^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya	NDS 180,1 (2022)	1-Oct-2021

1993Se01: E=44-60 MeV; enriched target (97.2%, 1.5 mg/cm^2); γ, $\gamma\gamma$, $\gamma(\theta)$, γ(pol), excit.
1988Li17: ^{116}Cd(^{13}C,3nγ), E=52, 56, 60 MeV. Compton suppressed Ge detector, $\gamma(\theta)$, linear polarization. No Iγ data given.
Level scheme is those proposed by 1993Se01.

^{126}Xe Levels

E(level)[†]	J$^\pi$[‡]
0.0[a]	0$^+$
388.60[a] 10	2$^+$
879.89[d] 13	2$^+$[#]
942.07[a] 13	4$^+$[#]
1317.68[c] 15	3$^+$[#]
1488.38[d] 16	4$^+$[#]
1635.05[a] 15	6$^+$
1903.38[c] 16	5$^+$[#]
2214.27[d] 19	6$^+$[#]
2301.66[g] 19	5$^{(-)}$[#]
2435.66[a] 17	8$^+$
2562.00[h] 20	6$^-$[#]
2591.38[j] 17	7$^-$
2661.39[c] 23	7$^+$[#]
2677.84[g] 19	7$^-$
2758.29[i] 20	8$^-$[#]
2880.83[f] 21	7$^-$[#]
3061.6[d] 3	8$^+$[#]
3064.36[j] 21	9$^-$
3094.16[h] 22	(8$^-$)
3117.13[k] 19	(8$^+$)[#]
3197.83[f] 21	(8$^-$)[#]
3219.02[g] 19	(9$^-$)
3294.51[e] 24	9$^-$[#]
3314.06[b] 24	10$^+$
3359.76[a] 24	10$^+$
3383.73[k] 25	(9$^+$)[#]
3446.45[i] 23	10$^-$
3520.2[c] 4	9$^+$[#]
3760.0[h] 3	(10$^-$)[#]
3783.41[j] 25	11$^-$
3875.11[f] 25	(10$^-$)[#]
3884.7[b] 3	12$^+$
3920.9[g] 3	
3963.6[e] 3	11$^-$[#]
3998.2[k] 4	
4240.8[i] 3	12$^-$[#]

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^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17 (continued)

^{126}Xe Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	Comments
4274.4[a] 3	12+[#]	
4532.4[h] 4	(12−)[#]	
4567.0[j] 4	13−[#]	
4597.0[@][f] 3	(12−)[#]	
4619.8[b] 4	14+[#]	
4700.8[@] 4		
4732.7[g] 4	13−[#]	
4737.5 4	13−[#]	
4769.0[k] 5		
5090.0[&] 5	14+[#]	
5097.7[i] 5	14−[#]	
5392.9[j] 5	15−[#]	
5508.9[b] 5	16+[#]	
5636.6 5		
5694.6[@] 5		
5923.1[&] 5	16+[#]	
6014.0[i] 6	16−[#]	
6249.1[j] 5	17−[#]	
6509.7[b] 7	18+[#]	
6597.6[l]	16+[#]	E(level): From Adopted Levels. No connection to any other levels is observed, but from the coincidence analysis this level decays via unobserved transitions to 10^{+} levels (3360 and 3314 keV) (1988Li17).
6878[l]	17$^{(+)}$[#]	
7186.1[j] 6	19−[#]	
7254[l]	18$^{(+)}$[#]	
7587.3[b] 7	20+[#]	
7617[l]	19$^{(+)}$[#]	
8039[l]	20$^{(+)}$[#]	
8435[l]	21$^{(+)}$[#]	
8745.1[@] 8	22+[#]	

