^{108}Cd(p,nγ) 1989Kr07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Jul-2008

1989Kr07 E=0.06.8, 7.2, 8.0, 9.0 MeV.
1978Hs01 E=0.06.5– 10 MeV. Measured Iγ, σ(E), σ(θ).
1981Bu20 E=0.0 30 MeV. Measured Iγ, σ(E).
Enriched, self supporting target (0.5– 5 mg cm^2).
Measured: γ, γγ, ce, γ(θ), σ(γ,E) 3 different Ge(Li), ce measured with a combined intermediate-image magnetometer plus Si(Li) or a superconducting magnetic lens spectrometer. The angular distribution was normalized with the 649γ (1/2-9/2$^+$) isomeric transition in ^{109}In which has an isotropic angular distribution (1989Kr07).
The level scheme is that of 1989Kr07.

^{108}In Levels

E(level)	Jπ†	E(level)	Jπ†	E(level)	Jπ†	E(level)
0	7$^+$	764.25 *5*	2$^-$	1178.44		1422.57
29.75 *5*	2$^+$	867.97 *5*	3$^-$,2$^-$	1183.51		1456.71
96.91 *6*	≥5	982.35 *6*	(5,6)	1191.1 *3*	1$^+$	1469.35
198.37 *3*	3$^+$	1010.10 *5*	(2,3)$^+$	1212.68		1486.26
230.68 *15*	(4)$^+$	1028.24 *5*	(4,3)	1260.69		1497.89
247.68 *4*	6$^+$,(7)$^+$	1037.42 *6*	4,5,6	1266.46		1532.14
266.00 *3*	3$^+$	1070.40 *8*	(4,3)	1270.47		1542.90
288.87 *3*	(5)$^+$	1086.15 *22*	(4,5,6)$^+$	1294.03		1555.56
302.51 *3*	2$^+$	1094.83 *15*	1,2,3	1309.71		1562.97
481.57 *3*	4$^+$	1109.82 *10*	2,3,4	1314.90		1590.30
598.45 *4*	5$^+$,(6)$^+$	1113.85 *7*	1,2,3	1358.11		1612.04
632.96 *4*	4$^+$,5$^+$	1114.35		1401.48		1629.72
681.62 *5*	5$^+$,(6)$^+$	1158.75 *10*	2,3,4	1410.85		
698.9 *3*	1$^+$	1166.94		1415.74		

† From γ multipolarities, Hauser-Feshbach analysis; see Adopted Levels for comments.

γ(^{108}In)

α(K)exp: are normalized using the theoretical M1 value for the 169γ (1989Kr07).

Eγ	Iγ†	Ei(level)	Jiπ	Ef	Jfπ	Mult.	δ#	Comments
32.31 *15*		230.68	(4)$^+$	198.37	3$^+$			
36.52 *8*	8 *2*	302.51	2$^+$	266.00	3$^+$			
41.17 *5*	5 *3*	288.87	(5)$^+$	247.68	6$^+$,(7)$^+$			
58.18 *3*	20.5 *23*	288.87	(5)$^+$	230.68	(4)$^+$			
96.91 *6*	1	96.91	≥5	0	7$^+$			
104.15 *3*	207 *4*	302.51	2$^+$	198.37	3$^+$	D+Q	−0.06 *10*	
116.90 *6*	5.7 *8*	598.45	5$^+$,(6)$^+$	481.57	4$^+$			
150.76 *10*	8.6 *12*	247.68	6$^+$,(7)$^+$	96.91	≥5			
168.62 *3*	1000 *74*	198.37	3$^+$	29.75	2$^+$	M1		α(K)exp=0.103 Mult.: from adopted γ's. δ=+0.07 *6* from γ(θ).
215.57 *4*	101 *9*	481.57	4$^+$	266.00	3$^+$	M1(+E2)	+0.02 *4*	α(K)exp=0.058 *10*
218.05 *6*	6.1 *9*	1401.48		1183.51				
x227.71 *13*	0.5 *1*							
236.25 *3*	917 *41*	266.00	3$^+$	29.75	2$^+$	M1+E2	+0.07 *3*	α(K)exp=0.042 *7*

