^{90}Zr(^{31}P,p3nγ) 1998Pa38

History

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

1998Pa38: E= 150 MeV. Measured Eγ, Iγ, $\gamma\gamma(\theta)$, γ(lin pol) using EUROGAM II array.
1995Pa21: E= 150 MeV. Measured Eγ, Iγ, $\gamma\gamma(\theta)$, γ(lin pol) using EUROGAM. Preliminary work. They only show the 11/2$^-$ band (band 5 of 1998Pa38).

^{117}Xe Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0[b]	5/2$^+$	3287.8[h] 6	27/2$^+$
205.2[d] 3	7/2$^-$	3308.6[&] 6	27/2$^+$
221.2[a] 5	5/2$^+$	3491.9[b] 14	(27/2$^+$)
229.1 4	11/2$^-$	3501.1[a] 6	29/2$^+$
262.8[&] 4	7/2$^+$	3534.2[e] 6	29/2$^-$
271.0[b] 4	7/2$^+$	3591.7[f] 6	29/2$^+$
312.5[e] 5	9/2$^-$	3647.4[d] 6	31/2$^-$
506.77[a] 23	9/2$^+$	3919.2[g] 6	(31/2$^+$)
540.0[c] 4	9/2$^+$	3927.0[h] 6	(31/2$^+$)
629.6[d] 4	15/2$^-$	4068.4[&] 7	(31/2$^+$)
698.3[e] 5	13/2$^-$	4110.5? 15	
712.5[&] 4	11/2$^+$	4145.2? 12	
817.4[b] 4	11/2$^+$	4196.9[b] 17	(31/2$^+$)
988.5[a] 3	13/2$^+$	4258.3[a] 6	33/2$^+$
1122.0[c] 5	13/2$^+$	4298.1[f] 7	33/2$^+$
1210.9[d] 5	19/2$^-$	4307.5[e] 6	33/2$^-$
1247.3[&] 4	15/2$^+$	4571.8[d] 6	35/2$^-$
1274.6[e] 5	17/2$^-$	4607.4? 12	
1429.3[b] 6	15/2$^+$	4784.7[g] 8	(35/2$^+$)
1552.6[a] 4	17/2$^+$	4857.4? 16	
1766.4[c] 6	17/2$^+$	4911.4[&] 9	(35/2$^+$)
1862.2[&] 5	19/2$^+$	4922.4? 16	
1923.5[d] 5	23/2$^-$	5109.9[e] 6	37/2$^-$
1931.9? 11		5122.2[a] 8	(37/2$^+$)
1969.5[e] 6	21/2$^-$	5144.0[f] 7	37/2$^+$
2091.1[b] 7	19/2$^+$	5471.6[d] 7	39/2$^-$
2152.4[g] 5	(19/2$^+$)	5821.4[&] 14	(39/2$^+$)
2177.8[a] 5	21/2$^+$	5993.8[e] 7	41/2$^-$
2424.9[c] 7	21/2$^+$	6075.3[a] 9	(41/2$^+$)
2542.9[&] 5	23/2$^+$	6104.6[f] 7	41/2$^+$
2665.5[g] 5	(23/2$^+$)	6406.0[d] 7	43/2$^-$
2689.8[f] 6	21/2$^+$	6497.6?[k] 12	
2739.7[e] 6	25/2$^-$	6791.4[&] 17	(43/2$^+$)
2743.9[d] 5	27/2$^-$	6881.6? 12	
2755.5? 11		6980.1[e] 8	45/2$^-$
2796.1[b] 12	23/2$^+$	7025.0[f] 8	45/2$^+$
2834.3[a] 6	25/2$^+$	7128.3[a] 13	(45/2$^+$)
2973.5? 11		7413.0[d] 8	47/2$^-$
3048.7[f] 5	25/2$^+$	7559.6?[k] 16	
3205.7[g] 5	27/2$^+$	7887.3[f] 8	49/2$^+$

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^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)

^{117}Xe Levels (continued)

E(level)[†]	Jπ[‡]	Comments
8070.0[e] 10	(49/2⁻)	
8275.3[a] 17	(49/2⁺)	
8429.0? 13		
8501.8[d] 8	51/2⁻	
8588.6?[k] 19		
8867.8[f] 10	53/2⁺	
9255.6[e] 12	(53/2⁻)	
9529.3[a] 20	(53/2⁺)	
9644.0? 16		
9673.3[d] 9	55/2⁻	
9675.6?[k] 21		
10036.5[f] 12	57/2⁺	
10528.7[e] 13	(57/2⁻)	
10877.0? 19		
10889.3[a] 22	(57/2⁺)	
10936.2[d] 11	(59/2⁻)	
11215.5 16	(61/2⁺)	
11351.6[f] 13	(61/2⁺)	
11885.5[e] 15	(61/2⁻)	
12278.1[d] 12	(63/2⁻)	
13340.5[e] 18	(65/2⁻)	
13704.9[d] 14	(67/2⁻)	
15217.8[d] 15	(71/2⁻)	
16811.9[d] 16	(75/2⁻)	
18508.7[d] 17	(79/2⁻)	
20314.8[d] 18	(83/2⁻)	
22244.5[d] 19	(87/2⁻)	
24251.5[d] 22	(91/2⁻)	
0+x?[#i]		Additional information 1.
901+x?[i]		
1862+x?[i]		
2913+x?[i]		
4047+x?[i]		
0+y?[@ j]		Additional information 2.
780+y?[j]		
1673+y?[j]		
2672+y?[j]		
3771+y?[j]		
4957+y?[j]		
6219+y?[j]		

[†] From least-squares fit to Eγ′s.
[‡] As given by 1998Pa38, based on DCO ratios and band assignments.
[#] x shown as > 5 MeV in figure 1 of 1998Pa38.
[@] y >3207 since this band feeds mainly at 3207, 27/2⁺.
[&] Band(A): Band #1 $\nu g_{7/2}$,[413] 5/2⁺ band, α=±1/2.

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^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)

^{117}Xe Levels (continued)

[a] Band(B): Band #2 $\nu g_{7/2}$,[413] $5/2^+$ band, α=+1/2.
[b] Band(C): Band #3 νd5/2,[402] $5/2^+$ band.
[c] Band(D): Band #4 νd5/2,[402] $5/2^+$ band.
[d] Band(E): Band #5 $\nu h_{11/2}$,[532] $5/2^-$ band, α=−1/2.
[e] Band(F): Band #6 $\nu h_{11/2}$,[532] $5/2^-$ band, α=+1/2.
[f] Band(G): Band #7.
[g] Band(H): Band #8.
[h] Band(I): Band #9.
[i] Band(J): γ-sequence 1 (?).
[j] Band(K): γ-sequence 2 (?).
[k] Band(L): γ-sequence 3 (?).

