

^{48}Mn εp decay [1991Sz03,1987Se07](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Ota and E. A. Mccutchan		NDS 203,1 (2025)	1-Apr-2025

Parent: ^{48}Mn : $E=0.0$; $J^\pi=4^+$; $T_{1/2}=158.1$ ms 22; $Q(\varepsilon\text{p})=5421$ 7; $\%\varepsilon\text{p}$ decay=28.0 37

^{48}Mn - $T_{1/2}$: from $752\gamma(t)$ ([1991Sz03](#)). Other: 150 ms 10 ([1987Se07](#)).

^{48}Mn - $\%\varepsilon\text{p}$ decay: from simultaneous measurement of protons and the ^{48}Mn 752γ ([1991Sz03](#)). Other: 27 12 ([1987Se07](#)).

[1991Sz03](#): ^{48}Mn activity produced in $^{12}\text{C}(^{40}\text{Ca},\text{p}3\text{n})$ reaction followed by mass separation. Measured $E\gamma$, $\gamma(t)$, $\text{p-}\gamma$ using two surface barrier detector telescopes and two HPGe detectors.

[1987Se07](#): ^{48}Mn activity produced in $^{12}\text{C}(^{40}\text{Ca},\text{p}3\text{n})$ reaction. Measured $E\gamma$, $\text{p}\gamma$, $\beta\text{-p}$ using 4π plastic scintillator, Ge(Li) detector and 2 surface-barrier detectors. Assumed 100% feeding of the ^{47}V ground state.

 ^{47}V Levels

$E(\text{level})^\dagger$	$J^\pi^\dagger$	$T_{1/2}^\dagger$	Comments
0.0	$3/2^-$	32.6 min 3	$\%\varepsilon+\%\beta^+=100$
87.525 9	$5/2^-$	0.68 ns 6	
145.821 15	$7/2^-$	0.50 ns 6	
259.486 4	$3/2^+$	58 ps 6	
660.358 9	$5/2^+$	1.6 ps 12	

† From the Adopted Levels.

 $\gamma(^{47}\text{V})$

$E_\gamma^\dagger$	$I_\gamma^{\ddagger@}$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. †	$\delta^\dagger$	$\alpha^\#$	Comments
58.2 1	67 12	145.821	$7/2^-$	87.525	$5/2^-$	(M1(+E2))		1.6 15	$\alpha(\text{K})=1.4$ 13; $\alpha(\text{L})=0.15$ 14; $\alpha(\text{M})=0.019$ 18; $\alpha(\text{N})=8$ $\delta: < 0.0449$ 27.
87.5 1	68 19	87.525	$5/2^-$	0.0	$3/2^-$	M1+E2	+0.128 22	0.041 4	E_γ : other: 58.3 (1991Sz03). $\alpha(\text{K})=0.0372$ 32; $\alpha(\text{L})=0.00357$ 32; $\alpha(\text{M})=0.00047$ 4; $\alpha(\text{N})=2.30\times 10^{-5}$ 19
(145.8)	0.56 19	145.821	$7/2^-$	0.0	$3/2^-$	E2		0.0875 12	E_γ : other: 87.6 (1991Sz03). $\alpha(\text{K})=0.0789$ 11; $\alpha(\text{L})=0.00753$ 11; $\alpha(\text{M})=0.000977$ 14; $\alpha(\text{N})=4.70\times 10^{-5}$ 7

† From the Adopted Gammas.

‡ From $\text{Ip}+\Sigma I_\gamma(1+\alpha)$.

$\#$ [Additional information 1](#).

$@$ For absolute intensity per 100 decays, multiply by 0.280 37.

Delayed Protons (^{47}V)

Particle normalization: from simultaneous measurement of protons and the ^{48}Mn 752γ ([1991Sz03](#)). Other: 27 12 ([1987Se07](#)).

$E(^{47}\text{V})$	$I(\text{p})^{\ddagger\#}$	Comments
0.0	28 18	$I(\text{p})$: from $100-\Sigma I(\text{p})$ (evaluator). Other: ≥ 26 (1991Sz03).
87.525	2 13	
145.821	68 12	

Continued on next page (footnotes at end of table)

⁴⁸Mn ε p decay [1991Sz03](#),[1987Se07](#) (continued)

Delayed Protons (continued)

<u>E(⁴⁷V)</u>	<u>I(p)^{†‡}</u>
259.486	≤2
660.358	≤2

[†] From [1991Sz03](#), except as noted.
[‡] For absolute intensity per 100 decays, multiply by 0.280 37.

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