TABLE OF MAGNETIC-ROTATIONAL DIPOLE (*SHEARS*) BANDS

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The table presents experimental data (extracted from recent publications) for 178 magnetic-rotational dipole (*shears*) bands spread over 76 nuclides, most of which are at or near semi-magic nucleon numbers, e.g. 54 bands are currently known for Pb (Z=82) nuclides. However, it should be noted that there are no such bands known at neutron magic numbers of N=50 or 82. The table contains gamma-ray energies, associated level energies with spins and parities, level lifetimes, B(M1) and B(E2) values when available, and probable configurations. The literature is covered up to December 20, 2006, and complete bibliography of about 140 papers (mostly 1990 onwards) is supplied with the table. Individual references are listed in the terminology of the NSR (Nuclear Science Reference database at NNDC, Brookhaven) keynumbers. The present table represents an addition or revision of about 60% of the information contained in the earlier version of the table published by us in Atomic Data and Nuclear Data Tables **74,** 283-331 (2000). Arranged by mass regions, the bands listed in the current table are distributed as follows: 11 bands in A=80 region, 39 bands in A=100 region, 49 bands in A=135 region and 79 bands in A=190 region.

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Comments and suggestions are welcome and may be communicated to
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POLICIES

Level Energies	The listed level energies are taken from the first reference given for a band. In cases where values given by original authors are relative to the energy of an isomer, we have added the energy of the isomer (taken from the Evaluated Nuclear Structure Data File (ENSDF) database at Brookhaven) to each of the energy levels.
Band Intensity	The quoted value, when available in the literature, represents the approximate intensity (in percent) of the population of a band in a reaction channel leading to that nucleus. The value is taken from the cited reference if quoted explicitly by the authors. Otherwise an approximate value is deduced by us from the authors' relative gamma-ray intensity data (either numeric or graphic), when available.

EXPLANATION OF TABLE

TABLE. Magnetic Dipole Rotational Bands

${}^{A}_{Z}X_{N}$	Denotes the specific nuclide with X Chemical symbol A Mass number Z Atomic number N Neutron number A single blank row marks the end of entries for each band. The number in the first column denotes band number.
E_{level}	Level energy in units of keV. The energies in parentheses denote tentative levels. Labels X, Y, Z, etc. indicate that excitation energies are unknown due to lack of knowledge about linking transitions to the lower levels.
I^{π}	I denotes the level spin for each band member. π denotes the parity (+ or -). I^{π} given in parentheses denote uncertain spin parity assignments
E_{γ}(M1)	Gamma ray energies in units of keV for the M1(ΔI=1) transition I$\rightarrow$I-1.
E_{γ}(E2)	Gamma ray energies in units of keV for the E2(ΔI=2) transition I$\rightarrow$I-2.
B(M1)/B(E2)	The ratio of reduced transition probabilities in units of $(\mu_N/eb)^2$ given with the uncertainties in the last digits in parentheses [Eq.(6), δ=0]. In some bands where E2 transitions are not observed, the lower limits for B(M1)/B(E2) are given.
References	The references follow key numbers as assigned in the

Nuclear Science References (NSR) database at Brookhaven National Laboratory, USA. The data for a band has been taken from the first reference cited (printed as bold). Information taken from other references is given under the column "configurations and comments".

Configurations and Comments	The quasiparticle configuration for a band is given wherever assigned by the original authors. 'π' here is for protons and 'ν' is for neutrons. s, p, d, f, g and h are the orbitals. A positive integer in the superscript of the orbital denotes number of particles while a negative integer denotes number of holes in that orbital.

The abbreviations in this item are explained below:

DSM	Deformed Shell Model
TAC	Tilted Axis Cranking
CSM	Cranked Shell Model
TRS	Total Routhian Surface
PSM	Projected Shell Model
IBFM	Interacting Boson Fermion Model
FAL	Fermi Aligned
HF	Hartree-Fock
BCS	Pairing theory of Bardeen, Cooper and Schrieffer.
CWS	Cranked Woods Saxon

(ε_2 or β_2, γ)	Deformation parameters.
Backbending	In a rotational band, the transition energies increase with increase in spin reflecting the I(I+1) behavior, but in some cases, e.g. in ^{108}Cd, band 1, the moment of inertia increases drastically after the spin 16^- and the transition energy decreases and again starts rising after 18^- . This phenomenon is known as backbending and is usually attributed to the crossing of two rotational bands due to the alignment of a pair of either kind of quasiparticles.
Regular band	A band where the excitation energy varies more or less smoothly with spin, though not necessarily as I(I+1).
Irregular band	A band where energy variation with spin is quite abrupt.

$^{77}_{35}Br_{42}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2931.6	$17/2^-$				**1993Do14**
	3219.6	$(19/2^-)$	288.0			1993Sy03
	3609.9	$(21/2^-)$	390.3			1995Ta21
	4149.8	$(23/2^-)$	539.9			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}) \otimes \nu\{g_{9/2} \otimes (p_{1/2}p_{3/2}f_{5/2})^1\}$ from the alignment and DSM calculations.
2. Regular band.
3. Nuclear reactions: ^{75}As (α,2nγ), E(α)= 27 MeV, ^{73}Ge (^{7}Li, 3nγ) and ^{74}Ge (^{7}Li, 4nγ), E(^{7}Li)= 35 MeV, ^{65}Cu (^{18}O, α2nγ), E(^{18}O)= 65 MeV. Band intensity ~ 5% in (^{18}O, α2nγ).

$^{79}_{35}Br_{44}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	2392.8	$13/2^-$				**2002Sc13**
	2580.6	$15/2^-$	187.6			1999Ra02
	2774.2	$17/2^-$	193.8			1988Sc13
	3088.2	$19/2^-$	314.0			1995Ta21
	3534.9	$21/2^-$	446.7	760.3	3.45(+62-45)	
	4152.3	$23/2^-$	617.4	1064.9	5.22(+28-51)	
	4802.2	$25/2^-$	649.9	1268.6	9.3(+27-16)	
	5577.6	$27/2^-$	775.4	1426.5		
	6383.0	$(29/2^-)$	805.4	1580.9		

Configurations and Comments:

1. $\pi(g_{9/2}) \otimes \nu[g_{9/2}(p_{3/2}/f_{5/2})^1]$ from TAC calculations.
2. (β_2, γ) = (0.18, >20°) from TRS calculations.
3. Regular band.
4. The mean lifetimes of levels from 3088 to 4802 keV are 1.1(3), 0.55(15), 0.20(4) and 0.17(3) ps, respectively.
5. The B(M1) values for the transitions from 314.0 to 649.9 keV are 1.55(+62-32), 0.76(+35-23), 0.47(+19-14) and 0.93(+30-21) μ_N^2, respectively.
6. The B(E2) values for the transitions from 760.3 to 1268.6 keV are 0.22(+15-9), 0.09(+5-3) and 0.10(+6-4) $(eb)^2$, respectively.
7. Nuclear reaction: ^{76}Ge (^{7}Li, 4n), E(^{7}Li)= 35 MeV, Band intensity ~ 6%.

$^{81}_{35}Br_{46}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2549.4	$(13/2^-)$				**1986Fu04**
	2668.5	$(15/2^-)$	119.1			1995Ta21
	2942.1	$(17/2^-)$	273.6			
	3333.5	$(19/2^-)$	391.4			
	3798.7	$(21/2^-)$	465.2			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}^2 p_{3/2})$, but this may only be just one component.
2. Regular band.
3. Nuclear reaction: ^{80}Se (α, p2nγ), E(α)= 35-48 MeV. Band intensity ~ 10%

$^{81}_{36}Kr_{45}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2419.7	$13/2^-$				**1986Fu03**
	2533.2	$15/2^-$	113.3			2004Ma09
	2699.3	$17/2^-$	166.1			
	3061.3	$19/2^-$	362.0	528.1	40.8(+192-46)	
	3490.1	$21/2^-$	428.8	791	25.0(+17-5)	
	4098.8	$23/2^-$	608.7	1038	6.0(+23-4)	
	4714	$(25/2^-)$	615	1223.5	3.6(+7-3)	

Configurations and Comments:

1. Tentatively assigned as $\pi[g_{9/2} \otimes (p_{3/2}f_{5/2})^1] \otimes \nu(g_{9/2})$ from the TAC calculations as given in 2004Ma09.
2. (ε_2, γ) = (0.16, 60°) from TAC calculations.
3. Regular band.
4. B(M1) values for the transitions 113 keV and from 362 to 615 keV are 1.3(+13-4), 0.53(+41-17), 0.25(+19-9), 0.06(+3-1) and 0.05(+5-2) $(\mu_N)^2$, respectively.
5. B(E2) values for the transitions from 528 to 1223 keV are 0.013(+13-7), 0.010(+8-4), 0.010(+6-4) and 0.014(+16-7) $(eb)^2$, respectively.
6. The lifetimes of levels from 2533 to 4714 keV are 13(5), <20, 8(2), 4.0(8), 5.0(9) and 2.1(5) ps, respectively.
7. Nuclear reactions: ^{80}Se(α, 3nγ), E(α)= 35-48 MeV, Band intensity ~ 15%.

$^{83}_{36}Kr_{47}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2510.0	$13/2^-$				**1986Ke12**
	2640.5	$15/2^-$	130.5			1984Ku23
	2841.1	$17/2^-$	200.6			2004Ma09
	3157.5	$19/2^-$	316.3			
	3603.1	$21/2^-$	445.6	761	≈ 13	
	4218.4	$23/2^-$	615.3	1060.8	≈ 21	
	4869.9	$25/2^-$	651.4	1267.1	5.3(7)	
	5641	$(27/2^-)$	771	(1423)		

Configurations and Comments:

1. Tentatively assigned as $\pi[g_{9/2} \otimes (p_{3/2}f_{5/2})^1] \otimes \nu(g_{9/2})$ from the TAC calculations as given in 2004Ma09.
2. (ε_2, γ) = (0.14, 59°) from TAC calculations.
3. Regular band.
4. B(M1) values for the transitions from 316 to 651 keV are 0.39(16), 0.38(12), 0.25(+18-11), and 0.09(4) $(\mu_N)^2$, respectively and that for the 201 keV transition from lifetime of 2841 keV level as given in 1984Ku23 is 0.9(4) $(\mu_N)^2$.
5. B(E2) values for the transitions from 761 to 1267 keV are ≈ 0.03, ≈ 0.012 and 0.017(6) $(eb)^2$, respectively.
6. Lifetimes for levels from 2510 to 2841 as given In 1984Ku23 are 3.0(+30-15), 6(3) and 7(2) ps, respectively and that for levels from 3158 to 4870 keV are 4(+2-1), 1.5(+6-4), 0.8(+5-3) and 0.9(2) ps, respectively.
7. Nuclear reactions: ^{82}Se(α, 3nγ), E(α)= 27-45 MeV, Band intensity ~ 30%.

$^{79}_{37}Rb_{42}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	3309.4	$(19/2^-)$				**1993Ho15**
	3687.5	$(21/2^-)$	378.1			1995Ta21
	4152.2	$(23/2^-)$	464.7	842.8		1996Sm07
	4686.4	$(25/2^-)$	534.2			
	5287.4	$(27/2^-)$	601			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}) \otimes \nu[(g_{9/2}) \otimes (pf)^1]$ by comparison with the isotone ^{77}Br.
2. Regular band.
3. 601 keV M1 transition is from 1996Sm07.
4. Nuclear reactions: $^{63}Cu(^{19}F, 2pn\gamma)$ and $^{65}Cu(^{18}O, 4n\gamma)$, $E(^{19}F)$ and $E(^{18}O)$ = 65 MeV, Band intensity < 2%.

$^{81}_{37}Rb_{44}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2636.0	$(15/2^-)$				**1994Do18**
	2697.2	$17/2^-$	61.0			1995Ta21
	2997.7	$19/2^-$	300.5			
	3427.5	$21/2^-$	429.8			
	3993.1	$23/2^-$	565.6	(996)		
	4529	$(25/2^-)$	599			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}) \otimes \nu[(g_{9/2}) \otimes (pf)^1]$
2. Regular band.
3. Nuclear reactions: $^{79}Br(\alpha, 2n\gamma)$, $E(\alpha)$= 27 MeV and $^{68}Zn(^{19}F, \alpha 2n\gamma)$, $E(^{19}F)$ = 72 MeV.

$^{82}_{37}Rb_{45}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2616.3	11^-				**2002Sc35**
	3026.9	12^-	410.6			1999Sc14
	3499.9	13^-	473.0	883.5	20(+15-8)	1999Do02
	4047.5	14^-	547.7	1019.2	14(+12-6)	2000Sc17
	4715.8	15^-	668.4	1215.8	~10	
	5484.6	$(16)^-$	768.8	1436.2		

Configurations and Comments:

1. $\pi[(g_{9/2})^2 \otimes (p_{3/2}/f_{5/2})^1] \otimes \nu(g_{9/2})$ from TAC calculations.
2. (β_2, γ) = (0.16, 20°) from TAC calculations.
3. Regular band.
4. B(M1) values for the transitions from 410.6 keV to 668.4 keV are 1.24(+37-24), 0.77(+20-13), 0.74(+22-14) and >0.11 μ_N^2, respectively.
5. B(E2) values for the transitions from 883.5 keV to 1215.8 keV are 0.038(+15-11), 0.051(+19-13) and >0.011 $(eb)^2$, respectively.
6. Lifetimes of states from 3027 to 4716 keV are 0.58(13), 0.59(11), 0.35(7) and <1 ps, respectively.
7. Nuclear reaction: $^{76}Ge(^{11}B, 5n\gamma)$, $E(^{11}B)$= 45 MeV, band intensity ~ 20%.

