

^{86}Y IT decay (47.4 min) 2010Ru07,1972Si11,1962Ki04

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 124, 1 (2015)	30-Nov-2014

Parent: ^{86}Y : E=218.30 23; $J^\pi=(8^+)$; $T_{1/2}=47.4$ min 4; %IT decay=99.31 4

^{86}Y -%IT decay: from $I_\gamma(98.6\gamma, ^{86}\text{Sr})/I_\gamma(208.1\gamma)=0.0035$ 2 (1972Si11).

^{86}Y isomer also decays by ε decay.

2010Ru07: measured half-life from decay curve of 218γ .

1962Ki04: ^{86}Y produced through the $^{85}\text{Rb}(\alpha,3n)$ and $^{86}\text{Sr}(d,2n)$ reactions. Gammas were measured using one NaI(Tl) scintillator and the conversion electrons were examined using magnetic spectrometers.

1972Si11: The isomeric state in ^{86}Y was excited through the $^{87}\text{Sr}(p,2n)$ reaction at 24 MeV on enriched targets. Measured E_γ and $\gamma\gamma$ coin. using an x-ray spectrometer and a Ge(Li) detector.

Other: 1961Ha17.

 ^{86}Y Levels

E(level)	J^π [†]	$T_{1/2}$	Comments
0.0	4^-		
208.10 20	$(5)^-$		
218.30 23	(8^+)	47.4 min 4	$T_{1/2}$: from Adopted Levels.

[†] From Adopted Levels.

 $\gamma(^{86}\text{Y})$

E_γ [†]	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Mult.	δ	$\alpha^\#$	$I_{(\gamma+ce)}^{\ddagger}$	Comments
10.2 1	218.30	(8^+)	208.10	$(5)^-$	(E3)		2.26×10^6 15	100	ce(L)/($\gamma+ce$)=0.82 4; ce(M)/($\gamma+ce$)=0.161 14 ce(N)/($\gamma+ce$)=0.0173 16; ce(O)/($\gamma+ce$)= 2.6×10^{-6} 3 $\alpha(L)=1.86 \times 10^6$ 12; $\alpha(M)=3.64 \times 10^5$ 24; $\alpha(N)=3.91 \times 10^4$ 25; $\alpha(O)=5.9$ 5 Mult.: $\alpha(L3)\exp/\alpha(L2)\exp=1.5$ 5 (1962Ki04) consistent with E1, E2, E3; not with M1, M2 or M3. However, B(E1)(W.u.) and B(E2)(W.u.) are unreasonably small.
208.1 2	208.10	$(5)^-$	0.0	4^-	E2(+M1)	$1.5 +11-5$	0.059 10	100	ce(K)/($\gamma+ce$)=0.048 8; ce(L)/($\gamma+ce$)=0.0062 11; ce(M)/($\gamma+ce$)=0.00105 18 ce(N)/($\gamma+ce$)=0.000137 23; ce(O)/($\gamma+ce$)= 7.9×10^{-6} 12 $\alpha(K)=0.051$ 8; $\alpha(L)=0.0065$ 12; $\alpha(M)=0.00112$ 19; $\alpha(N)=0.000145$ 25; $\alpha(O)=8.4 \times 10^{-6}$ 13 $\alpha(K)\exp:\alpha(L1)\exp:\alpha(M1)\exp=$ 100:8.3:1.7 (1962Ki04). Mult., δ : from $\alpha(K)\exp=0.051$ 10, average of 0.067 11 (1977LaZN), 0.04 1

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⁸⁶Y IT decay (47.4 min) [2010Ru07](#),[1972Si11](#),[1962Ki04](#) (continued)

γ(⁸⁶Y) (continued)

<u>E_γ[†]</u>	<u>E_i(level)</u>	<u>Comments</u>
		(1962Ki04), and 0.05 <i>I</i> (deduced from α(exp)=0.06 <i>I</i> of 1961Ha17).

[†] Weighted average from [1972Si11](#) and [1962Ki04](#).
[‡] For absolute intensity per 100 decays, multiply by 0.9931 4.
Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ-ray energies, assigned multiplicities, and mixing ratios, unless otherwise specified.

⁸⁶Y IT decay (47.4 min) [2010Ru07](#),[1972Si11](#),[1962Ki04](#)

