^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	G. Gürdal and F. G. Kondev	NDS 113, 1315 (2012)	1-Aug-2011

1990Ke02: Reaction:^{108}Pd(α,2nγ). E(α)=20-31 MeV. The experiments were performed at the Paul Scherrer Institute, using beams produced by the Philips variable energy cyclotron. A self-supporting metal foil, 10 mg/cm^2 thick, enriched to 98.9% in ^{108}Pd was used as a target. γ-ray singles spectra were observed with a Compton-suppression spectrometer which included a 127cm^3 Ge(Li) detector, positioned at 90° respect to the beam direction. Angular distribution measurements were performed at E(α)=27.1 MeV using 7 angles between 27° to 90°. $\gamma\gamma$-coincidence events were measured using 127 cm^3 and 75 cm^3 Ge(Li) detectors, placed 90° with respect to each other in a plane perpendicular to the beam direction. ≈2.5×10^7 $\gamma\gamma$-coincidence events were recorded. Measured: Eγ, Iγ, σ(Eα,Eγ,θ). Deduced: ^{110}Cd levels. J^π, mult.

1992Ku01: Reaction: ^{108}Pd(α,2nγ), E(α)=18 MeV. γ-rays were detected using 20% and 25% Ge detectors without anti-Compton shields. 18×10^6 $\gamma\gamma$-coincidence events were recorded. For angular distribution measurements, five angles between 90° and 155° were used. Measured: Eγ, Iγ, $\gamma(\theta)$, γ-ray excitation function (measured at E(α)=17 MeV to 20 MeV). Deduced: ^{110}Cd levels, J^π, mult.

Others: 1999Lo15 (Reaction:^{108}Pd(α,2nγ)), 1998Ko35 (Reaction:^{108}Pd(α,2nγ)), 1993Ke01 (Reaction:^{108}Pd(α,2nγ)), 1981Fi06 (Reaction:^{108}Pd(α,2nγ)), 1969HaZU (Reaction:^{108}Pd(α,2nγ)), and 1965La02 (Reaction:^{110}Pd(α,4nγ)).

^{110}Cd Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.0[&]	0$^+$		
657.758[&] *9*	2$^+$		
1473.05[a] *10*	0$^+$		
1475.796[&] *9*	2$^+$	0.74 ps *19*	
1542.443[&] *13*	4$^+$	0.82 ps *+22−13*	
1731.33 *22*	0$^+$		J^π: From Adopted Levels.
1783.539[a] *22*	2$^+$		
1809.66? *20*	(2$^+$)		
2078.57 *18*	0$^+$		J^π: From 1992Ku01.
2078.83[b] *3*	3$^-$	0.7 ps *+4−2*	
2162.816 *17*	3$^+$		
2220.040 *20*	4$^+$		
2250.60[a] *3*	4$^+$		
2287.5 *3*			
2332.1 *3*			
2355.8 *3*			
2433.29[c] *7*	(3)		
2479.944[&] *16*	6$^+$	0.40 ps *+15−9*	
2481.45 *4*	3		
2539.707[b] *14*	5$^-$	0.6 ps *+3−2*	
2561.339 *21*	4$^+$		
2659.886[e] *15*	5$^-$		
2705.69[c] *10*	4$^{(-)}$		
2707.41 *5*	4$^+$		
2793.44 *4*	(4$^+$)		
2842.683[d] *16*	(5$^-$)		
2876.84[a] *3*	6$^+$		
2879.199[e] *16*	7$^-$	0.60[@] ns *10*	
2895.963[e] *18*	6$^-$		
2926.779 *23*	5$^+$		
2984.48[c] *7*	(5$^-$)		

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^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01 (continued)

^{110}Cd Levels (continued)

E(level)[†]	Jπ[‡]	T1/2[#]	E(level)[†]	Jπ[‡]	T1/2[#]
3029.089[b] *18*	7⁻	0.30[@] ns *10*	3683.16[b] *5*	9⁻	
3055.717[e] *18*	8⁻	2.25[@] ns *10*	3782.15[c] *5*	(9⁻)	
3064.23 *3*	6⁺		3791.63[a] *5*	8⁺	
3074.985[d] *22*	(6⁻)		3823.261[e] *25*	10⁻	>2.1 ps
3121.61 *5*	6⁺		3992.81[d] *15*	(9⁻)	
3184.55[c] *4*	(6⁻)		4077.19[&] *3*	10⁺	0.8 ps *+4−2*
3187.14 *10*	(7)⁺		4172.09[f] *3*	12⁺	
3239.06 *7*	6⁺		4172.72[e] *3*	11⁻	1.7 ps *+14−7*
3275.462[&] *23*	8⁺	>0.83 ps	4181.99[c] *6*	10⁻	
3334.86[d] *3*	(7⁻)		4334.27[d] *7*	(10⁻)	
3345.822[e] *21*	9⁻		4421.63 *21*	(10⁺)	
3391.192[c] *21*	(7⁻)		4438.17 *11*	(8⁺)	
3427.308[c] *24*	8⁻		4559.13[b] *5*	11⁻	1.7 ps *+14−7*
3439.732 *18*	8⁺	>1.1 ps	4619.4 *5*	(8⁺)	
3492.65 *7*			4736.79[d] *21*	(11⁻)	
3525.13 *8*	6⁺		4888.29[&] *4*	12⁺	
3611.052[f] *24*	10⁺	0.45[@] ns *10*	5026.34[f] *8*	14⁺	
3641.12[d] *5*	(8⁻)				

† From least-squares fit to Eγ′s.
‡ From deduced γ-ray transition multipolarities using γ(θ) in 1990Ke02 and 1992Ku01, unless otherwise stated.
# From 1999Lo15 using using DSAM, unless otherwise stated.
@ From 1998Ko35, using a planar Ge(Li) detector and the centroid-shift technique.
& Band(A): g.s. band.
a Band(B): intruder band on Jπ=0⁺ level At 1473 keV.
b Band(C): ΔJ=2 octupole band on Jπ=3⁻ level At 2078 keV.
c Band(D): ΔJ=1 band-like structure on J=(3), 2433-keV level.
d Band(E): ΔJ=1 band-like structure on J=5- 2843-keV level.
e Band(F): ΔJ=1 band-like structure on J=5- 2659-keV level.
f Band(G): yrast-band on Jπ=10⁺ level At 3611 keV.