γ(^{117}Xe)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
83.4 *6*	<5	312.5	$9/2^-$	229.1	$11/2^-$		
107.2 *6*	<10	312.5	$9/2^-$	205.2	$7/2^-$	M1,E2	R(DCO)= 0.25 *2*.
172.7 *6*	<1	712.5	$11/2^+$	540.0	$9/2^+$	M1,E2	R(DCO)= 0.56 *3*, 0.27 *2*.
205.1 *3*	>100	205.2	$7/2^-$	0.0	$5/2^+$	E1	R(DCO)= 0.69 *2*.
205.9 *6*	2.2 *2*	712.5	$11/2^+$	506.77	$9/2^+$	M1,E2	R(DCO)= 0.88 *5*, 0.56 *4*.
221.3 *6*	<1	221.2	$5/2^+$	0.0	$5/2^+$	M1,E2	R(DCO)= 0.73 *3*, 0.79 *4*.
226 *1*	<1	4145.2?		3919.2	$(31/2^+)$		
235.6 *6*	<1	506.77	$9/2^+$	271.0	$7/2^+$	M1+E2	R(DCO)= 0.84 *4*, 0.52 *3*.
243.2 *6*	<1	506.77	$9/2^+$	262.8	$7/2^+$		
250[†]		4857.4?		4607.4?			
258.5 *6*	<1	1247.3	$15/2^+$	988.5	$13/2^+$		
262.8 *6*	5.9 *6*	262.8	$7/2^+$	0.0	$5/2^+$	M1,E2	R(DCO)= 0.77 *2*, 0.61 *2*. Pol=− 0.07 *4*.
263.0 *6*	2.6 *3*	4571.8	$35/2^-$	4307.5	$33/2^-$	M1+E2	R(DCO)= 0.59 *3*, 0.67 *4*.
268.5 *6*	6.0 *6*	540.0	$9/2^+$	271.0	$7/2^+$	M1,E2	R(DCO)= 0.97 *10*.
270.8 *6*	8.0 *8*	271.0	$7/2^+$	0.0	$5/2^+$	M1,E2	R(DCO)= 0.62 *4*, 0.32 *3*. Pol=− 0.08 *6*.
276.7 *6*	3.0 *3*	988.5	$13/2^+$	712.5	$11/2^+$	M1,E2	R(DCO)= 0.67 *10*, 0.85 *10*.
276.9 *6*	1.1 *1*	817.4	$11/2^+$	540.0	$9/2^+$	M1,E2	R(DCO)= 0.72 *2* for doublet.
277.8 *6*	3.9 *4*	540.0	$9/2^+$	262.8	$7/2^+$	M1,E2	R(DCO)= 0.72 *2* for doublet.
283.4 *6*	1.50 *15*	3591.7	$29/2^+$	3308.6	$27/2^+$	M1,E2	R(DCO)= 0.62 *4*. Pol=− 0.5 *2*.
285.7 *6*	1.0 *1*	506.77	$9/2^+$	221.2	$5/2^+$	E2	R(DCO)= 1.06 *7*.
295.7 *6*	<1	3501.1	$29/2^+$	3205.7	$27/2^+$		
301.5 *6*	<1	506.77	$9/2^+$	205.2	$7/2^-$		
303.6 *6*	1.0 *1*	3591.7	$29/2^+$	3287.8	$27/2^+$	M1,E2	R(DCO)= 0.71 *3*. Pol=− 0.22 *12*.
304.6 *6*	3.7 *4*	1122.0	$13/2^+$	817.4	$11/2^+$	M1,E2	R(DCO)= 0.69 *4*.
307.4 *6*	2.1 *2*	1429.3	$15/2^+$	1122.0	$13/2^+$	M1,E2	R(DCO)= 0.72 *4*.
315[†]		4922.4?		4607.4?			
324.9 *6*	1.40 *14*	2091.1	$19/2^+$	1766.4	$17/2^+$		
331.2 *6*	<1	4258.3	$33/2^+$	3927.0	$(31/2^+)$		
337.2 *6*	1.60 *16*	1766.4	$17/2^+$	1429.3	$15/2^+$	M1,E2	R(DCO)= 0.78 *5*.
338 *1*	<1	4258.3	$33/2^+$	3919.2	$(31/2^+)$		
358.8 *6*	1.50 *15*	3048.7	$25/2^+$	2689.8	$21/2^+$	E2	R(DCO)= 1.0 *5*.
360 *1*	<1	5144.0	$37/2^+$	4784.7	$(35/2^+)$		
361.7 *3*	9.8 *5*	5471.6	$39/2^-$	5109.9	$37/2^-$		
379 *1*	<1	4298.1	$33/2^+$	3919.2	$(31/2^+)$		
385.6 *6*	5.2 *5*	698.3	$13/2^-$	312.5	$9/2^-$	E2	R(DCO)= 1.03 *3*, 0.90 *3*. Pol=+ 0.49 *15*.
386.0 *6*	1.20 *12*	3591.7	$29/2^+$	3205.7	$27/2^+$	M1,E2	R(DCO)= 0.50 *5*.
400.6 *3*	100	629.6	$15/2^-$	229.1	$11/2^-$	E2	R(DCO)= 1.05 *1*, 0.98 *1*. Pol=+ 0.49 *7*.
411.8 *3*	12.0 *6*	6406.0	$43/2^-$	5993.8	$41/2^-$	M1,E2	R(DCO)= 0.79 *3*, 0.83 *3*.

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^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)

