(HI,xnγ) 1997La17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

^{110}Pd(^{11}B,4nγ) E= 45 MeV at "LINAC" facility, Stony Brook.
Measured: γ, γγ, 6 Compton-suppressed Ge + 14 BGO detectors, DCO.
Preliminary results given in 1992La16. 1997La17 and 1992La16 are from the same group.
Three decoupled (ΔJ=2) rotational bands were determined.

^{117}Sb Levels

E(level)	Jπ†	E(level)	Jπ†	$T_{1/2}$	E(level)	Jπ†
0	5/2+	2845.57& 22	19/2−		4679.3d 5	
527.34 12	7/2+	2874.9 2	19/2−		4750.5 5	
1089.82 1	7/2+	3057.92b 22	19/2+		4759.3c 4	27/2+
1160.31b 14	9/2+	3060.7d 4			4902.7# 4	27/2+
1310.76 15	9/2+	3071.95e 24	21/2−		4929.3& 5	31/2−
1322.80 14	11/2−	3214.56 20	19/2−		4938.4a 4	33/2−
1487.61 18	9/2+	3230.1# 3	19/2+		5028.2b 3	27/2+
1534.88b 19	11/2+	3230.8a 4	23/2−	290‡ ns	5169.5e 5	
1710.14 18	11/2+	3416.1& 3	23/2−		5172.7c 4	(29/2+)
1761.44 16	9/2+	3438.4a 4	25/2−		5182.4@ 5	29/2+
1871.82b 18	13/2+	3485.5@ 4	21/2+		5395.5a 4	35/2−
2039.33 18	11/2+	3501.3e 3			5572.4c 5	(31/2+)
2187.14@ 16	13/2+	3522.97b 23	21/2+		5824.6# 5	(31/2+)
2237.81b 19	15/2+	3741.1a 4	27/2−		5837.3& 5	(35/2−)
2323.14 18	15/2−	3837.0d 4			5884.0a 4	(37/2−)
2355.77d 25	13/2+	4001.79b 25	23/2+		6009.5c 5	(33/2+)
2412.19 18	15/2−	4030.5# 4	23/2+		6121.1@ 5	(33/2+)
2524.95e 22	17/2−	4076.0e 4			6404.9a 4	(39/2−)
2526.24# 21	15/2+	4107.9a 4	29/2−		6763.4# 5	(35/2+)
2624.99b 19	17/2+	4116.3& 4	27/2−		6829.4& 5	(39/2−)
2778.3@ 3	17/2+	4296.2@ 4	25/2+		6952.1a 5	(41/2−)
2779.5 3	19/2−	4425.1c 3	25/2+		7116.5@ 6	(37/2+)
2779.77 20	19/2−	4510.6a 4	31/2−		7905.9& 6	(43/2−)
2842.03 20	17/2−	4555.6b 3	25/2+		8184.3@ 6	(41/2+)

† From DCO ratios and previous known J^π.
‡ From Adopted Levels.
# Band(A): band-1 with ΔJ=2, 1% total intensity.
@ Band(B): band-2 with ΔJ=2, 2.5% total intensity.
& Band(C): band-3 with ΔJ=2, 7% total intensity.
a Band(D): band-4 strongly coupled,≈9% total intensity. Band built on the 290 ns isomer.
b Band(E): band-5a,≈22% total intensity. Composed of two bands of Opposite signature connected by strong M1+E2 transitions.
c Band(F): band-5b.
d Band(G): Sequence-1.
e Band(H): Sequence-2.

(HI,xnγ) 1997La17 (continued)

