^{110}Cd(p,nγ) 1987Kr15

History

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

E(p)=5.2, 5.6, 6 MeV. Target: 1-3 mg/cm^2 thick, 95.6% enriched in ^{110}Cd. The beams were provided by the Jyvaskyla 90 cm and the Debrecen 103 cm isochronous cyclotron. The γ-ray energies and intensities were measured at 90° and 125° with respect to the beam direction using a 15.5% Ge(Li) detector in Jyvaskyla. Low energy γ-rays were detected with a 7 mm LEPS detector. γγ coinc. were measured at 6 MeV proton energy with one LEPS, one 15.5% Ge(Li) and one 24.5% Ge(HP) detector placed at ≈55°, ≈125° and ≈235° respect to the beam direction. ≈25 million γγ coinc events were recorded. For conversion electron measurements a combined intermediate-image plus Si(Li) spectrometer was used. The γ-ray angular distributions were measured at 5.2, 5.6, 6 MeV proton energies using a 50 cm^3 Ge(Li) detector in Debrecen. The γ-rays were detected at different angles with respect to the beam direction from 90° to 145° in 5° steps.

Measured: Eγ, Iγ, γγ coin, I(ce), σ(E,Eγ,θ). Deduced: ^{110}In levels, J, π, γ branching, mult., δ.

Other: 1989Kr12.

^{110}In Levels

E(level)†	Jπ‡	$T_{1/2}$	Comments
62.08 *4*	2+	69.1 min *5*	Additional information 1. E(level),$T_{1/2}$: From Adopted Levels.
202.391 *20*	3+		
321.19 *3*	4+		
334.090 *19*	2+		
342.567 *21*	1+		
346.32 *3*	4+		
366.53 *4*	(5+)		
437.13 *4*	(5+)		
541.243 *19*	3+		
756.52# *7*	4+		
756.564# *20*	2−		
793.03 *3*	4+		
887.37 *8*	(5)		
958.46 *3*	3+		
970.89 *5*	(4)		
989.853 *22*	2−		
1023.39 *5*	3−		
1049.88 *4*	2+		
1062.73 *5*	(4,5)		
1119.82 *4*	(0)−		
1134.09 *5*	(3,4)−		
1176.23 *5*	(2,3,4)		
1190.96 *3*	(1,2,3)−		
1216.89 *9*	2+,3+,4+		
1239.96 *5*	1−,2−,3−		
1254.92 *6*	0−,1−,2−		
1303.35 *16*			

† From least-squares fit to Eγ′s.

‡ From the deduced γ-ray transition multipolarities and comparison of σ_{exp}(p,n) with Hauser-Feshbach theoretical results.

Following on results from (α,nγ), the level at 756.55 keV is doublet. Corrected by the evaluators.

$^{110}_{49}In_{61}$-2

γ(^{110}In)

