^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne and A. Negret	NDS 109, 943 (2008)	1-May-2007

E(n)=fast reactor neutrons. Measured: Eγ, Iγ, γγ, γ linear pol. Deduced: ^{106}Cd levels, J^π, mult, δ.

^{106}Cd Levels

E(level)	J^π[†]	Comments
0.0	0^+	
632.661 *19*	2^+	
1493.875 *25*	4^+	
1716.60 *3*	2^+	
1795.16 *3*	0^+	
2104.69 *3*	4^+	
2144.06 *4*	0^+	
2252.4[‡]	(4^+)	
2253.9[‡] *3*	$(2^+,3^+)$	
2305.06 *4*	4^+	
2330.64 *4*	5^+	
2347.51 *6*	(2^+)	J^π: $J^\pi=2^-,3^+,4^+$ cannot be excluded.
2370.62 *4*	1	J^π: $J^\pi=2^+$ from Adopted Levels.
2378.50 *4*	3^-	
2468.42 *4*	4^+	J^π: $J^\pi=(4)^+$ from Adopted Levels.
2485.98 *5*	4^+	J^π: $J^\pi=2^+,3^+,4^+$ from Adopted Levels.
2491.94 *4*	6^+	
2503.26 *5*	6^+	
2561.37? *6*	0^+	
2566.34 *4*	2^+	
2629.36 *4*	5^-	
2630.08 *5*	2^+	
2717.86 *4*	$2^+,3$	
2720.56 *4*	$1,2^+,3$	
2824.58 *5*	1	
2889.59 *5*	$2,3^+$	
2917.78 *8*	1	
2920.35 *5*	$3,4^+,5$	J^π: $J^\pi=5^-$ from Adopted Levels.
2933.65 *6*	$2^+,3^+$	
2936.15 *6*	$2^+,3^+$	
2973.33 *9*	$2,3^+,4^+$	
3015.35? *6*	$2^+,3^+$	
3018.80 *5*	$3^+,(5)^+$	
3020.74 *7*	$2,3^+$	
3059.84 *6*	3	
3072.82 *11*	$2,3^+,4$	
3092.88 *11*	(2^+)	
3118.80? *6*	$2^+,3^+,4^+$	
3119.72 *15*	1	
3222.65 *20*	1	
3235.24? *15*	$2,3^+$	
3245.43? *13*	(2^+)	
3322.69 *10*	$1^+,2^+,3$	
3328.15 *11*	$1,2^+$	
3329.28 *8*	3^+	
3394.2 *3*	2^+	
3426.90 *20*	$2,3^+,4^+$	
3485.92? *25*	$1,2^+$	

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^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ (continued)

^{106}Cd Levels (continued)

E(level)	J^{π}[†]
3494.7 *3*	1,2$^+$
3679.29? *17*	2$^+$,3

[†] From γ(θ), γ linear pol and previously known J^{π} values.
[‡] From 1993GoZZ.

γ(^{106}Cd)

