^{132}Cs ε decay (6.480 d) 1990Da09,1990Me15,1987De33

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}Cs: E=0.0; $J^\pi=2^+$; $T_{1/2}$=6.480 d *6*; Q(ε)=2124.6 *21*; %ε+%$β^+$ decay=98.13 *9*

^{132}Cs-%ε+%$β^+$ decay: %ε+%$β^+$=98.13 *9*.

1990Da09: Measured Eγ, Iγ, γγ, γγ(θ).

1990Me15: measured Eγ, Iγ.

1987De33: Measured Eγ, Iγ, γγ, γγ(θ), I($β^+$).

1970Qa03: Measured Eγ, Iγ, γγ.

1968Ca12: Measured Eγ, Iγ.

Others:

2000He14 (also 1979Gr01): precise energies of three γ rays.

1974Go18 (also 1973GoXT): Measured γ, γγ, $β^+$, εL/εK, εK/$β^+$.

1971Ta21: γγ(θ).

1967Fr08: γ, ce.

1965Jo06: γ, γγ.

1963Ta05: γ, γγ.

1962Ro07: γ, γγ, γγ(θ), $T_{1/2}$.

1961Jh03: γ, γγ.

1960Wh05: γ, $T_{1/2}$.

1955Ro58: γ, γγ.

Additional information 1.

1953Wa20: G.

$T_{1/2}$(isotope): 1973Gi06, 1973Du08, 1971Ru11, 1962Ro07, 1960Wh05. Others: 1964De18, 1956Bh61, 1955Ro58.

^{132}Cs production methods: ^{133}Cs(γ,n) (1990Da09,1987De33,1963Ta05); ^{134}Ba(d,α) (1987De33); ^{133}Cs(p,pn) (1962Ro07,1968Ca12); ^{133}Cs(n,2n) (1970Qa03).

^{132}Xe Levels

E(level)	J^π†
0.0	0^+
667.7159 *20*	2^+
1297.913 *14*	2^+
1440.320 *10*	4^+
1803.711 *17*	3^+
1985.641 *5*	2^+

† From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	I$β^+$ †	Iε†	Log *ft*	I(ε+$β^+$)†	Comments
(139.0 *21*)	1985.641		0.659 *20*	6.61 *2*	0.659 *20*	εK=0.7836 *16*; εL=0.1679 *12*; εM+=0.0485 *4*
(320.9 *21*)	1803.711		1.29 *5*	7.17 *2*	1.29 *5*	εK=0.8311 *2*; εL=0.13214 *15*; εM+=0.03678 *5*
(826.7 *21*)	1297.913		0.27 *6*	8.7 *1*	0.27 *6*	εK=0.8479; εL=0.11940 *2*; εM+=0.032682 *6*
(1456.9 *21*)	667.7159	0.407 *9*	95.51 *10*	6.679 *2*	95.92 *10*	av Eβ=203.73 *92*; εK=0.8485; εL=0.11575 *2*; εM+=0.031540 *5* E($β^+$)=400 *25* (1963Ta05) %$β^+$=1.45 *20*, weighted average of 1.51 *20* (1974Go18) and 1.*24* (1961Jh03). Others: 0.6 *2* (1962Ro07), 0.3-0.6 (1963Ta05), 0.38 (1968Ca12), 0.37 (1970Qa03). εL/εK=0.136 *1*, εK/$β^+$=54 *9* from 1974Go18.

† Absolute intensity per 100 decays.

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γ(^{132}Xe)

Iγ normalization: ΣI(γ+ce)=100 to g.s.
I($\gamma^{\pm}$)=8.23 *18*, weighted average of 8.28 *20* (1987De33) and 8.05 *40* (1990Da09). Others: 1961Jh03, 1962Ro07, 1963Ta05, 1968Ca12, 1970Qa03, 1974Go18, 1975WiZJ.

E_γ †	I_γ ‡&	E_i(level)	J_i^π	E_f	J_f^π	Mult. @	δ @	α a	Comments
363.34 *5*	0.070 *2*	1803.711	3^+	1440.320	4^+	(M1+E2)	+1.1 *2*	0.0239	α(K)=0.02023 *25*; α(L)=0.00292 *3*; α(M)=0.00059; α(N+..)=0.00015 δ: other: +1.59 *13* (1990Da09). (363γ)(773γ)(θ): A_2=−0.396 *20*, A_4=−0.18 *4* (1990Da09).
505.79 *3*	0.75 *5*	1803.711	3^+	1297.913	2^+	M1+E2	+7.5 *6*	0.00882	α(K)=0.00740; α(L)=0.00107 δ: others: +3.6 *5* or +0.09 *4* (1990Da09); +1.5 *+13−6* (1987De33). (506γ)(1298γ)(θ): A_2=+0.01 *3*, A_4=−0.07 *5* (1990Da09). Additional information 4.
630.19 *2*	0.97 *3*	1297.913	2^+	667.7159	2^+	M1+E2	+4.07 *16*	0.00497	α(K)=0.00420; α(L)=0.00057 δ: others: +3.70 *17* (1990Da09); +5.0 *+8−6* (1987De33); +18 *+50−9* (1971Ta21). (630γ)(668γ)(θ): A_2=−0.241 *6*, A_4=+0.313 *13* (1990Da09). Additional information 3.
667.714# *2*	100	667.7159	2^+	0.0	0^+	E2		0.00421	α(K)=0.00356; α(L)=0.00048 Additional information 2. K/L=7.2 (1967Fr08).
687.74 *17*	0.0022 *5*	1985.641	2^+	1297.913	2^+				
772.60 *1*	0.074 *3*	1440.320	4^+	667.7159	2^+	E2		0.00294	α(K)=0.00250; α(L)=0.00033 (773γ)(668γ)(θ): A_2=+0.11 *3*, A_4=−0.1 *7* (1990Da09).
1136.00 *2*	0.488 *13*	1803.711	3^+	667.7159	2^+	M1+E2	+0.34 *2*	0.00159	α(K)=0.00137; α(L)=0.00017 δ: others: +0.34 *3* (1990Da09); −4.5 *+15−25* (1987De33). (1136γ)(668γ)(θ): A_2=+0.156 *13*, A_4=−0.02 *3* (1990Da09). Additional information 5.
1297.91 *2*	0.056 *4*	1297.913	2^+	0.0	0^+				
1317.918# *6*	0.60 *2*	1985.641	2^+	667.7159	2^+	(M1+E2)	−0.16 *6*	0.00117	α(K)=0.00100; α(L)=0.00012 Additional information 6. δ: others: −0.123 *15*

Continued on next page (footnotes at end of table)

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γ(^{132}Xe) (continued)

E_γ †	I_γ ‡&	E_i(level)	J_i^π	E_f	J_f^π	Comments
						(1990Da09); +0.085 *20* (1987De33). (1318γ)(668γ)(θ): A_2=+0.329 *10*, A_4=+0.047 *20* (1990Da09).
1985.625# *6*	0.072 *3*	1985.641	2+	0.0	0+	Additional information 7.

† Average of values from 1990Me15 and 1987De33, except as noted.
‡ Average of values from 1990Da09, 1990Me15, 1987De33, 1970Qa03 and 1968Ca12.
# From 2000He14.
@ From Adopted Gammas.
& For absolute intensity per 100 decays, multiply by 0.9759 *9*.
a 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