^{9}C β^+ decay 2004Ti06,2000Ge09,2001Be51

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu, J. L. Godwin, et al.	NP A745 155 (2004)	31-Mar-2004

Parent: ^{9}C: E=0.0; $J^{\pi}=(3/2^-)$; $T_{1/2}=126.5$ ms *9*; $Q(\beta^+)=16494.8$ *23*; $\%\beta^+$ decay=100.0

1970Wi20: $^{9}C(\beta^+)$, analyzed available log *ft* data.

1972Es05: $^{9}C(\beta^+)$, measured β-delayed P-spectrum, $T_{1/2}$.

1988Mi03: $^{9}C(\beta^+)$, measured β-delayed E_P, I_P, β-delayed E_α, I_α, β-α-P-coin. Deduced log *ft*. ^{9}B levels deduced I_β, Gamow-Teller transition strengths, comparison with other data.

1993Ch06: $^{9}C(\beta^+)$, analyzed Gamow-Teller β-decay data. Deduced log *ft*, β-decay matrix elements.

2000Ge09: $^{9}C(\beta^+)$, measured E_β, I_β, β-delayed particle spectra, coincidences, angular correlations. ^{9}B levels deduced excitation and decay branching ratios.

2001Be51: $^{9}C(\beta^+)$, measured β-delayed E_P, E_α, P-α-α-coin, angular correlations. ^{9}B deduced β-branching strengths, decay mechanism features. A=9, deduced β-decay asymmetry.

2001Bu05: $^{9}C(\beta^+)$, analyzed β-spectra, β-delayed particle spectra, coincidences. ^{9}B deduced levels, J, π, Gamow-Teller strengths. Multichannel, multistate R-matrix approach, astrophysical implications discussed. Shell model calculations.

2004Bo22: $^{9}C(\beta^+)$, analyzed β-delayed E_α, E_P, E_N, angular correlations. ^{9}B deduced level energies, widths, decay branching ratios.

$\%\beta^+$p and $\%\beta^+\alpha$ from (2004Ti06), where the ^{9}C branch feeding the ^{9}B g.s. was taken from 2001Be51, and branches feeding other levels were taken from (2000Ge09) and renormalized to give a 100% feeding. For $\%\beta^+$p and $\%\beta^+\alpha$ feedings for decay from excited states the branching ratios were taken from (2000Ge09). (2000Ge09) also found a large "BACKGROUND" branch (approx 4%) which was attributed to tails from higher states. $\%\beta^+$p=61.6 and $\%\beta^+\alpha$=38.4 .

^{9}B Levels

E(level)	J^{π}[†]	$T_{1/2}$
0.0	$3/2^-$	0.54 keV *21*
2345 *11*	$5/2^-$	81 keV *5*
2.78×10^{3} *16*	$1/2^-$	3.13 MeV *20*
12160 *40*	$5/2^-$	455 keV *20*
14010 *70*		0.39 MeV *11*
14655.0 *25*	$3/2^-$	377 eV *38*

[†] From Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	$I\beta^+$[†]	$I\varepsilon$[†]	Log *ft*	$I(\varepsilon+\beta^+)$[†]	Comments
(1840 *4*)	14655.0	0.0100	3.8×10^{-5}	3.3	0.010	av $E\beta$=324.2 *15*; εK=0.00365 *5*; εL=0.0001865 *2*
(2.48×10^{3} *7*)	14010	0.16 *2*	1.0×10^{-4}	3.16 *11*	0.16 *2*	av $E\beta$=610 *32*; εK= 6.12×10^{-04} *98*; εL= 3.12×10^{-05} *50*
(4.33×10^{3} *4*)	12160	5.9 *6*	3.3×10^{-4}	3.14 *5*	5.9 *6*	av $E\beta$=1482 *20*; εK= 5.32×10^{-05} *20*; εL= 2.71×10^{-06} *10*
(1.371×10^{4} *16*)	2780	5.8 *6*	6.1×10^{-6}	5.87 *6*	5.8 *6*	av $E\beta$=6117 *80*; εK= 9.94×10^{-07} *38*; εL= 5.08×10^{-08} *20*
(14150 *11*)	2345	30.4 *58*	2.9×10^{-5}	5.22 *9*	30.4 *58*	av $E\beta$=6333.8 *56*; εK= 8.997×10^{-07} *23*; εL= 4.59×10^{-08} *1*
(16494.8 *23*)	0.0	54.1 *15*	3.1×10^{-5}	5.318 *13*	54.1 *15*	av $E\beta$=7502.5 *12*; εK= 5.520×10^{-07} *2*; εL= 2.818×10^{-08} *1*

[†] Absolute intensity per 100 decays.