γ(^{117}Xe) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
433.1 *6*	4.6 *5*	7413.0	47/2$^-$	6980.1	45/2$^-$	M1,E2	R(DCO)= 0.69 *2*, 0.69 *3*.
441.8 *6*	7.0 *7*	712.5	11/2$^+$	271.0	7/2$^+$	E2	R(DCO)= 1.07 *3*, 0.90 *4*.
448.8 *6*	2.9 *3*	988.5	13/2$^+$	540.0	9/2$^+$	E2	R(DCO)= 1.10 *3*, 1.00 *5*.
449.7 *6*	6.1 *6*	712.5	11/2$^+$	262.8	7/2$^+$	E2	R(DCO)= 1.05 *2*, 1.03 *2*. Pol=+ 0.28 *6*.
463 *1*	<1	3205.7	27/2$^+$	2743.9	27/2$^-$		
469.2 *6*	4.9 *5*	698.3	13/2$^-$	229.1	11/2$^-$	M1,E2	R(DCO)= 0.60 *2*, 0.43 *2*.
481.5 *3*	15.0 *8*	988.5	13/2$^+$	506.77	9/2$^+$	E2	R(DCO)= 1.03 *2*, 1.03 *2*. Pol=+ 0.55 *18*.
483 *1*	<1	712.5	11/2$^+$	229.1	11/2$^-$		
487.2 *6*	3.0 *3*	2665.5	(23/2$^+$)	2177.8	21/2$^+$		
506.8 *3*	12.0 *6*	506.77	9/2$^+$	0.0	5/2$^+$	E2	R(DCO)= 0.89 *5*, 0.81 *5*.
513.0 *6*	1.1 *1*	2665.5	(23/2$^+$)	2152.4	(19/2$^+$)		
521.7 *6*	3.1 *3*	5993.8	41/2$^-$	5471.6	39/2$^-$	M1,E2	R(DCO)= 0.69 *5*.
534.8 *3*	19 *1*	1247.3	15/2$^+$	712.5	11/2$^+$	E2	R(DCO)= 0.99 *2*, 1.01 *2*. Pol=+ 0.43 *7*.
537.6 *6*	4.1 *4*	5109.9	37/2$^-$	4571.8	35/2$^-$	M1,E2	R(DCO)= 0.46 *4*, 0.45 *8*.
540.0 *6*	2.6 *3*	3205.7	27/2$^+$	2665.5	(23/2$^+$)		
540.3 *6*	7.9 *8*	540.0	9/2$^+$	0.0	5/2$^+$		
542.9 *6*	3.8 *4*	3591.7	29/2$^+$	3048.7	25/2$^+$	E2	R(DCO)= 1.40 *4*, 0.98 *6*.
546.6 *6*	4.1 *4*	817.4	11/2$^+$	271.0	7/2$^+$	E2	R(DCO)= 1.26 *15*.
554.6 *6*	1.0 *1*	817.4	11/2$^+$	262.8	7/2$^+$		
564.1 *3*	18 *1*	1552.6	17/2$^+$	988.5	13/2$^+$	E2	R(DCO)= 1.10 *4*, 0.96 *3*.
574.0 *6*	2.0 *2*	6980.1	45/2$^-$	6406.0	43/2$^-$		
576.0 *6*	9.7 *10*	1274.6	17/2$^-$	698.3	13/2$^-$	E2	R(DCO)= 0.95 *5*, 1.22 *5*. Pol=+ 0.55 *10*.
581.4 *3*	95 *5*	1210.9	19/2$^-$	629.6	15/2$^-$	E2	R(DCO)= 0.94 *2*, 0.94 *2*. Pol=+ 0.43 *7*.
582.4 *6*	3.9 *4*	1122.0	13/2$^+$	540.0	9/2$^+$	E2	R(DCO)= 1.07 *3*, 1.10 *11*.
599.6 *6*	<1	2152.4	(19/2$^+$)	1552.6	17/2$^+$		
610 *1*	<1	3919.2	(31/2$^+$)	3308.6	27/2$^+$		
611.5 *6*	2.1 *2*	1429.3	15/2$^+$	817.4	11/2$^+$	E2	R(DCO)= 1.17 *7*, 1.31 *13*. Pol=+ 0.29 *38*.
613 *1*	<1	4258.3	33/2$^+$	3647.4	31/2$^-$		
614.9 *3*	27.0 *14*	1862.2	19/2$^+$	1247.3	15/2$^+$	E2	R(DCO)= 0.97 *2*, 0.92 *2*. Pol=+ 0.45 *7*.
618 *1*	<1	1247.3	15/2$^+$	629.6	15/2$^-$		
623.9 *6*	1.70 *17*	3048.7	25/2$^+$	2424.9	21/2$^+$		
625.3 *3*	14.0 *7*	2177.8	21/2$^+$	1552.6	17/2$^+$	E2	R(DCO)= 1.48 *9*, 1.17 *5*. Pol=+ 0.9 *2*.
630 *1*	1.1 *1*	3919.2	(31/2$^+$)	3287.8	27/2$^+$		
639.6 *6*	3.0 *3*	3927.0	(31/2$^+$)	3287.8	27/2$^+$		
644.8 *6*	5.0 *5*	1274.6	17/2$^-$	629.6	15/2$^-$	M1,E2	R(DCO)= 0.64 *3*, 0.42 *3*.
644.9 *6*	2.9 *3*	1766.4	17/2$^+$	1122.0	13/2$^+$	E2	R(DCO)= 1.10 *7*, 1.11 *10*.
656.5 *6*	5.8 *6*	2834.3	25/2$^+$	2177.8	21/2$^+$	E2	R(DCO)= 0.90 *4*, 0.83 *4*. Pol=+ 0.13 *15*.
658.6 *6*	2.7 *3*	2424.9	21/2$^+$	1766.4	17/2$^+$	E2	R(DCO)= 0.87 *15*.
659.4 *6*	2.1 *2*	4307.5	33/2$^-$	3647.4	31/2$^-$	M1+E2	R(DCO)= 0.77 *4*, 0.79 *8*.
661.5 *6*	1.60 *16*	2091.1	19/2$^+$	1429.3	15/2$^+$	E2	R(DCO)= 1.00 *4*, 0.84 *8*. Pol=+ 0.29 *9*.
662.9 *3*	12.3 *6*	3205.7	27/2$^+$	2542.9	23/2$^+$	E2	R(DCO)= 1.06 *3*, 1.08 *4*. Pol=+ 0.46 *7*.
666.8 *6*	5.6 *6*	3501.1	29/2$^+$	2834.3	25/2$^+$	E2	R(DCO)= 0.80 *9*, 1.37 *9*.
680.7 *3*	23.0 *12*	2542.9	23/2$^+$	1862.2	19/2$^+$	E2	R(DCO)= 0.92 *2*, 0.94 *2*. Pol=+ 0.46 *7*.
694.9 *6*	9.0 *9*	1969.5	21/2$^-$	1274.6	17/2$^-$	E2	R(DCO)= 1.05 *5*, 1.22 *4*. Pol=+ 0.2 *5*.
695.8 *6*	1.1 *1*	3491.9	(27/2$^+$)	2796.1	23/2$^+$		
696 *1*	<1	2665.5	(23/2$^+$)	1969.5	21/2$^-$		
705# *1*	1.20# *12*	2796.1	23/2$^+$	2091.1	19/2$^+$	E2	R(DCO)= 1.14 *14*. Pol= 0.25 *9* for doublet.
705# *1*	1.2# *1*	4196.9	(31/2$^+$)	3491.9	(27/2$^+$)	E2	
706.4 *6*	9.2 *9*	4298.1	33/2$^+$	3591.7	29/2$^+$	E2	R(DCO)= 0.92 *2*, 0.90 *2*. Pol=+ 0.38 *9*.
712.9 *3*	84 *4*	1923.5	23/2$^-$	1210.9	19/2$^-$	E2	R(DCO)= 0.99 *2*, 1.15 *3*. Pol=+ 0.58 *8*.
713.5 *6*	5.1 *5*	3919.2	(31/2$^+$)	3205.7	27/2$^+$		
721†		1931.9?		1210.9	19/2$^-$		
721.4 *6*	1.1 *1*	3927.0	(31/2$^+$)	3205.7	27/2$^+$		
743 *1*	<1	2665.5	(23/2$^+$)	1923.5	23/2$^-$		
744.5 *6*	5.2 *5*	3287.8	27/2$^+$	2542.9	23/2$^+$	E2	R(DCO)= 0.94 *5*.

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^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)

