^{220}At β^- decay 1989Li04,1989Bu09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 112, 1115 (2011)	31-Oct-2010

Parent: ^{220}At: E=0.0; J^π=3; $T_{1/2}$=3.71 min *4*; Q(β^-)=3739 *51*; %β^- decay=92.0 *20*
Additional information 1.

^{220}Rn Levels

E(level)†	J^π‡
0.0	0^+
240.97 *1*	2^+
533.68 *4*	4^+
645.74 *9*	1^-
663.23 *4*	(3^-)

† Deduced by evaluators from least-squares fit to γ-ray energies.
‡ From Adopted Levels.

β^- radiations

Q(β^-)=3739 keV 51 (2009AuZZ).

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(3.08×10^3 *5*)	663.23	19 *2*	7.1	av Eβ=1178 *22*
(3.09×10^3 *5*)	645.74	5.5 *5*	9.0[1u]	av Eβ=1145 *22*
(3.21×10^3 *5*)	533.68	34 *2*	6.9	av Eβ=1233 *22*
(3.50×10^3 *5*)	240.97	33 *8*	7.1	av Eβ=1358 *22*

† Deduced by evaluators from γ-ray transition intensity balances.
‡ For absolute intensity per 100 decays, multiply by 0.920 *20*.

γ(^{220}Rn)

Iγ normalization: From ΣI(γ+ce) to g.s.=92 *2* and assuming no direct β^- decay to ^{220}Rn g.s.
I(Kα x ray)/I(241.0γ)=0.083 *8* (1989Bu09); 0.11 *1* calculated by evaluators from γ-ray intensities and K-shell conversion coefficients (Program RADLST).

E_γ‡	I_γ‡@	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	α†	Comments
240.97 *1*	100 *8*	240.97	2^+	0.0	0^+	E2	0.276	α(K)=0.1109 *16*; α(L)=0.1220 *17*; α(M)=0.0324 *5*; α(N+..)=0.01036 *15* α(N)=0.00843 *12*; α(O)=0.001725 *25*; α(P)=0.000202 *3* %Iγ=69.1 *16*.
292.71 *3*	43 *2*	533.68	4^+	240.97	2^+	(E2)	0.1487	α(K)=0.0727 *11*; α(L)=0.0564 *8*; α(M)=0.01483 *21*; α(N+..)=0.00475 *7* α(N)=0.00386 *6*; α(O)=0.000795 *12*; α(P)=9.50×10^{-5} *14* %Iγ=30 *3*.
[x]318.3 *1*	3.6 *4*							

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^{220}At β^- decay 1989Li04,1989Bu09 (continued)

$\gamma(^{220}Rn)$ (continued)

E_γ[‡]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[†]	Comments
404.8 *1*	2.4 *4*	645.74	1^-	240.97	2^+	[E1]	0.01713	α(K)=0.01398 *20*; α(L)=0.00240 *4*; α(M)=0.000567 *8*; α(N+..)=0.000183 *3* α(N)=0.0001466 *21*; α(O)=3.16×10^{-5} *5*; α(P)=4.42×10^{-6} *7* %Iγ=1.7 *3*.
422.26 *3*	27 *3*	663.23	(3^-)	240.97	2^+	[E1]	0.01566	α(K)=0.01279 *18*; α(L)=0.00219 *3*; α(M)=0.000516 *8*; α(N+..)=0.0001662 *24* α(N)=0.0001334 *19*; α(O)=2.88×10^{-5} *4*; α(P)=4.03×10^{-6} *6* %Iγ=19 *3*.
[x]533.8 *2*	2.9 *4*							
[x]592.3 *2*	2.3 *4*							
645.6 *2*	5.6 *5*	645.74	1^-	0.0	0^+			%Iγ=3.9 *5*.
[x]668.0 *2*	4.4 *5*							
[x]697.6 *3*	6.0 *5*							

† Additional information 2.
‡ From 1989Li04. Other: 1989Bu09.
# From Adopted Gammas.
@ For absolute intensity per 100 decays, multiply by 0.69 *6*.
x γ ray not placed in level scheme.

^{220}At β^- decay 1989Li04,1989Bu09

Decay Scheme

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