

^{69}Co β^- decay (227 ms) 1999Mu17

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja	NDS 115, 1 (2014)	31-Jul-2013

Parent: ^{69}Co : $E=0.0$; $J^\pi=(7/2^-)$; $T_{1/2}=227$ ms 11; $Q(\beta^-)=9.81\times 10^3$ 19; $\% \beta^-$ decay=100.0

2001Fr21, 1999Mu17: ^{69}Co produced from 30 MeV proton induced fission reaction on ^{238}U . Extracted selectively by resonant laser ionization and mass separator (LIGIS-LISOL) facility at Leuven. Measured $\beta\gamma$ and $\gamma\gamma$ coincidence spectra with high purity Ge detectors and plastic scintillators. Measured $T_{1/2}$ from timing of β delayed γ intensity.

 ^{69}Ni Levels

E(level)	J^π	$T_{1/2}^\dagger$	Comments
0.0	(9/2 ⁺)	11.4 s 3	$T_{1/2}$: From Adopted Levels.
321	(1/2 ⁻)	3.5 s 4	$T_{1/2}$: weighted average of 3.5 s 5 (1999Mu17) and 3.4 s 7 (1999Pr10). J^π : Configuration $\nu p_{1/2}^{-1} \nu g_{9/2}^2$.
915.3	(5/2 ⁻)		
1517.6	(5/2 ⁻)		
1821.2			

[†] From Adopted Levels.

 β^- radiations

E(decay)	E(level)	$I\beta^-^\ddagger$	Log ft	Comments
(7.99 $\times 10^3$ 19)	1821.2	2.9 [†] 4	5.82 8	av $E\beta=3709$ 93
(8.29 $\times 10^3$ 19)	1517.6	17.1 [†] 18	5.13 7	av $E\beta=3857$ 93
(8.89 $\times 10^3$ 19)	915.3	47.9 [†] 20	4.82 6	av $E\beta=4150$ 93
(9.81 $\times 10^3$ 19)	0.0	≈ 5	≈ 6.0	av $E\beta=4596$ 93
$I\beta^-$: Experimental value is unknown. Value given here is estimated assuming log $ft \approx 6.0$ from comparison with similar first forbidden β^- decay for ^{67}Co from 7/2 ⁻ to 9/2 ⁺ .				

[†] From 1999Mu17 assuming all unplaced γ rays are not in coincidence and feed either the isomer or ground state.

[‡] Absolute intensity per 100 decays.

 $\gamma(^{69}\text{Ni})$

$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	$E_\gamma^\dagger$	$I_\gamma^\ddagger$	$E_i(\text{level})$
303.6	5.1 7	1821.2		1517.6	(5/2 ⁻)	^x 1342.8	4.8 11	
594.3	100	915.3	(5/2 ⁻)	321	(1/2 ⁻)	^x 1545.2	4.8 12	
602.4	15.6 17	1517.6	(5/2 ⁻)	915.3	(5/2 ⁻)	^x 1580.6	4.1 11	
^x 1128.4	14.6 19					^x 1641.7	4.1 12	
1196.5	19.7 22	1517.6	(5/2 ⁻)	321	(1/2 ⁻)	^x 1824.0	1.6 5	
^x 1319.5	16.2 21					^x 2879.8	6.5 18	

[†] From 1999Mu17.

[‡] Relative photon intensities.

^x γ ray not placed in level scheme.

⁶⁹Co β⁻ decay (227 ms) 1999Mu17

Decay Scheme

Intensities: Relative I_γ

Legend

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