$^{83}_{37}Rb_{46}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2313.9	$13/2^-$				**2006Ga10**
	2414.5	$15/2^-$	100.5			2000Sc17
	2596.5	$17/2^-$	182.0			1980Ga17
	2958.7	$19/2^-$	362.2			1995Ta21
	3560.2	$21/2^-$	601.5	963.7		2001Am08
	4407.7	$(23/2^-)$	847.5			
	5422.7	$(25/2^-)$	1015.0			

Configurations and Comments:

1. $\pi(g_{9/2}) \otimes \nu[(g_{9/2}) \otimes (pf)^1]$ from TAC calculations as given in 2001Am08
2. $(\varepsilon_2, \gamma) = (0.18, 10°)$ from TAC calculations.
3. Lifetimes for the levels from 2596 to 3560 keV are 2.1(+9-5), 1.0(3) and 0.35(+20-15) ps, respectively.
4. B(M1) values for the transitions from 182 to 601 keV are 3.38(100), 0.89(+29-25) and 0.61(+46 -21) μ_N^2, respectively.
5. B(E2) value for the 964 keV transition is < 0.025 $(eb)^2$.
6. Regular band.
7. Nuclear reaction: $^{76}Ge\ (^{11}B, 4n\gamma)$, $E(^{11}B)$= 50 MeV. Band intensity ~ 12%

$^{84}_{37}Rb_{47}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	3394.8	$11^{(-)}$				**2002Sc35**
	3721.5	$12^{(-)}$	326.6			1999Sc14
	4166.7	$13^{(-)}$	445.1	771.3	20(+8-6)	2000Sc17
	4714.7	$14^{(-)}$	548.0	994.8	9.4(+32-24)	
	5371.9	$15^{(-)}$	656.9	1205.4	7.8(+41-29)	
	6094.8	(16^-)	722.6	1380.7	10.2(+94-49)	
	6861.1	(17^-)	766.4	1489.3	~12	

Configurations and Comments:

1. $\pi[(g_{9/2})^2 \otimes (p_{3/2}/f_{5/2})^1] \otimes \nu(g_{9/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.14, -15°)$ from TAC calculations.
3. Regular band.
4. B(M1) values for the transitions from 445.1 keV to 766.4 keV are 0.70(+14-10), 0.63(+8-7), 0.44(+11-8), 0.49(+21-12) and >0.13 μ_N^2, respectively.
5. B(E2) values for the transitions from 771.3 keV to 1489.3 keV are 0.036(+7-5), 0.067(+13-11), 0.058(+16-12), 0.048(+21-13) and >0.011 $(eb)^2$, respectively.
6. Lifetimes of states from 4167 to 6861 keV are 0.82(12), 0.38(3), 0.25(4), 0.16(4) and <0.45 ps, respectively.
7. Nuclear reaction: $^{76}Ge\ (^{11}B, 3n\gamma)$, $E(^{11}B)$= 50 MeV, band intensity ~ 20%.

$^{85}_{37}\mathrm{Rb}_{48}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	3198.2	$17/2^{(-)}$				**1995Sc04**
	3813.1	$19/2^{(-)}$	614.9			1995Ta21
	4356.1	$21/2^{(-)}$	543.5			
	4940.0	$(23/2^{-})$	583.9			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}^{-1}) \otimes \nu(g_{9/2}^{-1}f_{5/2}^{-1})$.
2. Irregular band.
3. Nuclear reaction: ^{82}Se(^{7}Li, 4nγ), E(^{7}Li)= 32 MeV. Band intensity ~ 2%

$^{105}_{45}\mathrm{Rh}_{60}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	2019.3	$13/2^{-}$				**2004Al03**
	2170.4	$15/2^{-}$	151.1			
	2310.8	$17/2^{-}$	140.4			
	2496.1	$19/2^{-}$	185.3			
	2718.8	$21/2^{-}$	222.7			
	2993.2	$23/2^{-}$	274.4	496.8		
	3308.6	$25/2^{-}$	315.4			
	3769.4	$27/2^{-}$	460.8			
	4183.7	$(29/2^{-})$	414.3			
2.	2417.4	$15/2^{-}$				**2004Al03**
	2512.7	$17/2^{-}$	95.3			
	2645.7	$19/2^{-}$	133.0			
	2825.1	$21/2^{-}$	179.4			
	3077.9	$23/2^{-}$	252.8			
	3469.9	$(25/2^{-})$	392.0			
3.	2477.0	$17/2^{-}$				**2004Al03**
	2668.9	$19/2^{-}$	191.9			
	2914.1	$21/2^{-}$	245.2			
	3266.9	$23/2^{-}$	352.8			
	3667.5	$(25/2^{-})$	400.6			
	4092.3	$(27/2^{-})$	424.8			
4.	2981.6	$23/2^{+}$				**2004Al03**
	3197.6	$25/2^{+}$	216.0			
	3478.0	$27/2^{+}$	280.4	496.5		
	3839.3	$29/2^{+}$	361.3	642.0		
	4215.4	$31/2^{+}$	376.1	736.9		
	4702.2	$(33/2^{+})$	486.8			

Configurations and Comments:

Band 1:

1. Regular band with small backbending at the top of the band.
2. Nuclear reaction: ^{100}Mo (^{11}B, α2nγ), E(^{11}B)= 43 MeV, band intensity ~ 3.5%.

Band 2:

1. $\pi(g_{9/2}) \otimes \nu(h_{11/2}g_{7/2})$ from TAC calculations.
2. Triaxial deformation (β_2, γ) = (0.22, 30°) from TAC calculations.
3. B(M1)/B(E2) ≥ 6 $(\mu_N/eb)^2$ for the 21/2 state.
4. Regular band.
5. Band intensity ~ 2%.

Band 3:

1. Bands 2 and 3 are possibly chiral partners. Thus, band 3 is assigned the same configuration and deformation parameters as those for band 2.
2. B(M1)/B(E2) ≥ 6 $(\mu_N/eb)^2$ for the 21/2 state.
3. Regular band.
4. Band intensity ~ 1%.

Band 4:

1. Regular band.
2. Band intensity ~ 3%.

$^{103}_{47}Ag_{56}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3357	$21/2^-$				**2003Da07**
	3667	$23/2^-$	309			2003DaAA
	4082	$25/2^-$	415	725	11.2(24)	
	5322	$27/2^-$	362	778	16.6(44)	
	4960	$29/2^-$	516	878	7.4(16)	
	5462	$(31/2^-)$	(502)			
2	3439	$21/2^-$				**2003Da07**
	3599	$23/2^-$	160			2003DaAA
	3936	$25/2^-$	337			2006De15
	4373	$27/2^-$	437	774	31.2(62)	
	4792	$29/2^-$	419	857	24.2(33)	
	5322	$31/2^-$	530	949	21.6(41)	
	5825	$33/2^-$	503	1033	24.3(41)	
	6410	$35/2^-$	585	1088	9.6(25)	
	(6941)	$(37/2^-)$	(531)	(1116)		

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2}) \otimes \nu[h_{11/2}(d_{5/2}/g_{7/2})^1]$ from TAC calculations.
2. $(\varepsilon_2, \gamma) = (0.14, 28°)$ from TAC calculations.
3. Small signature splitting.
4. B(M1)/B(E2) values are from 2003DaAA.
5. Nuclear reaction: ^{76}Ge (^{35}Cl, $\alpha 4n\gamma$), E(^{35}Cl)= 132 MeV, band intensity ~ 20%.

Band 2:

1. $\pi(g_{9/2}) \otimes \nu[h_{11/2}(d_{5/2}/g_{7/2})^1]$ from TAC calculations.
2. $(\varepsilon_2, \gamma) = (0.14, 28°)$ from TAC calculations.
3. Small signature splitting.
4. B(M1)/B(E2) values are from 2003DaAA.
5. The lifetimes of the levels from 27/2 to 35/2 ħ as given in 2006De15 are 0.45(+2 -3), 0.37(2), 0.36(2), 0.29 (1) and 0.27(+1-2) ps, respectively.
6. The B(M1) values for the transitions from 437 to 585 keV as given in 2006De15 are 1.40(+8-6), 1.72(+9-8), 0.92(4), 1.17(5) and 0.73(+4-2) μ_N^2, respectively.
7. The B(E2) values for the transitions from 774 to 1088 keV as given in 2006De15 are 0.052(+3-2) 0.070(+4-3), 0.037(2), 0.057(3) and 0.060(+3-1) $(eb)^2$, respectively.
8. Band intensity ~ 40%.

$^{104}_{47}\mathrm{Ag}_{57}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	1078	8^-				**2004Da14**
	1253	9^-	175			
	1599	10^-	346	521		
	1931	11^-	333	678		
	2376	12^-	444	777		
	2820	13^-	444	888		
	3301	14^-	481	926	12.0(41)	
	3808	15^-	507	989	12.3(37)	
	4328	16^-	520	1028	16.2(53)	
	4901	17^-	572	1092		
	5528	18^-	628	1200		
2.	3041	12^-				**2004Da14**
	3351	13^-	310			
	3648	14^-	297			
	4097	15^-	449			
	4624	16^-	527			
3.	4424	14^+				**2004Da14**
	4785	15^+	361			
	5165	16^+	380			
	5571	17^+	406			
	6051	18^+	480			
	6595	19^+	544			
	7159	20^+	563			

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2}) \otimes \nu(h_{11/2})$ from TAC calculations.
2. (ε_2, γ) = (0.17, 29°) from TAC calculations.
3. Irregular band.
4. The lifetimes for the levels from 3301 to 4328 keV are 0.30(6), 0.32(6) and 0.35(6) ps, respectively.
5. The B(M1) values for the transitions from 481 To 520 keV are 1.25(30), 0.97(21) and 0.86(20) μ_N^2, respectively.
6. The B(E2) values for the transitions from 926 To 1028 keV are 0.104(25), 0.079(17) and 0.053(13) $(eb)^2$, respectively.
7. Nuclear reaction: $^{76}Ge(^{35}Cl, \alpha 3n\gamma)$, $E(^{35}Cl)$ = 132 MeV. Band intensity ~ 50%.

Band 2:

1. Tentatively assigned as $\pi(g_{9/2}) \otimes \nu[(g_{7/2}d_{5/2})^2 h_{11/2}]$ from the arguments based on aligned angular momentum and parity.
2. (ε_2, γ) = (0.09, 31°) from TAC calculations.
3. Irregular band.
4. Band intensity ~ 6%.

Band 3:

1. $\pi(g_{9/2}) \otimes \nu[(g_{7/2}d_{5/2})\, h_{11/2}^2]$ from TAC calculations.
2. (ε_2, γ) = (0.18, 25°) from TAC calculations.
3. Regular band.
4. The lifetimes for the levels from 5571 to 6595 keV are 0.39(7), 0.30(6) and 0.28(4) ps, respectively.
5. The B(M1) values for the transitions from 406 to 544 keV are 2.18(43), 1.71(38) and 1.26(21) μ_N^2, respectively.
6. Band intensity ~ 12%.

$^{102}_{48}Cd_{54}$

	E_{level} keV	I^{π}	E_γ(M1) keV	E_γ(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3908.5	10^+				**1997Pe25**
	4277.0	$11^{(+)}$	368.5			2001Li24
	4518.2	$12^{(+)}$	241.1			2000JeAA
	5308.7	$13^{(+)}$	790.5			
	5926.1	$14^{(+)}$	617.4			
	6773.1	$15^{(+)}$	847.1			
	7331.9	$16^{(+)}$	558.81	1405.4		
	8367.3	$17^{(+)}$	1035.4			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}^{-2}) \otimes \nu(g_{7/2}^{1}\, d_{5/2}^{3})$ from the shell model calculations.
2. The assignment of 368.5 keV transition to the band is from 2000JeAA.
3. The B(M1) values for the transitions from 367 keV to 617 keV as given in 2001Li24 are 0.18(3), 0.87(8), 0.16(4) and >0.06 W.u., respectively.
4. The lifetimes of levels form 4277 to 5926 keV as given in 2001Li24 are 1.5(2), 2.5(2), 0.4(1) and 2.2(2) ps, respectively.
5. Irregular band.
6. Nuclear reaction: ^{50}Cr (^{58}Ni, 4p2nγ), E(^{58}Ni) = 261 MeV, Band intensity ~ 45 %.

$^{104}_{48}Cd_{56}$

	E_{level} keV	I^{π}	E_γ(M1) keV	E_γ(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	4102.1	10^+				2000JeAA
	4737.5	11^+	635.4			
	5078.7	12^+	341.2	974.5		
	5795.6	13^+	716.9	1056.6		
	6243.6	14^+	448.0			
	7151.3	(15^+)	907.7			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}^{-2}) \otimes \nu(g_{7/2}d_{5/2})^6$ by comparison with ^{102}Cd and from the shell model calculations.
2. Irregular band lying at the edge of magnetic rotation and collective rotation.
3. Nuclear reaction: ^{54}Fe (^{58}Ni, α4pγ), E(^{58}Ni)= 243 MeV, Band intensity ~ 28%.

