^{176}Yb(^{19}F,6nγ) 1992Ve05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, Balraj Singh	NDS 142, 1 (2017)	15-Apr-2017

1992Ve05: E(^{19}F)=107 MeV. Measured Eγ, $\gamma\gamma$, DCO ratios using ORIRIS spectrometer. Deduced high-spin levels, J^π, band structures. It is a brief paper with a detailed level scheme, but with no information about gamma-ray intensities, DCO ratios, etc.

^{189}Au Levels

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$	Comments
247.25[@] *16*	11/2$^-$[#]	4.59[#] min *11*	%ε+%β^+≈100; %IT=? Additional information 1. E(level): from Adopted Gammas.
325.13[h] *10*	9/2$^-$[#]	190[#] ns *15*	
646.1[h] *5*	13/2$^-$		
681.8[@] *5*	15/2$^-$		
712.6 *5*	11/2$^-$		
812.7 *5*	13/2$^-$		
1097.7 *8*	(15/2$^-$)		
1105.4[h] *8*	17/2$^-$		
1352.7 *7*			
1383.3 *8*	13/2$^+$		J$^\pi$: from 1992Bo23 in ^{174}Yb(^{19}F,4nγ), (17/2$^-$) in 1992Ve05.
1412.1[@] *7*	19/2$^-$		
1600.5 *7*			
1662.6[h] *9*	21/2$^-$		
1688.1 *9*			
1746.5 *9*			
2062.6 *9*	(21/2$^+$)		
2205.6[@] *9*	23/2$^-$		
2250.6 *10*	(25/2$^+$)		
2299.9[h] *10*	25/2$^-$		
2319.4 *10*			
2401.3 *10*	(27/2$^+$)		J$^\pi$: (25/2$^+$) in Adopted Levels.
2450.9 *9*	23/2$^-$		
2515.6 *11*	(27/2$^+$,29/2$^+$)		J$^\pi$: (27/2$^+$) in Adopted Levels.
2554.5[@] *10*	27/2$^-$		
2554.5+x[&]	31/2$^-$[#]	9.3[#] ns *5*	Additional information 2.
2554.6[f] *12*	31/2$^+$[#]	242[#] ns *10*	E(level): 2515.9+y, y=38.8 keV (2001MaZN), 39 keV (1997Pe26). See ^{174}Yb(^{19}F,4nγ) dataset for both references.
2863.4+x[a] *4*	33/2$^-$		
2969.1[i] *12*	29/2$^-$		
2989.4+x[&] *4*	35/2$^-$		
3004.3[h] *12*	29/2$^-$		
3061.9[f] *13*	35/2$^+$		
3161.0+x[c] *6*	(37/2$^-$)		
3222.6[i] *12*	31/2$^-$		
3359.6+x[a] *5*	37/2$^-$		
3377.9[i] *12*	33/2$^-$		
3560.3+x[&] *5*	39/2$^-$		
3562.4 *14*	37/2$^+$		
3710.2[i] *13*			
3838.7+x[c] *6*	(39/2$^-$)		

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^{176}Yb(^{19}F,6nγ) 1992Ve05 (continued)

^{189}Au Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
3845.1[f] *14*	39/2+	4698.1[f] *15*	47/2+	5734.8+x[c] *10*	(53/2−)	7091.6[e] *18*	(61/2+)
3921.8[i] *13*	(37/2−)	4879.1 *14*		5860.7 *16*		7284.2 *17*	(61/2−)
3965.5+x *5*	(39/2−)	4904.1+x[&] *7*	47/2−	5923.2[d] *16*	55/2+	7600.5[d] *17*	(65/2)
3979.7 *14*		4915.7 *15*		5964.7+x[b] *10*	(51/2−)	7848.9 *18*	(65/2)
4103.3+x[a] *6*	41/2−	5084.5 *15*		6097.3+x[a] *8*	(53/2−)	7955.7[e] *18*	(65/2+)
4254.1+x[&] *6*	43/2−	5102.6[g] *14*	(47/2+)	6179.3 *17*		8181.8 *18*	
4291.3+x *6*	(41/2−)	5125.3+x[b] *8*	(47/2−)	6201.8 *16*		8261.3 *18*	
4306.5+x[b] *7*	(43/2−)	5165.9 *15*		6234.3[e] *17*	(57/2+)	8433.4[d] *18*	(69/2)
4325.2 *14*	41/2+	5174.0 *15*	49/2+	6306.1+x[&] *10*	(55/2−)	8680.1[e] *19*	(69/2+)
4352.0[g] *14*	(41/2+)	5263.9+x[c] *9*	(49/2−)	6306.2+x *10*		8803.8 *19*	
4479.5[f] *14*	43/2+	5315.1[f] *15*	51/2+	6316.7+x[c] *11*	(57/2−)	9140.5 *20*	
4527.2+x[c] *6*	(43/2−)	5368.7+x[a] *8*	(49/2−)	6358.9[d] *16*	(57/2)	9313.6[d] *19*	(73/2)
4638.5[g] *14*	(43/2+)	5429.1+x *9*	(47/2−)	6378.9 *16*		9580.4[e] *20*	(73/2+)
4675.0+x[c] *7*	(45/2−)	5634.4[e] *16*	(53/2+)	6395.5+x *10*			
4695.3+x[a] *7*	(45/2−)	5708.1+x[&] *8*	51/2−	6880.7[d] *17*	(61/2)		