E_γ[‡]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[&]	α[†]	Comments
45.34 *3*	7.6 *20*	366.53	(5$^+$)	321.19	4$^+$				
^{x}56.40 *3*	4.0 *10*								
90.83 *5*	9.8 *20*	437.13	(5$^+$)	346.32	4$^+$	D(+Q)	−0.13 *13*		Mult.: A_2=−0.40 *17*, A_4=−0.009 *18*.
115.93 *3*	11.5 *17*	437.13	(5$^+$)	321.19	4$^+$	D(+Q)	−0.03 *13*		Mult.: A_2=−0.31 *11*, A_4=−0.08 *15*.
118.81 *3*	165 *7*	321.19	4$^+$	202.391	3$^+$	M1(+E2)	−0.05 *3*	0.316	α(K)=0.273 *4*; α(L)=0.0346 *7*; α(M)=0.00673 *14*; α(N+..)=0.00132 *3* α(N)=0.001231 *24*; α(O)=9.05×10^{-5} *14* Mult.: From A_2=−0.23 *4*, A_4=0.03 *5* at 5.6 MeV and α(K)exp=0.31 *6*. Other: A_2=−0.21 *3*, A_4=−0.01 *3* at Ep=6 MeV. δ: From Ep=5.6 MeV.
131.63 *8*	2.5 *2*	334.090	2$^+$	202.391	3$^+$				
140.30 *3*	665 *27*	202.391	3$^+$	62.08	2$^+$	M1(+E2)	−0.04 *6*	0.199 *4*	α(K)=0.172 *3*; α(L)=0.0216 *6*; α(M)=0.00421 *12*; α(N+..)=0.000827 *21* α(N)=0.000770 *20*; α(O)=5.68×10^{-5} *10* Mult.: From α(K)exp=0.18 *4* and A_2=−0.192 *19*, A_4=0.069 *23* at Ep=5.6 MeV. Others: A_2=−0.22 *5* at Ep=5.2 MeV, A_2=−0.170 *13*, A_4=0.003 *16* at Ep=6 MeV. δ: From E(p)=5.6 MeV.
143.93 *3*	144 *6*	346.32	4$^+$	202.391	3$^+$	M1(+E2)	−0.07 *5*	0.186 *4*	α(K)=0.161 *3*; α(L)=0.0203 *6*; α(M)=0.00395 *11*; α(N+..)=0.000776 *20* α(N)=0.000723 *20*; α(O)=5.32×10^{-5} *10* Mult.: From α(K)exp=0.19 *5* and A_2=−0.31 *4*, A_4=−0.05 *5* at Ep=5.6 MeV. Other: A_2=−0.207 *30*, A_4=0.004 *34* at Ep=6 MeV. δ: From Ep=5.6 MeV.
^{x}149.82 *4*	9.0 *5*					M1		0.1655	α(K)=0.1434 *20*; α(L)=0.0180 *3*; α(M)=0.00349 *5*; α(N+..)=0.000686 *10* α(N)=0.000639 *9*; α(O)=4.73×10^{-5} *7* Mult.: From α(K)exp=0.14 *8*.
165.49 *10*	1.4 *4*	958.46	3$^+$	793.03	4$^+$				
194.92 *10*	2.0 *5*	541.243	3$^+$	346.32	4$^+$				
^{x}198.77 *5*	6.5 *4*					M1(+E2)		0.11 *3*	α(K)=0.090 *23*; α(L)=0.014 *6*; α(M)=0.0028 *12*; α(N+..)=0.00052 *21* α(N)=0.00049 *20*; α(O)=2.9×10^{-5} *8* Mult.: From α(K)exp=0.07 *4*.
201.10 *4*	6.7 *5*	1190.96	(1,2,3)$^-$	989.853	2$^-$				
207.16 *3*	91 *6*	541.243	3$^+$	334.090	2$^+$	M1		0.0689	α(K)=0.0597 *9*; α(L)=0.00742 *11*; α(M)=0.001439 *21*; α(N+..)=0.000283 *4* α(N)=0.000264 *4*; α(O)=1.96×10^{-5} *3* Mult.: From α(K)exp=0.066 *16* and A_2=−0.155 *13*, A_4=−0.006 *17*. δ: +0.03 *2* deduced from γ(θ) reported.
215.35 *5*	6.2 *15*	756.564	2$^-$	541.243	3$^+$				
220.09 *10*	2.7 *3*	541.243	3$^+$	321.19	4$^+$				
^{x}223.84 *10*	1.5 *5*								

