

$^{105}\text{Pd}(\text{p},\text{n}\gamma)$ 1986Mi26,1977Mi16

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, J. Timar and Z. Elekes		NDS 161, 1 (2019)	1-Apr-2019

1986Mi26: Facility: Chandigah cyclotron; Beam: E(p)=4.2, 5.2 and 5.5 MeV; Target: enriched to 94.51% in ^{105}Pd ; Detectors: one 50 cm³ Ge(Li); Measured: γ , E γ , $\gamma(\text{t})$; Deduced: T_{1/2} from DSAM.

1977Mi16: Facility: Leningrad University cyclotron; Beam: E(p)=6 MeV; Target: 0.3 mg/cm² thick self-supported ^{105}Pd , enriched to 94%; Detectors: one 30 cm³ Ge(Li) at 90 deg.; Measured: E γ , I γ ; Deduced: ^{105}Ag level scheme.

Other: 1990ViZY, 1978Za12.

 ^{105}Ag Levels

E(level) [†]	J π [‡]	T _{1/2} [#]	E(level) [†]	J π [‡]	T _{1/2} [#]
0.0	1/2 ⁻		1415.2 5		
26.03 12	7/2 ⁺		1442.13 14	5/2 ⁺	26 ps +14-12
53.72 12	9/2 ⁺		1543.78 11	3/2 ⁻ , 5/2 ⁻	33 ps +17-13
347.44 7	3/2 ⁻		1557.84 7	3/2 ⁺	15 ps +10-9
433.77 9	5/2 ⁻		1587.12 7	1/2 ⁺	33 ps +17-13
615.1 4			1635.6 4	(5/2 ⁺)	
668.7 4	11/2 ⁺		1636.1 4	3/2 ⁺	
877.6 4	3/2 ⁻		1669.4 6	(3/2 ⁺ , 5/2)	
917.8 4	13/2 ⁺		1719.34 12		11 ps +7-6
988.19 21	(5/2 ⁺)		1749.9 4	(5/2 ⁺)	
1024.08 9	7/2 ⁻	54 ps +25-22	1859.4 6		
1043.14 10	3/2 ⁻ , 5/2 ⁻	67 ps +34-27	1884.0 4	(9/2 ⁺)	
1097.65 12	(9/2 ⁺)	29 ps +13-11	1923.55 11		19 ps +8-7
1166.84 12	9/2 ⁻	35 ps +18-14	1983.9 8		
1243.96 11		135 ps +86-65	1986.4 8	5/2 ⁺	
1294.69 6	(7/2 ⁻)	24 ps +10-8	2082.16 13	5/2 ⁺ , 7/2 ⁺	15 ps +7-6
1328.46 12	5/2 ⁺	83 ps +48-34	2277.7 7		
1345.8 5			2326.7 6	(5/2 ⁺)	
1386.76 13	3/2 ⁺ , 5/2 ⁺	52 ps +24-21	2424.0 10	3/2 ⁺	

[†] From a least-squares fit to E γ .

[‡] From the Adopted Levels.

[#] From 1986Mi26, based on DSAM.

