^{110}Pd(^{7}Li,4nγ) 1997Ch01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 1471 (2010)	1-May-2009

1997Ch01: E=35-45 MeV. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma(\theta)$, DCO. Array detectors: five Compton-suppressed Ge with eight NaI multiplicity filter.
1976TuZX: ^{110}Pd(^{6}Li,3nγ), E=24 MeV. Preliminary. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$.
The level scheme is as given by 1997Ch01, some discrepancies are noted in comments in the level scheme by evaluator.

^{113}In Levels

E(level)[‡]	J$^{\pi}$[†]	$T_{1/2}$	Comments
0.0	9/2^{+}	stable	
y			
x			
1173.11 *25*	11/2^{+}		
1191.3[d] *3*	(7/2^{+})		
1344.51[c] *25*	13/2^{+}		
1688.6[d] *5*	(11/2^{+})		
2233.4[a] *4*	(15/2^{-})		
2283.1[c] *4*	17/2^{+}		
2357.6 *11*			
2389.0[d] *6*	(15/2^{+})		
2396.6[a] *4*	(17/2^{-})		
2442.3 *4*			
2653.8 *4*			
2664.2[a] *5*	(19/2^{-})		
2665+y[b]	(19/2^{-})		Additional information 1.
2669.2[c] *4*	17/2^{+}		
2785.5 *5*			
2854.1[a] *5*	(21/2^{-})		
2880.5 *5*			
3023.8[a] *6*	(23/2^{-})		
3050.7[@] *5*			
3071.2[c] *4*	(19/2^{+})		
3122.0[c] *5*	(21/2^{+})		
3172.1+y[b] *3*	(23/2^{-})		
3190.1 *6*			
3192.2[d] *6*	(19/2^{+})		
3213.8[c] *6*	(23/2^{+})		
3249.7[@] *5*			
3280.9[a] *6*	(25/2^{-})		
3289.5[#] *6*	(21/2^{-})		
3305.3 *6*			
3350.3 *6*			
3397.1[c] *7*	(25/2^{+})		
3598.7 *6*			
3743.9+y[b] *5*	(27/2^{-})		
3787.9[c] *7*	(27/2^{+})		
3854.3[#] *7*	(23/2^{-})		
3866.7[@] *6*			
3965.1[d] *7*	(23/2^{+})		

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^{110}Pd(^{7}Li,4nγ) 1997Ch01 (continued)

^{113}In Levels (continued)

E(level)‡	Jπ†	Comments
3973.5[a] 6	(27/2⁻)	
4090.4[#] 7	(25/2⁻)	
4377.4[c] 7	(29/2⁺)	
4430.5 6	(27/2⁻)	
4431.4[@] 6		
4441.0+y[b] 6	(31/2⁻)	
4602.9[d] 8	(27/2⁺)	
4715.7[a] 6	(29/2⁻)	
4799.4 6		
5062.1[c] 7	(31/2⁺)	
5125.5 6		
5172.5 12		
5259.2+y[b] 6	(35/2⁻)	
5392.7[a] 6	(31/2⁻)	
5394+x[&]	(33/2⁻)	Additional information 2.
5447.3 7		
5730.3 7		
5734.8+x[&] 3	(35/2⁻)	
5790.3[c] 8	(33/2⁺)	
6113.9+x[&] 5	(37/2⁻)	
6187.6+y[b] 7	(39/2⁻)	
6476.0+x[&] 6	(39/2⁻)	
7215.9+y[b] 9	(43/2⁻)	

† Jπ as given by 1997Ch01 derived from $\gamma(\theta)$, DCO the gammas's multipolarities, and bands consideration.
‡ From least-squares fit to γ energies.
[#] Band(A): band 1.
[@] Band(B): band 2.
[&] Band(C): band 3.
[a] Band(D): band 4.
[b] Band(E): band 5.
[c] Band(F): band 6.
[d] Band(G): band 7.