E_{γ}[‡]	I_{γ}[#]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.[†]	δ[†]	Comments
225.959[&] *24*	0.90 *9*	2330.64	5$^+$	2104.69	4$^+$	M1+E2	−0.57 *12*	
388.20 *14*	0.13 *2*	2104.69	4$^+$	1716.60	2$^+$			
427.35 *9*	0.30 *4*	2144.06	0$^+$	1716.60	2$^+$			γ(θ) isotropic.
524.66 *3*	0.69 *8*	2629.36	5$^-$	2104.69	4$^+$	E1+M2	−0.05 *3*	
536.0[a] *7*	0.19 *2*	2253.9	(2$^+$,3$^+$)	1716.60	2$^+$			Transition is unassigned by 1988BeYC, but is placed from the 2254 level in (p,p′γ). 1993GoZZ suggest placement from the 2252 level, along with the 758γ, but these transitions have different excitation functions in (p,p′γ) so that even if the energy fit is much better with the 536γ deexciting the 2252.4 level (1716.5 + 536.2= 2252.7 *3*) the 536γ and 758γ cannot deexcite the same level.
610.806[&] *21*	2.9 *4*	2104.69	4$^+$	1493.875	4$^+$	M1+E2	−0.30 *3*	
632.66 *2*	100	632.661	2$^+$	0.0	0$^+$	E2		
758.73 *7*	0.25 *3*	2252.4	(4$^+$)	1493.875	4$^+$			Unassigned by 1988BeYC, but placed from the 2252 level in (p,p′γ). This placement is also suggested by 1993GoZZ (see also comment on 536γ).
811.181[&] *23*	1.71 *23*	2305.06	4$^+$	1493.875	4$^+$	M1+E2	−0.18 *4*	
836.73 *4*	0.49 *7*	2330.64	5$^+$	1493.875	4$^+$	M1+E2		Mult.: δ=−0.03 *5* or −5.4 *+21−12*.
861.18 *2*	18.4 *25*	1493.875	4$^+$	632.661	2$^+$	E2		
974.54 *3*	0.93 *13*	2468.42	4$^+$	1493.875	4$^+$	M1+E2	+3.9 *3*	
980.81 *15*	0.094 *15*	3328.15	1,2$^+$	2347.51	(2$^+$)			
998.06 *3*	1.10 *15*	2491.94	6$^+$	1493.875	4$^+$	E2		
1009.38 *4*	0.55 *7*	2503.26	6$^+$	1493.875	4$^+$	E2		
1083.940[&] *20*	5.2 *7*	1716.60	2$^+$	632.661	2$^+$	M1+E2	−1.44 *11*	
1135.52 *8*	0.19 *3*	2629.36	5$^-$	1493.875	4$^+$	E1(+M2)	−0.04 *5*	
1140.6 *2*	0.064 *12*	3245.43?	(2$^+$)	2104.69	4$^+$			
1162.49 *2*	2.6 *4*	1795.16	0$^+$	632.661	2$^+$	[E2]		γ(θ) isotropic.
1217.05 *5*	0.48 *7*	2933.65	2$^+$,3$^+$	1716.60	2$^+$			
1298.75 *5*	0.45 *6*	3015.35?	2$^+$,3$^+$	1716.60	2$^+$			
1377.0 *2*	0.15 *2*	3092.88	(2$^+$)	1716.60	2$^+$			
1402.19 *5*	0.38 *5*	3118.80?	2$^+$,3$^+$,4$^+$	1716.60	2$^+$			
1426.47 *4*	0.48 *7*	2920.35	3,4$^+$,5	1493.875	4$^+$			
1472.04 *3*	1.81 *24*	2104.69	4$^+$	632.661	2$^+$			
1511.41 *4*	0.72 *10*	2144.06	0$^+$	632.661	2$^+$			γ(θ) isotropic.

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^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ (continued)

γ(^{106}Cd) (continued)

