

^{134}I β^- decay (52.5 min) 1969Wi16,1971Ac01,1972GeZZ

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 103,1 (2004)	31-Jul-2004

Parent: ^{134}I : E=0.0; $J^\pi=(4)^+$; $T_{1/2}=52.5$ min 2; $Q(\beta^-)=4175$ keV; $\% \beta^-$ decay=100

 ^{134}Xe Levels

The decay scheme is based on $\gamma\gamma$ -coincidence measurements and energy sums.

E(level)	J^π [†]	Comments
0.0	0^+	
847.039 23	2^+	
1613.77 3	$(2)^+$	
1731.16 3	4^+	
1919.59 3	3^+	
2136.59 21		See Adopted Levels section regarding this level.
2136.61 4	6^+	See Adopted Levels section regarding this level.
2272.01 4	5^+	
2302.25 6	$(3,4)^+$	
2352.96 3	$(4)^+$	
2408.50 4	$(5)^+$	
2547.55 4	$4^+, 5^+$	
2588.45 3	$(4)^+$	
2653.90 5	$3^{(+)}$	
2772.90 7	$(3,4)^+$	
2867.37 3	$(4)^+$	
3083.78 6	$(3,4)^+$	
3255.74 17	$(3,4)^+$	
3300.0 3		
3314.5 3	$(3,4)^+$	
3360.46 7	$(3,4)^+$	
3375.39 5	$(4,5)$	
3477.0 3		
3492.29 10	$(3,4)^+$	

[†] From Adopted Levels.

 β^- radiations

E(decay) [†]	E(level)	$I\beta^-$ [‡]	Log ft	Comments
(683 15)	3492.29	0.37 3	6.86 5	av $E\beta=220.1$ 57
(698 15)	3477.0	0.067 7	7.64 6	av $E\beta=225.9$ 57
(800 15)	3375.39	1.79 10	6.42 4	av $E\beta=265.0$ 59
(815 15)	3360.46	1.09 7	6.67 4	av $E\beta=270.9$ 59
(861 15)	3314.5	0.21 3	7.47 7	av $E\beta=289.0$ 60
(875 15)	3300.0	0.058 12	8.05 10	av $E\beta=294.7$ 60
(919 15)	3255.74	0.22 3	7.55 7	av $E\beta=312.4$ 61
1050 70	3083.78	1.35 6	7.04 3	av $E\beta=382.6$ 63
1250 60	2867.37	30.4 8	5.979 23	av $E\beta=473.5$ 64
(1402 15)	2772.90	0.52 4	7.86 4	av $E\beta=514.1$ 65
1490 60	2653.90	6.9 3	6.88 3	av $E\beta=565.7$ 66
1680 60	2588.45	16.2 4	6.576 20	av $E\beta=594.3$ 66
(1627 15)	2547.55	4.1 2	7.22 3	av $E\beta=612.3$ 66
(1767 15)	2408.50	6.6 4	7.15 3	av $E\beta=673.8$ 67

Continued on next page (footnotes at end of table)

 ^{134}I β^- decay (52.5 min) [1969Wi16](#), [1971Ac01](#), [1972GeZZ](#) (continued)

 β^- radiations (continued)

<u>E(decay)[†]</u>	<u>E(level)</u>	<u>$I\beta^-$[‡]</u>	<u>Log ft</u>	<u>Comments</u>
(1822 15)	2352.96	11.0 5	6.981 25	av $E\beta=698.5$ 67
(1873 15)	2302.25	2.24 21	7.72 5	av $E\beta=721.1$ 68
(1903 15)	2272.01	1.6 6	7.89 17	av $E\beta=734.7$ 68
(2038 15)	2136.59	0.23 3	8.85 6	av $E\beta=795.6$ 68
2210 80	1919.59	3.3 6	7.88 8	av $E\beta=893.9$ 69
2410 60	1731.16	12.6 21	7.44 8	av $E\beta=980.0$ 69

[†] From [1961Jo08](#).

[‡] Absolute intensity per 100 decays.

$\gamma(^{134}\text{Xe})$ I γ normalization: From $\Sigma\text{I}(\gamma+\text{ce})=100$ to g.s. $\gamma\gamma(\theta)$ measurements: 1969Ta10, 1972Be90, 1974Gu20.