γ(^{110}Cd)

E_i(level)	J^π_i	Eγ[†]	Iγ[†]	E_f	J^π_f	Mult.[#]	δ[&]	Comments
657.758	2⁺	657.762 *10*	100.0 *3*	0.0	0⁺	E2[@]		Mult.: A_2=+0.23 *2*, A_4=−0.15 *3* (1992Ku01). Other: A_2=+0.29 *2*, A_4=−0.06 *3* (1990Ke02).
1473.05	0⁺	815.28 *10*	0.08 *3*	657.758	2⁺	E2[@]		Mult.: A_2=0.08 *12*, A_4=−0.08 *17* (1992Ku01). Other: A_2=+0.13 *10* (1990Ke02).
1475.796	2⁺	818.043 *10*	2.83 *3*	657.758	2⁺	M1+E2[@]	−1.5 *4*	Mult.: A_2=−0.23 *1*, A_4=−0.10 *1* (1992Ku01). Other: A_2=−0.17 *1* (1990Ke02).
		1475.777 *12*	1.57 *3*	0.0	0⁺	E2[@]		Mult.: A_2=0.18 *3*, A_4=−0.11 *4* (1992Ku01). Other: A_2=+0.18 *2* (1990Ke02).
1542.443	4⁺	884.676 *10*	88.4 *4*	657.758	2⁺	E2[@]		Mult.: A_2=0.28 *3*, A_4=−0.22 *3* (1992Ku01). Other: A_2=+0.32 *2*, A_4=−0.07 *3* (1990Ke02).
1731.33	0⁺	255.4[‡] *3*	0.10[‡] *2*	1475.796	2⁺	E2		Mult.: From adopted gammas.

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^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01 (continued)

γ(^{110}Cd) (continued)

E_i(level)	J^π_i	E_γ [†]	I_γ [†]	E_f	J^π_f	Mult. [#]	δ [&]	Comments
1731.33	0$^+$	1073.7[‡] *3*	0.67[‡] *11*	657.758	2$^+$	E2[@]		Mult.: A_2=0.01 *6*, A_4=−0.07 *9* (1992Ku01).
1783.539	2$^+$	1125.795 *20*	1.13 *2*	657.758	2$^+$	M1+E2[@]		Mult.: A_2=0.21 *2*, A_4=−0.10 *2* (1992Ku01). Other: A_2=+0.20 *2* (1990Ke02).
		1783.6[‡] *3*	0.97[‡] *15*	0.0	0$^+$	E2[@]		Mult.: A_2=0.18 *2*, A_4=−0.01 *2* (1992Ku01).
1809.66?	(2$^+$)	1151.9[b] *2*	0.13 *1*	657.758	2$^+$	M1+E2		E_γ: 1992Ku01 suggests that this γ ray belongs to ^{111}Cd. Mult.: A_2=+0.00 *10*.
2078.57	0$^+$	295.3[‡] *3*	0.3[‡] *5*	1783.539	2$^+$	E2[@]		E_γ: An unresolved doublet at 295.42 keV depopulating 2078.8 keV level, observed by 1990Ke02. 295.3 keV reported by 1992Ku01. Mult.: A_2=−0.06 *4*, A_4=−0.18 *5* (1992Ku01). Other: A_2=0.04 *5* (1990Ke02).
		605.4 *3*		1473.05	0$^+$	E0		E_γ: From 1992Ku01. Mult.: From adopted gammas.
		2078.4 *3*		0.0	0$^+$	E0		E_γ: From 1992Ku01. Mult.: From adopted gammas.
2078.83	3$^-$	295.42 *18*	0.086 *5*	1783.539	2$^+$	E1		E_γ: Unresolved doublet at 295.42 keV observed by 1990Ke02. 295.3 keV reported (depopulating 2078.57 keV J^π=0$^+$ state). I_γ: Undivided intensity for unresolved doublet in 1990Ke02. Mult.: From decay pattern and from A_2=0.04 *5* (1990Ke02).
		603.03 *4*	0.35 *2*	1475.796	2$^+$	E1(+M2)[@]	−0.14 *22*	E_γ: 602.9 keV *3* in 1992Ku01. Mult.: A_2=−0.3 *2*, A_4=−0.3 *3* (1992Ku01). Other: A_2=−0.20 *7* (1990Ke02). δ: From 1990Ke02.
		1421.06 *4*	2.28 *5*	657.758	2$^+$	E1(+M2)[@]	+0.01 *8*	E_γ: 1421.2 keV *3* in 1992Ku01. Mult.: A_2=−0.28 *3*, A_4=−0.04 *5* (1992Ku01). Other: A_2=−0.13 *2* (1990Ke02). δ: From 1990Ke02.
2162.816	3$^+$	620.30 *15*	0.35 *2*	1542.443	4$^+$	M1+E2	−0.50 *5*	E_γ: not observed by 1992Ku01. Mult.: A_2=−0.02.
		687.01 *3*	0.64 *2*	1475.796	2$^+$	M1+E2[@]	−1.69 *+2−4*	Mult.: A_2=−0.70 *5*, A_4=−0.01 *2* (1992Ku01). Other: A_2=−0.48 *4* (1990Ke02).
		1505.043 *18*	1.36 *5*	657.758	2$^+$	M1+E2[@]	−1.27 *3*	Mult.: A_2=−0.55 *4*, A_4=−0.03 *7* (1992Ku01). Other: A_2=−0.45 *2*, A_4=+0.04 *2* (1990Ke02).
2220.040	4$^+$	677.59 *3*	2.33 *3*	1542.443	4$^+$	M1+E2[@]	−0.40 *7*	Mult.: A_2=0.05 *1*, A_4=−0.13 *2* (1992Ku01). Other: A_2=+0.05 *1* (1990Ke02).
		744.277 *25*	1.02 *3*	1475.796	2$^+$	E2[@]		Mult.: A_2=0.28 *1*, A_4=−0.27 *1* (1992Ku01). Other: A_2=+0.26 *2* (1990Ke02).
		1562.26 *17*	0.21 *2*	657.758	2$^+$	E2		Mult.: A_2=0.22 *6*, A_4=−0.19 *8*

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^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01 (continued)