[†] E(levels) are based on a least-squares fit (by evaluators) to the Eγ's.
[‡] From $\gamma(\theta)$ and γ(pol), unless where from Adopted Levels as noted.
[#] From Adopted Levels.
[@] 1993Se01 only.
[&] Band(A): Band 1, (π,α)=(+,0), based on configuration=$(\pi\ h_{11/2})^2$.
[a] Band(B): band 2, ground-state band, (π,α)=(+,0).
[b] Band(C): Band 3, (π,α)=(+,0), based on configuration=$(\nu\ h_{11/2})^2$.
[c] Band(D): band 4, (π,α)=(+,1) quasi−γ band.
[d] Band(E): band 5, (π,α)=(+,0) quasi−γ band.
[e] Band(F): Band 8, (π,α)=(-,1), signature partner of band 9, low K, based on $\nu(h_{11/2}+g_{7/2})$ or $\pi(h_{11/2}+d_{5/2})$.
[f] Band(G): Band 9, (π,α)=(-,0), signature partner of band 8, low K, based on $\nu(h_{11/2}+g_{7/2})$ or $\pi(h_{11/2}+d_{5/2})$.
[g] Band(H): Band 10, (π,α)=(-,1), signature partner of band 11, low K, based on $\nu(h_{11/2}+g_{7/2})$ or $\pi(h_{11/2}+d_{5/2})$.
[h] Band(I): Band 11, (π,α)=(-,0), signature partner of band 10, low K, based on $\nu(h_{11/2}+g_{7/2})$ or $\pi(h_{11/2}+d_{5/2})$.
[i] Band(J): Band 12, (π,α)=(-,0), coupled band with band 13, high K, based on $\nu(h_{11/2}+g_{7/2})$.

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^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17 (continued)

^{126}Xe Levels (continued)

[j] Band(K): Band 13, (π,α)=(-,1), coupled band with band 12, high K, based on $\nu(h_{11/2}+g_{7/2})$.
[k] Band(L): band 14, band member based on 3117-keV level.
[l] Band(M): Band 15, band member based on a level of unknown level energy.

γ(^{126}Xe)

E_γ[†]	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α[#]	Comments
166.9 1	7 2	2758.29	8−	2591.38	7−			A_2=−0.415 7, A_4=+0.269 9 (1993Se01).
233.0 2	1.02 9	3294.51	9−	3061.6	8+			A_2=−0.11 8, A_4=−0.0 1 (1993Se01).
260.6 2	0.22 7	2562.00	6−	2301.66	5(−)			
266.7 2	1.01 9	3383.73	(9+)	3117.13	(8+)			A_2=−0.69 9, A_4=−0.0 1 (1993Se01).
268.4 2		1903.38	5+	1635.05	6+			Not reported in 1988Li17.
280[‡]		6878	17(+)	6597.6	16+			
289.8 2	0.38 7	2591.38	7−	2301.66	5(−)			
306.1 1	7.5 2	3064.36	9−	2758.29	8−	M1,E2	0.0392 2	A_2=−0.96 2, A_4=+0.182 2; pol.=−0.3 1 (1993Se01). 1993Se01 gives A_4=+0.182 2 but it is likely 0.18 2.
317.1 2	1.02 9	3197.83	(8−)	2880.83	7−			
336.9 2	1.30 9	3783.41	11−	3446.45	10−			
363[‡]		7617	19(+)	7254	18(+)			
375.5 2		1317.68	3+	942.07	4+			
376[‡]		7254	18(+)	6878	17(+)			
376.2 2	≤2.4	2677.84	7−	2301.66	5(−)			I_γ: The authors give ≤2.3 1.
377.2 3	≤2.4	2591.38	7−	2214.27	6+			I_γ: The authors give ≤2.3 1.
382.2 2	3.1 1	3446.45	10−	3064.36	9−	M1,E2	0.0208 12	A_2=−0.9 5, A_4=+0.05 6; pol.=+0.3 2 (1993Se01).
388.6 1	100.0 8	388.60	2+	0.0	0+	E2	0.0187	A_2=+0.246 2, A_4=−0.012 2; pol.=+0.44 3 (1993Se01).
396[‡]		8435	21(+)	8039	20(+)			
413.5 2	3.7 1	3294.51	9−	2880.83	7−	(E2)	0.0155	A_2=+0.31 3, A_4=−0.02 4; pol.=+0.5 2 (1993Se01).
415.1 2	1.6 1	1903.38	5+	1488.38	4+			
416.3 2		3094.16	(8−)	2677.84	7−			
422[‡]		8039	20(+)	7617	19(+)			
437.8 2	1.33 9	1317.68	3+	879.89	2+			
457.4 3	1.8 1	4240.8	12−	3783.41	11−			
473.0 2	3.7 1	3064.36	9−	2591.38	7−			
491.3 2	5.9 2	879.89	2+	388.60	2+			
524.9 2	8.8 2	3884.7	12+	3359.76	10+			
532.1 2	1.22 9	3094.16	(8−)	2562.00	6−	(Q)		A_2=+0.24 8, A_4=−0.08 9 (1993Se01).
541.1 2	≤6.0	3219.02	(9−)	2677.84	7−	(E2)		A_2=+0.24 2, A_4=−0.05 3; pol.=+1.1 4 (1993Se01). I_γ: The authors give ≤5.8 2.
541.2 3	≤6.0	3760.0	(10−)	3219.02	(9−)			A_2=+0.24 2, A_4=−0.05 3; pol.=+1.1 4 (1993Se01). I_γ: The authors give ≤5.8 2.
546.4 2	1.8 1	1488.38	4+	942.07	4+			
553.4 1	97 1	942.07	4+	388.60	2+			
570.6 2	11.5 2	3884.7	12+	3314.06	10+	E2		A_2=+0.38 3, A_4=−0.23 3; pol.=+1.0 1 (1993Se01).
579.3 2	≤2.1	2214.27	6+	1635.05	6+			I_γ: The authors give ≤2.0 1.
580.4 2	≤2.1	3875.11	(10−)	3294.51	9−			I_γ: The authors give ≤2.0 1.
585.8 2	4.3 1	1903.38	5+	1317.68	3+			

