^{64}Fe β^- decay (2.0 s)   1985Ru05,2000HaZL

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 178, 41 (2021).	12-Nov-2021

Parent: ^{64}Fe: E=0.0; J$^\pi$=0$^+$; T$_{1/2}$=2.0 s *4*; Q(β^-)=4823 *21*; %β^- decay=100.0

^{64}Fe-T$_{1/2}$: From ^{64}Fe Adopted Levels.

^{64}Fe-Q(β^-): From 2021Wa16.

1985Ru05: Measured γ, β^-, $\gamma\beta^-$ coin. Source produced by W(^{82}Se,X) reaction and mass separation at GSI. The g.s. and 311 levels proposed.

2000HaZL: measured Eγ, Iγ, $\gamma\gamma$-coin.

Other: 1980Gu09.

^{64}Co Levels

E(level)	J$^{\pi\dagger}$	Comments
0.0	1$^+$	
310.8	(1$^+$,2$^+$,3$^+$)	
1561		E(level): from 2000HaZL only.

† From the Adopted Levels.

β^- radiations

E(decay)	E(level)	I$\beta^{-\dagger\ddagger}$	Log $ft^\dagger$	Comments
(3262 *21*)	1561	≈2	≈5.3	av Eβ=1.51×10^3 *14*
(4512 *21*)	310.8	≈5	≈5.5	av Eβ=2.11×10^3 *14*
(4823 *21*)	0.0	≈93	≈4.3	av Eβ=2.26×10^3 *14*
				Iβ^-: using Iγ(310.8γ)/Iγ(1346γ from ^{64}Co β^-) and β^- time spectrum 1985Ru05 deduce 5% intensity for 310.8γ and 95% β^- feeding to the g.s. 2000HaZL assign 93% feeding to g.s. and 2% to 1561 level.

† As the decay scheme is likely to be incomplete, the β feedings and associated log ft values are treated as approximate values.

‡ Absolute intensity per 100 decays.

$\gamma(^{64}$Co)

E$_\gamma$	I$_\gamma^\dagger$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
310.8	≈7	310.8	(1$^+$,2$^+$,3$^+$)	0.0	1$^+$	I$_\gamma$: using Iγ(310.8γ)/Iγ(1346γ from ^{64}Co β^-) and β^- time spectrum 1985Ru05 deduce 5% intensity for 310.8γ and 95% β^- feeding to the g.s. 2000HaZL assign 93% feeding to g.s. and 2% to 1561 level.
1250	≈2	1561		310.8	(1$^+$,2$^+$,3$^+$)	E$_\gamma$: from 2000HaZL only.

† Absolute intensity per 100 decays.

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Decay Scheme

Intensities: I$_\gamma$ per 100 parent decays

Legend

I$_\gamma <$ 2%$\times$I$_\gamma^{max}$
I$_\gamma <$ 10%$\times$I$_\gamma^{max}$
I$_\gamma >$ 10%$\times$I$_\gamma^{max}$

0$^+$ 0.0   2.0 s 4

Q$_{\beta^-}$=4823 21 %β^-=100

${}^{64}_{26}$Fe$_{38}$

Iβ^- Log ft

$\approx$2 $\approx$5.3   1250 $\approx$2.0   1561

310.8 $\approx$7.0

$\approx$5 $\approx$5.5   (1$^+$,2$^+$,3$^+$)   310.8

$\approx$93 $\approx$4.3   1$^+$ 0.0

${}^{64}_{27}$Co$_{37}$