^{125}Ba ε decay (3.3 min) 1975Ar31

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

Parent: ^{125}Ba: E=0.0; $J^\pi=1/2^{(+)}$; $T_{1/2}$=3.3 min *3*; Q(ε)=4420 *14*; %ε+%β^+ decay=100.0
1996Os04: On-line ms, HPGe, β^+, γ, $\gamma\gamma$ coin, $\beta^+\gamma$ coin, end point energy.
1975Ar31: ^{117}Sn(^{12}C,4n) E=75 MeV, semi γ, scin β, $\beta\gamma$-coin.
1987Fr10: Ce(^{3}He,X) E=270 MeV, on-line ms, scin. Magnetic spectrometer, ce-γ coin.
1978Bo32: ^{96}Ru+^{32}S, ^{98}Ru+^{32}S, E=190 MeV, on-line ms, semi γ, scin β^+, (x-ray)β^+ coin.
1968Da09: ^{115}In(^{14}N,4n), ^{115}In(^{16}O,6n)^{125}La ε ^{125}Ba, semi γ scin β^+, $\gamma\gamma$-coin.
The decay scheme is that proposed by 1975Ar31.

^{125}Cs Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0	$1/2^{(+)}$	46.7 min *1*	$T_{1/2}$: From 1954Mi16.
77.6 *5*	$3/2^{(+)}$	1.2 ns *1*	$T_{1/2}$: From 1987Fr10.
85.6 *5*	$5/2^{(+)}$	14.5 ns *15*	$T_{1/2}$: From (β^+)(85.4γ)(t) (1976Be11).
140.7 *4*	$(3/2^-)$		
185.7 *5*	$1/2^{(+)}$,3/2,5/2		

† From a least-squares fit to Eγ's.
‡ Spin and parity values are those given under Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Comments
4.26 *7*	140.7	E(decay): From Eβ+ endpoint energy of 3.24 MeV *7* (1996Os04).
4.28 *6*	77.6	E(decay): From Eβ+ endpoint energy of 3.26 MeV *6* (1996Os04).

γ(^{125}Cs)

E$_\gamma$	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	δ	α†	Comments
45.0 *6*	≈3	185.7	$1/2^{(+)}$,3/2,5/2	140.7	$(3/2^-)$				
55.0 *6*	48 *4*	140.7	$(3/2^-)$	85.6	$5/2^{(+)}$				
63.1 *6*	8 *4*	140.7	$(3/2^-)$	77.6	$3/2^{(+)}$				
77.6 *6*	100	77.6	$3/2^{(+)}$	0.0	$1/2^{(+)}$	M1+E2	0.22 *6*	1.99 *10*	α(K)=1.64 *5*; α(L)=0.28 *4*; α(M)=0.058 *9*; α(N+..)=0.0138 *19* α(N)=0.0121 *17*; α(O)=0.00160 *20*; α(P)=6.30×10^{-5} *17* Mult.,δ: From Ice(K)/Ice(L+M+N+)=4.7 *5* (1987Fr10).
85.4 *6*	82 *8*	85.6	$5/2^{(+)}$	0.0	$1/2^{(+)}$	E2		3.28 *10*	α(K)=1.94 *5*; α(L)=1.05 *4*; α(M)=0.229 *9*; α(N+..)=0.0517 *19* α(N)=0.0462 *17*; α(O)=0.00537 *19*; α(P)=5.24×10^{-5} *13* Mult.: From Ice(K)/Ice(L+M+N+)= 1.6 *3* (1987Fr10).
100.1 *6*	6 *3*	185.7	$1/2^{(+)}$,3/2,5/2	85.6	$5/2^{(+)}$				
108.0 *6*	8 *2*	185.7	$1/2^{(+)}$,3/2,5/2	77.6	$3/2^{(+)}$				

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^{125}Ba ε decay (3.3 min) 1975Ar31 (continued)

γ(^{125}Cs) (continued)

E_γ	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[†]	Comments
140.9 *6*	86 *8*	140.7	(3/2$^-$)	0.0	1/2$^{(+)}$	E1	0.0845 *16*	α(K)=0.0726 *14*; α(L)=0.00951 *18*; α(M)=0.00193 *4*; α(N+..)=0.000460 *9* α(N)=0.000404 *8*; α(O)=5.44×10^{-5} *10*; α(P)=2.36×10^{-6} *5* Mult.: From Ice(85.4K)/Ice(140.9K)=17 *4* (1987Fr10). α(84.5K) α(84.5K)=0.11+6-4 deduced from the ratio rules out all mults excepting E1.

[†] Additional information 1.
[‡] From 1975Ar31, relative to I(77.6)=100.

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Decay Scheme

Intensities: Relative I_γ