^{178}Lu β^- decay (23.1 min) 1975Wa24,1975Ka15,1973Or03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Achterberg, O. A. Capurro, G. V. Marti	NDS 110, 1473 (2009)	31-May-2008

Parent: ^{178}Lu: E=123.8 *26*; $J^\pi=9^{(-)}$; $T_{1/2}$=23.1 min *3*; Q(β^-)=2101.3 *20*; %β^- decay=100.0
^{178}Lu-E(ex) from 2003Au02, J from 1998Ge13, Q(β^-) from 2003Au03.
Measured Eγ, Iγ. Detector: Ge(Li) (1975Wa24).
Measured Eγ, Iγ, $\gamma\gamma$ coin, Eβ, Iβ, $\gamma\beta$ coin. Detectors: Ge(Li), scin (1975Ka15, 1973Or03).

^{178}Hf Levels

E(level)†	J^π	$T_{1/2}$	Comments
0.0	0^+		
93.15 *5*	2^+		
306.56 *7*	4^+		
632.16 *9*	6^+		
1058.52 *10*	8^+		
1147.37 *11*	8^-	4.0 s *2*	$T_{1/2}$: from Adopted Levels.
1364.01 *12*	9^-		
1478.99 *12*	8^-		
1601.6 *6*	10^-		

† From a least-squares fit to γ-ray energies.

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(624 *3*)	1601.6	0.023 *11*	7.95 *21*	av Eβ=193.1 *12*
(746 *3*)	1478.99	13.0 *7*	5.463 *25*	av Eβ=237.7 *13* Eβ=770 *30* (measured in coin with 332γ) (1975Ka15).
(861 *3*)	1364.01	3.3 *4*	6.28 *6*	av Eβ=280.9 *13*
(1078 *3*)	1147.37	83.7 *8*	5.221 *9*	av Eβ=365.1 *13* Eβ=1200 *100* (1967Ta09), Eβ=1400 *300* (1973Or03).

† Absolute intensity per 100 decays.

$\gamma(^{178}Hf)$

Iγ normalization: from decay scheme if I(γ+ce)(325γ)=100%.

E$_\gamma$‡	I$_\gamma$‡@	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.†	α&	Comments
88.85 *3*	68.4# *11*	1147.37	8^-	1058.52	8^+	E1	0.487	B(E1)(W.u.)=5.1×10^{-14} *3*
93.15 *5*	18.3# *3*	93.15	2^+	0.0	0^+	E2	4.67	
213.41 *5*	86.5# *12*	306.56	4^+	93.15	2^+	E2	0.232	
216.64 *4*	2.64 *17*	1364.01	9^-	1147.37	8^-	E2+M1	0.34 *12*	
325.60 *5*	100.0# *12*	632.16	6^+	306.56	4^+	E2	0.0621	
331.62 *4*	12.1 *6*	1478.99	8^-	1147.37	8^-	M1	0.1418	
426.36 *5*	103.1# *14*	1058.52	8^+	632.16	6^+	E2	0.0292	
454.2 *5*	0.024 *11*	1601.6	10^-	1147.37	8^-	E2	0.0247	

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$\gamma(^{178}Hf)$ (continued)

† From adopted gammas.
‡ Weighted averages of data from 1975Wa24, 1975Ka15, and 1973Or03, unless otherwise specified.
# From ^{178}Hf IT decay (4 s).
@ For absolute intensity per 100 decays, multiply by 0.941 *12*.
& 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.

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Decay Scheme

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