⁸⁶Ga β⁻ decay (51 ms) 2013Mi19,2023Yo04

	Н	listory	
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. Negret and B. Singh	NDS 203,283 (2025)	20-Jan-2025

Parent: 86 Ga: E=0; $T_{1/2}$ =51 ms 2; $Q(\beta^-)$ =15640 syst; $\%\beta^-$ decay=100

2023Yo04: 86 Ga produced in 9 Be(238 U,F),E(238 U)=345 MeV/nucleon reaction on a 4-mm thick 9 Be production target followed by the separation and identification of fragments of interest by A/Q on the basis of magnetic rigidity Bρ, time-of-flight (tof) and energy loss (ΔE) using the BigRIPS in-flight separator, plastic scintillation counters, and position-sensitive parallel-plate avalanche counters (PPACs), finally implanted into active stoppers: AIDA in one run, and WAS3Abi in a second run, both consisting of double-sided silicon strip detectors (DSSDs) at the RIBF-RIKEN facility. Measured Eγ, Iγ, Eβ, Iβ, E(n), I(n), ion-β correlations, (neutron)ion-β-coin, 6 ρ-coin, 6 ρ-coin,

Theoretical calculations for $T_{1/2}$ and $\%\beta^-$ n: 2022Qu03, 2016Mu16, 2016Sh39, 2014Mi23, 2005Bo19.

⁸⁶Ge Levels

E(level) [†]	J^{π}	$T_{1/2}^{\ddagger}$	Comments
0.0 527.30 44 1024.3? 10	0 ⁺ (2 ⁺)	221.6 ms <i>11</i>	
4350+x			E(level): x<11290 740 from $Q(\beta^-)(^{86}Ga)=15640$ 590 and $S(n)(^{86}Ge)=4350$ 444
1330 TX			(2021 Wa 16).
7390+x			E(level): $x < 8250 740$ from $Q(\beta^-)(^{86}Ga) = 15640 590$ and $S(2n)(^{86}Ge) = 7390 444 (2021Wa16)$.

[†] From Ey data.

β^- radiations

E(decay)	E(level)	$I\beta^{-\dagger}$	Comments
$(2250^{\ddagger} syst)$	7390+x	14.7 14	$I\beta^-$: from $\%\beta^- 2n = 14.7 \ 14$ for 86 Ga decay.
$(5290^{\ddagger} syst)$	4350+x	59.5 28	$I\beta^-$: from $\%\beta^-$ n=59.5 28 for ⁸⁶ Ga decay.

[†] Absolute intensity per 100 decays.

 γ (86Ge)

Iy normalization: Absolute γ -intensities given in 2023Yo04 and 2013Mi19.

⁸⁶Ga-T_{1/2}: From ⁸⁶Ga Adopted Levels.

⁸⁶Ga-O(β ⁻): 15640 590 (syst,2021Wa16).

 $^{^{86}}$ Ga- $^{\%}\beta^-$ decay: $^{\%}\beta^-$ =100, $^{\%}\beta^-$ n=59.5 28 and $^{\%}\beta^-$ 2n=14.7 14 from 86 Ga Adopted Levels.

²⁰¹³Mi19: ⁸⁶Ga produced in U(p,F) reaction at 50 MeV using ISOL-HRIBF facility at ORNL. Ions of ⁸⁶Ga were extracted using resonant ionization laser ion source (RILIS). ⁸⁶Ga beam was transmitted to Radioactive Ion Beam Spectroscopy Station (LeRIBSS). Measured Eγ, Iγ, γγ-coin, βγ-coin, nγ-coin.

[‡] From Adopted Levels.

[‡] Estimated for a range of levels.

⁸⁶Ga β⁻ decay (51 ms) 2013Mi19,2023Yo04 (continued)

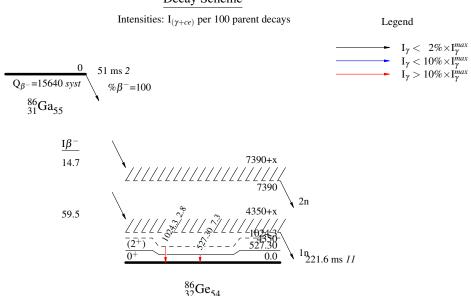
γ (86Ge) (continued)

E_{γ}^{\dagger}	$I_{\gamma}^{\dagger \ddagger}$	$E_i(level)$	\mathbf{J}_i^{π}	$\mathbf{E}_f \mathbf{J}_f^{\pi}$	Comments
527.30 44	7.3 9	527.30	(2^{+})	0.0 0+	%I _Y =7.3 9
					I_{γ} : Other: 7 (2013Mi19).
1024.3 <i>10</i>	2.8 9	1024.3?		$0.0 \ 0^{+}$	$\%$ I γ =2.8 9

[†] From 2023Yo04. Uncertainties computed by evaluators based on the systematic and statistical uncertainties given by authors.

86 Ga β⁻ decay (51 ms) 2013Mi19,2023Yo04

Decay Scheme



[‡] Absolute intensity per 100 decays.