† From least-squares fit to Eγ values, assuming Δ(Eγ)=0.5 keV for each Eγ.
‡ From 1992Ve05, except as noted.
# From Adopted Levels.
@ Band(A): Structure based on 11/2−.
& Band(B): $\pi h_{11/2}\nu i^2_{13/2}$, α=−1/2.
[a] Band(b): $\pi h_{11/2}\nu i^2_{13/2}$,$\alpha$=+1/2.
[b] Band(C): γ cascade based on (43/2−).
[c] Band(D): γ cascade based on (37/2−).
[d] Band(E): Band based on (55/2+).
[e] Band(F): Band based on (53/2+).
[f] Band(G): γ cascade based on 31/2+.
[g] Band(H): Structure based on (41/2+).
[h] Band(I): Band based on 9/2−.
[i] Band(J): γ cascade based on 29/2−.

γ(^{189}Au)

Eγ†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α#	Comments
x	2554.5+x	31/2−	2554.5	27/2−			
38.8 *3*	2554.6	31/2+	2515.6	(27/2+,29/2+)	(E2)	435 *18*	α(L)=327 *14*; α(M)=84 *4*; α(N)=20.7 *9*; α(O)=3.28 *14*; α(P)=0.00288 *12* Eγ,Mult.: from 2001MaZN, measured by recoil-catcher method. Uncertainty of 0.3 keV assigned by the evaluator. Other: 39 (1997Pe26,from Fig. 1); see ^{174}Yb(^{19}F,4nγ) dataset for 1997Pe26 and 2001MaZN.
77.9 *1*	325.13	9/2−	247.25	11/2−			Eγ: from Adopted Gammas.
125.6	2989.4+x	35/2−	2863.4+x	33/2−			
141.0	5315.1	51/2+	5174.0	49/2+			
147.5	4675.0+x	(45/2−)	4527.2+x	(43/2−)			
150.6	2401.3	(27/2+)	2250.6	(25/2+)			

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^{176}Yb(^{19}F,6nγ) 1992Ve05 (continued)

$\gamma(^{189}Au)$ (continued)