 $\gamma(^{105}\text{Ag})$

E γ [†]	I γ [†]	E _i (level)	J π _i	E _f	J π _f	Mult. [‡]	Comments
(25.48 ^{&})		26.03	7/2 ⁺	0.0	1/2 ⁻		
(27.67 ^{&})		53.72	9/2 ⁺	26.03	7/2 ⁺		
171.2 ^a 3		1557.84	3/2 ⁺	1386.76	3/2 ⁺ , 5/2 ⁺		
192.2 8	3.2 [@] 7	1749.9	(5/2 ⁺)	1557.84	3/2 ⁺		
198.0 8	1.3 4	1543.78	3/2 ⁻ , 5/2 ⁻	1345.8			
^x 205.0 8	1.6 3						
215.1 ^d		1884.0	(9/2 ⁺)	1669.4	(3/2 ⁺ , 5/2)		E γ : from 1978Za12. Mult.: $\alpha(\text{K})_{\text{exp}}=3.24$ (1978Za12).
229.3 8	1.9 [@] 5	1557.84	3/2 ⁺	1328.46	5/2 ⁺		
235.4 ^d		668.7	11/2 ⁺	433.77	5/2 ⁻		Mult.: $\alpha(\text{K})_{\text{exp}}=1.12$ (1978Za12).
249.0 6	9.6 19	917.8	13/2 ⁺	668.7	11/2 ⁺	E2(+M1)	Mult.: $\alpha(\text{K})_{\text{exp}}=0.048$ (1978Za12).
262 ^a 2		1557.84	3/2 ⁺	1294.69	(7/2 ⁻)		

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$^{105}\text{Pd}(\text{p},\text{n}\gamma)$ **1986Mi26,1977Mi16** (continued) $\gamma(^{105}\text{Ag})$ (continued)

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	α^b	Comments
292.5 8	3.0 6	347.44	3/2 ⁻	53.72	9/2 ⁺	(E3)	0.133	Mult.: $\alpha(\text{K})_{\text{exp}}=0.11$ (1978Za12).
307.0 4	10 1	1294.69	(7/2 ⁻)	988.19	(5/2 ⁺)			I_γ : intensity measurement can be influenced by close-lying γ in ^{106}Ag .
307.7 ^c 6	7.8 ^c 12	1635.6	(5/2 ⁺)	1328.46	5/2 ⁺			
307.7 ^c 6	7.8 ^c 12	1636.1	3/2 ⁺	1328.46	5/2 ⁺			
^x 319.8 6	6.5 [@] 9							
339.8 ^a 3		1328.46	5/2 ⁺	988.19	(5/2 ⁺)			
347.0 5	149 13	347.44	3/2 ⁻	0.0	1/2 ⁻	M1,E2		Mult.: $\alpha(\text{K})_{\text{exp}}=0.014$ (1978Za12).
^x 376.2 6	1.6 3							
399 ^a 1		1386.76	3/2 ⁺ ,5/2 ⁺	988.19	(5/2 ⁺)			
416.8 7	4 1	1294.69	(7/2 ⁻)	877.6	3/2 ⁻			
433.1 5	173 16	433.77	5/2 ⁻	0.0	1/2 ⁻	E2	0.00967	Mult.: $\alpha(\text{K})_{\text{exp}}=0.0085$ (1978Za12).
