^{132}Te β^- decay (3.204 d) 1966Fr02,1981Yo02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh	NDS 104, 497 (2005)	10-Feb-2005

Parent: ^{132}Te: E=0.0; $J^\pi=0^+$; $T_{1/2}$=3.204 d *13*; Q(β^-)=518 *4*; %β^- decay=100.0

1966Fr02: measured Eγ, Iγ, ce.

1981Yo02: measured γ, Iγ, $\gamma\gamma$(t), $\gamma\gamma(\theta)$, oriented nuclei, $\beta\gamma$ coin.

Others:

Lifetimes by $\gamma\gamma$(t), $\beta\gamma$(t): 1999Da03, 1969Ho42, 1967Sc39, 1966Go23.

γ, ce: 1979Bo26, 1965Si17, 1965Iv01, 1960Ga06, 1958Ch28, 1951La25.

β: 1999Fo01, 1965Iv01, 1951La25, 1943Bo02.

Moments: 1969Si06 ($\gamma\gamma(\theta$,H),g factor); 1979Oo01 ($\gamma\gamma(\theta$,V_{zz},t),$\beta\gamma(\theta$,H,V_{zz},t)), deduced μ and Q.

$T_{1/2}$(^{132}Te isotope): 1983Wa26, 1971BaZW, 1965An05, 1958Ch28, 1956Fl15, 1951Pa33, 1939Ab02, 1939Ha13.

^{132}I Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	4^+		
49.72 *1*	3^+	7.14 ns *14*	Q=0.23 *7* (1979Oo01) $T_{1/2}$: from 1981Yo02, used plastic with lead-iron filter for 228γ and NaI(Tl) or Ge(Li) for 49γ, integral and differential directional correlations of 228γ − 49γ cascade confirms value obtained. Others: 0.96 ns *4* (1966Go23, used two plastics for registration of 232β,γ-28.5 X-ray), 0.93 ns *4*(1969Ho42), 2.94 ns *11* (1999Da03, used two NaI(Tl) detectors for detecting 228γ and 49γ). g: +0.74 *10* was obtained using IPAC (1969Si06) and $T_{1/2}$=0.951 ns *22*. However, $\gamma\gamma$(t) and $\gamma\gamma(\theta$,t) measurements of 1981Yo02 cast doubt on this value, since 1981Yo02 obtain $T_{1/2}$=7.14 ns *14* (g=0.099 *13*) and perturbation coefficient of 0.41 *9* for the 228-49 cascade As opposed to unperturbed correlation assumed by 1969Si06. g: for $T_{1/2}$=0.951 ns *22*; 0.099 *13* for $T_{1/2}$=7.14 ns.
161.52 *7*	2^+	3.57 ns *7*	$T_{1/2}$: from 1981Yo02, used plastic for 116 γ and NaI(Tl) for 111 γ, uranium shield used non-simultaneously for each detector. Others: 0.55 ns *4* 1999Da03, used two CsI for detecting 116 γ and 111 γ, fig. 1b corresponds to half-life of 1.14 ns.
277.86 *6*	1^+	1.42 ns *2*	μ=+1.88 *14*; Q=−0.170 *6* (1979Oo01) $T_{1/2}$: from 1981Yo02. Others: 1.42 ns *5* (1966Go23), 1.41 ns *7* (1969Ho42). Configuration=$\pi d_{5/2}\nu d^{-1}_{3/2}$.

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
239 *4*	277.86	100 *4*	4.69 *4*	av Eβ= 59.8 *12* E(decay): from 1999Fo01. Others: 215 *4* 1965Iv01.

[†] Absolute intensity per 100 decays.

γ(^{132}I)

Iγ normalization: From ΣI(γ+ce)=100 to g.s.

E$_\gamma$[†]	I$_\gamma$[‡@]	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.[#]	α[&]	Comments
49.72 *1*	17.0 *3*	49.72	3^+	0.0	4^+	M1	5.71	α(K)exp=4.9 *4*; α(L1)exp=0.59 *4*; α(L2)exp=0.046 *4*; α(L3)exp=0.0114 *20* α(K)=4.90 *15*; α(L)=0.645 *20*; α(M)=0.129 *4*

Continued on next page (footnotes at end of table)

^{132}Te β^- decay (3.204 d) 1966Fr02,1981Yo02 (continued)

$\gamma(^{132}I)$ (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	α[&]	Comments
									Additional information 1.
									δ(E2/M1): <0.02 from $\gamma\gamma(\theta)$ and ce data.
111.76 *8*	1.98 *5*	161.52	2^+	49.72	3^+	M1+E2	0.58 *10*	0.71 *5*	α(K)exp=0.57 *4*; α(L1)exp=0.074 *9*; α(L2)exp=0.029 *8*; α(L3)exp=0.025 *8*
									Additional information 2.
116.30 *8*	2.23 *6*	277.86	1^+	161.52	2^+	M1+E2	0.60 *9*	0.64 *4*	α(K)exp=0.49 *4*; α(L1)exp=0.051 *15*; α(L2)exp<0.022; α(L3)exp<0.015 α(K)=0.509 *19*; α(L)=0.102 *11*; α(M)=0.0210 *22*; α(N+..)=0.0050 *5*
									Additional information 3.
									ordering of 116-112 cascade firmly established by 1981Yo02.
228.16 *6*	100 *2*	277.86	1^+	49.72	3^+	E2		0.100	α(K)=0.0807 α(L1)exp=0.0092 *11*; α(L2)exp=0.0037 *6*; α(L3)exp=0.0037 *8* E_γ: other: 228.327 *3* (curved-crystal spectrometer,1979Bo26). $(228\gamma)(50\gamma)(\theta)$: A_2=−0.061 *4*, A_4=+0.011 *7* (1969Si06); perturbation coefficient assumed As 1. $(228\gamma)(50\gamma)(\theta)$: A_2=−0.031 *7*, A_4=−0.009 *13* (1981Yo02); perturbation coefficient=0.44 *16*, 0.41 *9* (1981Yo02).
									Additional information 4.

[†] From 1966Fr02.
[‡] From 1981Yo02.
[#] From ce data (1966Fr02); α(exp)=Ice/Iγ normalized to α(K)(228.16γ)=0.0807 (E2,1968Ha53).
[@] For absolute intensity per 100 decays, multiply by 0.88 *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.

^{132}Te β^- decay (3.204 d) 1966Fr02,1981Yo02

Decay Scheme

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