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^{108}Cd(p,nγ) 1989Kr07 (continued)

γ(^{108}In) (continued)

E_γ	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ [#]	Comments
245.91 *10*	3.1 *4*	1113.85	1,2,3	867.97	$3^-,2^-$			
247.68 *4*	89 *4*	247.68	$6^+,(7)^+$	0	7^+	M1,E2		α(K)exp=0.041 *14*
272.75 *3*	690 *9*	302.51	2^+	29.75	2^+	M1(+E2)	+0.14 *14*	α(K)exp=0.033 *7*
283.20 *4*	45 *5*	481.57	4^+	198.37	3^+	M1(+E2)	+0.09 *10*	α(K)exp=0.023 *7*
291.74 *10*	19 *3*	1401.48		1109.82	2,3,4			
306.07 *19*	6.2 *7*	1070.40	(4,3)	764.25	2^-			
319.43 *10*	2.3 *3*	1486.26		1166.94				
330.89 *20*	10.1 *10*	1497.89		1166.94				
344.08 *10*	23.7 *20*	632.96	$4^+,5^+$	288.87	$(5)^+$	M1,E2		α(K)exp=0.019 *7*
350.75 *5*	32.2 *18*	598.45	$5^+,(6)^+$	247.68	$6^+,(7)^+$	M1+E2	+0.12 *9*	α(K)exp=0.014 *3*
366.94 *6*	44.9 *25*	632.96	$4^+,5^+$	266.00	3^+	M1+E2	+0.12 *7*	α(K)exp=0.0136 *24*
377.17 *10*	2.2 *2*	1010.10	$(2,3)^+$	632.96	$4^+,5^+$			
391.48 *10*	10.7 *21*	1401.48		1010.10	$(2,3)^+$			
396.06 *16*	28.0 *16*	1094.83	1,2,3	698.9	1^+			
396.44 *3*	292 *10*	698.9	1^+	302.51	2^+	M1(+E2)		α(K)exp=0.0107 *18*. δ=0.0 +*5*−∞.
402.69 *4*	106 *10*	1166.94		764.25	2^-			
414.21 *6*	44.1 *25*	1178.44		764.25	2^-			
414.90 *10*	12.4 *7*	1113.85	1,2,3	698.9	1^+			
433.99 *5*	8.8 *5*	681.62	$5^+,(6)^+$	247.68	$6^+,(7)^+$	M1,E2		α(K)exp≈0.0094
434.56 *5*	6.9 *4*	632.96	$4^+,5^+$	198.37	3^+	M1,E2		α(K)exp≈0.0094
450.89 *4*	16.9 *10*	681.62	$5^+,(6)^+$	230.68	$(4)^+$	M1,E2		α(K)exp=0.007 *2*
477.08 *23*	1.4 *2*	1109.82	2,3,4	632.96	$4^+,5^+$			
484.56 *5*	30.4 *18*	1183.51		698.9	1^+			
492.63 *5*	46 *3*	1191.1	1^+	698.9	1^+			
498.29 *5*	326 *20*	764.25	2^-	266.00	3^+	E1		α(K)exp=0.0019 *3*. δ=0.00 *11* from γ(σ).
500.5 *2*	<5	698.9	1^+	198.37	3^+			
500.78 *6*	6.5 *5*	982.35	(5,6)	481.57	4^+			
502.21 *9*	18.1 *12*	1266.46		764.25	2^-			
528.56 *10*	4.0 *3*	1010.10	$(2,3)^+$	481.57	4^+			
546.72 *5*	11.3 *12*	1028.24	(4,3)	481.57	4^+			
550.70 *5*	54 *10*	1314.90		764.25	2^-			
555.82 *12*	3.3 *3*	1037.42	4,5,6	481.57	4^+			
565.44 *5*	66 *5*	867.97	$3^-,2^-$	302.51	2^+	E1		α(K)exp≈0.0014
565.88 *5*	75 *5*	764.25	2^-	198.37	3^+	E1		α(K)exp≈0.0014
[x]592.96[‡] *10*	2.4 *2*							
601.34 *15*	4.0 *6*	1469.35		867.97	$3^-,2^-$			
601.85 *9*	4.0 *4*	867.97	$3^-,2^-$	266.00	3^+			
610.84 *9*	27.5 *21*	1309.71		698.9	1^+			
627.81 *10*	2.1 *2*	1260.69		632.96	$4^+,5^+$			
628.31 *6*	15.2 *12*	1109.82	2,3,4	481.57	4^+			
637.49 *12*	1.6 *2*	1270.47		632.96	$4^+,5^+$			
651.44 *12*	33.0 *25*	1415.74		764.25	2^-			
669.08 *10*	86 *11*	698.9	1^+	29.75	2^+	M1,E2		α(K)exp≈0.0032
669.64 *5*	25 *2*	867.97	$3^-,2^-$	198.37	3^+			
672.15 *7*	5.7 *6*	1270.47		598.45	$5^+,(6)^+$			
677.09 *25*	3.1 *3*	1158.75	2,3,4	481.57	4^+			
695.58 *11*	2.6 *3*	1294.03		598.45	$5^+,(6)^+$			
725.24 *9*	3.7 *4*	1358.11		632.96	$4^+,5^+$			
733.71 *20*	9.4 *9*	1497.89		764.25	2^-			
734.46 *7*	67 *8*	764.25	2^-	29.75	2^+			
744.09 *5*	20.3 *12*	1010.10	$(2,3)^+$	266.00	3^+	M1,E2		α(K)exp=0.0025 *5*. δ=+0.07 +∞−25.
758.1 *3*	9.7 *7*	1456.71		698.9	1^+			
761.8 *3*	2.6 *7*	1629.72		867.97	$3^-,2^-$			
762.20 *5*	18.4 *11*	1028.24	(4,3)	266.00	3^+			