From ENSDF

^{110}Cd(p,nγ) **1987Kr15** (continued)

γ(^{110}In) (continued)

E_γ ‡	I_γ #	E_i(level)	J^π_i	E_f	J^π_f	Mult. @	δ &	α †	Comments
233.31 *4*	11.8 *6*	989.853	2^-	756.564	2^-	M1(+E2)		0.065 *15*	α(K)=0.055 *11*; α(L)=0.008 *3*; α(M)=0.0016 *6*; α(N+..)=0.00030 *10* α(N)=0.00028 *10*; α(O)=1.8×10^{-5} *4* Mult.: From α(K)exp=0.041 *21*. E2 admixture possible.
234.81 *20*	0.6 *2*	437.13	(5^+)	202.391	3^+				
249.96 *15*	5.7 *22*	1239.96	$1^-,2^-,3^-$	989.853	2^-				
251.81 *3*	22.6 *7*	793.03	4^+	541.243	3^+	M1(+E2)	−0.01 *15*	0.0411 *8*	α(K)=0.0357 *7*; α(L)=0.00440 *11*; α(M)=0.000854 *22*; α(N+..)=0.000168 *4* α(N)=0.000157 *4*; α(O)=1.166×10^{-5} *20* Mult.: From α(K)exp=0.035 *3* and A_2=−0.33 *12*, A_4=−0.17 *16*.
259.22 *11*	≤2.4	321.19	4^+	62.08	2^+				
266.87 *10*	4.2 *16*	1023.39	3^-	756.564	2^-				
272.03 *3*	639 *19*	334.090	2^+	62.08	2^+	M1(+E2)	+0.06 *4*	0.0337	α(K)=0.0292 *5*; α(L)=0.00360 *6*; α(M)=0.000699 *11*; α(N+..)=0.0001376 *20* α(N)=0.0001280 *19*; α(O)=9.53×10^{-6} *14* Mult.: From α(K)exp=0.032 *3* and A_2=−0.193 *11*, A_4=−0.009 *13* at Ep=5.6 MeV. Other: A_2=0.172 *17*, A_4=−0.014 *21* at Ep=6 MeV. δ: From Ep=5.6 MeV.
280.48 *3*	1000 *30*	342.567	1^+	62.08	2^+	M1(+E2)	+0.04 *22*	0.0311 *9*	α(K)=0.0270 *7*; α(L)=0.00332 *14*; α(M)=0.00064 *3*; α(N+..)=0.000127 *5* α(N)=0.000118 *5*; α(O)=8.79×10^{-6} *20* Mult.: From α(K)exp=0.0291 *23* and A_2=−0.004 *13*, A_4=−0.011 *15* at Ep=5.6 MeV. δ: From Ep=5.6 MeV.
^{x}284.25 *10*	3.0 *8*								
338.85 *5*	13.1 *7*	541.243	3^+	202.391	3^+	M1,E2		0.0210 *19*	α(K)=0.0180 *15*; α(L)=0.0024 *4*; α(M)=0.00047 *8*; α(N+..)=9.1×10^{-5} *14* α(N)=8.5×10^{-5} *14*; α(O)=5.8×10^{-6} *4* Mult.: From α(K)exp=0.019 *3*.
363.23 *4*	15.3 *6*	1119.82	$(0)^-$	756.564	2^-	E2		0.0184	α(K)exp=0.0165 *15* α(K)=0.01561 *22*; α(L)=0.00222 *4*; α(M)=0.000435 *6*; α(N+..)=8.30×10^{-5} *12* α(N)=7.80×10^{-5} *11*; α(O)=4.95×10^{-6} *7*
377.52 *4*	17.2 *7*	1134.09	$(3,4)^-$	756.564	2^-	M1,E2		0.0154 *9*	α(K)=0.0133 *7*; α(L)=0.00175 *21*; α(M)=0.00034 *5*; α(N+..)=6.6×10^{-5} *8* α(N)=6.2×10^{-5} *7*; α(O)=4.25×10^{-6} *16* Mult.: From α(K)exp=0.0131 *11*.
^{x}386.24 *15*	2.6 *5*								
389.98 *10*	2.4 *3*	756.52	4^+	366.53	(5^+)				
410.20 *10*	6.2 *6*	756.52	4^+	346.32	4^+				
413.98 *3*	231.2 *92*	756.564	2^-	342.567	1^+	E1(+M2)	+0.05 *3*	0.00366 *16*	α=0.00366 *16*; α(K)=0.00319 *14*; α(L)=0.000381 *18*;