$^{108}_{48}Cd_{60}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	(5591.4)	(11^-)				**2000Ke01**
	5642.4	12^-	(51)			1993Th05
	5763.4	13^-	121.0			1994Th01
	6079.4	14^-	316.0		>25	
	6601.1	15^-	521.7		>118	
	7277.8	16^-	676.7		>164	
	7743.3	17^-	465.5		>218	
	8105.0	18^-	361.7		>91	
	8587.3	19^-	482.3	845.0	21(+49-8)	
	9176.8	20^-	589.5	1073.9	18(+27-5)	
	9882.4	21^-	705.6	1293.6	20(+16-5)	
	10680.3	(22^-)	797.9	1502.2		
2	7216.1	(15^-)				**2000Ke01**
	7530.1	16^-	(314.0)			
	7863.1	17^-	333.0			
	8318.5	18^-	455.4			
	8641.9	19^-	323.4			
	9000.7	(20^-)	358.8	682.0		
	9421.5	(21^-)	420.8	780.4		
	9898.1	(22^-)	476.6	897.8		
	10413.7	(23^-)	515.6	993.6		
	10977.3	(24^-)	563.6	1079.0		

Configurations and Comments:

1. $\pi(g_{9/2}^{-3}g_{7/2}) \otimes \nu[h_{11/2}(g_{7/2}\, d_{5/2})^1]$ before and $\pi(g_{9/2}^{-3}g_{7/2}) \otimes \nu(h_{11/2}^3(g_{7/2}d_{5/2})^1]$ after the band crossing from TAC calculations.
2. Small prolate deformation $(\beta_2,\gamma) \sim (0.14, -125°)$. from TAC calculations.
3. Lower limits on B(M1)/B(E2) are from 1993Th05 from the unobserved $\Delta I = 2$ (E2) transitions.
4. Regular band with backbending at 17^-.
5. Mean lifetimes of the levels from spins 16-21 are 0.27(+6-9), 0.40(5), 0.75(+5-6), 0.29(2), 0.20(+3-4) and 0.30(1) ps, respectively.
6. B(M1) values for the transitions from 676.7 to 705.6 keV are 0.7(+3-1), 0.8(1), 1.6(1), 1.5(1), 1.1(2) and 0.40(+6-4) (μ_N^2), respectively.
7. Lifetime of each of the 14^- and 15^- levels is <3 ps from 1994Th01.
8. Nuclear reaction: $^{96}Zr(^{16}O, 4n\gamma)$, $E(^{16}O)$= 72 MeV, Band intensity ~ 20%

1. Tentatively assigned as $\pi(g_{9/2}^{-3}g_{7/2}) \otimes \nu[h_{11/2}(g_{7/2}\, d_{5/2})^3]$.
2. Regular band with backbending at 19^-.
3. Band intensity ~ 10%

$^{109}_{48}Cd_{61}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3353.8	$21/2^-$				**1994Ju05**
	3548.8	$23/2^-$	195.0			2000Ch04
	4030.5	$25/2^-$	481.7			
	4630.5	$27/2^-$	600.0			
	5279.5	$29/2^-$	649.0	1249.0		
	5441.1	$31/2^-$	161.6			
	5731.0	$33/2^-$	289.9			
	6164.3	$35/2^-$	433.3			
	6795.8	$37/2^-$	631.5			
	7554.8	$(39/2^-)$	759			
2	5811	$29/2^+$				**2000Ch04**
	6002	$31/2^+$	191			1994Ju05
	6303	$33/2^+$	300.9			
	6681	$35/2^+$	378.7			
	7144	$37/2^+$	462.6			
	7684	$39/2^+$	540.1			
	8261	$41/2^+$	577.3			
	8868	$43/2^+$	606			
	9500	$(45/2^+)$	632			
	10163	$(47/2^+)$	663			
	10895	$(49/2^+)$	732			

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2})^{-2} \otimes \nu(h_{11/2})$ and $\pi(g_{9/2})^{-2} \otimes \nu[h_{11/2}(g_{7/2}d_{5/2})^2]$ before and after the backbending respectively from the TAC calculations (2000Ch04).
2. $(\beta_2, \gamma) \sim (0.106, 0°)$ before and $(0.085, 12°)$ after the backbending from 2000Ch04.
3. B(M1)/B(E2) values range from ~ 40 $(\mu_N/eb)^2$ to ~ 150 $(\mu_N/eb)^2$.
4. B(M1) values for the transitions from 290 to 759 keV as given in 2000Ch04 are 1.80(15), 2.56(11), 0.83(7) and 0.39(3) μ_N^2 respectively.
5. Lifetimes of levels from 5731 to 7555 keV as given in 2000Ch04 are 1.40(4), 0.272(5), 0.241(9) and 0.329(14) ps, respectively.
6. Regular band with a backbending at 31/2.
7. Nuclear reactions: ^{96}Zr (^{18}O, 5nγ), E= 73 MeV, band intensity ~ 4%.

Band 2:

1. $\pi(g_{9/2})^{-2} \otimes \nu[h_{11/2}^2 (d_{5/2}\, g_{7/2})^1]$ from TAC calculations.
2. $(\beta_2, \gamma) \sim (0.116, 10°)$.
3. B(M1)/B(E2) values ≥ 20 $(\mu_N/eb)^2$ for the two levels at 33/2 and 35/2 as given in 1994Ju05.
4. B(M1) values for the transitions from 301 to 577 keV are 4.45(29), 4.19(14), 2.76(4), 3.15(+32-24) and 3.69(31) μ_N^2 respectively.
5. Lifetimes of levels from 6303 to 8261 keV are 0.367(15), 0.253(5), 0.210(5), 0.115(4) and 0.084(4) ps, respectively.
7. Nuclear reactions: ^{96}Zr (^{18}O, 5nγ), E= 70 MeV, Band intensity ~ 2%.

$^{110}_{48}Cd_{62}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References	Configurations and Comments:
1	5759.7	13^-				**1994Ju04**	1. Tentatively assigned as $\pi(g_{9/2}^{-2}) \otimes \nu(h_{11/2}g_{7/2})$ or $\pi(g_{9/2}^{-2}) \otimes \nu(h_{11/2}d_{5/2})$ by comparison with a similar band in ^{108}Cd and from the alignments.
	5985.3	14^-	225.6				2. Prolate deformation.
	6355.3	15^-	370.0				3. Lower limits on B(M1)/B(E2) values are from the unobserved ΔI= 2 (E2) transitions.
	6963.8	16^-	608.5		>58		4. Regular band.
	7576.2	17^-	612.4		>317		5. Nuclear reactions: ^{96}Zr (^{18}O, 4nγ), E(^{18}O) = 73 MeV and ^{100}Mo (^{13}C, 3nγ), E(^{13}C) = 44 MeV, Band intensity ~ 5%.
2	6584.2	14				**1994Ju04**	1. Tentatively assigned as $\pi(g_{9/2}^{-2}) \otimes \nu(h_{11/2}^{2})$ or $\pi(g_{9/2}^{-1}p_{1/2}) \otimes \nu(h_{11/2}^{2})$ depending on whether the band has positive or negative parity.
	6879.2	15	295.0				2. Prolate deformation.
	7280.6	16	401.4				3. Regular band.
	7758.5	17	477.9				4. Band intensity ~ 1%.
3	8015.8	17				**1994Ju04**	1. Configuration may involve in addition to that of band 2, an aligned pair of neutrons in the $g_{7/2}$ orbital.
	8277.0	18	261.2			1999Cl03	2. Prolate deformation.
	8594.6	19	317.6				3. Lower limits on B(M1)/B(E2) values are from the unobserved ΔI= 2 (E2) transitions.
	8966.9	20	372.3				4. Regular band.
	9429.4	21	462.5		>48		5. Mean lifetimes of levels with spins from 20 to 23, as given in 1999Cl03 are 0.184(+18-22), 0.101(+15-18), 0.094(+14-18) and 0.092(+17 -23) ps, respectively.
	9990.4	22	561		>63		6. B(M1) values for transitions from 372.3 to 673.8 keV, as given in 1999Cl03 are 5.40(+65-53), 5.13(+90-75), 3.06(+57-45) and 1.83(+46-34) μ_N^2, respectively.
	10664.2	23	673.8		>60		7. Band intensity ~ 2.5%.
	11450.2	24	786				

$^{108}_{49}\mathrm{In}_{59}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference	**Configurations and Comments:**
1	1119.4	8^-				**2001Ch71**	1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ by comparison with a similar band in ^{109}Cd . 2. Small prolate deformation (β_2, γ = 0.116, 10^o) from TAC calculations. 3. Regular band with small backbending at 12^-. 4. Nuclear reaction : ^{76}Ge(^{37}Cl, 5nγ), E(^{37}Cl)= 138 MeV and ^{94}Mo(^{18}O, p3nγ), E(^{18}O)= 85 MeV, Band intensity ~ 50%.
	1332.5	9^-	213.1				
	1861.1	10^-	528.6				
	2465.4	11^-	604.3	1133.8			
	3006.9	12^-	541.5	1146.7			
	3642.4	13^-	635.5				
2	2515.4	10^-				**2001Ch71**	1. $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/ d_{5/2})^2\ h_{11/2}]$ by comparison with a similar band in ^{109}Cd . 2. Small prolate deformation (β_2, γ = 0.095, 15^o) from TAC calculations. 3. B(M1) values for the transitions from 335.4 to 660.9 keV are 0.91(3), 0.60(+13-8) and 0.40(+5-2) μ_N^2, respectively. 4. Lifetimes of levels from 3382 to 4571 keV are 1.63(6), 0.60(10) and 0.45(+2-5) ps, respectively. 5. Regular band with small backbending at 17^- 6. Band intensity ~ 30%.
	2662.4	11^-	147.0				
	2815.9	12^-	153.5				
	3046.7	13^-	230.8				
	3382.1	14^-	335.4				
	3909.9	15^-	527.8	864.2	35(+17-10)		
	4570.8	16^-	660.9	1189.1	50(+13-8)		
	5155.9	17^-	585.1	1246.9			
3	4331.2	13^+				**2001Ch71**	1. $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/ d_{5/2})\ h_{11/2}^2]$ before and $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/d_{5/2})^3\ h_{11/2}^2]$ after the backbending by comparison with a similar band in ^{109}Cd. 2. Small prolate deformation (β_2, γ = 0.126, 10^o) for the configuration before and (β_2, γ = 0.063, 15^o) for the configuration after backbending from TAC calculations. 3. B(M1) values for the transitions from 357.3 to 542.4 keV are 2.48(+22-20), 2.38(+17-16), 1.71(+13-11) and 5.2(+26-8) μ_N^2, respectively. 4. Lifetimes of levels from 5130 to 6710 keV are 0.43(4), 0.22(2), 0.158(11) and 0.055(+10-18) ps, respectively. 5. Regular band with small backbending at 18^+. 6. Band intensity ~ 9%.
	4517.4	14^+	186.2				
	4773.3	15^+	255.9				
	5130.6	16^+	357.3				
	5603.6	17^+	473.0				
	6168.0	18^+	564.4	1038.8	29(+6-5)		
	6710.4	19^+	542.4	1107.7	31(+25-14)		
	7234.4	(20^+)	524.0				
	7830.4	(21^+)	596.0				
	8570.7	(22^+)	740.3				

$^{110}_{49}In_{61}$

	E_{level} keV	I^π	E_γ(M1) keV	E_γ(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	799.7	7^-				**2001Ch71**
	807.7	8^-	8.0			
	1017.2	9^-	209.5			
	1560.9	10^-	543.7	753.6		
	2173.9	11^-	613.0	1157.0		
2	2596.8	12^-				**2001Ch71**
	2837.9	13^-	241.1			
	3192.5	14^-	354.6			
	3713.6	15^-	521.1			
	4528.6	16^-	815.0			
	5265.4	17^-	736.8	1552.0		
3	3326.9	11^+				**2001Ch71**
	3512.5	12^+	185.6			
	3720.0	13^+	207.5			
	3943.8	14^+	223.8			
	4229.2	15^+	285.4			
	4598.2	16^+	369.0			
	5085.1	(17^+)	486.9	855.9	34(+10-8)	
	5650.7	(18^+)	565.6	1052.3	47(+11-10)	
	6223.6	(19^+)	572.9	1138.6	49(+13-10)	
	6707.5	(20^+)	483.9			
	7272.9	(21^+)	565.4			
	7981.1	(22^+)	708.2			
	8748.0	(23^+)	766.9			

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ by comparison with a similar band in ^{109}Cd .
2. Small prolate deformation (ε_2, γ = 0.11, 10°) from TAC calculations.
3. Regular band.
4. Nuclear reaction : ^{96}Zr(^{19}F, 5nγ), E(^{19}F)= 85 MeV, Band intensity ~ 80%.