γ(^{117}Sb)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
12.3		1322.80	11/2$^-$	1310.76	9/2$^+$	E1[#]	
16.4		3230.8	23/2$^-$	3214.56	19/2$^-$	E2	B(E2)(W.u.)=4.8×10^4 *15*
154.8 *2*	<2	2779.77	19/2$^-$	2624.99	17/2$^+$	E1	
162.3 *2*	6 *1*	1322.80	11/2$^-$	1160.31	9/2$^+$	E1[#]	
196.9 *2*	23 *1*	3071.95	21/2$^-$	2874.9	19/2$^-$	M1,E2	Mult.: DCO=0.50 *5*.
201.7 *2*	23 *1*	2524.95	17/2$^-$	2323.14	15/2$^-$	M1,E2[#]	
207.6 *2*	25 *1*	3438.4	25/2$^-$	3230.8	23/2$^-$	M1,E2	Mult.: DCO=0.58 *4*.
239.9 *2*	<2	4750.5		4510.6	31/2$^-$		
250.1 *2*	9 *1*	2874.9	19/2$^-$	2624.99	17/2$^+$	E1[#]	
254.4 *2*	12 *1*	2779.5	19/2$^-$	2524.95	17/2$^-$	M1,E2	Mult.: DCO=0.67 *6*.
292.3 *2*	10 *1*	3071.95	21/2$^-$	2779.5	19/2$^-$	M1,E2	Mult.: DCO=0.71 *7*.
302.8 *2*	8 *1*	3741.1	27/2$^-$	3438.4	25/2$^-$	(M1,E2)	
334.2 *2*	3 *1*	4759.3	27/2$^+$	4425.1	25/2$^+$	(M1,E2)	
336.7 *2*	41 *2*	1871.82	13/2$^+$	1534.88	11/2$^+$	M1,E2	Mult.: DCO=1.04 *5*.
349.7 *2*	10 *1*	2874.9	19/2$^-$	2524.95	17/2$^-$	M1,E2[#]	
365.7 *2*	33 *2*	2237.81	15/2$^+$	1871.82	13/2$^+$	M1,E2	Mult.: DCO=0.99 *5*.
366.6 *2*	7 *1*	4107.9	29/2$^-$	3741.1	27/2$^-$	(M1,E2)	
367.3 *2*	2 *1*	2779.77	19/2$^-$	2412.19	15/2$^-$	E2	
372.6 *2*	6 *1*	3214.56	19/2$^-$	2842.03	17/2$^-$	M1,E2	
374.3 *2*	57 *3*	1534.88	11/2$^+$	1160.31	9/2$^+$	M1,E2	Mult.: DCO=1.05 *5*.
387.0 *2*	29 *2*	2624.99	17/2$^+$	2237.81	15/2$^+$	M1,E2	Mult.: DCO=0.95 *6*.
399.7 *2*	<2	5572.4	(31/2$^+$)	5172.7	(29/2$^+$)	(M1,E2)	
402.5 *2*	3 *1*	4510.6	31/2$^-$	4107.9	29/2$^-$	(M1,E2)	
413.4 *2*	<2	5172.7	(29/2$^+$)	4759.3	27/2$^+$	(M1,E2)	
423.2 *2*	3 *1*	4425.1	25/2$^+$	4001.79	23/2$^+$	M1,E2	Mult.: DCO=0.72 *18*.
425.6 *2*	2 *1*	2187.14	13/2$^+$	1761.44	9/2$^+$	E2	Mult.: DCO=1.26 *14*.
427.6 *2*	2 *1*	4938.4	33/2$^-$	4510.6	31/2$^-$	(M1,E2)	
429.3 *2*	2 *1*	3501.3		3071.95	21/2$^-$		
430.5 *2*	<2	2842.03	17/2$^-$	2412.19	15/2$^-$	M1,E2	
432.7 *2*	23 *1*	2845.57	19/2$^-$	2412.19	15/2$^-$	E2	Mult.: DCO=1.18 *6*.
432.8 *2*	10 *1*	3057.92	19/2$^+$	2624.99	17/2$^+$	M1,E2	Mult.: DCO=0.90 *24*.
433.0 *8*	<2	3214.56	19/2$^-$	2779.77	19/2$^-$	M1,E2	
437.1 *2*	<2	6009.5	(33/2$^+$)	5572.4	(31/2$^+$)	(M1,E2)	
456.8 *2*	10 *1*	2779.77	19/2$^-$	2323.14	15/2$^-$	E2[#]	
456.9 *2*	<2	5395.5	35/2$^-$	4938.4	33/2$^-$	(M1,E2)	
462.4 *2*	2 *1*	2874.9	19/2$^-$	2412.19	15/2$^-$	E2	
464.9 *2*	6 *1*	3522.97	21/2$^+$	3057.92	19/2$^+$	M1,E2	Mult.: DCO=0.77 *21*.
472.2 *2*	<2	5028.2	27/2$^+$	4555.6	25/2$^+$	(M1,E2)	
476.8 *2*	<2	2187.14	13/2$^+$	1710.14	11/2$^+$	M1,E2	Mult.: DCO=0.46 *10*.
478.6 *2*	4 *1*	4001.79	23/2$^+$	3522.97	21/2$^+$	M1,E2	Mult.: DCO=0.65 *18*.
486.8 *2*	<2	2526.24	15/2$^+$	2039.33	11/2$^+$	E2	Mult.: DCO=0.98 *17*.
488.3 *2*	<2	5884.0	(37/2$^-$)	5395.5	35/2$^-$	(M1,E2)	
511.0 *2*	<2	3741.1	27/2$^-$	3230.8	23/2$^-$	(E2)	
518.5 *2*	<2	2842.03	17/2$^-$	2323.14	15/2$^-$	M1,E2	
520.3 *2*	<2	6404.9	(39/2$^-$)	5884.0	(37/2$^-$)	(M1,E2)	
522.3 *2*	2 *1*	2845.57	19/2$^-$	2323.14	15/2$^-$	E2	Mult.: DCO=1.04 *14*.
527.1 *2*	87 *5*	527.34	7/2$^+$	0	5/2$^+$	M1,E2	Mult.: DCO=0.64 *4*.
546.9 *2*	<2	6952.1	(41/2$^-$)	6404.9	(39/2$^-$)	(M1,E2)	
547.3 *2*	<2	3071.95	21/2$^-$	2524.95	17/2$^-$	E2	
551.4 *2*	<2	2039.33	11/2$^+$	1487.61	9/2$^+$		
552.0 *2*	13 *1*	2874.9	19/2$^-$	2323.14	15/2$^-$	E2	Mult.: DCO=1.13 *11*.
553.5 *2*	<2	4555.6	25/2$^+$	4001.79	23/2$^+$	(M1,E2)	
570.5 *2*	19 *1*	3416.1	23/2$^-$	2845.57	19/2$^-$	E2	Mult.: DCO=1.03 *9*.
574.7 *2*	<2	4076.0		3501.3			

