(HI,xnγ)   1996Po07,1994Ju05

		History	
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 109, 1383 (2008)	1-Mar-2008

1996Po07: ^{96}Zr(^{18}O,7nγ) E=56-80 MeV measured Eγ, Iγ, γγ, γ(θ) in terms of anisotropy ratios using 8π array of 20 Ge detectors.

1994Ju05: Zr(^{18}O,xnγ) E=73 MeV, ^{100}Mo(^{13}C,xng) E=44 MeV.

Measured: γ, "NORDBALL"; excit, γ(θ), 20 Compton-suppressed Ge 52 "BaF2" as multiplicity filter.

The level scheme is as given by 1996Po07. 1996Po07 have resolved the discrepancy with 1994Ju05 by the discovery of the 805-644 cascade above the 696 keV 9/2$^+$ state.

1994Ju05 agree with 1996Po07 for the 11/2$^-$ band upto (39/2$^-$) level. They also agree for band 2, but they did not give band 3. For band 4, 1994Ju05 did not see the 675γ (23$^+$ to 19$^+$) transition.

^{107}Pd Levels

E(level)‡	J^{π†}	E(level)‡	J^{π†}	E(level)‡	J^{π†}	E(level)‡	J^{π†}
0.0$^@$	5/2$^+$	1443.0$^#$ 3	19/2$^-$	3048.8^a 4	23/2$^+$	5233.1$^#$ 4	35/2$^-$
214.5$^#$ 4	11/2$^-$	1676.24^a 20	15/2$^+$	3304.8$^#$ 4	27/2$^-$	5439.6$^&$ 8	(35/2$^+$)
312.04^a 9	7/2$^+$	1742.1 3	(15/2$^+$)	3505.1$^&$ 3	27/2$^+$	5602.9^a 5	(35/2$^+$)
392.47^a 10	7/2$^+$	2146.3^b 3	17/2$^+$	3699.5^a 5	27/2$^+$	6343.2$^#$ 5	(39/2$^-$)
686.7$^#$ 3	15/2$^-$	2348.1$^#$ 3	23/2$^-$	3709.2$^@$ 3	29/2$^+$	6730.5^a 8	(39/2$^+$)
696.21$^@$ 12	9/2$^+$	2373.19^a 25	19/2$^+$	4250.6$^#$ 4	31/2$^-$	7635.8$^#$ 6	(43/2$^-$)
954.73^a 18	11/2$^+$	2557.1$^@$ 3	21/2$^+$	4335.6$^&$ 4	31/2$^+$	9081.5$^#$ 7	(47/2$^-$)
1340.4$^{@b}$ 3	13/2$^+$	2888.0$^&$ 3	23/2$^+$	4562.3^a 5	31/2$^+$	10675.2$^#$ 8	(51/2$^-$)
1373.85^b 22	13/2$^+$	3009.3$^@$ 3	25/2$^+$	4735.5$^@$ 3	33/2$^+$		

† From γ's mult and/or band consideration.

‡ Level energy from least-squares adjustment.

$^#$ Band(A): νh11/2 yrast negative-parity band with ΔJ=2.

$^@$ Band(B): Band on 21/2$^+$ Signature-partner of band on 23/2$^+$, configuration= νg$_{7/2}$⊗νh11/2^2.

$^&$ Band(C): Band on 23/2$^+$.

^{a} Band(D): decoupled E2 band, configuration=νd5/2⊗νh11/2^2.

^{b} Placement though likely, is not certain (1996Po07).