$\gamma(^{113}In)$

Eγ†	Iγ†	Ei(level)	Jiπ	Ef	Jfπ	Mult.‡	Comments
68.6 3	17 2	2854.1	(21/2⁻)	2785.5			
91.8 3	122 2	3213.8	(23/2⁺)	3122.0	(21/2⁺)	(M1,E2)	Mult.: DCO=0.57 5.
131.8 3	33 1	2785.5		2653.8			
163.2 3	443 4	2396.6	(17/2⁻)	2233.4	(15/2⁻)	(M1,E2)	Mult.: DCO=0.49 1.
169.5 3	254 2	3023.8	(23/2⁻)	2854.1	(21/2⁻)	(M1,E2)	Mult.: DCO=0.45 4.
170.2[@] 3	44[@] 3	3050.7		2880.5			
171.5 3	44 3	1344.51	13/2⁺	1173.11	11/2⁺	(M1,E2)	Mult.: DCO=0.57 5.
183.3 3	228 2	3397.1	(25/2⁺)	3213.8	(23/2⁺)	(M1,E2)	Mult.: DCO=0.55 3.
189.7 3	228 2	2854.1	(21/2⁻)	2664.2	(19/2⁻)	(M1,E2)	Mult.: DCO=0.58 4.
199.1 3	39 1	3249.7		3050.7			

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^{110}Pd(^{7}Li,4nγ) 1997Ch01 (continued)

$\gamma(^{113}In)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
211.7 *3*	17 *2*	2653.8		2442.3			
226.7 *3*	23 *2*	2880.5		2653.8			E_γ: given also deexciting the 3050 level but no level to feed?
236.1 *3*	17 *2*	4090.4	(25/2$^-$)	3854.3	(23/2$^-$)	(M1,E2)[#]	
256.9 *3*	167 *2*	3280.9	(25/2$^-$)	3023.8	(23/2$^-$)	(M1,E2)	Mult.: DCO=0.59 *5*.
267.5 *3*	349 *2*	2664.2	(19/2$^-$)	2396.6	(17/2$^-$)	(M1,E2)	Mult.: DCO=0.57 *5*.
[x]271.1 *3*	12 *2*						
[x]278.2 *3*	56 *2*						
284.5 *3*	12 *2*	4715.7	(29/2$^-$)	4430.5	(27/2$^-$)	(M1,E2)[#]	
326.2 *3*	<10	5125.5		4799.4			
340.8 *3*	25 *2*	5734.8+x	(35/2$^-$)	5394+x	(33/2$^-$)	[#]	
362.1 *3*	16 *2*	6476.0+x	(39/2$^-$)	6113.9+x	(37/2$^-$)	(M1,E2)[#]	
[x]377.2 *3*							
379.1 *3*	15 *2*	6113.9+x	(37/2$^-$)	5734.8+x	(35/2$^-$)	(M1,E2)[#]	
386.5 *3*	45 *2*	3050.7		2664.2	(19/2$^-$)	(M1,E2)	Mult.: DCO=0.55 *10*.
388.9 *3*	63 *2*	2785.5		2396.6	(17/2$^-$)	(M1,E2)	Mult.: DCO=0.47 *12*. E_γ: placed as deexciting the 2652 level and feeding the 2396 level by 1997Ch01, placed from this level by evaluator.
390.9 *3*	167 *2*	3787.9	(27/2$^+$)	3397.1	(25/2$^+$)	(M1,E2)	Mult.: DCO=0.52 *5*.
395.8 *3*	19 *1*	3249.7		2854.1	(21/2$^-$)	(M1,E2)	Mult.: DCO=0.53 *10*.
401.8 *3*	70 *2*	3071.2	(19/2$^+$)	2669.2	17/2$^+$	(M1,E2)	Mult.: DCO=0.61 *20*.
409.7 *3*	24 *2*	5125.5		4715.7	(29/2$^-$)	(M1,E2)[#]	
420.4 *3*	42 *4*	2653.8		2233.4	(15/2$^-$)	(M1,E2)	Mult.: DCO=0.49 *15*.
[x]474.3 *3*	10 *2*						
483.9 *3*	23 *2*	2880.5		2396.6	(17/2$^-$)		
497.3 *3*	90 *3*	1688.6	(11/2$^+$)	1191.3	(7/2$^+$)	E2	Mult.: DCO=0.9 *1*.
507.1 *3*	25 *2*	3172.1+y	(23/2$^-$)	2665+y	(19/2$^-$)	E2	Mult.: DCO=0.9 *3*.
525.9 *3*	35 *2*	3190.1		2664.2	(19/2$^-$)		
564.8 *3*	23 *2*	3854.3	(23/2$^-$)	3289.5	(21/2$^-$)	(M1,E2)	
564.8 *3*		4431.4		3866.7			
571.8 *3*	63 *2*	3743.9+y	(27/2$^-$)	3172.1+y	(23/2$^-$)	E2	Mult.: DCO=0.9 *3*.
589.4 *3*	72 *2*	4377.4	(29/2$^+$)	3787.9	(27/2$^+$)	(M1,E2)	Mult.: DCO=0.49 *2*.
617.2 *3*	45 *3*	3866.7		3249.7			
625.3 *3*	28 *2*	3289.5	(21/2$^-$)	2664.2	(19/2$^-$)	(E2)	
637.8 *3*	31 *2*	4602.9	(27/2$^+$)	3965.1	(23/2$^+$)	(E2)	
641.1 *3*	15 *2*	3305.3		2664.2	(19/2$^-$)		
669 *1*		2357.6		1688.6	(11/2$^+$)		E_γ: not given in Table 1, only in figure 1 (1997Ch01).
677.7 *3*	17 *2*	5392.7	(31/2$^-$)	4715.7	(29/2$^-$)	(M1,E2)	
684.6 *3*	47 *2*	5062.1	(31/2$^+$)	4377.4	(29/2$^+$)	(M1,E2)	Mult.: DCO=0.48 *16*.
686.1 *3*	<10	3350.3		2664.2	(19/2$^-$)		
692.6 *3*	68 *2*	3973.5	(27/2$^-$)	3280.9	(25/2$^-$)	(M1,E2)	Mult.: DCO=0.57 *17*.
697.1 *3*	12 *2*	4441.0+y	(31/2$^-$)	3743.9+y	(27/2$^-$)	E2	Mult.: DCO=0.9 *2*.
700.4 *3*	85 *2*	2389.0	(15/2$^+$)	1688.6	(11/2$^+$)	E2	Mult.: DCO=0.9 *2*.
728.2 *3*	31 *2*	5790.3	(33/2$^+$)	5062.1	(31/2$^+$)	(M1,E2)	
731.6 *3*	<10	5447.3		4715.7	(29/2$^-$)		
742.4 *3*	25 *2*	4715.7	(29/2$^-$)	3973.5	(27/2$^-$)	(M1,E2)[#]	
744.6 *3*	19 *2*	3598.7		2854.1	(21/2$^-$)		
772.9 *3*	51 *3*	3965.1	(23/2$^+$)	3192.2	(19/2$^+$)	E2	
788.2 *3*	124 *2*	3071.2	(19/2$^+$)	2283.1	17/2$^+$	(M1,E2)	Mult.: DCO=0.68 *2*.
803.2 *3*	80 *2*	3192.2	(19/2$^+$)	2389.0	(15/2$^+$)	E2	Mult.: DCO=0.9 *2*.
818.2 *3*	23 *4*	5259.2+y	(35/2$^-$)	4441.0+y	(31/2$^-$)	E2	Mult.: DCO=1.1 *3*.
826.3 *3*	<10	4799.4		3973.5	(27/2$^-$)		