From ENSDF

γ(^{110}In) (continued)

E_γ[‡]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[&]	α[†]	Comments
									α(M)=7.4×10^{-5} *4*; α(N+..)=1.44×10^{-5} *7* α(N)=1.34×10^{-5} *7*; α(O)=9.7×10^{-7} *5* Mult.: From α(K)exp=0.0039 *10* and A_2=−0.154 *15*, A_4=−0.010 *20*.
417.16 *5*	11.3 *22*	958.46	3$^+$	541.243	3$^+$				
419.57 *10*	3.0 *3*	1176.23	(2,3,4)	756.564	2$^-$				
422.46 *4*	31 *12*	756.564	2$^-$	334.090	2$^+$	E1(+M2)	−0.04 *27*	0.003 *3*	α=0.003 *3*; α(K)=0.003 *3*; α(L)=0.0004 *4*; α(M)=7.E−5 *7*; α(N+..)=1.4×10^{-5} *14* α(N)=1.3×10^{-5} *13*; α(O)=9.E−7 *10* Mult.: From α(K)exp=0.0029 *6* and A_2=0.18 *8*, A_4=0.028 *11*.
429.52 *20*	1.7 *4*	970.89	(4)	541.243	3$^+$				
434.39 *3*	74.7 *22*	1190.96	(1,2,3)$^-$	756.564	2$^-$	M1(+E2)	0.02 *11*	0.01026	α(K)=0.00893 *13*; α(L)=0.001083 *16*; α(M)=0.000210 *3*; α(N+..)=4.13×10^{-5} *6* α(N)=3.85×10^{-5} *6*; α(O)=2.88×10^{-6} *4* Mult.: From α(K)exp=0.0093 *10* and A_2=−0.23 *12*, A_4=0.074 *15*.
435.34 *10*	7.5 *15*	756.52	4$^+$	321.19	4$^+$				
448.61 *5*	11.1 *7*	989.853	2$^-$	541.243	3$^+$	E1		0.00292 *4*	α=0.00292 *4*; α(K)=0.00255 *4*; α(L)=0.000303 *5*; α(M)=5.85×10^{-5} *9*; α(N+..)=1.146×10^{-5} *16* α(N)=1.068×10^{-5} *15*; α(O)=7.72×10^{-7} *11* Mult.: From α(K)exp=0.0025 *10*.
^{x}452.39[a] *15*	2.0 *6*								
471.83 *10*	2.8 *2*	793.03	4$^+$	321.19	4$^+$				
479.16 *3*	146 *5*	541.243	3$^+$	62.08	2$^+$	M1(+E2)	+0.03 *3*	0.00806 *12*	α=0.00806 *12*; α(K)=0.00702 *10*; α(L)=0.000848 *12*; α(M)=0.0001643 *23*; α(N+..)=3.24×10^{-5} α(N)=3.01×10^{-5} *5*; α(O)=2.26×10^{-6} *4* Mult.: From α(K)exp=0.0067 *4* and A_2=−0.164 *18*, A_4=−0.021 *25*. Other: A_2=−0.35 *16*, A_4=−0.12 *21* at Ep=5.6 MeV.
483.38 *5*	13.2 *14*	1239.96	1$^-$,2$^-$,3$^-$	756.564	2$^-$	M1,E2		0.00781 *14*	α=0.00781 *14*; α(K)=0.00675 *15*; α(L)=0.00086 *4*; α(M)=0.000167 *7*; α(N+..)=3.25×10^{-5} *10* α(N)=3.04×10^{-5} *10*; α(O)=2.16×10^{-6} *7* Mult.: From α(K)exp=0.0078 *11*.
498.31 *7*	6.6 *10*	1254.92	0$^-$,1$^-$,2$^-$	756.564	2$^-$	M1,E2		0.00721 *16*	α=0.00721 *16*; α(K)=0.00623 *18*; α(L)=0.000790 *23*; α(M)=0.000153 *5*; α(N+..)=2.99×10^{-5} *7* α(N)=2.79×10^{-5} *7*; α(O)=1.99×10^{-6} *7* Mult.: From α(K)exp=0.0059 *10*.
520.89 *10*	0.8 *2*	887.37	(5)	366.53	(5$^+$)				
533.73 *10*	4.4 *9*	970.89	(4)	437.13	(5$^+$)				
540.98 *15*	2.0 *4*	887.37	(5)	346.32	4$^+$				
554.14 *7*	8.3 *6*	756.564	2$^-$	202.391	3$^+$				