γ(^{110}Cd) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[&]	Comments
								(1992Ku01). Other: A_2=+0.45 *7*, A_4=−0.24 *11* (1990Ke02).
2250.60	4^+	467.5 *1*	2.5	1783.539	2^+	E2[@]		E_γ: Least-squares fit gives 467.06 keV *4*. Mult.: A_2=0.28 *4*, A_4=−0.29 *5* (1992Ku01).
		708.08 *5*	2.77 *20*	1542.443	4^+	M1+E2	−0.7 *3*	Mult.: A_2=0.45 *3*, A_4=−0.14 *4* (1992Ku01). Other: A_2=−0.02 *11* (1990Ke02).
		774.5 *4*	0.07 *3*	1475.796	2^+	E2		Mult.: A_2=+0.24 *15*.
		1592.85 *10*	0.23 *15*	657.758	2^+	E2		Mult.: A_2=0.22 *3*, A_4=−0.16 *4* (1992Ku01). Other: A_2=+0.42 *6*, A_4=−0.20 *10* (1990Ke02).
2287.5		1629.7 *3*		657.758	2^+			E_γ: From 1992Ku01. Mult.: A_2=0.01 *5*, A_4=−0.01 *8* (1992Ku01).
2332.1		1674.3 *3*		657.758	2^+			E_γ: From 1992Ku01. Mult.: A_2=0.14 *10*, A_4=−0.18 *1* (1992Ku01).
2355.8		1698.0 *3*		657.758	2^+	M1+E2[@]		E_γ: From 1992Ku01. Mult.: A_2=−0.02 *1*, A_4=−0.12 *2* (1992Ku01).
2433.29	(3)	957.48 *13*	0.32 *2*	1475.796	2^+	D+Q	−0.9 *7*	Mult.: A_2=−0.36 *6*. D+Q assumed by the evaluators, no mult given by 1990Ke02.
2479.944	6^+	937.499 *13*	51.42 *3*	1542.443	4^+	E2		Mult.: A_2=+0.34 *2*, A_4=−0.08 *3*.
2481.45	3	1005.65 *4*	0.35 *2*	1475.796	2^+	D(+Q)		Mult.: A_2=+0.07 *3*.
2539.707	5^-	460.85[a] *8*	0.73[a] *2*	2078.83	3^-	E2		Mult.: A_2=+0.31 *6*, A_4=−0.14 *9*.
		997.256 *8*	18.24 *15*	1542.443	4^+	E1(+M2)	−0.03 *5*	Mult.: A_2=−0.23 *1*. δ: From 1990Ke02.
2561.339	4^+	1018.99[a] *6*	0.25[a] *1*	1542.443	4^+	M1+E2	−0.56 *35*	Mult.: A_2=+0.01 *6*.
		1085.526 *20*	0.66 *2*	1475.796	2^+	E2		Mult.: A_2=+0.25 *2*, A_4=0.00 *3*.
2659.886	5^-	120.154 *25*	0.93 *5*	2539.707	5^-	M1(+E2)	−0.13 *33*	Mult.: A_2=0.26 *13*.
		409.36[a] *8*	0.29[a] *1*	2250.60	4^+	E1(+M2)	−0.029 *23*	Mult.: A_2=−0.25 *2*.
		1117.437 *10*	2.79 *3*	1542.443	4^+	E1		Mult.: A_2=−0.18 *2*. δ: +0.021 *44* (1990Ke02).
2705.69	$4^{(-)}$	1163.24 *10*	0.62 *3*	1542.443	4^+	D		Mult.: A_2=+0.19 *5*. δ: +0.0 *3* (1990Ke02).
2707.41	4^+	544.58 *6*	0.39 *2*	2162.816	3^+	M1+E2	+0.21 *11*	Mult.: A_2=+0.02 *5*.
		1164.99 *7*	0.63 *3*	1542.443	4^+	M1(+E2)	+0.0 *3*	Mult.: A_2=+0.17 *5*.
2793.44	(4^+)	360.7[a] *4*	0.056[a] *8*	2433.29	(3)			A_2=−0.02 *9*.
		573.36 *9*	0.12 *1*	2220.040	4^+	D+Q	−0.3 *3*	Mult.: A_2=+0.10 *14*.
		630.60 *5*	0.41 *2*	2162.816	3^+	D(+Q)	+0.02 *7*	Mult.: A_2=−0.11 *4*.
		1251.03[a] *6*	0.69[a] *2*	1542.443	4^+			Mult.: A_2=+0.06 *3*, mult=E2 by 1990Ke02.
2842.683	(5^-)	182.83 *6*	0.050 *5*	2659.886	5^-	M1+E2		Mult.: A_2=+0.79 *11*.
		409.36[a] *8*	0.29[a] *1*	2433.29	(3)			
		1300.233 *10*	1.43 *3*	1542.443	4^+	E1+M2	+0.0 *1*	Mult.: A_2=−0.21 *2*.
2876.84	6^+	397.18[b] *15*	0.33 *2*	2479.944	6^+	D		Mult.: A_2=+0.29 *6*, mult=M1+E2 quoted by 1990Ke02, based on the literature.
		626.23 *3*	1.97 *5*	2250.60	4^+	E2		Mult.: A_2=+0.35 *2*, A_4=−0.04 *3*.
		1334.49 *10*	1.08 *3*	1542.443	4^+	E2		Mult.: A_2=+0.33 *4*.
2879.199	7^-	219.31 *2*	0.35 *1*	2659.886	5^-	E2		Mult.: A_2=+0.37 *3*, A_4=−0.09 *4*.
		339.498 *15*	5.79 *5*	2539.707	5^-	E2		Mult.: A_2=+0.34 *2*, A_4=−0.08 *2*.
		399.254 *15*	18.0 *1*	2479.944	6^+	E1(+M2)	−0.01 *3*	Mult.: A_2=−0.25 *1*.
2895.963	6^-	236.04 *4*	1.05 *3*	2659.886	5^-	M1+E2	−0.09 *4*	Mult.: A_2=−0.36 *1*.

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^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01 (continued)

γ(^{110}Cd) (continued)