Band 2:

1. $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/d_{5/2})^2 h_{11/2}]$ by comparison with a similar band in ^{109}Cd .
2. Small prolate deformation (ε_2, γ = 0.08, 10°) from TAC calculations.
3. B(M1) values for the transitions 354.6 and 521.1 keV are 1.01(3) and 0.56(4) μ_N^2, respectively.
4. Lifetimes of levels from 3193 and 3714 keV are 1.25(4) and 0.72(+5-4) ps, respectively.
5. Regular band with small backbending at 17^-
6. Band intensity ~ 18%.

Band 3:

1. $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/d_{5/2}) h_{11/2}^2]$ before and $\pi(g_{9/2}^{-1}) \otimes \nu[(g_{7/2}/d_{5/2})^3 h_{11/2}^2]$ after the backbending by comparison with a similar band in ^{109}Cd.
2. Small prolate deformation (ε_2, γ = 0.11, 10°) for the configuration before and (ε_2, γ = 0.08, 20°) for the configuration after backbending from TAC calculations.
3. B(M1) values for the transitions from 285.4 to 572.9 keV are 3.73(14), 2.61(+10-5), 1.97(+25-26), 1.35(+15-13) and 2.51(+36-20) μ_N^2, respectively.
4. Lifetimes of levels from 4229 to 6224 keV are 0.627(+24-23), 0.428(+8-16), 0.230(+35-26), 0.196(+21-19) and 0.105(+9-13) ps, respectively.
5. Regular band with small backbending at 19^+.
6. Band intensity ~ 20%.

$^{111}_{49}In_{62}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3461.0	$19/2^+$				**1998Va03**
	3588.4	$21/2^+$	127.4			
	3707.2	$23/2^+$	118.8			
	3911.3	$25/2^+$	204.1			
	4282.6	$27/2^+$	371.3			
	4795.8	$29/2^+$	513.2	884.3	70(11)	
	5330.7	$31/2^+$	534.9	1048.4	34(3)	
	5877.1	$(33/2^+)$	546.4	1081.3	20(2)	
2	4932.0	$27/2^+$				**1998Va03**
	5166.8	$29/2^+$	234.8			
	5398.8	$31/2^+$	232.0			
	5678.1	$33/2^+$	279.3			
	6051.0	$35/2^+$	372.9			
	6538.1	$(37/2^+)$	487.1			
	7175.2	$(39/2^+)$	637.1			
	7917.1	$(41/2^+)$	741.9			
	8681.1	$(43/2^+)$	764.0			
3	X	$(31/2^-)$				**1998Va03**
	390.5+X	$(33/2^-)$	390.5			
	794.7+X	$(35/2^-)$	404.2			
	1244.3+X	$(37/2^-)$	449.6			
	1774.1+X	$(39/2^-)$	529.8			
	2354.6+X	$(41/2^-)$	580.5			

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2}^{2})$ by comparison with a similar band in ^{110}Cd .
2. Small prolate deformation.
3. B(M1)/B(E2) > 50-100 $(\mu_N/eb)^2$ from unobserved ΔI= 2 (E2) transitions.
4. Regular band with small backbending at 23/2.
5. Nuclear reaction : ^{96}Zr(^{19}F, 4nγ), E(^{19}F)= 72 MeV, Band intensity ~ 33%.

Band 2:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2}^{2} g_{7/2}^{2})$ by comparison with a similar band in ^{110}Cd .
2. Small prolate deformation.
3. B(M1)/B(E2) > 50-100 $(\mu_N/eb)^2$ from unobserved ΔI= 2 (E2) transitions.
4. Regular band with small backbending at 31/2.
5. Band intensity ~ 15%.

Band 3:

1. Tentatively assigned as $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2} g_{7/2} d_{5/2})$ (configuration of a band in ^{110}Cd) coupled to an aligned $g_{7/2}$ or $h_{11/2}$ neutron pair.
2. I^{π} and level energies are lower limits as estimated from intensity and feeding considerations.
3. X~ 5500 keV.
4. B(M1)/B(E2) > 50-100 $(\mu_N/eb)^2$ from unobserved ΔI= 2 (E2) transitions.
5. Regular band.
6. Band intensity ~ 9%.

$^{113}_{49}In_{64}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2233.2	$15/2^{(-)}$				**1997Ch01**
	2396.4	$17/2^{(-)}$	163.2			2005Na37
	2663.9	$19/2^{(-)}$	267.5			
	2853.6	$21/2^{(-)}$	189.7			
	3023.1	$23/2^{(-)}$	169.5			
	3280.0	$25/2^{(-)}$	256.9			
	3972.6	$27/2^{(-)}$	692.6			
	4715.0	$29/2^{(-)}$	742.4	1434.9	8(2)	
	5392.7	$31/2^{(-)}$	677.7	1418.6	17(6)	
2	3122.1	$21/2^{(+)}$				**1997Ch01**
	3213.9	$23/2^{(+)}$	91.8			2005Na37
	3397.2	$25/2^{(+)}$	183.3			
	3788.1	$27/2^{(+)}$	390.9			
	4377.5	$29/2^{(+)}$	589.4	980.2	24(6)	
	5062.1	$31/2^{(+)}$	684.6	1274.2	71(14)	
	5790.3	$33/2^{(+)}$	728.2			
	6348.3	$35/2^{(+)}$	558			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(g_{9/2}^{-1})\otimes\nu(g_{7/2}^{-1}h_{11/2})$.
2. Small prolate deformation (β_2=0.09).
3. The spin and parity assignments are from 2005Na37.
4. Parity assignment is based on comparison with neighboring nuclei.
5. Irregular band.
6. Fully aligned configuration gives rise to I^{π}= $27/2^-$; I^{π} beyond this value is attributed to some collectivity.
7. Nuclear reaction : ^{110}Pd(^{7}Li, 4nγ), E(^{7}Li) = 40 MeV, Band intensity ~ 31%.

Band 2:

1. Tentative Configuration $\pi(g_{9/2}^{-1})\otimes\nu(h_{11/2}^{2})$.
2. Small prolate deformation (β_2=0.09)
3. The 558 keV transition is from 2005Na37.
4. The spin and parity assignments are from 2005Na37.
5. Parity assignment is based on comparison with neighboring nuclei.
6. Regular band.
7. Band intensity ~ 15%.

$^{105}_{50}Sn_{55}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	7043	$29/2^{+}$				**1997Ga01**
	7343	$31/2^{+}$	300			
	7730	$33/2^{(+)}$	388			
	8196	$35/2^{(+)}$	466			
	8682	$37/2^{(+)}$	486			
	9137	$39/2^{(+)}$	456			
	9692	$41/2^{(+)}$	555			
	10287	$43/2^{(+)}$	596			

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{9/2}^{-1}g_{7/2})\otimes\nu(h_{11/2}^{2}(d_{5/2}g_{7/2})^{1})$ from TRS calculations.
2. Prolate deformation (β_2=0.137)
3. B(M1)/B(E2)>100$(\mu_N/eb)^2$ from the unobserved ΔI= 2 (E2) transitions.
4. Regular band with a backbending at 37/2.
5. Nuclear reaction : ^{50}Cr(^{58}Ni, 2pnγ), E(^{58}Ni)= 210 MeV, Band intensity ~ 20%.

$^{106}_{50}Sn_{56}$

	E_{level} keV	I^π	$E_\gamma(M1)$ keV	$E_\gamma(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	8013.2	15^-				**1999Je07**
	8560.3	16^-	547.0			1999JeZZ
	9103.3	17^-	542.9			1998Je03
	9552.9	18^-	449.7		>160	
	10040.9	19^-	488.1		>250	
	10632.9	20^-	591.9		>200	
	11413.3	21^-	780.4		>35	
	12047.3	22^-	634.0			
2	9236.1	17^-				**1998Je03**
	9637.8	18^-	401.7			
	10117.0	19^-	479.2		>155	
	10672.4	20^-	555.4		>290	
	11292.7	21^-	620.3		>220	
	11971.5	22^-	678.8			

Configurations and Comments:

Band 1:

1. $\pi(g_{7/2}\, g_{9/2}^{-1}) \otimes \nu((g_{7/2}d_{5/2})^3\, h_{11/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.11, -13°)$.
3. Level energies, spins and parities are from 1999JeZZ.
4. Mean lifetimes of the five uppermost levels are 0.30(3), 0.43(5), 0.51(15), 0.22(2) and 0.22(+1-3) ps, respectively.
5. B(M1) values for the transitions from 450 to 599 keV are 2.06(+22-26), 1.12(+15-13), 0.54(+20-13), 0.54(+5-7) and 1.17(17) μ_N^2, respectively.
6. Regular band with backbending at the top of the band.
7. Nuclear reaction: $^{54}Fe(^{58}Ni, \alpha 2p\gamma)$, $E(^{58}Ni)$ = 243 MeV. Band intensity ~ 16%

Band 2:

1. $\pi(g_{7/2}\, g_{9/2}^{-1}) \otimes \nu((g_{7/2}d_{5/2})^3\, h_{11/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.11, -13°)$.
3. Regular band.
4. Band intensity ~ 8%

$^{108}_{50}Sn_{58}$

	E_{level} keV	I^π	$E_\gamma(M1)$ keV	$E_\gamma(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	6665	12^-				**1998Je03**
	6885.0	13^-	220.0			1999Je07
	7182.7	14^-	297.7			
	7606.4	15^-	423.7	720	30.0(25)	
	8116.3	16^-	509.9	934	23.5(40)	
	8634.5	17^-	518.2	1028	26.0(35)	
	9169.6	18^-	535.1	1053	19.5(40)	
	9719.8	19^-	550.2	1085	23(4)	
	10355.3	20^-	635.5	1184	24(4)	
2	8103	16^-				**1998Je03**
	8351.2	17^-	248.2			
	8695.8	18^-	344.6	(592)		
	9105.8	19^-	410.0	753	15.4(40)	
	9579.4	20^-	473.6	885	14.1(40)	
	10062.8	21^-	483.4	956	20.2(50)	
	10572.2	22^-	509.4	992	22.7(70)	

Configurations and Comments:

Band 1:

1. $\pi(g_{7/2}\, g_{9/2}^{-1}) \otimes \nu((g_{7/2}d_{5/2})^1\, h_{11/2})$ from TAC calculations.
2. Prolate shape $(\beta_2, \gamma) = (0.08, 0°)$ from 1999Je07.
3. The mean lifetimes of levels with spins from 15 to 19 as given in 1999Je07 are 0.66(2), 0.23(1), 0.29(1), 0.44(+5-2) and 0.56(2) ps, respectively.
4. B(M1) values for the transitions from 424 to 550 keV are 1.05(3), 1.63(8), 1.16(5), 0.64(+4 -8) and 0.48(3) μ_N^2, respectively.
5. Regular band.
6. Nuclear reaction: $^{54}Fe(^{58}Ni, 4p\gamma)$, $E(^{58}Ni)$ = 243 MeV. Band intensity ~ 8%

Band 2:

1. $\pi(g_{7/2}\, g_{9/2}^{-1}) \otimes \nu(g_{7/2}^2\, (g_{7/2}d_{5/2})^1\, h_{11/2})$ from TAC calculations.
2. Prolate shape $(\beta_2, \gamma) = (0.11, 0°)$ from 1999Je07.
3. Band intensity ~ 4%

$^{108}_{51}Sb_{57}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2154.6	7^-				**1998Je09**
	2246.0	8^-	91.4			
	2438.3	9^-	192.3	283		
	2719.9	10^-	281.6	474		
	3032.4	11^-	312.5	595		
	3376.8	12^-	344.4	657		
	3764.7	13^-	387.9	732		
	4173.6	14^-	408.9	797		
	4613.3	15^-	439.7	849		
	5101.9	16^-	488.6	929		
	5611.5	17^-	509.6	999		
	6150.0	18^-	538.5	1049		
	6719.6	19^-	569.6	1109		
2	2753.4	10^-				**1998Je09**
	3057.4	11^-	304.0			
	3376.4	12^-	319.0	623		
	3722.5	13^-	346.1	665		
	4177.9	14^-	455.4	801		
	4597.3	15^-	419.4	874		
	5064.4	16^-	467.1	886		
	5561.8	17^-	497.4	964		
	6092.3	18^-	530.5	1028		
	6645.2	19^-	552.9	1084		
	7216.3	20^-	571.1	1124		

Configurations and Comments:

Band 1:

1. $\pi[(g_{7/2},d_{5/2})^2 g_{9/2}^{-1}] \otimes \nu(h_{11/2})$ from TAC calculations.
2. (β_2, γ) = (0.116, 30°) from TAC calculations.
3. B(M1)/B(E2) values range from ~ 5 $(\mu_N/eb)^2$ to ~ 20 $(\mu_N/eb)^2$.
4. Regular band.
5. Nuclear reaction: $^{54}Fe(^{58}Ni, 3pn\gamma)$, $E(^{58}Ni)$= 243 MeV, Band intensity ~ 47%.

Band 2:

1. $\pi(h_{11/2}\, g_{7/2}\, g_{9/2}^{-1}) \otimes \nu(g_{7/2},d_{5/2})^1$ from TAC calculations.
2. (β_2, γ) = (0.116, 10°) from TAC calculations.
3. B(M1)/B(E2) values range from ~ 5 $(\mu_N/eb)^2$ to ~ 25 $(\mu_N/eb)^2$.
4. Regular band with backbending at 15.
5. Band intensity ~ 19%.