^x 467.4 10	3.5 8							
530.4 8	9.5 16	877.6	3/2 ⁻	347.44	3/2 ⁻			
539.0 8	7.2 13	1636.1	3/2 ⁺	1097.65	(9/2 ⁺)			
^x 551.1 6	2.7 5							
562.0 8	1.4 4	615.1		53.72	9/2 ⁺			
589.5 5	34 6	615.1		26.03	7/2 ⁺			
590.32 [#] 5		1024.08	7/2 ⁻	433.77	5/2 ⁻			
608.1 9	20.7 7	2326.7	(5/2 ⁺)	1719.34				
609.29 [#] 7		1043.14	3/2 ⁻ ,5/2 ⁻	433.77	5/2 ⁻			
614.2 5	74 11	668.7	11/2 ⁺	53.72	9/2 ⁺			
647.4 ^c 6	8 ^c 2	1635.6	(5/2 ⁺)	988.19	(5/2 ⁺)			
647.4 ^c 6	8 ^c 2	1636.1	3/2 ⁺	988.19	(5/2 ⁺)			
676.0 6	7.0 15	1345.8		668.7	11/2 ⁺			
676.59 [#] 8		1024.08	7/2 ⁻	347.44	3/2 ⁻			
695.84 [#] 9		1043.14	3/2 ⁻ ,5/2 ⁻	347.44	3/2 ⁻			
^x 701.5 8	8 2							
731.8 6	26 5	1345.8		615.1				
733.07 [#] 8	34 2	1166.84	9/2 ⁻	433.77	5/2 ⁻			
811.1 4	18 2	1243.96		433.77	5/2 ⁻			
864.2 6	21 3	917.8	13/2 ⁺	53.72	9/2 ⁺			
877.3 6	24 [@] 4	877.6	3/2 ⁻	0.0	1/2 ⁻			Placement is by evaluators based on ε decay data. Placed from 1543.5 by 1977Mi16. $I_\gamma/I_\gamma(530\gamma)$ in ε decay leads to an expected $I_\gamma(877\gamma)=27.5$.
895.5 6	10.4 15	1884.0	(9/2 ⁺)	988.19	(5/2 ⁺)			
896.51 [#] 9	14 2	1243.96		347.44	3/2 ⁻			
933.5 8	7.9 19	988.19	(5/2 ⁺)	53.72	9/2 ⁺			
947.07 [#] 6	5.0 13	1294.69	(7/2 ⁻)	347.44	3/2 ⁻			
961.3 6	51 5	988.19	(5/2 ⁺)	26.03	7/2 ⁺			
966.4 6	10.3 11	1884.0	(9/2 ⁺)	917.8	13/2 ⁺			
^x 1014.6 5	45 7							
1038 ^a 2		1386.76	3/2 ⁺ ,5/2 ⁺	347.44	3/2 ⁻			
^x 1039 1	4.8 7							
1043.95 [#] 6	7.2 15	1097.65	(9/2 ⁺)	53.72	9/2 ⁺			
1071.57 [#] 7	28 4	1097.65	(9/2 ⁺)	26.03	7/2 ⁺			
1125 ^a 3		1557.84	3/2 ⁺	433.77	5/2 ⁻			
1196.34 ^{#a} 9		1543.78	3/2 ⁻ ,5/2 ⁻	347.44	3/2 ⁻			
1211.5 8	5.4 9	1557.84	3/2 ⁺	347.44	3/2 ⁻			

