^{124}Cs IT decay 1983We07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Katakura, Z. D. Wu	NDS 109, 1655 (2008)	1-Apr-2008

Parent: ^{124}Cs: E=462.54 *9*; $J^\pi=(7)^+$; $T_{1/2}$=6.3 s *2*; %IT decay=100.0

The decay scheme is that proposed by 1983We07.

1983We07: activity Ce+^{3}He (E=280 MeV), ms; measured: γ, ce, $\gamma\gamma$, γ-K x ray, $\gamma\gamma$(t), γ-ce.

Others: 1981Li08, 1981LiZN; these are previous papers of 1983We07.

The unplaced γ's probably depopulate levels at 169.5 and 270.2 keV.

^{124}Cs Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0.0	1^+	30.8 s *5*	
169.5 *1*	$(1)^+$		
189.00 *5*	$(2)^+$		
211.62 *5*	$(3)^+$		
242.87 *6*	$(3)^+$		
270.3 *1*	$(3)^+$		
301.10 *6*	$(4)^-$	69 ns *3*	$T_{1/2}$: from $\gamma\gamma$(t) (1983We07).
397.65 *8*	$(5)^-$		
462.54 *9*	$(7)^+$	6.3 s *2*	$T_{1/2}$: from 1983We07.

† From a least-squares fit to Eγ's.

‡ From Adopted Levels.

$\gamma(^{124}Cs)$

α(K)exp normalized with respect to 89.5γ which has typical characteristics of an E1.

E_γ†	I_γ†#	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	α@	Comments
53.85 *5*	0.42 *4*	242.87	$(3)^+$	189.00	$(2)^+$	M1	5.37	α(K)=4.60 *7*; α(L)=0.618 *9*; α(M)=0.1266 *18*; α(N+..)=0.0306 *5* α(N)=0.0267 *4*; α(O)=0.00371 *6*; α(P)=0.000181 *3* α(K)exp=3.2 *10*, K/L=6 *+3−2*.
58.20 *5*	1.23 *6*	301.10	$(4)^-$	242.87	$(3)^+$	E1	0.974	B(E1)(W.u.)=3.8×10^{-6} *3* α(K)=0.825 *12*; α(L)=0.1189 *17*; α(M)=0.0242 *4*; α(N+..)=0.00565 *8* α(N)=0.00498 *7*; α(O)=0.000644 *10*; α(P)=2.39×10^{-5} *4* α(K)exp=1.15 *22*, K/L=9 *+4−2*.
64.90 *5*	0.15 *3*	462.54	$(7)^+$	397.65	$(5)^-$	M2	46.9	B(M2)(W.u.)=3.4×10^{-6} *10* α(K)=35.6 *5*; α(L)=8.90 *13*; α(M)=1.94 *3*; α(N+..)=0.466 *7* α(N)=0.409 *6*; α(O)=0.0548 *8*; α(P)=0.00227 *4* α(K)exp=27 *+7−6*, K/L=4.2 *4*, L/M=3.9 *4*. Mult.: from K/L and α(K)exp.
89.50 *5*	3.10 *10*	301.10	$(4)^-$	211.62	$(3)^+$	E1	0.299	B(E1)(W.u.)=2.64×10^{-6} *17* α(K)=0.255 *4*; α(L)=0.0347 *5*; α(M)=0.00705 *10*; α(N+..)=0.001665 *24* α(N)=0.001463 *21*; α(O)=0.000194 *3*; α(P)=7.85×10^{-6} *11* K/L=6.9 *14*, L/M=2.3 *6*.

Continued on next page (footnotes at end of table)

^{124}Cs IT decay 1983We07 (continued)