E$_i$(level)	J$^\pi_i$	E$_\gamma$[†]	I$_\gamma$[†]	E$_f$	J$^\pi_f$	Mult.[#]	δ[&]	Comments
2895.963	6$^-$	356.255 *15*	4.54 *3*	2539.707	5$^-$	M1+E2	−0.09 *4*	Mult.: A$_2$=−0.35 *1*.
		415.9 *1*	0.39 *1*	2479.944	6$^+$	E1(+M2)	−0.15 *18*	Mult.: A$_2$=0.26 *4*.
2926.779	5$^+$	446.72 *10*	0.13 *1*	2479.944	6$^+$	M1+E2		Mult.: A$_2$=−0.10 *12*, mult. suggested by 1990Ke02.
		707.19[a] *9*	4.05[a] *20*	2220.040	4$^+$	M1+E2		E$_\gamma$: Least-squares fit gives 706.74 *3*. A$_2$=+0.54 *7*, mult. suggested by 1990Ke02.
		763.90 *9*	0.56 *2*	2162.816	3$^+$	E2		Mult.: A$_2$=+0.31 *1*, A$_4$=−0.13 *1*.
		1384.312 *20*	0.38 *2*	1542.443	4$^+$	M1+E2	−0.6 *+3−7*	Mult.: A$_2$=−0.74 *2*.
2984.48	(5$^-$)	1442.03 *6*	0.69 *3*	1542.443	4$^+$	D		Mult.: A$_2$=−0.17 *4*. δ: −0.01 *9* (1990Ke02).
3029.089	7$^-$	149.88 *30*	0.48 *3*	2879.199	7$^-$	M1(+E2)	−0.08 *22*	Mult.: A$_2$=0.33 *5*.
		369.20 *10*	0.44 *5*	2659.886	5$^-$	E2		Mult.: A$_2$=+0.60 *9*, A$_4$=−0.35 *10*.
		489.382 *15*	2.29 *2*	2539.707	5$^-$	E2		Mult.: A$_2$=+0.34 *2*, A$_4$=−0.08 *3*.
		549.141 *17*	3.05 *6*	2479.944	6$^+$	E1(+M2)	−0.04 *6*	Mult.: A$_2$=−0.27 *3*. δ: From 1990Ke02.
3055.717	8$^-$	159.746 *15*	2.39 *4*	2895.963	6$^-$	E2		Mult.: A$_2$=+0.34 *2*, A$_4$=−0.08 *3*.
		176.517 *12*	5.66 *6*	2879.199	7$^-$	M1+E2	−1.03 *54*	Mult.: A$_2$=−0.96 *1*, A$_4$=+0.17 *2*.
3064.23	6$^+$	584.276 *25*	0.96 *3*	2479.944	6$^+$	M1(+E2)		Mult.: A$_2$=+0.29 *2*, A$_4$=+0.19 *4*.
		844.21 *5*	0.48 *3*	2220.040	4$^+$	E2		Mult.: A$_2$=+0.26 *5*.
		1521.7[b]		1542.443	4$^+$			
3074.985	(6$^-$)	232.30 *4*	0.35 *1*	2842.683	(5$^-$)	M1(+E2)	−0.044 *50*	Mult.: A$_2$=−0.28 *2*.
		535.269 *18*	0.86 *2*	2539.707	5$^-$	M1+E2	+1.4 *7*	Mult.: A$_2$=+0.63 *2*, A$_4$=+0.14 *4*.
		595.49 *14*	0.26 *1*	2479.944	6$^+$			E$_\gamma$: Least-squares fit gives 595.039 19. Mult.: E1 from 1990Ke02, based on literature.
3121.61	6$^+$	581.87 *7*	0.25 *1*	2539.707	5$^-$	E1(+M2)	−0.01 *10*	Mult.: A$_2$=−0.19 *7*. δ: From 1990Ke02.
		641.68 *5*	0.63 *2*	2479.944	6$^+$	M1+E2		Mult.: A$_2$=+0.39 *5*, A$_4$=+0.11 *8*.
		901.5[b]		2220.040	4$^+$			
		1579.1[b]		1542.443	4$^+$			
3184.55	(6$^-$)	342.02 *9*	0.34 *1*	2842.683	(5$^-$)	M1+E2	+0.23 *5*	Mult.: A$_2$=+0.08 *3*.
		644.82 *3*	0.80 *3*	2539.707	5$^-$	M1+E2	+0.26 *7*	Mult.: A$_2$=+0.11 *6*.
3187.14	(7)$^+$	707.19[a] *9*	4.05[a] *20*	2479.944	6$^+$	M1+E2		A$_2$=+0.54 *7*; mult. suggested by 1990Ke02.
3239.06	6$^+$	360.7[a] *4*	0.056[a] *8*	2879.199	7$^-$	E1		A$_2$=−0.02 *9*, mult. suggested by 1990Ke02.
		397.18[b] *15*	0.33 *2*	2842.683	(5$^-$)	E1		Mult.: A$_2$=+0.29 *6*, mult. suggested by 1990Ke02.
		760.0 *6*	0.64 *2*	2479.944	6$^+$	M1+E2	+0.29 *10*	Mult.: A$_2$=+0.36 *4*.
		1018.99[a] *6*	0.25[a] *1*	2220.040	4$^+$	[E2]		
3275.462	8$^+$	795.54 *10*	15.27 *10*	2479.944	6$^+$	E2		Mult.: A$_2$=+0.36 *1*, A$_4$=−0.10 *2*.
3334.86	(7$^-$)	279.142 *25*	0.50 *1*	3055.717	8$^-$	M1(+E2)	+0.045 *40*	Mult.: A$_2$=−0.205 *15*.
		456.0 *2*	0.61 *4*	2879.199	7$^-$	M1+E2	−0.28 *19*	Mult.: A$_2$=+0.25 *13*.
3345.822	9$^-$	290.09 *3*	0.90 *2*	3055.717	8$^-$	M1+E2	+0.54 *19*	Mult.: A$_2$=+0.43 *3*, A$_4$=+0.19 *3*.
		466.624 *20*	8.67 *10*	2879.199	7$^-$	E2		Mult.: A$_2$=+0.36 *2*, A$_4$=−0.10 *2*.
3391.192	(7$^-$)	316.25[b] *25*	0.056 *6*	3074.985	(6$^-$)	M1+E2		Mult.: A$_2$=+0.30 *11*; mult. suggested by 1990Ke02.
		495.227 *10*	0.46 *1*	2895.963	6$^-$	M1+E2	+0.16 *2*	Mult.: A$_2$=+0.01 *3*.
		512.3 *7*		2879.199	7$^-$			M1+E2 suggested by 1990Ke02.
		912.2 *4*	0.25 *3*	2479.944	6$^+$	(E1)		Mult.: A$_2$=−0.19 *19*.
3427.308	8$^-$	371.65 *10*	0.37 *2*	3055.717	8$^-$	M1+E2	−0.25 *15*	Mult.: A$_2$=+0.28 *5*.
		548.106 *18*	2.22 *6*	2879.199	7$^-$	M1+E2	−0.14 *4*	Mult.: A$_2$=−0.48 *2*.
3439.732	8$^+$	164.26 *2*	0.33 *1*	3275.462	8$^+$	M1(+E2)	+0.22 *27*	Mult.: A$_2$=0.42 *4*.
		562.907 *25*	0.88 *2*	2876.84	6$^+$	E2		Mult.: A$_2$=+0.46 *3*, A$_4$=−0.08 *5*.

