

^{56}Mn β^- decay 1974Ti01,2004Mi10,1989Co01

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

Parent: ^{56}Mn : $E=0.0$; $J^\pi=3^+$; $T_{1/2}=2.5789$ h I ; $Q(\beta^-)=3695.64$ $2I$; $\% \beta^-$ decay=100.0

Sources produced generally by $^{55}\text{Mn}(n,\gamma)$ E =thermal, production by $^{56}\text{Fe}(\alpha,3pn)$ (1996La20).

^{56}Mn β^- decay has been recommended as calibration standard for E_γ and I_γ (1983LoZV).

2004Mi10: measured I_γ with HPGe detector systems.

1974Ti01: measured E_γ , I_γ with Ge(Li).

1974Ho25: measured E_γ , I_γ , $\gamma\gamma(\theta)$ with Ge(Li).

1973Ar15: measured E_γ , I_γ with Ge(Li).

1989Co01: oriented source, measured $\gamma(\theta)$.

2004BeZR: evaluation and recommendation of decay data for radionuclides.

Others: 1969Va07, 1968Sh07, 1967Ma03, 1967Ch20, 1967Au01, 1966Vo08, 1965Re14, 1964Bi11.

For $\beta\gamma$ -coin, see 1965Ar14.

For $\beta(\theta)$, see 1961Po04.

For $\beta\gamma(\theta)$, $\beta\gamma$ -CP, longitudinal polarization, see 1972Si30.

Decay scheme is from 1974Ti01.

 ^{56}Fe Levels

E(level) [†]	J^π
0.0	0 ⁺
846.7762 19	2 ⁺
2085.064 3	4 ⁺
2657.547 4	2 ⁺ [‡]
2959.935 6	2 ⁺ [‡]
3122.908 4	4 ⁺
3369.91 4	2 ⁺ [‡]
3445.279 5	3 ⁺

[†] From E_γ and decay scheme using least-squares adjustment procedure.

[‡] Consistent with $\gamma\gamma(\theta)$ (1974Ho25) and $\log ft$.

 β^- radiations

E(decay)	E(level)	$I\beta^-$ ^{†‡}	Log ft	Comments
(250.36 2I)	3445.279	0.020 2	6.57 5	av $E\beta=73.52$ 7
(325.73 2I)	3369.91	1.20 3	5.173 1I	av $E\beta=99.15$ 8
(572.73 2I)	3122.908	0.040 4	7.50 5	av $E\beta=190.44$ 9
(735.70 2I)	2959.935	14.5 3	5.337 9	av $E\beta=255.23$ 9
(1038.09 2I)	2657.547	27.5 4	5.622 7	av $E\beta=381.96$ 9
(1610.58 2I)	2085.064	0.057 6	9.06 5	av $E\beta=636.40$ 10
(2848.86 2I)	846.7762	56.6 7	7.101 6	av $E\beta=1216.85$

[†] From intensity imbalance (1974Ti01).

[‡] Absolute intensity per 100 decays.

^{56}Mn β^- decay 1974Ti01,2004Mi10,1989Co01 (continued) $\gamma(^{56}\text{Fe})$

I γ normalization: Based on no β^- decay to the ground state and intensity balance.

E_γ †	I_γ †&	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	δ #	Comments
846.7638 19	100	846.7762	2 ⁺	0.0	0 ⁺	E2		
1037.8333 24	0.040 5	3122.908	4 ⁺	2085.064	4 ⁺			
1238.2736 22	0.040 4	2085.064	4 ⁺	846.7762	2 ⁺	E2		
1810.726 4	27.2 4	2657.547	2 ⁺	846.7762	2 ⁺	M1+E2	-0.18 @ 1	δ : other: -0.19 3 (1974Ho25).
2113.092 6	14.4 3	2959.935	2 ⁺	846.7762	2 ⁺	M1+E2	+0.19 @ 1	δ : other: +0.27 3 (1974Ho25).
2523.06 5	1.03 2	3369.91	2 ⁺	846.7762	2 ⁺	M1+E2	+0.25 15	
2598.438 4	0.020 2	3445.279	3 ⁺	846.7762	2 ⁺	M1+E2	-0.27 2	
2657.56 1	0.653 7	2657.547	2 ⁺	0.0	0 ⁺			
2959.92 1	0.310 5	2959.935	2 ⁺	0.0	0 ⁺			
3369.81 4	0.17 1	3369.91	2 ⁺	0.0	0 ⁺			

† From 2004BeZR.

‡ From adopted γ radiations.

From $\gamma\gamma(\theta)$ (1974Ho25), except as noted.

@ From 1989Co01.

& For absolute intensity per 100 decays, multiply by 0.9885 3.

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Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

