

^{66}Co β^- decay [2000Mu10,1988Bo06](#)

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

Parent: ^{66}Co : $E=0.0$; $J^\pi=(3^+)$; $T_{1/2}=0.20$ s 2; $Q(\beta^-)=9.89\times 10^3$ 25; $\% \beta^-$ decay=100.0

[Additional information 1.](#)

[2000Mu10](#): ^{66}Co produced by irradiation of ^{238}U foils with 30-MeV protons. ^{66}Co was separated from other recoiling fission products using a laser-ionization isotope-separation method. These isotopes were then mass separated. Measured $\beta\gamma$ coin and $\gamma\gamma$ coin. Detectors: Ge hyperpure and plastic scintillators.

[1988Bo06](#): ^{66}Co produced by irradiation of a thick W target with a 11.5-MeV/A ^{76}Ge beam. On-line mass separation. Measured $E\gamma$, $I\gamma$, $\beta\gamma$ coin, $\gamma\gamma$ coin. Detectors: hyperpure Ge and plastic scintillators. [1988Bo06](#) reported a 471.3 keV 6γ ray with $I\gamma=23$ 4. [2000Mu10](#) searched for this γ ray but could not find it. Thus, its existence remains to be confirmed, and thus there is no support for levels at 2916 and 2445 keV associated with this transition.

Other measurement: [1985Bo49](#).

 ^{66}Ni Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+	54.6 h 3	$T_{1/2}$: From Adopted Levels, Gammas.
1425.92 20	2^+		J^π : From Adopted Levels, Gammas.
2672.0 3	(3^+)		J^π : From log ft= 4.2 and shell-model arguments.
3230.6 3	2^+		J^π : From log ft= 4.9 and shell-model arguments.

 β^- radiations

E(decay)	E(level)	$I\beta^-^\dagger$	Log ft	Comments
(6.7×10^3) 3)	3230.6	9 2	4.9	av $E\beta=3061$ 122
(7.2×10^3) 3)	2672.0	69 5	4.2	av $E\beta=3333$ 122
(8.5×10^3) 3)	1425.92	22 5	5.0	av $E\beta=3941$ 122

† Absolute intensity per 100 decays.

 $\gamma(^{66}\text{Ni})$

$I\gamma$ normalization: From $I\gamma(1426)=100\%$ 4. Measured β^- spectrum. No β^- population to the ground state of ^{66}Ni was observed ([1988Bo06](#)).

E_γ	$I_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
1246.1 2	69 5	2672.0	(3^+)	1425.92	2^+	Other value: $E\gamma=1246.0$ keV 9, $I\gamma=98$ 11 (1988Bo06).
1425.9 2	100 4	1425.92	2^+	0.0	0^+	Other value: $E\gamma=1424.8$ keV 10, $I\gamma=100$ 10 (1988Bo06).
1804.7 2	9 2	3230.6	2^+	1425.92	2^+	

† Absolute intensity per 100 decays.

⁶⁶Co β⁻ decay 2000Mu10,1988Bo06

Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}