γ(^{107}Pd)

E$_γ$‡	I$_γ$‡	E$_i$(level)	J$_i^π$	E$_f$	J$_f^π$	Mult.†	δ	Comments
258.0 3	0.5 1	954.73	11/2$^+$	696.21	9/2$^+$	M1(+E2)	<0.15	Mult.: anisotropy=−0.91 90. Substate alignment=(0.5).
303.8 2	4.0 3	696.21	9/2$^+$	392.47	7/2$^+$	M1		Mult.: anisotropy=−0.56 30. Substate alignment=(0.5).
312.0 1	18.9 3	312.04	7/2$^+$	0.0	5/2$^+$	M1(+E2)	<−0.2	Mult.: anisotropy=−0.51 10. Substate alignment=(0.5). E$_γ$: E=312.2 1 with Iγ=15 3 (1994Ju05).
330.8$^#$ 3	4.0 7	2888.0	23/2$^+$	2557.1	21/2$^+$	M1(+E2)	−0.1 2	Mult.: anisotropy=−0.28 22. Substate alignment=(0.7). E$_γ$: E=330.8 1 with Iγ=5.0 15 (1994Ju05).
368.2 2	1.6 2	1742.1	(15/2$^+$)	1373.85	13/2$^+$			
384.1 1	2.7 6	696.21	9/2$^+$	312.04	7/2$^+$	M1(+E2)	<−0.1	Mult.: anisotropy=−0.46 18. Substate alignment=(0.5). E$_γ$: E=384.5 1 with Iγ=2.1 3 (1994Ju05).

Continued on next page (footnotes at end of table)

(HI,xnγ) **1996Po07,1994Ju05 (continued)**

$\gamma(^{107}\text{Pd})$ (continued)

$E_\gamma^\ddagger$	$I_\gamma^\ddagger$	E_i(level)	J_i^π	E_f	J_f^π	Mult.†	δ	Comments
392.5 *1*	8.8 *3*	392.47	$7/2^+$	0.0	$5/2^+$	M1		Mult.: anisotropy=−0.42 *17*. Substate alignment=(0.5).
^{x}403.4 *1*	3.1 *2*							
410.8 *1*	14.2 *3*	2557.1	$21/2^+$	2146.3	$17/2^+$	E2		Mult.: anistropy=0.39 *19*. E_γ: E=410.8 *1* with Iγ=14.2 *3* (1994Ju05).
452.2 *1*	30.1 *3*	3009.3	$25/2^+$	2557.1	$21/2^+$	E2		Mult.: anistropy=0.26 *7*. Substate alignment=0.59 *15*. E_γ: E=452.3 *1* with Iγ=28 *1* (1994Ju05).
472.2 *1*	100.0 *6*	686.7	$15/2^-$	214.5	$11/2^-$	E2		E_γ: E=472.5 *1* with Iγ=110 *2* (1994Ju05). Mult.: anisotropy=−0.23 *5*. Substate alignment=0.47 *10*.
495.9 *1*	9.5 *3*	3505.1	$27/2^+$	3009.3	$25/2^+$	M1+E2	0.30 *15*	Mult.: anistropy=0.16 *17*. Substate alignment=(0.8). E_γ: E=495.8 *1* with Iγ=4.5 *5* (1994Ju05).