γ(^{117}Xe) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
756.5 *6*	1.9 *2*	3501.1	29/2$^+$	2743.9	27/2$^-$		
756.7 *6*	6.0 *6*	4258.3	33/2$^+$	3501.1	29/2$^+$	E2	R(DCO)= 0.97 *2*, 0.96 *3*. Pol=+ 0.48 *13*.
757.9 *6*	8.9 *9*	1969.5	21/2$^-$	1210.9	19/2$^-$		
759.5 *6*	4.1 *4*	988.5	13/2$^+$	229.1	11/2$^-$	E1	R(DCO)= 0.60 *3*.
759.5 *6*	8.0 *8*	4068.4	(31/2$^+$)	3308.6	27/2$^+$		
765.5 *6*	9.0 *9*	3308.6	27/2$^+$	2542.9	23/2$^+$	E2	R(DCO)= 1.00 *5*.
769.5 *6*	7.0 *7*	2739.7	25/2$^-$	1969.5	21/2$^-$	E2	R(DCO)= 0.89 *5*, 0.98 *4*. Pol=+ 0.7 *9*.
773.1 *3*	9.9 *5*	4307.5	33/2$^-$	3534.2	29/2$^-$	E2	R(DCO)= 0.94 *4*, 1.29 *9*.
780†		780+y?		0+y?			
781 *1*	<1	4068.4	(31/2$^+$)	3287.8	27/2$^+$		
790.4 *6*	4.8 *5*	3534.2	29/2$^-$	2743.9	27/2$^-$		
793.6 *6*	5.1 *5*	3534.2	29/2$^-$	2739.7	25/2$^-$		
802.4 *3*	10.0 *5*	5109.9	37/2$^-$	4307.5	33/2$^-$	E2	R(DCO)= 0.95 *3*, 1.14 *4*.
803.2 *6*	2.1 *2*	2665.5	(23/2$^+$)	1862.2	19/2$^+$		
816.0 *6*	7.0 *7*	2739.7	25/2$^-$	1923.5	23/2$^-$		
820.8 *3*	75 *4*	2743.9	27/2$^-$	1923.5	23/2$^-$	E2	R(DCO)= 1.06 *2*, 0.96 *3*. Pol=+ 0.45 *7*.
832†		2755.5?		1923.5	23/2$^-$		
843.0 *6*	1.70 *17*	4911.4	(35/2$^+$)	4068.4	(31/2$^+$)		
845.8 *3*	14.0 *7*	5144.0	37/2$^+$	4298.1	33/2$^+$	E2	R(DCO)= 0.92 *6*, 1.16 *8*. Pol=+ 0.27 *27*.
859 *1*	<1	4784.7	(35/2$^+$)	3927.0	(31/2$^+$)		
862.3 *3*	10.0 *5*	7887.3	49/2$^+$	7025.0	45/2$^+$	E2	R(DCO)= 1.30 *12*, 1.03 *6*. Pol=+ 0.45 *18*.
863 *1*	<1	4068.4	(31/2$^+$)	3205.7	27/2$^+$		
863.0 *6*	5.0 *5*	5122.2	(37/2$^+$)	4258.3	33/2$^+$		
865 *1*	1.1 *1*	4784.7	(35/2$^+$)	3919.2	(31/2$^+$)		
871 *1*	1.0 *1*	3048.7	25/2$^+$	2177.8	21/2$^+$		
877.5 *6*	1.0 *1*	2152.4	(19/2$^+$)	1274.6	17/2$^-$		
883.1 *6*	9.0 *9*	5993.8	41/2$^-$	5109.9	37/2$^-$		
886.3 *6*	2.1 *2*	5144.0	37/2$^+$	4258.3	33/2$^+$		
893†		1673+y?		780+y?			
900.0 *3*	25.0 *13*	5471.6	39/2$^-$	4571.8	35/2$^-$	E2	R(DCO)= 1.30 *5*, 1.00 *4*.
901†		901+x?		0+x?			
903.8 *3*	45.0 *22*	3647.4	31/2$^-$	2743.9	27/2$^-$	E2	R(DCO)= 0.95 *4*, 1.20 *6*.
910 *1*	1.2 *1*	5821.4	(39/2$^+$)	4911.4	(35/2$^+$)		
910.6 *6*	1.80 *18*	2834.3	25/2$^+$	1923.5	23/2$^-$	E1	R(DCO)= 0.70 *5*. Pol=+ 0.65 *13*.
920.5 *3*	15.0 *8*	7025.0	45/2$^+$	6104.6	41/2$^+$	E2	R(DCO)= 1.25 *4*, 1.16 *9*. Pol=+ 0.58 *20*.
922.7 *6*	3.5 *4*	1552.6	17/2$^+$	629.6	15/2$^-$		
924.8 *3*	31.0 *16*	4571.8	35/2$^-$	3647.4	31/2$^-$	E2	R(DCO)= 1.14 *7*, 0.80 *5*. Pol=+ 0.27 *16*.
934.7 *3*	19 *1*	6406.0	43/2$^-$	5471.6	39/2$^-$	E2	R(DCO)= 0.93 *5*, 0.81 *3*.
943 *1*	<1	2152.4	(19/2$^+$)	1210.9	19/2$^-$		
949.4 *6*	1.0 *1*	7025.0	45/2$^+$	6075.3	(41/2$^+$)		
952 *1*	4.2 *4*	6075.3	(41/2$^+$)	5122.2	(37/2$^+$)		
960†		4607.4?		3647.4	31/2$^-$		
960.9 *3*	16.0 *8*	6104.6	41/2$^+$	5144.0	37/2$^+$	E2	R(DCO)= 0.98 *6*, 1.00 *4*.
961†		1862+x?		901+x?			
966.5 *6*	3.4 *3*	2177.8	21/2$^+$	1210.9	19/2$^-$	E1	R(DCO)= 0.74 *7*. Pol=+ 0.66 *13*.
970 *1*	<1	6791.4	(43/2$^+$)	5821.4	(39/2$^+$)		
980.5 *6*	9.1 *9*	8867.8	53/2$^+$	7887.3	49/2$^+$	E2	R(DCO)= 1.02 *3*, 1.28 *9*.
981 *1*	<1	6104.6	41/2$^+$	5122.2	(37/2$^+$)		
986.6 *6*	7.1 *7*	6980.1	45/2$^-$	5993.8	41/2$^-$		
999†		2672+y?		1673+y?			
1006.9 *3*	18 *1*	7413.0	47/2$^-$	6406.0	43/2$^-$	E2	R(DCO)= 1.02 *4*. Pol= 0.73 *15*.
1016†		8429.0?		7413.0	47/2$^-$		
1026†		6497.6?		5471.6	39/2$^-$		

Continued on next page (footnotes at end of table)

^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)

γ(^{117}Xe) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
1029†		8588.6?		7559.6?			
1050†		2973.5?		1923.5	$23/2^-$		
1051†		2913+x?		1862+x?			
1053 *1*	3.9 *4*	7128.3	$(45/2^+)$	6075.3	$(41/2^+)$		
1062†		7559.6?		6497.6?			
1087†		9675.6?		8588.6?			
1088.8 *3*	15.0 *15*	8501.8	$51/2^-$	7413.0	$47/2^-$	E2	R(DCO)= 1.00 *6*. Pol=+ 0.13 *7*.
1089.9 *6*	5.9 *6*	8070.0	$(49/2^-)$	6980.1	$45/2^-$		
1099†		3771+y?		2672+y?			
1124.9 *6*	1.10 *11*	3048.7	$25/2^+$	1923.5	$23/2^-$	E1	R(DCO)= 0.70 *5*.
1134†		4047+x?		2913+x?			
1137†		4110.5?		2973.5?			
1147 *1*	3.0 *3*	8275.3	$(49/2^+)$	7128.3	$(45/2^+)$		
1168.6 *6*	5.0 *5*	10036.5	$57/2^+$	8867.8	$53/2^+$	E2	R(DCO)= 0.85 *10*.
1171.5 *3*	11.2 *6*	9673.3	$55/2^-$	8501.8	$51/2^-$	E2	R(DCO)= 0.93 *8*. Pol=+ 0.50 *10*.
1179 *1*	<1	11215.5	$(61/2^+)$	10036.5	$57/2^+$		
1185.6 *6*	5.0 *5*	9255.6	$(53/2^-)$	8070.0	$(49/2^-)$		
1186†		4957+y?		3771+y?			
1215†		9644.0?		8429.0?			
1233†		10877.0?		9644.0?			
1254 *1*	2.30 *23*	9529.3	$(53/2^+)$	8275.3	$(49/2^+)$		
1262†		6219+y?		4957+y?			
1262.9 *6*	5.8 *6*	10936.2	$(59/2^-)$	9675.6?			
1273.1 *6*	3.9 *4*	10528.7	$(57/2^-)$	9255.6	$(53/2^-)$		
1315.1 *6*	1.0 *1*	11351.6	$(61/2^+)$	10036.5	$57/2^+$		
1341.9 *6*	5.7 *6*	12278.1	$(63/2^-)$	10936.2	$(59/2^-)$		
1356.8 *6*	1.9 *2*	11885.5	$(61/2^-)$	10528.7	$(57/2^-)$		
1360 *1*	<1	10889.3	$(57/2^+)$	9529.3	$(53/2^+)$		
1410†		6881.6?		5471.6	$39/2^-$		
1426.8 *6*	4.6 *5*	13704.9	$(67/2^-)$	12278.1	$(63/2^-)$		
1455 *1*	<1	13340.5	$(65/2^-)$	11885.5	$(61/2^-)$		
1478.9 *6*	1.1 *1*	2689.8	$21/2^+$	1210.9	$19/2^-$	E1	R(DCO)= 0.5 *2*.
1512.9 *6*	4.1 *4*	15217.8	$(71/2^-)$	13704.9	$(67/2^-)$		
1594.1 *6*	4.0 *4*	16811.9	$(75/2^-)$	15217.8	$(71/2^-)$		
1696.8 *6*	3.8 *4*	18508.7	$(79/2^-)$	16811.9	$(75/2^-)$		
1806.1 *6*	3.6 *4*	20314.8	$(83/2^-)$	18508.7	$(79/2^-)$		
1929.6 *6*	3.1 *4*	22244.5	$(87/2^-)$	20314.8	$(83/2^-)$		
2007 *1*	2.0 *2*	24251.5	$(91/2^-)$	22244.5	$(87/2^-)$		E_γ: 2070 in figure 1 of 1998Pa38.