E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	E_γ[†]	E_i(level)	J_i^π	E_f	J_f^π
150.7	4254.1+x	43/2$^-$	4103.3+x	41/2$^-$	540.0	1352.7		812.7	13/2$^-$
153.2	2554.5	27/2$^-$	2401.3	(27/2$^+$)	542.9	4103.3+x	41/2$^-$	3560.3+x	39/2$^-$
154.2	4479.5	43/2$^+$	4325.2	41/2$^+$	544.1	3921.8	(37/2$^-$)	3377.9	33/2$^-$
155.2	3377.9	33/2$^-$	3222.6	31/2$^-$	544.9	6179.3		5634.4	(53/2$^+$)
187.0	5102.6	(47/2$^+$)	4915.7		557.2	1662.6	21/2$^-$	1105.4	17/2$^-$
188.0	2250.6	(25/2$^+$)	2062.6	(21/2$^+$)	565.5	812.7	13/2$^-$	247.25	11/2$^-$
200.7	3560.3+x	39/2$^-$	3359.6+x	37/2$^-$	571.2	3560.3+x	39/2$^-$	2989.4+x	35/2$^-$
211.5	3921.8	(37/2$^-$)	3710.2		581.9	6316.7+x	(57/2$^-$)	5734.8+x	(53/2$^-$)
218.6	4698.1	47/2$^+$	4479.5	43/2$^+$	582.7	1688.1		1105.4	17/2$^-$
223.3	5102.6	(47/2$^+$)	4879.1		588.9	5263.9+x	(49/2$^-$)	4675.0+x	(45/2$^-$)
236.1	4527.2+x	(43/2$^-$)	4291.3+x	(41/2$^-$)	598.0	6306.1+x	(55/2$^-$)	5708.1+x	51/2$^-$
240.6	4879.1		4638.5	(43/2$^+$)	599.9[‡]	6234.3	(57/2$^+$)	5634.4	(53/2$^+$)
253.3	3222.6	31/2$^-$	2969.1	29/2$^-$	606.3	3965.5+x	(39/2$^-$)	3359.6+x	37/2$^-$
256.8	2319.4		2062.6	(21/2$^+$)	608.2	5923.2	55/2$^+$	5315.1	51/2$^+$
265.0	2515.6	(27/2$^+$,29/2$^+$)	2250.6	(25/2$^+$)	617.1	5315.1	51/2$^+$	4698.1	47/2$^+$
277.3	4915.7		4638.5	(43/2$^+$)	634.5	4479.5	43/2$^+$	3845.1	39/2$^+$
283.0	3845.1	39/2$^+$	3562.4	37/2$^+$	637.3	2299.9	25/2$^-$	1662.6	21/2$^-$
286.6	4638.5	(43/2$^+$)	4352.0	(41/2$^+$)	649.8	4904.1+x	47/2$^-$	4254.1+x	43/2$^-$
286.8	5165.9		4879.1		650.4	2062.6	(21/2$^+$)	1412.1	19/2$^-$
288.6	4254.1+x	43/2$^-$	3965.5+x	(39/2$^-$)	669.2	2969.1	29/2$^-$	2299.9	25/2$^-$
297.7	3161.0+x	(37/2$^-$)	2863.4+x	33/2$^-$	673.6	5368.7+x	(49/2$^-$)	4695.3+x	(45/2$^-$)
308.6	2863.4+x	33/2$^-$	2554.5+x	31/2$^-$	677.8	3838.7+x	(39/2$^-$)	3161.0+x	(37/2$^-$)
313.3	4638.5	(43/2$^+$)	4325.2	41/2$^+$	686.7	5860.7		5174.0	49/2$^+$
315.9	7600.5	(65/2)	7284.2	(61/2$^-$)	688.1	4527.2+x	(43/2$^-$)	3838.7+x	(39/2$^-$)
319.3[‡]	5634.4	(53/2$^+$)	5315.1	51/2$^+$	693.9	4254.1+x	43/2$^-$	3560.3+x	39/2$^-$
321.0	646.1	13/2$^-$	325.13	9/2$^-$	704.4	3004.3	29/2$^-$	2299.9	25/2$^-$
325.9	4291.3+x	(41/2$^-$)	3965.5+x	(39/2$^-$)	720.2	7600.5	(65/2)	6880.7	(61/2)
332.1	3710.2		3377.9	33/2$^-$	724.4	8680.1	(69/2$^+$)	7955.7	(65/2$^+$)
349.0	2554.5	27/2$^-$	2205.6	23/2$^-$	728.8	6097.3+x	(53/2$^-$)	5368.7+x	(49/2$^-$)
369.0	4675.0+x	(45/2$^-$)	4306.5+x	(43/2$^-$)	730.3	1412.1	19/2$^-$	681.8	15/2$^-$
370.3	3359.6+x	37/2$^-$	2989.4+x	35/2$^-$	737.2	1383.3	13/2$^+$	646.1	13/2$^-$
385.1	1097.7	(15/2$^-$)	712.6	11/2$^-$	743.6	4103.3+x	41/2$^-$	3359.6+x	37/2$^-$
386.3	5084.5		4698.1	47/2$^+$	746.3	4306.5+x	(43/2$^-$)	3560.3+x	39/2$^-$
387.5	712.6	11/2$^-$	325.13	9/2$^-$	754.1	5429.1+x	(47/2$^-$)	4675.0+x	(45/2$^-$)
389.1	6097.3+x	(53/2$^-$)	5708.1+x	51/2$^-$	762.8	4325.2	41/2$^+$	3562.4	37/2$^+$
393.8	1746.5		1352.7		783.2	3845.1	39/2$^+$	3061.9	35/2$^+$
399.5	4879.1		4479.5	43/2$^+$	787.8	1600.5		812.7	13/2$^-$
408.9	3377.9	33/2$^-$	2969.1	29/2$^-$	789.2	4352.0	(41/2$^+$)	3562.4	37/2$^+$
417.3	3979.7		3562.4	37/2$^+$	793.5	2205.6	23/2$^-$	1412.1	19/2$^-$
434.6	681.8	15/2$^-$	247.25	11/2$^-$	803.8	5708.1+x	51/2$^-$	4904.1+x	47/2$^-$
435.2	2989.4+x	35/2$^-$	2554.5+x	31/2$^-$	819.0	5125.3+x	(47/2$^-$)	4306.5+x	(43/2$^-$)
435.7	6358.9	(57/2)	5923.2	55/2$^+$	832.9	8433.4	(69/2)	7600.5	(65/2)
441.4	4695.3+x	(45/2$^-$)	4254.1+x	43/2$^-$	838.7	5923.2	55/2$^+$	5084.5	
459.3	1105.4	17/2$^-$	646.1	13/2$^-$	839.4	5964.7+x	(51/2$^-$)	5125.3+x	(47/2$^-$)
460.4	9140.5		8680.1	(69/2$^+$)	848.1	8803.8		7955.7	(65/2$^+$)
464.1	5102.6	(47/2$^+$)	4638.5	(43/2$^+$)	848.8	3838.7+x	(39/2$^-$)	2989.4+x	35/2$^-$
464.7	5368.7+x	(49/2$^-$)	4904.1+x	47/2$^-$	857.3	7091.6	(61/2$^+$)	6234.3	(57/2$^+$)
470.9	5734.8+x	(53/2$^-$)	5263.9+x	(49/2$^-$)	864.1	7955.7	(65/2$^+$)	7091.6	(61/2$^+$)
475.7	5174.0	49/2$^+$	4698.1	47/2$^+$	877.1	6306.2+x		5429.1+x	(47/2$^-$)
480.0	4325.2	41/2$^+$	3845.1	39/2$^+$	880.2	9313.6	(73/2)	8433.4	(69/2)
496.4	3359.6+x	37/2$^-$	2863.4+x	33/2$^-$	886.7	6201.8		5315.1	51/2$^+$
500.4	3562.4	37/2$^+$	3061.9	35/2$^+$	900.3	9580.4	(73/2$^+$)	8680.1	(69/2$^+$)
507.3	3061.9	35/2$^+$	2554.6	31/2$^+$	924.9	7284.2	(61/2$^-$)	6358.9	(57/2)
507.3	4352.0	(41/2$^+$)	3845.1	39/2$^+$	966.4	6395.5+x		5429.1+x	(47/2$^-$)
522.1	6880.7	(61/2)	6358.9	(57/2)	968.2	7848.9	(65/2)	6880.7	(61/2)