E_γ ^{$\dagger$}	I_γ ^{$\ddagger a$}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	α ^{b}	Comments
135.399 22	4.5 3	2272.01	5 ⁺	2136.61	6 ⁺	M1(+E2) [@]		0.353	$\alpha(\text{K})=0.303$; $\alpha(\text{L})=0.0398$; $\alpha(\text{M})=0.00804$; $\alpha(\text{N}+..)=0.00203$ $\alpha(\text{K})_{\text{exp}}=0.26$ 5
139.03 3	0.79 4	2547.55	4 ⁺ ,5 ⁺	2408.50	(5 ⁺)	(M1,E2) [@]		0.45 13	$\alpha(\text{K})_{\text{exp}}\leq 1$
^x 151.98 ^{& 15}	0.111 12								
162.48 ^{c 7}	0.30 3	3477.0		3314.5	(3,4 ⁺)				
188.47 4	0.80 6	1919.59	3 ⁺	1731.16	4 ⁺	M1,E2 [@]		0.17 3	$\alpha(\text{K})_{\text{exp}}=0.13$ 5
217.0 2	0.24 3	2136.59		1919.59	3 ⁺				
235.471 26	2.23 16	2588.45	(4) ⁺	2352.96	(4) ⁺	M1+(E2) [@]		0.085 8	$\alpha(\text{K})_{\text{exp}}=0.07$ 1; K/(L+M+N)+O=6.1 7
278.80 15	0.15 2	2867.37	(4) ⁺	2588.45	(4) ⁺	[M1,E2]		0.052 2	
319.81 6	0.48 3	2867.37	(4) ⁺	2547.55	4 ⁺ ,5 ⁺				
^x 351.08 10	0.44 7								
405.451 20	7.7 2	2136.61	6 ⁺	1731.16	4 ⁺	E2		0.0164	$\alpha(\text{K})=0.0138$ 5; $\alpha(\text{L})=0.00213$ 7; $\alpha(\text{M})=0.00043$ 1; $\alpha(\text{N}+..)=0.00011$ Mult.: In 1974Gu20, M=M1+E2 and $\delta=+0.8+7-4$. See the Adopted Levels section.
411.00 8	0.60 4	2547.55	4 ⁺ ,5 ⁺	2136.61	6 ⁺				
433.35 3	4.34 15	2352.96	(4) ⁺	1919.59	3 ⁺	M1(+E2) [#]	+0.08 ^{# 6}	0.01601 4	$\alpha(\text{K})=0.01381$ 4; $\alpha(\text{L})=0.00176$; $\alpha(\text{M})=0.00035$ $\alpha(\text{K})_{\text{exp}}=0.015$ 3
458.92 6	1.37 6	2867.37	(4) ⁺	2408.50	(5 ⁺)	[M1,E2]		0.011 1	
^x 465.50 ^{& 10}	0.38 4								
488.88 4	1.52 6	2408.50	(5 ⁺)	1919.59	3 ⁺	[E2]		0.00956	$\alpha(\text{K})=0.00808$; $\alpha(\text{L})=0.00118$; $\alpha(\text{M})=0.00024$
514.40 3	2.34 9	2867.37	(4) ⁺	2352.96	(4) ⁺	[M1,E2]		0.008 1	
540.825 25	8.0 2	2272.01	5 ⁺	1731.16	4 ⁺	M1+E2 [#]	-1.92 ^{# 10}	0.00774 4	$\alpha(\text{K})=0.00654$ 4; $\alpha(\text{L})=0.00090$ $\alpha(\text{K})_{\text{exp}}=0.0060$ 8
^x 565.52 4	0.99 7								
570.75 15	0.32 8	2302.25	(3,4 ⁺)	1731.16	4 ⁺				
595.362 20	11.6 4	2867.37	(4) ⁺	2272.01	5 ⁺	M1+E2 [#]	-0.32 ^{# 20}	0.00723 21	$\alpha(\text{K})=0.00620$ 19; $\alpha(\text{L})=0.00078$ $\alpha(\text{K})_{\text{exp}}=0.0070$ 8
621.790 25	11.1 4	2352.96	(4) ⁺	1731.16	4 ⁺	M1+E2 [#]	-0.76 ^{# 5}	0.00607 5	$\alpha(\text{K})=0.00518$ 5; $\alpha(\text{L})=0.00067$ $\alpha(\text{K})_{\text{exp}}=0.0052$ 8
627.96 3	2.32 14	2547.55	4 ⁺ ,5 ⁺	1919.59	3 ⁺	M1,E2		0.0049 7	$\alpha(\text{K})_{\text{exp}}=0.0025$ 19
677.34 3	8.3 3	2408.50	(5 ⁺)	1731.16	4 ⁺	M1+E2 [#]	-0.32 ^{# 2}	0.00529	$\alpha(\text{K})=0.00454$; $\alpha(\text{L})=0.00057$ $\alpha(\text{K})_{\text{exp}}\leq 0.0065$