† From figure 1 of 1998Pa38.
‡ From DCO ratios and linear polarization. 1998Pa38 give two ratios R1 and R2 depending of the position of the gated γ.
# Multiply placed with undivided intensity.

^{90}Zr(^{31}P,p3nγ) 1998Pa38

Level Scheme

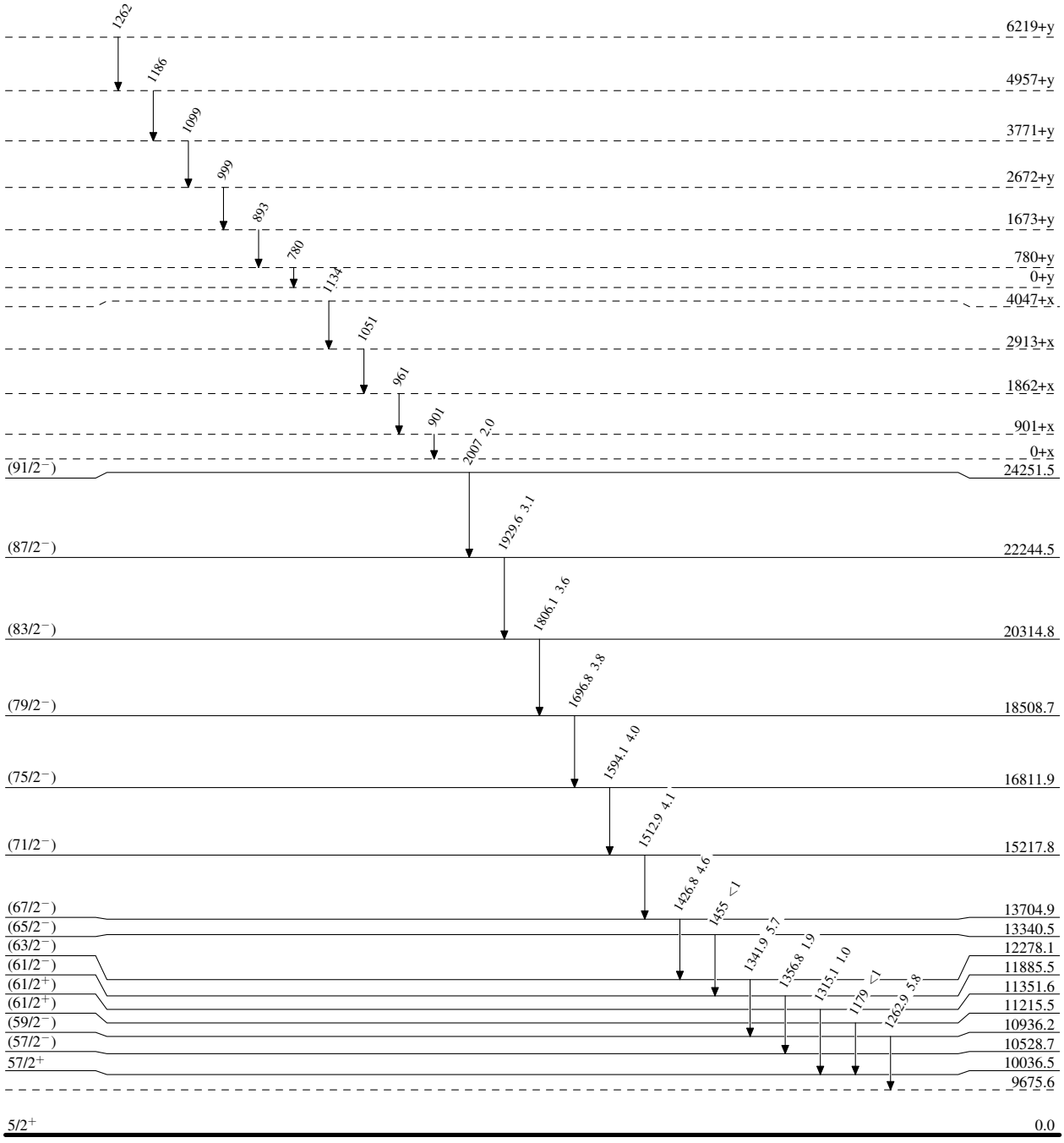
Intensities: Relative I_γ

Legend

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

