(HI,xnγ) 1993Do05,1991Ho01,1981Ga11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Ameenah R. Farhan	NDS 107, 1923 (2006)	30-Apr-2006

1993Do05: ^{58}Ni(^{19}F,2pnγ) E=62 MeV, ^{65}Cu(^{12}C,3nγ) E=50 MeV. Measured γ, γγ-coin, γγ(θ)(DCO).
1991Ho01: ^{48}Ti(^{32}S,αpnγ) E=102 MeV, ^{58}Ni(^{19}F,2pnγ) E=62 MeV. Measured DCO ratio, $T_{1/2}$ (DSA and recoil-distance methods).
1993Do05 and 1991Ho01 are from the same laboratory.
1981Ga11: ^{60}Ni(^{16}O,npγ) E=50 MeV. Measured γ, γγ, γ(t), γ(θ).
1999Ga11: ^{60}Ni(^{16}O,npγ) E=50 MeV. Measured lifetimes of seven low-lying levels by recoil-distance method.
1999Lo17: ^{58}Ni(^{19}F,2pnγ) E=70 MeV. Measured lifetimes of 12 high-lying levels by DSA method.
Others:
1982NeZP: ^{58}Ni(^{19}F,2pnγ). Measured γ, γγ-coin, γ(θ), $T_{1/2}$ (recoil-distance method).
1982AnZZ: ^{60}Ni(^{16}O,pnγ). Measured γ(t). 1977PiZX: ^{60}Ni(^{16}O,pnγ).
The level scheme is mainly from 1993Do05.

^{74}Br Levels

E(level)†	Jπ‡	$T_{1/2}$#	Comments
0.0	(0⁻)		
9.9& *3*	(1⁻)		
13.7i *4*	4(+)	46 min *2*	
72.7a *3*	(2⁻)		
85.9d *4*	(3⁻)		
89.62@ *18*	(1⁻)		
180.62@ *20*	(2⁻)		
201.0& *3*	(3⁻)		
202.1e *4*	(4⁻)		
202.3j *4*	5(+)	114 ps *21*	$T_{1/2}$: recoil-distance method (1991Ho01).
212.95 *25*	1⁺		
238.6f *4*	(4⁻)		
306.69 *25*	1⁺		
329.5b *3*	(4⁻)		
339.7@ *3*	(3⁻)		
371.3d *4*	(5⁻)	277 ps *35*	$T_{1/2}$: recoil-distance method (1999Ga11).
380.2a *3*	(4⁻)		
394.7 *4*	(4⁻)		
397.1i *4*	6⁺	35.4 ps *35*	$T_{1/2}$: from recoil-distance method (1999Ga11). Others: 32 ps *7* (1991Ho01), 47 ps *6* (1982NeZP).
424.5 *4*	(5⁻)		
443.5 *4*	(4)		
463.0g *5*	(5⁻)		
485.9 *4*	(6⁻)		
543.4c *4*	(5⁻)		
593.4& *4*	(5⁻)		
619.9e *4*	(6⁻)	18.7 ps *28*	$T_{1/2}$: recoil-distance method (1999Ga11).
663.3h *4*	(5⁺)		
669.9j *4*	7(+)	9.2 ps *14*	$T_{1/2}$: recoil-distance method. Weighted average of 9.0 ps *14* (1991Ho01) and 9.7 ps *21* (1999Ga21). Other: 10.4 ps *7* (1982NeZP).
736.3f *5*	(6⁻)		
802.8h *4*	(6⁺)		
815.7 *4*	(5⁻)		

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(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

^{74}Br Levels (continued)

E(level)†	Jπ‡	$T_{1/2}$#	Comments
820.6[b] 4	(6⁻)		
826.3[i] 4	8(+)	23.6 ps *21*	$T_{1/2}$: recoil-distance method (1999Ga11). Others: 16 ps *5* (1991Ho01), 13.0 ps *7* (1982NeZP).
861.7[d] 4	(7⁻)	12.5 ps *7*	$T_{1/2}$: from recoil-distance method (1999Ga11). Other: 11.8 ps *7* (1982NeZP).
922.5[a] 4	(6⁻)		
990.1 4	(7⁻)		
1049.6[g] 5	(7⁻)		
1164.5[c] 4	(7⁻)		
1170.5[h] 4	(7⁺)		
1174.0[j] 4	9(+)	1.66 ps *35*	$T_{1/2}$: from recoil-distance method (1999Ga11). Other: 9.1 ps *7* (1982NeZP).
1197.3[k] 4	(8⁺)		
1201.9[&] 4	(7⁻)		
1272.9[e] 4	(8⁻)		
1384.2[f] 5	(8⁻)		
1485.6[h] 4	(8⁺)		
1488.1 4	(9⁺)		
1489.3[b] 4	(8⁻)		
1633.9[a] 4	(8⁻)		
1660.3[i] 4	(10⁺)	0.82 ps *10*	$T_{1/2}$: from 1991Ho01. Other: 1.0 ps *3* (1982NeZP).
1688.1[d] 4	(9⁻)	0.42 ps *14*	$T_{1/2}$: from 1991Ho01.
1728.8[g] 5	(9⁻)		
1893.2[c] 4	(9⁻)		
1983.1[h] 5	(9⁺)		
2000.2[&] 5	(9⁻)		
2068.1[j] 4	11(+)	0.326 ps *35*	$T_{1/2}$: from 1999Lo17. Other: 0.31 ps *10* (1991Ho01). Value of 51 ps *3* quoted by 1991Ho01 from 1982NeZP seems in error.
2134.0[k] 4	(10⁺)		
2140.4[e] 4	(10⁻)	0.49 ps *12*	$T_{1/2}$: from 1991Ho01.
2263.2 5	(10⁺)		
2331.7[b] 5	(10⁻)		
2440.9[h] 5	(10⁺)		
2506.3[a] 5	(10⁻)		
2616.3[d] 4	(11⁻)	0.291 ps *21*	$T_{1/2}$: from 1999Lo17. Other: 0.37 ps *8* (1991Ho01).
2766.0[i] 5	12(+)	0.146 ps *21*	$T_{1/2}$: from 1999Lo17. Other: 0.16 ps *4* (1991Ho01).
2833.6[c] 6	(11⁻)		
3156.3[e] 6	(12⁻)	0.28 ps *7*	$T_{1/2}$: from 1999Lo17 (uncertainty from table 4a of 1999Lo17). Other: <0.35 ps (1991Ho01). Additional information 1.
3176.7[j] 7	13(+)	0.139 ps *15*	$T_{1/2}$: from 1999Lo17. Other: 0.15 ps *3* (1991Ho01).
3308.0[k] 6	(12⁺)		
3446.6 7	(12⁺)		
3684.4[d] 5	(13⁻)	0.173 ps *15*	$T_{1/2}$: from 1999Lo17. Other: <0.37 ps (1991Ho01).
4097.2[i] 7	(14⁺)	0.090 ps *7*	$T_{1/2}$: from Table 4b of 1999Lo17. Other: <0.13 ps (1991Ho01). Additional information 2.
4341.2[e] 8	(14⁻)	<0.15 ps	$T_{1/2}$: effective half-life=0.139 ps *7* (1999Lo17).
4492.2[j] 8	(15⁺)	0.055 ps *15*	$T_{1/2}$: from 1999Lo17. Other: <0.17 ps (1991Ho01).
4908.8[d] 7	(15⁻)	<0.14 ps	$T_{1/2}$: effective half-life=0.132 ps *7* (1999Lo17).
5614.6[i] 9	(16⁺)	<0.16 ps	$T_{1/2}$: effective half-life=0.14 ps *2* (1999Lo17).