Continued on next page (footnotes at end of table)

^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01 (continued)

γ(^{110}Cd) (continued)

E_i(level)	J^π_i	E_γ[†]	I_γ[†]	E_f	J^π_f	Mult.[#]	δ[&]	Comments
3439.732	8+	959.785 *10*	2.87 *4*	2479.944	6+	E2		Mult.: A_2=+0.36 *3*, A_4=−0.12 *5*.
3492.65		566.02[ab] *12*	0.25[a] *1*	2926.779	5+			
		952.9 *4*	0.57 *3*	2539.707	5−			A_2=+0.42 *8*.
		1012.70 *6*	0.24 *3*	2479.944	6+			A_2=−0.63 *13*.
3525.13	6+	460.85[a] *8*	0.73[a] *2*	3064.23	6+	E2		Mult.: A_2=+0.31 *6*, A_4=−0.14 *9*.
		1045.64 *25*	0.1 *1*	2479.944	6+	M1(+E2)	+0.3 *3*	Mult.: A_2=+0.38 *8*.
3611.052	10+	171.33[b] *2*	1.42 *2*	3439.732	8+	E2		Mult.: A_2=+0.22 *2*, A_4=−0.08 *3*.
		265.218 *20*	0.43 *1*	3345.822	9−	E1(+M2)	−0.014 *16*	Mult.: A_2=−0.27 *2*.
		335.596 *15*	9.39 *9*	3275.462	8+	E2		Mult.: A_2=+0.35 *2*, A_4=−0.10 *3*.
3641.12	(8−)	566.02[ab] *12*	0.25[a] *1*	3074.985	(6−)	(E2)		Mult.: A_2=+0.46 *6*, A_4=−0.13 *8*.
		611.80 *15*	0.14 *4*	3029.089	7−			Mult.: M1+E2 in 1990Ke02. No δ given.
		761.93 *4*	0.58 *2*	2879.199	7−	M1+E2	+0.057 *24*	Mult.: A_2=−0.14 *3*.
3683.16	9−	255.74[b] *15*	0.095 *5*	3427.308	8−	M1+E2	−0.12 *11*	Mult.: A_2=−0.42 *1*.
		337.40 *7*	0.31 *1*	3345.822	9−	M1+E2		Mult.: A_2=+0.67 *9*; mult. suggested by 1990Ke02.
		627.59 *12*	1.31 *4*	3055.717	8−	M1+E2	−0.21 *7*	Mult.: A_2=−0.57 *4*.
		654.00 *10*	1.99 *3*	3029.089	7−	E2		Mult.: A_2=+0.37 *3*, A_4=−0.06 *6*.
3782.15	(9−)	726.43 *4*	1.35 *3*	3055.717	8−	M1+E2	+0.15 *2*	Mult.: A_2=−0.00 *2*.
		902.90 *15*	0.93 *2*	2879.199	7−	E2		Mult.: A_2=+0.36 *2*, A_4=−0.18 *3*.
3791.63	8+	351.93 *7*	0.16 *1*	3439.732	8+	M1(+E2)	−0.15 *24*	Mult.: A_2=+0.30 *5*.
		914.50 *15*	0.64 *3*	2876.84	6+	E2		Mult.: A_2=+0.42 *11*.
		1311.70 *6*	0.50 *2*	2479.944	6+	E2		Mult.: A_2=+0.30 *4*.
3823.261	10−	477.45 *4*	0.65 *2*	3345.822	9−	M1+E2	−0.24 *8*	Mult.: A_2=−0.61 *4*, A_4=+0.13 *6*.
		767.532 *20*	3.25 *4*	3055.717	8−	E2		Mult.: A_2=−0.36 *3*, A_4=−0.13 *4*.
3992.81	(9−)	1113.60 *15*	0.62 *3*	2879.199	7−	(E2)		Mult.: A_2=+0.53 *10*.
4077.19	10+	801.724 *15*	3.17 *3*	3275.462	8+	E2		Mult.: A_2=+0.37 *2*, A_4=−0.08 *2*.
4172.09	12+	561.034 *10*	6.22 *2*	3611.052	10+	E2		Mult.: A_2=+0.36 *2*, A_4=−0.09 *3*.
4172.72	11−	826.893 *18*	2.77 *3*	3345.822	9−	E2		Mult.: A_2=+0.37 *1*, A_4=−0.13 *2*.
4181.99	10−	754.69 *6*	1.08 *3*	3427.308	8−	E2		Mult.: A_2=+0.39 *1*, A_4=−0.13 *2*.
		836.13 *10*	0.50 *2*	3345.822	9−	M1+E2	−0.27 *8*	Mult.: A_2=−0.66 *4*.
4334.27	(10−)	988.44 *6*	0.72 *2*	3345.822	9−	M1+E2	0.57 *12*	Mult.: A_2=+0.51 *2*, A_4=+0.15 *3*.
4421.63	(10+)	1075.8 *2*	0.61 *2*	3345.822	9−	D		Mult.: A_2=+0.35 *6*.
4438.17	(8+)	1251.03[a] *6*	0.69[a] *2*	3187.14	(7)+			Mult.: A_2=+0.06 *3*, mult=M1+E2 in 1990Ke02.
4559.13	11−	735.83 *5*	0.25 *2*	3823.261	10−	M1+E2	−0.07 *5*	Mult.: A_2=−0.37 *5*.
		876.00 *5*	1.44 *3*	3683.16	9−	E2		Mult.: A_2=+0.32 *3*, A_4=−0.10 *4*.
4619.4	(8+)	1432.3 *4*	0.31 *4*	3187.14	(7)+	M1+E2		Mult.: A_2=+0.7 *3*; mult. suggested by 1990Ke02.
4736.79	(11−)	954.64 *20*	0.75 *3*	3782.15	(9−)	E2		Mult.: A_2=+0.35 *5*, A_4=−0.11 *7*.
4888.29	12+	811.093 *20*	1.19 *2*	4077.19	10+	E2		Mult.: A_2=+0.35 *2*, A_4=−0.10 *3*.
5026.34	14+	854.25 *7*	1.75 *3*	4172.09	12+	E2		Mult.: A_2=+0.32 *2*, A_4=−0.14 *3*.

