^{182}Ta IT decay (15.84 min) 1986Se14,1971He13

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

Parent: ^{182}Ta: E=519.587 *25*; $J^\pi=10^-$; $T_{1/2}$=15.84 min *10*; %IT decay=100.0

1986Se14: measured Iγ.
1971He13: measured Eγ, Iγ.
1966Bi10: measured Eγ, Iγ, ce.
1947Se33: identification and $T_{1/2}$ measurement.
Others: 1968Ho11, 1967Fe03, 1961Su01.

^{182}Ta Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	3^-		
16.273 *4*	5^+		
163.050 *15*	6^+	<30[‡] ps	
334.637 *20*	7^+	<30[‡] ps	
519.587 *25*	10^-	15.84 min *10*	$T_{1/2}$: from 1966Bi10. Other values: 16.2 min *5* (1947Se33), 16.4 min (1948Ho37), and 16 min *2* (1950Wi67).

[†] From Adopted Levels.
[‡] From (ce)(ce(t) (1968Ho11).

γ(^{182}Ta)

Iγ normalization, I(γ+ce) normalization: From average of Σ(I(γ+ce) of gammas from 519.6 level)=100 and Σ(I(γ+ce) of gammas to 16.27 level)=100.

E_γ	I_γ[#@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[&]	$I_{(\gamma+ce)}$[@]	Comments
16.273[‡] *4*	0.0047 *CA*	16.273	5^+	0.0	3^-	(M2)[‡]	4.30×10^4	202 *10*	ce(L)/(γ+ce)=0.746 *8*; ce(M)/(γ+ce)=0.198 *4*; ce(N+)/(γ+ce)=0.0557 *11* ce(N)/(γ+ce)=0.0482 *10*; ce(O)/(γ+ce)=0.00717 *15*; ce(P)/(γ+ce)=0.000356 *7* $I_{(\gamma+ce)}$: from intensity balance.
146.785 *15*	76 *4*	163.050	6^+	16.273	5^+	M1	1.460		α(K)=1.214 *17*; α(L)=0.190 *3*; α(M)=0.0432 *6* α(N)=0.01033 *15*; α(O)=0.001636 *23*; α(P)=0.0001133 *16* I_γ: 63.2 *3* (1986Se14). Mult.: from α(K)exp=1.22 *16*, K/L=5.0 *6* (1966Bi10). ΔIγ(absolute)=0.8 per 100 decays.
171.586 *15*	100	334.637	7^+	163.050	6^+	M1	0.940		α(K)=0.782 *11*; α(L)=0.1224 *18*; α(M)=0.0278 *4* α(N)=0.00664 *10*; α(O)=0.001052 *15*; α(P)=7.29×10^{-5} *11*

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^{182}Ta IT decay (15.84 min) 1986Se14,1971He13 (continued)

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

E_γ	I_γ[#@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[&]	Comments
184.951 *15*	50 *3*	519.587	10^-	334.637	7^+	E3	3.20	Mult.: from α(K)exp=0.84 *14*, K/L=4.8 *6* (1966Bi10). α(K)=0.633 *9*; α(L)=1.93 *3*; α(M)=0.501 *7* α(N)=0.1181 *17*; α(O)=0.01561 *22*; α(P)=7.48×10^{-5} *11* I_γ: 54.8 *4* (1986Se14).
318.40 *5*	14 *1*	334.637	7^+	16.273	5^+	E2	0.0688	Mult.: from α(K)exp=0.62 *10*, K/L=0.29 *3* (1966Bi10). α(K)=0.0478 *7*; α(L)=0.01603 *23*; α(M)=0.00388 *6* α(N)=0.000913 *13*; α(O)=0.0001293 *19*; α(P)=3.81×10^{-6} *6* I_γ: 24.1 *3* (1986Se14).
356.47 *10*	0.6 *1*	519.587	10^-	163.050	6^+	M4	4.76	Mult.: from α(K)exp=0.053 *10* and K/L=2.1 *5* (1966Bi10). δ>2.3 from α(K)exp but K/L agrees with pure E2. $\Delta I\gamma$(absolute)=0.6 per 100 decays. α(K)=2.99 *5*; α(L)=1.331 *19*; α(M)=0.344 *5* α(N)=0.0829 *12*; α(O)=0.01220 *18*; α(P)=0.000560 *8* I_γ: from 1971He13. Mult.: from α(K)exp=2.7 *10*, K/L=2.1 *5* (1966Bi10).

[†] From ce data and subshell ratios from 1966Bi10.
[‡] From Adopted Gammas.
[#] From 1971He13. For $\Delta I\gamma$(absolute) combine 5.2% in quadrature with $\Delta I\gamma$(rel), except as noted. Values from 1986Se14 do not give an acceptable intensity balance at 334.6 and 163.0 levels.
[@] For absolute intensity per 100 decays, multiply by 0.48 *2*.
[&] 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

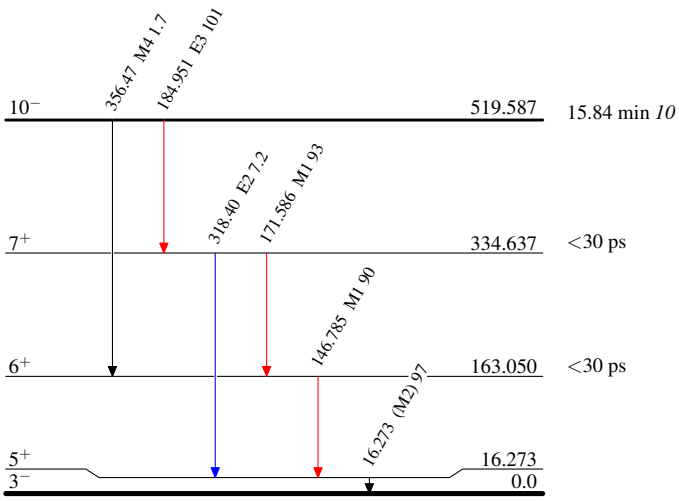
%IT=100.0

Legend

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

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

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



$^{182}_{73}Ta_{109}$