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^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17 (continued)

γ(^{126}Xe) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
608.5 2	3.6 1	1488.38	4^+	879.89	2^+		
614.5 3	1.27 9	3998.2		3383.73	(9^+)		
633.4 2	1.40 9	4597.0	(12^-)	3963.6	11^-		
658.8 2	1.5 1	2562.00	6^-	1903.38	5^+		
665.8 2	0.60 8	3760.0	(10^-)	3094.16	(8^-)		
669.2 2	5.2 2	3963.6	11^-	3294.51	9^-		
677.4 2	0.62 8	3875.11	(10^-)	3197.83	(8^-)		
681.5 2	1.39 9	3117.13	(8^+)	2435.66	8^+		
688.0 2	6.4 2	3446.45	10^-	2758.29	8^-		
693.0 1	85 1	1635.05	6^+	942.07	4^+	E2	A_2=+0.249 2, A=−0.026 3; pol.=+0.49 2 (1993Se01).
701.9 2	5.4 2	3920.9		3219.02	(9^-)		A_2=+0.10 1, A_4=+0.03 2; pol.=+0.5 1 (1993Se01).
719.1 2	7.2 2	3783.41	11^-	3064.36	9^-	E2	A_2=+0.32 2, A_4=−0.02 2; pol.=+0.63 8 (1993Se01).
721.8 2		4597.0	(12^-)	3875.11	(10^-)		
722.1 3		3383.73	(9^+)	2661.39	7^+		
725.9 2	3.8 1	2214.27	6^+	1488.38	4^+		
735.1 3	12.9 2	4619.8	14^+	3884.7	12^+		
737.2 2	5.3 2	4700.8		3963.6	11^-		
739‡		7617	$19^{(+)}$	6878	$17^{(+)}$		
757.9 2	3.5 1	2661.39	7^+	1903.38	5^+		
762.3 2		3197.83	(8^-)	2435.66	8^+		
770.8 2	0.94 8	4769.0		3998.2			
772.4 3	3.5 1	4532.4	(12^-)	3760.0	(10^-)		
783.4 2	12.3 2	3219.02	(9^-)	2435.66	8^+		
783.6 3	12.3 2	4567.0	13^-	3783.41	11^-		
794.4 2	4.1 1	4240.8	12^-	3446.45	10^-		A_2=+0.23 3, A_4=+0.09 4; pol.=+0.3 2 (1993Se01).
800.7 1	48.5 6	2435.66	8^+	1635.05	6^+	E2	A_2=+0.331 4, A_4=−0.055 5; pol.=+0.52 3 (1993Se01).
811.8 2	2.8 1	4732.7	13^-	3920.9			
815.6 3	≤1	5090.0	14^+	4274.4	12^+		
816.6 3	≤1	4737.5	13^-	3920.9			
818‡		8435	$21^{(+)}$	7617	$19^{(+)}$		
825.9 2	4.9 1	5392.9	15^-	4567.0	13^-		A_2=+0.10 4, A_4=+0.12 5; pol.=+0.4 2 (1993Se01).
833.1 2	2.5 1	5923.1	16^+	5090.0	14^+		
847.4 3	2.1 1	3061.6	8^+	2214.27	6^+		
856.2 2	≤1	6249.1	17^-	5392.9	15^-		
856.9 4	≤1	5097.7	14^-	4240.8	12^-		A_2=+0.19 3, A_4=+0.02 3; pol.=+0.16 9 (1993Se01).
858.8 3		3520.2	9^+	2661.39	7^+		
878.4 2	20 3	3314.06	10^+	2435.66	8^+	E2	A_2=+0.409 8, A_4=−0.01 1; pol.=+0.38 5 (1993Se01).
879.9 2		879.89	2^+	0.0	0^+		
889.1 3	5.9 2	5508.9	16^+	4619.8	14^+	(E2)	A_2=+0.22 3, A_4=+0.04 4; pol.=+0.81 9 (1993Se01).
914.6 3	2.3 1	4274.4	12^+	3359.76	10^+	(E2)	A_2=+0.31 6, A_4=+0.06 7; pol.=+1.0 3 (1993Se01).
916.3 2		6014.0	16^-	5097.7	14^-		
924.1 2	15.7 3	3359.76	10^+	2435.66	8^+	E2	A_2=+0.30 1, A_4=−0.02 1; pol.=+0.55 9 (1993Se01).
925.6 2		5694.6		4769.0			
929.3 2	2.2 1	1317.68	3^+	388.60	2^+		
937.0 2		7186.1	19^-	6249.1	17^-		
956.3 1	19.5 3	2591.38	7^-	1635.05	6^+	E1	A_2=−0.213 8, A_4=+0.03 1; pol.=+0.20 5 (1993Se01).
960.3 3	≤2	4274.4	12^+	3314.06	10^+	(E2)	A_2=+0.17 4, A_4=−0.02 4; pol.=+0.9 4 (1993Se01).
961.1 2	≤2	1903.38	5^+	942.07	4^+		
1000.8 4	1.6 1	6509.7	18^+	5508.9	16^+		A_2=−0.6 1, A_4=+0.5 1; pol.=+0.7 1 (1993Se01).
1016.8 3		5636.6		4619.8	14^+		A_2=+0.1 1, A_4=−0.5 2 (1993Se01).
1042.6 2	8.1 2	2677.84	7^-	1635.05	6^+	E1	A_2=−0.2 2, A_4=+0.01 2; pol.=+0.27 8 (1993Se01).
1077.6 3		7587.3	20^+	6509.7	18^+		
1157.8 3	0.61 8	8745.1	22^+	7587.3	20^+		
1245.6 2	4.2 1	2880.83	7^-	1635.05	6^+		
1358.6 7	1.28 9	2301.66	$5^{(-)}$	942.07	4^+		