$^{110}_{49}$In$_{61}$-4

γ(^{110}In) (continued)

Eγ‡	Iγ#	Ei(level)	J^π_i	Ef	J^π_f	Mult.@	δ&	α†	Comments
566.15 *15*	11.0 *11*	887.37	(5)	321.19	4+				
x568.68 *15*	≤10.0								
590.61 *5*	18.3 *9*	793.03	4+	202.391	3+	M1(+E2)	−0.05 *16*	0.00486 *7*	α=0.00486 *7*; α(K)=0.00424 *7*; α(L)=0.000509 *8*; α(M)=9.85×10^{-5} *14*; α(N+..)=1.94×10^{-5} *3* α(N)=1.81×10^{-5} *3*; α(O)=1.359×10^{-6} *20* Mult.: From α(K)exp=0.0044 *4* and A$_2$=−0.32 *13*, A$_4$=−0.069 *18*.
592.04 *20*	0.9 *3*	958.46	3+	366.53	(5+)				
612.15 *5*	29.0 *20*	958.46	3+	346.32	4+	M1(+E2)	+0.23 *16*	0.00445 *8*	α=0.00445 *8*; α(K)=0.00387 *7*; α(L)=0.000466 *7*; α(M)=9.02×10^{-5} *13*; α(N+..)=1.78×10^{-5} *3* α(N)=1.654×10^{-5} *25*; α(O)=1.240×10^{-6} *22* Mult.: From α(K)exp=0.0041 *3* and A$_2$=−0.35 *9*, A$_4$=−0.026 *11*.
615.90 *20*	5.0 *5*	958.46	3+	342.567	1+				
624.40 *7*	12.7 *8*	958.46	3+	334.090	2+	M1,E2		0.00403 *24*	α=0.00403 *24*; α(K)=0.00350 *22*; α(L)=0.000433 *14*; α(M)=8.40×10^{-5} *25*; α(N+..)=1.65×10^{-5} *6* α(N)=1.53×10^{-5} *6*; α(O)=1.11×10^{-6} *8* Mult.: From α(K)exp=0.0039 *10*.
637.30 *6*	24.3 *24*	958.46	3+	321.19	4+	M1(+E2)	−0.05 *16*	0.00406 *6*	α=0.00406 *6*; α(K)=0.00354 *6*; α(L)=0.000424 *6*; α(M)=8.20×10^{-5} *12*; α(N+..)=1.619×10^{-5} *24* α(N)=1.506×10^{-5} *22*; α(O)=1.133×10^{-6} *17* Mult.: From α(K)exp=0.0038 *9* and A$_2$=−0.06 *6*, A$_4$=0.15 *12*.
647.24 *5*	62.3 *19*	989.853	2−	342.567	1+	E1(+M2)	−0.03 *12*	0.00126 *22*	α=0.00126 *22*; α(K)=0.00110 *19*; α(L)=0.000130 *24*; α(M)=2.5×10^{-5} *5*; α(N+..)=4.9×10^{-6} *10* α(N)=4.6×10^{-6} *9*; α(O)=3.4×10^{-7} *7* Mult.: A$_2$=−0.21 *6*, A$_4$=0.02 *9*. Other: α(K)exp≤0.0016.
649.74 *5*	4.80 *10*	970.89	(4)	321.19	4+				
655.73 *5*	6.6 *5*	989.853	2−	334.090	2+				
x674.53 *30*	2.6 *8*								
677.12 *15*	4.6 *9*	1023.39	3−	346.32	4+				
689.27 *10*	1.3 *2*	1023.39	3−	334.090	2+				
694.46 *5*	96 *3*	756.564	2−	62.08	2+	E1		0.001077 *15*	α=0.001077 *15*; α(K)=0.000941 *14*; α(L)=0.0001106 *16*; α(M)=2.13×10^{-5} *3*; α(N+..)=4.19×10^{-6} α(N)=3.90×10^{-6} *6*; α(O)=2.87×10^{-7} *4* Mult.: From α(K)exp=0.0090 *27*.
696.20 *5*	10.0 *25*	1062.73	(4,5)	366.53	(5+)				
702.07 *19*	1.6 *8*	1023.39	3−	321.19	4+				
707.32 *5*	146.7 *59*	1049.88	2+	342.567	1+	M1+E2	+0.05 *5*	0.00318 *5*	α=0.00318 *5*; α(K)=0.00277 *4*; α(L)=0.000331 *5*; α(M)=6.40×10^{-5} *9*; α(N+..)=1.264×10^{-5} *18* α(N)=1.175×10^{-5} *17*; α(O)=8.85×10^{-7} *13* Mult.: From α(K)exp=0.0264 *18* and A$_2$=−0.12 *3*, A$_4$=0.06 *4*.
715.71 *8*	16.1 *29*	1049.88	2+	334.090	2+	M1,E2		0.00288 *22*	α=0.00288 *22*; α(K)=0.00251 *20*; α(L)=0.000307 *16*;