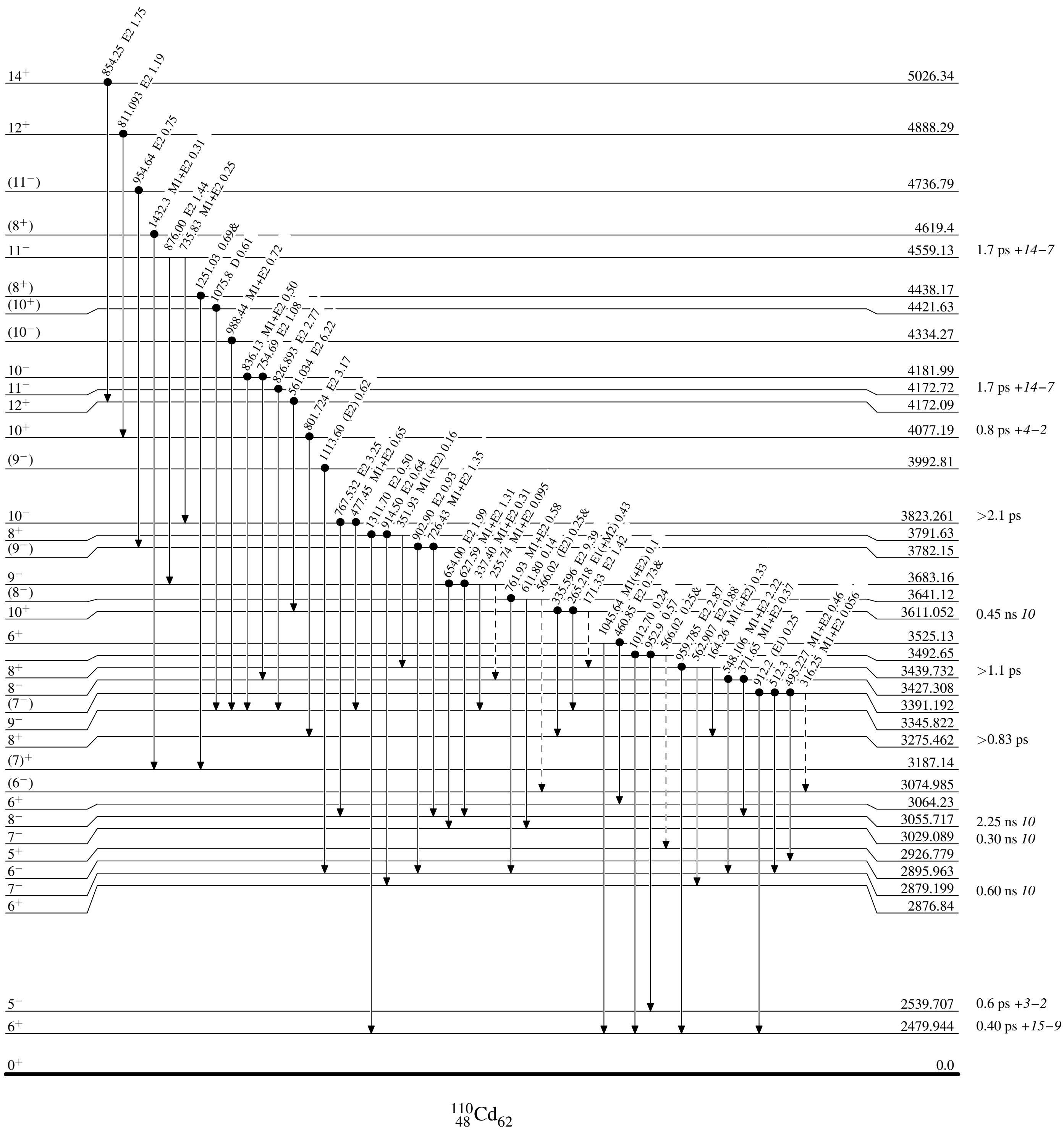
[†] From 1990Ke02, unless otherwise stated.
[‡] From 1992Ku01.
[#] From γ(θ) in 1990Ke02, unless otherwise stated. A_2 and A_4 coefficients are from 1990Ke02, unless otherwise stated.
[@] From γ(θ) in 1992Ku01.
[&] From adopted gammas.
[a] Multiply placed with undivided intensity.
[b] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01

Level Scheme

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend
- - - - -▶ γ Decay (Uncertain)
● Coincidence

