

^{131}La IT decay (170 μs) [1973Le09,1973Co32](#)

Type	Author	History	Citation	Literature Cutoff Date
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Parent: ^{131}La : E=304.4 3; $J^\pi=11/2^-$; $T_{1/2}=170 \mu\text{s}$ 7; %IT decay=100

[1973Co32](#), [1970Co05](#): $^{123}\text{Sb}(^{12}\text{C},4n\gamma)$, 88 MeV; measured γ 's, x-rays, ce; deduced IT decay, levels, J^π , $T_{1/2}$. Pulsed beam.

[1973Le09](#): $^{120}\text{Sn}(^{14}\text{N},3n\gamma)$, E=50, 53, 58 MeV; $^{124}\text{Te}(^{11}\text{B},4n\gamma)$, E=50, 56 MeV; measured γ , $\gamma\gamma(\theta)$, deduced levels, J^π , $T_{1/2}$.

[1996Ge12](#): ^{131}Ce ε decay [from $^{94}\text{Mo}(^{40}\text{Ca},xpyn\gamma)$, E=255 MeV, decay of ^{131}Nd , ^{131}Pr precursors]; measured $E\gamma$, $I\gamma$, $\gamma\gamma$, $x\gamma$.

He-jet transport, Ge, Si(Li) detectors.

 ^{131}La Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$3/2^+$	59 min 2	
26.19 5	$5/2^+$	0.85 ns 10	$T_{1/2}$: from 1981An17 .
195.54 8	$7/2^+$	0.2 ns 8	$T_{1/2}$: from 1981An17 .
304.4 3	$11/2^-$	170 μs 7	$T_{1/2}$: weighted av. of 170 μs 15 (1970Co05,1973Co32), 170 μs 10 (1973Le09), 170 μs 17 (1981An17). Other: 158 μs 5 (1966Gr19).

 $\gamma(^{131}\text{La})$

$I\gamma$ normalization, $I(\gamma+ce)$ normalization: weighted average of 0.74 7 from $I\gamma(170)(1+\alpha(170))+I\gamma(196)(1+\alpha(196))=100$ and 0.83 4 from $I\gamma(109)(1+\alpha(109))=100$.

E_γ [†]	I_γ ^{†‡}	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult.	δ	$\alpha^{\#}$	$I_{(\gamma+ce)}$ [‡]	Comments
26.20 5	45 5	26.19	$5/2^+$	0.0	$3/2^+$	M1(+E2)	<0.05	8.6 6	128 6	ce(L)/($\gamma+ce$)=0.71 3; ce(M)/($\gamma+ce$)=0.148 13; ce(N+)/($\gamma+ce$)=0.038 4 ce(N)/($\gamma+ce$)=0.032 3; ce(O)/($\gamma+ce$)=0.0052 5; ce(P)/($\gamma+ce$)=0.000376 24 Mult., α : from the adopted gammas. δ : from 10.3-min ε decay. I_γ : ≈ 30 1973Co32 . $I(\gamma+ce)=84$ (1973Le09). $\alpha(K)\text{exp}=6.4$; $K/(L+M)=5.0$ (1973Le09); $\alpha(K)\text{exp}=9$ 4 (1973De25) $\alpha(K)=6.31$ 19; $\alpha(L)=1.33$ 4; $\alpha(M)=0.288$ 9; $\alpha(N+..)=0.083$ 3 I_γ : from 1973Co32 , $I(\gamma+ce)=108$ (1973Le09). $\alpha(K)\text{exp}=0.21$ 15; $\alpha(\text{exp})=0.6$ 3 (1973Co32); $K/(L+M)=5.1$ (1973Le09) $\alpha(K)=0.222$ 12; $\alpha(L)=0.046$ 18; $\alpha(M)=0.010$ 4; $\alpha(N+..)=0.0025$ 10 $\alpha(N)=0.0021$ 9; $\alpha(O)=0.00032$ 12; $\alpha(P)=1.52\times 10^{-5}$ 12 $\alpha(K)=0.1469$ 21; $\alpha(L)=0.0357$ 5; $\alpha(M)=0.00772$ 11;
108.9 3	13.4 5	304.4	$11/2^-$	195.54	$7/2^+$	M2		8.01		
169.4 1	100	195.54	$7/2^+$	26.19	$5/2^+$	M1,E2		0.28 4		
195.5 1	5.5 5	195.54	$7/2^+$	0.0	$3/2^+$	[E2]		0.192		

Continued on next page (footnotes at end of table)

^{131}La IT decay (170 μs) [1973Le09,1973Co32](#) (continued) $\gamma(^{131}\text{La})$ (continued)

<u>E_γ</u> [†]	<u>$E_i(\text{level})$</u>	Comments
	$\alpha(\text{N}+..)=0.00191\ 3$	
	$\alpha(\text{N})=0.001654\ 24$; $\alpha(\text{O})=0.000246\ 4$; $\alpha(\text{P})=9.10\times 10^{-6}\ 13$	
	I_γ : $I(\gamma+\text{ce})=5$ (1973Le09).	

[†] From [1996Ge12](#), except as noted.

[‡] For absolute intensity per 100 decays, multiply by 0.81 4.

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.

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