^{66}Cu β^- decay 1993Mi13

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 111, 1093 (2010)	3-Mar-2009

Parent: ^{66}Cu: E=0.0; $J^\pi=1^+$; $T_{1/2}$=5.120 min *14*; Q(β^-)=2640.9 *10*; %β^- decay=100.0

Additional information 1.

1993Mi13: Eγ, Iγ, β-γ coincidences.

1969Ca07: Eγ, Iγ, $\gamma\gamma$ coincidences, and $\gamma\gamma(\theta)$, θ=90°, 135°, 180°; Ge(Li), NaI.

1951Fr19: Eγ, Iγ, Eβ^-, Iβ^-, and β-γ coincidences; scintillators and β-ray lens spectrometer.

1951Ro22: Eγ, Iγ, Eβ^-, Iβ^-, and β-γ coincidences.

1969Ha46: Eγ, Iγ, $\gamma\gamma$ coincidences, and $\gamma\gamma(\theta)$; Ge(Li), NaI.

1953En06: β-γ delayed coincidences. Others: 1958Ho90, 1960Sc06, and 1964Ma05.

^{66}Zn Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0	0^+		
1039.21 *20*	2^+	1.68 ps *3*	$T_{1/2}$: From Adopted Levels.
1872.2 *8*	2^+		J^π: 2 from $\gamma\gamma(\theta)$ on 833γ-1039γ cascade (1969Ha46).
2371.7 *16*	0^+		J^π: 0 from $\gamma\gamma(\theta)$ on 1333γ-1039γ cascade (1969Ca07).

[†] From least-squares fit to Eγ data.

[‡] From Adopted Levels. Supporting arguments from this data set are indicated.

β^- radiations

E(decay)[†]	E(level)	Iβ^-[‡#]	Log *ft*	Comments
(269.2 *19*)	2371.7	0.0037 *3*	6.01 *4*	av Eβ=79.2 *7*
(768.7 *13*)	1872.2	0.220 *5*	5.82 *1*	av Eβ=266.2 *6*
1590 *30*	1039.21	9.01 *9*	5.43	av Eβ=628.1 *6* E(decay): 1.65 MeV *10* from β^- endpoint (1951Ro22).
2630 *20*	0	90.77 *9*	5.33	av Eβ=1112.1 *6* E(decay): 2.7 MeV *1* from β^- endpoint (1951Ro22).

[†] From β^- endpoint energy measurements (1951Fr19).

[‡] From γ-ray intensity imbalance at each level (1993Mi13).

[#] Absolute intensity per 100 decays.

$\gamma(^{66}Zn)$

Iγ normalization: From measured emission probability for the 1039γ (1993Mi13).

E$_\gamma$[†]	I$_\gamma$[‡@]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.[#]	δ[#]	α[&]	Comments
833.0 *10*	2.38 *4*	1872.2	2^+	1039.21	2^+	M1+E2	−1.6 *2*	0.000434 *9*	α=0.000434 *9*; α(K)=0.000389 *8*; α(L)=3.91×10^{-5} *8*; α(M)=5.60×10^{-6} *11*; α(N+..)=2.24×10^{-7} *5* α(N)=2.24×10^{-7} *5* Mult.: D+Q from $\gamma\gamma(\theta)$ data of 1969Ha46. δ: From Adopted Gammas.

Continued on next page (footnotes at end of table)

^{66}Cu β^- decay 1993Mi13 (continued)

$\gamma(^{66}Zn)$ (continued)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[&]	Comments
1039.2 *2*	100	1039.21	2^+	0	0^+	E2	0.000269 *4*	α=0.000269 *4*; α(K)=0.000241 *4*; α(L)=2.41×10^{-5} *4*; α(M)=3.46×10^{-6} *5*; α(N+..)=1.384×10^{-7} *20* α(N)=1.384×10^{-7} *20*
1332.5 *15*	0.040 *3*	2371.7	0^+	1039.21	2^+	E2	0.000190 *3*	α=0.000190 *3*; α(K)=0.0001383 *20*; α(L)=1.379×10^{-5} *20*; α(M)=1.98×10^{-6} *3*; α(N+..)=3.61×10^{-5} *5* α(N)=7.96×10^{-8} *12*; α(IPF)=3.61×10^{-5} *5*
1872.2	<5.0×10^{-3}	1872.2	2^+	0	0^+	[E2]	0.000328 *5*	α=0.000328 *5*; α(K)=7.04×10^{-5} *10*; α(L)=6.99×10^{-6} *10*; α(M)=1.001×10^{-6} *14*; α(N+..)=0.000250 *4* α(N)=4.05×10^{-8} *6*; α(IPF)=0.000250 *4* I_γ: from 1969Ha46; γ not shown in 1993Mi13 decay scheme. G-ray spectrum measured up to 1400 keV. No search for 1872-keV G ray (1993Mi13).

[†] From 1969Ca07.
[‡] From 1993Mi13.
[#] From adopted gammas.
[@] For absolute intensity per 100 decays, multiply by 0.0923 *9*.
[&] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^{66}Cu β^- decay 1993Mi13

Decay Scheme

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