

^{125}Cs ε decay **1972Jh01**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

Parent: ^{125}Cs : $E=0.0$; $J^\pi=1/2^{(+)}$; $T_{1/2}=46.7$ min I ; $Q(\varepsilon)=3104$ 8; $\% \varepsilon + \% \beta^+$ decay=100.0

[1993Ai03](#): Total γ absorption; deduced Q .

[1987Fr10](#): $\text{ce}({}^3\text{He}, \text{X})$, on-line ms, $\text{ce}\gamma(t)$; deduced $T_{1/2}$.

[1975We23](#): $\text{La}(p, \text{spallation})$ on-line ms, $\beta\gamma$ -coin; deduced Q .

[1972Jh01](#): $\text{I}(\alpha, \text{NX})$, semi γ ; proposed level scheme on the basis of $E\gamma$ sums.

 ^{125}Xe Levels

$E(\text{level})^\ddagger$	$J^\pi^\dagger$	$T_{1/2}$	Comments
0.0	$1/2^{(+)}$	16.9 h 2	
111.9 5	$3/2^{(+)}$	350 ps 20	$T_{1/2}$: From $\text{ce}\gamma(t)$ (1987Fr10).
525.0 8	$1/2^{(+)}, 3/2^{(+)}$		
540.0 7	$3/2^{(+)}$		
712.0 8	$3/2^{(+)}$		
1311.5 8	$1/2, 3/2$		
1325.0 8	$1/2, 3/2$		
1579.5 8	$1/2, 3/2$		
1698.0 8	$1/2, 3/2$		
2155.0 8	$1/2, 3/2$		
2524.5 8	$1/2, 3/2$		
2544.0 8	$1/2, 3/2$		

† Spin and parity values are those given under Adopted Levels.

‡ From least-squares fit to $E\gamma$'s by evaluators.

 ε, β^+ radiations

$E\beta^+$ from [1975We23](#).

$E(\text{decay})$	$E(\text{level})$	$I\beta^+^\dagger$	$I\varepsilon^\dagger$	$\text{Log } ft$	$I(\varepsilon + \beta^+)^\dagger$	Comments
(560 8)	2544.0		≈ 0.087	≈ 6.56	≈ 0.087	$\varepsilon K=0.8431$ 3; $\varepsilon L=0.12303$ 17; $\varepsilon M+=0.03385$ 6
(580 8)	2524.5		≈ 0.170	≈ 6.30	≈ 0.170	$\varepsilon K=0.8436$ 2; $\varepsilon L=0.12265$ 16; $\varepsilon M+=0.03372$ 5
(949 8)	2155.0		≈ 0.248	≈ 6.58	≈ 0.248	$\varepsilon K=0.8492$; $\varepsilon L=0.11844$ 6; $\varepsilon M+=0.03238$ 2
(1406 8)	1698.0	≈ 0.0018	≈ 0.71	≈ 6.48	≈ 0.71	av $E\beta=181.4$ 36; $\varepsilon K=0.8497$ 2; $\varepsilon L=0.11609$ 5; $\varepsilon M+=0.03164$ 2
(1525 8)	1579.5	≈ 0.0040	≈ 0.54	≈ 6.67	≈ 0.54	av $E\beta=233.3$ 35; $\varepsilon K=0.8459$ 4; $\varepsilon L=0.11519$ 8; $\varepsilon M+=0.03138$ 3
(1779 8)	1325.0	≈ 0.014	≈ 0.42	≈ 6.92	≈ 0.43	av $E\beta=344.3$ 36; $\varepsilon K=0.8243$ 11; $\varepsilon L=0.11162$ 16; $\varepsilon M+=0.03038$ 5
(1793 8)	1311.5	≈ 0.014	≈ 0.39	≈ 6.96	≈ 0.40	av $E\beta=350.2$ 36; $\varepsilon K=0.8225$ 11; $\varepsilon L=0.11135$ 17; $\varepsilon M+=0.03031$ 5
(2392 8)	712.0	≈ 1.4	≈ 5.2	≈ 6.08	≈ 6.6	av $E\beta=614.6$ 36; $\varepsilon K=0.674$ 3; $\varepsilon L=0.0905$ 4; $\varepsilon M+=0.02460$ 11
(2564 8)	540.0	≈ 1.2	≈ 3.0	≈ 6.38	≈ 4.2	av $E\beta=691.5$ 36; $\varepsilon K=0.614$ 3; $\varepsilon L=0.0823$ 4; $\varepsilon M+=0.02236$ 11
(2579 8)	525.0	≈ 8.6	≈ 21	≈ 5.53	≈ 30	av $E\beta=698.3$ 36; $\varepsilon K=0.608$ 3; $\varepsilon L=0.0815$ 4; $\varepsilon M+=0.02215$ 11
(2992 8)	111.9	≈ 1.5	≈ 1.7	≈ 6.76	≈ 3.2	av $E\beta=884.9$ 37; $\varepsilon K=0.461$ 3; $\varepsilon L=0.0616$ 4; $\varepsilon M+=0.01674$ 10
(3104 8)	0.0	≈ 27	≈ 26	≈ 5.60	≈ 53	av $E\beta=935.8$ 37; $\varepsilon K=0.425$ 3; $\varepsilon L=0.0567$ 4; $\varepsilon M+=0.01540$ 10 $E\beta+=2060$ keV 20 from $(\beta^+)(\gamma^\pm)$ coin.