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^{108}Cd(p,nγ) 1989Kr07 (continued)

γ(^{108}In) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
767.87 *8*	16.0 *10*	1070.40	(4,3)	302.51	2^+		
779.01 *17*	4.0 *4*	1260.69		481.57	4^+		
788.7 *3*	2.1 *3*	1270.47		481.57	4^+		
789.76 *6*	5.8 *4*	1037.42	4,5,6	247.68	6^+,$(7)^+$		
792.19 *5*	23.0 *14*	1094.83	1,2,3	302.51	2^+		
804.39 *5*	25 *4*	1070.40	(4,3)	266.00	3^+		
807.43 *14*	26 *2*	1109.82	2,3,4	302.51	2^+		
811.30 *5*	84 *3*	1113.85	1,2,3	302.51	2^+		
[x]816.68[‡] *10*	3.1 *4*						
828.69 *5*	14.6 *9*	1094.83	1,2,3	266.00	3^+		
829.77 *12*	1.9 *2*	1028.24	(4,3)	198.37	3^+		
838.47 *12*	3.2 *3*	1086.15	$(4,5,6)^+$	247.68	6^+,$(7)^+$	M1,E2	α(K)exp=0.0019 *9*
843.82 *5*	29 *2*	1109.82	2,3,4	266.00	3^+		
844.27 *6*	21.3 *13*	1542.90		698.9	1^+		
847.85 *10*	28.1 *15*	1612.04		764.25	2^-		
847.90 *10*	28 *2*	1113.85	1,2,3	266.00	3^+		E_γ: this transition is not given in the authors′ table but is shown in their level scheme. I_γ: Iγ deduced from Iγ/Iγ(811.3γ)=0.033 *2* in authors′ level scheme.
856.17 *9*	10.0 *7*	1158.75	2,3,4	302.51	2^+		
[x]861.46 *6*	13.8 *8*						
864.15 *10*	4.8 *5*	1562.97		698.9	1^+		
872.15 *13*	2.6 *2*	1070.40	(4,3)	198.37	3^+		
881.03 *10*	71 *4*	1183.51		302.51	2^+		
888.97 *5*	66 *4*	1191.1	1^+	302.51	2^+		
892.72 *7*	8.2 *6*	1158.75	2,3,4	266.00	3^+		
896.64 *7*	4.5 *4*	1094.83	1,2,3	198.37	3^+		
[x]902.23 *10*	7.3 *5*						
911.36 *10*	7.3 *5*	1109.82	2,3,4	198.37	3^+		
[x]915.32[‡] *10*	3.0 *3*						
916.03 *7*	16.6 *16*	1114.35		198.37	3^+		
[x]918.07[‡] *5*	16.1 *11*						
925.24 *6*	9.4 *6*	1191.1	1^+	266.00	3^+		
930.73 *7*	7.9 *6*	1629.72		698.9	1^+		
941.00 *10*	3.1 *4*	1422.57		481.57	4^+		
946.81 *9*	4.7 *4*	1212.68		266.00	3^+		
958.18 *11*	8.1 *6*	1260.69		302.51	2^+		
960.19 *17*	11.7 *8*	1158.75	2,3,4	198.37	3^+		
963.96 *12*	20.7 *12*	1266.46		302.51	2^+		
[x]975.73 *9*	6.2 *5*						
980.0 *3*	1.0 *2*	1178.44		198.37	3^+		
980.32 *5*	74 *4*	1010.10	$(2,3)^+$	29.75	2^+	M1+E2	α(K)exp=0.0013 *4*. 0.16≤δ≤4.0.
985.3 *3*	3.1 *4*	1183.51		198.37	3^+		
992.9 *3*	0.9 *2*	1191.1	1^+	198.37	3^+		
994.70 *5*	21.1 *12*	1260.69		266.00	3^+		
1007.30 *6*	18.0 *13*	1309.71		302.51	2^+		
[x]1007.40[‡] *9*	7.2 *5*						
[x]1011.9[‡] *2*	6.0 *6*						
1014.17 *9*	15.0 *10*	1212.68		198.37	3^+		
1043.53 *14*	2.3 *2*	1309.71		266.00	3^+		
1048.85 *12*	3.1 *3*	1314.90		266.00	3^+		
1055.66 *9*	14.5 *9*	1358.11		302.51	2^+		
1065.01 *10*	33 *5*	1094.83	1,2,3	29.75	2^+		
1079.97 *10*	11.6 *9*	1109.82	2,3,4	29.75	2^+		
1084.5 *3*	19 *4*	1114.35		29.75	2^+		