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(HI,xnγ) 1997La17 (continued)

γ(^{117}Sb) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Mult. ‡	Comments
589.3 *2*	4 *1*	3214.56	19/2$^-$	2624.99	17/2$^+$	E1 @	
591.2 *2*	7 *1*	2778.3	17/2$^+$	2187.14	13/2$^+$	E2	Mult.: DCO=1.04 *10*.
604.0 *2*	2 *1*	2842.03	17/2$^-$	2237.81	15/2$^+$	E1 @	
632.6 *2*	2 *1*	1160.31	9/2$^+$	527.34	7/2$^+$	M1,E2	
669.9 *2*	<2	4107.9	29/2$^-$	3438.4	25/2$^-$	(E2)	
671.6 *2*	<2	1761.44	9/2$^+$	1089.82	7/2$^+$	M1,E2	Mult.: DCO=0.57 *17*.
699.4 *2*	<2	2187.14	13/2$^+$	1487.61	9/2$^+$		
700.2 *2*	13 *1*	4116.3	27/2$^-$	3416.1	23/2$^-$	E2	Mult.: DCO=0.97 *12*.
702.9 *2*	9 *1*	2237.81	15/2$^+$	1534.88	11/2$^+$	E2	Mult.: DCO=1.01 *15*.
703.9 *2*	3 *1*	3230.1	19/2$^+$	2526.24	15/2$^+$	E2	Mult.: DCO=1.08 *13*.
704.9 *2*	<2	3060.7		2355.77	13/2$^+$		
707.2 *2*	5 *1*	3485.5	21/2$^+$	2778.3	17/2$^+$	E2	Mult.: DCO=1.02 *19*.
711.5 *2*	8 *1*	1871.82	13/2$^+$	1160.31	9/2$^+$	E2	Mult.: DCO=1.00 *14*.
753.2 *2*	10 *2*	2624.99	17/2$^+$	1871.82	13/2$^+$	E2	Mult.: DCO=0.93 *12*.
769.7 *2*	2 *1*	4510.6	31/2$^-$	3741.1	27/2$^-$	(E2)	
776.3 *2*	<2	3837.0		3060.7			
783.3 *2*	3 *1*	1310.76	9/2$^+$	527.34	7/2$^+$	M1,E2	
795.6 *2*	34 *2*	1322.80	11/2$^-$	527.34	7/2$^+$	M2	Mult.: DCO=1.20 *15*.
800.4 *2*	2 *1*	4030.5	23/2$^+$	3230.1	19/2$^+$	E2	Mult.: DCO=0.91 *11*.
802.6 *2*	<2	3214.56	19/2$^-$	2412.19	15/2$^-$	E2	Mult.: DCO=0.93 *17*.
810.7 *2*	3 *1*	4296.2	25/2$^+$	3485.5	21/2$^+$	E2	Mult.: DCO=1.04 *30*.
813.0 *2*	8 *1*	4929.3	31/2$^-$	4116.3	27/2$^-$	E2	Mult.: DCO=1.04 *14*.
816.2 *2*	4 *1*	2526.24	15/2$^+$	1710.14	11/2$^+$	E2	Mult.: DCO=1.02 *12*.
820.2 *2*	4 *1*	3057.92	19/2$^+$	2237.81	15/2$^+$	E2	Mult.: DCO=1.23 *27*.
830.5 *2*	<2	4938.4	33/2$^-$	4107.9	29/2$^-$	(E2)	
842.3 *2*	<2	4679.3		3837.0			
872.2 *2*	<2	4902.7	27/2$^+$	4030.5	23/2$^+$	E2	Mult.: DCO=0.99 *14*.
876.3 *2*	4 *1*	2187.14	13/2$^+$	1310.76	9/2$^+$	E2	Mult.: DCO=1.03 *11*.
885.0 *2*	<2	5395.5	35/2$^-$	4510.6	31/2$^-$	(E2)	
886.2 *2*	<2	5182.4	29/2$^+$	4296.2	25/2$^+$	E2	Mult.: DCO=0.81 *18*.
891.4 *2*	2 *1*	3214.56	19/2$^-$	2323.14	15/2$^-$	E2 @	
898.0 *2*	4 *1*	3522.97	21/2$^+$	2624.99	17/2$^+$	E2	
902.3 *2*	2 *1*	4425.1	25/2$^+$	3522.97	21/2$^+$	E2	
908.0 *2*	3 *1*	5837.3	(35/2$^-$)	4929.3	31/2$^-$	(E2)	
921.9 *2*	<2	5824.6	(31/2$^+$)	4902.7	27/2$^+$	(E2)	
938.6 *2*	<2	6121.1	(33/2$^+$)	5182.4	29/2$^+$	(E2)	
938.7 *2*	<2	6763.4	(35/2$^+$)	5824.6	(31/2$^+$)	(E2)	
944.0 *2*	3 *1*	4001.79	23/2$^+$	3057.92	19/2$^+$	E2	Mult.: DCO=0.86 *17*.
945.7 *2*	<2	5884.0	(37/2$^-$)	4938.4	33/2$^-$	(E2)	
960.3 *2*	3 *1*	1487.61	9/2$^+$	527.34	7/2$^+$		
992.1 *2*	<2	6829.4	(39/2$^-$)	5837.3	(35/2$^-$)	(E2)	
995.4 *2*	<2	7116.5	(37/2$^+$)	6121.1	(33/2$^+$)	(E2)	
1000.2 *2*	70 *4*	2323.14	15/2$^-$	1322.80	11/2$^-$	E2	Mult.: DCO=1.06 *16*.
1009.5 *2*	<2	6404.9	(39/2$^-$)	5395.5	35/2$^-$	(E2)	
1026.8 *2*	<2	5028.2	27/2$^+$	4001.79	23/2$^+$	(E2)	
1032.6 *2*	<2	4555.6	25/2$^+$	3522.97	21/2$^+$	(E2)	
1045.0 *2*	2 *1*	2355.77	13/2$^+$	1310.76	9/2$^+$	E2	Mult.: DCO=0.93 *20*.
1067.8 *2*	<2	8184.3	(41/2$^+$)	7116.5	(37/2$^+$)		
1068.5 *2*	<2	6952.1	(41/2$^-$)	5884.0	(37/2$^-$)	(E2)	
1076.5 *2*	<2	7905.9	(43/2$^-$)	6829.4	(39/2$^-$)	(E2)	
1089.3 *2*	14 *2*	1089.82	7/2$^+$	0	5/2$^+$	M1,E2	Mult.: DCO=0.31 *5*.
1089.8 *2*	26 *1*	2412.19	15/2$^-$	1322.80	11/2$^-$	E2	Mult.: DCO=0.93 *6*.
1093.5 *2*	<2	5169.5		4076.0			
1160.2 *2*	100 *7*	1160.31	9/2$^+$	0	5/2$^+$	E2	Mult.: DCO=1.02 *4*.
1182.7 *2*	7 *1*	1710.14	11/2$^+$	527.34	7/2$^+$	E2	Mult.: DCO=0.98 *14*.

