(HI,xnγ)

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne and A. Negret	NDS 109, 943 (2008)	1-May-2007

Unless noted otherwise, results taken from ^{96}Zr(^{13}C,p2nγ)(2004Jo10) as they are the most complete. For other (HI,xnγ) results see also ^{176}Yb(^{28}Si,xng) from 2002Po11 and ^{173}Yb(^{24}Mg,xng) from 2003Fo09.

2004Jo10: ^{96}Zr(^{13}C,p2nγ)E=51 MeV. Measured Eγ, Iγ, γγ, (charged particle)γ (coin), γγ(τ), γγ(θ)(DCO) γ(lin pol) with the Euroball-IV array, comprising of only the clover and the cluster Ge detectors, and the DIAMANT charged-particle array.

^{106}Rh Levels

E(level)†	Jπ‡	Comments
0.0	1+	
137 *13*	(6+)	%β−=100 Additional information 1.
247.80# *12*	(6−)	
352.93@ *21*	(7−)	
401.0# *4*	(8−)	
565.5@ *4*	(9−)	
898.6# *5*	(10−)	
1190.7& *7*	(10−)	
1208.4@ *5*	(11−)	
1548.2a *8*	(11−)	
1625.5# *5*	(12−)	
1924.5& *7*	(12−)	
2042.5@ *5*	(13−)	
2395.1a *7*	(13−)	
2496.1# *5*	(14−)	
2866.7& *8*	(14−)	
2997.1@ *5*	(15−)	
3350.7a *8*	(15−)	
3460.2# *8*	(16−)	
3844.0& *10*	(16−)	
4001.6@ *9*	(17−)	
4458.4# *10*	(18−)	
5000.3@ *11*	(19−)	
5501.2# *12*	(20−)	
6086.9@ *13*	(21−)	
6671.8# *14*	(22−)	

† From least-squares fit to Eγ's by the evaluators; ΔEγ=0.3 keV for each transition assumed. Level at 137 keV kept fixed.

‡ From γ lin pol, DCO and expected band structure.

Band(A): $\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$, α=+1/2.

@ Band(a): $\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$, α=−1/2.

& Band(B): Chiral partner of $\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$, α=+1/2.

a Band(b): Chiral partner of $\pi g_{9/2}^{-1}\otimes\nu h_{11/2}$, α=+1/2.

(HI,xnγ) (continued)

γ(^{106}Rh)

Pol=[1/Q][(n(perpendicular)−n(parallel))/(n(perpendicular)- n(parallel))]; Q is the polarization sensitivity.
DCO values correspond to gates on ΔJ=1, dipole transitions, except for those indicated by DCO(Q), which correspond to gates on ΔJ=2, quadrupole transitions.