† Absolute intensity per 100 decays.

^{125}Cs ε decay [1972Jh01](#) (continued)

$\gamma(^{125}\text{Xe})$									
$E_\gamma^\dagger$	$I_\gamma^\#$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	$\alpha^@$	Comments
112 <i>I</i>	278	111.9	3/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾	M1+E2	0.27 +10-13	0.64 4	$\alpha(\text{K})=0.539$ 18; $\alpha(\text{L})=0.084$ 12; $\alpha(\text{M})=0.017$ 3; $\alpha(\text{N}+..)=0.0042$ 6 Mult., δ : From K/L+=5.2 6 (1987Fr10).
^x 335	66								
412 <i>I</i>	170	525.0	1/2 ⁽⁺⁾ ,3/2 ⁽⁺⁾	111.9	3/2 ⁽⁺⁾				
428 <i>I</i>	51	540.0	3/2 ⁽⁺⁾	111.9	3/2 ⁽⁺⁾				
526 <i>I</i>	792	525.0	1/2 ⁽⁺⁾ ,3/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾				
540 <i>I</i>	100	540.0	3/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾				
600 <i>I</i>	100	712.0	3/2 ⁽⁺⁾	111.9	3/2 ⁽⁺⁾				
^x 654	14								
712 <i>I</i>	114	712.0	3/2 ⁽⁺⁾	0.0	1/2 ⁽⁺⁾				
^x 780	7								
^x 808	2.5								
^x 865	9.8								
^x 922	27								
^x 995	17								
^x 1060	5.9								
1158 <i>I</i>	14	1698.0	1/2,3/2	540.0	3/2 ⁽⁺⁾				
1200 <i>I</i>	6	1311.5	1/2,3/2	111.9	3/2 ⁽⁺⁾				
1212 <i>I</i>	11	1325.0	1/2,3/2	111.9	3/2 ⁽⁺⁾				
^x 1228	5								
1311 <i>I</i>	7	1311.5	1/2,3/2	0.0	1/2 ⁽⁺⁾				
1326 <i>I</i>	3	1325.0	1/2,3/2	0.0	1/2 ⁽⁺⁾				
1468 <i>I</i>	8.5	1579.5	1/2,3/2	111.9	3/2 ⁽⁺⁾				
1579 <i>I</i>	9	1579.5	1/2,3/2	0.0	1/2 ⁽⁺⁾				
1587 [‡] & <i>I</i>		1698.0	1/2,3/2	111.9	3/2 ⁽⁺⁾				
1698 <i>I</i>	9	1698.0	1/2,3/2	0.0	1/2 ⁽⁺⁾				
^x 1783	7								
^x 1825	4								
^x 1855	6								
2044 <i>I</i>	2	2155.0	1/2,3/2	111.9	3/2 ⁽⁺⁾				
^x 2116	26								
2154 <i>I</i>	6	2155.0	1/2,3/2	0.0	1/2 ⁽⁺⁾				
^x 2201	4								
^x 2269	4								
^x 2371 [‡]									
2414 <i>I</i>	1.5	2524.5	1/2,3/2	111.9	3/2 ⁽⁺⁾				
2431 <i>I</i>	2	2544.0	1/2,3/2	111.9	3/2 ⁽⁺⁾				
2523 <i>I</i>	4	2524.5	1/2,3/2	0.0	1/2 ⁽⁺⁾				
2545 <i>I</i>	0.8	2544.0	1/2,3/2	0.0	1/2 ⁽⁺⁾				
^x 2623	1.5								
^x 2726	1.5								

[†] Uncertainty is not given by authors ([1972Jh01](#)). 1 keV is assigned to the placed γ 's by the evaluators.

[‡] Weak γ ray; no intensity was given ([1972Jh01](#)).

[#] For absolute intensity per 100 decays, multiply by 0.031 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.

& Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

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Decay Scheme

Legend

- $I_\gamma < 2\% \times I_\gamma^{\max}$
 —→ $I_\gamma < 10\% \times I_\gamma^{\max}$
 —→ $I_\gamma > 10\% \times I_\gamma^{\max}$
 - - - - - γ Decay (Uncertain)

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