^{110}Cd(p,nγ) 1987Kr15 (continued)

γ(^{110}In) (continued)

E_γ‡	I_γ#	E_i(level)	J^π_i	E_f	J^π_f	Mult.@	δ&	α†	Comments
									α(M)=5.9×10^{-5} *3*; α(N+..)=1.17×10^{-5} *7* α(N)=1.09×10^{-5} *6*; α(O)=8.0×10^{-7} *7* Mult.: From α(K)exp=0.031 *8*.
716.37 *10*	2.3 *10*	1062.73	(4,5)	346.32	4$^+$				
741.60 *10*	1.6 *3*	1062.73	(4,5)	321.19	4$^+$				
756.08 *6*	17.5 *7*	958.46	3$^+$	202.391	3$^+$	M1,E2		0.00253 *20*	α=0.00253 *20*; α(K)=0.00220 *18*; α(L)=0.000268 *16*; α(M)=5.2×10^{-5} *3*; α(N+..)=1.02×10^{-5} *7* α(N)=9.5×10^{-6} *6*; α(O)=7.0×10^{-7} *7* Mult.: From α(K)exp=0.023 *5*.
768.43 *9*	7.5 *8*	970.89	(4)	202.391	3$^+$				
777.30 *6*	43.1 *13*	1119.82	(0)$^-$	342.567	1$^+$	E1		0.000849 *12*	α=0.000849 *12*; α(K)=0.000742 *11*; α(L)=8.70×10^{-5} *13*; α(M)=1.677×10^{-5} *24*; α(N+..)=3.30×10^{-6} α(N)=3.07×10^{-6} *5*; α(O)=2.26×10^{-7} *4* Mult.: From α(K)exp=0.0077 *15* and A_2=−0.08 *8*, A_4=−0.025 *11*.
787.48 *6*	24.9 *25*	989.853	2$^-$	202.391	3$^+$	E1(+M2)	−0.18 *30*	0.0010 *9*	α=0.0010 *9*; α(K)=0.0009 *8*; α(L)=0.00010 *10*; α(M)=2.0×10^{-5} *20*; α(N+..)=4.E−6 *4* α(N)=4.E−6 *4*; α(O)=3.E−7 *3* Mult.: From α(K)exp=0.0058 *19* and A_2=0.03 *6*, A_4=0.17 *11*.
^{x}800.06 *8*	9.7 *7*					E1		0.000801 *12*	α=0.000801 *12*; α(K)=0.000700 *10*; α(L)=8.19×10^{-5} *12*; α(M)=1.579×10^{-5} *23*; α(N+..)=3.10×10^{-6} α(N)=2.89×10^{-6} *4*; α(O)=2.13×10^{-7} *3* Mult.: From α(K)exp=0.007 *3*.
813.01 *15*	2.5 *10*	1134.09	(3,4)$^-$	321.19	4$^+$				
821.00 *17*	5.3 *8*	1023.39	3$^-$	202.391	3$^+$				
829.86 *10*	1.0 *2*	1176.23	(2,3,4)	346.32	4$^+$				
842.27 *10*	2.2 *2*	1176.23	(2,3,4)	334.090	2$^+$				
855.00 *10*	1.3 *6*	1176.23	(2,3,4)	321.19	4$^+$				
857.11 *20*	1.5 *3*	1190.96	(1,2,3)$^-$	334.090	2$^+$				
870.31 *22*	12.2 *7*	1216.89	2$^+$,3$^+$,4$^+$	346.32	4$^+$	M1,E2		0.00182 *16*	α=0.00182 *16*; α(K)=0.00158 *14*; α(L)=0.000191 *14*; α(M)=3.7×10^{-5} *3*; α(N+..)=7.3×10^{-6} *6* α(N)=6.8×10^{-6} *5*; α(O)=5.0×10^{-7} *5* Mult.: From α(K)exp=0.015 *4*.
882.95 *19*	9.9 *6*	1216.89	2$^+$,3$^+$,4$^+$	334.090	2$^+$	M1,E2		0.00176 *16*	α=0.00176 *16*; α(K)=0.00153 *14*; α(L)=0.000185 *14*; α(M)=3.6×10^{-5} *3*; α(N+..)=7.0×10^{-6} *6* α(N)=6.5×10^{-6} *5*; α(O)=4.8×10^{-7} *5* Mult.: From α(K)exp=0.017 *4*.
^{x}883.78 *10*	0.8 *3*								
895.70 *10*	1.5 *2*	1216.89	2$^+$,3$^+$,4$^+$	321.19	4$^+$				
896.31 *6*	24.3 *19*	958.46	3$^+$	62.08	2$^+$	M1+E2	−0.23 *16*	0.00183 *4*	α=0.00183 *4*; α(K)=0.00160 *3*; α(L)=0.000190 *4*; α(M)=3.67×10^{-5} *7*; α(N+..)=7.24×10^{-6} *13* α(N)=6.73×10^{-6} *12*; α(O)=5.07×10^{-7} *10*

