^{220}Fr β^- decay 1992Ru01

History

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

Parent: ^{220}Fr: E=0; $J^\pi=1^+$; $T_{1/2}$=27.4 s *3*; Q(β^-)=1210 *10*; %β^- decay=0.35 *5*

Additional information 1.

Activity produced by bombarding ^{232}Th with 280-MeV ^{3}He beam, and mass separated by the ISOCELE II on-line mass separator. Measured β^-, γ rays, $\gamma\gamma$ coin. Detectors: plastic for β^- particles, and Ge(Li) for γ rays.

^{220}Ra Levels

E(level)	J^π†
0	0^+
178.4 *1*	2^+
412.9 *1*	(1^-)

† From Adopted Levels.

β^- radiations

E(decay)	E(level)	Iβ^-†‡	Log *ft*	Comments
(797 *10*)	412.9	<0.05	>6.6	av Eβ=249 *4*
(1032 *10*)	178.4	<0.07	>6.9	av Eβ=336 *5*
(1210 *10*)	0	0.29 *12*	6.51 *18*	av Eβ=404 *5* Iβ^-: Upper limit from branching=0.35% *5*, lower limit from measured upper limit for I(178γ)<0.05% of parent decay.

† Intensity per 100 parent decays deduced from level scheme and I(178γ)<0.05% of parent decay, unless otherwise noted.
‡ Absolute intensity per 100 decays.

γ(^{220}Ra)

Iγ normalization: From I(178γ)<0.05% (1973ChZH) and branching=0.35% of parent decay.

E$_\gamma$	I$_\gamma$‡	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α†	Comments
178.3 *1*	100 *12*	178.4	2^+	0	0^+	E2	0.894	α(K)=0.200 *3*; α(L)=0.511 *8*; α(M)=0.1382 *20*; α(N+..)=0.0455 *7* α(N)=0.0365 *6*; α(O)=0.00781 *11*; α(P)=0.001151 *17*; α(Q)=1.000×10^{-5} *14* I$_\gamma$: Iγ<5×10^{-4} per decay of ^{220}Fr (1973ChZH). Mult.: From Adopted Gammas.
234.5 *1*	43 *12*	412.9	(1^-)	178.4	2^+	[E1]	0.0620	α(K)=0.0496 *7*; α(L)=0.00937 *14*; α(M)=0.00224 *4*; α(N+..)=0.000738 *11* α(N)=0.000585 *9*; α(O)=0.0001302 *19*; α(P)=2.15×10^{-5} *3*; α(Q)=1.325×10^{-6} *19*
413.0 *1*	60 *8*	412.9	(1^-)	0	0^+	[E1]	0.01751	α(K)=0.01422 *20*; α(L)=0.00250 *4*; α(M)=0.000593 *9*; α(N+..)=0.000196 *3* α(N)=0.0001552 *22*; α(O)=3.49×10^{-5} *5*; α(P)=5.89×10^{-6} *9*; α(Q)=4.03×10^{-7} *6*

Continued on next page (footnotes at end of table)

^{220}Fr β^- decay 1992Ru01 (continued)

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

† Additional information 2.
‡ For absolute intensity per 100 decays, multiply by 0.00025 *25*.

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Decay Scheme

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