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^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17 (continued)

γ(^{126}Xe) (continued)

† From 1993Se01, unless otherwise noted.
‡ From 1988Li17.
# 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.

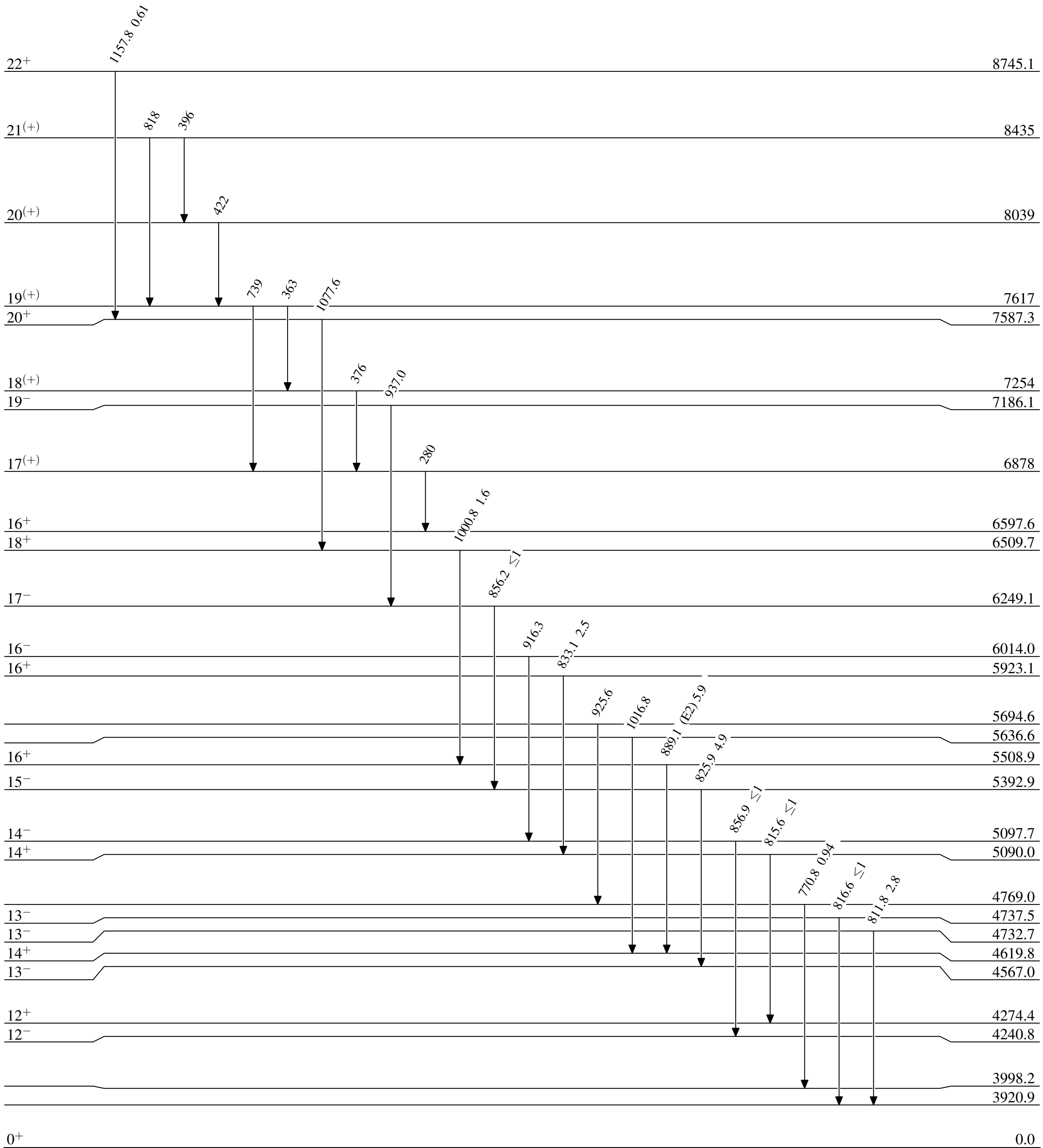
$^{116}Cd(^{13}C,3n\gamma)$ 1993Se01,1988Li17

