

Adopted Levels, Gammas

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Balraj Singh	ENSDF	30-Jun-2017

$Q(\beta^-)=5371.5$; $S(n)=6943.8$; $S(p)=14746.10$; $Q(\alpha)=-8636.4$ [2017Wa10](#)

$S(n)=11034.3$, $S(2p)=27600.200$ (syst), $Q(\beta^-n)=294.15$ ([2017Wa10](#)).

[1993Ja03](#): ^{120}Pd produced and identified in $^{238}\text{U}(p,F), E=20$ MeV followed by on-line mass separation at JYFL facility; measured half-life of ^{120}Pd , and K x ray.

[2006Mo07](#): ^{120}Pd produced by fragmentation of $^{136}\text{Xe}^{+50,51}$, $E=121.8$ MeV/nucleon on Be. Particle identification was performed.

The products were passed to a mass spectrometer, position sensitive detector, stacked Si detectors and tof arrangement. β -delayed neutrons were detected within the neutron emission ratio observer. Implantation and decay events were time stamped and correlated.

Deduced $T_{1/2}$ and P_n .

[Additional information 1.](#)

Mass measurement: [2011Ha48](#), [2008Su19](#), [2007Ha20](#), [2004Ge18](#).

 ^{120}Pd LevelsCross Reference (XREF) Flags

- A** $^{120}\text{Rh} \beta^-$ decay (132 ms)
B $^9\text{Be}(^{133}\text{Sn}, X\gamma), (^{132}\text{Sn}, X\gamma)$
C $^{238}\text{U}(\alpha, F\gamma)$

<u>$E(\text{level})^\dagger$</u>	<u>$J^\pi^\ddagger$</u>	<u>$T_{1/2}$</u>	<u>XREF</u>	<u>Comments</u>
0.0 [#]	0 ⁺	492 ms 33	ABC	$\% \beta^- = 100$; $\% \beta^- n \leq 0.7$ (2006Mo07) Theoretical $T_{1/2} = 2.26$ s, $\% \beta^- n = 0.0$ (2003Mo09). Theoretical $T_{1/2} = 584$ ms, $\% \beta^- n = 0.3$ (2016Ma12). $T_{1/2}$: from β decay curve (2006Mo07). Other: 0.5 s I (from multiscaling of β -gated $K\alpha$ x ray, 1993Ja03) is in agreement but less precise than in 2006Mo07 . Additional information 2.
438.0 [#] 10	(2 ⁺)		ABC	
1056.5 [#] 15	(4 ⁺)		ABC	
1794.5 [#] 18	(6 ⁺)		C	
2589.5 [#] 20	(8 ⁺)		C	
3413.5? 23			C	J^π : (10 ⁺) suggested by 2007St19 .
3470.5? 25			C	J^π : (10 ⁺) suggested by 2007St19 .

[†] From E_γ data, assuming $\Delta(E_\gamma) = 1$ keV for each γ ray.

[‡] From systematics of even-even nuclei and possible band structure.

[#] Band(A): g.s. band.

 $\gamma(^{120}\text{Pd})$

<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>E_γ</u>	<u>E_f</u>	<u>J_f^π</u>
438.0	(2 ⁺)	438	0.0	0 ⁺
1056.5	(4 ⁺)	618.5	438.0	(2 ⁺)
1794.5	(6 ⁺)	738	1056.5	(4 ⁺)
2589.5	(8 ⁺)	795	1794.5	(6 ⁺)

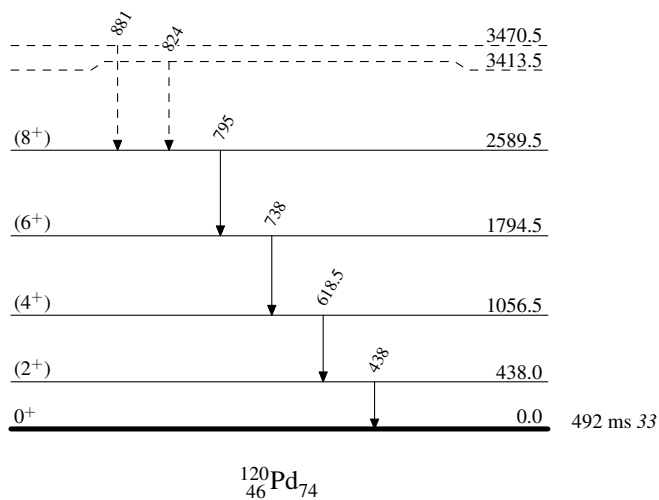
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Adopted Levels, Gammas (continued) $\gamma(^{120}\text{Pd})$ (continued)

$E_i(\text{level})$	J_i^π	E_γ	E_f	J_f^π
3413.5?		824 [†]	2589.5	(8 ⁺)
3470.5?		881 [†]	2589.5	(8 ⁺)

[†] Placement of transition in the level scheme is uncertain.**Adopted Levels, Gammas**

Legend

Level Scheme-----► γ Decay (Uncertain)

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