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(HI,xnγ) 1997La17 (continued)

γ(^{117}Sb) (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
1234.0 *2*	<2	1761.44	$9/2^+$	527.34	$7/2^+$	M1,E2	Mult.: DCO=0.36 *6*.
1310.8 *2*	22 *2*	1310.76	$9/2^+$	0	$5/2^+$	E2	Mult.: DCO=1.23 *20*.
1323.1 *2*	63 *3*	1322.80	$11/2^-$	0	$5/2^+$	E3	Mult.: DCO=1.44 *15*.
1512.2 *2*	<2	2039.33	$11/2^+$	527.34	$7/2^+$	E2	

† From 1997La17.
‡ From DCO (1997La17), unless otherwise noted.
# From 1979Sh03.
@ From 1981Io01.

(HI,xnγ) 1997La17

Level Scheme

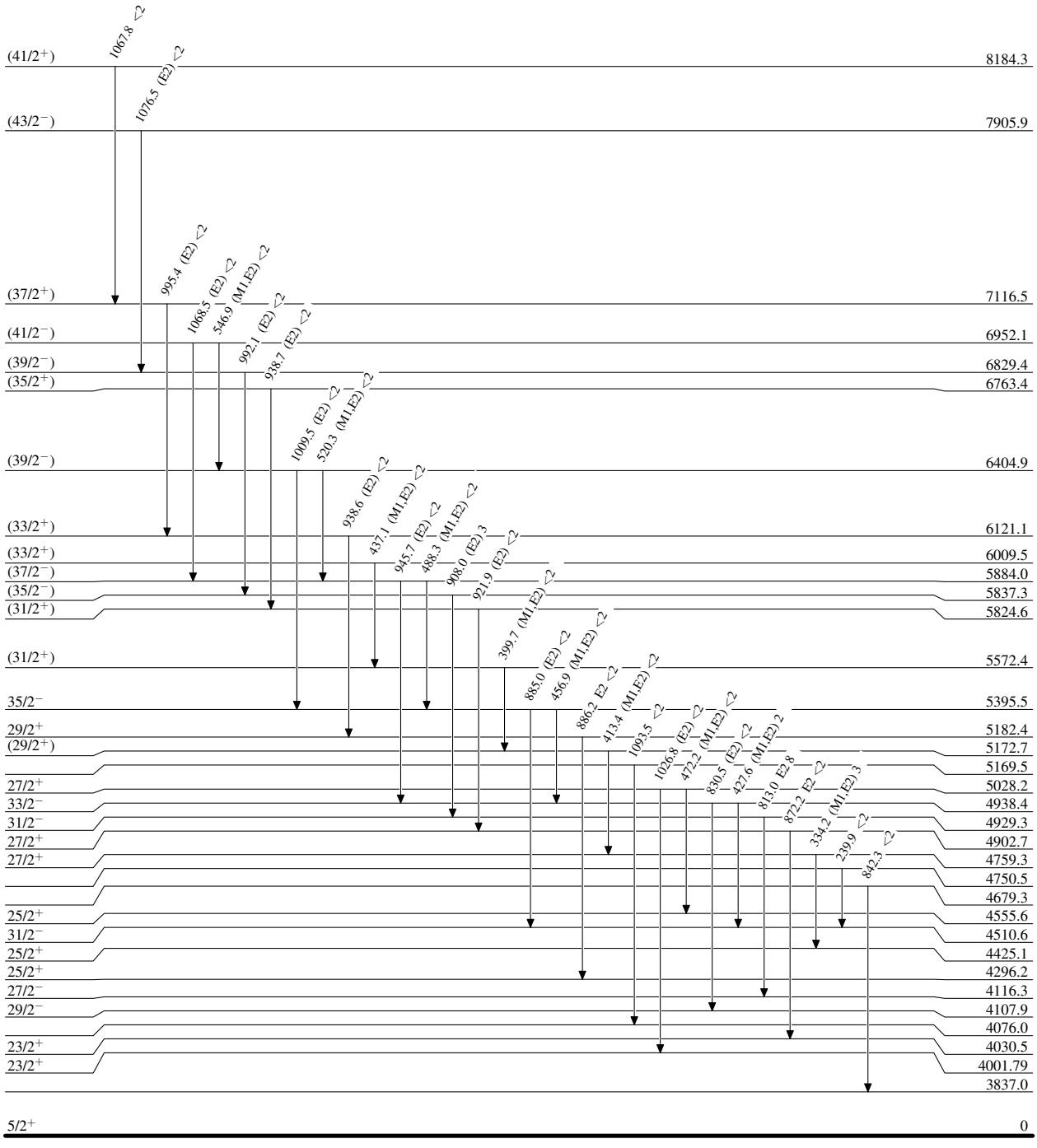
Intensities: Relative I_γ

Legend

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

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

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

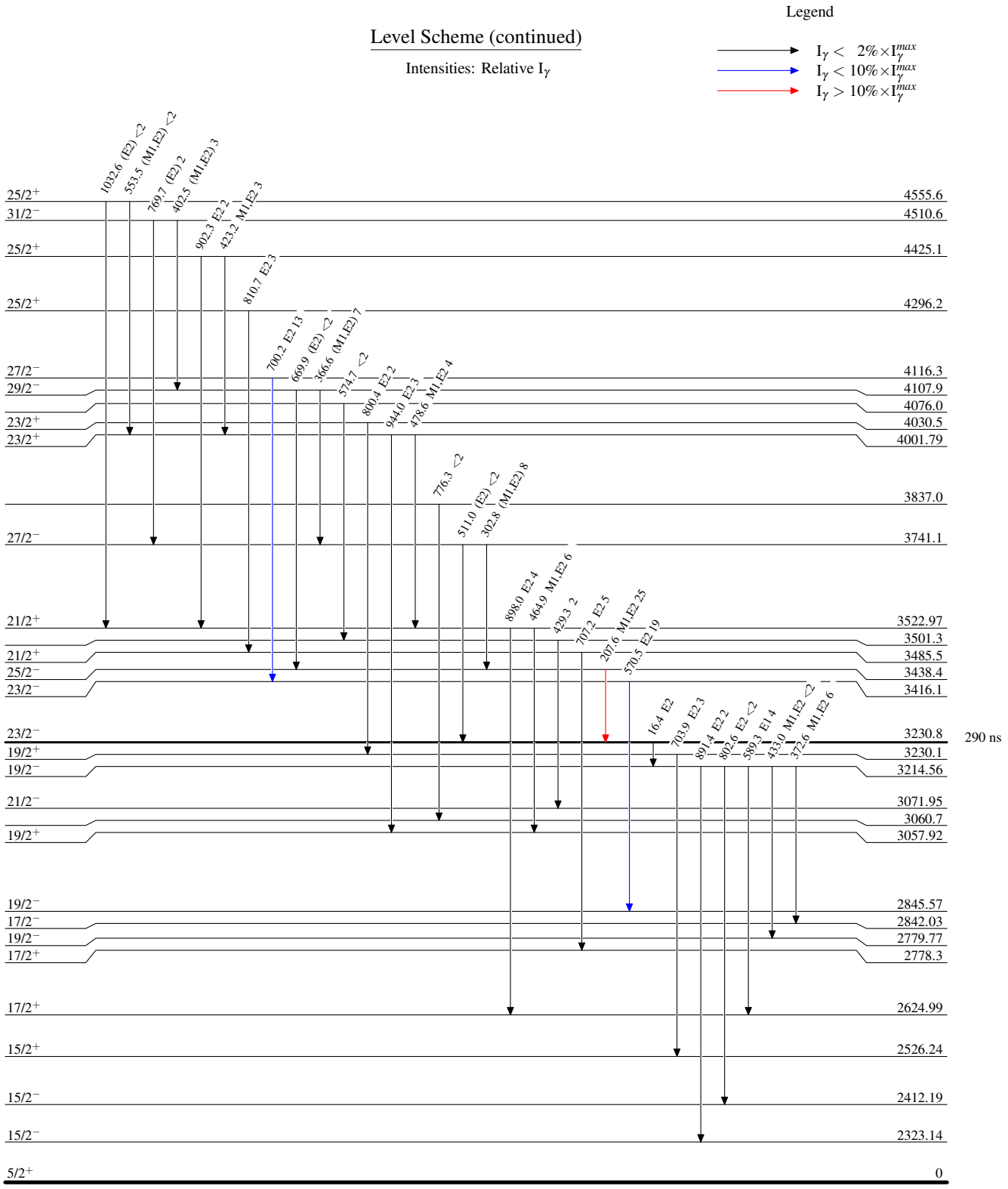


$^{117}_{51}Sb_{66}$

(HI,xnγ) 1997La17

Level Scheme (continued)

Intensities: Relative I_γ



$^{117}_{51}Sb_{66}$

(HI,xnγ) 1997La17

Level Scheme (continued)