^{134}I β^- decay (52.5 min) [1969Wi16](#), [1971Ac01](#), [1972GeZZ](#) (continued) $\gamma(^{134}\text{Xe})$ (continued)

E_γ ^{<i>a</i>}	I_γ ^{<i>a</i>}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	α ^{<i>b</i>}	Comments
706.65 10	0.87 6	3360.46	(3,4 ⁺)	2653.90	3 ⁽⁺⁾				
730.74 4	1.91 8	2867.37	(4) ⁺	2136.61	6 ⁺				
739.18 8	0.72 5	2352.96	(4) ⁺	1613.77	(2) ⁺	[E2]		0.00327	$\alpha(\text{K})=0.00278$; $\alpha(\text{L})=0.00037$
766.68 4	4.34 13	1613.77	(2) ⁺	847.039	2 ⁺	M1+E2 [#]	-2.4 [#] 2	0.00315	$\alpha(\text{K})=0.00268$; $\alpha(\text{L})=0.00035$
816.38 7	0.65 7	2547.55	4 ⁺ , 5 ⁺	1731.16	4 ⁺				
847.025 25	100 2	847.039	2 ⁺	0.0	0 ⁺	E2		0.00237	$\alpha(\text{K})=0.00202$; $\alpha(\text{L})=0.00026$ $\alpha(\text{K})_{\text{exp}}=0.0018$ 3; K/L=7.5 6
857.29 3	7.0 2	2588.45	(4) ⁺	1731.16	4 ⁺	M1+E2 [#]	-0.64 [#] 10	0.00288 6	$\alpha(\text{K})=0.00247$ 5; $\alpha(\text{L})=0.00031$
^x 864.0 ^{&} 3	0.20 3								
884.090 25	68 2	1731.16	4 ⁺	847.039	2 ⁺	E2		0.00215	$\alpha(\text{K})=0.00183$; $\alpha(\text{L})=0.00024$ $\alpha(\text{K})_{\text{exp}}=0.0019$ 4
922.6 3	0.15 3	2653.90	3 ⁽⁺⁾	1731.16	4 ⁺	[M1,E2]		0.0021 6	
947.86 4	4.19 13	2867.37	(4) ⁺	1919.59	3 ⁺	M1+E2 [#]	-0.4 [#] 1	0.00238 4	$\alpha(\text{K})=0.00204$ 4; $\alpha(\text{L})=0.00025$
966.90 5	0.41 4	3375.39	(4,5)	2408.50	(5 ⁺)				
974.67 4	5.0 2	2588.45	(4) ⁺	1613.77	(2) ⁺	[E2]		0.00173	$\alpha(\text{K})=0.00148$; $\alpha(\text{L})=0.00019$
1040.25 10	2.12 15	2653.90	3 ⁽⁺⁾	1613.77	(2) ⁺	(M1+E2)	-0.09 3	0.00199	$\alpha(\text{K})=0.00171$; $\alpha(\text{L})=0.00021$ δ : from 1972Be90 .
^x 1052.2 ^{&} 3	0.07 2								
^x 1058.8 ^{&} 3	0.10 3								
1072.55 3	15.6 5	1919.59	3 ⁺	847.039	2 ⁺	M1+E2 [#]	+0.16 [#] 2	0.00185	$\alpha(\text{K})=0.00159$; $\alpha(\text{L})=0.00020$ $\alpha(\text{K})_{\text{exp}}\leq 0.0018$
^x 1087.0 ^{&} 2	0.09 2								
^x 1100.07 12	0.72 6								
1103.18 12	0.84 6	3375.39	(4,5)	2272.01	5 ⁺				
1136.16 4	9.5 6	2867.37	(4) ⁺	1731.16	4 ⁺	M1+E2 [#]	+0.48 [#] 2	0.00156	$\alpha(\text{K})=0.00134$; $\alpha(\text{L})=0.00016$
1159.10 8	0.36 3	2772.90	(3,4 ⁺)	1613.77	(2) ⁺				
1164.0 3	0.14 3	3083.78	(3,4 ⁺)	1919.59	3 ⁺				
^x 1183.2 ^{&} 5	0.06 7								
1190.03 8	0.37 3	3492.29	(3,4 ⁺)	2302.25	(3,4 ⁺)				
^x 1225.5 ^{&} 3	0.07 2								
1239.0 3	0.22 6	3375.39	(4,5)	2136.61	6 ⁺				
^x 1243.8 ^{&} 3	0.08 2								
^x 1269.49 5	0.59 4								
^x 1322.4 3	0.11 4								
1336.0 2	0.15 3	3255.74	(3,4 ⁺)	1919.59	3 ⁺				
1352.62 8	0.43 3	3083.78	(3,4 ⁺)	1731.16	4 ⁺				
1395 1	0.08 2	3314.5	(3,4 ⁺)	1919.59	3 ⁺				
^x 1407.4 ^{&} 2	0.10 2								