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^{108}Cd(p,nγ) 1989Kr07 (continued)

γ(^{108}In) (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
1091.96 *8*	6.8 *5*	1358.11		266.00	3^+	1203.00 *6*	17.1 *10*	1401.48		198.37	3^+
1108.42 *16*	7.5 *7*	1410.85		302.51	2^+	1217.61 *19*	3.4 *4*	1415.74		198.37	3^+
1111.34 *11*	10.2 *7*	1309.71		198.37	3^+	1229.52 *12*	5.2 *7*	1532.14		302.51	2^+
[x]1129.63[‡] *17*	6.8 *12*					1240.27 *11*	7.2 *7*	1542.90		302.51	2^+
1135.38 *9*	9.9 *8*	1401.48		266.00	3^+	1253.16 *10*	10.0 *7*	1555.56		302.51	2^+
1144.77 *15*	9.3 *4*	1410.85		266.00	3^+	1258.3 *4*	1.3 *4*	1456.71		198.37	3^+
1149.67 *10*	4.3 *4*	1415.74		266.00	3^+	1260.34 *6*	48 *3*	1562.97		302.51	2^+
1153.9 *2*	22 *11*	1183.51		29.75	2^+	1266.25 *25*	<5	1532.14		266.00	3^+
1154.25 *10*	7.6 *6*	1456.71		302.51	2^+	1276.74 *6*	20.1 *12*	1542.90		266.00	3^+
1161.8 *3*	49 *3*	1191.1	1^+	29.75	2^+	1287.79 *15*	2.6 *5*	1590.30		302.51	2^+
1166.85 *9*	10.4 *7*	1469.35		302.51	2^+	1289.46 *22*	1.9 *2*	1555.56		266.00	3^+
1183.64 *17*	13.4 *9*	1486.26		302.51	2^+	1309.49 *14*	≈6	1612.04		302.51	2^+

[†] From 1989Kr07 at E(p)=0.0 8 MeV.
[‡] Indicated in author's table as being placed in the level scheme but not shown in the level scheme drawing.
[#] From γ(θ) (1989Kr07).
[x] γ ray not placed in level scheme.

