^{56}Ni ε decay 1990Su13,1974Ho25,1974HeYW

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huo Su, Yang Dong	NDS 112, 1513 (2011)	29-Oct-2009

Parent: ^{56}Ni: E=0.0; $J^\pi=0^+$; $T_{1/2}$=6.075 d *10*; Q(ε)=2136 *12*; %ε+%$β^+$ decay=100.0
Sources produced generally by ^{54}Fe(α,2n), ^{56}Fe(^{3}He,3n) or ^{58}Ni(γ,2n).
1990Su13: measured Iγ, I$β^+$, and $T_{1/2}$.
1974Ho25: measured Eγ, Iγ, and γγ(θ) with Ge(Li).
1973Sa11: measured Eγ, Iγ, γγ-coin and σ(θ).
1974HeYW: measured Eγ and Iγ.
1965Oh01: measured Eγ, Iγ, γγ-coin, γγ(θ) and α(exp).
1963We06: measured $T_{1/2}$, Eγ, Iγ and γγ(θ).
1964Je03: measured Eγ, Iγ, α(K)exp, α(L)exp and α(exp).
1996La20: measured Eγ, Iγ.
1999Za08, 1999Za19: measured Eγ, Iγ, γγ-coin.
See also 1991FuZW.
Decay scheme from 1974Ho25.

^{56}Co Levels

E(level)†	J^π‡	$T_{1/2}$#	S	Comments
0.0	4^+			
158.38 *3*	3^+	<0.1 ns		
970.24 *4*	2^+	<0.1 ns	$<1.2\times10^{-3}$	
1450.69 *5*	0^+	1.58 ns *6*		$T_{1/2}$: weighted average of 1.57 ns *7* (1974Ho25) and 1.61 ns *10* (1963We06).
1720.19 *5*	1^+			

† From Eγ and decay scheme by using least-squares fits.
‡ From Adopted Levels; γγ(θ) (1974Ho25) support adopted J^π values.
# From γγ(t). Values from 1963We06, except as noted.

ε,$β^+$ radiations

E(decay)	E(level)	I$β^+$ †‡	Iε†‡	Log *ft*	I(ε+$β^+$)‡	Comments
(416 *12*)	1720.19		100	4.4	100	εK=0.8851; εL=0.09781; εM+=0.01707
(685 *12*)	1450.69		<0.50	>7.1	<0.50	εK=0.8865; εL=0.09669; εM+=0.01685
(1166 *12*)	970.24	$<1.2\times10^{-3}$	<0.77	>7.4	<0.77	av Eβ=65 *5*; εK=0.8860; εL=0.09584; εM+=0.01668
(1978 *12*)	158.38	$<5.8\times10^{-5}$	$<4.8\times10^{-4}$	>11.4	$<5.8\times10^{-5}$	av Eβ=408 *5*; εK=0.332 *8*; εL=0.0358 *9*; εM+=0.00622 *15* I$β^+$: %$β^+$<6.3×10^{-5} (1999Za08, 1999Za19).
(2136 *12*)	0.0	$<6.0\times10^{-5}$	$<2.2\times10^{-5}$	>12.5	$<6.0\times10^{-5}$	av Eβ=478 *5*; εK=0.236 *6*; εL=0.0254 *6*; εM+=0.00442 *11*

† From 1990Su13.
‡ Absolute intensity per 100 decays.

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γ(^{56}Co)

γγ-angular correction coefficients

Eγ	A_2	A_4
158-1562	-0.083 *9*	0.0 15(1974Ho25)
	-0.055 *26*	-0.03 *4* (1965Oh01)
	-0.049 *37*	0.00 *6* (1963We06)
158-750	0.055 *4*	-0.011 *8* (1974Ho25)
	0.041 *13*	0.029 *19*(1965Oh01)
158-270	-0.002 *4*	-0.002 *8* (1974Ho25)
	0.006 *22*	0.04 *3* (1965Oh01)
158-480	-0.083 *4*	-0.005 *8* (1974Ho25)
	-0.021 *14*	0.027 *20*(1965Oh01)
158-812	0.043 *4*	-0.004 *6* (1974Ho25)
	0.046 *13*	0.006 *18*(1965Oh01)
	0.038 *16*	0.014 26(1963We06)
480-270	-0.003 *7*	-0.003 *12*(1974Ho25)
	0.025 *15*	0.012 *21*(1965Oh01)
	0.053 *22*	(1963We06)
812-750	0.064 *8*	0.012 *14*(1974Ho25)
	0.080 *12*	0.001 *17*(1965Oh01)
	0.08 *4*	-0.02 *6* (1963We06)
812-270	-0.015 *10*	0.014 *17*(1974Ho25)
	0.006 *13*	-0.014 *18*(1965Oh01)
812-480	-0.068 *14*	-0.032 *24*(1974Ho25)
	-0.049 *16*	-0.011 *22*(1965Oh01)
	-0.015 *3*	0.06 *5* (1963We06)

E_γ[†]	I_γ[‡@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
158.38 *3*	98.8 *10*	158.38	3^+	0.0	4^+	M1+E2	+0.016 *6*	α(K)exp/α(L)exp=11 *2* (1965Oh01); α(exp)=0.012 *1* (1964Je03) B(M1)(W.u.)>0.055; B(E2)(W.u.)>0.29
269.50 *2*	36.5 *8*	1720.19	1^+	1450.69	0^+	M1		α(exp)=0.0034 *2* (1964Je03)
480.44 *2*	36.5 *8*	1450.69	0^+	970.24	2^+	E2		α(exp)=0.00150 *15* (1964Je03) B(E2)(W.u.)=1.10 *5*
749.95 *3*	49.5 *12*	1720.19	1^+	970.24	2^+	M1(+E2)	0.00 *3*	α(K)exp+α(L)exp=0.00014 *4*; α(exp)=0.00031 (1965Oh01)
811.85 *3*	86.0 *9*	970.24	2^+	158.38	3^+	M1(+E2)	−0.02 *2*	α(K)exp+α(L)exp=0.00020 *4*; α(exp)=0.00026 (1965Oh01) B(M1)(W.u.)>0.00041?
1561.80 *5*	14.0 *6*	1720.19	1^+	158.38	3^+	E2		

[†] From 1974HeYW.
[‡] Based on relative intensities from 1973Sa11, 1974HeYW, and 1974Ho25 plus intensity balances assuming I(ε)=100% to 1720 level.
[#] From γγ(θ) (1974Ho25).
[@] For absolute intensity per 100 decays, multiply by 1.0000 *4*.

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Decay Scheme

Intensities: I_γ per 100 parent decays