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

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

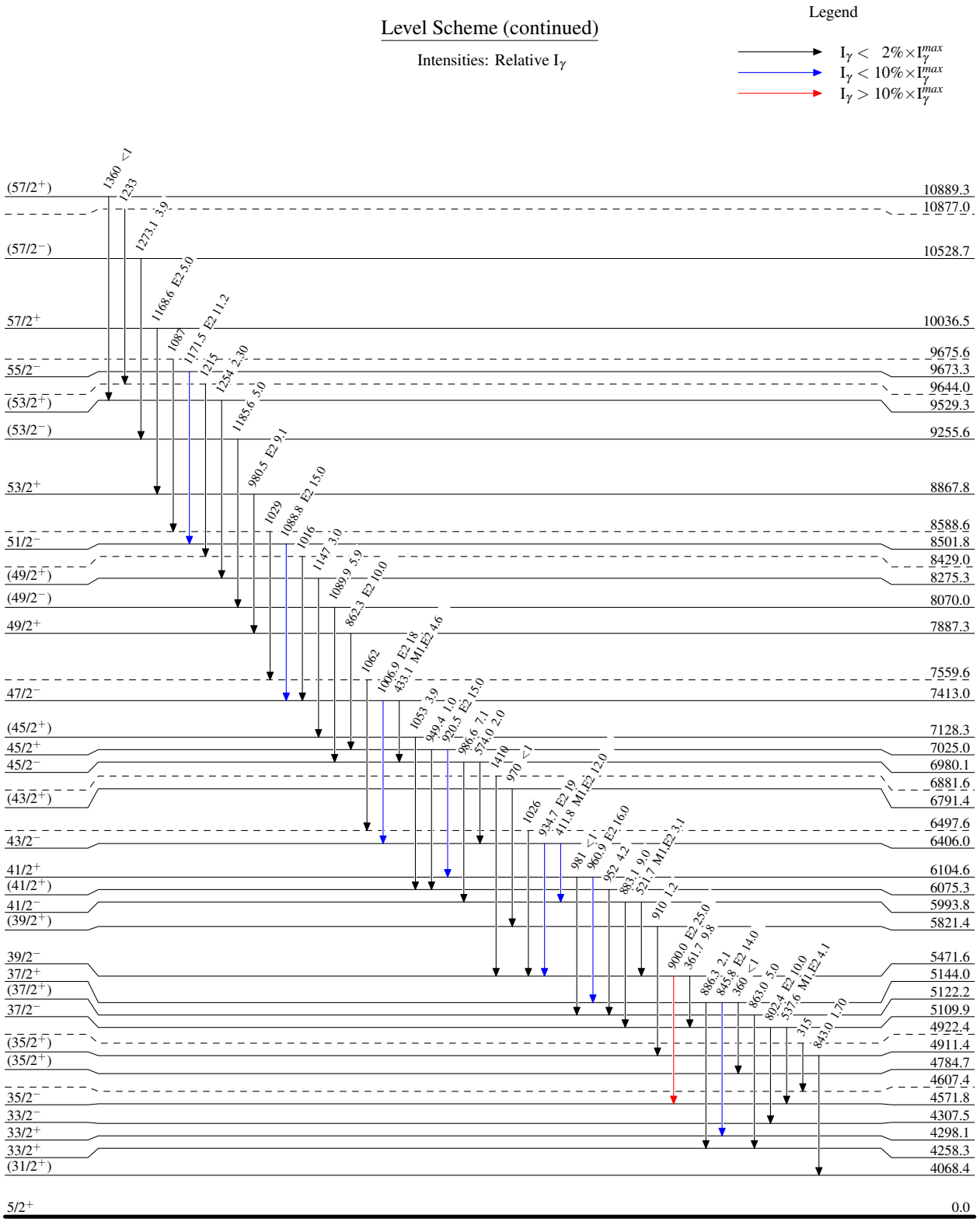


$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38

Level Scheme (continued)

Intensities: Relative I_γ



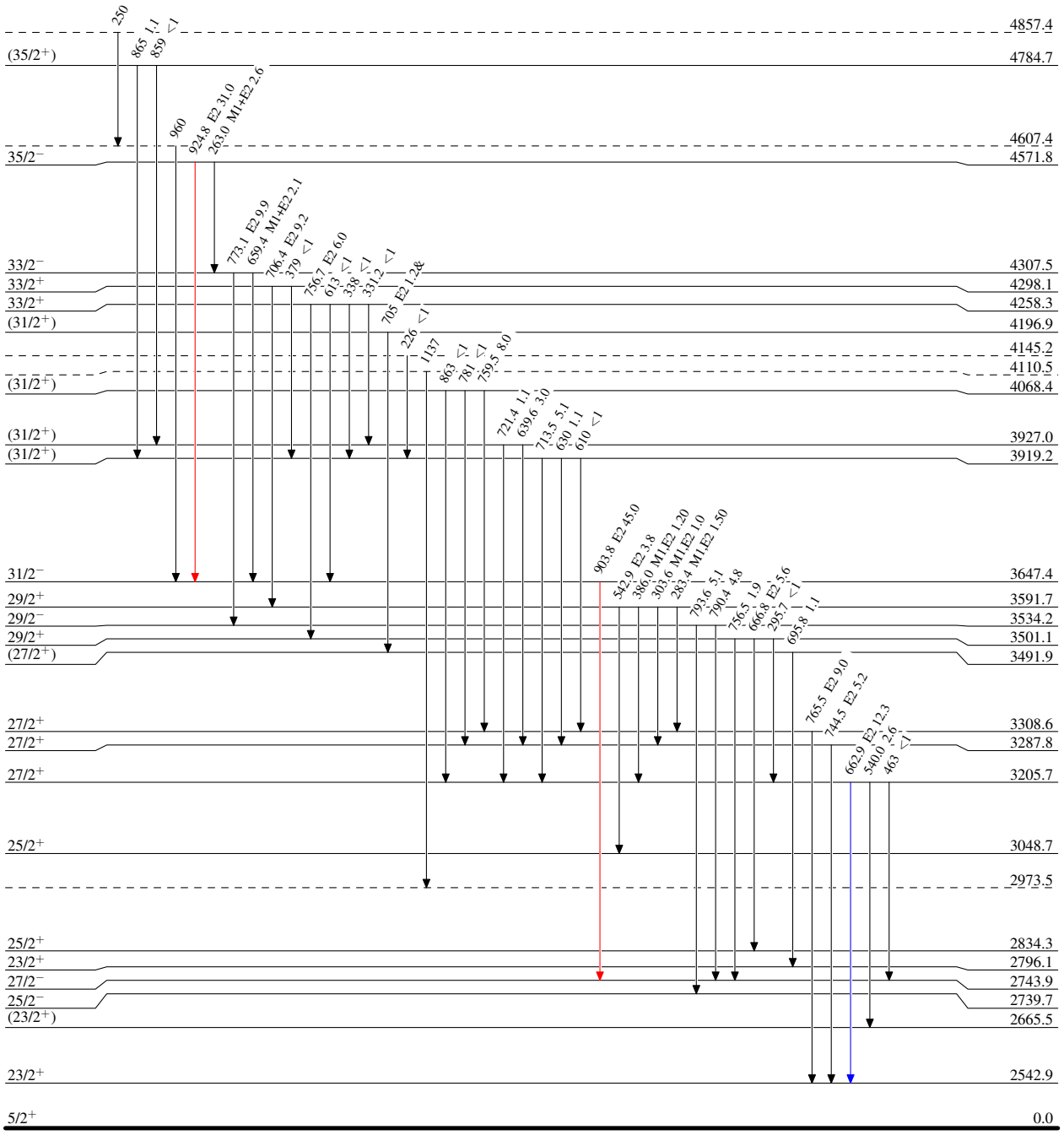
$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



