^{102}Pd(α,nγ) 1978Ge05

History

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

1978Ge05: Facility: Grenoble variable energy cyclotron; Beam: E(α)=24 MeV; Target: 10 mg/cm^2 thick, enriched to 78% in ^{102}Pd; Detectors: two Ge(Li); Measured: γ, γ-γ coinc., γ-γ(θ), Eγ, Iγ; Deduced: ^{105}Cd level scheme;
Also, from the same group: ^{104}Pd(α,3nγ) at E(α)=43 MeV and 10 mg/cm^2 thick target, enriched to 80% in ^{104}Pd.

^{105}Cd Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
0.0	5/2+		
131.14 *13*	7/2+		
195.98 *18*	(5/2+)		
260.00 *16*	(7/2)+		
604.15 *13*	(7/2)+		
766.9 *4*	(5/2+)		
770.58 *13*	9/2+		
799.24 *21*	11/2+		
832.06 *14*	9/2+		
1114.78 *22*	(9/2+)		
1139.7 *3*	(7/2+)		
1162.63# *20*	(11/2)−		
1385.40 *23*	(7/2+,9/2+)		
1578.38 *21*	(13/2)+		
1685.9 *3*	15/2+		
1701.9# *3*	(15/2)−		
1728.1 *4*	(7/2,9/2,13/2+)		
2390.9 *3*	(17/2)+		
2488.1# *4*	(19/2)−		
2517.3 *4*	(21/2+)	5 μs	$T_{1/2}$: from 1978Ge05, based on cyclotron off-beam activity, but the value seems to be from Heiser,C. et al., Symp. on Nuclear Spectroscopy and Nuclear Theory, Dubna, June 19-23, p.18.
2587.4 *5*	(19/2)+		
2643.1 *6*			
3342.8# *4*	(23/2)−		

† From a least sqtares fit to Eγ.
‡ From the Adopted Levels.
# Member of ΔJ=2 intruder band, based on the 11/2− state.

γ(^{105}Cd)

Eγ†	Iγ†	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	Comments
126.4 *2*	3.0 *2*	2517.3	(21/2+)	2390.9	(17/2)+	(E2)	Mult.: A_2=+0.02 *9*; A_4=−0.14 *16* (1978Ge05).
131.1 *2*	100	131.14	7/2+	0.0	5/2+	(M1)	Mult.: A_2=−0.176 *14*; A_4=−0.033 *16* (1978Ge05).
166.4 *2*	3.6 *3*	770.58	9/2+	604.15	(7/2)+	(M1)	Mult.: A_2=−0.20 *8*; A_4=+0.11 *13* (1978Ge05).
195.9 *2*	26.0 *14*	195.98	(5/2+)	0.0	5/2+		
227.8 *2*	4.2 *6*	832.06	9/2+	604.15	(7/2)+	(M1)	Mult.: A_2=−0.31 *9*; A_4=0.000 *14* (1978Ge05).
260.0 *2*	50.0 *3*	260.00	(7/2)+	0.0	5/2+	(M1+E2)	Mult.: A_2=+0.20 *2*; A_4=+0.030 *26* (1978Ge05).
330.6 *2*	19.0 *20*	1162.63	(11/2)−	832.06	9/2+	(E1)	Mult.: A_2=−0.28 *2*; A_4=−0.01 *4* (1978Ge05).
392.0 *3*	21.0 *15*	1162.63	(11/2)−	770.58	9/2+	(E1)	Mult.: A_2=−0.27 *3*; A_4=−0.02 *4* (1978Ge05).
x415.3 *3*	5.4 *7*						

Continued on next page (footnotes at end of table)

^{102}Pd(α,nγ) 1978Ge05 (continued)

γ(^{105}Cd) (continued)

