^{182}Hf β^- decay (8.90×10^6 y) 2004Ah10,1971He13

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

Parent: ^{182}Hf: E=0.0; $J^\pi=0^+$; $T_{1/2}=8.90\times10^6$ y *9*; Q(β^-)=381 *6*; %β^- decay=100.0

^{182}Hf-$T_{1/2}$: From ^{182}Hf Adopted Levels.

^{182}Hf-Q(β^-): From 2012Wa38.

2004Ah10: ^{182}Hf source was the one originally produced by 1971He13. measured Eγ, Iγ, $\gamma\gamma$ with a 25% Ge detector and a low energy photon spectrometer (LEPS).

1971He13: ^{182}Hf sources produced by irradiation of natural Hf and enriched ^{180}Hf with neutrons followed by chemical separation after a waiting period of about two years. One sample was also mass separated. Measured Eγ, Iγ, $\gamma\gamma$ using Ge(Li) and NaI(Tl) detectors.

^{182}Ta Levels

E(level)[†]	J^π[‡]
0.0	3^-
97.85 *3*	4^-
114.320 *10*	4^-
270.408 *9*	2^-

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

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
(111 *6*)	270.408	100	12.58^{1u} *9*	av Eβ=32.9 *20*

[†] Absolute intensity per 100 decays.

$\gamma(^{182}Ta)$

E$_\gamma$[†]	I$_\gamma$[‡@]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[#]	δ[#]	α[&]	Comments
97.85 *4*	0.11 *1*	97.85	4^-	0.0	3^-	M1		4.64	α(K)=3.86 *6*; α(L)=0.609 *9*; α(M)=0.1381 *20* α(N)=0.0330 *5*; α(O)=0.00523 *8*; α(P)=0.000362 *5*
114.32 *1*	3.0 *1*	114.320	4^-	0.0	3^-	(M1)		2.97	α(K)=2.47 *4*; α(L)=0.389 *6*; α(M)=0.0882 *13* α(N)=0.0211 *3*; α(O)=0.00334 *5*; α(P)=0.000231 *4*
156.09 *2*	7.0 *2*	270.408	2^-	114.320	4^-	E2		0.700	α(K)=0.327 *5*; α(L)=0.284 *4*; α(M)=0.0706 *10* α(N)=0.01654 *24*; α(O)=0.00222 *4*; α(P)=2.26×10^{-5} *4* E$_\gamma$: From 1971He13. In 2004Ah10, it could not be determined because it overlaps the 156.3865 peak from ^{182}Ta decay.
172.55 *4*	0.20 *2*	270.408	2^-	97.85	4^-	E2		0.492	α(K)=0.251 *4*; α(L)=0.184 *3*; α(M)=0.0456 *7* α(N)=0.01070 *15*; α(O)=0.001444 *21*; α(P)=1.766×10^{-5} *25*
270.408 *10*	79.0 *6*	270.408	2^-	0.0	3^-	E2(+M1)	>3	0.120 *8*	α(K)=0.081 *8*; α(L)=0.0298 *5*; α(M)=0.00722 *11*

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^{182}Hf β^- decay (8.90×10^6 y) 2004Ah10,1971He13 (continued)

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

E_γ [†]	E_i(level)	Comments
		α(N)=0.00170 *3*; α(O)=0.000239 *5*; α(P)=6.5×10^{-6} *8*

[†] From 2004Ah10. Corresponding values from 1971He13 are in agreement but somewhat less precise.
[‡] From 2004Ah10 who measured absolute intensities (photons/100 decays of the parent) were measured by two methods. The first involved a counting arrangement with low absolute efficiencies and the other is to use a system where one can measure and account for the summing effect. Corresponding values from 1971He13 are in agreement but somewhat less precise.
[#] From Adopted Gammas.
[@] Absolute intensity per 100 decays.
[&] 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