514.8$^\#$ *2*	5.2 *8*	2888.0	$23/2^+$	2373.19	$19/2^+$	E2		E_γ: E=515.3 *1* with Iγ=5.5 *5* (1994Ju05). Mult.: anistropy=0.54 *40*.
562.7$^\#$ *5*	4.0 *2*	954.73	$11/2^+$	392.47	$7/2^+$	E2		Mult.: anistropy=0.85 *30*.
617.1 *1*	11.8 *8*	3505.1	$27/2^+$	2888.0	$23/2^+$	E2		Mult.: anistropy=0.25 *17*. E_γ: E=617.2 *1* with Iγ=6 *2* (1994Ju05).
626.2 *2*	4.4 *5*	4335.6	$31/2^+$	3709.2	$29/2^+$	M1+E2	1.2 *7*	Mult.: anistropy=0.62 *27*. Substate alignment=(0.9). δ: 045<δ<1.9. E_γ: E=627 *1* with Iγ=3.0 *5* (1994Ju05).
642.8 *2*	14.4 *9*	954.73	$11/2^+$	312.04	$7/2^+$			Mult.: anistropy=0.35 *11*. Substate alignment=0.68 *21*. E_γ: E=643.1 *1* with Iγ=11 *1* (1994Ju05).
644.2$^\#$ *3*	5.5 *13*	1340.4	$13/2^+$	696.21	$9/2^+$			
650.8 *3*	6.4 *8*	3699.5	$27/2^+$	3048.8	$23/2^+$			Mult.: anistropy=0.50 *26*.
661.1 *4*	4.3 *6*	3009.3	$25/2^+$	2348.1	$23/2^-$	D(+Q)	−0.15 +25−35	Mult.: anistropy=−0.37 *33*. Substate alignment=(0.7). E_γ: E=661.1 *1* with Iγ=3.0 *8* (1994Ju05).
675.7$^\#$ *3*	8.3 *14*	3048.8	$23/2^+$	2373.19	$19/2^+$	E2		Mult.: anistropy=0.33 *15*.
677.7 *2*	14.7 *16*	1373.85	$13/2^+$	696.21	$9/2^+$	E2		Mult.: anistropy=0.39 *15*. Substate alignment=0.79 *30*. E_γ: E=677.5 *1* with Iγ=4 *1* (1994Ju05).
689.7$^\#$ *7*	6.4 *23*	3699.5	$27/2^+$	3009.3	$25/2^+$	M1(+E2)	−0.13 *26*	Mult.: anistropy=−0.37 *34*. Substate alignment=(0.8).
696.3 *4*	11 *3*	696.21	$9/2^+$	0.0	$5/2^+$			E_γ: E=697.2 *1* with Iγ=4 *1* (1994Ju05). Mult.: anistropy=0.23 *23*.
696.9 *2*	12.0 *20*	2373.19	$19/2^+$	1676.24	$15/2^+$	E2		Mult.: anistropy=−0.23 *5*. Substate alignment=0.47 *10*. E_γ: E=697.1 *1* with Iγ=8 *2* (1994Ju05).
699.8$^\#$ *1*	21 *4*	3709.2	$29/2^+$	3009.3	$25/2^+$	E2		Mult.: anistropy=0.39 *14*. Substate alignment=0.92 *33*. E_γ: E=700.4 *1* with Iγ=19 *2* (1994Ju05).