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

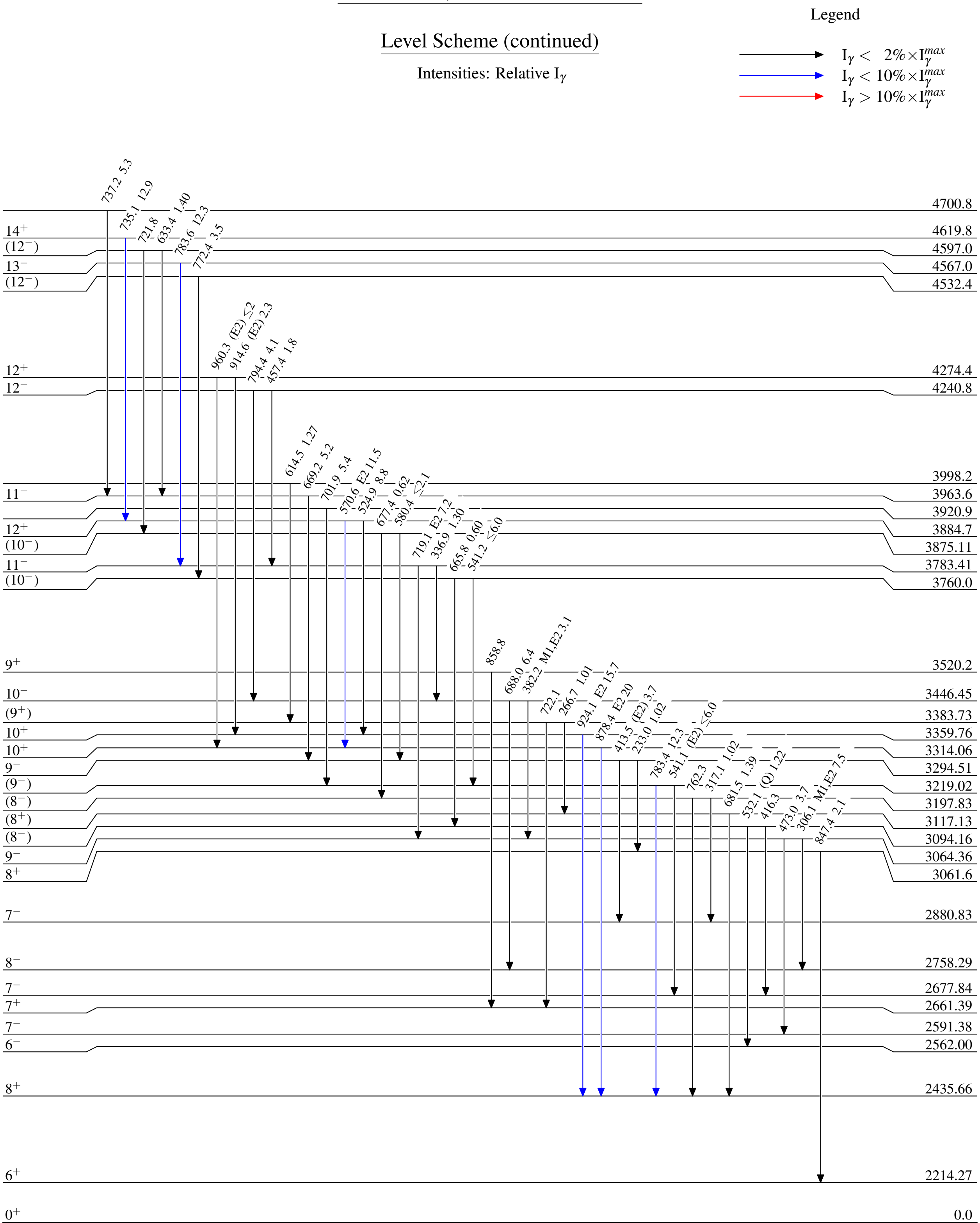


$^{126}_{54}Xe_{72}$

^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17

Level Scheme (continued)