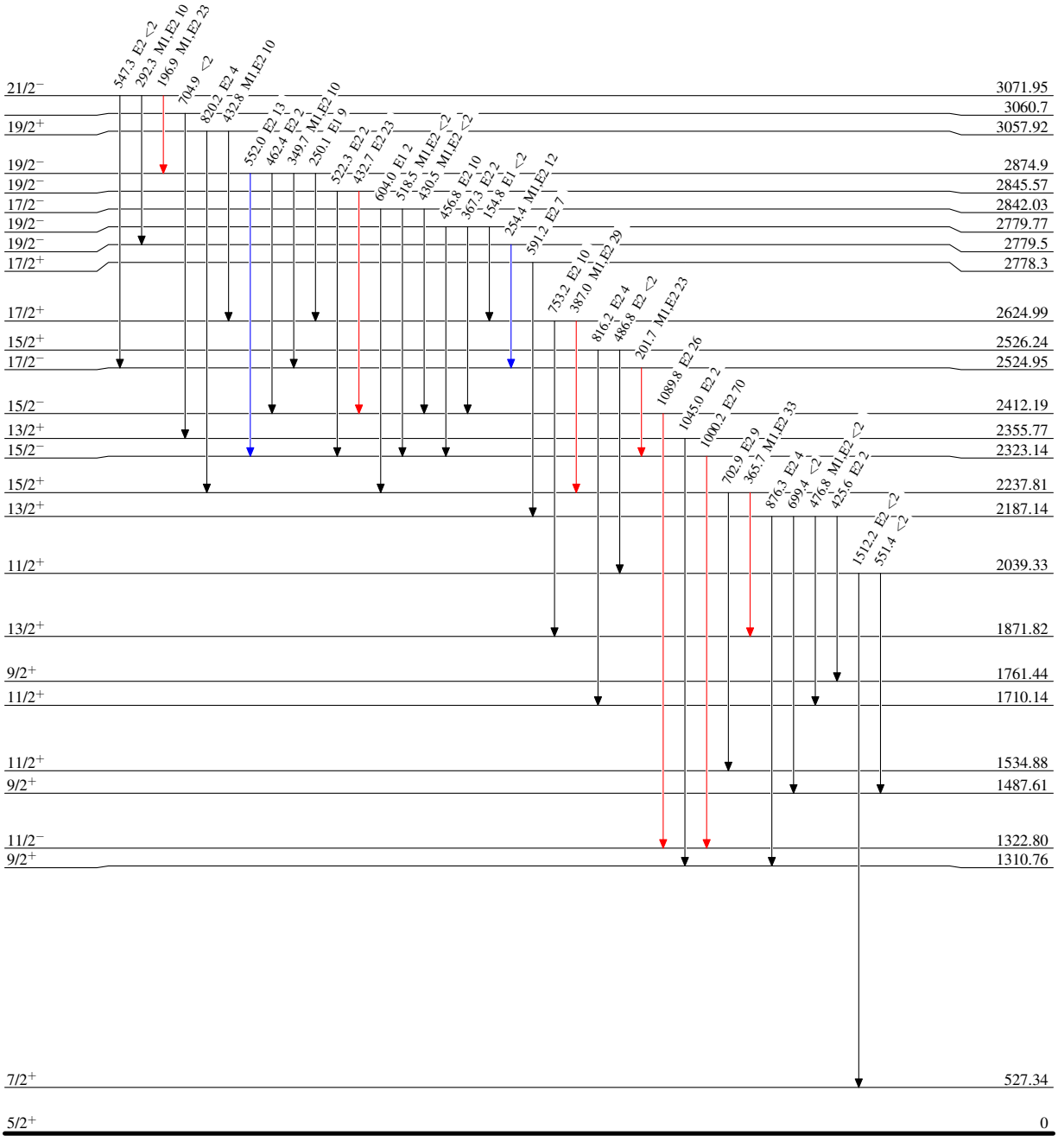
Intensities: Relative I_γ

Legend

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

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