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$^{105}\text{Pd}(\text{p},\text{n}\gamma)$ **1986Mi26,1977Mi16** (continued) $\gamma(^{105}\text{Ag})$ (continued)

E_γ [†]	I_γ [†]	$E_i(\text{level})$	J_i^π	E_f	J_f^π
1217.2 4	<5	1243.96		26.03	7/2 ⁺
1228.1 8	9.1 15	2326.7	(5/2 ⁺)	1097.65	(9/2 ⁺)
1239.91# 8		1587.12	1/2 ⁺	347.44	3/2 ⁻
1244 1	1.3 4	1859.4		615.1	
^x 1255.3 8	3.8 8				
1274.75# 6	6.8 1	1328.46	5/2 ⁺	53.72	9/2 ⁺
1294.85# 6		1294.69	(7/2 ⁻)	0.0	1/2 ⁻
1302.42 ^c # 5	23 ^c 4	1328.46	5/2 ⁺	26.03	7/2 ⁺
1302.42 ^{cd} 5	23 ^c 4	2326.7	(5/2 ⁺)	1024.08	7/2 ⁻
1322 1	2.0 5	1669.4	(3/2 ⁺ ,5/2)	347.44	3/2 ⁻
1359.9 5	18 4	2277.7		917.8	13/2 ⁺
1360.73# 7		1386.76	3/2 ⁺ ,5/2 ⁺	26.03	7/2 ⁺
1388.42# 8	21@ 3	1442.13	5/2 ⁺	53.72	9/2 ⁺
1402.1 6	7.4 13	1749.9	(5/2 ⁺)	347.44	3/2 ⁻
1415.2 ^c 5	34 ^c 6	1415.2		0.0	1/2 ⁻
1415.2 ^c 5	34 ^c 6	1442.13	5/2 ⁺	26.03	7/2 ⁺
^x 1487 1	2.2 4				
1489.77# 7		1923.55		433.77	5/2 ⁻
1557.82# 7	12.7 20	1557.84	3/2 ⁺	0.0	1/2 ⁻
1582.4 8	2.7 5	1636.1	3/2 ⁺	53.72	9/2 ⁺
1586.87# 8		1587.12	1/2 ⁺	0.0	1/2 ⁻
1635.0 6	10.1 21	1635.6	(5/2 ⁺)	0.0	1/2 ⁻
1643.4 6	13.1 25	1669.4	(3/2 ⁺ ,5/2)	26.03	7/2 ⁺
1665.60# 6	21 4	1719.34		53.72	9/2 ⁺
1693.30# 7	9.2 17	1719.34		26.03	7/2 ⁺
1696 1	3.0 7	1749.9	(5/2 ⁺)	53.72	9/2 ⁺
1724.0 5	13.8 22	1749.9	(5/2 ⁺)	26.03	7/2 ⁺
^x 1727 1	4.6 12				
1805.8 6	9.1 17	1859.4		53.72	9/2 ⁺
1830.5 6	9.8 17	1884.0	(9/2 ⁺)	53.72	9/2 ⁺
1858 1	4 1	1884.0	(9/2 ⁺)	26.03	7/2 ⁺
^x 1868 1	4.2 7				
1869.70# 9		1923.55		53.72	9/2 ⁺
1897.58# 8		1923.55		26.03	7/2 ⁺
1930 1	5 2	1983.9		53.72	9/2 ⁺
1932 1	7.3 21	1986.4	5/2 ⁺	53.72	9/2 ⁺
^x 1938 1	4.5 14				
1958 1	4.4 11	1983.9		26.03	7/2 ⁺
1961 1	4.5 11	1986.4	5/2 ⁺	26.03	7/2 ⁺
^x 1975.6 6	6.3 11				
^x 1987.1 8	5.2 12				
^x 2011 1	2.8 5				
2028.41# 8	3.1 6	2082.16	5/2 ⁺ ,7/2 ⁺	53.72	9/2 ⁺
2056.11# 8	4.5 9	2082.16	5/2 ⁺ ,7/2 ⁺	26.03	7/2 ⁺
^x 2138 2	2.8 5				
2224 2	3.9 10	2277.7		53.72	9/2 ⁺
^x 2232 2	3.5 10				
2275 2	4.9 10	2326.7	(5/2 ⁺)	53.72	9/2 ⁺
^x 2380 2	2.1 6				
^x 2394 2	2.9 9				
2424 1	3.3 8	2424.0	3/2 ⁺	0.0	1/2 ⁻

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 $^{105}\text{Pd}(\text{p},\text{n}\gamma)$ [1986Mi26,1977Mi16](#) (continued)

 $\gamma(^{105}\text{Ag})$ (continued)

[†] From [1977Mi16](#), unless noted otherwise.

[‡] From $\alpha(\text{K})\text{exp}$.

[#] From [1986Mi26](#).

[@] Upper limit. Intensity may be influenced by unresolved lines from ^{106}Ag .

[&] From the adopted gammas.

^a From [1990ViZY](#).

^b Total theoretical internal conversion coefficients, calculated using the BrIcc code ([2008Ki07](#)) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

^c Multiply placed with undivided intensity.