(HI,xnγ)   1996Po07,1994Ju05 (continued)

$\gamma(^{107}$Pd) (continued)

E$_\gamma$‡	I$_\gamma$‡	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.†	δ	Comments
704 *1*	0.8 *3*	5439.6	(35/2$^+$)	4735.5	33/2$^+$			E$_\gamma$: only given by 1994Ju05.
721.5 *1*	15.1 *10*	1676.24	15/2$^+$	954.73	11/2$^+$	E2		Mult.: anistropy=0.29 *13*. Substate alignment=0.60 *27*. E$_\gamma$: E=722.4 *1* with Iγ=10 *1* (1994Ju05).
756.3 *1*	93.7 *6*	1443.0	19/2$^-$	686.7	15/2$^-$	E2		Mult.: anistropy=0.24 *5*. Substate alignment=0.53 *11*. E$_\gamma$: E=757.0 *1* with Iγ=100 (1994Ju05).
772.6 *3*	12.2 *17*	2146.3	17/2$^+$	1373.85	13/2$^+$	E2		Mult.: anistropy=0.16 *12*. Substate alignment=0.34 *26*. E$_\gamma$: E=773.2 with Iγ= =5.5 *5* (1994Ju05).
805.8 *7*	3.3 *10*	2146.3	17/2$^+$	1340.4	13/2$^+$			
831.6# *4*	16 *4*	4335.6	31/2$^+$	3505.1	27/2$^+$	E2		Mult.: anistropy=0.20 *18*. E$_\gamma$: E=831.4 *1* with Iγ=6.2 *10* (1994Ju05).
862.8 *1*	10.8 *4*	4562.3	31/2$^+$	3699.5	27/2$^+$	E2		Mult.: anistropy=0.37 *19*.
905.1 *1*	45.4 *6*	2348.1	23/2$^-$	1443.0	19/2$^-$	E2		Mult.: anistropy=0.35 *19*. E$_\gamma$: E=905.6 *1* with Iγ=51 *2* (1994Ju05).
931.3 *8*	1.0 *7*	2373.19	19/2$^+$	1443.0	19/2$^-$	E1		
945.8 *1*	21.1 *8*	4250.6	31/2$^-$	3304.8	27/2$^-$	E2		Mult.: anistropy=0.41 *13*. Substate alignment=0.97 *32*. E$_\gamma$: E=945.9 *1* with Iγ=22 *1* (1994Ju05).
956.7 *1*	37.5 *8*	3304.8	27/2$^-$	2348.1	23/2$^-$	E2		Mult.: anistropy=0.40 *92*. Substate alignment=0.92 *24*. E$_\gamma$: E=957.0 *1* with Iγ=35 *1* (1994Ju05).
982.5# *2*	14.0 *15*	5233.1	35/2$^-$	4250.6	31/2$^-$	E2		Mult.: anistropy=0.24 *15*. Substate alignment=0.58 *36*. E$_\gamma$: E=983.2 *1* with Iγ=11 *1* (1994Ju05).
1026.3 *1*	11.3 *4*	4735.5	33/2$^+$	3709.2	29/2$^+$	E2		Mult.: anistropy=0.33 *15*. E$_\gamma$: E=1027.0 *1* with Iγ=6.0 *6* (1994Ju05).
1040.6 *2*	8.8 *4*	5602.9	(35/2$^+$)	4562.3	31/2$^+$	E2		Mult.: anistropy=0.07 *22*.
1104 *1*	2.4 *6*	5439.6	(35/2$^+$)	4335.6	31/2$^+$			E$_\gamma$: only given by 1994Ju05.
1110.1 *3*	7.2 *15*	6343.2	(39/2$^-$)	5233.1	35/2$^-$	E2		Mult.: anistropy=0.13 *22*. E$_\gamma$: E=1112 *1* with Iγ=6 *2* (1994Ju05).
1114.1 *1*	38.3 *1*	2557.1	21/2$^+$	1443.0	19/2$^-$	E1(+M2)	−0.05 *11*	Mult.: anistropy=−0.23 *13*. Substate alignment=(0.7). E$_\gamma$: E=1114.9 *1* with Iγ=31 *2* (1994Ju05).
1127.6# *6*	6.1 *18*	6730.5	(39/2$^+$)	5602.9	(35/2$^+$)	E2		Mult.: anistropy=0.89 *45*.
1292.6 *3*	6.0 *5*	7635.8	(43/2$^-$)	6343.2	(39/2$^-$)	E2		Mult.: anistropy=0.07 *23*.
1445.6 *3*	5.8 *6*	9081.5	(47/2$^-$)	7635.8	(43/2$^-$)	E2		Mult.: anistropy=−0.23 *5*.
1593.7 *3*	4.5 *22*	10675.2	(51/2$^-$)	9081.5	(47/2$^-$)	E2		

