will Be allowed also; this condition is satisfied even if the two deexciting gammas have negligible conversion, provided none of the unplaced transitions feeds the 352 level. this May not Be a valid assumption, so the assignment of 1^+ to this level is highly tentative.

1990Me12: Sources from ^{136}Ba(^{36}Ar,4n), E(^{36}Ar)=165-205 MeV, helium-jet transport; 93% target enrichment; measured excitation functions, Eγ, Iγ (Ge(Li) and Ge γX detectors), γγ coin.

^{168}Ta Levels

E(level)†	J^π‡	$T_{1/2}$
0.0	$(2^-,3^+)$	2.0 min *1*
178.43 *25*	1^+	
352.27 *25*	(1^+)	

† From least-squares fit to Eγ.
‡ From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ ‡	Iε‡	Log *ft*	I(ε+$β^+$)†‡	Comments
(3.15×10^3 *3*)	352.27	0.60 *11*	2.7 *5*	5.51 *9*	3.3 *6*	av Eβ=961 *14*; εK=0.673 *6*; εL=0.1096 *10*; εM+=0.0337 *3*
(3.32×10^3 *3*)	178.43	21 *4*	75 *16*	4.12 *10*	96 *20*	av Eβ=1039 *14*; εK=0.642 *6*; εL=0.1042 *10*; εM+=0.0320 *3*

† From I(γ+ce) imbalance At each level.
‡ Absolute intensity per 100 decays.

γ(^{168}Ta)

Iγ normalization: negligible g.s. feeding is expected (%ε+$β^+$<0.17 for log $f^{1u}t$>8.5). Of the unplaced gammas, only the relatively weak 573γ might feed the g.s., so an approximate decay scheme normalization can Be obtained from Σ (I(γ+ce) to g.s.)=100, assuming 178γ and 352γ are each either E1 or E2.

Eγ	Iγ†#	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α@
x37.1‡ *4*	1.3 *2*						
x145.5‡ *3*	<2						
x156.6‡ *3*	1.7 *2*						
173.9 *3*	1.4 *2*	352.27	(1^+)	178.43	1^+	[M1,E2]	0.69 *22*
178.5 *3*	100	178.43	1^+	0.0	$(2^-,3^+)$	[E1,E2]	0.26 *18*
x181.8‡ *3*	1.7 *2*						
352.2 *3*	1.8 *2*	352.27	(1^+)	0.0	$(2^-,3^+)$	[E1,E2]	0.033 *18*
x573.1 *4*	1.4 *2*						

Continued on next page (footnotes at end of table)

^{168}W ε decay 1990Me12 (continued)

$\gamma(^{168}Ta)$ (continued)

† Arbitrary units relative to I(178.5γ)=100.
‡ Coincident with 178.5γ.
# For absolute intensity per 100 decays, multiply by 0.78 *11*.
@ 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.
x γ ray not placed in level scheme.

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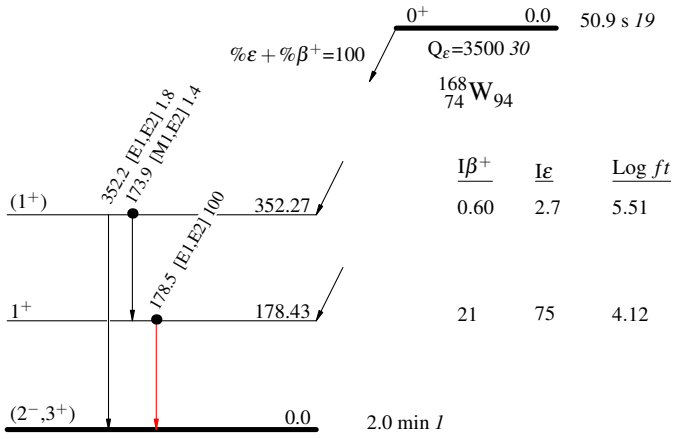
Decay Scheme

Intensities: Relative I_γ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence



$^{168}_{73}Ta_{95}$