^{117}Xe β^+ decay 1986Ma41

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

Parent: ^{117}Xe: E=0; J$^\pi$=5/2$^{(+)}$; $T_{1/2}$=61 s *2*; Q(β^+)=6.25×10^3 *3*; %β^+ decay=100.0
^{117}Xe-Q(β^+): Q≥6.27 MeV *30* (1985Le10),≥6.02 MeV *16* (1970BeZZ).
Activity: 600-MeV protons on lanthanum. ^{117}Xe obtained by decay of ^{117}Cs mass separated sources (1986Ma41).
Measured: γ, $\gamma\gamma$ (1986Ma41,1985Le10), ce (1986Ma41). The level scheme is as proposed by 1986Ma41. It includes all the levels observed by 1985Le10 for the ^{117}Xe decay from 86-MeV ^{16}O on ^{104}Pd. Others: 1976KeZO, 1974Ha10, 1969Ha03. See ^{117}Xe Adopted Levels for (β+)-delayed proton branching.
α: Additional information 1.

^{117}I Levels

E(level)	J$^\pi$‡	E(level)	J$^\pi$‡	E(level)	J$^\pi$‡	E(level)
0	(5/2)$^+$	221.3†	(3/2)$^+$	567.4		1084.2
58.8†	(7/2)$^+$	315.8†	(5/2)$^+$	660.5†	+	1130.0
116.7†	(1/2)$^+$	353.6†	(9/2)$^+$	661.3		1877.1†
160.6†	(3/2)$^+$	519.1†	(7/2$^+$)	1050.0		

† Seen also by 1985Le10.
‡ From Adopted Levels, suggested by analogy between the $^{117,\ 119,\ 121}$Ivel schemes fed by corresponding Xe β decays and multipolarities 1986Ma41.

γ(^{117}I)

Iγ normalization: the absolute intensities are based on the 325.9 keV γ-ray (75%) of the ^{117}I decay 1986Ma41.

E$_\gamma$	I$_\gamma$†	E$_i$(level)	J$^\pi_i$	E$_f$	J$^\pi_f$	Mult.	α	Comments
^{x}28.5 *1*	3.70×10^3 *40*							
^{x}32.3 *1*	760 *80*							
43.7 *2*	25 *3*	160.6	(3/2)$^+$	116.7	(1/2)$^+$	M1	8.19 *16*	α(L)exp=2.0 *12* α(K)=7.03 *14*; α(L)=0.933 *19*; α(M)=0.188 *4*; α(N)=0.0380 *8*; α(O)=0.00443 *9* α(N+..)=0.0424 *9*
58.8 *1*	310 *40*	58.8	(7/2)$^+$	0	(5/2)$^+$	M1+E2	8 *5*	α(L)exp=0.9 *2*; α(M)exp=0.15 *5* α(K)=4.3 *13*; α(L)=2.7 *23*; α(M)=0.6 *5*; α(N)=0.11 *10*; α(O)=0.010 *8*; α(N+..)=0.12 *11*
94.4 *1*	140 *10*	315.8	(5/2)$^+$	221.3	(3/2)$^+$	M1	0.881	α(K)exp=0.6 *2*; α(L)exp=0.14 *5* α(K)=0.757 *11*; α(L)=0.0992 *15*; α(M)=0.0200 *3*; α(N)=0.00405 *6*; α(O)=0.000473 *7* α(N+..)=0.00452 *7*
101.6 *2*	17 *6*	160.6	(3/2)$^+$	58.8	(7/2)$^+$	(E2)	1.66 *3*	α(K)exp=0.9 *3* α(K)=1.137 *18*; α(L)=0.415 *7*; α(M)=0.0877 *15*; α(N)=0.0169 *3*; α(O)=0.00158 *3* α(N+..)=0.0185 *3*
104.6 *2*	44 *6*	221.3	(3/2)$^+$	116.7	(1/2)$^+$	M1	0.658	α(K)exp=0.5 *3* α(K)=0.566 *9*; α(L)=0.0740 *12*; α(M)=0.01492 *23*; α(N)=0.00302 *5*; α(O)=0.000353 *6* α(N+..)=0.00337 *5*

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^{117}Xe β^+ decay 1986Ma41 (continued)