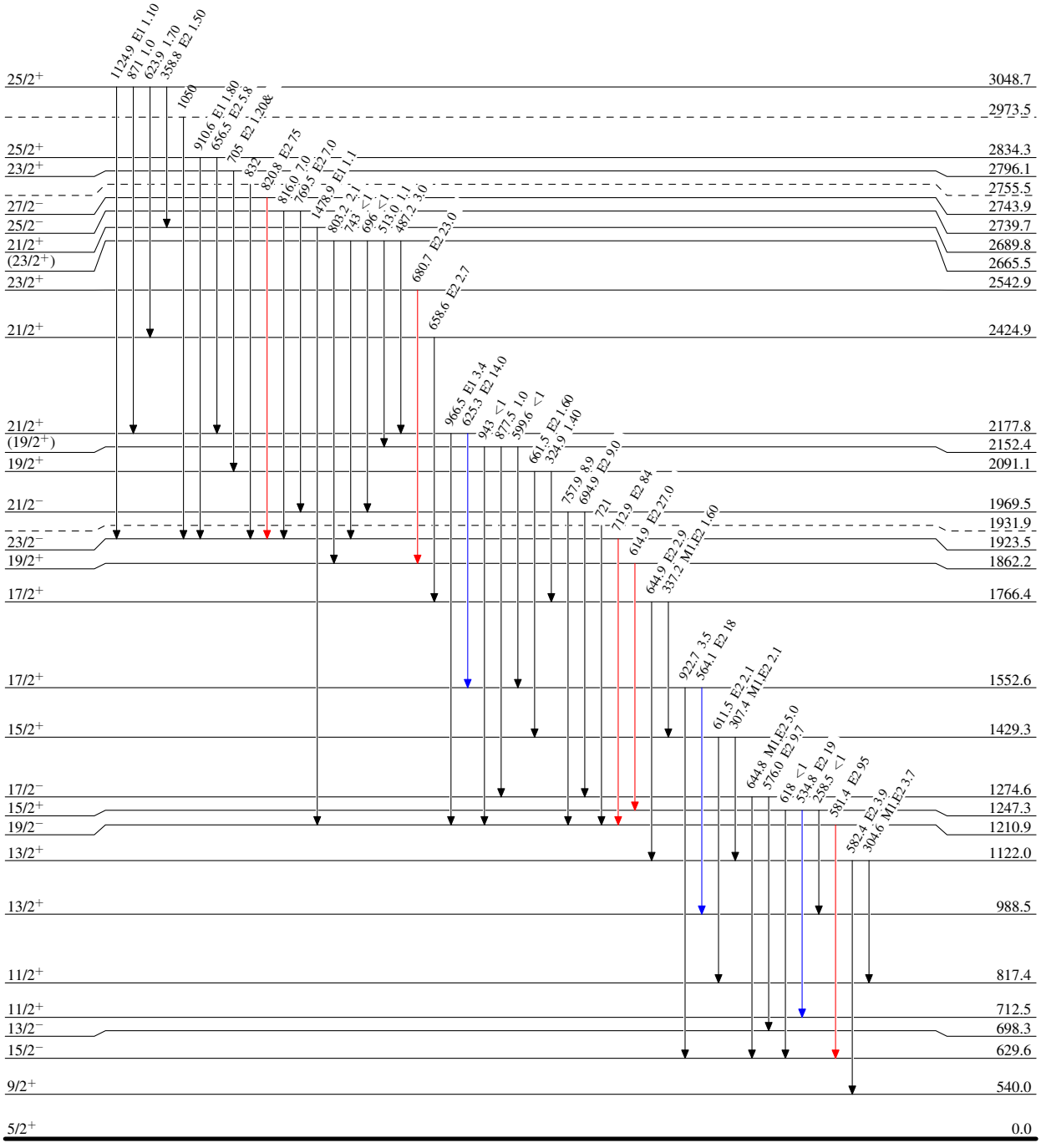
$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38

Level Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



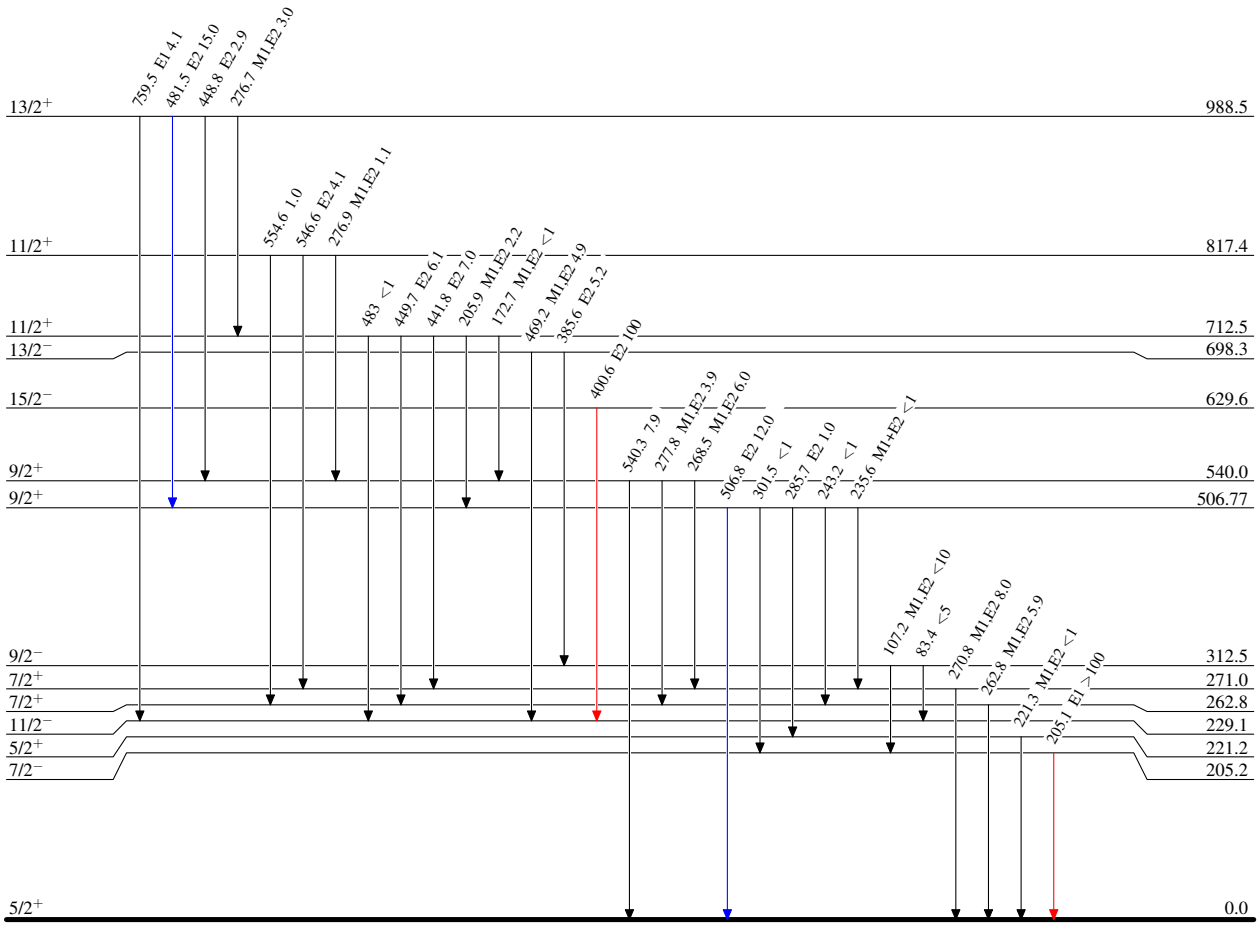
$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38

Level Scheme (continued)