¹³⁴I β⁻ decay (52.5 min) [1969Wi16](#),[1971Ac01](#),[1972GeZZ](#) (continued)

γ(¹³⁴Xe) (continued)

E _γ [†]	I _γ ^{‡a}	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	δ	Comments
^x 1414.3 & 5	0.23 6							
^x 1428.2 3	0.18 4							
^x 1431.35 & 25	0.18 4							
1455.24 5	2.4 2	2302.25	(3,4 ⁺)	847.039	2 ⁺			
1470.00 7	0.79 4	3083.78	(3,4 ⁺)	1613.77	(2) ⁺			
^x 1505.5 & 4	0.12 4							
^x 1541.51 7	0.53 4							
1613.80 4	4.5 2	1613.77	(2) ⁺	0.0	0 ⁺	[E2]		
1629.24 8	0.20 4	3360.46	(3,4 ⁺)	1731.16	4 ⁺			
1644.25 7	0.41 4	3375.39	(4,5)	1731.16	4 ⁺			
^x 1655.19 10	0.24 3							
1741.49 5	2.68 16	2588.45	(4) ⁺	847.039	2 ⁺	[E2]		
1806.84 4	5.8 2	2653.90	3 ⁽⁺⁾	847.039	2 ⁺	(M1+E2)	-0.10 3	δ: from 1972Be90 .
^x 1868.5 & 2	0.07 2							
^x 1893.2 & 3	0.06 1							
1925.88 10	0.19 3	2772.90	(3,4 ⁺)	847.039	2 ⁺			
^x 1947.3 & 3	0.10 2							
2020.6 3	0.20 3	2867.37	(4) ⁺	847.039	2 ⁺	[E2]		
^x 2159.9 3	0.22 3							
2236.7 5	0.056 15	3083.78	(3,4 ⁺)	847.039	2 ⁺			
^x 2262.5 3	0.10 2							
^x 2312.4 2	0.25 3							
2409.0 3	0.082 10	3255.74	(3,4 ⁺)	847.039	2 ⁺			
2452.9 3	0.061 12	3300.0		847.039	2 ⁺			
2467.4 3	0.14 2	3314.5	(3,4 ⁺)	847.039	2 ⁺			
2513.3 3	0.070 8	3360.46	(3,4 ⁺)	847.039	2 ⁺			
2629.9 3	0.070 7	3477.0		847.039	2 ⁺			
2646 2	≈0.02	3492.29	(3,4 ⁺)	847.039	2 ⁺			E _γ : from 1969Wi16 .
^x 2699.5 & 5	0.034 8							
^x 2840 & 4	0.02 1							

[†] From [1973GeZZ](#).

[‡] Average of [1969Wi16](#), [1971Ac01](#), and [1973GeZZ](#).

From [1974Gu20](#), based on γγ(θ).

@ From α(K)exp of [1971Ac01](#).

& Assignment is uncertain. These weak transitions were not reported by [1969Wi16](#) or [1971Ac01](#).

^a For absolute intensity per 100 decays, multiply by 0.957 18.

$\gamma(^{134}\text{Xe})$ (continued)

^b Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

^c Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

¹³⁴I β⁻ decay (52.5 min) 1969W116,1971Ac01,1972GeZLZ

Decay Scheme

Intensities: I_γ per 100 parent decays