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^{176}Yb(^{19}F,6nγ) 1992Ve05 (continued)

$\gamma(^{189}Au)$ (continued)

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
975.8	3965.5+x	(39/2$^-$)	2989.4+x	35/2$^-$
1038.8	2450.9	23/2$^-$	1412.1	19/2$^-$
1063.8	6378.9		5315.1	51/2$^+$
1090.2	8181.8		7091.6	(61/2$^+$)
1169.7	8261.3		7091.6	(61/2$^+$)

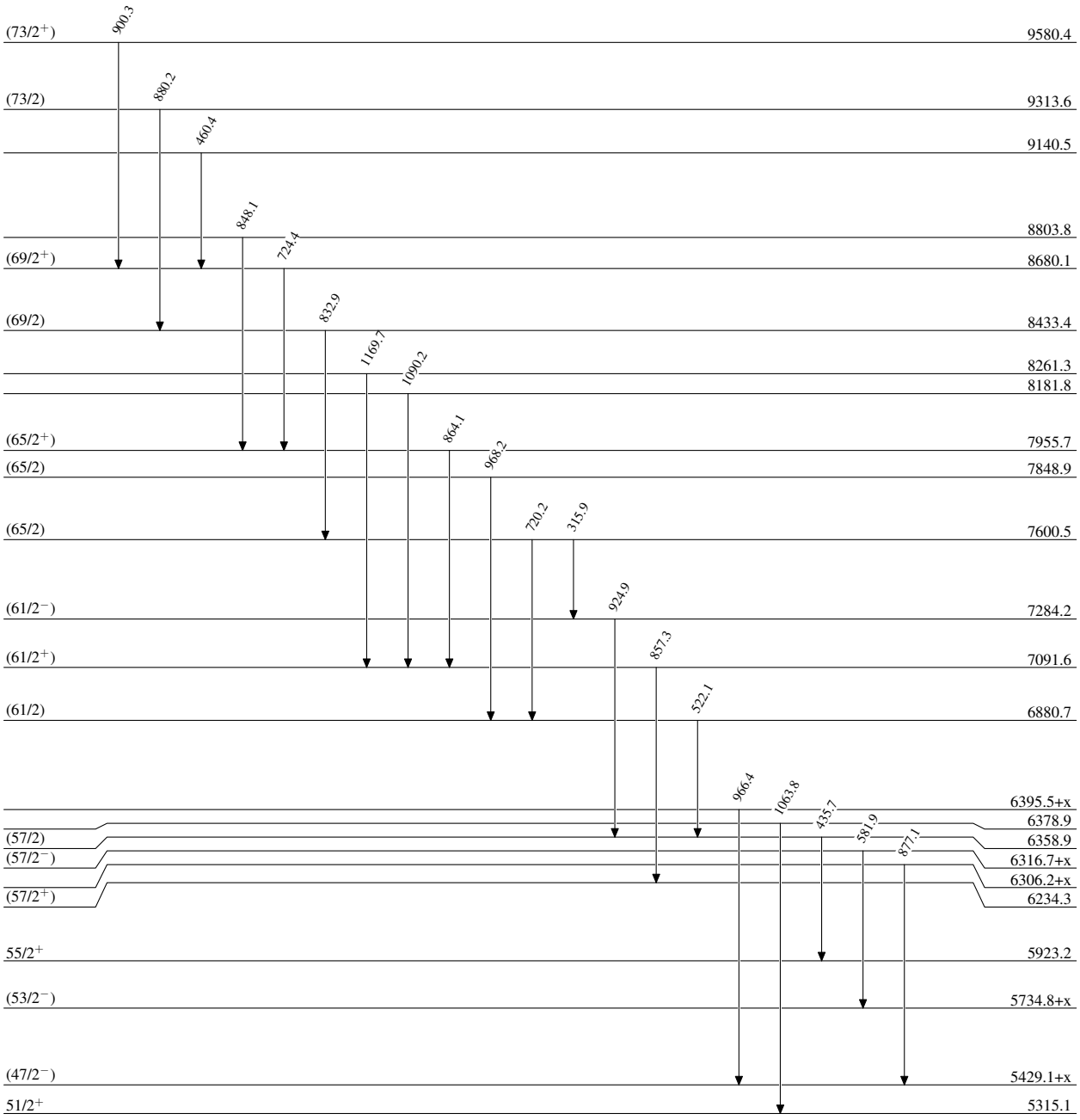
[†] From 1992Ve05, except as noted.