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(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

^{74}Br Levels (continued)

E(level)[†]	Jπ[‡]	$T_{1/2}$[#]	Comments
5962.2[j] *10*	(17+)	<0.14 ps	$T_{1/2}$: effective half-life=0.125 ps *14* (1999Lo17).
7614.5[j] *11*	(19+)		

† From least squares fit to Eγ's.
‡ From 'Adopted Levels'.
# From DSA method, unless otherwise stated.
@ Band(A): π3/2[431]ν5/2[303],K^π=1−, α=1.
& Band(B): π3/2[312]ν5/2[422],K^π=1−, α=1.
a Band(b): π3/2[312]ν5/2[422],K^π=1−, α=0.
b Band(C): π3/2[312]ν5/2[422],K^π=4−, α=0.
c Band(c): π3/2[312]ν5/2[422],K^π=4−, α=1.
d Band(D): π1/2[310]ν5/2[422],K^π=3−, α=1.
e Band(d): π1/2[310]ν5/2[422],K^π=3−, α=0.
f Band(E): π3/2[431]ν5/2[303],K^π=4−, α=0.
g Band(e): π3/2[431]ν5/2[303],K^π=4−, α=1.
h Band(F): band based on (5+).
i Band(G): π3/2[431]ν5/2[422] K^π=4+, α=0.
j Band(g): π3/2[431]ν5/2[422] K^π=4+, α=1.
k Band(H): Band based on (8+).

γ(^{74}Br)

R(DCO) values are from 1993Do05; A_2 and A_4 values are from 1981Ga11.

Eγ[†]	Iγ[‡]	Ei(level)	J^π_i	Ef	J^π_f	Comments
9.8		9.9	(1−)	0.0	(0−)	From ^{74}Kr ε decay.
62.8 *1*	20 *8*	72.7	(2−)	9.9	(1−)	Iγ: 11 (1981Ga11). A_2=−0.13 *6*, A_4=−0.08 *9*.
72.1 *1*	46 *8*	85.9	(3−)	13.7	4(+)	Iγ: 48 (1981Ga11). A_2=+0.02 *4*, A_4=−0.08 *9*.
89.6 *2*	7 *2*	89.62	(1−)	0.0	(0−)	Iγ: 5 (1981Ga11).
91.0 *2*	2 *1*	180.62	(2−)	89.62	(1−)	Iγ: 2 (1981Ga11).
114.5 *2*	7.5 *8*	485.9	(6−)	371.3	(5−)	Iγ: 9 (1981Ga11). R(DCO)=0.75 *15*.
116.2 *1*	29 *2*	202.1	(4−)	85.9	(3−)	Iγ: 38 (1991Ho01), 37 (1981Ga11). A_2=−0.56 *5*, A_4=−0.02 *8*. R(DCO)=0.42 *4*. Additional information 3.
123.3 *2*	1.2 *5*	212.95	1+	89.62	(1−)	
127.6 *3*	2.0 *6*	329.5	(4−)	202.1	(4−)	
128.2 *2*	9 *1*	201.0	(3−)	72.7	(2−)	Iγ: 18 (1981Ga11) for doublet. A_2=−0.22 *4*, A_4=−0.03 *6*. R(DCO)=0.61 *11* for 128.2+128.6 γ's.
128.6 *2*	3 *1*	329.5	(4−)	201.0	(3−)	Iγ: 18 (1981Ga11) for doublet. R(DCO)=0.61 *11* for 128.2+128.6 γ's.
133.9 *2*	5.0 *6*	619.9	(6−)	485.9	(6−)	Iγ: 3 (1981Ga11). R(DCO)=1.54 *14*.

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(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

γ(^{74}Br) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
139.5 *5*	1.0 *4*	802.8	(6$^+$)	663.3	(5$^+$)			
140.3 *2*	2.5 *7*	212.95	1$^+$	72.7	(2$^-$)			
148.7 *2*	2.0 *5*	543.4	(5$^-$)	394.7	(4$^-$)			R(DCO)=0.66 *14*.
156.4 *1*	14 *1*	826.3	8$^{(+)}$	669.9	7$^{(+)}$	M1+E2	0.12	I_γ: 8.2 (1991Ho01), 11 (1981Ga11). R(DCO)=0.53 *6*. Additional information 12. A_2=−0.46 *6*, A_4=+0.02 *9*.
159.1 *2*	0.5 *3*	339.7	(3$^-$)	180.62	(2$^-$)			
163.3 *3*	≈1	543.4	(5$^-$)	380.2	(4$^-$)			
169.2 *1*	23 *2*	371.3	(5$^-$)	202.1	(4$^-$)			I_γ: 13 (1991Ho01), 24 (1981Ga11). R(DCO)=0.41 *4*. Additional information 6. A_2=−0.43 *3*, A_4=+0.09 *4*.
179.2 *1*	5.5 *7*	380.2	(4$^-$)	201.0	(3$^-$)			I_γ: 5 (1981Ga11). R(DCO)=0.48 *7*.
188.4 *1*	19 *3*	202.1	(4$^-$)	13.7	4$^{(+)}$			I_γ: 15 (1991Ho01), 18 (1981Ga11). R(DCO)=1.09 *13*. Additional information 4.
188.5 *1*	81 *2*	202.3	5$^{(+)}$	13.7	4$^{(+)}$	M1+E2		I_γ: 89 (1991Ho01), 100 (1981Ga11). R(DCO)=0.24 *2*. Additional information 5.
191.2[&] *3*		201.0	(3$^-$)	9.9	(1$^-$)			I_γ: 1 (1981Ga11).
192.4 *3*	0.7 *5*	394.7	(4$^-$)	202.1	(4$^-$)			
195.0 *1*	58 *2*	397.1	6$^+$	202.3	5$^{(+)}$	M1+E2	0.23	I_γ: 56 (1991Ho01), 63 (1981Ga11). R(DCO)=0.25 *2*. Additional information 8. A_2=−0.52 *2*, A_4=−0.01 *3*.
195.6 *3*	6 *1*	619.9	(6$^-$)	424.5	(5$^-$)			I_γ: 2 (1981Ga11). R(DCO)=0.49 *11*.
213.3 *2*	4.5 *6*	593.4	(5$^-$)	380.2	(4$^-$)			I_γ: 5 (1981Ga11). R(DCO)=0.53 *8* for 213.3+214.0 γ's.
214.0 *2*	2.4 *5*	543.4	(5$^-$)	329.5	(4$^-$)			R(DCO)=0.53 *8* for 213.3+214.0 γ's.
217.1 *2*	2.2 *5*	306.69	1$^+$	89.62	(1$^-$)			
220.0 *3*	1.7 *5*	663.3	(5$^+$)	443.5	(4)			
222.4[a] *2*	10[a] *1*	424.5	(5$^-$)	202.1	(4$^-$)			I_γ: 10 (1981Ga11). R(DCO)=0.43 *12*.
222.4[a] *2*	2[a] *1*	815.7	(5$^-$)	593.4	(5$^-$)			
224.4 *2*	5 *1*	463.0	(5$^-$)	238.6	(4$^-$)			R(DCO)=0.68 *7* for 224.4+224.9 γ's.
224.9 *2*	7 *1*	238.6	(4$^-$)	13.7	4$^{(+)}$			R(DCO)=0.68 *7* for 224.4+224.9 γ's.
227.2 *2*	2.1 *7*	820.6	(6$^-$)	593.4	(5$^-$)			R(DCO)=0.47 *9*.
233.9 *3*	2 *1*	306.69	1$^+$	72.7	(2$^-$)			
241.4 *2*	4.2 *5*	443.5	(4)	202.3	5$^{(+)}$			
241.8 *2*	5.3 *6*	861.7	(7$^-$)	619.9	(6$^-$)			I_γ: 2.3 (1991Ho01). R(DCO)=0.47 *5*. Additional information 14.
242.0 *2*	1.3 *4*	1164.5	(7$^-$)	922.5	(6$^-$)			
243.8 *4*	1.7 *7*	329.5	(4$^-$)	85.9	(3$^-$)			
248.0[b] *3*	<0.6	485.9	(6$^-$)	238.6	(4$^-$)			
248.6 *2*	4.3 *6*	619.9	(6$^-$)	371.3	(5$^-$)			I_γ: 3.3 (1991Ho01), 4 (1981Ga11). R(DCO)=0.25 *4*.
256.6 *3*	0.9 *6*	329.5	(4$^-$)	72.7	(2$^-$)			I_γ: 1 (1981Ga11).
259.9 *5*	≈1	1893.2	(9$^-$)	1633.9	(8$^-$)			
263.8 *3*	2.1 *5*	593.4	(5$^-$)	329.5	(4$^-$)			R(DCO)=0.49 *12*.
266.1 *3*	1.4 *5*	663.3	(5$^+$)	397.1	6$^+$			R(DCO)=0.53 *15*.
272.2 *3*	2.4 *5*	815.7	(5$^-$)	543.4	(5$^-$)			