$\gamma(^{124}Cs)$ (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[‡]	α[@]	Comments
96.55 *5*	3.05 *10*	397.65	$(5)^-$	301.10	$(4)^-$	M1+E2	0.7 *3*	1.36 *22*	α(K)=1.02 *10*; α(L)=0.28 *10*; α(M)=0.059 *21*; α(N+..)=0.014 *5* α(N)=0.012 *5*; α(O)=0.0015 *5*; α(P)=3.47×10^{-5} *9* α(K)exp=1.03 *8*, K/L=7.7 *5*, L/M=3.2 *2*. Mult.: from K/L and α(K)exp. δ: from α(K)exp.
161.0	≈0.05	462.54	$(7)^+$	301.10	$(4)^-$	(E3)		2.31	α(K)=1.179 *17*; α(L)=0.889 *13*; α(M)=0.198 *3*; α(N+..)=0.0448 *7* α(N)=0.0401 *6*; α(O)=0.00463 *7*; α(P)=3.39×10^{-5} *5* Additional information 1. I_γ: from ce(K)(161γ)/ce(K)(65γ)=44 *4*/4350 *150*. K/L=1.0 *3*. Mult.: from K/L.
169.5 *1*	0.34 *5*	169.5	$(1)^+$	0.0	1^+	M1(+E2)	<0.6	0.217 *12*	α(K)=0.183 *7*; α(L)=0.027 *5*; α(M)=0.0057 *10*; α(N+..)=0.00136 *21* α(N)=0.00119 *19*; α(O)=0.000161 *21*; α(P)=6.91×10^{-6} *10* α(K)exp=0.144 *35*.
188.98 *5*	1.6 *1*	189.00	$(2)^+$	0.0	1^+	M1+E2	0.5 *1*	0.162 *4*	α(K)=0.136 *3*; α(L)=0.0209 *13*; α(M)=0.0043 *3*; α(N+..)=0.00103 *6* α(N)=0.00091 *6*; α(O)=0.000122 *6*; α(P)=5.09×10^{-6} *8* α(K)exp=0.141 *15*, K/L=6.1 *5*, L/M=1.1 *2*.
211.64 *5*	3.3 *1*	211.62	$(3)^+$	0.0	1^+	E2		0.1374	α(K)=0.1085 *16*; α(L)=0.0229 *4*; α(M)=0.00484 *7*; α(N+..)=0.001126 *16* α(N)=0.000997 *14*; α(O)=0.0001256 *18*; α(P)=3.48×10^{-6} *5* α(K)exp=0.120 *7*, K/L=4.7 *4*, L/M=4.0 *9*.
270.3 *1*	0.62 *5*	270.3	$(3)^+$	0.0	1^+	E2		0.0609	α(K)=0.0494 *7*; α(L)=0.00913 *13*; α(M)=0.00191 *3*; α(N+..)=0.000449 *7* α(N)=0.000396 *6*; α(O)=5.09×10^{-5} *8*; α(P)=1.653×10^{-6} *24* Mult.: From adopted gammas. α(K)exp≈0.025.

† From 1983We07.
‡ From ^{124}Ba ε decay, unless otherwise noted.
# For absolute intensity per 100 decays, multiply by 15.0 *10*.
@ 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.

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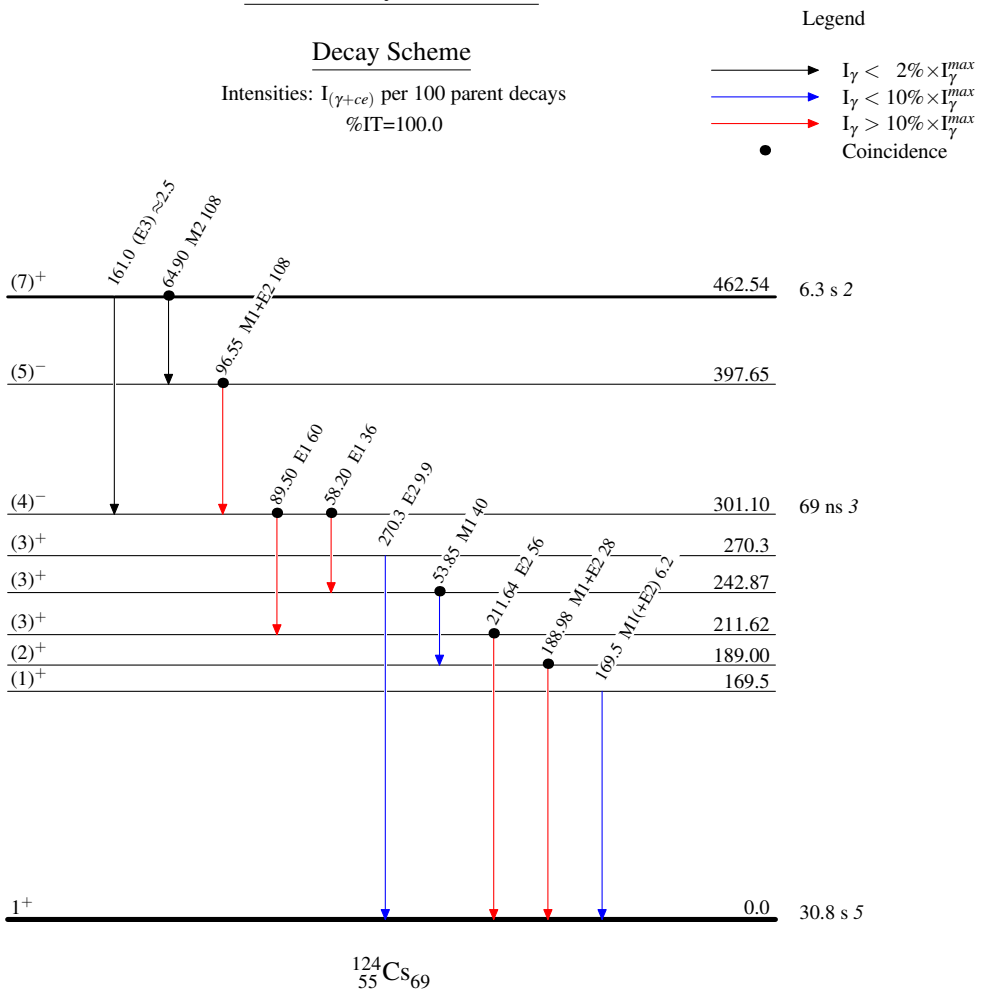
Decay Scheme

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

%IT=100.0



$^{124}_{55}Cs_{69}$