[‡] 1992Bo23 (also 1993Pe17) propose a reverse ordering of the 319.3-599.9 cascade, thus defining the intermediate level with different energy and J^π.

[#] 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.

^{176}Yb(^{19}F,6nγ) **1992Ve05**

Level Scheme



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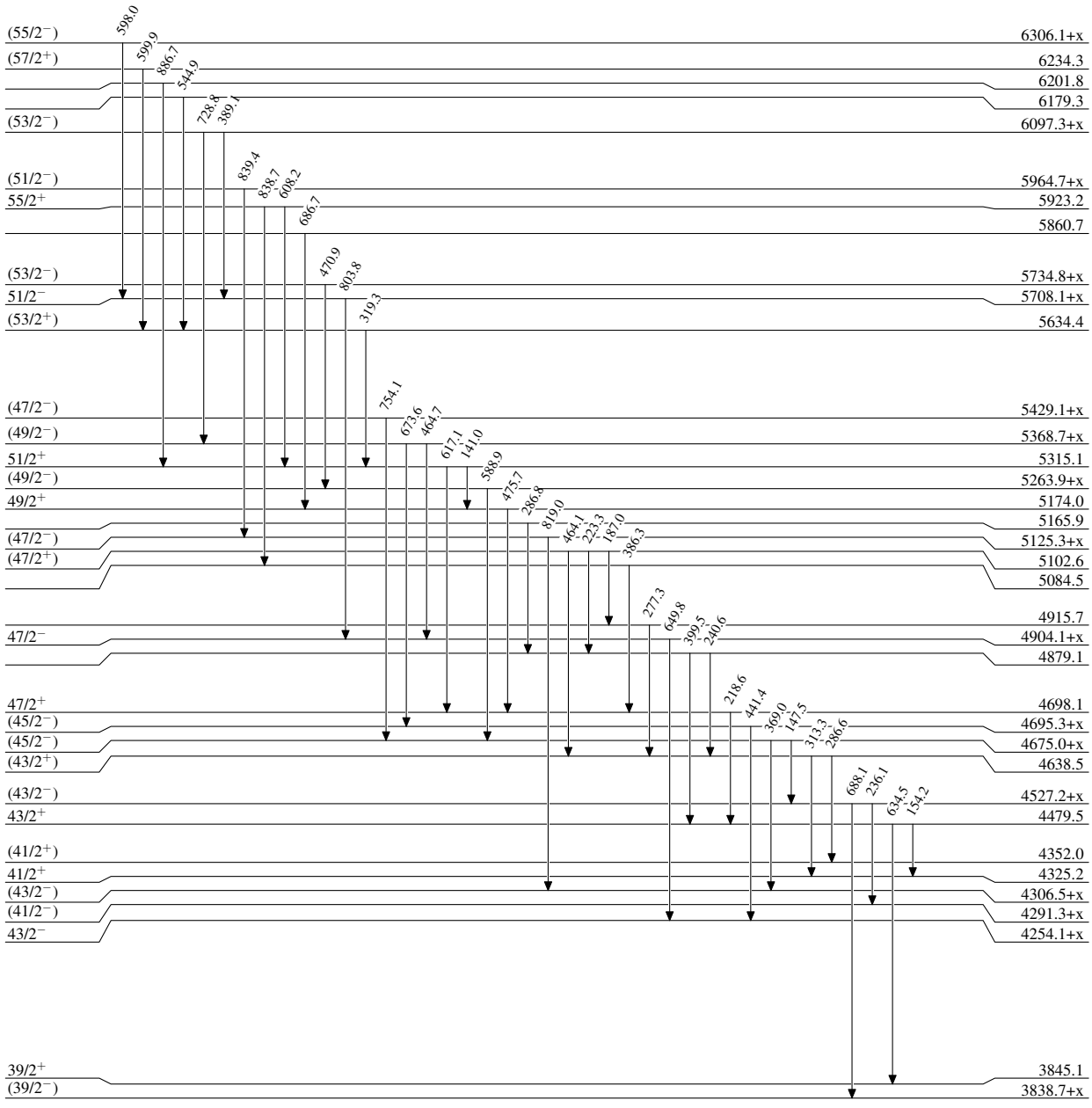
^{176}Yb(^{19}F,6nγ) 1992Ve05