^d Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

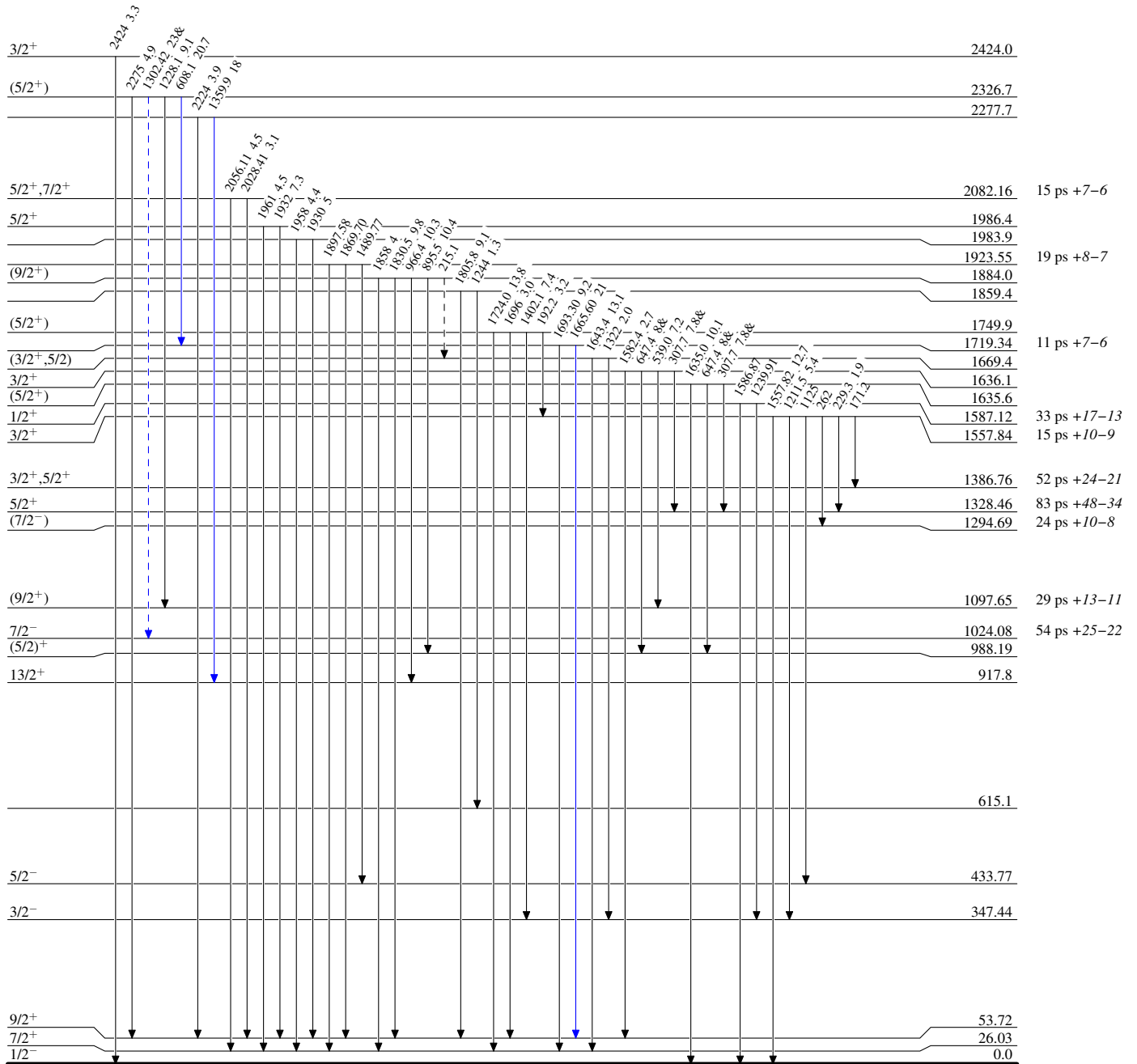
$^{105}\text{Pd}(p,n\gamma)$ 1986Mi26,1977Mi16

Level Scheme

Intensities: Type not specified
& Multiply placed: undivided intensity given

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\max}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\max}$
 $-----\longrightarrow$ γ Decay (Uncertain)



$^{105}\text{Pd}(\text{p},\text{n}\gamma)$ 1986Mi26,1977Mi16

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

Legend

- $\longrightarrow$ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
 $\longrightarrow$ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
 $---$ γ Decay (Uncertain)