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^{110}Pd(^{7}Li,4nγ) 1997Ch01 (continued)

$\gamma(^{113}In)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
838.9 *3*	87 *2*	3122.0	$(21/2^+)$	2283.1	$17/2^+$	E2	Mult.: DCO=0.95 *8*.
888.7 *3*	515 *3*	2233.4	$(15/2^-)$	1344.51	$13/2^+$	(E1)	Mult.: DCO=0.44 *2*.
[x]919.2 *3*	31 *3*						
928.4 *3*	<20	6187.6+y	$(39/2^-)$	5259.2+y	$(35/2^-)$	(E2)	
938.7 *3*	256 *2*	2283.1	$17/2^+$	1344.51	$13/2^+$	E2	Mult.: DCO=0.99 *4*.
980.2 *3*	<10	4377.4	$(29/2^+)$	3397.1	$(25/2^+)$	(E2)	
[x]991.5 *3*	56 *1*						
1014.6 *3*	33 *3*	5730.3		4715.7	$(29/2^-)$		
1028.3 *6*	<20	7215.9+y	$(43/2^-)$	6187.6+y	$(39/2^-)$	(E2)	
1097.9 *3*	24 *2*	2442.3		1344.51	$13/2^+$		
1173.2 *3*	25 *2*	1173.11	$11/2^+$	0.0	$9/2^+$	(M1,E2)[#]	
1191.3 *3*	88 *3*	1191.3	$(7/2^+)$	0.0	$9/2^+$	(M1,E2)	
1199 *1*		5172.5		3973.5	$(27/2^-)$		E_γ: not given in Table 1, only in figure 1 (1997Ch01).
1274.2 *3*	<5	5062.1	$(31/2^+)$	3787.9	$(27/2^+)$		
1324.6 *3*	82 *2*	2669.2	$17/2^+$	1344.51	$13/2^+$	E2	Mult.: DCO=0.89 *9*.
1344.4 *3*	1000	1344.51	$13/2^+$	0.0	$9/2^+$	E2	Mult.: DCO=1.07 *6*.
[x]1390.3 *3*	<10						
1406.7 *3*	14 *2*	4430.5	$(27/2^-)$	3023.8	$(23/2^-)$	E2[#]	
1418.6 *3*	14 *3*	5392.7	$(31/2^-)$	3973.5	$(27/2^-)$	(E2)	
1434.9 *3*	32 *3*	4715.7	$(29/2^-)$	3280.9	$(25/2^-)$	E2[#]	
[x]1444.5 *3*	<10						
1518.3 *3*	14 *3*	4799.4		3280.9	$(25/2^-)$		
[x]1583.5 *3*	14 *3*						