† From anisotropy.
‡ From 1996Po07.
# Intensity taken from coincidence data.
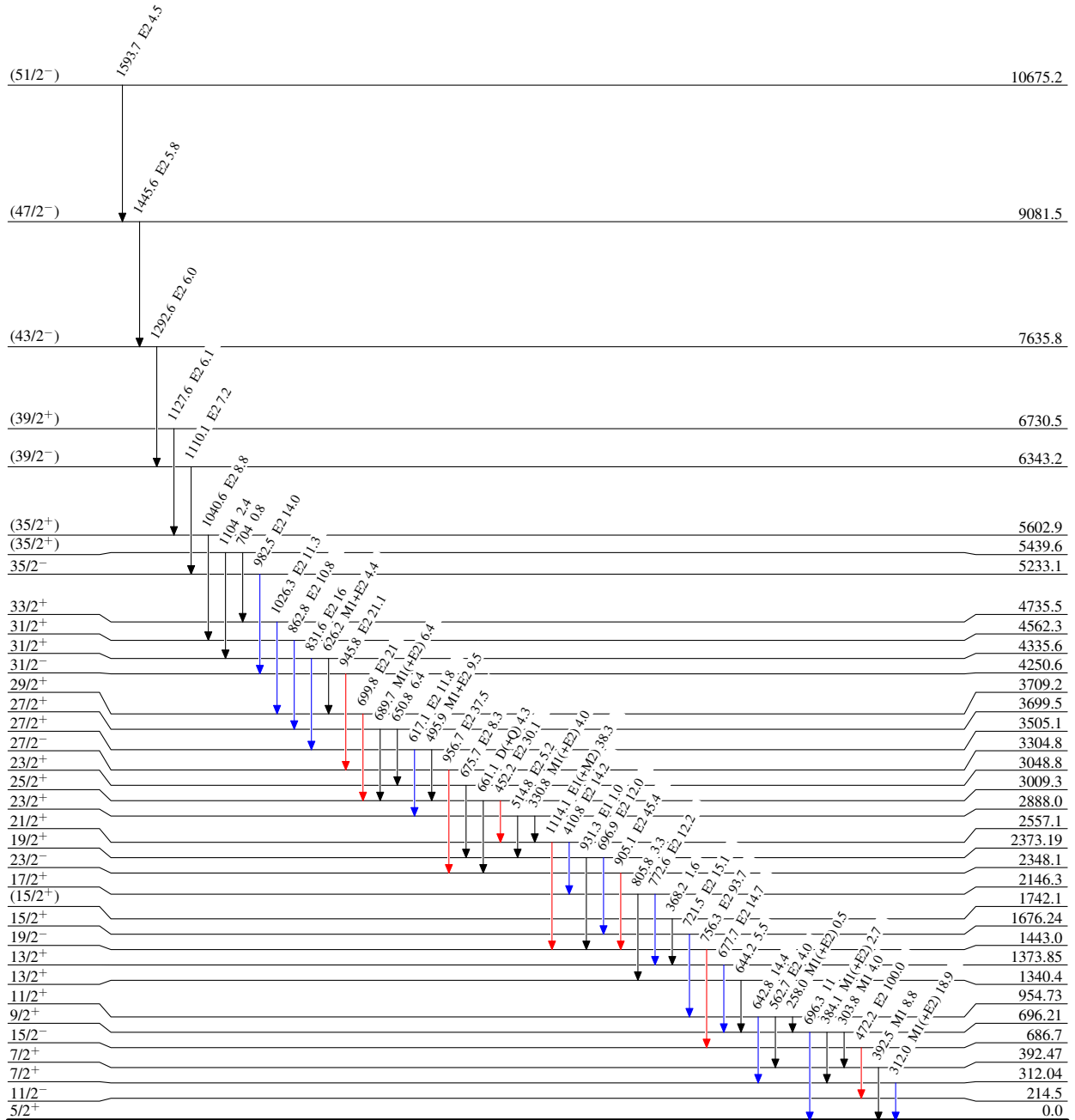^{x} γ ray not placed in level scheme.
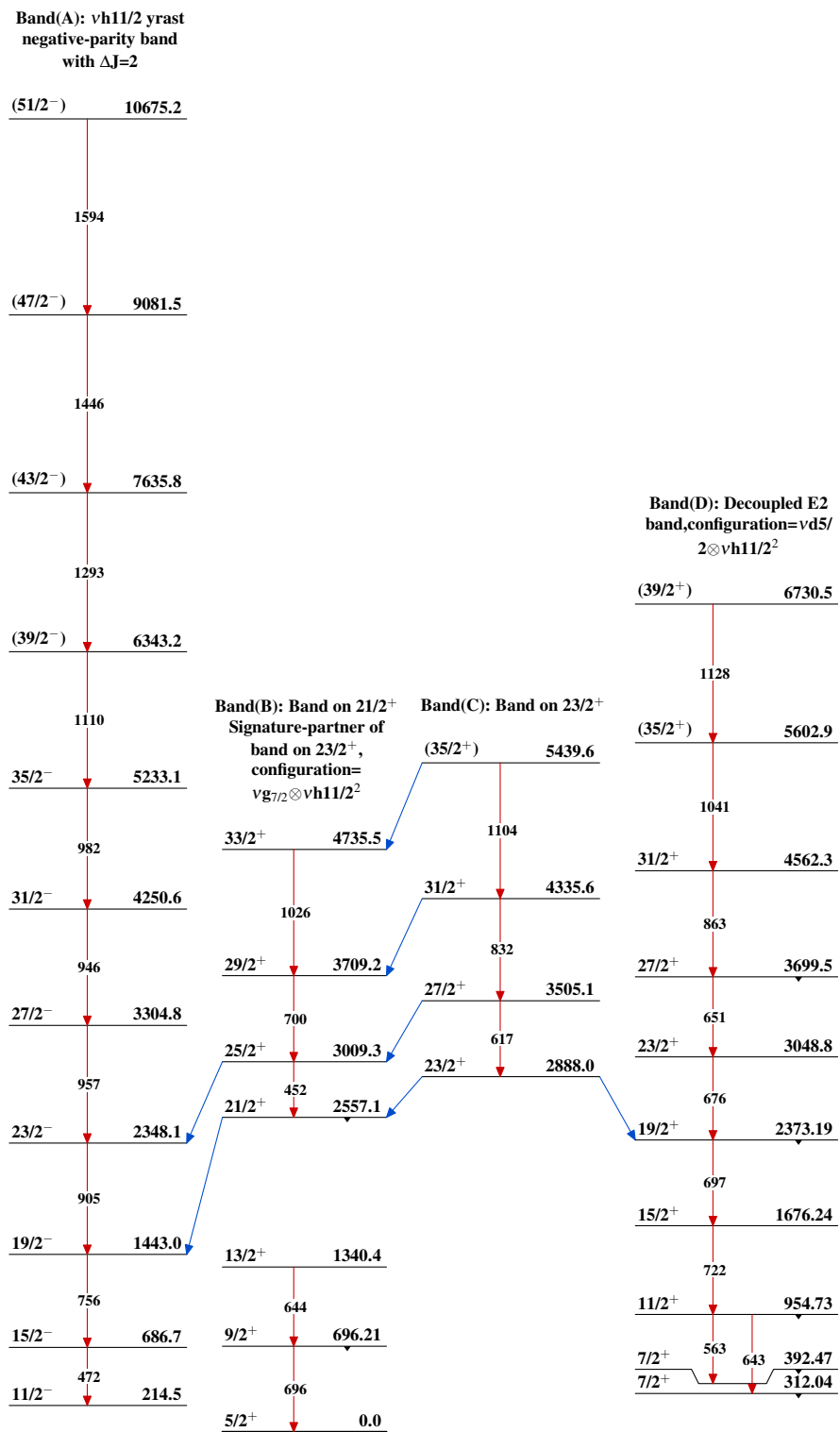
(HI,xnγ)   1996Po07,1994Ju05

Level Scheme

Intensities: Relative I_γ

Legend

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

${}^{107}_{46}$Pd${}_{61}$

(HI,xnγ)   1996Po07,1994Ju05

Band(A): νh11/2 yrast negative-parity band with ΔJ=2

Band(B): Band on 21/2$^+$ Signature-partner of band on 23/2$^+$, configuration= νg$_{7/2}$⊗νh11/2^2

Band(C): Band on 23/2$^+$

Band(D): Decoupled E2 band,configuration=νd5/2⊗νh11/2^2

$^{107}_{46}$Pd$_{61}$