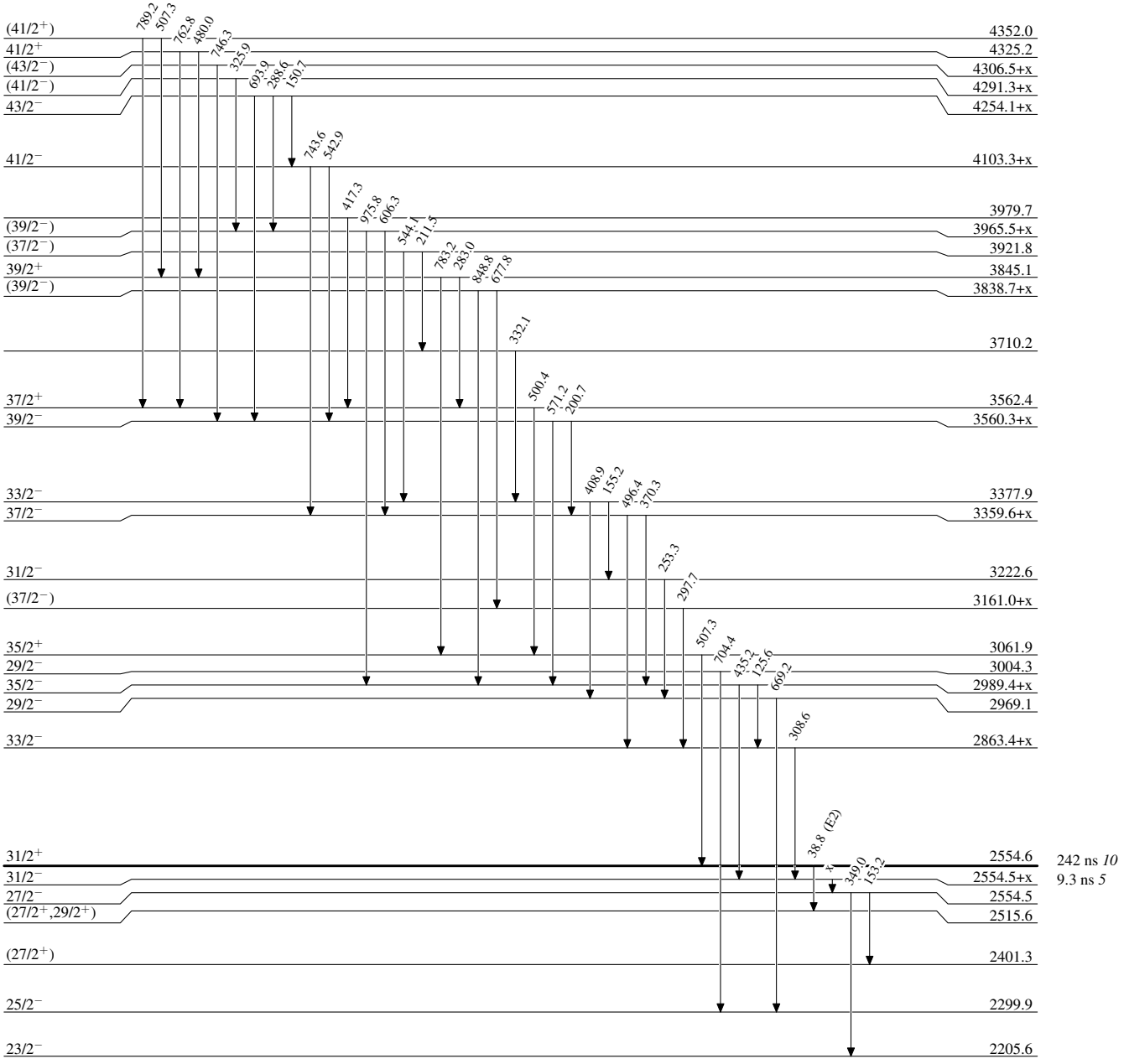
Level Scheme (continued)