E_γ[‡]	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	Comments
1518.62 *15*	0.24 *3*	3235.24?	2,3$^+$	1716.60	2$^+$			
1524.91 *4*	0.60 *8*	3018.80	3$^+$,(5)$^+$	1493.875	4$^+$	M1+E2	−0.11 *4*	
1528.9 *2*	0.078 *13*	3245.43?	(2$^+$)	1716.60	2$^+$			
1565.69 *15*	0.12 *2*	3059.84	3	1493.875	4$^+$	D+Q		Mult.: δ=−11 *+75−5* or +0.02 *8*.
1598.33 *17*	0.052 *7*	3092.88	(2$^+$)	1493.875	4$^+$			E_γ: No final level within 0.62 keV.
1619.71[@] *3*	<5.2	2252.4	(4$^+$)	632.661	2$^+$			E_γ: χ^2=15.6 when peak at 1620 keV analyzed as a single peak χ^2=3.5 if analyzed as a (1619.71γ 3 + 1621.27γ 3) doublet. I_γ: Iγ(1619.71γ 3 + 1621.27γ 3)=4.6 *6*. δ: δ=−11.2 *+22−10* for (1619.71γ 3 + 1621.27γ 3) doublet.
1621.3[@] *3*	2.3 *6*	2253.9	(2$^+$,3$^+$)	632.661	2$^+$			E_γ: χ^2=15.6 when peak at 1620 keV analyzed as a single peak χ^2=3.5 if analyzed as a (1619.71γ 3 + 1621.27γ 3) doublet.
1624.99 *14*	0.042 *8*	3118.80?	2$^+$,3$^+$,4$^+$	1493.875	4$^+$			
1690.9 *4*	0.065 *12*	3485.92?	1,2$^+$	1795.16	0$^+$			
1714.85 *5*	1.9 *3*	2347.51	(2$^+$)	632.661	2$^+$	M1+E2		Mult.: δ=+0.06 *15* or +2.1 *7*.
1716.57 *4*	5.1 *7*	1716.60	2$^+$	0.0	0$^+$	E2		
1737.94 *3*	0.97 *3*	2370.62	1	632.661	2$^+$	M1+E2		Mult.: δ=−0.18 *8* or −2.0 *5*.
1745.82 *3*	2.9 *4*	2378.50	3$^-$	632.661	2$^+$	E1(+M2)	−0.005 *10*	
1835.39 *7*	0.30 *5*	3329.28	3$^+$	1493.875	4$^+$	M1+E2		Mult.: δ=+3.5 *8* or +0.43 *7*.
1853.30 *4*	0.79 *11*	2485.98	4$^+$	632.661	2$^+$	E2		
1928.69 *5*	0.40 *6*	2561.37?	0$^+$	632.661	2$^+$	E2		
1933.66 *3*	1.22 *16*	2566.34	2$^+$	632.661	2$^+$	M1+E2	+2.5 *2*	
1997.39 *4*	0.81 *11*	2630.08	2$^+$	632.661	2$^+$	M1+E2		Mult.: δ=−0.11 *4* or +3.2 *4*.
2085.18 *3*	1.00 *13*	2717.86	2$^+$,3	632.661	2$^+$			
2087.88 *3*	0.66 *9*	2720.56	1,2$^+$,3	632.661	2$^+$			
2184.9 *3*	0.063 *12*	3679.29?	2$^+$,3	1493.875	4$^+$			
2256.90 *4*	0.76 *10*	2889.59	2,3$^+$	632.661	2$^+$			
2284.6 *3*	0.094 *15*	2917.78	1	632.661	2$^+$			
2303.46 *6*	0.55 *7*	2936.15	2$^+$,3$^+$	632.661	2$^+$			
2340.64 *8*	0.36 *5*	2973.33	2,3$^+$,4$^+$	632.661	2$^+$			
2388.05 *6*	0.45 *6*	3020.74	2,3$^+$	632.661	2$^+$			
2427.19 *6*	0.24 *3*	3059.84	3	632.661	2$^+$	D+Q		Mult.: δ=−0.04 *5* or −3.4 *7*.
2440.13 *10*	0.25 *4*	3072.82	2,3$^+$,4	632.661	2$^+$			
2460.3 *2*	0.112 *7*	3092.88	(2$^+$)	632.661	2$^+$			
2487.0 *2*	0.111 *17*	3119.72	1	632.661	2$^+$			
2602.6 *4*	0.046 *9*	3235.24?	2,3$^+$	632.661	2$^+$			
2630.2 *2*	0.108 *16*	2630.08	2$^+$	0.0	0$^+$			
2689.99 *9*	0.26 *4*	3322.69	1$^+$,2$^+$,3	632.661	2$^+$			
2695.38 *14*	0.14 *2*	3328.15	1,2$^+$	632.661	2$^+$			
2794.2 *2*	0.108 *7*	3426.90	2,3$^+$,4$^+$	632.661	2$^+$			
2824.54 *5*	0.66 *9*	2824.58	1	0.0	0$^+$			
2851.9 *6*	0.047 *10*	3485.92?	1,2$^+$	632.661	2$^+$			
2862.6 *7*	0.048 *10*	3494.7	1,2$^+$	632.661	2$^+$			
2917.77 *8*	0.38 *5*	2917.78	1	0.0	0$^+$			
3046.8 *2*	0.15 *2*	3679.29?	2$^+$,3	632.661	2$^+$			
3093.3 *5*	0.066 *12*	3092.88	(2$^+$)	0.0	0$^+$			
3119.7 *2*	0.14 *3*	3119.72	1	0.0	0$^+$			
3222.6 *2*	0.19 *3*	3222.65	1	0.0	0$^+$			
3245.5 *3*	0.101 *16*	3245.43?	(2$^+$)	0.0	0$^+$			
3327.8 *4*	0.070 *12*	3328.15	1,2$^+$	0.0	0$^+$			

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^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ (continued)

γ(^{106}Cd) (continued)

E_γ ‡	I_γ #	E_i(level)	J_i^π	E_f	J_f^π
3394.1 *3*	0.20 *3*	3394.2	2^+	0.0	0^+
3486.7 *7*	0.013 *6*	3485.92?	$1,2^+$	0.0	0^+
3494.5 *3*	0.071 *12*	3494.7	$1,2^+$	0.0	0^+

† From γ(θ), γ linear pol (1988BeYC). Some of the δ values are also given in 1988BeYR. If no linear pol measurements performed mixed transitions are given as D+Q.
‡ From 1988BeYC, except where noted otherwise.
# Given for θ=120° (1988BeYC).
@ From 1993GoZZ.
& From 1988BeYR.
a Placement of transition in the level scheme is uncertain.