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	Comments
48.1[‡] *3*		401.0	(8$^-$)	352.93	(7$^-$)		I_γ: a value of Iγ=32 *8* given by 2002Po11 in ^{176}Yb(^{28}Si,Xγ).
105.13[‡] *17*		352.93	(7$^-$)	247.80	(6$^-$)		I_γ: a value of Iγ=111 *14* given by 2002Po11 in ^{176}Yb(^{28}Si,Xγ).
110.80[‡] *12*		247.80	(6$^-$)	137	(6$^+$)		I_γ: a value of Iγ=142 *18* given by 2002Po11 in ^{176}Yb(^{28}Si,Xγ).
164.48[‡] *19*	100 *9*	565.5	(9$^-$)	401.0	(8$^-$)	M1	DCO=1.02 *3*
309.68[‡] *13*	52.7 *20*	1208.4	(11$^-$)	898.6	(10$^-$)	M1	DCO=1.05 *3* Pol=−0.44 *12*.
333.14[‡] *13*	57.4 *23*	898.6	(10$^-$)	565.5	(9$^-$)	M1	DCO=1.24 *4* Pol=−0.46 *16*.
357.5	1.6 *13*	1548.2	(11$^-$)	1190.7	(10$^-$)	(M1)	
376.7	6.4 *18*	1924.5	(12$^-$)	1548.2	(11$^-$)	(M1)	DCO=1.02 *11*
416.6	24.3 *13*	2042.5	(13$^-$)	1625.5	(12$^-$)	M1	DCO(Q)=0.62 *10*
416.7[‡] *25*	36.7 *18*	1625.5	(12$^-$)	1208.4	(11$^-$)	M1	DCO(Q)=0.57 *5*
453.3	22.5 *12*	2496.1	(14$^-$)	2042.5	(13$^-$)	M1	DCO=0.97 *5* Pol=−0.35 *22*.
456.7	6.8 *7*	4458.4	(18$^-$)	4001.6	(17$^-$)	M1	DCO=0.85 *16*
463.5	10.6 *8*	3460.2	(16$^-$)	2997.1	(15$^-$)	M1	DCO=0.97 *11*
470.5	5.8 *18*	2395.1	(13$^-$)	1924.5	(12$^-$)	M1	DCO=0.90 *12* DCO for 471.5+470.5. Pol=−1.0 *4* for doublet.
471.5	7.8 *23*	2866.7	(14$^-$)	2395.1	(13$^-$)	M1	DCO=0.90 *12* DCO for 471.5+470.5. Pol=−1.0 *4* for 471.5+470.5.
484.0	4.4 *16*	3350.7	(15$^-$)	2866.7	(14$^-$)	(M1)	
493.0	2.1 *24*	3844.0	(16$^-$)	3350.7	(15$^-$)	(M1)	
497.4[‡] *3*	3.7 *10*	898.6	(10$^-$)	401.0	(8$^-$)	(E2)	
500.3	3.3 *8*	5501.2	(20$^-$)	5000.3	(19$^-$)	M1	Pol=−0.9 *3* for 500.3+501.0.
501.0[‡] *3*	14.3 *11*	2997.1	(15$^-$)	2496.1	(14$^-$)	M1	Pol=−0.9 *3* for 500.3+501.0.
541.0	7.6 *14*	4001.6	(17$^-$)	3460.2	(16$^-$)	M1	DCO=1.07 *9* DCO for 541.0+541.7. Pol=−0.7 *3* for 541.0+541.7.
541.7	4.5 *13*	5000.3	(19$^-$)	4458.4	(18$^-$)	M1	DCO=1.07 *9* DCO for 541.0+541.7. Pol=−0.7 *3* for 541.0+541.7.
585.2	1.7 *9*	6671.8	(22$^-$)	6086.9	(21$^-$)	(M1)	
585.7	2.0 *9*	6086.9	(21$^-$)	5501.2	(20$^-$)	(M1)	
625.6	3.6 *21*	1190.7	(10$^-$)	565.5	(9$^-$)	M1+E2	DCO=1.15 *18* Pol=−0.6 *7*. δ: possibly positive (2004Jo10).
642.9[‡] *2*	24.0 *9*	1208.4	(11$^-$)	565.5	(9$^-$)	E2	Pol=+1.1 *3*.
650.0	1.5 *9*	1548.2	(11$^-$)	898.6	(10$^-$)	M1+E2	DCO=1.41 *20* Pol=−0.6 *6*. δ: possibly positive (2004Jo10).
715.4	0.6 *10*	1924.5	(12$^-$)	1208.4	(11$^-$)	(M1+E2)	
727.15[‡] *22*	8.8 *9*	1625.5	(12$^-$)	898.6	(10$^-$)	E2	DCO=1.68 *5* Pol=+1.0 *3*.

Continued on next page (footnotes at end of table)

(HI,xnγ) (continued)

γ(^{106}Rh) (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#@]	Comments
733.6	0.3 *3*	1924.5	(12$^-$)	1190.7	(10$^-$)	E2	
770.2	1.1 *4*	2395.1	(13$^-$)	1625.5	(12$^-$)	M1+E2	DCO=1.15 *18*
789.0	0.1 *7*	1190.7	(10$^-$)	401.0	(8$^-$)		
824.8	0.5 *12*	2866.7	(14$^-$)	2042.5	(13$^-$)	(M1)	
834.25[‡] *25*	20.3 *11*	2042.5	(13$^-$)	1208.4	(11$^-$)	E2	DCO=1.77 *12* Pol=+0.8 *3*.
847.0	7.6 *15*	2395.1	(13$^-$)	1548.2	(11$^-$)	(E2)	
854.0	1.6 *16*	3350.7	(15$^-$)	2496.1	(14$^-$)	(M1+E2)	
871.1[‡] *3*	12.2 *8*	2496.1	(14$^-$)	1625.5	(12$^-$)	E2	DCO=1.68 *15* Pol=+1.0 *4*.
941.8	3.8 *20*	2866.7	(14$^-$)	1924.5	(12$^-$)	(E2)	
954.6[‡] *3*	13.9 *9*	2997.1	(15$^-$)	2042.5	(13$^-$)	E2	DCO=1.71 *16*
956.0	3.8 *14*	3350.7	(15$^-$)	2395.1	(13$^-$)	(E2)	Pol=+0.4 *5*.
963.8	10.4 *7*	3460.2	(16$^-$)	2496.1	(14$^-$)	E2	DCO=1.56 *16* Pol=+0.7 *5*.
977.6	1.8 *21*	3844.0	(16$^-$)	2866.7	(14$^-$)	(E2)	
998.5	5.2 *16*	5000.3	(19$^-$)	4001.6	(17$^-$)	E2	DCO=1.99 *19* DCO for 998.6+998.5. Pol=+0.50 *25* for 998.6+998.5.
998.6	6.8 *16*	4458.4	(18$^-$)	3460.2	(16$^-$)	E2	DCO=1.99 *19* DCO for 998.6+998.5. Pol=+0.50 *25* for 998.6+998.5.
1004.5	7.7 *7*	4001.6	(17$^-$)	2997.1	(15$^-$)	E2	DCO=1.82 *20* Pol=+1.6 *3*.
1043.2	5.9 *6*	5501.2	(20$^-$)	4458.4	(18$^-$)	E2	DCO=1.81 *18*
1086.7	2.3 *5*	6086.9	(21$^-$)	5000.3	(19$^-$)	(E2)	
1170.3	2.8 *5*	6671.8	(22$^-$)	5501.2	(20$^-$)	(E2)	

