

⁵⁰Co β⁺p decay: partial 1996Fa09,2007Do17

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows ^a	NDS 109,1879 (2008)	14-Jul-2008

Parent: ⁵⁰Co: E=0.0; J^π=(6⁺); T_{1/2}=38.81 ms 26; Q(β⁺p)=13130 syst; %β⁺p decay=70.5 7

⁵⁰Co-J^π: Isobaric multiplet systematics.

⁵⁰Co-T_{1/2}: Weighted av (ext.) of 44 ms 4 (1996Fa09) and 38.8 ms 2 (2007Do17).

⁵⁰Co-Q(β⁺p): From 2003Au03. Estimated uncertainty=170 keV.

⁵⁰Co-%β⁺p decay: From 2007Do17. Other: >54% 13 (1996Fa09). From Ip(2034)=11 3 and Ip(2790)=43 12.

1996Fa09: ⁹Be(⁵⁸Ni,X) E=650 MeV/nucleon. Measured projectile-like fragments at 0°, fragment recoil separator; mag spect, ΔE/E counter telescope (Si), tof.

2007Do17: Ni(⁵⁸Ni,X) E=74.5 MeV/nucleon. α-LISE3 fragment separator. Fragment identification by energy loss, residual energy and tof measurements using two micro-channel plate (MCP) detectors and Si detectors. Double-sided silicon-strip detectors (DSSSD) and a thick Si(Li) detector were used to detect implanted events, charged particles and β particles. γ's detected by four Ge detectors. Coincidences measured between charged particles and γ's. T_{1/2} measured by time correlation of implantation events due to ⁴⁹Mn and subsequent emission of protons and γ's.

⁴⁹Mn Levels

E(level) [†]	J ^π [‡]	T _{1/2}	Comments
0.0	5/2 ⁻	382 ms 7	%ε+%β ⁺ =100 T _{1/2} ,%ε+%β ⁺ : from the Adopted Levels.
261.41 20	7/2 ⁽⁻⁾		
1058.6 3	9/2 ⁽⁻⁾		
1540.8 4	11/2 ⁽⁻⁾		
2480.3 8	13/2 ⁽⁻⁾		

[†] From a least-squares fit to E_γ's (evaluator).

[‡] From the Adopted Levels.

γ(⁴⁹Mn)

E _γ	I _γ ^{†‡}	E _i (level)	J _i ^π	E _f	J _f ^π
261.4 2	64 5	261.41	7/2 ⁽⁻⁾	0.0	5/2 ⁻
482.2 1	23.5 7	1540.8	11/2 ⁽⁻⁾	1058.6	9/2 ⁽⁻⁾
797.3 3	27 4	1058.6	9/2 ⁽⁻⁾	261.41	7/2 ⁽⁻⁾
939.5 7	1.6 4	2480.3	13/2 ⁽⁻⁾	1540.8	11/2 ⁽⁻⁾
1058.7 7	2.4 4	1058.6	9/2 ⁽⁻⁾	0.0	5/2 ⁻
1278.4 7	16 5	1540.8	11/2 ⁽⁻⁾	261.41	7/2 ⁽⁻⁾

[†] From the adopted branching ratios and intensity balancing at each state.

[‡] Absolute intensity per 100 decays.

Delayed Protons (⁴⁹Mn)

Particle normalization: From 2007Do17. Other: >54% 13 (1996Fa09). From Ip(2034)=11 3 and Ip(2790)=43 12.

E(p) [†]	E(⁴⁹ Mn)	I(p) ^{†‡}	Comments
2042 13		3.0 6	E(p): Weighted av. (int.) of 2034 keV 30 (1996Fa09) and 2044 keV 14 (2007Do17).
2296 27		0.9 3	

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${}^{50}\text{Co}$ β^+ p decay: partial [1996Fa09](#), [2007Do17](#) (continued)

Delayed Protons (continued)

<u>E(p)[†]</u>	<u>E(${}^{49}\text{Mn}$)</u>	<u>I(p)^{†‡}</u>	<u>E(${}^{50}\text{Fe}$)</u>
1874 16	2480.3	1.0 2	
2770 12	1540.8	41.1 24	8481

[†] From [2007Do17](#), except as noted.

[‡] Absolute intensity per 100 decays.

^{50}Co β^+ decay: partial 1996Fa09,2007Do17**Decay Scheme**

γ Intensities: I_γ per 100 parent decays
 I(p) Intensities: I(p) per 100 parent decays