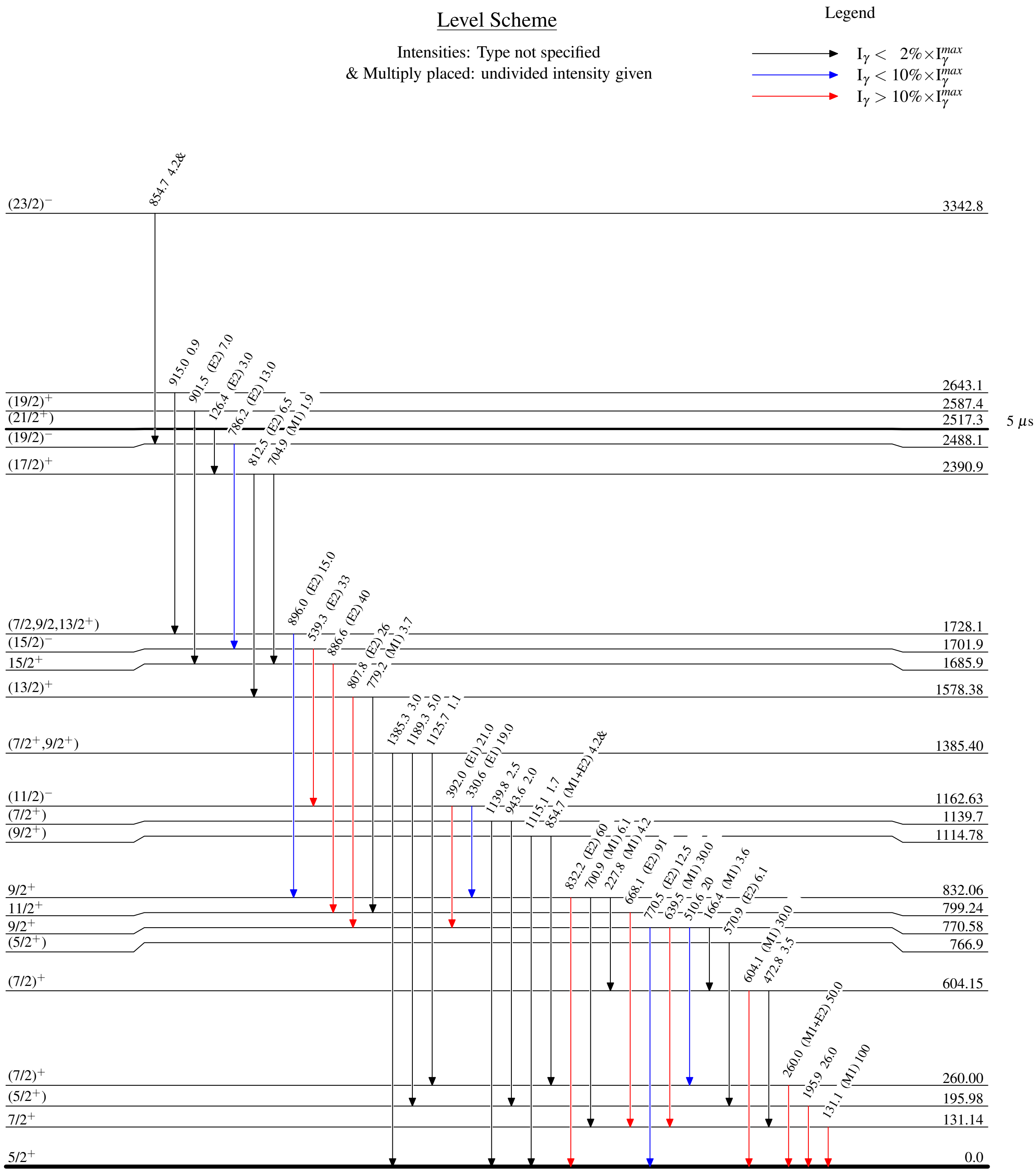
E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	Comments
472.8 *3*	3.5 *6*	604.15	(7/2)$^+$	131.14	7/2$^+$		
510.6 *3*	20 *10*	770.58	9/2$^+$	260.00	(7/2)$^+$		
539.3 *2*	33 *3*	1701.9	(15/2)$^-$	1162.63	(11/2)$^-$	(E2)	Mult.: A_2=+0.28 *3*; A_4=−0.13 *4* (1978Ge05).
570.9 *3*	6.1 *6*	766.9	(5/2$^+$)	195.98	(5/2$^+$)	(E2)	Mult.: A_2=+0.17 *10*; A_4=−0.20 *17* (1978Ge05).
604.1 *2*	30.0 *20*	604.15	(7/2)$^+$	0.0	5/2$^+$	(M1)	Mult.: A_2=−0.73 *3*; A_4=+0.10 *5* (1978Ge05).
639.5 *2*	30.0 *5*	770.58	9/2$^+$	131.14	7/2$^+$	(M1)	Mult.: A_2=−0.17 *3*; A_4=+0.16 *4* (1978Ge05).
668.1 *2*	91 *7*	799.24	11/2$^+$	131.14	7/2$^+$	(E2)	Mult.: A_2=+0.30 *2*; A_4=−0.12 *3* (1978Ge05).
700.9 *2*	6.1 *6*	832.06	9/2$^+$	131.14	7/2$^+$	(M1)	Mult.: A_2=−0.82 *10*; A_4=−0.13 *15* (1978Ge05).
704.9 *3*	1.9 *10*	2390.9	(17/2)$^+$	1685.9	15/2$^+$	(M1)	Mult.: A_2=−0.73 *30*; A_4=+0.4 *4* (1978Ge05).
770.5 *2*	12.5 *15*	770.58	9/2$^+$	0.0	5/2$^+$	(E2)	Mult.: A_2=+0.35 *5*; A_4=−0.13 *9*(1978Ge05).
779.2 *3*	3.7 *10*	1578.38	(13/2)$^+$	799.24	11/2$^+$	(M1)	Mult.: A_2=−0.85 *15*; A_4=+0.1 *2* (1978Ge05).
786.2 *2*	13.0 *20*	2488.1	(19/2)$^-$	1701.9	(15/2)$^-$	(E2)	Mult.: A_2=+0.29 *5*; A_4=−0.14 *8* (1978Ge05).
807.8 *2*	26 *3*	1578.38	(13/2)$^+$	770.58	9/2$^+$	(E2)	Mult.: A_2=+0.30 *4*; A_4=−0.12 *6* (1978Ge05).