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(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

γ(^{74}Br) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	Comments
272.8 *1*	26 *2*	669.9	$7^{(+)}$	397.1	6^+	M1+E2	0.25	I_γ: 21 (1991Ho01), 26 (1981Ga11). A_2=−0.63 *8*, A_4=+0.08 *10*. R(DCO)=0.29 *3*. Additional information 11.
273.3 *2*	4 *1*	736.3	(6^-)	463.0	(5^-)			R(DCO)=0.44 *16*.
277.3 *2*	2.4 *6*	820.6	(6^-)	543.4	(5^-)			R(DCO)=0.54 *22*.
283.0 *3*	2 *1*	1272.9	(8^-)	990.1	(7^-)			R(DCO)=1.18 *14* for 283.0+283.8 γ′s.
283.8 *2*	17 *1*	485.9	(6^-)	202.1	(4^-)			I_γ: 18 (1981Ga11). A_2=−0.24 *8*, A_4=−0.06 10. Note that sign of A_2 is inconsistent with ΔJ=2. R(DCO)=1.18 *14* for 283.0+283.8 γ′s.
285.5 *2*	12 *1*	371.3	(5^-)	85.9	(3^-)			I_γ: 7.5 (1991Ho01), 5 (1981Ga11). Branching=26% *4* (1999Ga11). A_2=+0.31 *10*, A_4=−0.26 *15*. R(DCO)=1.03 *13*. Additional information 7.
287.3 *3*	2.3 *4*	1489.3	(8^-)	1201.9	(7^-)			
290.8 *3*	1.8 *5*	1488.1	(9^+)	1197.3	(8^+)			I_γ: 1 (1981Ga11). A_2=−0.2 *2*, A_4=+0.2 *4*. R(DCO)<0.4.
307.6 *2*	2.0 *5*	380.2	(4^-)	72.7	(2^-)			I_γ: 3 (1981Ga11). R(DCO)=0.73 *35*.
308.8 *2*	3.3 *5*	394.7	(4^-)	85.9	(3^-)			R(DCO)=0.32 *7*.
311.6 *3*	1.6 *4*	1485.6	(8^+)	1174.0	$9^{(+)}$			R(DCO)=0.44 *8*.
313.3 *2*	3.0 *5*	1049.6	(7^-)	736.3	(6^-)			R(DCO)=0.49 *15*.
315.2 *3*	3.0 *5*	1485.6	(8^+)	1170.5	(7^+)			R(DCO)=0.51 *8*.
322.7 *4*	0.7 *3*	1983.1	(9^+)	1660.3	(10^+)			R(DCO)=0.54 *12*.
331.7 *4*	≈1	2331.7	(10^-)	2000.2	(9^-)			
334.7 *2*	2.2 *5*	1384.2	(8^-)	1049.6	(7^-)			R(DCO)=0.36 *14*.
341.4 *3*	3.8 *7*	543.4	(5^-)	202.1	(4^-)			R(DCO)=0.38 *9*.
343.8 *3*	≈1	1164.5	(7^-)	820.6	(6^-)			
344.3 *3*	2.9 *6*	1170.5	(7^+)	826.3	$8^{(+)}$			R(DCO)=0.41 *8*.
344.7 *3*	1.0 *6*	1728.8	(9^-)	1384.2	(8^-)			R(DCO)=0.55 *22*.
347.8 *1*	27 *2*	1174.0	$9^{(+)}$	826.3	$8^{(+)}$	M1+E2		I_γ: 19 (1991Ho01), 14 (1981Ga11). R(DCO)=0.36 *4*. Additional information 16. A_2=−0.47 *3*, A_4=−0.01 *4*.
357.5 *3*	1	371.3	(5^-)	13.7	$4^{(+)}$			γ from 1981Ga11 only; Iγ=1.
367.8 *2*	2.7 *6*	1170.5	(7^+)	802.8	(6^+)			R(DCO)<0.5.
370.4 *3*	3.9 *6*	990.1	(7^-)	619.9	(6^-)			R(DCO)=0.50 *9*.
375.8 *3*	4.4 *6*	861.7	(7^-)	485.9	(6^-)			R(DCO)=1.7 *3*.
379.0 *2*	1.6 *5*	922.5	(6^-)	543.4	(5^-)			
381.3 *2*	2.5 *6*	1201.9	(7^-)	820.6	(6^-)			
383.4 *1*	19 *2*	397.1	6^+	13.7	$4^{(+)}$			I_γ: 44 (1991Ho01), 25 (1981Ga11). Branching=37% *2* (1999Ga11), 36% *1* (1991Ho01). R(DCO)=1.08 *4*. Additional information 9. A_2=+0.27 *4*, A_4=−0.07 *6*.
392.5 *3*	4.5 *6*	593.4	(5^-)	201.0	(3^-)			I_γ: 3 (1981Ga11). R(DCO)=1.17 *24*.
405.8 *2*	2.8 *6*	802.8	(6^+)	397.1	6^+			R(DCO)=0.69 *14*.
407.8 *2*	8.5 *9*	2068.1	$11^{(+)}$	1660.3	(10^+)	M1+E2	0.16	I_γ: 7.0 (1991Ho01), 3 (1981Ga11). Branching=63% *1* (1991Ho01). A_2=−0.8 *3*, A_4=+0.4 *4*. R(DCO)=0.27 *4*. Additional information 21.

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(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