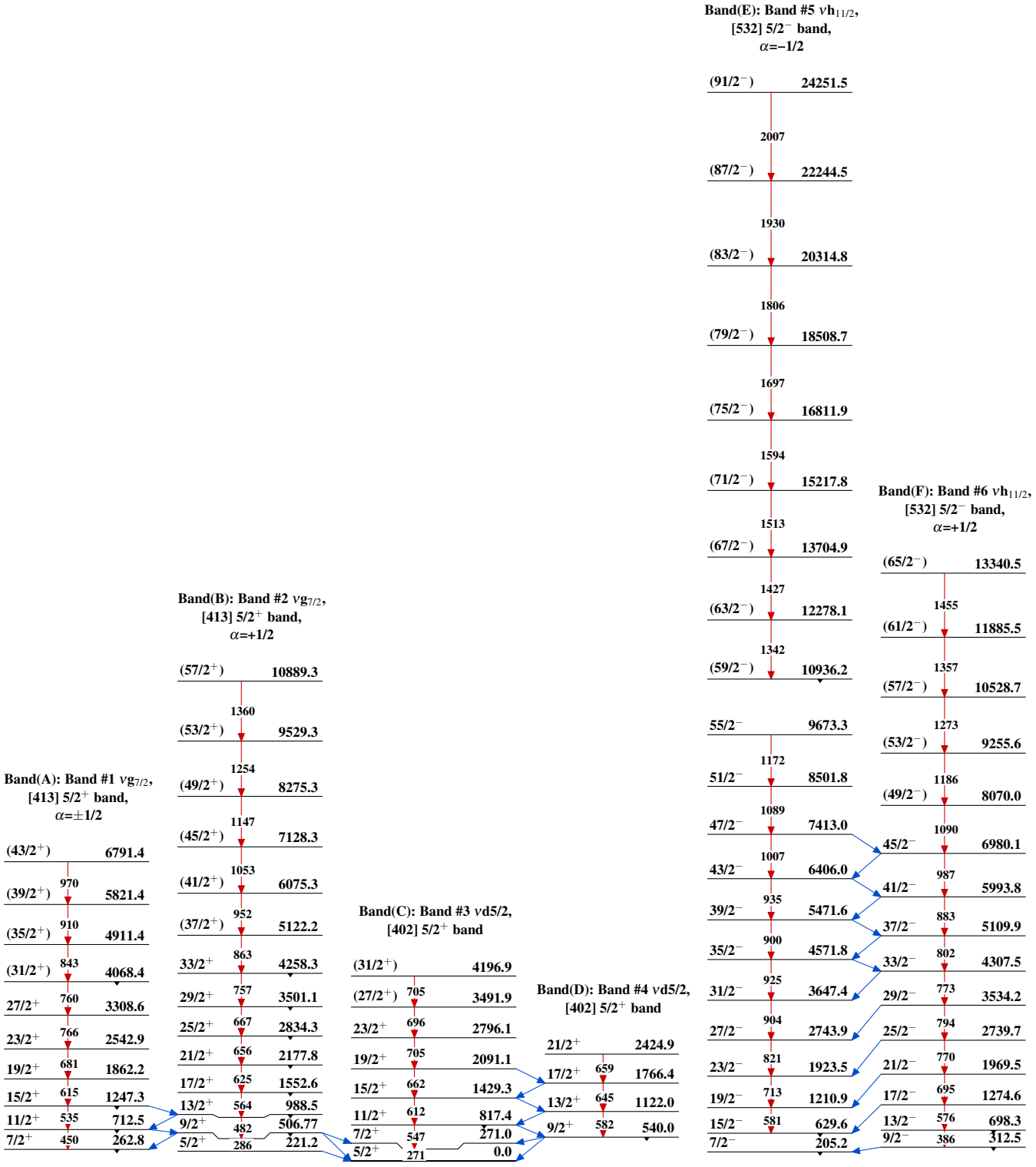
Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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



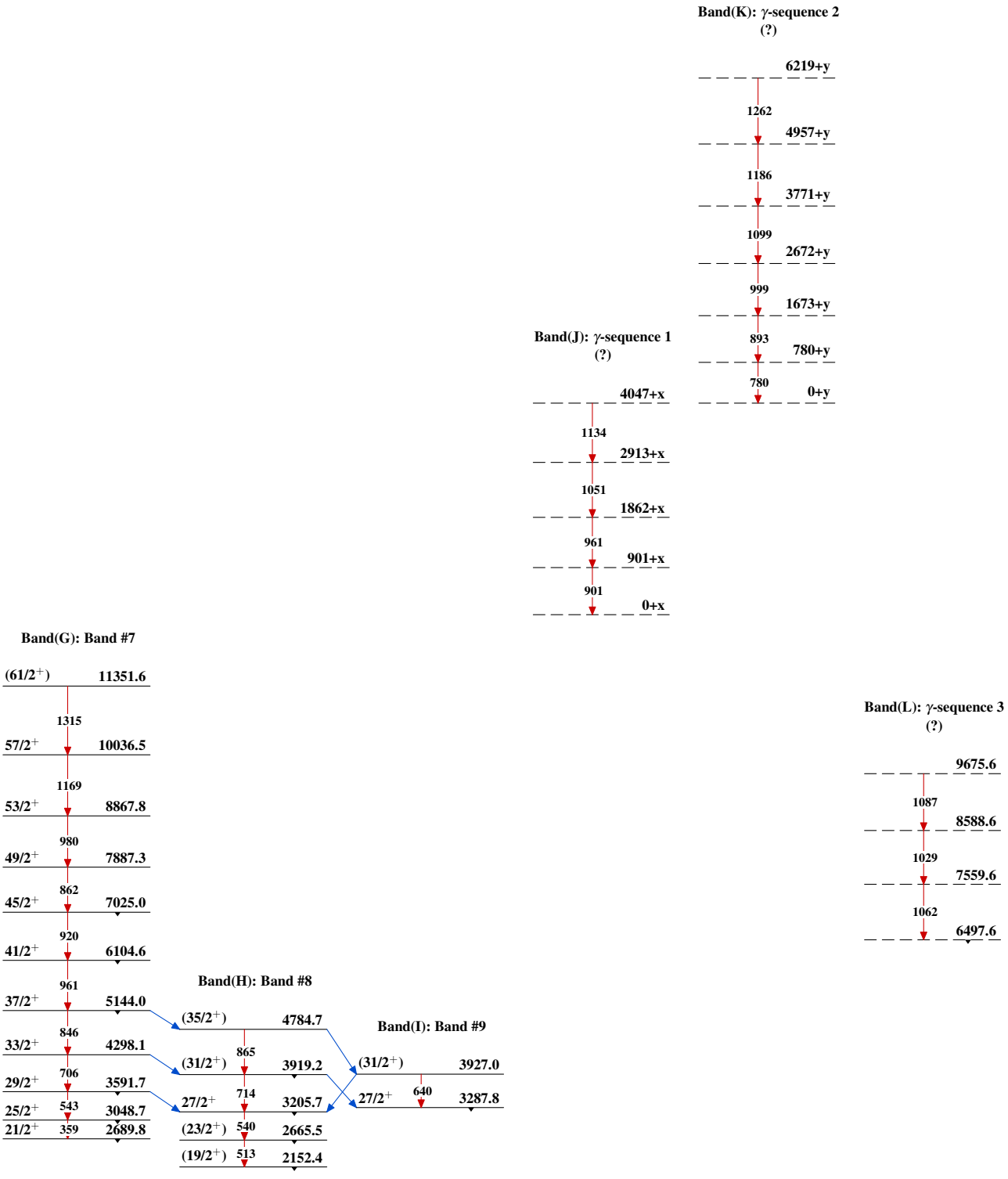
$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38



$^{117}_{54}Xe_{63}$

^{90}Zr(^{31}P,p3nγ) 1998Pa38 (continued)



$^{117}_{54}Xe_{63}$