[†] From 1997Ch01.
[‡] From DCO ratio and/or $\gamma(\theta)$. The values for DCO with the gating transition(s) as quadrupole are given in comments.
[#] Mult from DCO when the gating transition is a dipole.
[@] Multiply placed with undivided intensity.
[x] γ ray not placed in level scheme.

^{110}Pd(^{7}Li,4nγ) 1997Ch01

Level Scheme

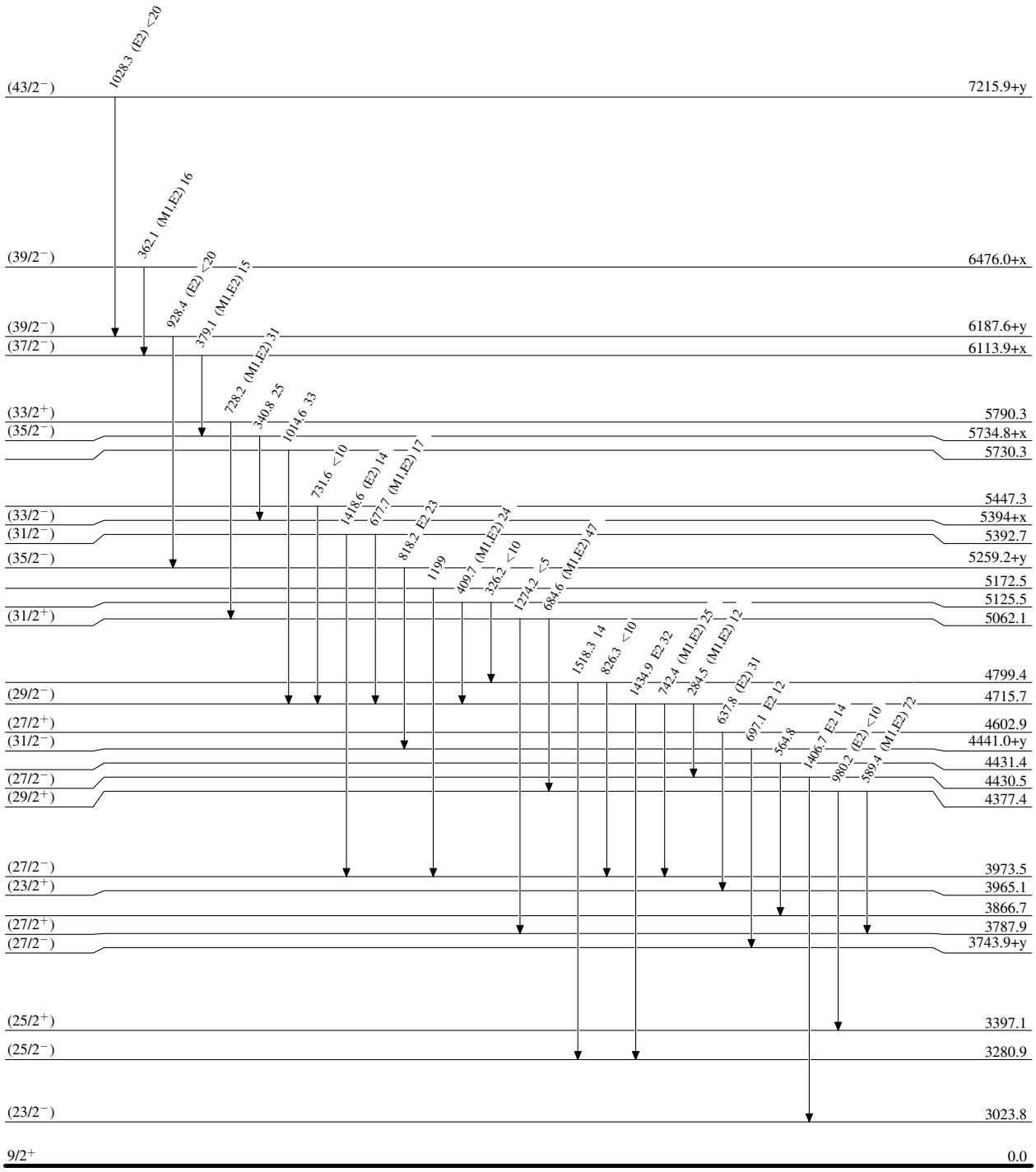
Intensities: Type not specified

Legend

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

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

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



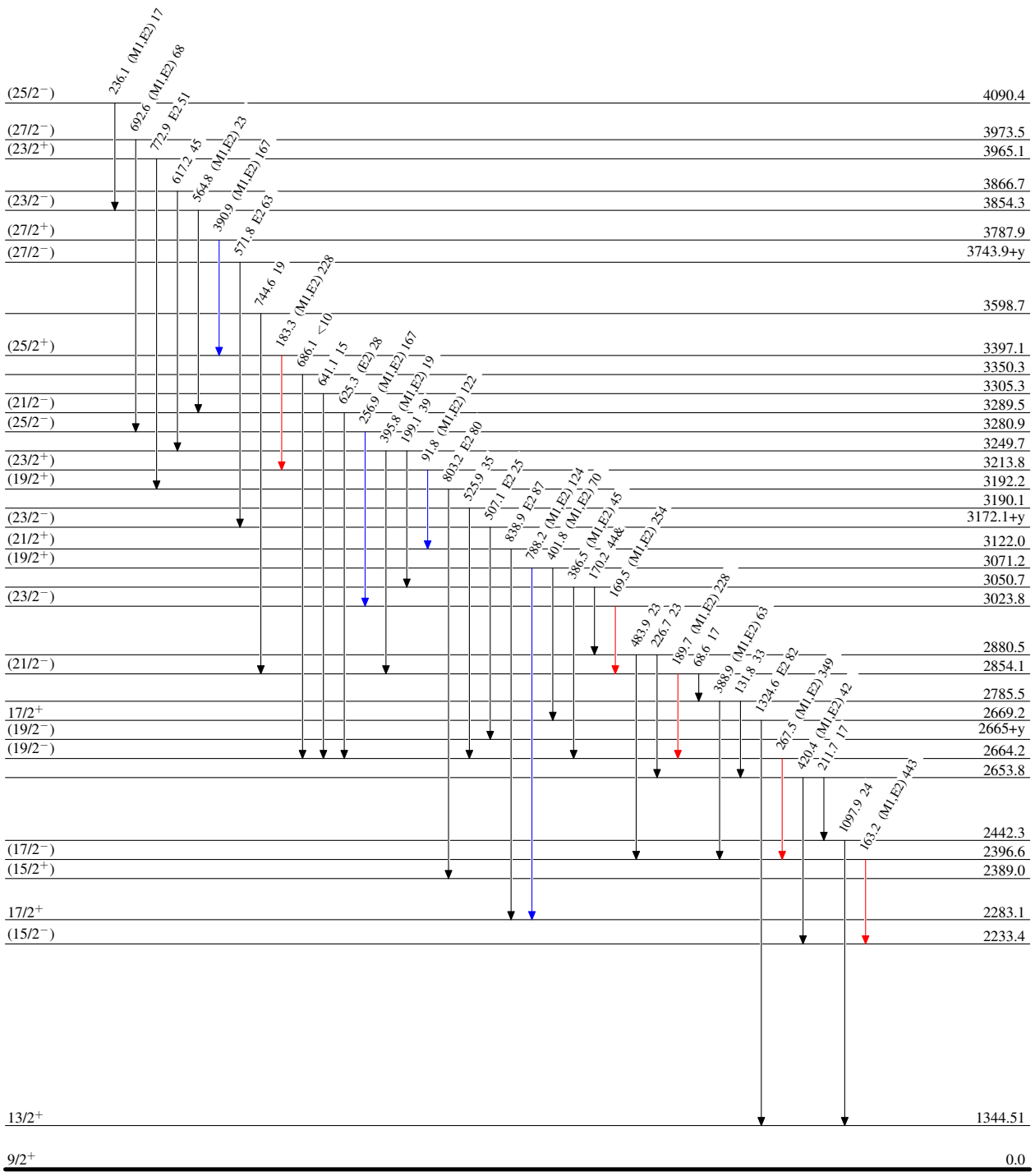
$^{113}_{49}In_{64}$