γ(^{74}Br) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
411.3 *2*	5.3 *5*	1272.9	(8$^-$)	861.7	(7$^-$)		I_γ: 2.1 (1991Ho01). R(DCO)=0.26 *5*. Additional information 17.
415.3 *2*	4.9 *6*	1688.1	(9$^-$)	1272.9	(8$^-$)	M1+E2	I_γ: 0.5 (1991Ho01). R(DCO)=0.24 *4*.
417.9 *2*	6.3 *6*	619.9	(6$^-$)	202.1	(4$^-$)		I_γ: 6.1 (1991Ho01), 4 (1981Ga11). R(DCO)=0.95 *14*. Additional information 10.
429.2 *1*	40 *2*	826.3	8$^{(+)}$	397.1	6$^+$		I_γ: 39 (1991Ho01), 19 (1981Ga11). Branching=71% *2* (1999Ga11), 82% *1* (1991Ho01). R(DCO)=1.07 *4*. Additional information 13.
430.0 *4*	3 *1*	443.5	(4)	13.7	4$^{(+)}$		
437.0 *2*	2.1 *6*	861.7	(7$^-$)	424.5	(5$^-$)		
449.2 *2*	2.8 *6*	820.6	(6$^-$)	371.3	(5$^-$)		R(DCO)=0.53 *10*.
452.3 *2*	2.9 *6*	2140.4	(10$^-$)	1688.1	(9$^-$)	M1+E2	I_γ: 0.9 (1991Ho01). R(DCO)=0.31 *7*.
457.7 *4*	2.0 *5*	2440.9	(10$^+$)	1983.1	(9$^+$)		R(DCO)=0.78 *21*.
461.1 *3*	1.2 *4*	663.3	(5$^+$)	202.3	5$^{(+)}$		
467.5 *2*	12 *1*	669.9	7$^{(+)}$	202.3	5$^{(+)}$		I_γ: 11 (1991Ho01), 8 (1981Ga11). Branching=32% *2* (1999Ga11), 33% *1* (1991Ho01). A_2=+0.21 *8*, A_4=−0.1 *1*. R(DCO)=1.36 *25*.
469.5 *3*	1.3 *4*	1633.9	(8$^-$)	1164.5	(7$^-$)		R(DCO)=0.27 *15*.
475.9 *3*	3.8 *5*	2616.3	(11$^-$)	2140.4	(10$^-$)	M1+E2	I_γ: 0.4 (1991Ho01). R(DCO)=0.20 *9*.
485.9 *3*	2.2 *4*	815.7	(5$^-$)	329.5	(4$^-$)		I_γ: 2 (1981Ga11).
486.3 *2*	1.7 *4*	1660.3	(10$^+$)	1174.0	9$^{(+)}$	M1+E2	I_γ: 1.4 (1991Ho01). R(DCO)=0.15 *4*.
490.4 *2*	6 *1*	861.7	(7$^-$)	371.3	(5$^-$)		I_γ: 6.3 (1991Ho01), 1 (1981Ga11). Branching=57% *1* (1991Ho01). R(DCO)=1.29 *10*. Additional information 15.
491.1 *2*	3 *1*	820.6	(6$^-$)	329.5	(4$^-$)		R(DCO)=1.4 *3*.
497.6 *3*	2.0 *5*	1983.1	(9$^+$)	1485.6	(8$^+$)		R(DCO)=0.69 *28*.
497.7 *2*	2.3 *5*	736.3	(6$^-$)	238.6	(4$^-$)		
504.1 *3*	3 *1*	1174.0	9$^{(+)}$	669.9	7$^{(+)}$		I_γ: 3.3 (1991Ho01), 2 (1981Ga11). Branching=17% *4* (1999Ga11). R(DCO)=1.4 *4*.
504.3 *3*	6.8 *7*	990.1	(7$^-$)	485.9	(6$^-$)		I_γ: 4 (1981Ga11). R(DCO)=0.48 *6*.
511.0[b] *4*	≈1	2000.2	(9$^-$)	1489.3	(8$^-$)		
527.6 *2*	8.7 *9*	1197.3	(8$^+$)	669.9	7$^{(+)}$		I_γ: 3 (1981Ga11). A_2=−0.8 *4*, A_4=−0.1 *6*. R(DCO)=0.18 *7*.
542.3 *3*	4.0 *6*	922.5	(6$^-$)	380.2	(4$^-$)		R(DCO)=1.19 *22*.
586.5 *3*	2.5 *6*	1049.6	(7$^-$)	463.0	(5$^-$)		R(DCO)=1.04 *24*.
600.4 *3*	4.8 *7*	802.8	(6$^+$)	202.3	5$^{(+)}$		I_γ: 6 (1981Ga11). R(DCO)=0.40 *18*.
608.3 *3*	3.9 *6*	1201.9	(7$^-$)	593.4	(5$^-$)		
613.1 *3*	3 *1*	2506.3	(10$^-$)	1893.2	(9$^-$)		
618.8 *3*	4.2 *6*	990.1	(7$^-$)	371.3	(5$^-$)		R(DCO)=1.28 *23*.
621.1 *3*	3.5 *6*	1164.5	(7$^-$)	543.4	(5$^-$)		
647.8 *3*	2.4 *5*	1384.2	(8$^-$)	736.3	(6$^-$)		
653.0 *2*	8.4 *6*	1272.9	(8$^-$)	619.9	(6$^-$)		I_γ: 1.9 (1991Ho01).

Continued on next page (footnotes at end of table)

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

γ(^{74}Br) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	Comments
							R(DCO)=1.06 *8*. Additional information 18.
668.6 *3*	4.2 *6*	1489.3	(8$^-$)	820.6	(6$^-$)		R(DCO)=0.80 *16*.
678.7 *3*	2.2 *4*	1164.5	(7$^-$)	485.9	(6$^-$)		R(DCO)=0.50 *12*.
679.2 *3*	1.8 *5*	1728.8	(9$^-$)	1049.6	(7$^-$)		
682.7 *3*	1.9 *5*	1485.6	(8$^+$)	802.8	(6$^+$)		
697.9 *3*	1.6 *6*	2766.0	12$^{(+)}$	2068.1	11$^{(+)}$	M1+E2	I_γ: 2.0 (1991Ho01). R(DCO)<0.5.
698.0 *3*	2.0 *6*	1688.1	(9$^-$)	990.1	(7$^-$)		R(DCO)=1.07 *2*.
711.5 *3*	2.0 *5*	1633.9	(8$^-$)	922.5	(6$^-$)		R(DCO)=1.3 *4*.
728.5 *3*	3 *2*	1893.2	(9$^-$)	1164.5	(7$^-$)		R(DCO)=0.80 *21*.
786.8 *3*	5.6 *7*	1272.9	(8$^-$)	485.9	(6$^-$)		R(DCO)=1.02 *9*.
798.5 *3*	3.6 *6*	2000.2	(9$^-$)	1201.9	(7$^-$)		R(DCO)=0.96 *17*.
800.1 *2*	6.1 *6*	1197.3	(8$^+$)	397.1	6$^+$		I_γ: 4 (1981Ga11). A_2=+0.35 *10*, A_4=−0.1 *1*. R(DCO)=0.99 *14*.
815.6 *3*	2.2 *4*	1485.6	(8$^+$)	669.9	7$^{(+)}$		I_γ: 1 (1981Ga11).
818.2 *2*	6.5 *8*	1488.1	(9$^+$)	669.9	7$^{(+)}$		I_γ: 3 (1981Ga11). R(DCO)=1.07 *10*.
826.4 *2*	7.7 *7*	1688.1	(9$^-$)	861.7	(7$^-$)		I_γ: 4.9 (1991Ho01). Branching=61% *2* (1991Ho01). R(DCO)=0.86 *10*. Additional information 20.
833.9 *2*	23 *2*	1660.3	(10$^+$)	826.3	8$^{(+)}$		I_γ: 22 (1991Ho01), 13 (1981Ga11). Branching=93% *1* (1991Ho01). A_2=+0.35 *6*, A_4=−0.20 *12*. R(DCO)=0.94 *5*. Additional information 19.
842.3 *3*	3 *1*	2331.7	(10$^-$)	1489.3	(8$^-$)		R(DCO)=1.05 *13*.
867.4 *2*	11 *1*	2140.4	(10$^-$)	1272.9	(8$^-$)		I_γ: 3.4 (1991Ho01). Branching=78% *3* (1991Ho01). R(DCO)=0.99 *8*. Additional information 23.
872.3 *4*	2.0 *7*	2506.3	(10$^-$)	1633.9	(8$^-$)		
894.1 *2*	10 *1*	2068.1	11$^{(+)}$	1174.0	9$^{(+)}$		I_γ: 8.0 (1991Ho01), 2 (1981Ga11). Iγ(894)/Iγ(408)=63 *1*/37 *1* (1999Lo17). R(DCO)=0.90 *7*. Additional information 22.
903.0 *3*	3.1 *6*	1893.2	(9$^-$)	990.1	(7$^-$)		R(DCO)=0.85 *14*.
928.2 *2*	7.8 *7*	2616.3	(11$^-$)	1688.1	(9$^-$)		I_γ: 3.4 (1991Ho01). Branching=75% *1* (1991Ho01). R(DCO)=0.84 *8*. Additional information 24.
936.7 *3*	0.9 *4*	2134.0	(10$^+$)	1197.3	(8$^+$)		
940.4 *4*	3.1 *5*	2833.6	(11$^-$)	1893.2	(9$^-$)		R(DCO)=1.06 *31*.
955.4 *3*	2.1 *5*	2440.9	(10$^+$)	1485.6	(8$^+$)		
959.8 *3*	5.6 *7*	2134.0	(10$^+$)	1174.0	9$^{(+)}$		R(DCO)=0.13 *3*.
1015.9 *4*	10 *1*	3156.3	(12$^-$)	2140.4	(10$^-$)		I_γ: 4.1 (1991Ho01). R(DCO)=1.02 *15*.
1068.1 *3*	6.7 *8*	3684.4	(13$^-$)	2616.3	(11$^-$)		I_γ: 3.1 (1991Ho01). R(DCO)=1.09 *15*.
1089.1 *3*	5.8 *7*	2263.2	(10$^+$)	1174.0	9$^{(+)}$		R(DCO)=0.11 *3*.
1105.7 *4*	7 *1*	2766.0	12$^{(+)}$	1660.3	(10$^+$)		I_γ: 6.7 (1991Ho01). Branching=79% *3* (1991Ho01). R(DCO)=1.09 *6* for 1105.7+1108.6 γ's. Additional information 25.