^{108}Cd(p,nγ) 1989Kr07

Level Scheme

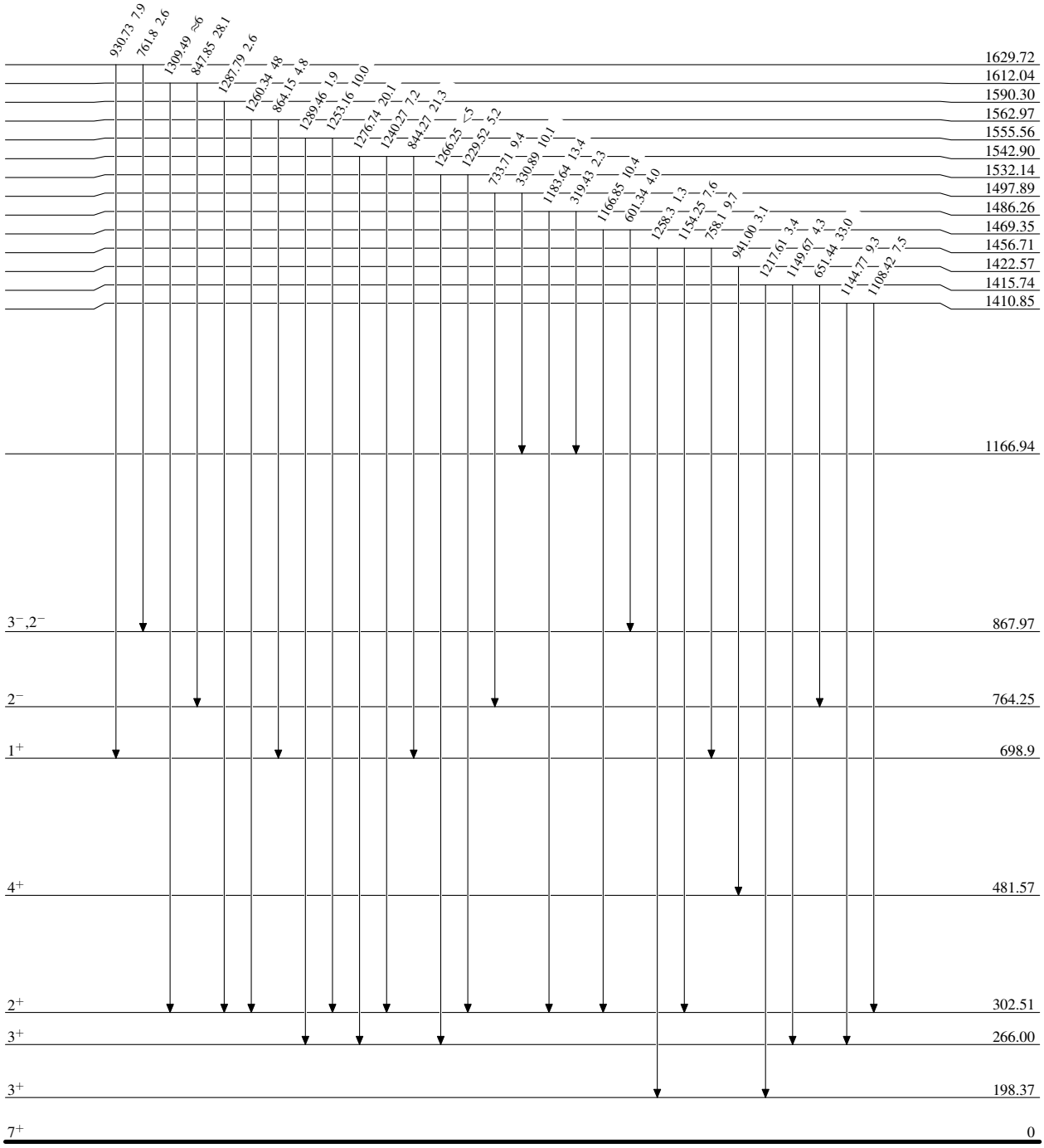
Intensities: Type not specified

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