$^{189}_{79}Au_{110}$

^{176}Yb(^{19}F,6nγ) 1992Ve05

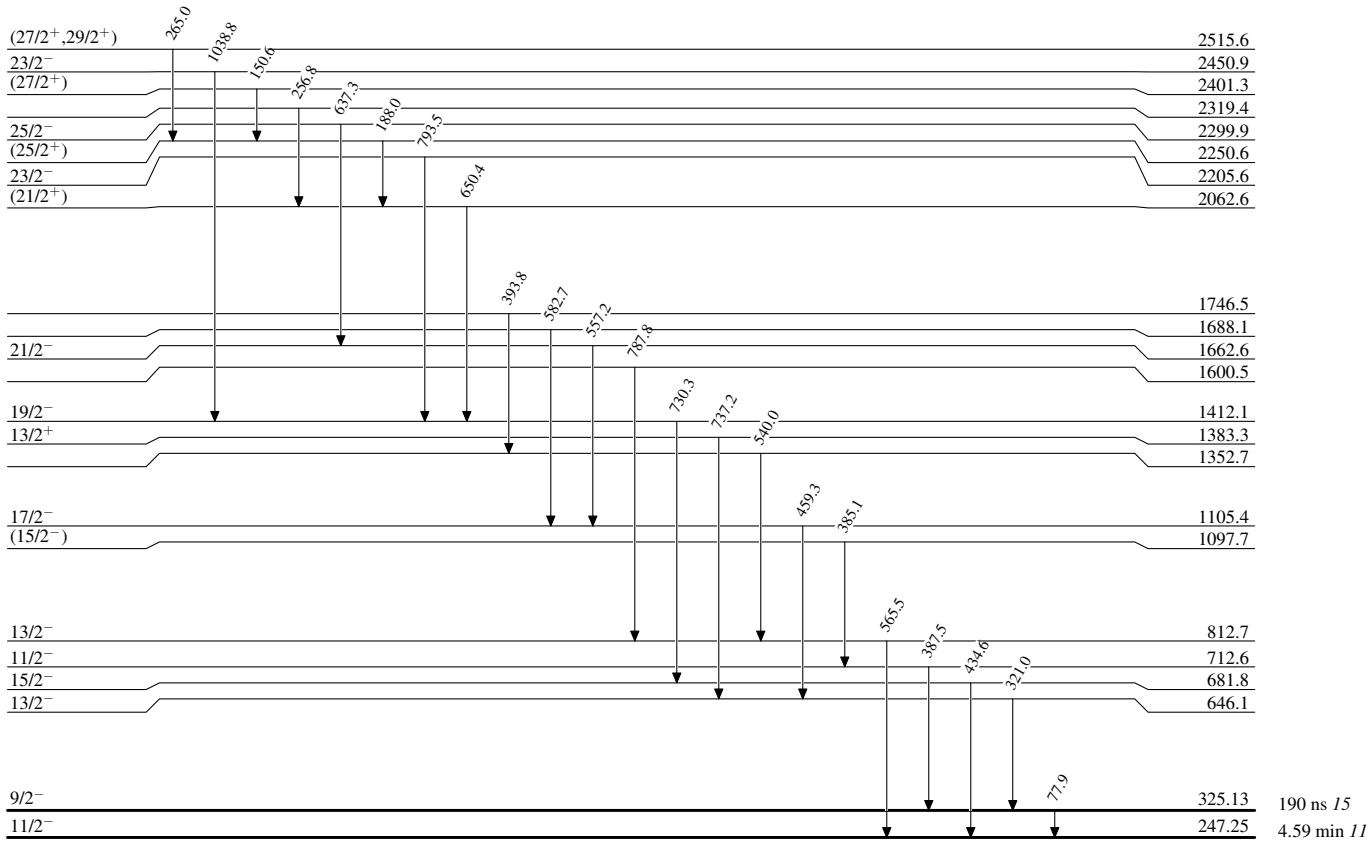
Level Scheme (continued)



$^{189}_{79}Au_{110}$

^{176}Yb(^{19}F,6nγ) 1992Ve05

Level Scheme (continued)



