

$^{46}\text{Mn } \beta^+ \text{p decay: partial } 1992\text{Bo37}, 2007\text{Do17}$

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

Parent: ^{46}Mn : $E=0$; $J^\pi=[4^+]$; $T_{1/2}=36.2$ ms 4; $Q(\beta^+ \text{p})=12220$ SY; $\% \beta^+ \text{p decay}=57.0$ 8

$^{46}\text{Mn-E}, J^\pi$: From the Adopted Levels in [2003Wu08](#).

$^{46}\text{Mn-T}_{1/2}$: From [2007Do17](#). Other: 41 ms +7-6 ([1992Bo37](#)) adopted by [2000Wu08](#).

$^{46}\text{Mn-Q}(\beta^+ \text{p})$: from [2003Au03](#). Estimated uncertainty=110 keV.

$^{46}\text{Mn-}\% \beta^+ \text{p decay}$: From [2007Do17](#). Other: 22% 2 ([1992Bo37](#)) adopted by [2000Wu08](#).

[1992Bo37](#), [1993BoZO](#): $\text{Ni}(^{58}\text{Ni}, \text{X}) E=69$ MeV/A. GANIL/LISE3. Measured $\text{p}'\text{s}$ and $T_{1/2}(\text{p})$. Si detector telescope; tof, energy loss in Si detector telescope.

[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.

 ^{45}V Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$T_{1/2}$
0	$7/2^-$	547 ms 6
54.4 5	$(5/2^-)$	
57.7 7	$(3/2^-)$	
387.2 6	$(3/2^+)$	
797.4 6	$(5/2^+)$	
1272.6 5	$(7/2^+)$	
1322.1 5	$(9/2^-)$	

† From least-squares fit to $E\gamma'$'s (evaluator), 739.7 γ omitted from the fit since it fits poorly in the level scheme.

‡ From the Adopted Levels.

 $\gamma(^{45}\text{V})$

Unplaced γ' 's are from β^+ decay or from $\beta^+ \text{p}$ decay.

$E_\gamma^\dagger$	$I_\gamma^{\ddagger\#}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π
54.4 5		54.4	$(5/2^-)$	0	$7/2^-$
329.4 2	11.3 11	387.2	$(3/2^+)$	57.7	$(3/2^-)$
410.2 2	6.7 7	797.4	$(5/2^+)$	387.2	$(3/2^+)$
475.2 3	1.7 5	1272.6	$(7/2^+)$	797.4	$(5/2^+)$
739.7 ‡ @ 7	2.4 8	797.4	$(5/2^+)$	54.4	$(5/2^-)$
x 796.1 2	1.6 4				
885.7 7	2.2 7	1272.6	$(7/2^+)$	387.2	$(3/2^+)$
x 1118.0 15	1.5 10				
1272.6 5	3.5 5	1272.6	$(7/2^+)$	0	$7/2^-$
1322.1 5	4.9 11	1322.1	$(9/2^-)$	0	$7/2^-$

† From [2007Do17](#).

‡ Placement from Figure 24 of [2007Do17](#), unplaced in authors' Table 11. Poorly fitted in the level scheme with level-energy difference=743.0 keV.

$^\#$ Absolute intensity per 100 decays.

@ Placement of transition in the level scheme is uncertain.

x γ ray not placed in level scheme.

$^{46}\text{Mn} \beta^+ \text{p decay: partial}$ 1992Bo37,2007Do17 (continued)Delayed Protons (^{45}V)

$E(p)^\dagger$	$E(^{45}\text{V})$	$I(p)^{\ddagger\ddagger}$	$E(^{46}\text{Cr})^\dagger$
1224 12		1.8 3	
2358 13		1.7 4	
3003 13	1272.6	6.5 9	9152
3494 25	797.4	3.5 6	9152
4254 15	0	5.5 9	9152

† From 2007Do17. Proton energies are in the center-of-mass system. 9152, 4^+ , is the IAS in ^{46}Cr .

‡ Absolute intensity per 100 decays.

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Legend

Decay Scheme

γ Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

$I(p)$ Intensities: $I(p)$ per 100 parent decays

----- γ Decay (Uncertain)

- Coincidence
- Coincidence (Uncertain)

$E(p)$	$I(p)$	$E(^{46}\text{Cr})$	$E(^{45}\text{V})$
4254	5.5	9152	0
3494	3.5	9152	797.4
3003	6.5	9152	1272.6