812.5 *2*	6.5 *10*	2390.9	(17/2)$^+$	1578.38	(13/2)$^+$	(E2)	Mult.: A_2=+0.14 *11*; A_4=−0.13 *18* (1978Ge05).
832.2 *2*	60 *6*	832.06	9/2$^+$	0.0	5/2$^+$	(E2)	Mult.: A_2=+0.30 *3*; A_4=−0.08 *4* (1978Ge05).
854.7# *2*	4.2# *5*	1114.78	(9/2$^+$)	260.00	(7/2)$^+$	(M1+E2)	Mult.: A_2=−0.20 *17*; A_4=−0.16 *27* (1978Ge05).
854.7# *2*	4.2# *5*	3342.8	(23/2)$^-$	2488.1	(19/2)$^-$		Mult.: A_2=−0.20 *17*; A_4=−0.16 *27* (1978Ge05).
886.6 *3*	40 *4*	1685.9	15/2$^+$	799.24	11/2$^+$	(E2)	Mult.: A_2=+0.29 *3*; A_4=−0.07 *4* (1978Ge05).
896.0 *3*	15.0 *15*	1728.1	(7/2,9/2,13/2$^+$)	832.06	9/2$^+$	(E2)	Mult.: A_2=+0.33 *7*; A_4=+0.05 *10* (1978Ge05).
901.5 *3*	7.0 *10*	2587.4	(19/2)$^+$	1685.9	15/2$^+$	(E2)	Mult.: A_2=+0.38 *10*; A_4=−0.29 *17* (1978Ge05).
915.0 *4*	0.9 *5*	2643.1		1728.1	(7/2,9/2,13/2$^+$)		
943.6 *4*	2.0 *4*	1139.7	(7/2$^+$)	195.98	(5/2$^+$)		
1115.1 *4*	1.7 *5*	1114.78	(9/2$^+$)	0.0	5/2$^+$		
1125.7 *4*	1.1 *10*	1385.40	(7/2$^+$,9/2$^+$)	260.00	(7/2)$^+$		
1139.8 *4*	2.5 *20*	1139.7	(7/2$^+$)	0.0	5/2$^+$		
1189.3 *3*	5.0 *10*	1385.40	(7/2$^+$,9/2$^+$)	195.98	(5/2$^+$)		
1385.3 *4*	3.0 *15*	1385.40	(7/2$^+$,9/2$^+$)	0.0	5/2$^+$		

† From 1978Ge05.
‡ From angular distribution measurements in 1978Ge05.
# Multiply placed with undivided intensity.
x γ ray not placed in level scheme.

^{102}Pd(α,nγ) 1978Ge05

Level Scheme

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



$^{105}_{48}Cd_{57}$