^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ

Level Scheme

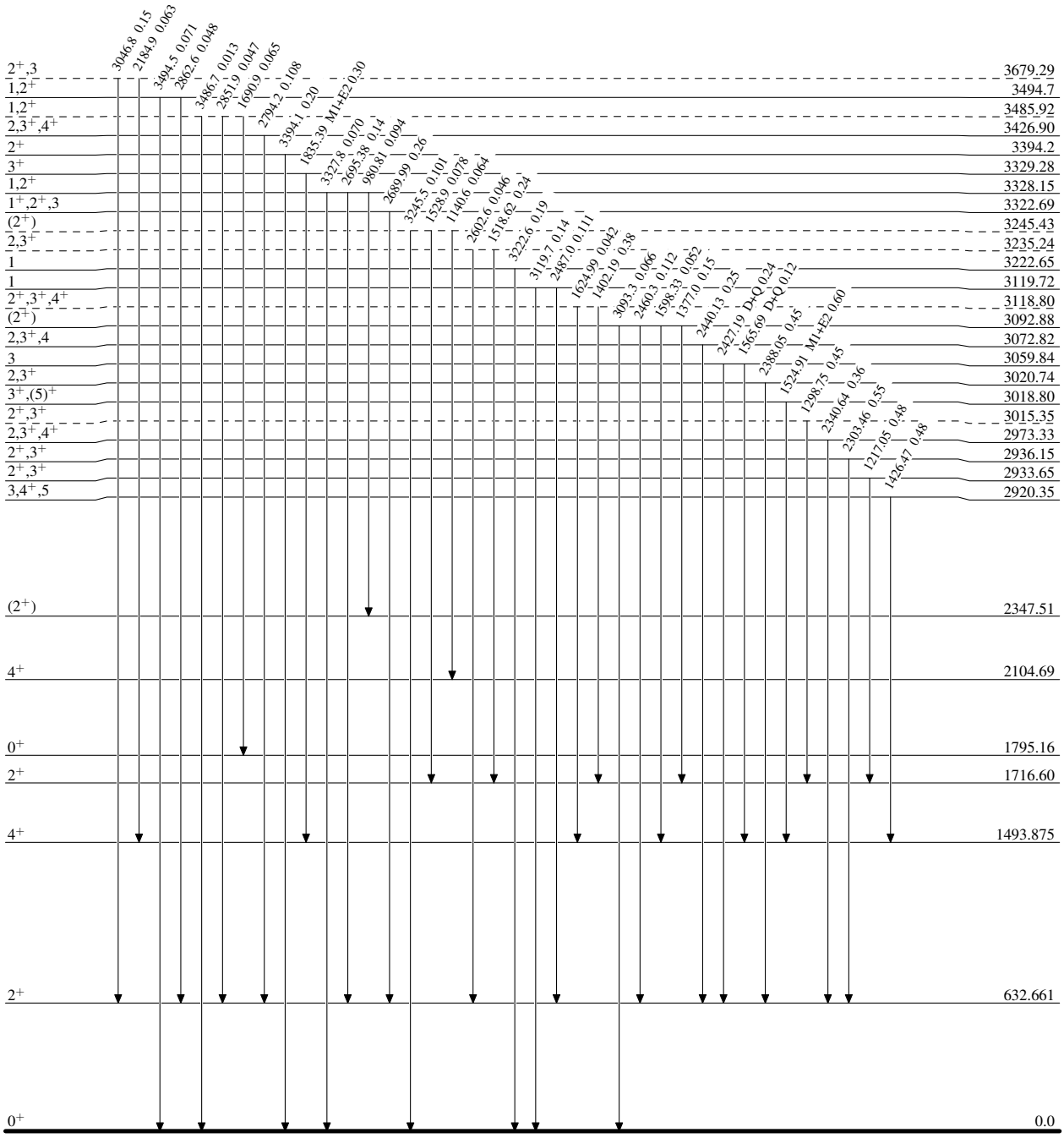
Intensities: Type not specified

Legend

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

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