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

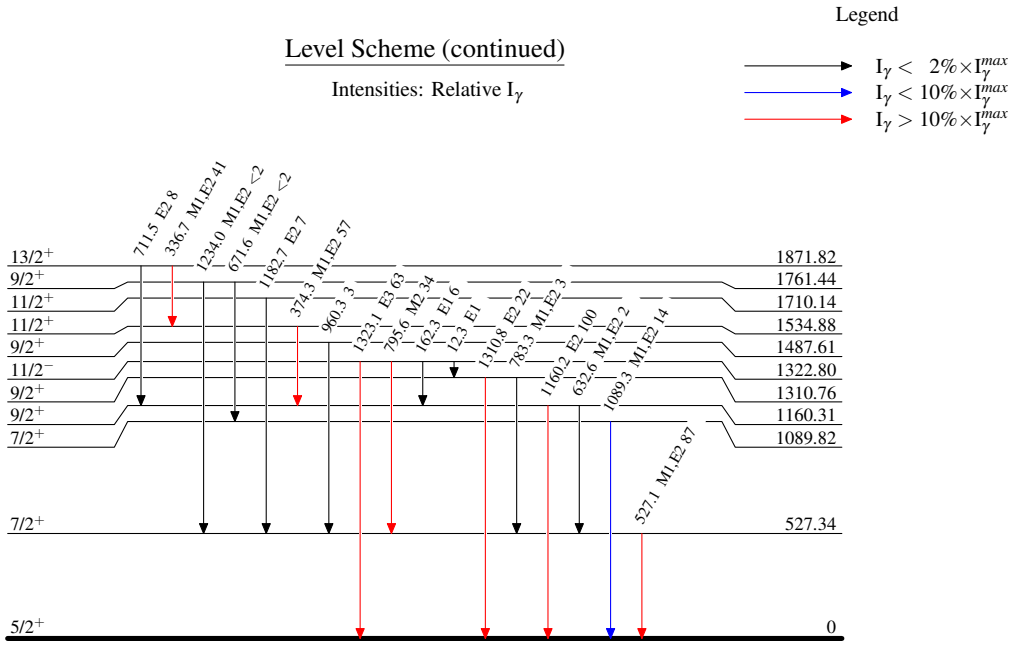


$^{117}_{51}Sb_{66}$

(HI,xnγ) 1997La17

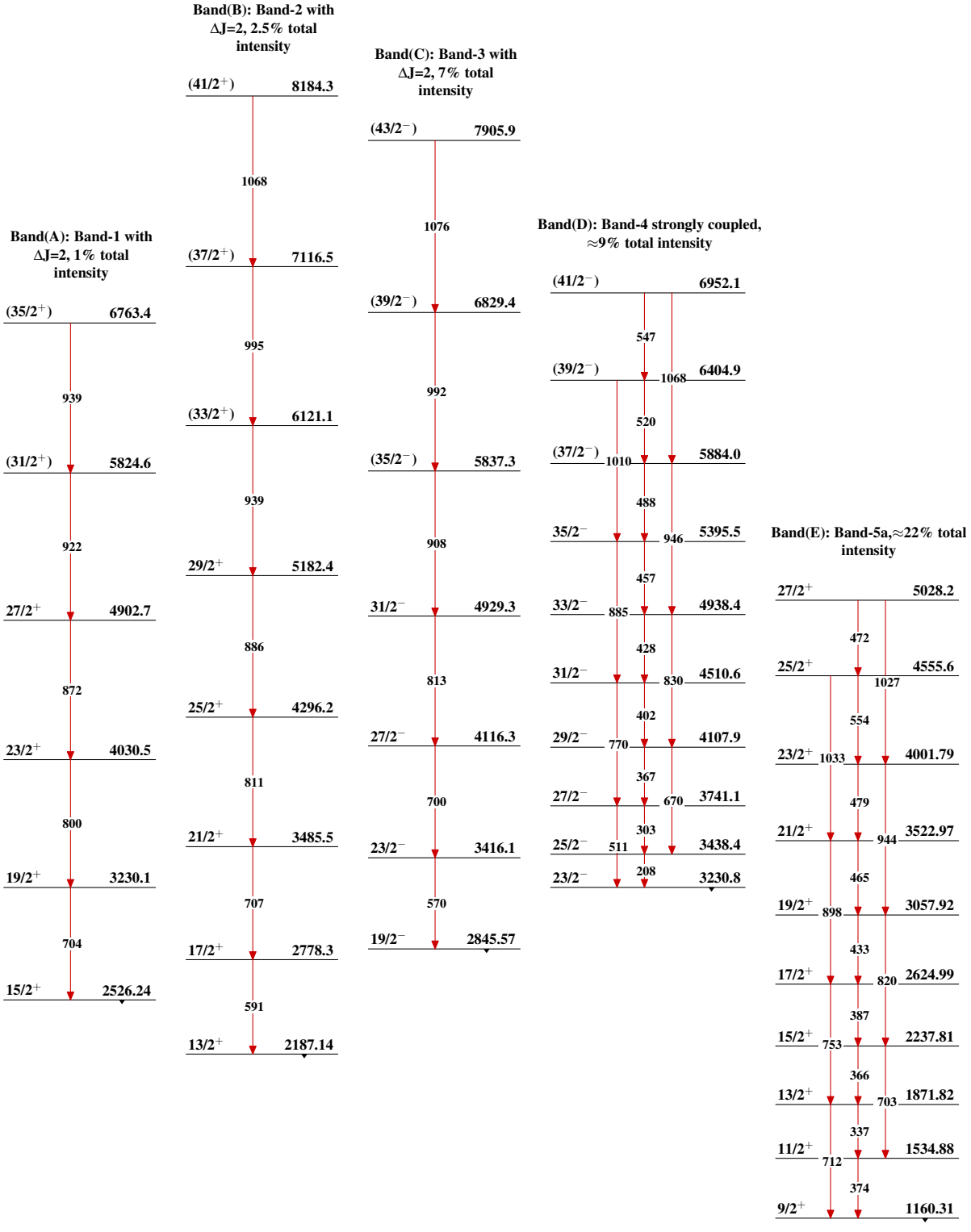
Level Scheme (continued)