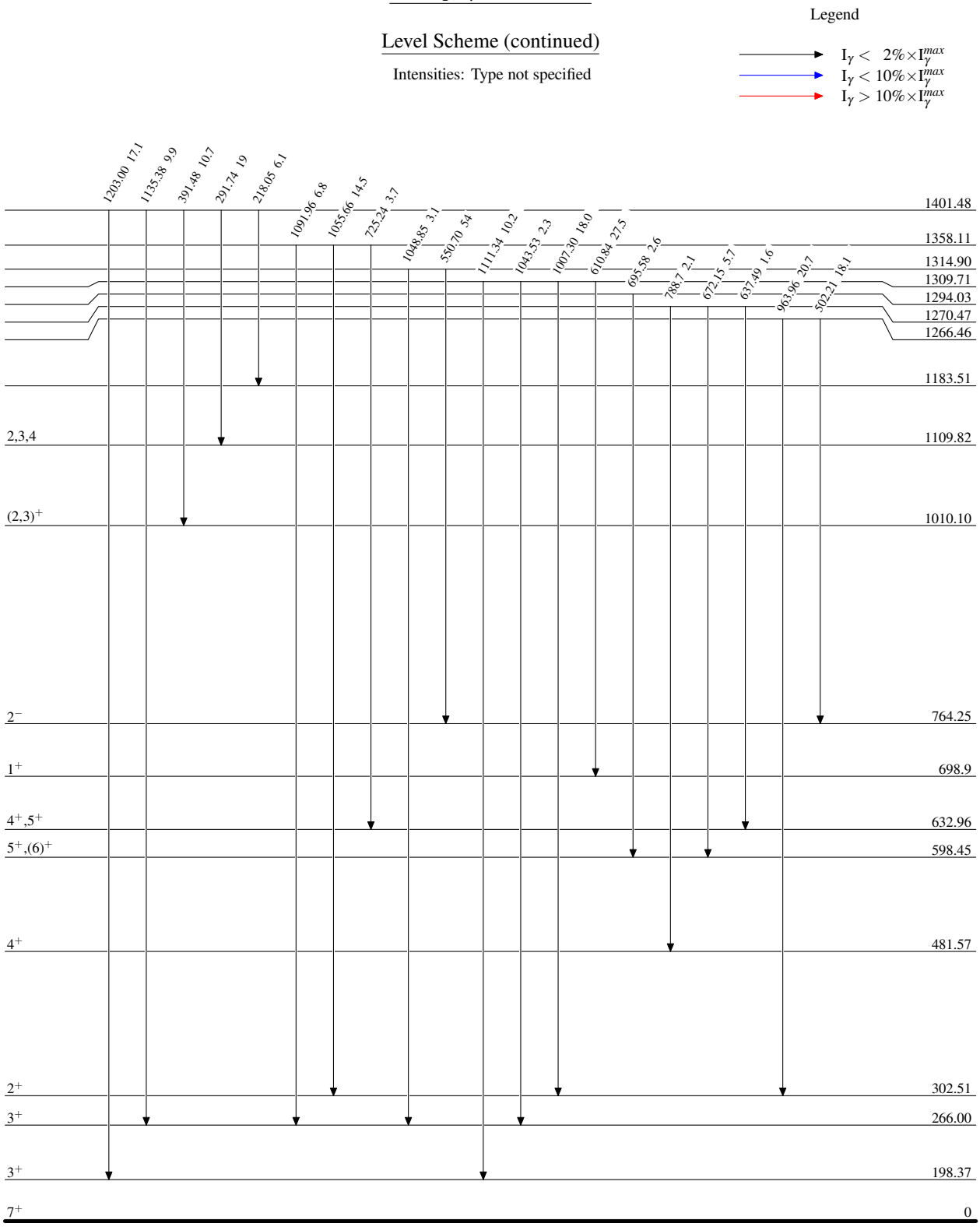


$^{108}_{49}In_{59}$

^{108}Cd(p,nγ) 1989Kr07

Level Scheme (continued)

