

^{40}P β^- n decay (150 ms) 2001Wi21,1989Le16

Type	Author	History Citation	Literature Cutoff Date
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Parent: ^{40}P : $E=0$; $J^\pi=(2^-,3^-)$; $T_{1/2}=150$ ms 8; $Q(\beta^-n)=6.98\times 10^3$ 16; $\% \beta^-n$ decay=15.8 21

^{40}P - $J^\pi, T_{1/2}$: From Adopted Levels of ^{40}P . 153 ms 8 from 2001Wi21, 260 ms +100-60 (1989Le16).

^{40}P - $Q(\beta^-n)$: From 2017Wa10.

^{40}P - $\% \beta^-n=15.8$ 21 (2001Wi21). Other: 30 10 (1989Le16).

2001Wi21: Sources of ^{40}P were produced via fragmentation of 70 MeV/nucleon ^{48}Ca beam on a 254 mg/cm² Be target in the A1200 fragment separator at NSCL. γ rays were detected with two Ge detectors and β particles were detected with a thin plastic scintillator. Measured E_γ , I_γ , $\gamma\gamma$ -coin, $\beta\gamma\gamma$ -coin, $\gamma(t)$. Deduced delayed-neutron emission probability, parent $T_{1/2}$.

1989Le16: Sources of ^{40}P were produced via fragmentation of 55 MeV/nucleon ^{48}Ca beam on ^{181}Ta target at GANIL. Fragments were separated and identified in the LISE spectrometer, and implanted in a four-stage solid-state detector telescope of three surface barrier detectors and one Si(Li) detector. β particles were detected with a plastic scintillator and neutrons were detected by a 4π neutron detector of liquid scintillator. Measured $\beta(\text{neutron})$ -coin, $\beta(t)$. Deduced delayed-neutron emission probability, parent $T_{1/2}$.

 ^{39}S Levels

E(level) [†]	J^π [‡]	Comments
0	(7/2) ⁻	
59.0	(5/2) ⁻	Additional information 1. E(level): rounded value from Adopted Levels.
398.78 9	(3/2) ⁻	
864.23 21	(3/2) ⁺	

[†] From a least-squares fit to γ -ray energies.

[‡] From Adopted Levels.

 $\gamma(^{39}\text{S})$

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J^π_i	E_f	J^π_f
339.88 [‡] 11	4.6 5	398.78	(3/2) ⁻	59.0	(5/2) ⁻
398.61 [‡] 14	6.1 9	398.78	(3/2) ⁻	0	(7/2) ⁻
465.45 19	4.5 9	864.23	(3/2) ⁺	398.78	(3/2) ⁻

[†] From 2001Wi21. Intensities are relative to 100 for 903.68 γ from ^{40}P to ^{40}S decay. These γ rays are not placed by 2001Wi21; the evaluator has placed them based on the level scheme in Adopted Levels, Gammas.

[‡] In coincidence with 465.45 γ ; also seen in ^{39}P decay.

$^{40}\text{P} \beta^{-} \text{n decay (150 ms)} \quad 2001\text{Wi21,1989Le16}$

Decay Scheme

Intensities: Relative I_{γ}

