^{173}W ε decay 1990Me12,1991KuZN

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	V. S. Shirley	NDS 75,377 (1995)	1-Oct-1993

Parent: ^{173}W: E=0.0; $J^\pi=5/2^-$; $T_{1/2}$=7.5 min *3*; Q(ε)=4.0×10^3 *3*; %ε+%$β^+$ decay=100

The decay scheme is from 1991KuZN; data are from both 1990Me12 and 1991KuZN. Agreement between the two studies of ^{173}W decay is poor, because 1991KuZN interchanged the order of the 130.2γ-35.7γ cascade from that used by 1990Me12. Justification for the reversal seems reasonable.

1990Me12: sources from ^{138}Ba(^{40}Ar,5n), E(^{40}Ar)=165-205 MeV, helium-jet transport; 99.8% target enrichment; measured excitation functions, Eγ, Iγ (Ge(Li), germanium γX detectors), γγ coin.

1991KuZN: sources from ^{159}Tb(^{19}F,5n); measured Eγ, Iγ, γγ coin. Authors report very few experimental details, but give plausible conclusions based on analysis of data.

Others: 1963Sa14, 1971Na28, 1973CaYH, 1977An04, 1986Sz05.

^{173}Ta Levels

E(level)	J^π
0.0†	5/2$^-$
0.0+x‡*a*	5/2$^+$
83.39† *11*	9/2$^-$
130.2+x#*a*	7/2$^+$
166.0+x@*a*	9/2$^-$
324.53† *11*	7/2$^-$
623.6+x&*a*	7/2$^-$

† Member of 1/2[541] band.
‡ Member of 5/2[402] band.
# Member of 7/2[404] band.
@ Member of 9/2[514] band.
& Member of 7/2[523] band.
a x<10 keV (1991KuZN).

ε,$β^+$ radiations

ε feedings are estimates from 1991KuZN.

E(decay)	E(level)	Iβ$^+$ †	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(1.7×10^3# *17*)	623.6+x	≈16	≈72	≈5.1	≈88	av Eβ≥1060; εK= 0.63 *11*; εL= 0.103 *18*; εM+= 0.032 *5*
(3.68×10^3 *30*)	324.53	≈2.8	≈8	≈6.1	≈11	av Eβ= 1.20×10^3 *14*; εK= 0.57 *9*; εL= 0.093 *15*; εM+= 0.029 *5*
(4.00×10^3‡ *30*)	0.0					

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.
# Estimated for a range of levels.

^{173}W ε decay 1990Me12,1991KuZN (continued)

γ(^{173}Ta)

Decay-scheme normalization not possible because of incomplete γ-ray intensity data.

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ	α[&]	Comments
(≤10)		0.0+x	$5/2^+$	0.0	$5/2^-$				
35.67 *5*	21.8 *11*	166.0+x	$9/2^-$	130.2+x	$7/2^+$	E1+M2	0.041 *12*	3.1 *13*	α(L)= 2.3 *7*; α(M)= 0.58 *17* Mult.,δ: from α=3.1 *11* (1990Me12).
83.43 *5*		83.39	$9/2^-$	0.0	$5/2^-$	E2		7.82	α(K)= 1.21; α(L)= 5.00; α(M)= 1.25; α(N+..)= 0.360 Mult.: from (HI,xnγ).
130.20 *5*	31.5 *16*	130.2+x	$7/2^+$	0.0+x	$5/2^+$	M1		2.11	α(K)= 1.76; α(L)= 0.275; α(M)= 0.0624; α(N+..)= 0.0188
166.08 *5*	13.2 *10*	166.0+x	$9/2^-$	0.0+x	$5/2^+$	(M2)		6.35	α(K)= 4.76; α(L)= 1.21; α(M)= 0.290; α(N+..)= 0.0879
[x]174.8[@] *4*	29.1 *13*								
[x]196.9[@] *4*	6.4 *3*								
241.17 *5*		324.53	$7/2^-$	83.39	$9/2^-$				
324.49 *5*		324.53	$7/2^-$	0.0	$5/2^-$	M1		0.168	α(K)= 0.140; α(L)= 0.0217; α(M)= 0.00488; α(N+..)= 0.00142
457.68 *5*	100	623.6+x	$7/2^-$	166.0+x	$9/2^-$	M1		0.0675	α(K)= 0.0563; α(L)= 0.00862; α(M)= 0.00194; α(N+..)= 0.000569
493.38 *5*		623.6+x	$7/2^-$	130.2+x	$7/2^+$				
623.48 *5*	24.2 *15*	623.6+x	$7/2^-$	0.0+x	$5/2^+$				

[†] From 1991KuZN except where noted. ΔE not reported, but estimated by evaluator from precision of authors' energies.
[‡] Arbitrary units relative to Iγ(457.7γ)=100 (1990Me12).
[#] From 1991KuZN except where noted; measurement details not reported.
[@] From 1990Me12.
[&] 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