Continued on next page (footnotes at end of table)

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)

$\gamma(^{74}Br)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1108.6 *5*	13 *2*	3176.7	$13^{(+)}$	2068.1	$11^{(+)}$	I_γ: 11 (1991Ho01). R(DCO)=1.09 *6* for 1105.7+1108.6 γ's. Additional information 26.
1173.8 *5*	3 *1*	3308.0	(12^+)	2134.0	(10^+)	
1184.9 *5*	4 *1*	4341.2	(14^-)	3156.3	(12^-)	I_γ: 2.2 (1991Ho01).
1224.4 *5*	5 *1*	4908.8	(15^-)	3684.4	(13^-)	I_γ: 1.2 (1991Ho01).
1240.2 *5*	2 *1*	3308.0	(12^+)	2068.1	$11^{(+)}$	R(DCO)<0.5.
1315.5 *5*	6.2 *8*	4492.2	(15^+)	3176.7	$13^{(+)}$	I_γ: 5.2 (1991Ho01).
1331.2 *5*	5.0 *8*	4097.2	(14^+)	2766.0	$12^{(+)}$	I_γ: 4.8 (1991Ho01).
1378.5 *5*	2 *1*	3446.6	(12^+)	2068.1	$11^{(+)}$	R(DCO)<0.5.
1470.0 *5*	2 *1*	5962.2	(17^+)	4492.2	(15^+)	I_γ: 3.2 (1991Ho01).
1517.4 *5*	2 *1*	5614.6	(16^+)	4097.2	(14^+)	I_γ: 2.7 (1991Ho01).
1652.2 *5*	2 *1*	7614.5	(19^+)	5962.2	(17^+)	I_γ: 1.7 (1991Ho01).

[†] From 1993Do05, unless noted otherwise.
[‡] From (90°−90°) array in ^{58}Ni(^{19}F,2pnγ) reaction at 62 MeV. Intensities from 1991Ho01 (either from (^{32}S,pnγ) or (^{19}F,2pnγ)) and from 1981Ga11 (from (^{16}O,npγ)) are given under comments.
[#] From $\gamma\gamma(\theta)$(DCO), $\gamma(\theta)$ and band structure.
[@] From 1991Ho01 determined by using $\gamma(\theta)$ data in (1981Ga11).
[&] Reported by 1981Ga11 only.
[a] Multiply placed with intensity suitably divided.
[b] Placement of transition in the level scheme is uncertain.

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11

Level Scheme

Intensities: Relative I_γ

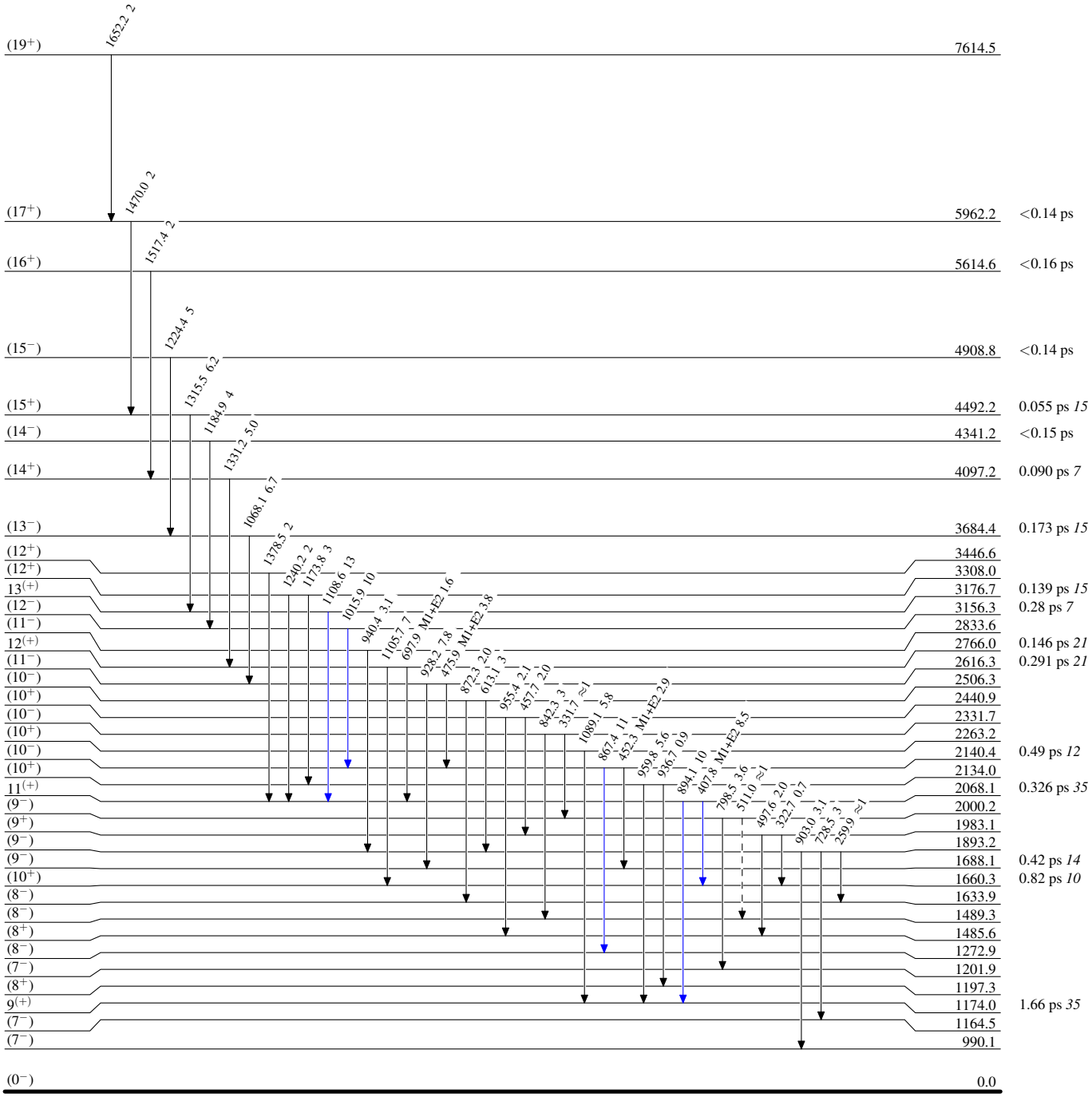
Legend

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

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

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

γ Decay (Uncertain)