^{110}Pd(^{7}Li,4nγ) 1997Ch01

Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given

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

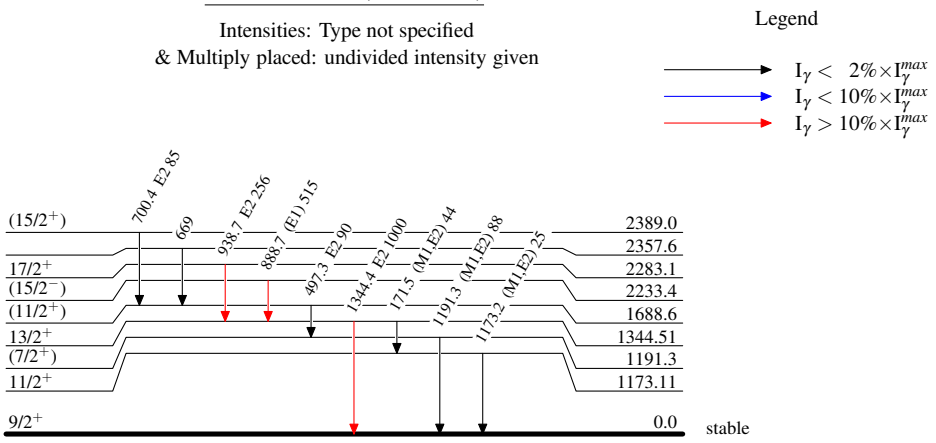


$^{113}_{49}In_{64}$

^{110}Pd(^{7}Li,4nγ) 1997Ch01

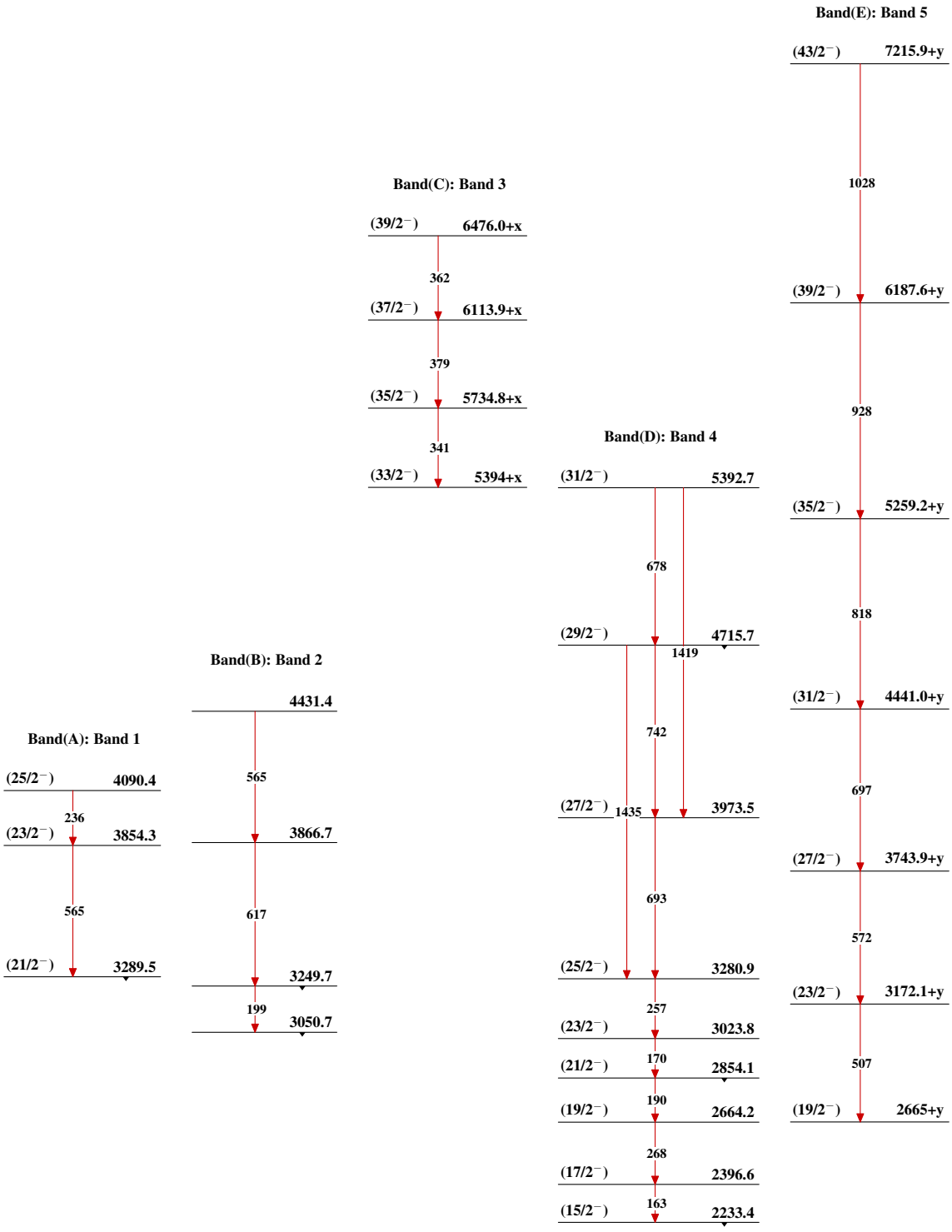
Level Scheme (continued)