[†] From 2004Jo10, unless noted otherwise.
[‡] From least-squares fit of data from 2004Jo10, 2002Po11 and 2003Fo09.
[#] From DCO and lin pol data In (HI,xnγ).
[@] Values of 0.54 and 1.85 for R(DCO) are expected for a stretched dipole transition gated by a stretched quadrupole transition and for a stretched quadrupole transition gated by a stretched dipole transition, respectively. A value of 1.0 for R(DCO) is expected if both the observed and gating transitions are stretched and of the same multipolarity. If no lin pol performed D were interpreted as M1 when they were intraband transitions of a well established band. Positive values of pol for a given transition indicate an electric character while negative value corresponds to magnetic radiation.

(HI,xnγ)

Level Scheme

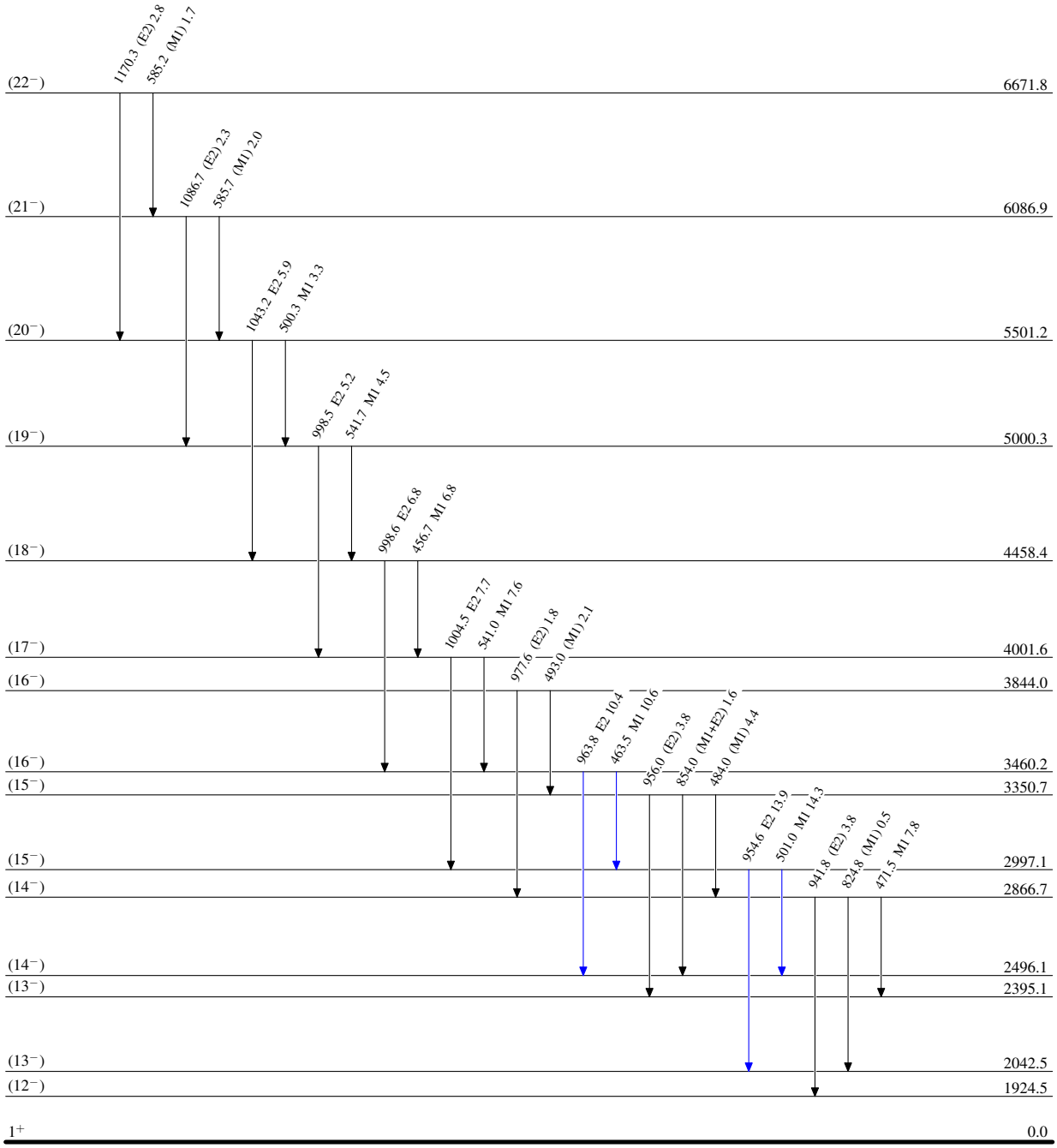
Intensities: Relative I_γ

Legend

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

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

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

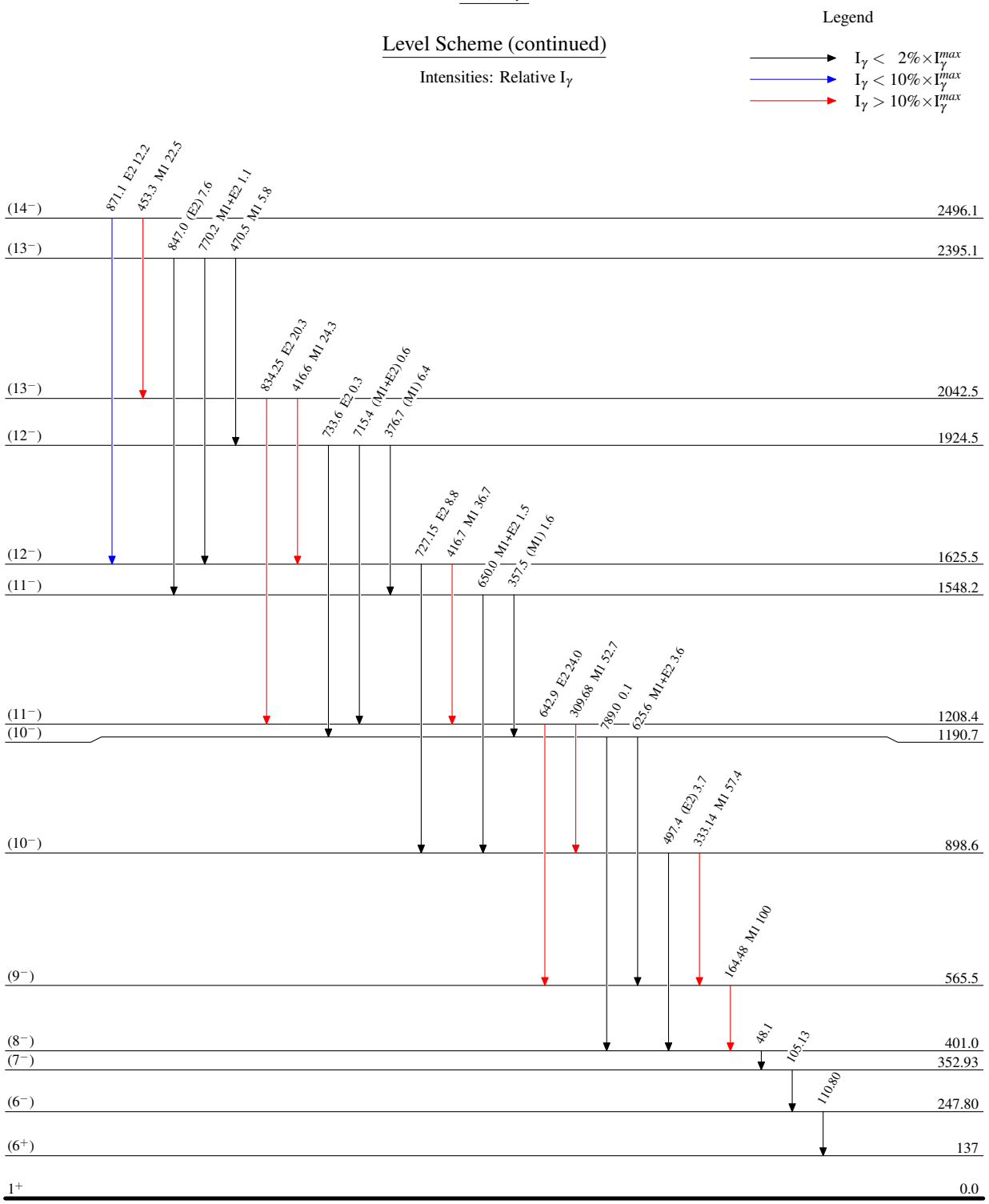


$^{106}_{45}Rh_{61}$

(HI,xnγ)