Intensities: Relative I_γ



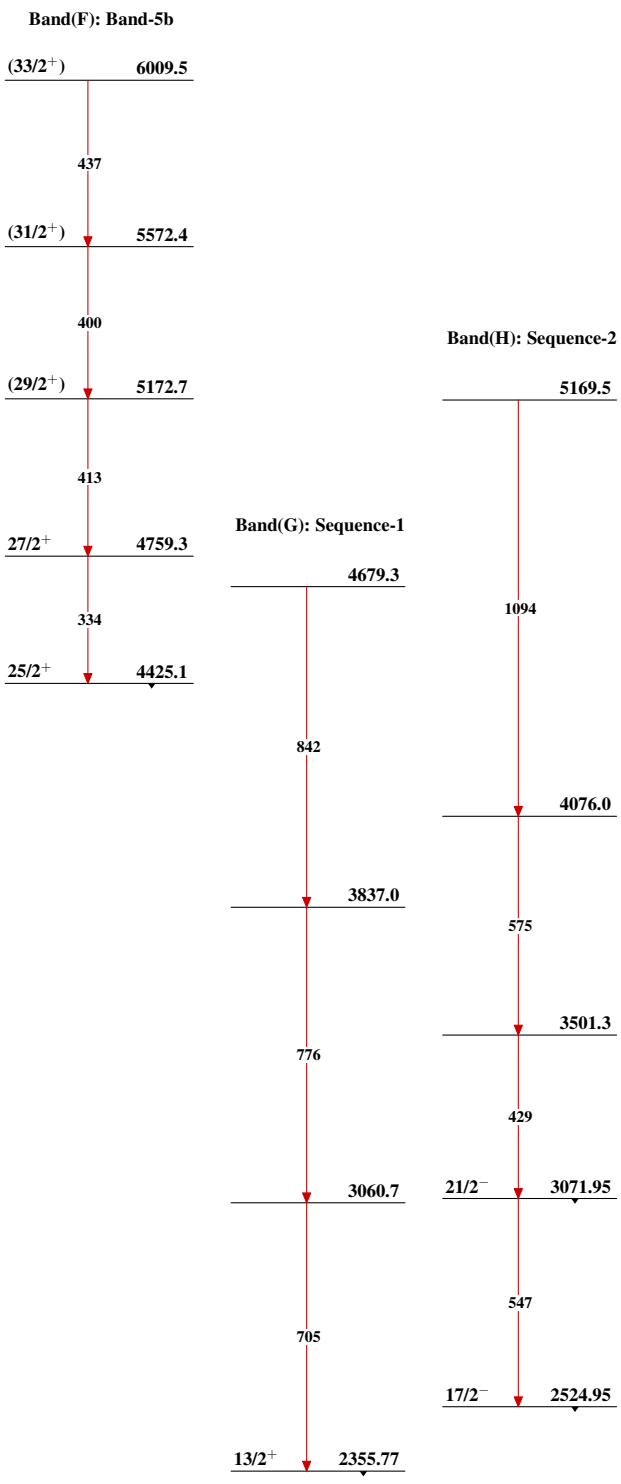
$^{117}_{51}Sb_{66}$

(HI,xnγ) 1997La17



$^{117}_{51}Sb_{66}$

(HI,xnγ) 1997La17 (continued)



$^{117}_{51}Sb_{66}$