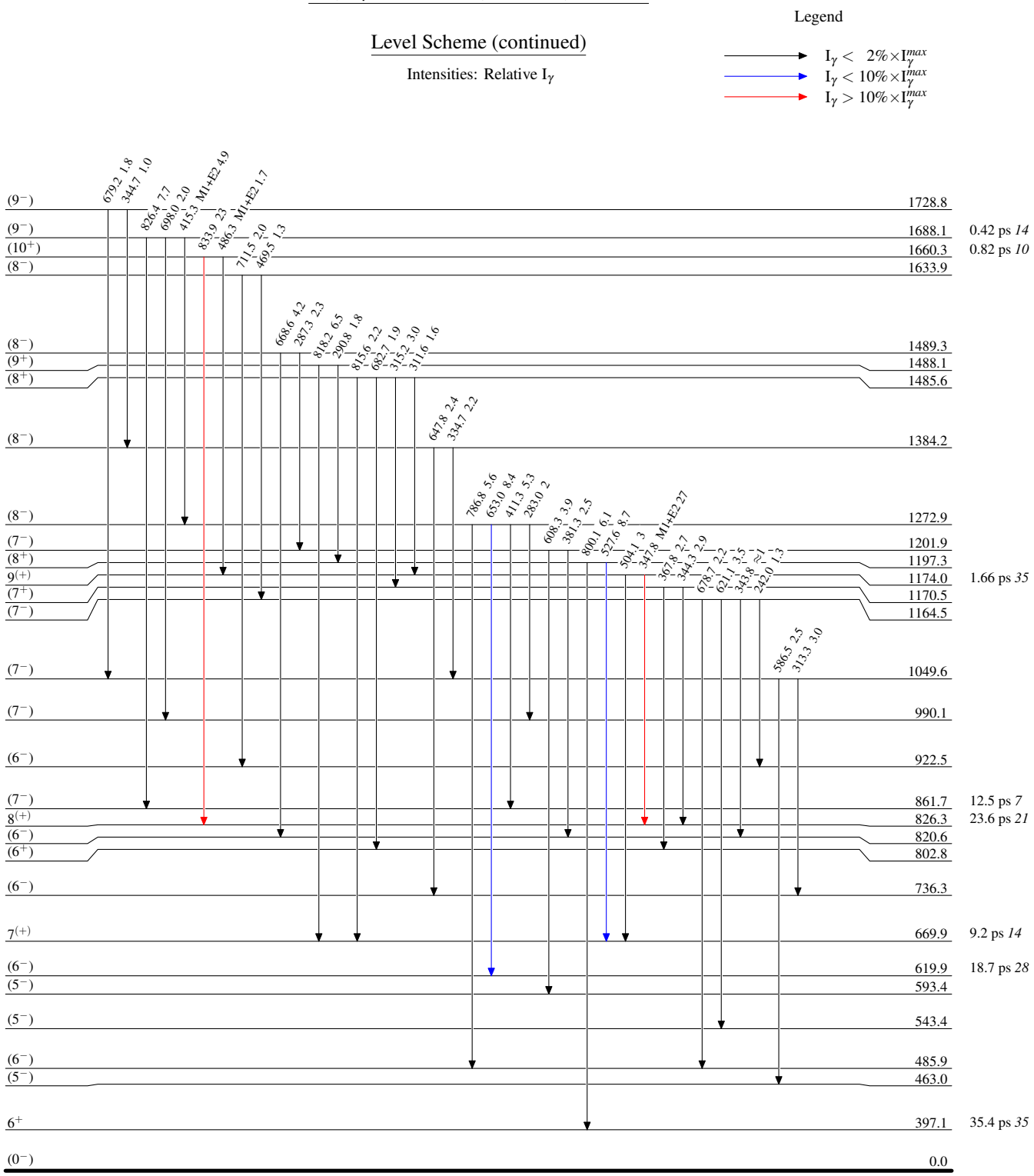


$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11

Level Scheme (continued)

Intensities: Relative I_γ



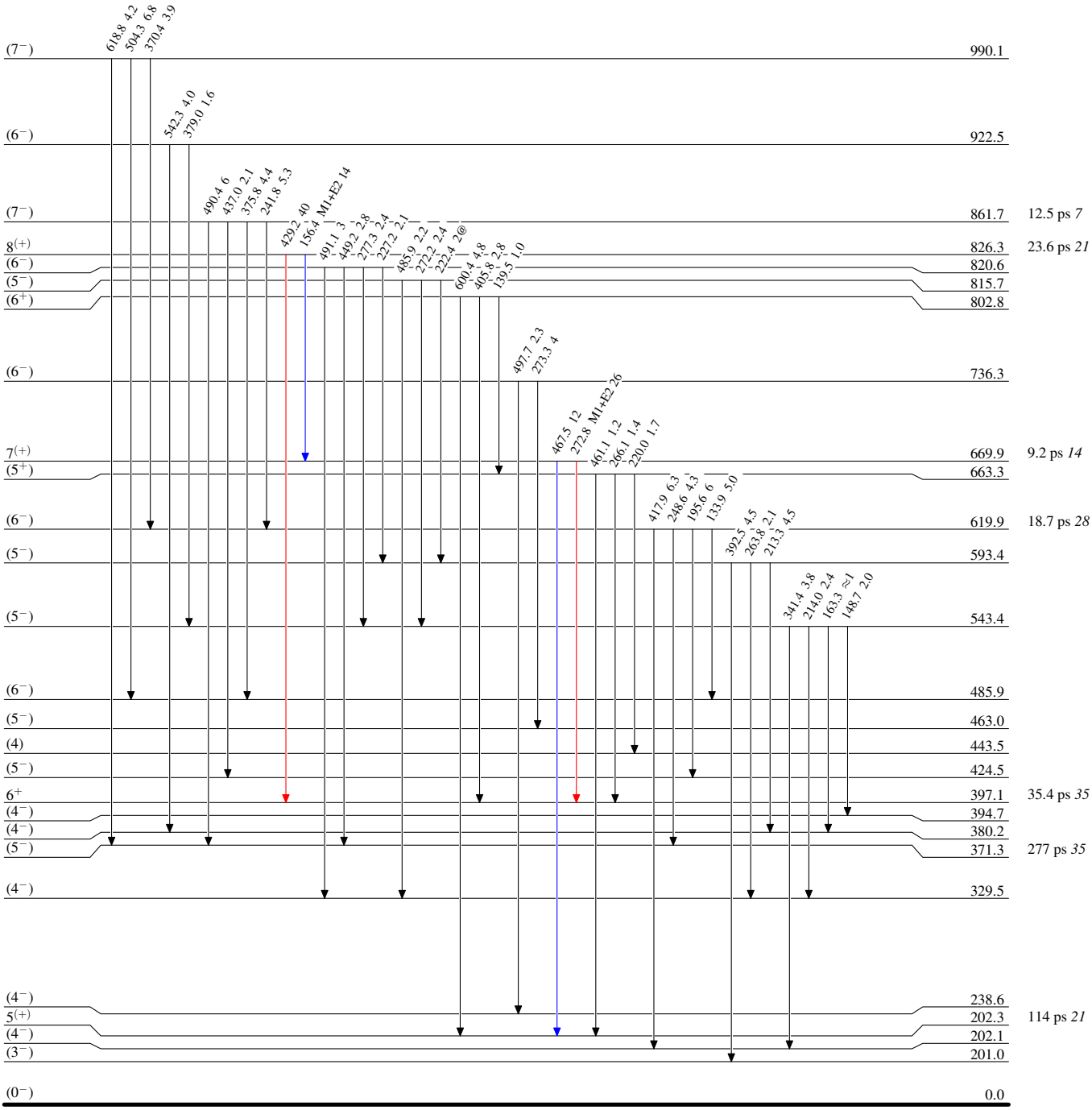
$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11