Intensities: Relative I_γ

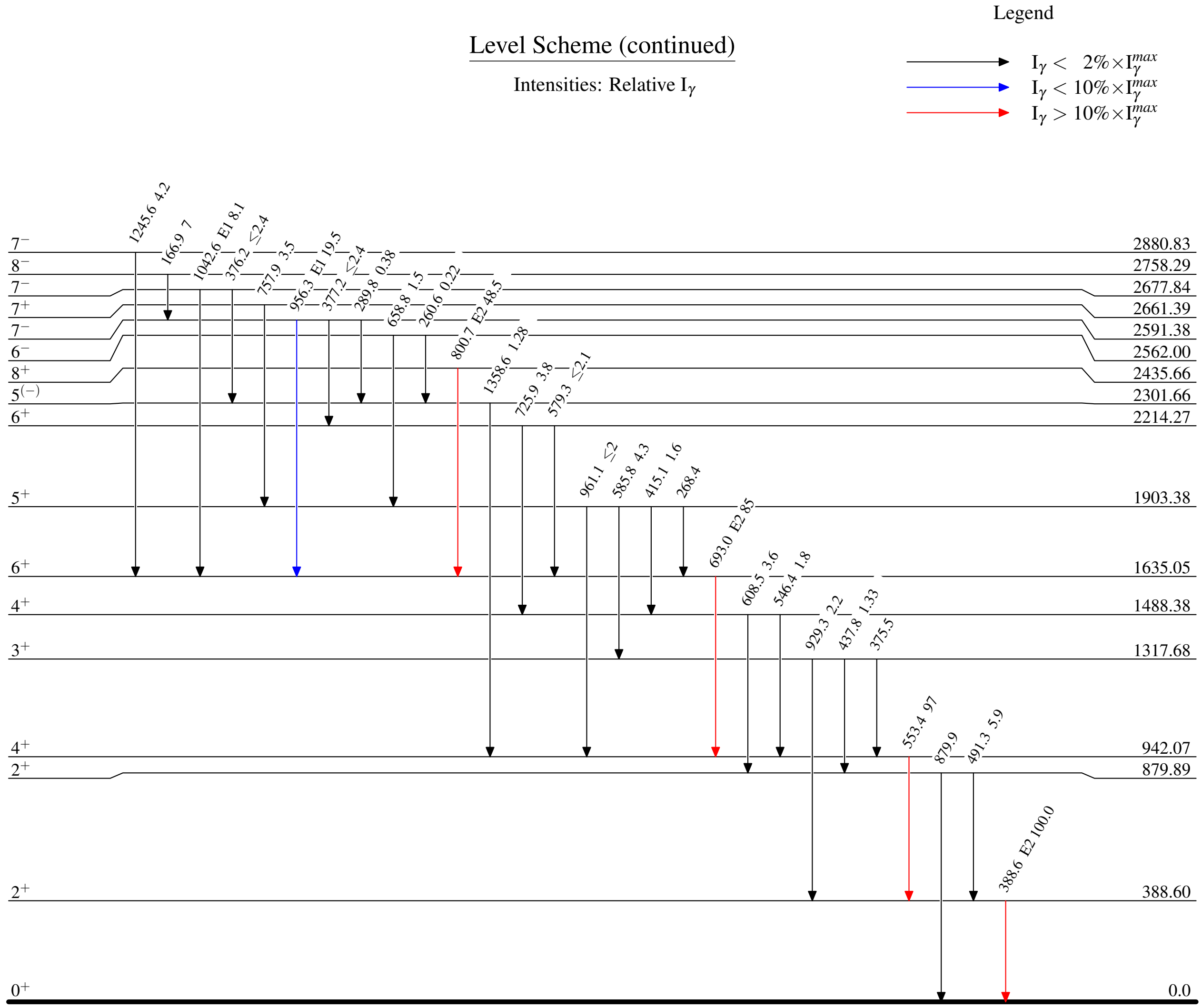


$^{126}_{54}Xe_{72}$