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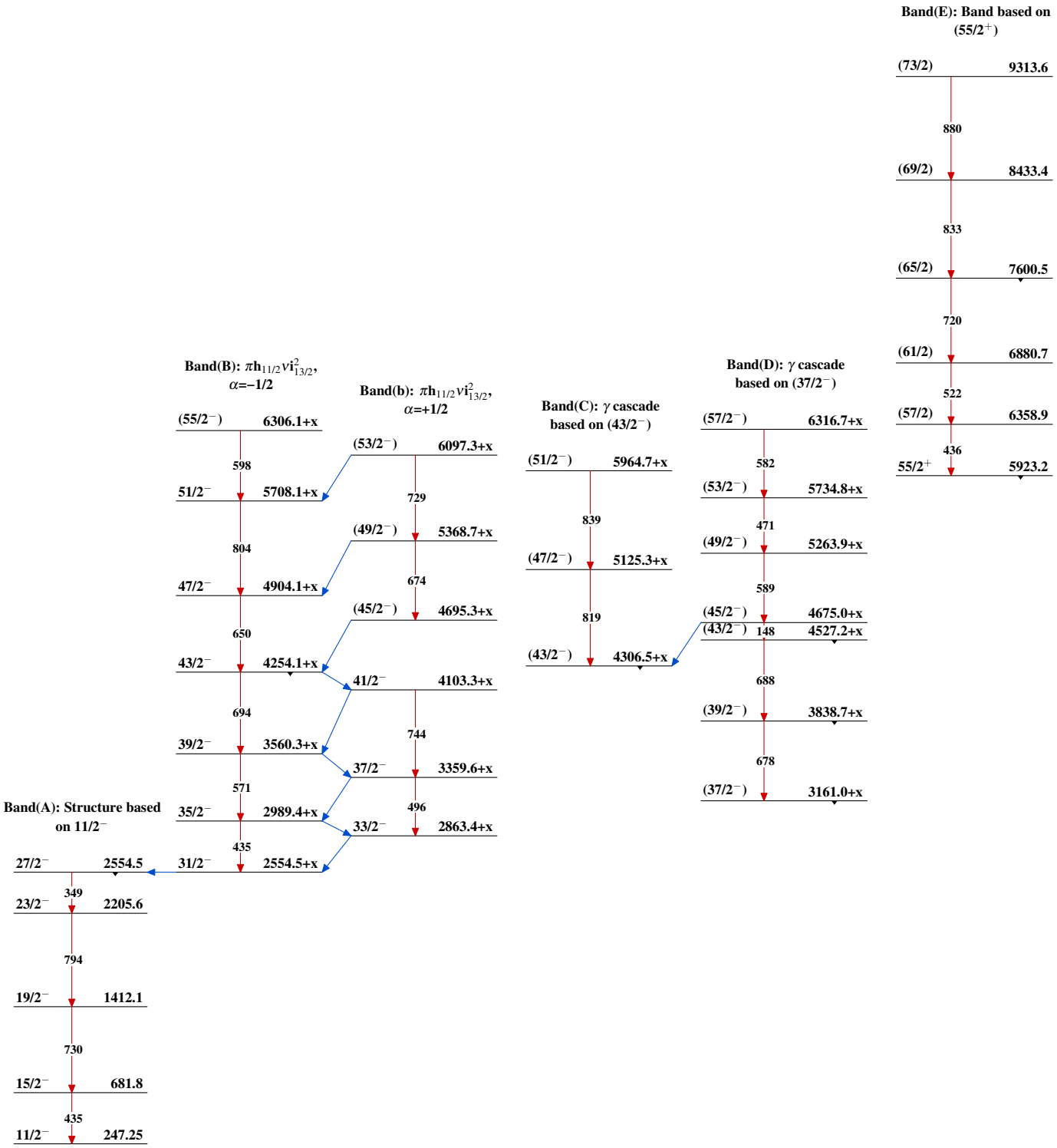
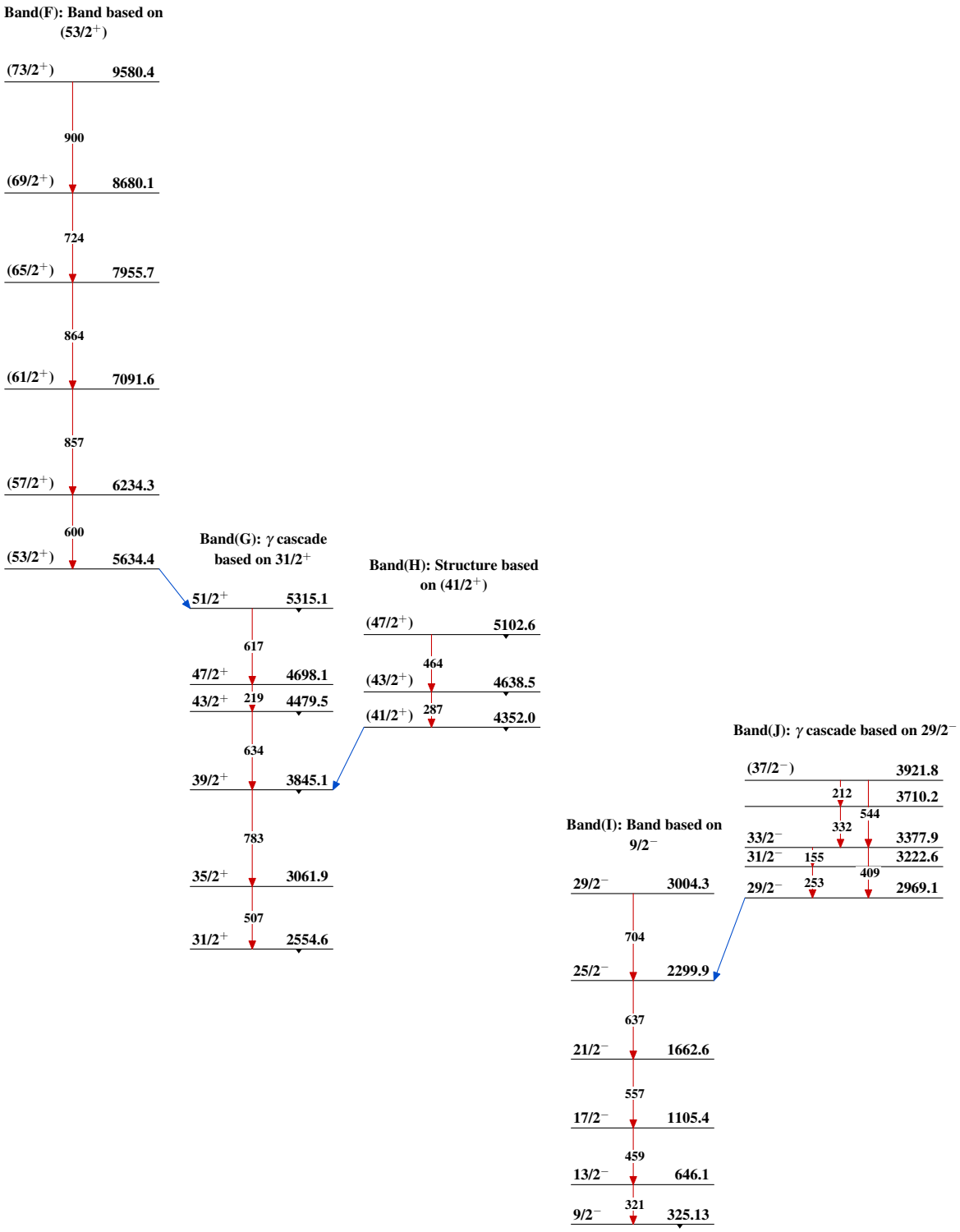


^{176}Yb(^{19}F,6nγ) 1992Ve05 (continued)



$^{189}_{79}Au_{110}$