Level Scheme (continued)

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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



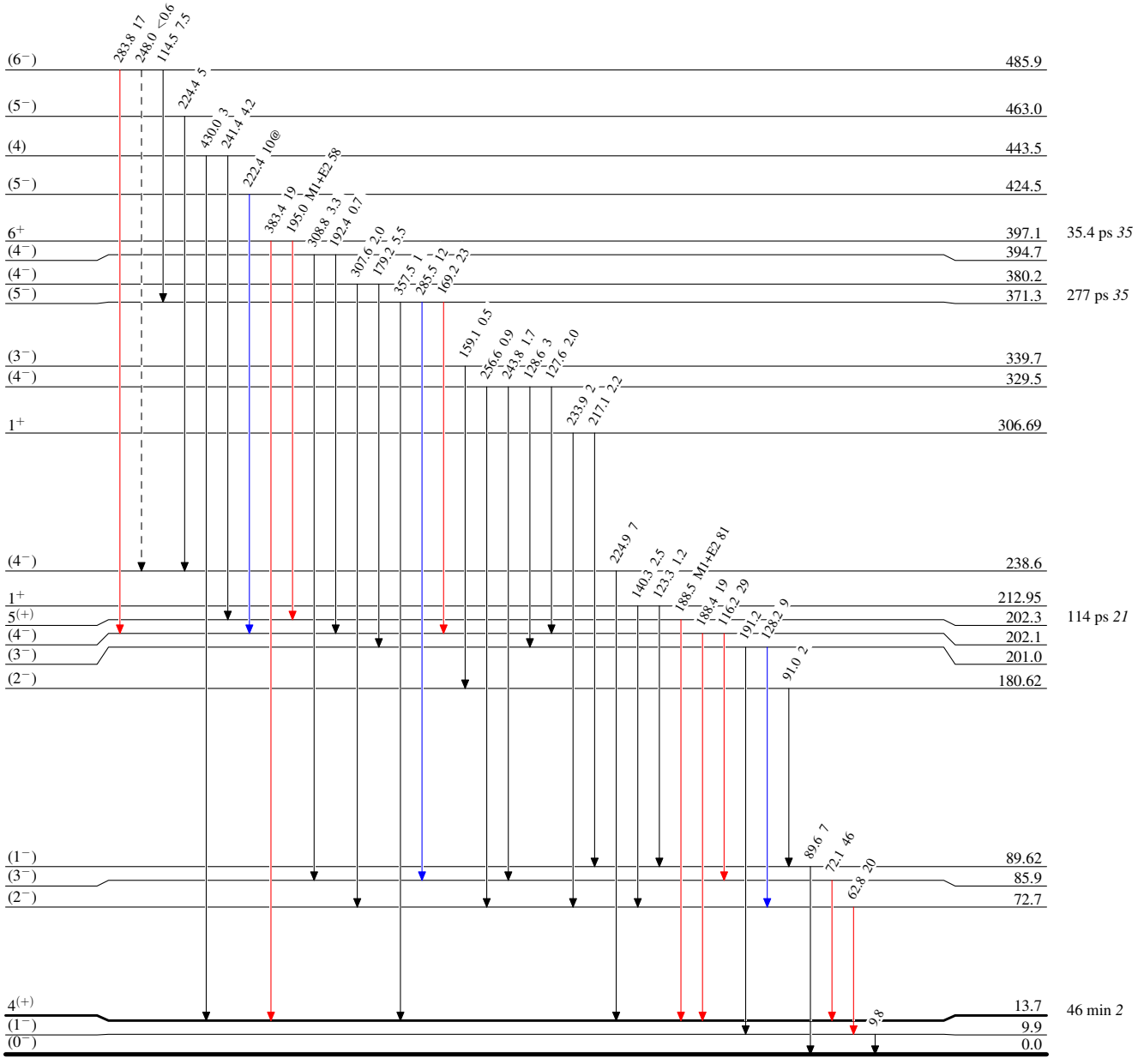
$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11

Level Scheme (continued)

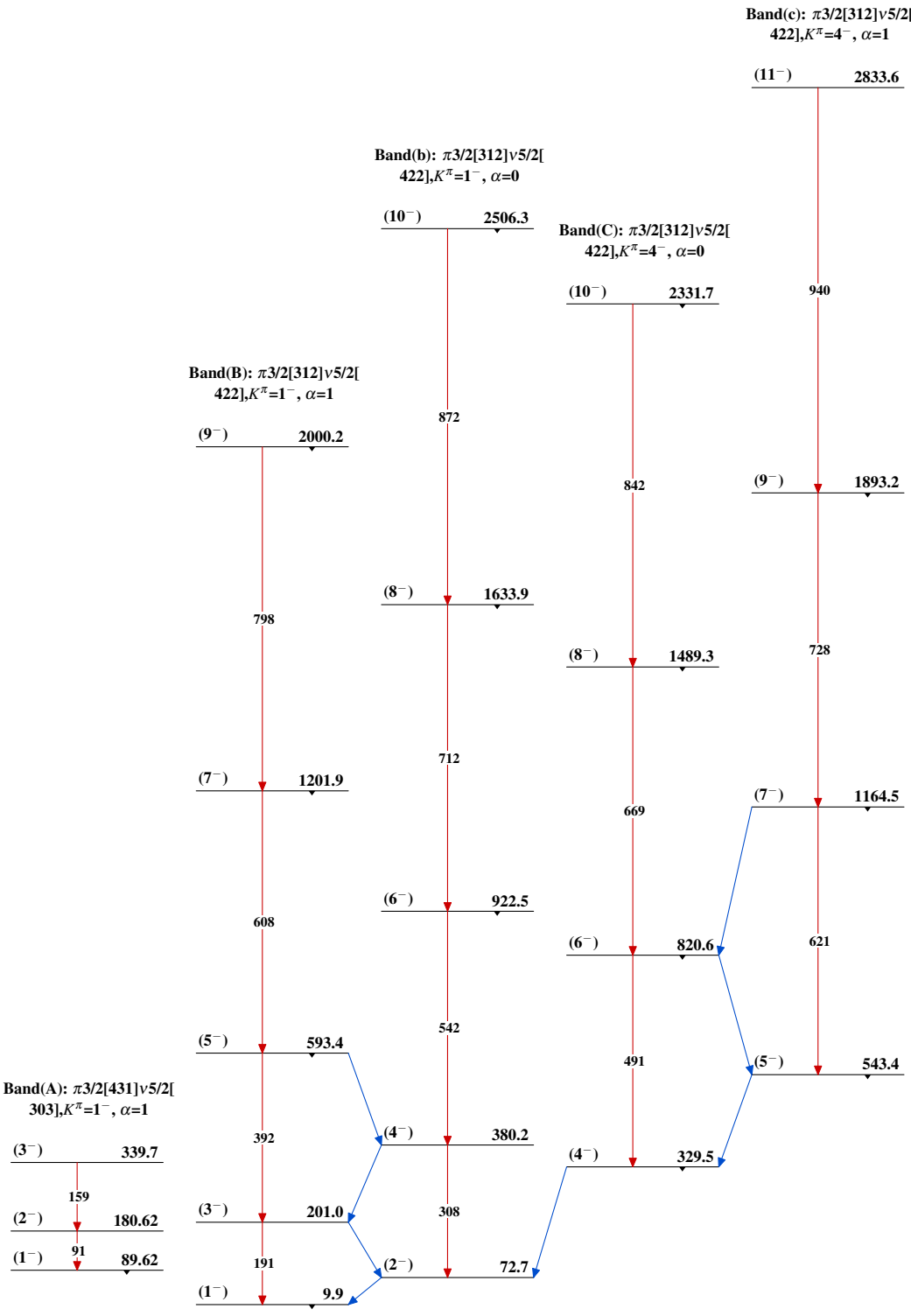
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