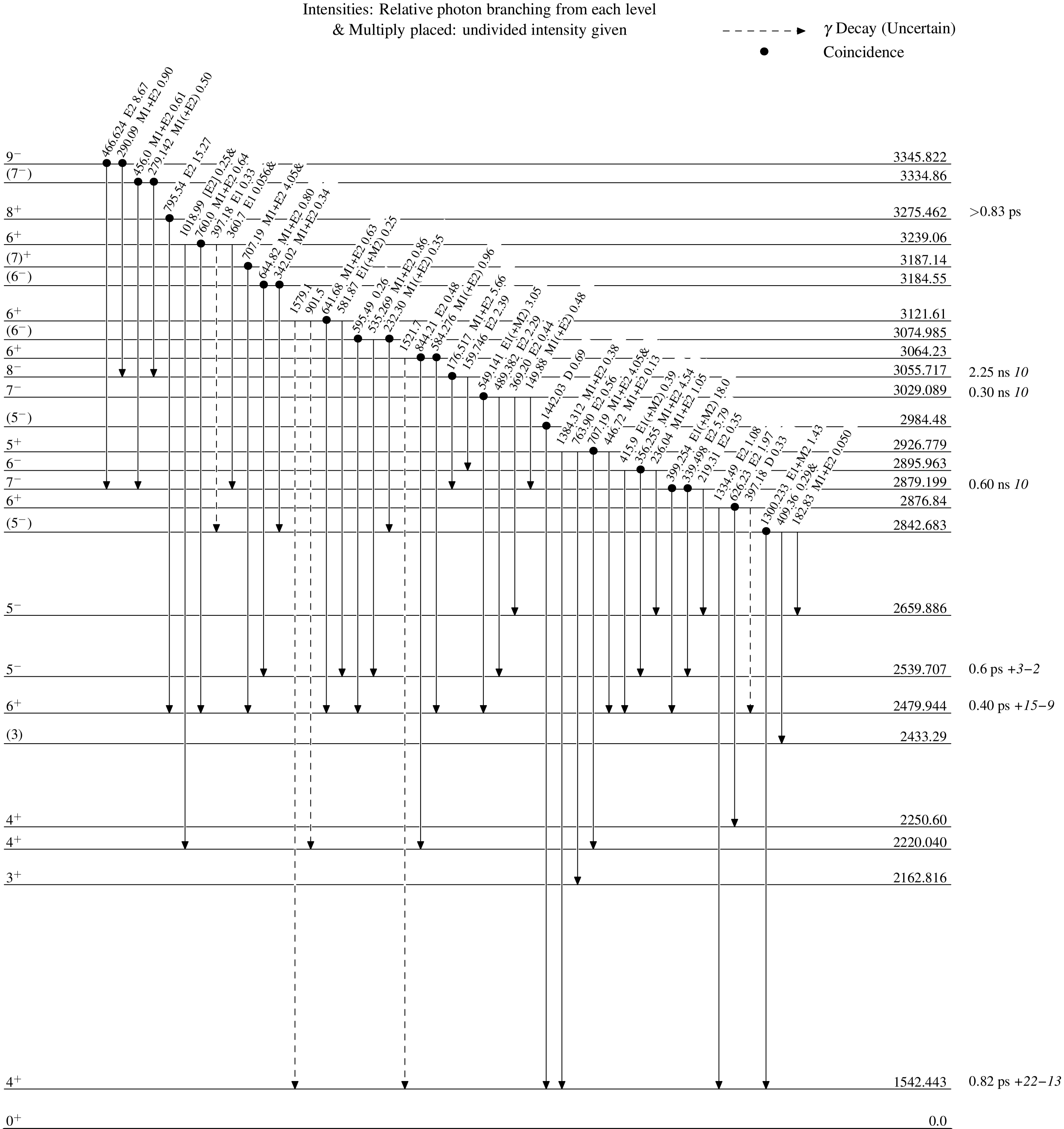


^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given



$^{110}_{48}Cd_{62}$

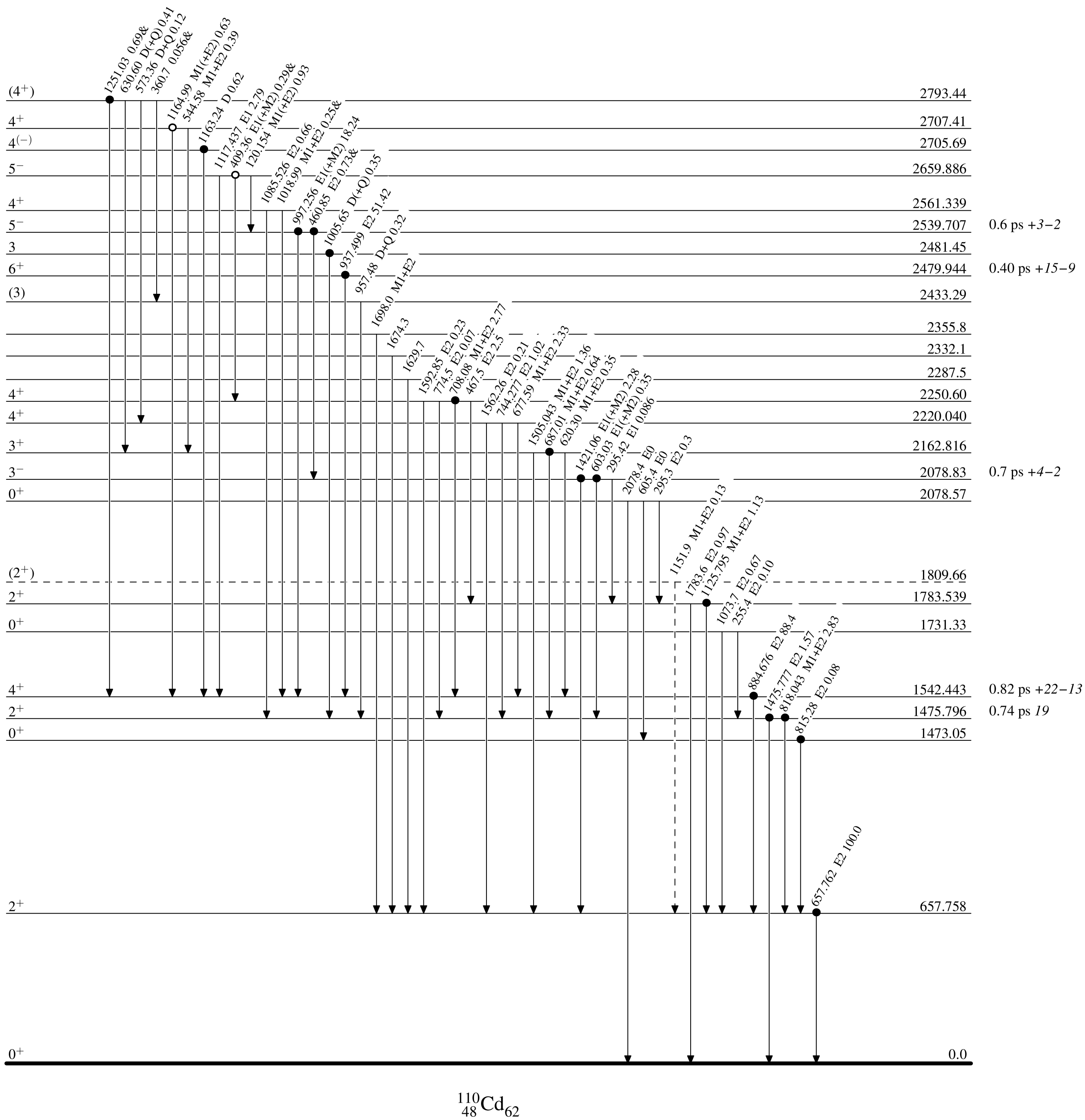
^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01

Level Scheme (continued)