$^{110}_{51}Sb_{59}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	1921	8^-				**1997La13**
	2122	9^-	201			
	2435	10^-	313	514		
	2784	11^-	349	663		
	3158	12^-	374	724		
	3556	13^-	398	772		
	3989	14^-	433	830		
	4464	15^-	475	909		
	(5016)		(552)	(1027)		

Configurations and Comments:

1. Tentatively assigned as spherical $\pi(h_{11/2}) \otimes \nu(d_{5/2})$ or $\pi(h_{11/2}) \otimes \nu(g_{7/2})$ by comparison with neighboring odd-odd Sb isotopes.
2. Regular band.
3. The assignment of this band as MR band is based on the comparison with a band in ^{108}Sb from 1998Je09.
4. Nuclear reaction: $^{54}Fe(^{59}Co, 2pn\gamma)$, $E(^{59}Co)$ = 230 MeV, Band intensity ~ 50 %.

$^{112}_{51}Sb_{61}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	1675.1	7^-				**1998La14**
	1747.5	8^-	72.4			2005De02
	1949.7	9^-	202.2			
	2275.2	10^-	325.5	527.7	24(2)	
	2629.1	11^-	353.9	679.1	16.0(8)	
	3009.7	12^-	380.6	734.6	14.2(7)	
	3402.1	13^-	392.4	773.5	13.3(7)	
	3809.0	14^-	406.9	799.7	6.8(4)	
	4295.3	15^-	486.3	893.2	10.6(8)	
	4798.3	16^-	503.0	989.8	9.9(9)	
	5326.2	17^-	527.9	1030.8		
2	X	(10^+)				**1998La14**
	378.2+X	(11^+)	378.2			
	750.8+X	(12^+)	372.6	750.6	7.5(5)	
	1077.6+X	(13^+)	326.8	699.7	15.3(12)	
	1372.5+X	(14^+)	294.9	621.7	56(7)	
	1690.3+X	(15^+)	317.8	613.0	200(180)	
	2046.1+X	(16^+)	355.8	673.9	30(3)	
	2437.7+X	(17^+)	391.6	747.6	26(3)	
	2851.9+X	(18^+)	414.2			
	3284.4+X	(19^+)	432.5			

Configurations and Comments:

Band 1:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.21, 0°)$ from TAC calculations.
3. The lifetimes for the states from 11^- to 13^- as given in 2005De02 are 0.56(+25-26), 0.51(+16-17) and 0.50(11) ps, respectively.
4. The B(M1) values for the transitions from 354 to 392 keV are 2.28(+69-103), 2.04(+70-63) and 1.90(+38-43) μ_N^2, respectively.
5. The B(E2) values for the transitions from 679 to 773 keV as given in 2005De02 are 1.00(+30-45), 0.74(+25-23) and 0.59(+10-11) $(eb)^2$, respectively.
6. Regular band.
7. Nuclear reaction: ^{103}Rh (^{12}C, 3nγ), E(^{12}C)= 60 MeV and ^{90}Zr (^{31}P, 2αnγ), E(^{31}P)= 150 MeV and ^{89}Y (^{30}Si, α3nγ), E(^{30}Si)= 120 MeV (2005De02). Band intensity ~ 30%.

Band 2:

1. $\pi(g_{9/2}^{-1}) \otimes \nu((d_{5/2}, g_{7/2})^1 h_{11/2}^2)$ from TRS calculations and by comparison with similar bands in neighboring isotopes.
2. Regular band with backbending at 12.
3. Band intensity ~ 6%.

$^{135}_{52}Te_{83}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	4023.4	$(19/2^-)$				**2001Lu16**
	4393.6	$(21/2^-)$	370.2			2001Fo02
	4799.0	$(23/2^-)$	405.4	775.6		
	5170.7	$(25/2^-)$	371.7	777.1		
	5525.3	$(27/2^-)$	354.6	726.3		
	5790.5	$(29/2^-)$	265.2	619.8		
	6109.8	$(31/2^-)$	319.3	(584.5)		
	6455.2	$(33/2^-)$	345.4	(664.7)		
	6669.6	$(35/2^-)$		559.8		

Configurations and Comments:

1. Tentatively assigned as $\pi(g_{7/2}^{2}) \otimes \nu(f_{7/2}^{2}h_{11/2}^{-1})$ as given in 2001Fo02 by comparison with the ^{134}Te isotope.
2. Irregular band.
3. Nuclear reaction: spontaneous fission of ^{252}Cf and spontaneous fission of ^{248}Cm as studied by 2001Fo02. Band intensity ~ 1%.

$^{123}_{54}Xe_{69}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X	$(31/2^-)$				**2002Ra34**
	152.0+X	$(33/2^-)$	152.0			
	351.3+X	$(35/2^-)$	199.3			
	577.4+X	$(37/2^-)$	226.1			
	822.9+X	$(39/2^-)$	245.5	471.8		
	1121.1+X	$(41/2^-)$	298.2	544.1		
	1478.5+X	$(43/2^-)$	357.4	655.2		
	1954.2+X	$(45/2^-)$	475.7	833.2		
	2443.5+X	$(47/2^-)$	489.3			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2} \otimes (d_{5/2}/g_{7/2})^1) \otimes \nu(h_{11/2}{}^2(d_{5/2}/g_{7/2})^1)$ by comparison with TAC calculations.
2. (β_2, γ) = (0.21, 29°) from TAC calculations.
3. X~ 5.5 MeV.
4. The observed B(M1)/B(E2) values vary from ~ 20 $(\mu_N/eb)^2$ at a spin (39/2) and decrease to ~ 2 $(\mu_N/eb)^2$ at a spin (45/2).
5. Regular band.
6. Nuclear reaction: ^{110}Pd (^{18}O, 5nγ), E(^{18}O)= 75 MeV, Band intensity ~15 %.

$^{124}_{54}Xe_{70}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	5051	(13)				**1999Sc20**
	5292	(14)	241			2002Ra34
	5554	(15)	262	502	14.15(+38-31)	1997Lo12
	5830	(16)	276	537	17.41(+62-49)	2004Sa47
	6156	(17)	326	602	10.59(+83-46)	
	6556	(18)	400	726	14.89(+78-63)	
	6987	(19)	431	831		
	7436	(20)	449	880		
	7932	(21)	496	944		
	8368	(22)	436	932		
	8914	(23)	546	982		
	9486	(24)	572	1118		
	9929	(25)	443	1016		

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2} \otimes (d_{5/2}/g_{7/2})^1) \otimes \nu(h_{11/2}\, g_{7/2})$.
2. (β_2, γ) = (0.20, 30°) from TAC calculations as . given in 2002Ra34.
3. The B(M1)/B(E2) values are from 2004Sa47.
4. Lifetimes of levels from 5554 to 6556 keV as given in 2004Sa47 are 0.89(8), 1.84(13), 1.75(8) and 0.40(8) ps, respectively.
5. The B(M1) values for the transitions from 262 to 400 keV as given in 2004Sa47 are 1.44(+28-24), 1.02(+18-16), 0.75(+11-10) and 1.33(+41-30) μ_N^2, respectively.
6. Irregular band with backbending at 8368 keV level and at the top of the band.
7. Nuclear reaction: ^{110}Pd (^{18}O, 4nγ), E(^{18}O)= 86 MeV, Band intensity ~ 13%.

$^{131}_{55}Cs_{76}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	2554.9	$17/2^+$				**2005Ku10**
	2686.9	$19/2^+$	132.0			
	2835.1	$21/2^+$	148.2			
	3058.7	$23/2^+$	223.6			
	3415.3	$25/2^+$	356.6			
	3724.1	$27/2^+$	308.8	664.9	~10	
	4145.7	$29/2^+$	421.6	730.2	~10	
	4655.3	$(31/2^+)$	509.6	931.2	~3	
2.	3465.3	$25/2^-$				**2005Ku10**
	3621.3	$27/2^-$	156.0			
	4012.2	$29/2^-$	390.9			
	4387.9	$31/2^-$	375.7	766.4		
	4905.7	$33/2^-$	517.8	893.8		
	5265.6	$(35/2^-)$	359.9	877.9		

Configurations and Comments:

Band 1:

1. $\pi(d_{5/2}/g_{7/2}) \otimes \nu(h_{11/2})^2$ from the decay pattern and TAC calculations.
2. Triaxial deformation $(\beta_2, \gamma) \sim (0.11, 46^{\circ})$
3. Small signature splitting.
4. Regular band with backbending at $27/2^+$.
5. The calculated B(M1) values decrease with frequency.
6. Nuclear reaction: ^{124}Sn (^{11}B, 4nγ), E(^{11}B) = 57 MeV, Band intensity~ 8%.

Band 2:

1. $\pi(h_{11/2}) \otimes \nu(h_{11/2})^2$ from the decay pattern and TAC calculations.
2. Prolate deformation $(\beta_2, \gamma) \sim (0.11, 55^{\circ})$
3. Small signature splitting.
4. Irregular band.
5. The experimental B(M1)/B(E2) have an average ~12 $(\mu_N/eb)^2$.
6. The calculated B(M1) values decrease with frequency.
7. Band intensity~ 12%. .

$^{128}_{56}Ba_{72}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	4652	12^+				**1998Wi20**
	4956	13^+	305			1997Vo12
	5233	14^+	277	582	6.29(+29-16)	2000Di16
	5530	15^+	296	574	6.63(+18-13)	2000Pe20
	5853	16^+	324	619	6.00(+56-28)	1998Pe17
	6215	17^+	362	685	5.43(+23-15)	
	6609	18^+	394	755	5.81(+25-19)	
	7036	19^+	428	821	5.04(+31-22)	
	7494	20^+	457	886		
	7981	21^+	487	945		
	8497	22^+	517	1003		
	9032	23^+	535	1052		
	9601	24^+	568	1104		
	10168	25^+	566	1136		
	10785	26^+		1184		

Configurations and Comments:

1. $\pi[h_{11/2}(d_{5/2}g_{7/2})] \otimes \nu[h_{11/2}(d_{5/2}g_{7/2})]$ from TAC calculations by 2000Di16.
2. Prolate deformation $(\beta_2, \gamma) \sim (0.20, 0^{\circ})$
3. B(M1) values for the transitions from 362 to 428 keV as given in 1998Pe17 are 1.14(+21-15), 1.22(+25-18) and 1.41(+30-21) μ_N^2, respectively, for Transitions from 305 to 324 keV as given in 2000Pe20 are 0.32(4), 0.44(+10-7), 1.06(+18-13) and 1.08(+55-27) μ_N^2, respectively.
4. The first three B(M1)/B(E2) ratios have been calculated from the values of B(M1) and B(E2) in 2000Pe20 and the last three ratios have been calculated in a similar manner using the data given in 1998Pe17.
5. Lifetimes of 6215 to 7981 keV states as given in 1998Pe17 are 2.48(7), 1.91(7), 1.54(5), 1.36(11) and 1.16(6) ps, respectively, for levels from 4956 to 5853 keV As given in 2000Pe20 are 1.44(13), 2.25(40), 1.53(22) and 0.98(33) ps, respectively.
6. Regular band.
7. Nuclear reaction: ^{96}Mo (^{36}S, 4nγ), E(^{36}S) = 150 MeV, Band intensity is less than 10 %.

$^{132}_{56}Ba_{76}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	4811.8	11^+				**1995Ju09**
	1997.2	12^+	185.4			1989Pa17
	5201.0	13^+	203.9			
	5436.8	14^+	235.9			
	5771.8	15^+	335.0			
	6196.3	16^+	424.6			
	6665.4	(17^+)	469			
	7144.4	(18^+)	479			
2	5721.4	14^-				**1995Ju09**
	5891.3	15^-	169.9			1989Pa17
	6107.1	16^-	215.7			
	6414.8	17^-	307.7			
	6821.7	18^-	406.9			
	7287.7	(19^-)	466	(873)		
	(7751.7)	(20^-)		(930)		

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{11/2}g_{7/2}) \otimes \nu(h_{11/2}d_{3/2})$ by considering the available orbits nearest to the Fermi surface.
2. Oblate shape ($\gamma \sim -60°$).
3. Regular band.
4. Nuclear reaction: $^{124}Sn(^{13}C, 5n\gamma)$, $E(^{13}C)$ = 65.5 MeV, Band intensity ~ 2%.

Band 2:

1. $\pi(h_{11/2}g_{7/2}) \otimes \nu(h_{11/2}^2)$ by considering the available orbits nearest to the Fermi surface.
2. Oblate shape ($\gamma \sim -60°$).
3. Regular band.
4. Band intensity ~ 1%.

