^{129}Cs IT decay (0.718 μs) 1978De29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Janos Timar and Zoltan Elekes, Balraj Singh	NDS 121, 143 (2014)	31-May-2014

Parent: ^{129}Cs: E=575.45 *5*; J^π=(11/2$^-$); $T_{1/2}$=0.718 μs *21*; %IT decay=100.0
1978De29: measured Eγ, Iγ, half-life, g factor.

^{129}Cs Levels

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	1/2$^+$	32.06 h *6*	%ε+%β^+=100
6.57 *4*	5/2$^+$	72 ns *6*	
135.58 *4*	3/2$^+$		
188.94 *5*	7/2$^+$	2.26 ns *6*	
209.08? *5*	(5/2)$^+$		
220.75? *4*	3/2$^+$		
426.49 *5*	(9/2$^+$)		
575.45 *5*	(11/2$^-$)	0.718 μs *21*	%IT=100 μ=+6.55 *10* (1978De29) μ: TDPAD method (1978De29). $T_{1/2}$: from $\gamma\gamma$(t); weighted average of 0.734 μs *23* (1978De29), and 0.69 μs *3* (1977Ch23). Other: 0.73 μs *7* (1979Ga01, same group as 1978De29).

† From Adopted Levels, unless otherwise stated.

$\gamma(^{129}Cs)$

Iγ normalization: Summed transition intensity=100 for γ rays from 575-keV isomer.

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	α[@]	$I_{(\gamma+ce)}$[#]	Comments
6.55 *5*		6.57	$5/2^+$	0.0	$1/2^+$	E2		4.32×10^5	189 *10*	
53.2 *1*	0.15 *2*	188.94	$7/2^+$	135.58	$3/2^+$	E2		18.6		α(K)=6.53 *10*; α(L)=9.52 *16*; α(M)=2.08 *4* α(N)=0.419 *7*; α(O)=0.0474 *8*; α(P)=0.000174 *3*
73.2[&] *1*		209.08?	$(5/2)^+$	135.58	$3/2^+$	[M1,E2]		4.0 *18*		α(K)=2.5 *6*; α(L)=1.2 *10*; α(M)=0.26 *21* α(N)=0.05 *5*; α(O)=0.006 *5*; α(P)=7.7×10^{-5} *3*
85.1[&] *1*		220.75?	$3/2^+$	135.58	$3/2^+$	[M1,E2]		2.4 *10*		α(K)=1.6 *4*; α(L)=0.6 *5*; α(M)=0.13 *10* α(N)=0.027 *20*; α(O)=0.0032 *23*; α(P)=5.05×10^{-5} *25*
129.14 *9*	1.7 *2*	135.58	$3/2^+$	6.57	$5/2^+$	M1+E2	0.20 *5*	0.449 *9*		α(K)=0.381 *7*; α(L)=0.054 *3*; α(M)=0.0112 *6* α(N)=0.00236 *12*; α(O)=0.000322 *13*; α(P)=1.477×10^{-5} *21*
135.61 *9*	0.24 *4*	135.58	$3/2^+$	0.0	$1/2^+$	[M1,E2]		0.51 *13*		α(K)=0.39 *7*; α(L)=0.09 *5*; α(M)=0.019 *11* α(N)=0.0040 *21*; α(O)=0.00050 *24*; α(P)=1.32×10^{-5} *5*
149.05 *8*	100 *5*	575.45	$(11/2^-)$	426.49	$(9/2^+)$	(E1)		0.0722		α(K)=0.0621 *9*; α(L)=0.00811 *12*; α(M)=0.001649 *24* α(N)=0.000344 *5*; α(O)=4.65×10^{-5} *7*; α(P)=2.03×10^{-6} *3*
182.32 *5*	68 *8*	188.94	$7/2^+$	6.57	$5/2^+$	M1+E2	0.25 *2*	0.1718 *25*		α(K)=0.1463 *21*; α(L)=0.0203 *4*; α(M)=0.00417 *8* α(N)=0.000879 *16*; α(O)=0.0001209 *20*; α(P)=5.65×10^{-6} *8*
202.38[&] *7*		209.08?	$(5/2)^+$	6.57	$5/2^+$	M1(+E2)	0.2 *2*	0.128 *4*		α(K)=0.1094 *23*; α(L)=0.0148 *14*; α(M)=0.0030 *3* α(N)=0.00064 *6*; α(O)=8.8×10^{-5} *7*; α(P)=4.25×10^{-6} *7*
214.30[&] *7*		220.75?	$3/2^+$	6.57	$5/2^+$	M1(+E2)	0.5 *5*	0.113 *8*		α(K)=0.095 *4*; α(L)=0.014 *3*; α(M)=0.0029 *7* α(N)=0.00061 *13*; α(O)=8.3×10^{-5} *14*; α(P)=3.59×10^{-6} *11*
220.83[&] *7*		220.75?	$3/2^+$	0.0	$1/2^+$	[M1,E2]		0.110 *10*		α(K)=0.090 *5*; α(L)=0.015 *5*; α(M)=0.0032 *9* α(N)=0.00067 *18*; α(O)=8.7×10^{-5} *20*; α(P)=3.21×10^{-6} *16*
237.65 *9*	12.1 *12*	426.49	$(9/2^+)$	188.94	$7/2^+$	(M1)		0.0822		
354.8[&]		575.45	$(11/2^-)$	220.75?	$3/2^+$	[M4]		1.369		α(K)=1.045 *15*; α(L)=0.255 *4*; α(M)=0.0558 *8* α(N)=0.01173 *17*; α(O)=0.001542 *22*; α(P)=5.80×10^{-5} *9*

$^{129}_{55}Cs_{74}$-2

^{129}Cs IT decay (0.718 μs) 1978De29 (continued)