$^{110}_{49}In_{61}$-6

$\gamma(^{110}In)$ (continued)

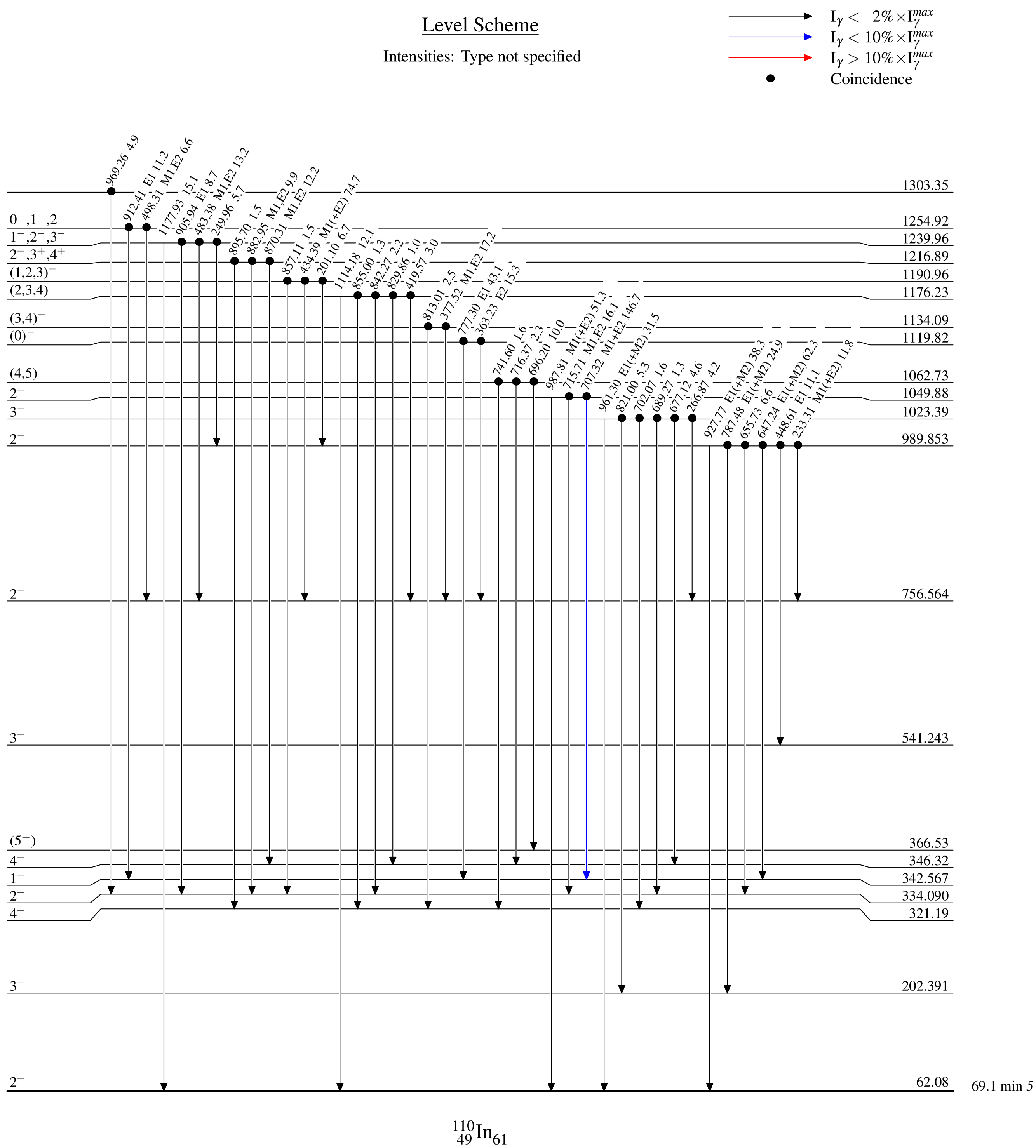
E_γ[‡]	I_γ[#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[@]	δ[&]	α[†]	Comments
									Mult.: A_2=−0.530 *10*, A_4=−0.019 *12*. Other M1,E2 from α(K)exp=0.013 *3*.
905.94 *10*	8.7 *6*	1239.96	$1^-,2^-,3^-$	334.090	2^+	E1		0.000624 *9*	α=0.000624 *9*; α(K)=0.000546 *8*; α(L)=6.37×10^{-5} *9*; α(M)=1.227×10^{-5} *18*; α(N+..)=2.41×10^{-6} *4* α(N)=2.25×10^{-6} *4*; α(O)=1.665×10^{-7} *24* Mult.: From α(K)exp=0.007 *3*.
912.41 *8*	11.2 *8*	1254.92	$0^-,1^-,2^-$	342.567	1^+	E1		0.000615 *9*	α=0.000615 *9*; α(K)=0.000538 *8*; α(L)=6.28×10^{-5} *9*; α(M)=1.210×10^{-5} *17*; α(N+..)=2.38×10^{-6} *4* α(N)=2.22×10^{-6} *4*; α(O)=1.642×10^{-7} *23* Mult.: From α(K)exp=0.0069 *17*.
927.77 *5*	38.3 *15*	989.853	2^-	62.08	2^+	E1(+M2)	−0.03 *14*	0.00060 *10*	α=0.00060 *10*; α(K)=0.00052 *9*; α(L)=6.1×10^{-5} *11*; α(M)=1.18×10^{-5} *21*; α(N+..)=2.3×10^{-6} *5* α(N)=2.2×10^{-6} *4*; α(O)=1.6×10^{-7} *3* Mult.: From α(K)exp=0.0054 *9* and A_2=0.19 *7*, A_4=−0.03 *9*.
961.30 *6*	31.5 *13*	1023.39	3^-	62.08	2^+	E1(+M2)	−0.07 *10*	0.00057 *8*	α=0.00057 *8*; α(K)=0.00050 *7*; α(L)=5.8×10^{-5} *9*; α(M)=1.13×10^{-5} *17*; α(N+..)=2.2×10^{-6} *4* α(N)=2.1×10^{-6} *3*; α(O)=1.53×10^{-7} *23* Mult.: From α(K)exp=0.006 *2* and A_2=−0.31 *8*, A_4=0.05 *9*.
969.26 *15*	4.9 *3*	1303.35		334.090	2^+				
987.81 *5*	51.3 *21*	1049.88	2^+	62.08	2^+	M1(+E2)	+0.07 *21*	0.00148 *3*	α=0.00148 *3*; α(K)=0.001292 *23*; α(L)=0.000153 *3*; α(M)=2.95×10^{-5} *5*; α(N+..)=5.84×10^{-6} *10* α(N)=5.43×10^{-6} *10*; α(O)=4.10×10^{-7} *8* Mult.: From α(K)exp=0.0128 *14* and A_2=0.30 *6*, A_4=0.10 *8*.
1114.18 *10*	12.1 *12*	1176.23	(2,3,4)	62.08	2^+				α(K)exp=0.007 *4*
1177.93 *10*	15.1 *23*	1239.96	$1^-,2^-,3^-$	62.08	2^+				

