^{182}Hf IT decay (61.5 min) 1974Wa14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 130, 21 (2015)	15-Jul-2015

Parent: ^{182}Hf: E=1172.90 *19*; $J^\pi=8^-$; $T_{1/2}$=61.5 min *15*; %IT decay=46 *2*
^{182}Hf-%IT decay: from 1974Wa14.
1974Wa14 (also 1971Wa09): sources produced by ^{186}W(p,pα) E=50, 92 MeV. Measured Eγ, Iγ, Eβ, $\gamma\gamma$, $\beta\gamma$ coin, isomer $T_{1/2}$.
Other: 1983Zy02: ^{182}Hf produced in (^{84}Kr,X) and (^{136}Xe,X) on natural tungsten target at 8.5 MeV/nucleon.

^{182}Hf Levels

E(level)	J^π †	$T_{1/2}$	Comments
0.0‡	0^+		
97.8‡ *1*	2^+		
322.20‡ *14*	(4^+)		
666.30‡ *17*	(6^+)		
1122.10‡ *19*	(8^+)		
1172.90 *19*	(8^-)	61.5 min *15*	$T_{1/2}$: from timing of γ rays (1974Wa14). J^π: probable configuration=π7/2[404]⊗π9/2[514], $K^\pi=8^-$.

† From Adopted Levels.
‡ Band(A): g.s. band.

$\gamma(^{182}Hf)$

Iγ normalization: I(γ+ce)(506.6γ+455.8γ)=100.

E$_\gamma$	I$_\gamma$#	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.†	α@	Comments
50.8 *1*	35 *4*	1172.90	(8^-)	1122.10	(8^+)	(E1)	0.418 *7*	α(L)=0.325 *5*; α(M)=0.0740 *12* α(N)=0.0170 *3*; α(O)=0.00228 *4*; α(P)=8.92×10^{-5} *14* Mult.: from intensity-balance arguments.
97.8 *1*	24.4‡ *12*	97.8	2^+	0.0	0^+	E2	3.85	α(K)=0.995 *14*; α(L)=2.17 *4*; α(M)=0.542 *8* α(N)=0.1256 *19*; α(O)=0.01587 *24*; α(P)=6.26×10^{-5} *9* Mult.: α(exp)=3.9 from intensity balance argument.
224.4 *1*	100	322.20	(4^+)	97.8	2^+	(E2)	0.197	α(K)=0.1215 *17*; α(L)=0.0573 *8*; α(M)=0.01399 *20* α(N)=0.00326 *5*; α(O)=0.000432 *6*; α(P)=8.18×10^{-6} *12*
344.1 *1*	121 *12*	666.30	(6^+)	322.20	(4^+)	(E2)	0.0529	α(K)=0.0381 *6*; α(L)=0.01136 *16*; α(M)=0.00272 *4* α(N)=0.000636 *9*; α(O)=8.76×10^{-5} *13*; α(P)=2.79×10^{-6} *4*
455.8 *1*	53 *4*	1122.10	(8^+)	666.30	(6^+)	(E2)	0.0245	α(K)=0.0187 *3*; α(L)=0.00445 *7*; α(M)=0.001047 *15* α(N)=0.000246 *4*; α(O)=3.48×10^{-5} *5*; α(P)=1.422×10^{-6} *20*
506.6 *1*	62 *5*	1172.90	(8^-)	666.30	(6^+)	[M2,E3]	0.10 *5*	α(K)=0.08 *4*; α(L)=0.018 *4*; α(M)=0.0042 *7* α(N)=0.00100 *16*; α(O)=0.00015 *3*; α(P)=7.E−6 *4*

Continued on next page (footnotes at end of table)

^{182}Hf IT decay (61.5 min) 1974Wa14 (continued)

$\gamma(^{182}Hf)$ (continued)

† The assumed multipolarities are consistent with the intensity balances at each level, with mult=E2 constrained for 97.8γ.
‡ Another 97.8-keV transition was observed in ^{182}Hf β^- decay. The intensity has been divided by the authors assuming I(γ+ce)(97.9γ)=I(γ+ce)(244γ).
# For absolute intensity per 100 decays, multiply by 0.38 *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.

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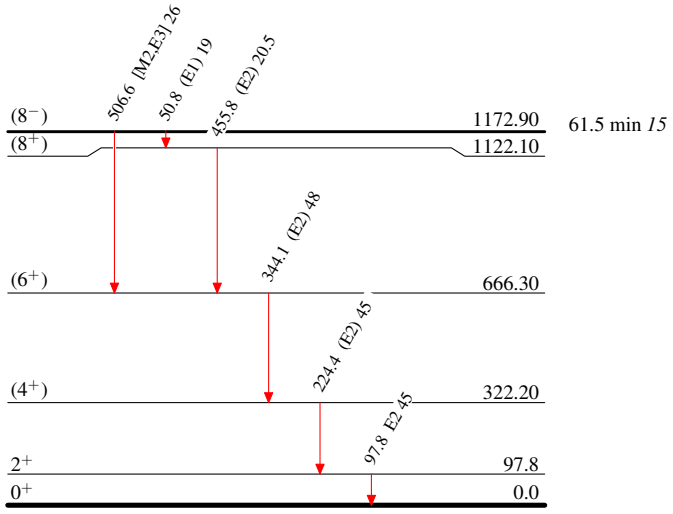
Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays
%IT=46 *2*

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



$^{182}_{72}Hf_{110}$

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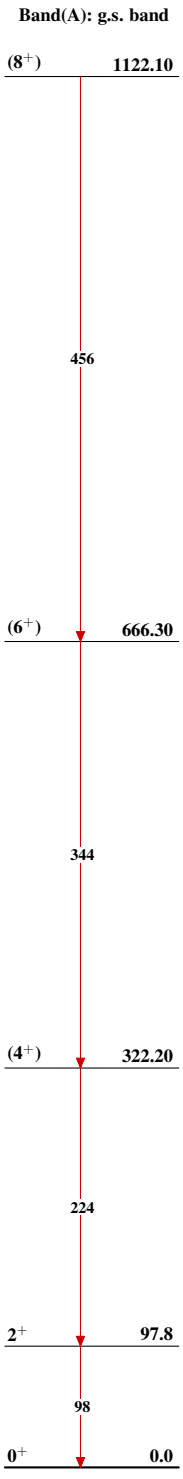

$^{182}_{72}Hf_{110}$