$^{131}_{57}La_{74}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2476.7	$(19/2^-)$				**1989Hi02**
	2544.0	$(21/2^-)$	67.3			
	2698.3	$(23/2^-)$	154.3			
	2934.4	$(25/2^-)$	236.1	389.9		
	3242.6	$(27/2^-)$	308.2	544.1		
	3609.2	$(29/2^-)$	366.6	675.6		
	4023.1	$(31/2^-)$	413.9	780.7		
	4478.5	$(33/2^-)$	455.4	869.8		
	4967.1	$(35/2^-)$	488.6	943.9		
	5489.3	$(37/2^-)$	522.2	1010		
	6037.1	$(39/2^-)$	547.8	1069		
	(6605.6)	$(41/2^-)$	(568.5)	(1115)		
	(7184.6)	$(43/2^-)$	(579)			
2	2120.5	$21/2^-$				**1989Hi02**
	2548.0	$(23/2^-)$	427.5			
	3017.3	$(25/2^-)$	469.3	896		
	3526.3	$(27/2^-)$	509	978		

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{11/2}) \otimes \nu(h_{11/2}^2)$ from CSM calculations.
2. Collective oblate structure ($\gamma = -60°$).
3. B(M1)/B(E2) ratio is in the range of 10-50 $(\mu_N/eb)^2$ and rises with increasing spin.
4. Regular band.
5. Nuclear reaction: $^{116}Cd(^{19}F, 4n\gamma)$, $E(^{19}F)$ = 76 to 90 MeV, Band intensity ~ 7%.

Band 2:

1. Tentatively assigned as $\pi(g_{7/2}) \otimes \nu(g_{7/2}h_{11/2})$ by comparison with the neighboring ^{128}Ba and ^{130}Ce isotopes.
2. Oblate shape suggested because of strong connection to band 1.
3. Bandhead is isomeric with a half life of 38(2) ns.
4. Regular band with weak population.

$^{134}_{58}Ce_{76}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	5593	14^-				**2004La03**
	5748.5	15^-	155.5			
	5968.1	16^-	219.6			
	6308.3	17^-	340.2			
	6765.9	18^-	457.6			
	7285.7	19^-	519.8			
	7833.7	20^-	548.0			

Configurations and Comments:

1. $\pi(g_{7/2}h_{11/2}) \otimes \nu(h_{11/2})^{-2}$ from TAC calculations and by comparison with a similar band in ^{136}Ce.
2. $(\varepsilon_2, \gamma) = (0.149, 43^o)$.
3. Regular band.
4. Lifetimes for levels from 17^- to 20^- are 0.85(7), 0.34(3), 0.28(3) and <0.28(+3-4) ps, respectively.
5. B(M1) values for the transitions from 340 to 548 keV are 1.71(+13-14), 1.76(+17-15), 1.47(+16-14) and >1.24(+17-14) (μ_N^2), respectively.
6. Nuclear reaction :^{120}Sn(^{18}O, 4nγ), E(^{18}O) = 80 MeV, Band intensity ~ 17%.

$^{135}_{58}Ce_{77}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3229.8	$23/2^+$				**1990Ma26**
	3431.9	$25/2^+$	202.1			
	3699.9	$27/2^+$	268.0			
	4128.2	$29/2^+$	428.3	696	>8	
	4486.4	$31/2^+$	358.2	786.8	23(7)	
	4979.3	$33/2^+$	492.9	851	>9	
	5428.5	$35/2^+$	449.2	942	>14	
	5942.5	$(37/2^+)$	514	963		
	6444.5	$(39/2^+)$	502	(1016)		

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2}g_{7/2}) \otimes \nu(h_{11/2})$ by comparison with the N=75 isotones.
2. Near prolate shape (γ ~ 0°).
3. Irregular band with backbending at I^{π} =31/2 and 35/2.
4. Small signature splitting.
5. Lower limits of B(M1)/B(E2) are from the unobserved ΔI =2 (E2) transitions.
6. Nuclear reaction :^{122}Sn(^{18}O, 5nγ), E(^{18}O) = 85 and 89 MeV, Band intensity ~ 17%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
2	4183.8	$27/2^-$				**1990Ma26**
	4460.9	$29/2^-$	277.1			
	4830.9	$31/2^-$	370.0			
	5206.5	$33/2^-$	375.6	746	>6	
	5651.6	$35/2^-$	445.1	821	>19	
	6086.5	$37/2^-$	434.9	880	>24	
	6526.5	$39/2^-$	440.0	(875)	>13	
	6994.5	$41/2^-$	468.0	(908)	>6	
	7494.5	$(43/2^-)$	500	968		

1. Tentatively assigned as $\pi(h_{11/2}^2) \otimes \nu(h_{11/2})$ by comparison with the N=75 isotones.
2. Near prolate shape (γ ~ 0°).
3. Irregular band with backbending at 37/2.
4. Small signature splitting.
5. Lower limits of B(M1)/B(E2) are from the unobserved ΔI =2 (E2) transitions.
6. Band intensity ~ 10%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
3	4498.8	$27/2^-$				**1990Ma26**
	4637.9	$29/2^-$	139.1			
	4816.4	$31/2^-$	178.5		>4	
	5065.4	$33/2^-$	249.0		>6	
	5362.9	$35/2^-$	297.5		>13	
	5755.1	$37/2^-$	392.2		>18	
	6259.7	$39/2^-$	504.6		>19	
	6843.3	$(41/2^-)$	583.6		>21	
	7473.3	$(43/2^-)$	630		>22	

1. Tentatively assigned as $\pi(h_{11/2}g_{7/2}) \otimes \nu(h_{11/2}^2 s_{1/2})$.
2. Collectively rotating oblate structure (γ ~ -60°).
3. Limits on B(M1)/B(E2) values are from the assumption that the unobserved ΔI =2 (E2) transitions are less than 1% intense as compared to the strongest transition in the level scheme.
4. Regular band.
5. Relative intensity ~ 6%.

$^{136}_{58}\mathrm{Ce}_{78}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	5305.5	15^+				**2005LA29**
	5594.4	16^+	288.9			2004LaAA
	6099.3	$17^{(+)}$	504.9			
	6642.9	$18^{(+)}$	543.6	1049		
	(7239)	(19^+)	(596.1)	(1140)		
2.	5643.8	16^+				**2005La29**
	5878.2	17^+	234.4			2004LaAA
	6171.5	18^+	293.3			
	6540.4	19^+	368.9			
	6934.5	20^+	394.1			
	7345.9	(21^+)	411.4			
	7801.9	(22^+)	456			
	(8317)	(23^+)	(515)			
3.	5646.5	14^-				**2005La29**
	5809.9	15^-	163.4			2004LaAA
	5995.8	16^-	185.9	350	13.5(63)	2002La26
	6283.5	17^-	287.7	474	14.4(42)	1990Pa05
	6664.0	18^-	380.5	668	35.5(32)	
	7100.2	19^-	436.2	816	34.6(15)	
	7586.6	20^-	486.4	922	21.3(11)	
	8111.4	21^-	524.8	1011	13.4(6)	
	8626.6	22^-	515.2	1040	11.8(5)	
	9229.2	23^-	602.6	1118	12.8(20)	

Configurations and Comments:

Band 1:

1. $\pi(g_{7/2}h_{11/2}) \otimes \nu(g_{7/2}h_{11/2})$ from TAC calculations.
2. $(\varepsilon_2, \gamma) = (0.11, 28°)$ from TAC calculations.
3. Regular band.
4. The lifetime of 6099.3 keV level is 0.65(+16-19) ps.
5. The B(M1) value for the transition 504.9 keV is 0.69(+20-17) μ_N^2.
6. Nuclear reaction: ^{124}Sn(^{16}O, 4nγ), E(^{16}O) = 80 MeV. Band intensity ~ 8%

Band 2:

1. $\pi(h_{11/2}^{2}) \otimes \nu(h_{11/2}^{-2})$ from TAC calculations.
2. $(\varepsilon_2, \gamma) = (0.13, 52°)$ from TAC calculations.
3. Regular band.
4. The lifetimes of levels from 6540 to 7346 keV are 0.58(+21-26), 0.79(26) and 0.45(+16-19) ps, respectively.
5. The B(M1) values for the transitions from 368.9 to 411.4 keV are 1.97(71), 1.18(39) and 1.84(+74-61) μ_N^2, respectively.
6. Band intensity ~ 5%

Band 3:

1. $\pi(g_{7/2}h_{11/2}) \otimes \nu(h_{11/2}^{-2})$ from TAC calculations.
2. $(\varepsilon_2, \gamma) = (0.11, 52°)$ from TAC calculations.
3. Regular band.
4. The lifetimes of levels from 6664 to 8626 keV are 0.734(+21-22), 0.454(+17-14), 0.38(+4-5), 0.365(+26-41) and 0.577(+41-61) ps, respectively.
5. The B(M1) values for the transitions from 380.5 to 515 keV are 1.346(+40-39), 1.39(+4-5), 1.097(+130-107), 0.782(+88-56) and 0.474(+50-34) μ_N^2, respectively.
6. The B(E2) values for the transitions from 668 to 1040 keV are 0.038(4), 0.040(4), 0.051(+8-7) 0.059(+10-8) and 0.040(+7-6) $(eb)^2$, respectively.
7. Band intensity ~ 25%.

$^{133}_{59}Pr_{74}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference	Configurations and Comments:
1	2035.1	$21/2^-$				**2003Pa38**	1. $\pi(5/2[413]) \otimes \nu(9/2[514]\otimes7/2[404])$, related to the $\nu(h_{11/2}\, g_{7/2})_{K^{\pi}=8^-}$ isomeric state in the ^{132}Ce core.
	2475.3	$23/2^-$	440.2			1988Hi04	2. Prolate configuration.
	2955.2	$(25/2^-)$	479.9	920.1	8.9(9)		3. The B(M1)/B(E2) values decrease from about 10 to 5 $(\mu_N/eb)^2$ with increasing spin.
	3465.5	$(27/2^-)$	510.3	990.2	8.3(9)		4. Nuclear reaction: ^{100}Mo (^{37}Cl, 4nγ), E(^{37}Cl) = 155 MeV, Band intensity ~ 1.5%.
	3960.7	$(29/2^-)$	495.2	1005.3	6.0(6)		
2.	2203.9	$19/2^+$				**2003Pa38**	1. $\pi(3/2[413]) \otimes \nu(9/2[514]\otimes7/2[404])$, related to the $\nu(h_{11/2}\, g_{7/2})_{K^{\pi}=8^-}$ isomeric state in the ^{132}Ce core.
	2352.7	$21/2^+$	148.8				2. Prolate configuration.
	2598.3	$23/2^+$	245.6				3. The B(M1)/B(E2) values decrease from about 25 to 10 $(\mu_N/eb)^2$ with increasing spin.
	2925.4	$25/2^+$	327.1	572.5	23.5(18)		4. Regular band.
	3319.8	$27/2^+$	394.4	722.0	16.9(14)		5. Band intensity ~ 6%.
	3767.5	$29/2^+$	447.7	842.8	12.6(10)		
	4263.9	$31/2^+$	496.4	944.4	11.2(20)		
	4793.5	$(33/2^+)$	529.6	1026.8	8.4(16)		
	5354.4	$(35/2^+)$	560.9	1090.2	7.9(9)		
	5907.2	$(37/2^+)$	552.8	1112.9			
3.	3253.0	$21/2^-$				**2003Pa38**	1. $\pi(h_{11/2})_{K=11/2} \otimes \nu(h_{11/2}^2)$ by comparison with a similar band in ^{131}La isotone.
	3371.8	$23/2^-$	118.8			1988Hi04	2. Oblate configuration.
	3536.8	$25/2^-$	165.0				3. The B(M1)/B(E2) values lie between 10-20 $(\mu_N/eb)^2$.
	3787.7	$27/2^-$	250.9				4. Regular band.
	4124.4	$29/2^-$	336.7				5. Band intensity ~ 5%.
	4533.9	$31/2^-$	409.5				
	5005.7	$(33/2^-)$	471.8	882.2	17.2(28)		
	5533.3	$(35/2^-)$	527.6	1000.6	12.8(19)		
	6107.4	$(37/2^-)$	574.1	1101.0	8.9(11)		
	6725.6	$(39/2^-)$	618.2	1191.9	15.2(21)		
	7337.6	$(41/2^-)$	612.0	1230.0	15.6(32)		
4.	4108.1	$(29/2^-)$				**2003Pa38**	1. $\pi(g_{9/2}\, h_{11/2}^2) \otimes \nu(h_{11/2}g_{7/2})$ because of the backbend from band 4 to band 1 observed in the alignment plot.
	4252.3	$(31/2^-)$	144.2			1988Hi04	2. Prolate configuration.
	4379.1	$(33/2^-)$	126.8				3. The B(M1)/B(E2) values lie between 10-25 $(\mu_N/eb)^2$.
	4575.0	$(35/2^-)$	195.9				4. Regular band.
	4818.8	$(37/2^-)$	243.8	439.7			5. Band intensity ~ 4%.
	5115.2	$(39/2^-)$	296.4	540.2	16.3(13)		
	5466.0	$(41/2^-)$	350.8	647.2	20.4(40)		
	5869.6	$(43/2^-)$	403.6	754.4	16.8(16)		
	6323.6	$(45/2^-)$	454.0	857.6	14.1(22)		
	6824.6	$(47/2^-)$	501.0	955.0	15.8(37)		
	7372.8	$(49/2^-)$	548.2	1049.3	12.5(22)		
	7970.4	$(51/2^-)$	597.6	1145.7			
	8615.1	$(53/2^-)$	644.7	1242.2			

$^{137}_{59}Pr_{78}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3438.4	$25/2^-$				**2006AgAA**
	3550.3	$27/2^-$	111.9			1989Xu01
	3871.3	$29/2^-$	321.0	432.6	10.4(19)	
	4212.8	$31/2^-$	341.5	662.5	10.5(23)	
	4696.2	$33/2^-$	483.4	824.1	17(3)	
	5174.2	$35/2^-$	478.0	961.7	41(7)	
	5515.6	$37/2^-$	341.4	819.4	62(12)	
	5924.0	$39/2^-$	408.4	749.2	33(9)	
	6389.5	$41/2^-$	465.5	872.3	17(3)	
	6896.7	$43/2^-$	507.2	972.1	18(3)	
	7473.4	$45/2^-$	576.7	1083.6	13(3)	
	8130.8	$47/2^-$	657.4	1233.7	19(5)	

Configurations and Comments:

1. $\pi(h_{11/2}) \otimes \nu(h_{11/2}^{-2})$ at low spins, $\pi(h_{11/2})\, \pi(g_{7/2}^{2}) \otimes \nu(h_{11/2}^{-2})$ near spin 37/2
2. (ε_2, γ)=(0.135, 58°) from TAC calculations, oblate shape.
3. Signature splitting with backbending at 35/2. Band crossing at 37/2.
4. Nuclear reaction: ^{122}Sn (^{19}F, 4nγ), E(^{19}F)= 80 MeV, Band intensity ~ 30%.
5. M1 assignment for several gamma rays from linear polarization measurements.

