

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen [#]		NDS 126, 1 (2015)	31-Mar-2015

$Q(\beta^-)=16.88\times 10^3$ 37; $S(n)=4.40\times 10^3$ 43; $S(p)=19170$ SY; $Q(\alpha)=-18740$ SY 2012Wa38

Estimated uncertainties: $\Delta S(p)=\Delta Q(\alpha)=620$ (2012Wa38).

$S(2n)=6480$ 380, $S(2p)=43790$ 700 (syst), $Q(\beta^-n)=14250$ 370, (2012Wa38).

First identification of ^{43}P nuclide by 1989Gu03.

^{43}P isotope identified in $^{181}\text{Ta}(^{48}\text{Ca},X)$ $E=55$ MeV/nucleon (1989Gu03) and in $^{64}\text{Ni}(^{48}\text{Ca},X)$ $E=60$ MeV/nucleon (1995So03, GANIL facility), followed by measurement of fragment spectra. Measured $\% \beta^-n$.

2004Gr20 (also 2003Gr22): ^{43}P produced in $^9\text{Be}(^{48}\text{Ca},X)$ at $E=60$ MeV/nucleon, LISE3 spectrometer at GANIL, isotopic identification by energy loss, time-of-flight and magnetic rigidities, double-sided Si strip (DSSD) detectors for residues. Measured $\langle \beta \rangle$ (residues) time correlations and half-life using scintillation detectors for β -rays.

Mass measurement: 2000Sa21 (also 2001Sa72).

Additional information 1.

2006Fr13 (also 2005Fr19): see $^9\text{Be}(^{44}\text{S}, ^{43}\text{P}\gamma)$ dataset.

Mean-square radius from energy-integrated cross sections: 2006Kh08.

 ^{43}P LevelsCross Reference (XREF) Flags

A $^9\text{Be}(^{44}\text{S}, ^{43}\text{P}\gamma)$

E(level) [†]	J^π [‡]	$T_{1/2}$	XREF	Comments
0	1/2 ⁺	36.5 ms 15	A	$\% \beta^- = 100$; $\% \beta^-n = 100$; $\% \beta^- 2n = ?$ Measured mean-square radius (r_0^2)=1.77 fm ² 28 (2006Kh08). $\pi 2s_{1/2}$ orbital (2006Fr13,2008Ri04). $T_{1/2}$: from $\beta(^{43}\text{P})$ timing correlations followed up to 400 ms (2004Gr20, measurement at GANIL). Others: 33 ms 3 (1995So03, earlier measurement at GANIL), 1999YoZW. Weighted average of the two values (from 2004Gr20 and 1995So03) is 35.8 ms 15. $\% \beta^-n$: from 1995So03. Other: 1999YoZW. $\pi 1d_{3/2}$ orbital (2006Fr13,2008Ri04).
184 1	3/2 ⁺		A	
845 3	(5/2 ⁺)		A	
1009 5	(5/2 ⁺)		A	
1095 6	(5/2 ⁺)		A	
1774 8	(5/2 ⁺)		A	
2035 11	(5/2 ⁺)		A	

[†] From least-squares fit to E_γ data.

[‡] From comparisons of experimental data with shell-model calculations (2008Ri04). For g.s., 184, 1009 and 1095 levels, parallel-momentum distributions give $L=0$ for g.s., and $L=2$ for all others in a proton-removal reaction.

Adopted Levels, Gammas (continued)

$\gamma(^{43}\text{P})$

<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_γ[†]</u>	<u>I_γ[†]</u>	<u>E_f</u>	<u>J_f^π</u>
184	3/2 ⁺	184 1	100	0	1/2 ⁺
845	(5/2 ⁺)	661 4	100 13	184	3/2 ⁺
		845 4	34 9	0	1/2 ⁺
1009	(5/2 ⁺)	825 5	100	184	3/2 ⁺
1095	(5/2 ⁺)	911 6	100	184	3/2 ⁺
1774	(5/2 ⁺)	765 6	100	1009	(5/2 ⁺)
2035	(5/2 ⁺)	1018 [‡] 6	71 14	1009	(5/2 ⁺)
		1851 11	100 14	184	3/2 ⁺

[†] From 2008Ri04.
[‡] Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

Intensities: Relative photon branching from each level

-----► γ Decay (Uncertain)

