

^{132}I β^- decay (1.387 h) 1974Di03

Type	Author	History	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}I : E=120 20; $J^\pi=(8^-)$; $T_{1/2}=1.387$ h 15; $Q(\beta^-)=3581$ 6; $\% \beta^-$ decay=14 2

^{132}I - $\% \beta^-$ decay: $\% \beta^-$ =14 2.

1974Di03 (also 1973Di14): $^{132\text{m}}\text{I}$ produced in proton fission of ^{238}U and radiochemical purification and $^{130}\text{Te}(\alpha, \text{pn})$ E=26 MeV.

Measured x, E_γ , I_γ , $\gamma\gamma$, $x\gamma$, ce, $\beta\gamma$ coin, $T_{1/2}$.

1976La14: measured $T_{1/2}$.

 ^{132}Xe Levels

The decay scheme is based on $\gamma\gamma$ and $\beta\gamma$ coincidence data.

E(level)	$J^\pi^\dagger$
0.0	0^+
667.7158 20	2^+
1440.318 11	4^+
2040.1 4	(5^-)
2215.1 7	(7^-)
2650.1 9	(7^-)
2829.1 11	$(7,8,9^-)$
2960.1 12	$(7,8,9^-)$

† From Adopted Levels.

 β^- radiations

E(decay) ‡	E(level)	$I\beta^-^\#$	Log ft	Comments
730 50	2960.1	0.64 16	6.95 † 14	av $E\beta=242.3$ 81
840 40	2829.1	2.5 8	6.61 † 16	av $E\beta=293.5$ 84
(1051 21)	2650.1	0.8 3	7.40 18	av $E\beta=365.9$ 87
1468 10	2215.1	8.6 16	6.94 † 11	av $E\beta=550.4$ 91

† Allowed spectrum assumed for calculation of log ft . Branch observed in $\beta\gamma$ coin.

‡ From $\beta\gamma$ coin (1974Di03), the values agree well with those deduced from $Q(\beta^-)$ and level energies.

$^\#$ Absolute intensity per 100 decays.

 $\gamma(^{132}\text{Xe})$

I_γ normalization: From level scheme.

E_γ	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\text{@}$	Comments
175.0 5	63 4	2215.1	(7^-)	2040.1	(5^-)	E2	0.256	$\alpha(\text{K})= 0.1983$; $\alpha(\text{L})= 0.0457$; $\alpha(\text{M})=0.00953$; $\alpha(\text{N}+..)=0.00231$
310.0 8	4.6 9	2960.1	$(7,8,9^-)$	2650.1	(7^-)	(E1)	0.00197	$\alpha(\text{K})=0.00169$; $\alpha(\text{L})=0.00021$
599.8 4	100 5	2040.1	(5^-)	1440.318	4^+			
610.0 8	10.5 15	2650.1	(7^-)	2040.1	(5^-)			
614.0 8	18 5	2829.1	$(7,8,9^-)$	2215.1	(7^-)			

Continued on next page (footnotes at end of table)

 $^{132}\text{I} \beta^-$ decay (1.387 h) [1974Di03](#) (continued)

 $\gamma(^{132}\text{Xe})$ (continued)

E_γ	I_γ [#]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	α [@]	$I_{(\gamma+ce)}$ ^{‡#}	Comments	
667.714 [†]	2	99.6 CA	667.7158	2 ⁺	0.0	0 ⁺	E2	0.00421	100	$\alpha(\text{K})=0.00356$; $\alpha(\text{L})=0.00048$
772.60 [†]	1	99.7 CA	1440.318	4 ⁺	667.7158	2 ⁺	E2	0.00294	100	$\alpha(\text{K})=0.00250$; $\alpha(\text{L})=0.00033$

[†] From adopted γ' s.

[‡] From intensity balance.

[#] For absolute intensity per 100 decays, multiply by 0.14 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

Legend

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