$^{134}_{60}Nd_{74}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2294.2	8^-				**1997Pe07**
	2721.1	9^-	426.9			
	3183.4	10^-	462.3	888.9		
	3654.7	11^-	471.3	933.2		
	4131.2	12^-	476.5	947.9		
	4593.5	(13^-)	462	938.8		

Configurations and Comments:

1. A strong admixture of $\nu(h_{11/2}[9/2])$ with $\nu(g_{7/2}[7/2] \otimes h_{11/2}[7/2])$ is suggested from the PSM calculations.
2. Prolate shape (β_2 =0.17).
3. B(M1)/B(E2) values > 3 $(\mu_N/eb)^2$.
4. Regular band with backbending at the top of the band.
5. Nuclear reaction: ^{110}Pd (^{28}Si, 4nγ), E(^{28}Si) = 130 MeV, Band intensity ~ 6%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
2	4514.5	$12^{(-)}$				**1997Pe07**
	4714.0	$13^{(-)}$	199.5			
	5000.7	$14^{(-)}$	286.7			
	5363.1	$15^{(-)}$	362.4	648.6		
	5790.4	$16^{(-)}$	427.3	790		
	6271.3	$17^{(-)}$	480.9	908.7		
	6787.5	$18^{(-)}$	516.2	997.1		
	7293.2	$19^{(-)}$	505.7	1022		

1. $\pi(h_{11/2}^{2}) \otimes \nu(g_{7/2}[7/2] \otimes h_{11/2}[7/2])$ from the PSM calculations.
2. Prolate shape (β_2 =0.17).
3. B(M1)/B(E2) values are >10 $(\mu_N/eb)^2$.
4. Regular band with backbending at the top of the band.
5. Band intensity ~ 6%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
3	4985.5	14^-				**1997Pe07**
	5201.4	$15^{(-)}$	215.9			
	5457.1	$16^{(-)}$	255.7			
	5770.4	$17^{(-)}$	313.3	569.3		
	6138.4	$18^{(-)}$	368.0	681.6		
	6544.7	$19^{(-)}$	406.3	774.4		
	6936.5	$20^{(-)}$	391.9	798		
	7350.2	$21^{(-)}$	413.6	806		
	7814.1	(22^-)	463.9	878.0		
	8331.2	(23^-)	517.1	981.6		
	8896.9	(24^-)	565.7	1082.6		
	9510.9	(25^-)	614	1180.0		
	10167.9	(26^-)	657	1270.9		
	10861.9	(27^-)	694	1351.3		

1. $\pi(h_{11/2}[11/2] \otimes g_{7/2}[5/2])_{K^{\pi}=8^-}$ coupled to a neutron pair in one of the following configurations: $\nu(h_{11/2}^{2})[3/2,5/2, K^{\pi}= 1^+]$, $\nu(h_{11/2}^{2})\,[1/2,5/2, K^{\pi}= 2^+]$ and $\nu(h_{11/2}^{2})\,[1/2,5/2, K^{\pi}= 3^+]$. The lowest lying of these mixed 4-qp configurations is assigned to this band.
2. Oblate shape (β_2 = -0.17).
3. B(M1)/B(E2) values >10 $(\mu_N/eb)^2$.
4. Regular band with backbending at spin 20.
5. Band intensity ~ 6%.

$^{136}_{60}\mathrm{Nd}_{76}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference	Configurations and Comments:
1	3782	$9^{(-)}$				**1996Pe06**	1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}\, d_{3/2})$ from PSM calculations. 2. The plotted B(M1)/B(E2) values lie around 10 $(\mu_N/eb)^2$ and decrease as the spin values increase. 3. Regular band. 4. Nuclear reaction: ^{110}Pd (^{30}Si, 4nγ), E(^{30}Si) = 125 and 130 MeV.
	4002	$10^{(-)}$	220				
	4256	$11^{(-)}$	254				
	4550	$12^{(-)}$	294				
	4895	$13^{(-)}$	345				
	5306	$14^{(-)}$	411				
	5760	$15^{(-)}$	454				
	6261	$16^{(-)}$	501				
2	6232	$15^{(+)}$				**1996Pe06**	1. $\pi(h_{11/2}^2) \otimes (\nu h_{11/2} - \nu f_{7/2})$ associated with prolate shape, from PSM calculations. 2. Regular band with backbending at 20. 3. Mean lifetimes of levels with spins 23 and 24 are 0.09(4) and 0.06(3) ps, respectively, indicating enhanced B(M1) rates. 4. The B(M1)/B(E2) values range from about 6-20 $(\mu_N/eb)^2$.
	6349	$16^{(+)}$	117				
	6580	$17^{(+)}$	231				
	6885	$18^{(+)}$	305				
	7294	$19^{(+)}$	409				
	7670	$20^{(+)}$	376				
	8051	$21^{(+)}$	381				
	8467	$22^{(+)}$	416				
	8948	$23^{(+)}$	481				
	9492	$24^{(+)}$	544				
	10092	$25^{(+)}$	600				
	10763	$26^{(+)}$	671				
3	6010	16^{+}				**1996Pe06**	1. $\pi(h_{11/2}^2) \otimes (\nu h_{11/2} + \nu f_{7/2})$ associated with prolate shape, from PSM calculations. 2. Regular band . 3. The B(M1)/B(E2) values range from about 6-20 $(\mu_N/eb)^2$ and exhibit a rising trend as the spin increases.
	6241	17^{+}	231				
	6525	18^{+}	284				
	6870	19^{+}	345	629			
	7258	20^{+}	388	733			
	7688	21^{+}	430	818			
	8151	22^{+}	463	893			
	8655	23^{+}	504	967			
	9181	24^{+}	526	1030			
	9748	25^{+}	567	1093			
	10346	26^{+}	598	1165			
	10971	27^{+}	625	1223			
	11650	28^{+}		1304			
	12338	29^{+}		1367			
4	3875	11^{-}				**1996Pe06**	1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}\, g_{7/2})$ or $\pi(h_{11/2}^2) \otimes (\nu h_{11/2} + \nu d_{3/2})$ associated with oblate shape, from PSM calculations. 2. Regular band with backbending at spin 17. 3. The B(M1)/B(E2) values range from about 3-25 $(\mu_N/eb)^2$.
	4105	12^{-}	230				
	4414	13^{-}	309	539			
	4771	14^{-}	357	666			
	5173	15^{-}	402	759			
	5610	16^{-}	437	839			
	6037	17^{-}	427	864			
	6482	18^{-}	445	872			
	6970	19^{-}	488	933			
	7481	20^{-}	511	999			
	8030	21^{-}	549	1060			
	8654	22^{-}	624	1173			
5	8381	$22^{(+)}$				**1996Pe06**	1. No definite configuration could be assigned to this band but from energy considerations , $\pi(h_{11/2}^2\, g_{7/2}^2)$ may be favored. 2. Regular band.
	8756	$23^{(+)}$	375				
	9166	$24^{(+)}$	410	785			
	9619	$25^{(+)}$	453	863			
	10110	$26^{(+)}$	491				
	10639	$27^{(+)}$	529	1020			

$^{137}_{60}Nd_{77}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	3896.2	$27/2^-$				**1997Pe06**
	4160.2	$29/2^-$	264			
	4514.1	$31/2^-$	353.9	617.9		
	4909.9	$33/2^-$	395.8	749.7		
	5372.7	$35/2^-$	462.8	858.6		
	5813.1	$37/2^-$	440.4	903.2		
	6194.5	$39/2^-$	381.4	821.8		
	6669.6	$41/2^-$	475.1	856.5		
	7100.9	$43/2^-$	431.3	906.4		
	7652.3	$45/2^-$	551.4	982.7		
	8349.3	$47/2^-$	697	1248.4		
2	4822.5	$31/2^-$				**1997Pe06**
	5108.3	$33/2^-$	285.8			
	5416.5	$35/2^-$	308.2			
	5788.6	$37/2^-$	372.1			
	6263.9	$39/2^-$	475.3			
	6795.4	$41/2^-$	531.5			
	7314.7	$43/2^-$	519.3			
	7702.8	$45/2^-$	388.1			
	8197.6	$47/2^-$	494.8			
	8745.7	$(49/2^-)$	548.1			
	9337.9	$(51/2^-)$	592.2			
3	5596.8	$33/2^+$				**1997Pe06**
	5853.8	$35/2^+$	257			
	6161.1	$37/2^+$	307.3			
	6515.8	$39/2^+$	354.7			
	6916.2	$41/2^+$	400.4			
	7339.4	$43/2^+$	423.2			
	7797.0	$45/2^+$	457.6			
	8325.2	$(47/2^+)$	528.2			
	8922.1	$(49/2^+)$	596.9			
	9568.6	$(51/2^+)$	646.5			
	10272.2	$(53/2^+)$	703.6			

Configurations and Comments:

Band 1:
1. $\nu(h_{11/2})^3$ from the IBFM calculations.
2. Regular band with backbending at 37/2.
3. Nuclear reaction: ^{110}Pd (^{30}Si, 3nγ), E(^{30}Si) = 125 MeV and ^{123}Sb (^{19}F, 5nγ), E(^{19}F) = 97 MeV, Band intensity ~ 10%.

Band 2:
1. $\pi(h_{11/2}{}^2) \otimes \nu(h_{11/2})$ from the IBFM calculations.
2. Regular band with backbending at 43/2.
3. Band intensity ~ 5%.

Band 3:
1. Tentatively assigned as $\pi(h_{11/2}{}^2) \otimes \nu(h_{11/2}{}^2) \otimes \nu\, s_{1/2}(d_{3/2})$.
2. Regular band.
3. B(M1) values are of the order of 1 W.u.
4. Band intensity ~ 1%.

$^{138}_{60}Nd_{78}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	5577.6	14				**1994De11**
	5771.4	15	193.8			
	6002.2	16^+	230.8			
	6288.5	(17)	286.3			
	6669.0	(18)	380.5			
	7048.1	(19)	379.1			
	7564.8	(20)	516.7			
	8489.5	(21)	924.7			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2}{}^2) \otimes \nu(h_{11/2}{}^2)$.
2. Small Prolate deformation ($\beta_2 \approx 0.12$).
3. Regular band with a small backbending at 19.
4. Nuclear reaction: ^{121}Sb(^{19}F, 4nγ), E(^{19}F) = 75 MeV, Band intensity ~ 4%.

$^{139}_{62}Sm_{77}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	3327.2	$25/2^-$				**1996Ro04**
	3445.8	$27/2^-$	118.6			1996Br33
	3710.8	$29/2^-$	265.0	384.2		
	4048.1	$31/2^-$	337.3	601.9	4.6(21)	
	4457.5	$33/2^-$	409.4	746.6	5.6(25)	
	4930.1	$35/2^-$	472.6	882.3	4.8(22)	
	5443.6	$37/2^-$	513.5	986.2		
	5934.9	(39/2)	491.3	1005.0		
	6494.9	(41/2)	560.0	1051.4		

Configurations and Comments:

1. Tentatively assigned in 1996Br33 as $\pi(h_{11/2}^{2}) \otimes \nu(h_{11/2})$ from CSM calculations.
2. Nearly axially symmetric prolate shape ($\beta_2 = 0.116$), from 1996Br33.
3. B(M1)/B(E2) are from 1996Br33.
4. Regular band with backbending at 39/2.
5. Mean lifetimes of levels with spin values $31/2^-$, $33/2^-$ and $35/2^-$ are 0.60(21), 0.40(14) and 0.25(8) ps, respectively from 1996Br33.
6. Nuclear reactions: ^{110}Pd (^{34}S, 5nγ), E(^{34}S) = 150 and 165 MeV, Band intensity~ 11% and (1996Br33): ^{62}Ni (^{81}Br, p3nγ), E(^{81}Br) = 350 MeV.