Intensities: Type not specified
& Multiply placed: undivided intensity given



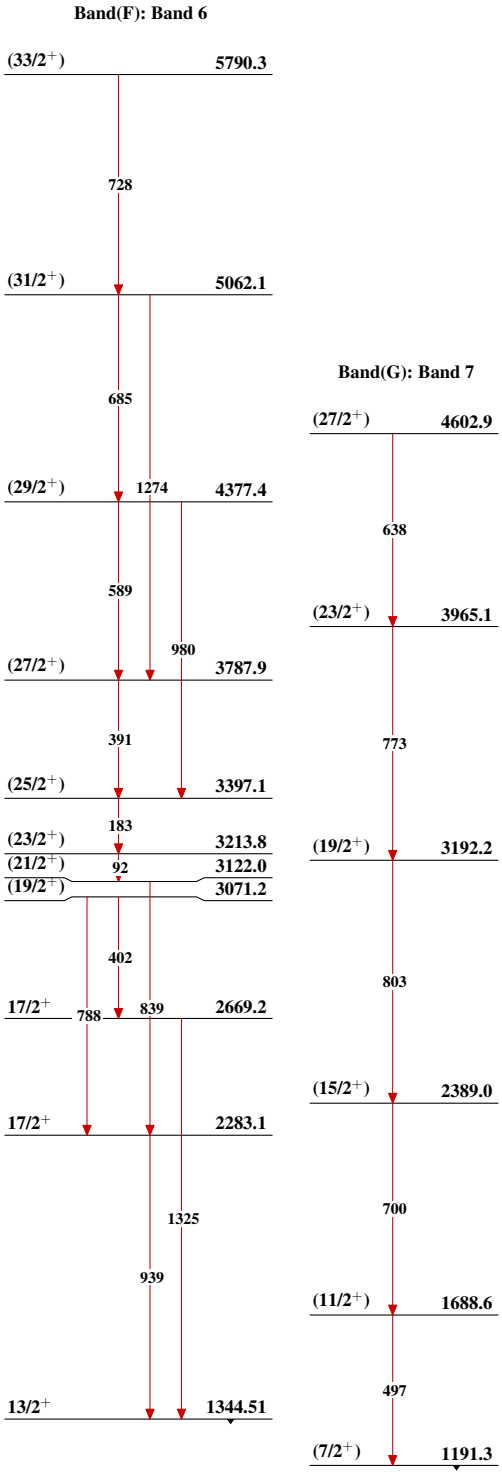
$^{113}_{49}In_{64}$

^{110}Pd(^{7}Li,4nγ) 1997Ch01



$^{113}_{49}In_{64}$

^{110}Pd(^{7}Li,4nγ) 1997Ch01 (continued)



$^{113}_{49}In_{64}$