

${}^{50}\text{Ni}\beta^+\text{p}$ decay: partial 2003Ma34,2007Do17

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

Parent: ${}^{50}\text{Ni}$: $E=0.0$; $J^\pi=0^+$; $T_{1/2}=17.2$ ms 27; $Q(\beta^+\text{p})=13241$ 30; $\% \beta^+\text{p}$ decay=86.7 39

${}^{50}\text{Ni}-T_{1/2}$: Weighted average (external) of 11.6 ms +30-20 (2003Ma34) and 18.5 ms 12 (2007Do17).

${}^{50}\text{Ni}-Q(\beta^+\text{p})$: From $\Delta({}^{50}\text{Ni})=-4136$ keV 25 and $\Delta({}^{49}\text{Fe})=-24666$ keV 16 (2007Do17) and $\Delta({}^1\text{H})=7289$ keV (2003Au03). Other: 13.5 MeV 3 (2003Au03). Systematics.

${}^{50}\text{Ni}-\% \beta^+\text{p}$ decay: From 2007Do17. Other: 70% 20 (2003Ma34).

2003Ma34: ${}^9\text{Be}({}^{58}\text{Ni},\text{X})$ $E=650$ MeV/nucleon. Separation by the Projectile Fragment Separator (FRS) At GSI. Identification by tof and 8-Si telescope (resolution=250 keV for 1.98 MeV b-delayed protons).

2007Do17: $\text{Ni}({}^{58}\text{Ni},\text{X})$ $E=74.5$ MeV/nucleon. ALPHA-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 ${}^{49}\text{Fe}$ and subsequent emission of protons and γ 's.

 ${}^{49}\text{Fe}$ Levels

| E(level) [†] | J^π [‡] | $T_{1/2}$ | Comments |
|-----------------------|----------------------|-----------|--|
| 0.0 | (7/2 ⁻) | 70 ms 3 | $\% \varepsilon + \% \beta^+ = 100$; $\% \beta^+\text{p} = 56.7$ 4 all data from the Adopted Levels. |
| 90.0? 10 | (5/2 ⁻) | | |
| 153.0? 15 | (3/2 ⁻) | | |

[†] From least-squares fit to E_γ 's (evaluator). Ordering of the 63-90 γ cascade is not established.

[‡] From 2007Do17, except for g.s. No discussion by 2007Do17; parentheses added by evaluator.

 $\gamma({}^{49}\text{Fe})$

All data from 2007Do17. Ordering of the 63-90 γ cascade is not established.

| E_γ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π |
|-------------------|---------------------|---------------------|-------|---------------------|
| 63 [†] 1 | 153.0? | (3/2 ⁻) | 90.0? | (5/2 ⁻) |
| 90 [†] 1 | 90.0? | (5/2 ⁻) | 0.0 | (7/2 ⁻) |

[†] Placement of transition in the level scheme is uncertain.

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Legend

Decay Scheme-----> γ Decay (Uncertain)