

^{134}Sm ε decay **1989Vi04,1990Ko25**

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

Parent: ^{134}Sm : $E=0.0$; $J^\pi=0^+$; $T_{1/2}=9.5$ s 8; $Q(\varepsilon)=5.232\times 10^3$ SY; $\% \varepsilon + \% \beta^+$ decay=100.0

 ^{134}Pm Levels

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

E(level)	$J^\pi^\dagger$	$T_{1/2}$	E(level)	E(level)	E(level)
0.0	(2 ⁺)	≈ 5 s	229.11 14	409.4 4	537.4 4
112.30 18			280.03 15	418.93 19	887.4 4
118.90 13	(1 ⁺)		304.71 23	498.96 19	

[†] From Adopted Levels.

 ε, β^+ radiations

log ft : approximate values. For calculation of the log ft values, mult=M1 was assumed for the low energy γ transitions.

E(decay)	E(level)	$I\beta^+^\dagger$	$I\varepsilon^\dagger$	Log ft	$I(\varepsilon + \beta^+)^\dagger$	Comments
(4344 SY)	887.4	2.5	1.1	5.1	3.6	av $E\beta=1507$ 93; $\varepsilon K=0.26$ 4; $\varepsilon L=0.037$ 5; $\varepsilon M+=0.0105$ 14
(4694 SY)	537.4	2.9	0.93	5.2	3.8	av $E\beta=1670$ 94; $\varepsilon K=0.21$ 3; $\varepsilon L=0.029$ 4; $\varepsilon M+=0.0084$ 11
(4733 SY)	498.96	22	7.0	4.3	29	av $E\beta=1688$ 94; $\varepsilon K=0.20$ 3; $\varepsilon L=0.029$ 4; $\varepsilon M+=0.0082$ 11
(4813 SY)	418.93	12	3.4	4.6	15	av $E\beta=1726$ 94; $\varepsilon K=0.194$ 25; $\varepsilon L=0.027$ 4; $\varepsilon M+=0.0079$ 11
(4822 SY)	409.4	4.5	1.3	5.1	5.8	av $E\beta=1730$ 94; $\varepsilon K=0.193$ 25; $\varepsilon L=0.027$ 4; $\varepsilon M+=0.0078$ 10
(5002 SY)	229.11	14	3.7	4.7	18	av $E\beta=1815$ 94; $\varepsilon K=0.173$ 22; $\varepsilon L=0.024$ 4; $\varepsilon M+=0.0070$ 9
(5113 SY)	118.90	≈ 49	≈ 12	≈ 4.2	≈ 61	av $E\beta=1866$ 94; $\varepsilon K=0.162$ 21; $\varepsilon L=0.023$ 3; $\varepsilon M+=0.0066$ 9
(5119 SY)	112.30	3.3	0.78	5.3	4.1	av $E\beta=1870$ 94; $\varepsilon K=0.162$ 20; $\varepsilon L=0.023$ 3; $\varepsilon M+=0.0065$ 9

[†] Absolute intensity per 100 decays.

 $\gamma(^{134}\text{Pm})$

I_γ normalization: From measured I_γ of 118.9 γ (**1989Vi04**).

$E_\gamma^\dagger$	$I_\gamma^{\dagger\dagger}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	$\alpha^\#$	Comments
50.8 5	1.0 3	280.03		229.11				
104.7 3	2.4 5	409.4		304.71				
^x 107.0 5	0.9 3							
110.2 2	10 2	229.11		118.90	(1 ⁺)			
112.3 2	6 1	112.30		0.0	(2 ⁺)			
116.8 3	3 1	229.11		112.30				
118.9 2	100 5	118.90	(1 ⁺)	0.0	(2 ⁺)	[M1]	0.96	$\alpha(K)=0.815$ 25; $\alpha(L)=0.114$ 4; $\alpha(M)=0.0243$ 8; $\alpha(N+..)=0.00696$ 21 $I_\gamma(118.9)=60\%$ 15 (1989Vi04).
129.5 5	2.3 5	409.4		280.03				
^x 141.3 4	3.2 5							
161.2 3	15 5	280.03		118.90	(1 ⁺)			

Continued on next page (footnotes at end of table)

^{134}Sm ε decay [1989Vi04](#),[1990Ko25](#) (continued) $\gamma(^{134}\text{Pm})$ (continued)

E_γ [†]	I_γ ^{†‡}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ [†]	I_γ ^{†‡}	$E_i(\text{level})$	J_i^π	E_f	J_f^π
185.8 2	10 3	304.71		118.90	(1 ⁺)	280.0 2	13 2	280.03		0.0	(2 ⁺)
218.9 2	32 3	498.96		280.03		300.0 2	15 3	418.93		118.90	(1 ⁺)
^x 224.0 4	1.8 5					380.1 2	17 2	498.96		118.90	(1 ⁺)
229.1 2	13 2	229.11		0.0	(2 ⁺)	419.0 3	8.8 25	418.93		0.0	(2 ⁺)
257.4 3	6.4 20	537.4		280.03		768.5 3	6 2	887.4		118.90	(1 ⁺)

[†] Averaged from [1989Vi04](#) and [1990Ko25](#).

[‡] For absolute intensity per 100 decays, multiply by 0.60 *I5*.

[#] 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.

^x γ ray not placed in level scheme.

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Decay Scheme

Intensities: I_γ 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

$0^+ \quad 0.0 \quad 9.5 \text{ s } 8$
 $Q_\varepsilon = 5.232 \times 10^3 \text{ SY}$
 $^{134}_{62}\text{Sm}_{72}$