$^{116}Cd(^{13}C,3n\gamma)$ 1993Se01,1988Li17

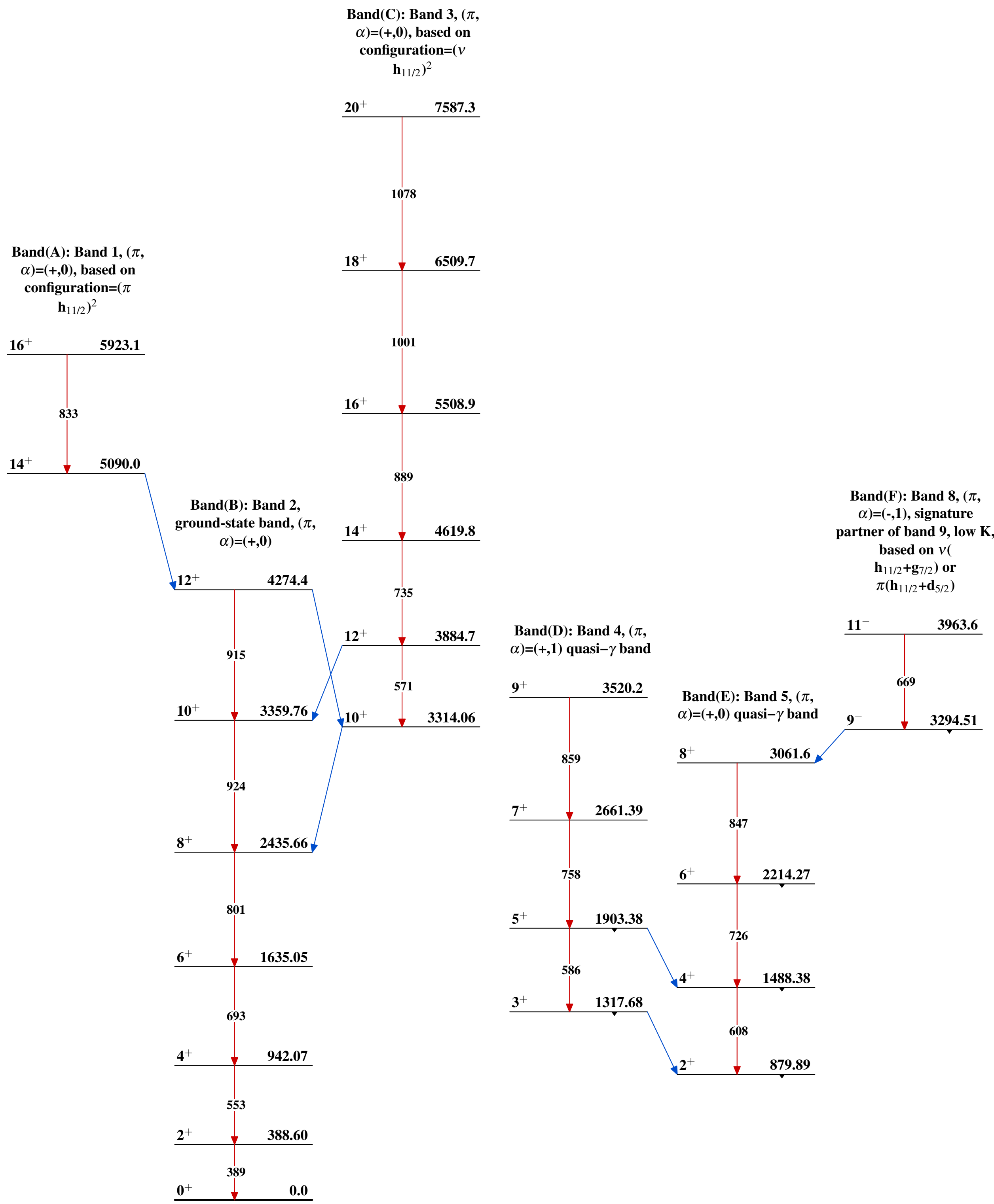
Level Scheme (continued)