Intensities: Type not specified

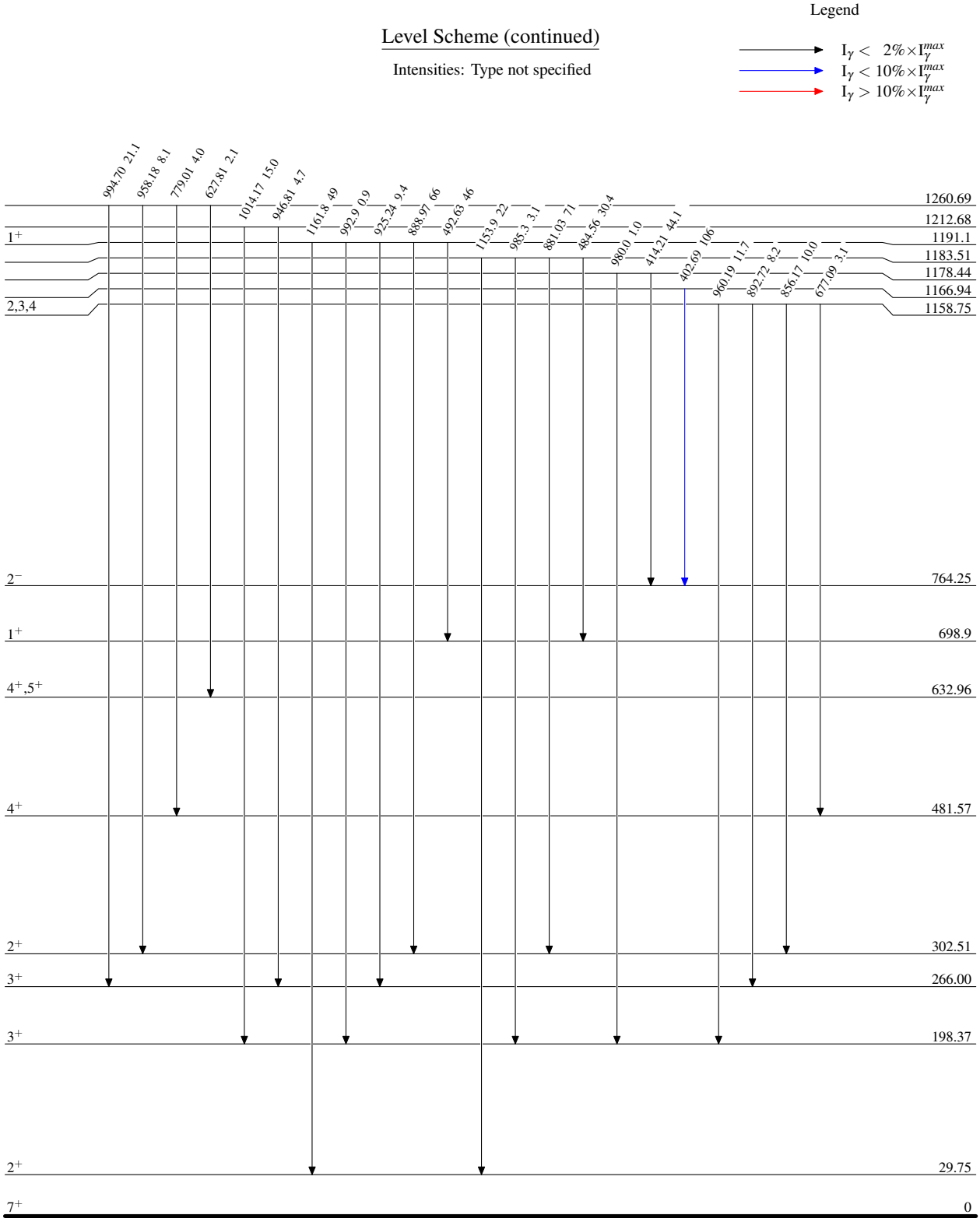


$^{108}_{49}In_{59}$

^{108}Cd(p,nγ) 1989Kr07

Level Scheme (continued)