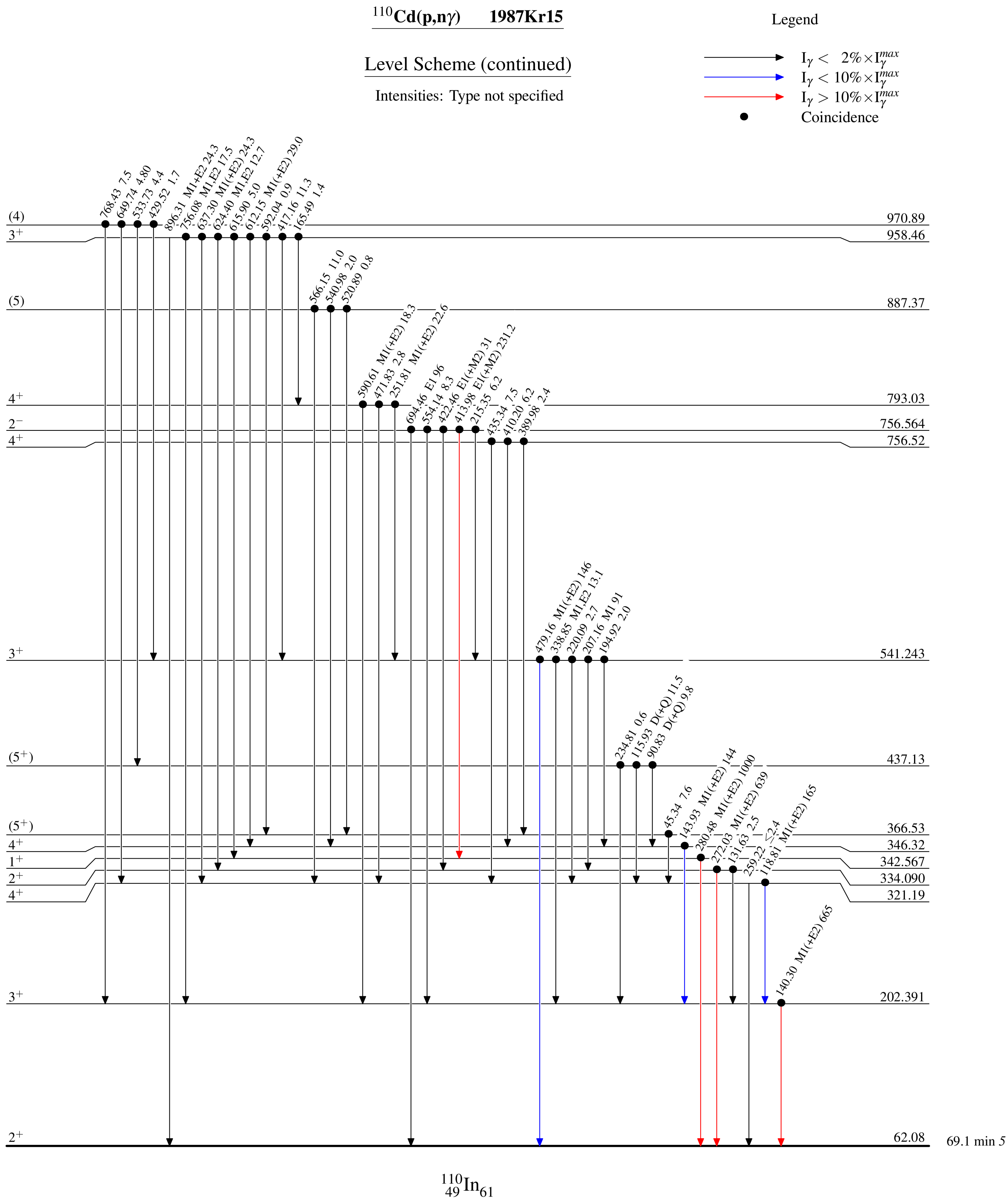
† Additional information 2.
‡ From E(p)=6 MeV and 90° with respect to beam direction.
# From E(p)=6 MeV and 125° with respect to beam direction. (Iγ(280.48)=1000).
@ From α(K)exp (ce(K)(536.5γ) (mult.=M4) of ^{111}In used for normalization) and/or $\gamma(\theta)$ at Ep=6 MeV, unless otherwise stated.
& From $\gamma(\theta)$ at Ep=6 MeV, unless otherwise stated.
a Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

^{110}Cd(p,nγ) 1987Kr15

Level Scheme

Intensities: Type not specified





^{110}Cd(p,nγ) 1987Kr15
Level Scheme (continued)
Intensities: Type not specified
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
Coincidence
(4) 970.89
3+ 958.46
(5) 887.37
4+ 793.03
2− 756.564
4+ 756.52
3+ 541.243
(5+) 437.13
(5+) 366.53
4+ 346.32
1+ 342.567
2+ 334.090
4+ 321.19
3+ 202.391
2+ 62.08 69.1 min 5
768.43 7.5
649.74 4.80
533.73 4.4
429.52 1.7
896.31 M1+E2 24.3
756.08 M1,E2 17.5
637.30 M1(+E2) 24.3
624.40 M1,E2 12.7
615.90 5.0
612.15 M1(+E2) 29.0
592.04 0.9
417.16 11.3
165.49 1.4
566.15 11.0
540.98 2.0
520.89 0.8
590.61 M1(+E2) 18.3
471.83 2.8
251.81 M1(+E2) 22.6
694.46 E1 96
554.14 8.3
422.46 E1(+M2) 31
413.98 E1(+M2) 231.2
215.35 6.2
435.34 7.5
410.20 6.2
389.98 2.4
479.16 M1(+E2) 146
338.85 M1,E2 13.1
220.09 2.7
207.16 M1 91
194.92 2.0
234.81 0.6
115.93 D(+Q) 11.5
90.83 D(+Q) 9.8
45.34 7.6
143.93 M1(+E2) 144
280.48 M1(+E2) 1000
272.03 M1(+E2) 639
131.63 2.5
259.22 ≤2.4
118.81 M1(+E2) 165
140.30 M1(+E2) 665
$^{110}_{49}In_{61}$