Intensities: Relative I_γ



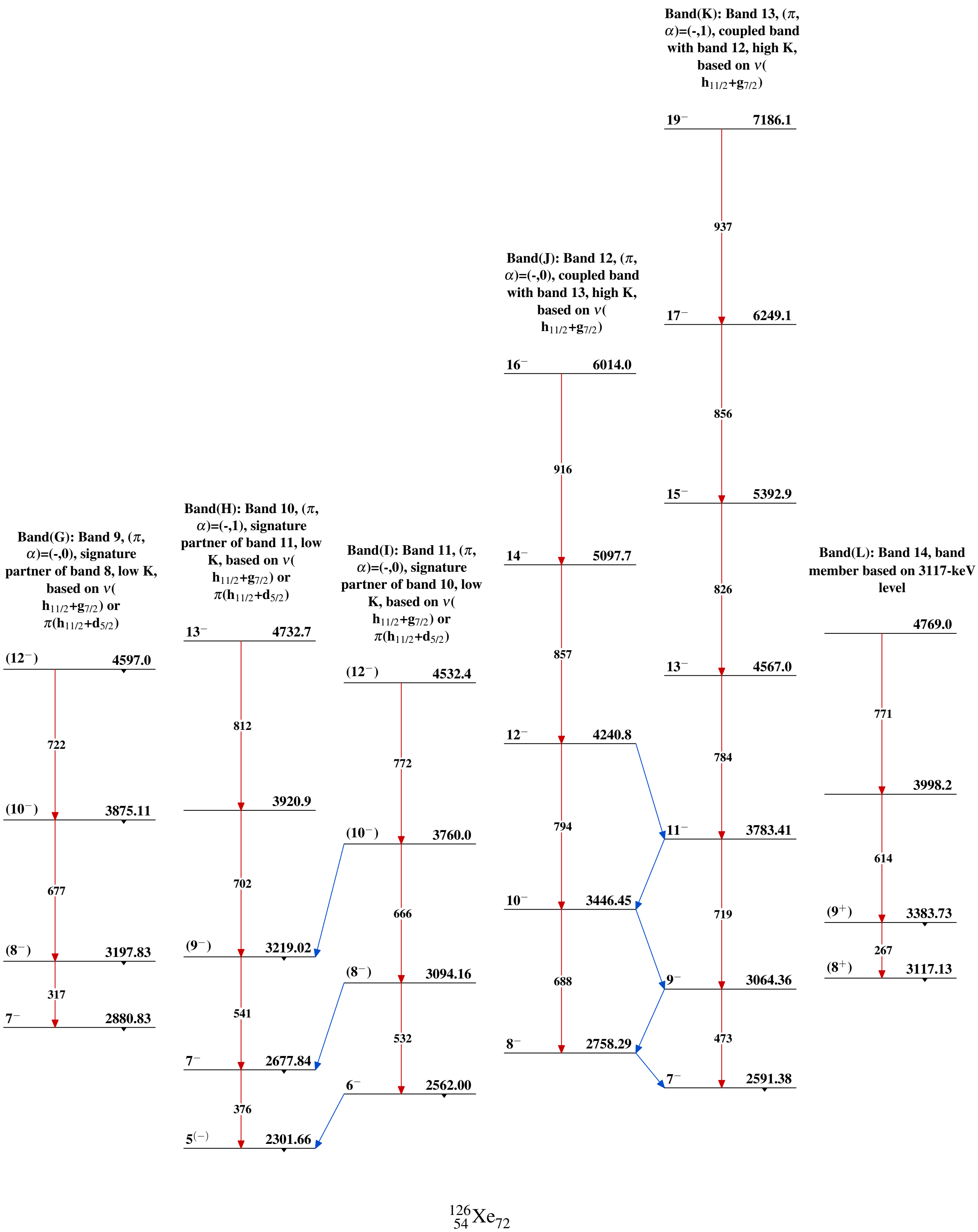
$^{126}_{54}Xe_{72}$

$^{116}Cd(^{13}C,3n\gamma)$ 1993Se01,1988Li17



$^{126}_{54}Xe_{72}$

$^{116}Cd(^{13}C,3n\gamma)$ 1993Se01,1988Li17 (continued)



^{116}Cd(^{13}C,3nγ) 1993Se01,1988Li17 (continued)