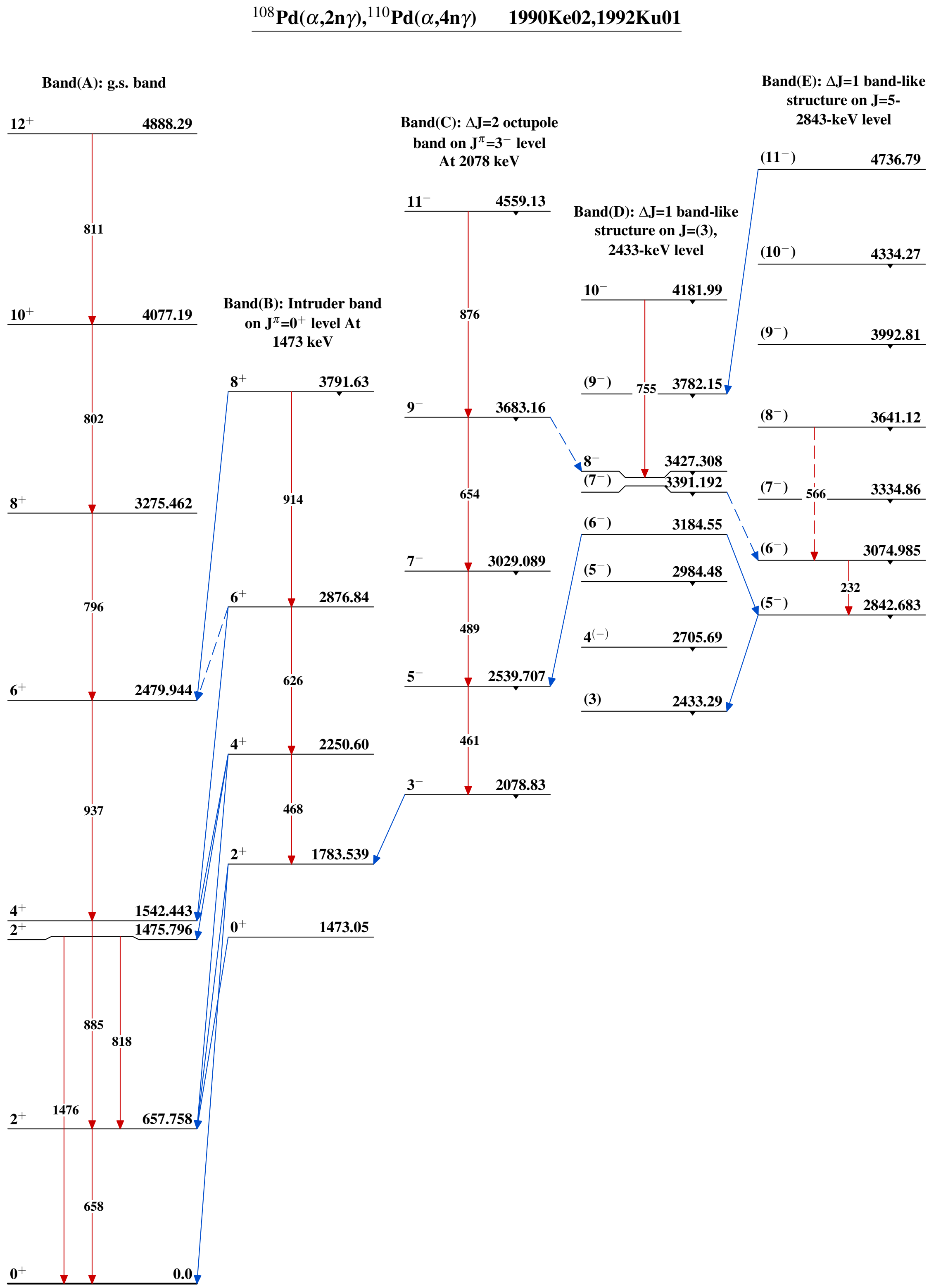
Intensities: Relative photon branching from each level
& Multiply placed: undivided intensity given

Legend

- - - - ▸ γ Decay (Uncertain)
● Coincidence
○ Coincidence (Uncertain)

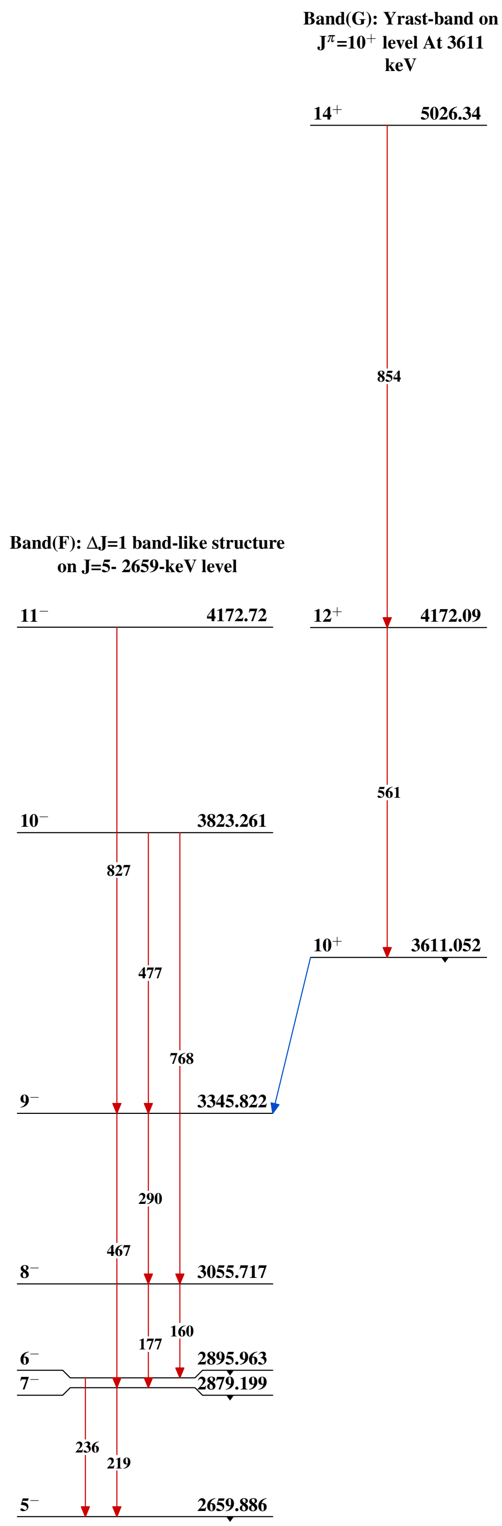


$^{110}_{48}Cd_{62}$


^{108}Pd(α,2nγ),^{110}Pd(α,4nγ) 1990Ke02,1992Ku01
Band(A): g.s. band
Band(B): Intruder band on J$^{\pi}$=0^{+} level At 1473 keV
Band(C): ΔJ=2 octupole band on J$^{\pi}$=3^{-} level At 2078 keV
Band(D): ΔJ=1 band-like structure on J=(3), 2433-keV level
Band(E): ΔJ=1 band-like structure on J=5- 2843-keV level
12+ 4888.29
10+ 4077.19
8+ 3275.462
6+ 2479.944
4+ 1542.443
2+ 1475.796
2+ 657.758
0+ 0.0
811
802
796
937
885
818
1476
658
8+ 3791.63
6+ 2876.84
4+ 2250.60
2+ 1783.539
0+ 1473.05
914
626
468
11− 4559.13
9− 3683.16
7− 3029.089
5− 2539.707
3− 2078.83
876
654
489
461
10− 4181.99
(9−) 3782.15
8− 3427.308
(7−) 3391.192
(6−) 3184.55
(5−) 2984.48
4(−) 2705.69
(3) 2433.29
755
(11−) 4736.79
(10−) 4334.27
(9−) 3992.81
(8−) 3641.12
(7−) 3334.86
(6−) 3074.985
(5−) 2842.683
566
232

$^{110}_{48}Cd_{62}$

$^{108}Pd(\alpha,2n\gamma),^{110}Pd(\alpha,4n\gamma)$ 1990Ke02,1992Ku01 (continued)



$^{110}_{48}Cd_{62}$