$\gamma(^{129}Cs)$ (continued)

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α[@]	Comments
								E_γ: γ reported only by 1983TaZI in ε decay with an upper limit of intensity. It is neither seen in any other decay study (1972Ta02, 1973Is04) nor in in-beam γ-ray data; thus it is considered as questionable by the evaluators.
365.86[&] *8*		575.45	$(11/2^-)$	209.08?	$(5/2)^+$	[E3]	0.0789	α(K)=0.0594 *9*; α(L)=0.01547 *22*; α(M)=0.00332 *5* α(N)=0.000683 *10*; α(O)=8.52×10^{-5} *12*; α(P)=2.10×10^{-6} *3* E_γ: γ not reported in in-beam γ-ray data; B(E3)(W.u.)=400 *50* is a factor of 4 larger than RUL, thus this transition is considered suspect.
386.7 *1*	64 *5*	575.45	$(11/2^-)$	188.94	$7/2^+$	[M2]	0.0862	α(K)=0.0727 *11*; α(L)=0.01073 *15*; α(M)=0.00223 *4* α(N)=0.000471 *7*; α(O)=6.51×10^{-5} *10*; α(P)=3.12×10^{-6} *5*
419.83 *7*	94 *7*	426.49	$(9/2^+)$	6.57	$5/2^+$			
569.3 *1*	12.7 *18*	575.45	$(11/2^-)$	6.57	$5/2^+$	[E3]	0.01750	

[†] From Adopted dataset for ^{129}Cs.
[‡] Branching ratios of γ rays from 575-keV isomer taken from Adopted dataset. Based on these values, intensities for γ rays from lower levels are deduced.
[#] For absolute intensity per 100 decays, multiply by 0.526 *20*.
[@] 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.

$^{129}_{55}Cs_{74}$-3

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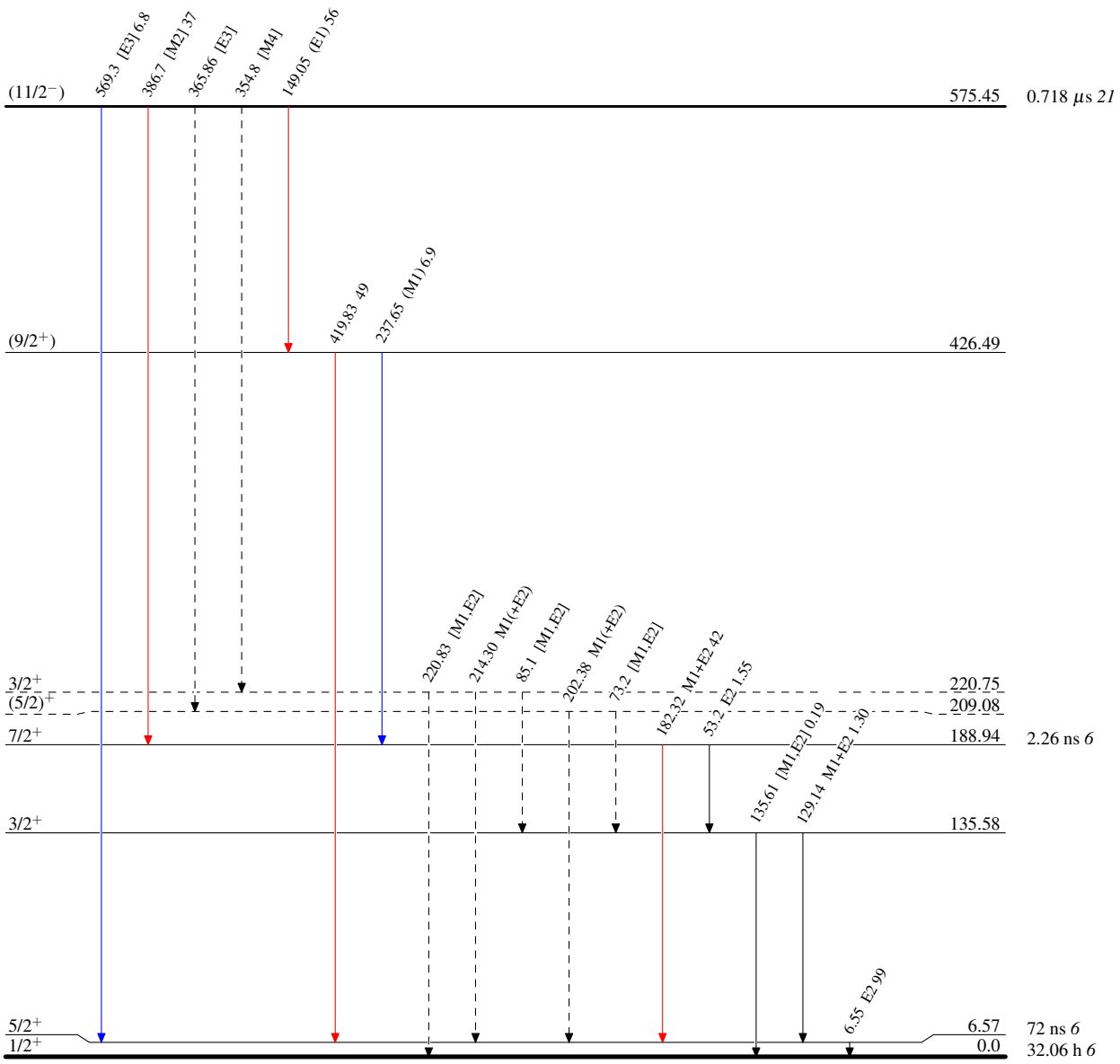
Decay Scheme

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

%IT=100.0



$^{129}_{55}Cs_{74}$