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



$^{106}_{48}Cd_{58}$

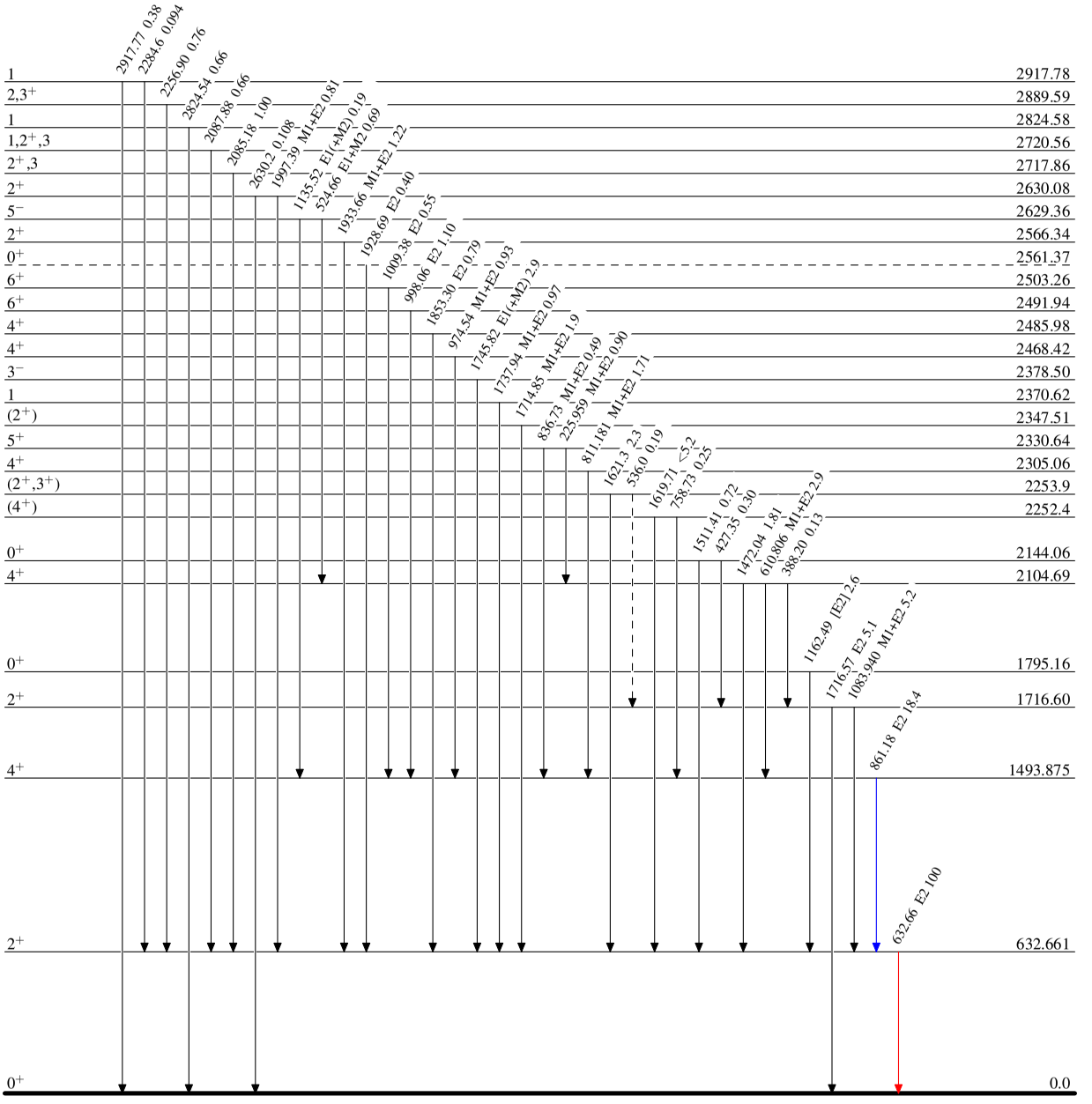
^{106}Cd(n,n′γ) 1988BeYC,1988BeYR,1993GoZZ

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)

Level Scheme (continued)

Intensities: Type not specified



$^{106}_{48}Cd_{58}$