γ(^{117}I) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α	Comments
116.7 *1*	540 *50*	116.7	(1/2)$^+$	0	(5/2)$^+$	E2	1.016	α(K)exp=0.7 *1*; α(L)exp=0.19 *4*; α(M)exp=0.04 *1* α(K)=0.730 *11*; α(L)=0.228 *4*; α(M)=0.0479 *7*; α(N)=0.00928 *14*; α(O)=0.000884 *13* α(N+..)=0.01016 *15*
155.2 *1*	130 *15*	315.8	(5/2)$^+$	160.6	(3/2)$^+$	M1	0.218	α(K)exp=0.14 *6* α(K)=0.188 *3*; α(L)=0.0244 *4*; α(M)=0.00491 *7*; α(N)=0.000994 *14*; α(O)=0.0001165 *17* α(N+..)=0.001111 *16*
160.6 *1*	320 *30*	160.6	(3/2)$^+$	0	(5/2)$^+$	M1	0.199	α(K)exp=0.15 *3*; α(L)exp=0.03 *1* α(K)=0.1710 *25*; α(L)=0.0222 *4*; α(M)=0.00447 *7*; α(N)=0.000904 *13*; α(O)=0.0001059 *15* α(N+..)=0.001010 *15*
199.1 *2*	40 *4*	315.8	(5/2)$^+$	116.7	(1/2)$^+$	(E2)	0.1577	α(K)exp=0.09 *4* α(K)=0.1258 *18*; α(L)=0.0255 *4*; α(M)=0.00528 *8*; α(N)=0.001036 *15*; α(O)=0.0001060 *16* α(N+..)=0.001142 *17*
203.4 *2*	57 *6*	519.1	(7/2$^+$)	315.8	(5/2)$^+$			
221.3 *1*	1000 *80*	221.3	(3/2)$^+$	0	(5/2)$^+$	M1	0.0833	α(K)exp=0.06 *2*; α(L)exp=0.012 *4* α(K)=0.0718 *10*; α(L)=0.00922 *13*; α(M)=0.00186 *3*; α(N)=0.000376 *6*; α(O)=4.41×10^{-5} *7* α(N+..)=0.000420 *6*
256.9 *1*	125 *15*	315.8	(5/2)$^+$	58.8	(7/2)$^+$	(M1,E2)	0.061 *6*	α(K)exp=0.05 *2* α(K)=0.051 *4*; α(L)=0.0079 *18*; α(M)=0.0016 *4*; α(N)=0.00032 *8*; α(O)=3.6×10^{-5} *6* α(N+..)=0.00036 *8*
294.7 *1*	530 *40*	353.6	(9/2)$^+$	58.8	(7/2)$^+$	(M1,E2)	0.0408 *19*	α(K)exp=0.032 *8*; α(L)exp=0.008 *4* α(K)=0.0345 *9*; α(L)=0.0051 *8*; α(M)=0.00104 *18*; α(N)=0.00021 *4*; α(O)=2.3×10^{-5} *3* α(N+..)=0.00023 *4*
^{x}300.2 *3*	24 *6*							
315.8 *1*	165 *15*	315.8	(5/2)$^+$	0	(5/2)$^+$	(M1,E2)	0.0334 *9*	α(K)exp=0.03 *1* α(K)=0.0283 *4*; α(L)=0.0041 *6*; α(M)=0.00083 *12*; α(N)=0.000167 *21*; α(O)=1.87×10^{-5} *16* α(N+..)=0.000185 *23*
353.6 *2*	78 *8*	353.6	(9/2)$^+$	0	(5/2)$^+$			
389.7 *3*	10 *3*	1050.0		660.5	$^+$			
439.2 *2*	230 *20*	660.5	$^+$	221.3	(3/2)$^+$	(M1,E2)	0.0133 *9*	α(K)exp=0.010 *4* α(K)=0.0114 *9*; α(L)=0.001539 *22*; α(M)=0.000311 *5*; α(N)=6.25×10^{-5} *9*; α(O)=7.16×10^{-6} *23* α(N+..)=6.97×10^{-5} *10*
450.7 *2*	70 *10*	567.4		116.7	(1/2)$^+$			
^{x}460.0 *3*	15 *5*							
519.1 *2*	620 *70*	519.1	(7/2$^+$)	0	(5/2)$^+$			α(K)exp=0.005 *3* Mult.: could be M1.
543.8 *2*	40 *5*	660.5	$^+$	116.7	(1/2)$^+$			
565.1 *2*	30 *5*	1084.2		519.1	(7/2$^+$)			
^{x}639.0 *2*	310 *20*							
661.3 *2*	280 *20*	661.3		0	(5/2)$^+$			
^{x}695.1 *2*	140 *20*							

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^{117}Xe β^+ decay 1986Ma41 (continued)

$\gamma(^{117}I)$ (continued)

E_γ	I_γ †	E_i(level)	J^π_i	E_f	J^π_f
733.8 *3*	25 *5*	1050.0		315.8	$(5/2)^+$
x757.3 *3*	100 *10*				
776.4 *3*	80 *10*	1130.0		353.6	$(9/2)^+$
x875.6 *5*	65 *7*				
x970.1 *5*	55 *6*				
x1012.5 *5*	45 *5*				
x1048.5 *5*	55 *5*				
1084.3 *5*	73 *12*	1084.2		0	$(5/2)^+$
x1213.0 *5*	40 *5*				
x1247.5 *5*	60 *7*				
x1317.0 *5*	15 *5*				
x1432.8 *5*	33 *5*				
x1481.8 *5*	75 *10*				
1523.6 *5*	200 *20*	1877.1		353.6	$(9/2)^+$
1561.2 *5*	44 *6*	1877.1		315.8	$(5/2)^+$

† For absolute intensity per 100 decays, multiply by 0.01.

x γ ray not placed in level scheme.

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Decay Scheme

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