Intensities: Type not specified

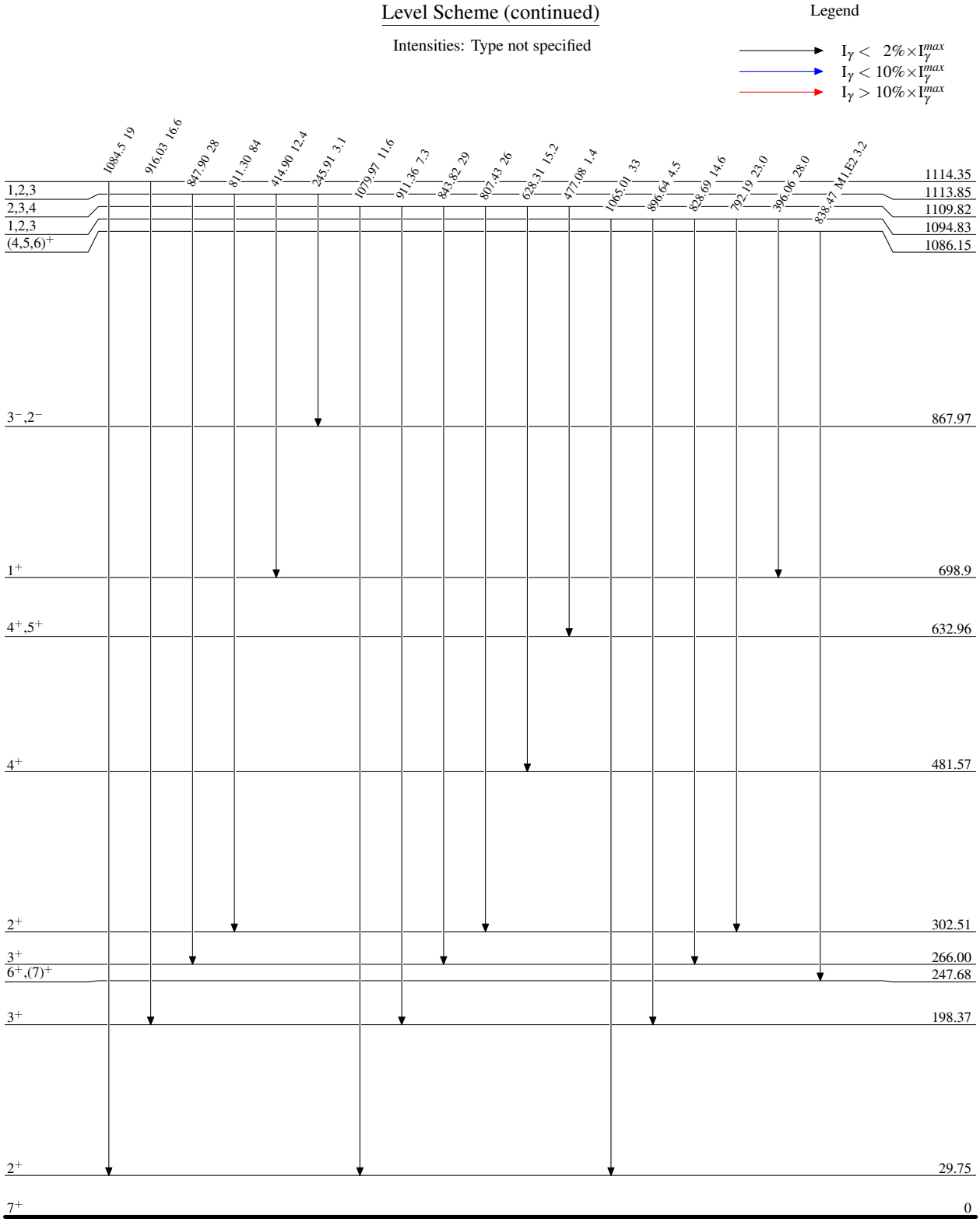


$^{108}_{49}In_{59}$

^{108}Cd(p,nγ) 1989Kr07

Level Scheme (continued)

Intensities: Type not specified



$^{108}_{49}In_{59}$

^{108}Cd(p,nγ) 1989Kr07

Level Scheme (continued)

Intensities: Type not specified