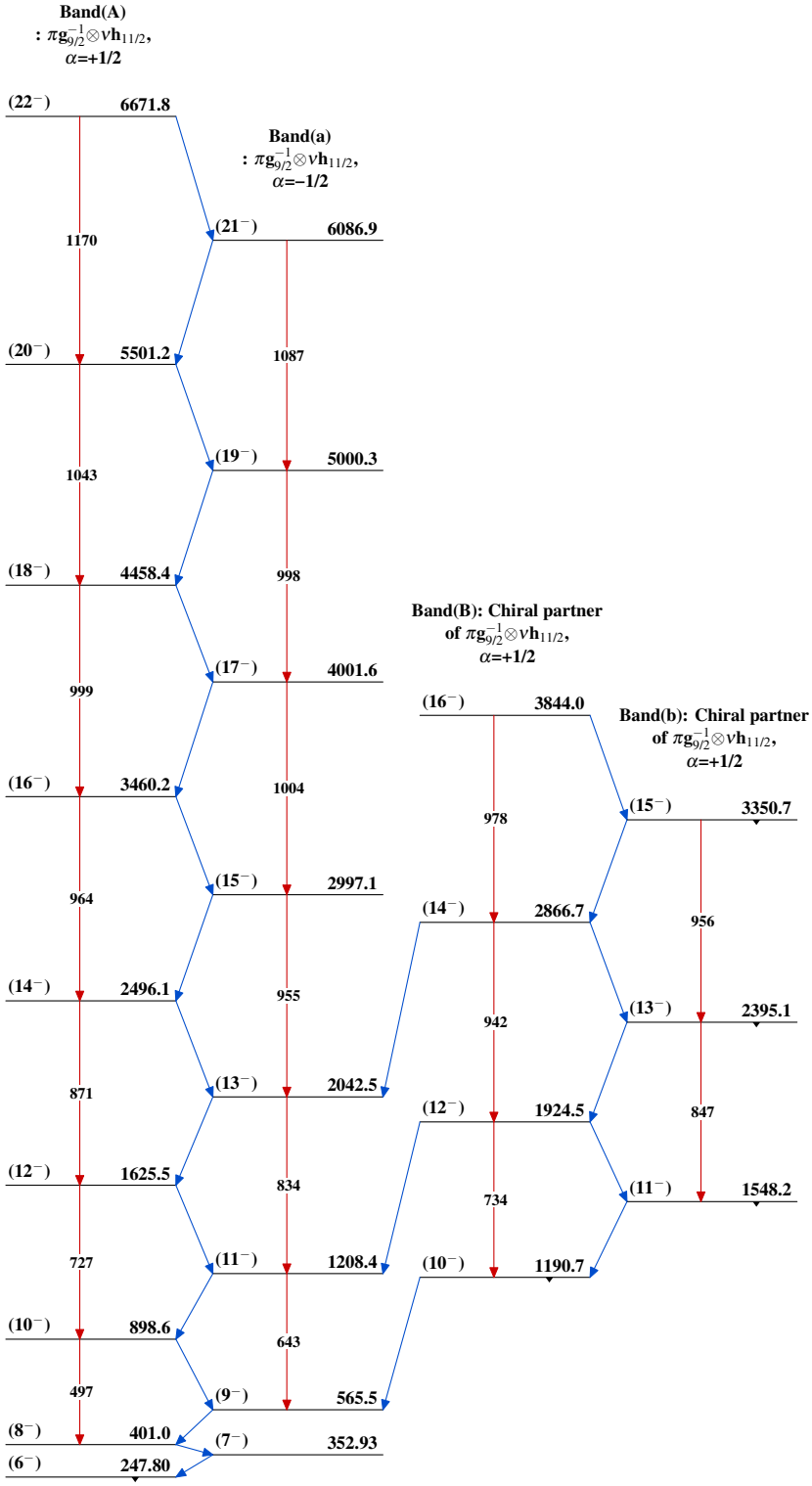
Level Scheme (continued)

Intensities: Relative I_γ



$^{106}_{45}Rh_{61}$

(HI,xnγ)



$^{106}_{45}Rh_{61}$