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)



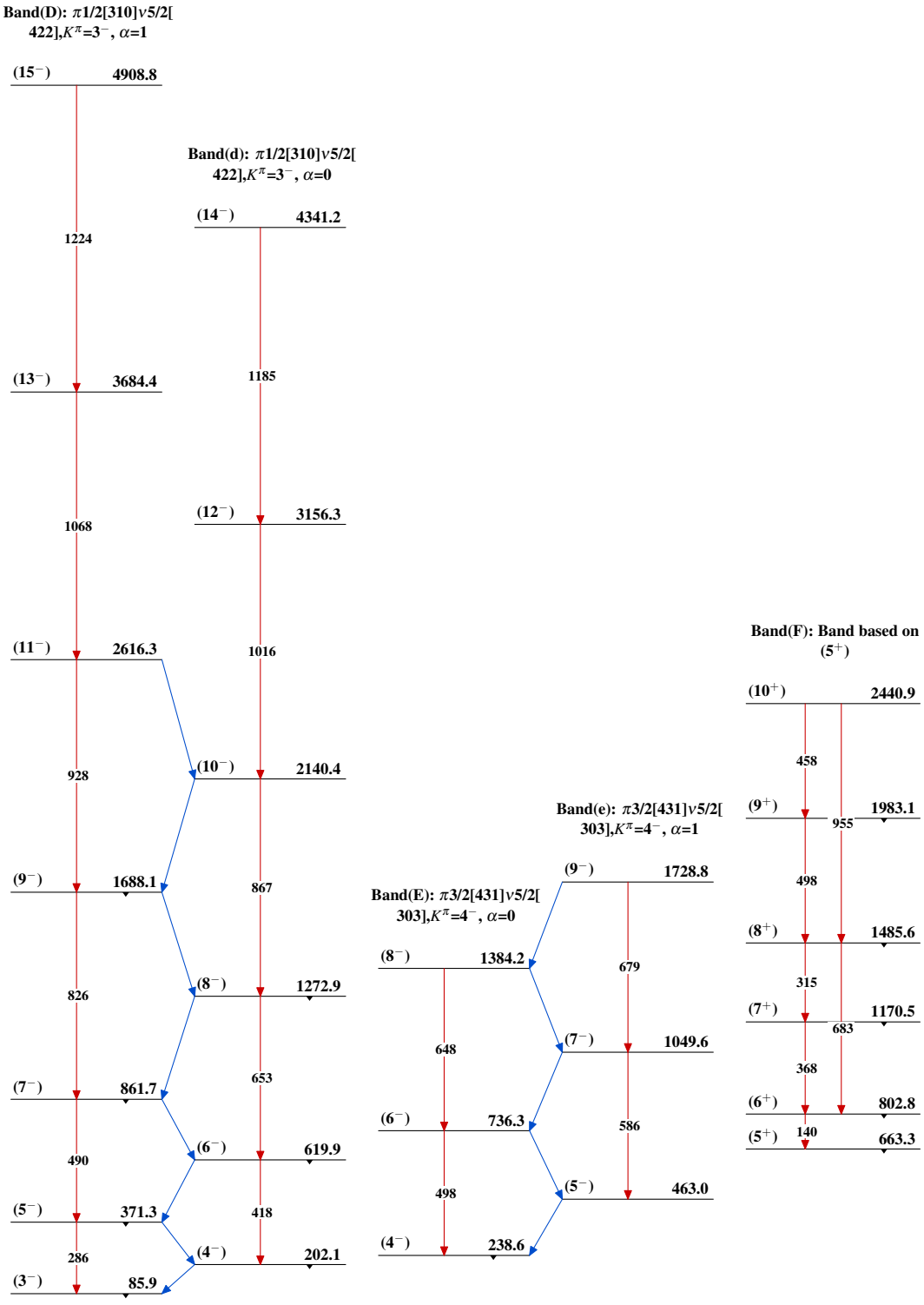
$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11



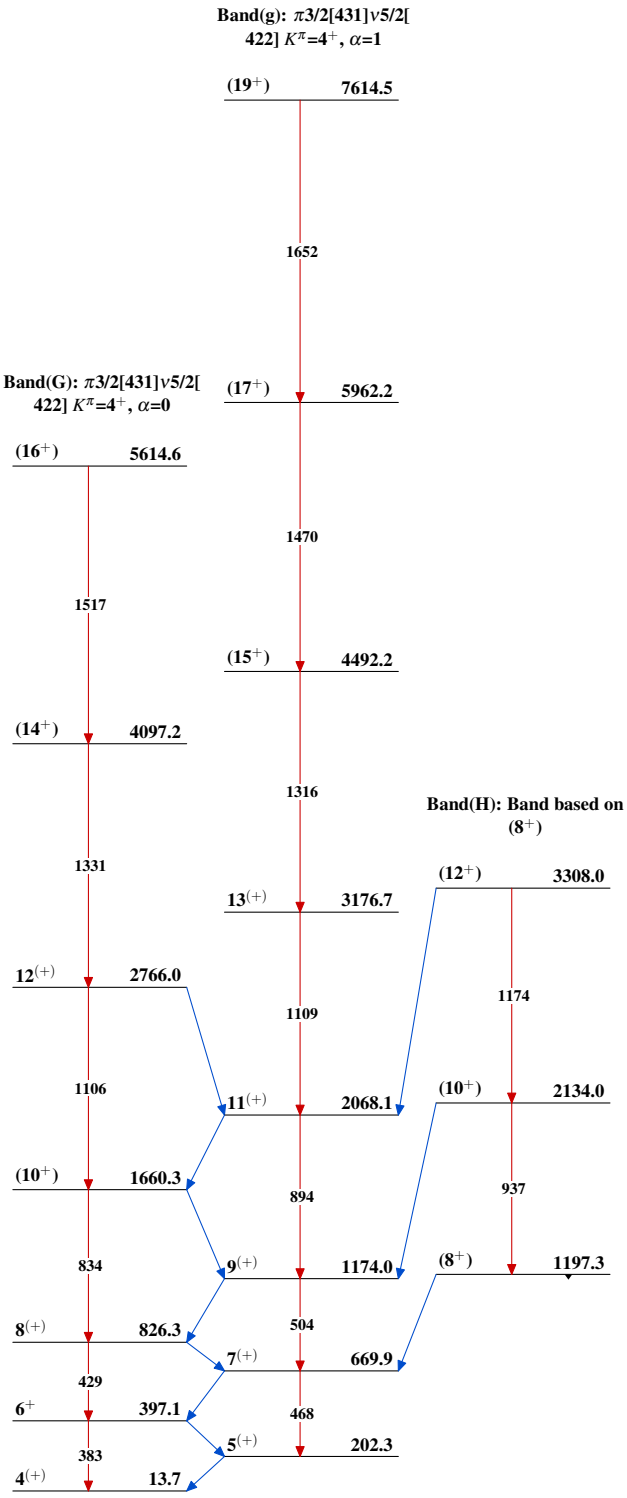
$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)



$^{74}_{35}Br_{39}$

(HI,xnγ) 1993Do05,1991Ho01,1981Ga11 (continued)



$^{74}_{35}Br_{39}$