$^{143}_{62}Sm_{81}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	8613	$(43/2^-)$				**2006Ra10**
	8852	$(45/2^-)$	239			
	9192	$(47/2^-)$	340			
	9636	$(49/2^-)$	444			
	10214	$(51/2^-)$	578			
	10816	$(53/2^-)$	602			
	11543	$(55/2^-)$	727			
	12249	$(57/2^-)$	706			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2}^{2}g_{7/2}^{-2}d_{5/2}^{-2}) \otimes \nu(h_{11/2}^{-1})$ tentatively assigned spin and parity and also by comparison with a similar band in ^{142}Gd.
2. Regular band with backbending at the top of the band.
3. Nuclear reaction: ^{130}Te (^{20}Ne, 7nγ), E(^{20}Ne) = 137 MeV. Band intensity ~ 15%

$^{141}_{63}\mathrm{Eu}_{78}$

	E_{level} keV	I^π	E_γ(M1) keV	E_γ(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	3075.0	$27/2^-$				**2004Po13**
	3416.2	$29/2^-$	341.2			2003Ma95
	3682.5	$31/2^-$	266.3	607.6	17(+3-2)	
	4154.2	$33/2^-$	471.7	738.0	16(+8-3)	
	4844.6	$35/2^-$	690.4	1161.9	11(+3-1)	
2	5018.9	$37/2^-$				**2004Po13**
	5189.1	$39/2^-$	170.2			2003Ma95
	5655.4	$41/2^-$	466.3		≥17	
	5991.7	$43/2^-$	336.3	802.6	17(+15-2)	
	6619.4	$(45/2^-)$	627.7			
3	5641	I				**2003Ma95**
	5976	I+1	335			
	6325	I+2	349	684		
	6728	I+3	403	751		
	7197	I+4	469	872		
	7640	I+5	443	912		
	8113	I+6	473	916		
	8544	I+7	431	904		
	9036	I+8	492	923		

Configurations and Comments:

Band 1:

1. $\pi(h_{11/2}) \otimes \nu(h_{11/2}^{-2})$ from TAC calculations.
2. Small oblate deformation ($\beta_2 = 0.105$) assuming $\beta_4 = 0$ from TAC calculations
3. Lifetimes of levels from 29/2 to 33/2 ħ are 1.1(+4-3), 2.5(+10-5) and 1.1(+4-3) ps, respectively.
4. B(M1) values for the transitions from 341.2 to 471.7 keV are 0.79(+51-14), 0.75(+38-15) and 0.37(+24-6) μ_N^2, respectively.
5. B(E2) values for the transitions 607.6 and 738.0 keV are 0.041(+23-9) and 0.023(+17-5) $(eb)^2$, respectively.
6. Regular band with backbending near the bandhead.
7. Nuclear reaction: ^{99}Ru (^{48}Ti, 3p3nγ), E(^{48}Ti) = 240 MeV, Band intensity ~ 15%.

Band 2:

1. $\pi(h_{11/2}) \otimes \nu(h_{11/2}^{-4})$ from TAC calculations.
2. Small oblate deformation ($\beta_2 = 0.158$) from TAC calculations.
3. Lifetimes of levels from 41/2 to 45/2 ħ are 0.55(+25-20), 0.8(2) and 0.29(+20-15) ps, respectively.
4. B(M1) values for the transitions from 466.3 to 627.7 keV are 0.77(+76-13), 1.32(+69-22) and 0.50(+84-7) μ_N^2, respectively.
5. B(E2) value for the 802.6 keV transition is 6.4(+41-20) $(eb)^2$.
6. Regular band with backbending near the bandhead.
7. Band intensity ~ 10%.

Band 3:

1. Regular band with backbending at the level energy 7197 keV.
2. Band intensity ~ 10%.

$^{142}_{64}\mathrm{Gd}_{78}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	4770	12^-				**2005Pa07**
	4992	13^-	222.0			2002Li22
	5185	14^-	193.3			
	5446	15^-	261			
	5814	16^-	368			
	6288	17^-	474			
	6622	18^-	334			
	7073	19^-	451			
	7457	(20^-)	384			
2.	5420	15^-				**2005Pa07**
	5613	16^-	193			2002Li22
	5899	17^-	286			1997Su11
	6273	18^-	374	660	13.1(+27-14)	
	6568	19^-	295	669	9.7(+12-8)	
	7095	20^-	527	822	14.0(+52-18)	
	7561	21^-	466	993	8.1(+15-11)	
3.	5915	16^+				**2005Pa07**
	6179	17^+	264.0			2002Li22
	6480	18^+	300.7			
	6861	19^+	381.1	682.1	56(+83-8)	
	7288	20^+	426.9	807.6	53(+25-8)	
	7648	21^+	360.4	787.4	55(+20-9)	
	8020	22^+	372.3			

Configurations and Comments:

Band 1:

1. $\pi(h_{11/2}^{1}\, d_{5/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations and $\pi(h_{11/2}^{1}\, g_{7/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from SPAC model calculations.
2. Level energies have been calculated using the energy of 16^- level in band 2 from 2002Li22.
3. Irregular band.
4. Nuclear reactions: ^{99}Ru(^{48}Ti, 2p3nγ), E(^{48}Ti) = 240 MeV; ^{114}Sn(^{32}S, 3p2nγ), E(^{32}S) =160 MeV. Band intensity ~ 8%.

Band 2:

1. $\pi(h_{11/2}^{1}\, g_{7/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations.
2. Small oblate deformation ($\beta_2 \approx 0.106$) suggested from the TAC calculations.
3. Level energies have been calculated using the energy of 16^- level in band 2 from 2002Li22.
4. Irregular band.
5. Lifetimes of states from 17^- to 21^- η are 1.3(5), 1.1(3), 1.6(+5-3), 0.62(13) and 0.71(+17-15) ps, respectively.
6. B(M1) values for the transitions from 286 to 466 keV are 1.48(+156-24), 0.79(+47-13), 0.87(+37-17), 0.53(+22-8) and 0.40(+18-7) μ_N^2, respectively.
7. B(E2) values for the transitions from 660 to 993 keV are 5.8(+38-11), 8.8(+39-16), 3.5(+18-8) and 4.8(+23-9) $(eb)^2$, respectively.
8. Band intensity ~ 12%.

Band 3:

1. $\pi(h_{11/2}^{2}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations.
2. Small oblate deformation ($\beta_2 \approx 0.063$) suggested from the TAC calculations.
3. Regular band with backbending at 20^+.
4. Lifetimes of states from 17^+ to 22^+ η are 2.2(+8-5), 1.3(+4-3), 0.54(+25-15), 0.52(+20-15), 0.94(+21-16) and 0.98(+40-25) ps,respectively.
5. B(M1) values for the transitions from 264 to 372 keV are 0.19(+11-4), 0.71(+37-14), 1.29(+95-25), 1.10(+77-20), 1.04(+38-18) and 0.91(+58-17) μ_N^2, respectively.
7. B(E2) values for the transitions from 682 to 787 keV are 1.7(+19-7), 1.8(+16-5) and 1.7(+9-4) $(eb)^2$, respectively.
8. Band intensity ~ 8%.

4.	7782	22^+				**2005Pa07**	1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}^{-4})$ from the TAC calculations.
	8251	23^+	469.6			2002Li22	2. Small oblate deformation (β_2 = 0.16) suggested from the TAC calculations.
	8595	24^+	343.8	812.9	13.3(+31-21)		3. Irregular band.
	9143	(25^+)	548.3				4. Lifetimes of states from 23^+ to 26^+ η are 0.33(11), 0.64(15), 0.35(15) and 0.27(15) ps, respectively.
	9703	(26^+)	559.6				5. B(M1) values for the transitions from 470 to 560 keV are 1.22(+100-20), 1.38(+69-24), 0.56(+69-10) and 0.86(+155-12) μ_N^2, respectively.
	10314	(27^+)	611.4				6. B(E2) value for the transition 813 keV is 10.1(+54-19) $(eb)^2$.
	10992	(28^+)	677.6				7. Band intensity ~ 5%.
5.	7551	(21^-)				**2005Pa07**	1. $\pi(h_{11/2}^1\, g_{7/2}^{-1}) \otimes \nu(h_{11/2}^{-4})$ from the TAC calculations.
	7906	(22^-)	355			2002Li22	2. Small oblate deformation (β_2 = 0.16) suggested from the TAC calculations.
	8345	(23^-)	439	792	2.2(+23-4)		3. Level energies have been calculated using the energy of 16^- level in band 2 from 2002Li22.
	8672	(24^-)	327	765	2.6(+14-7)		4. Irregular band.
	9183	(25^-)	511	838	2.3(+16-6)		5. Lifetimes of states from 22^- to 24^- η are 0.44(+20-18), 0.77(+25-20) and 1.2(+4-3) ps, respectively.
	9567	(26^-)	384	895	2.3(+16-7)		6. B(M1) values for the transitions from 355 to 327 keV are 0.46(+55-8), 0.25(+17-5) and 0.40(+30-10) μ_N^2, respectively.
							7. B(E2) values for the transitions 792 and 765 are 9.1(+64-29) and 14.4(+95-29) $(eb)^2$, respectively.
							8. Band intensity ~ 5%.

$^{143}_{64}Gd_{79}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	3087.2	$23/2^-$				**2001Rz01**
	3158.8	$25/2^-$	71.7			1997Ri16
	3248.9	$27/2^-$	90.3			2000Li14
	3583.1	$29/2^-$	334.3			1998Su04
	4015.3	$31/2^-$	432.2			
2.	4488.8	$33/2^-$				**2001Rz01**
	4798.6	$35/2^-$	309.8			1997Ri16
	5027.0	$37/2^-$	228.8			1998Su04
	5310.0	$39/2^-$	283.0			
	5829	$(41/2^-)$	519			
	6259	$(43/2^-)$	430	949		
	6979	$(45/2^-)$	720			
	7729	$(47/2^-)$	750			
3.	5226.3	$33/2^+$				**2001Rz01**
	5399.7	$35/2^+$	173.5			1997Ri16
	5587.4	$37/2^+$	187.7			2000Li14
	5764.0	$39/2^+$	176.6			1998Su04
	6159.4	$(41/2^+)$	395.4			
	6590.5	$(43/2^+)$	431.1	948		
	7108	$(45/2^+)$	518			
	7537	$(47/2^+)$	429			
	8037	$(49/2^+)$	500			
	8537	$(51/2^+)$	500			

Configurations and Comments:

Band 1:

1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}^{-1})$ by comparison with similar band in ^{142}Gd.
2. Small oblate deformation.
3. Irregular band.
4. The level energies and the transition energies are from 1997Ri16.
5. Nuclear reaction: ^{97}Mo(^{51}V, p4nγ), E(^{51}V) = 238 MeV. Band intensity ~ 30%.

Band 2:

1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}^{-3})$ by comparison with band 1.
2. Small oblate deformation.
3. Irregular band.
4. The level energies and the transition energies are from 1997Ri16.
5. The 949 keV E2 transition is from 2001Rz01.
6. Band intensity ~ 10%.

Band 3:

1. Irregular band.
2. B(M1)/B(E2) ≥ 10 $(\mu_N/eb)^2$
3. The level energies and the transition energies are from 1997Ri16.
4. The 948 keV E2 transition is from 2000Li14.
5. Band intensity ~ 10%.

$^{144}_{64}Gd_{80}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	5370.7	14^+				**1994Rz01**
	5723.6	15^+	352.9			
	6214.2	16^+	490.6			
	6619.0	17^+	404.8			
	7014.6	18^+	395.6			
	7419.1	19^+	404.5			
	7923.5	20^+	504.4			
	8221.7	(21^+)	298.2			
	8540.4	(22^+)	318.7			
	8993.8	(23^+)	453.4			

Configurations and Comments:

1. $\pi(h_{11/2}^2)_{K=10}^{+} \otimes \nu(h_{11/2}^{-2})$ from the FAL coupling scheme.
2. Negative E2/M1 mixing ratios ($\delta_{E2/M1}$) imply an oblate shape (β_2 ~ -0.12).
3. Irregular band.
4. Nuclear reaction: ^{108}Pd (^{40}Ar, 4nγ), E(^{40}Ar) = 182 MeV, Band intensity ~ 15%.

$^{146}_{65}Tb_{81}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	7737.5	(23^+)				**2004Kr14**
	8004.0	(24^+)	266.5			2004Xi01
	8389.2	(25^+)	385.2			
	8875.2	(26^+)	486.0	870.6		
	9304.5	(27^+)	429.3			
	9717.9	(28^+)	413.4			
	10192.5	(29^+)	474.6			
	10655.6	(30^+)	463.1			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{11/2}^{3}\ d_{5/2}^{-2}) \otimes \nu(h_{11/2}^{-3}\ f_{7/2}^{2})$ from the excitation energies and by comparison with the lower lying bands.
2. Irregular band.
3. Nuclear reaction: $^{115}In(^{34}S, 3n\gamma)$, $E(^{34}S)$ = 140 MeV, Band intensity ~ 2%.

$^{190}_{80}\mathrm{Hg}_{110}$

	E_{level} KeV	I^{π}	E_{γ}(M1) KeV	E_{γ}(E2) KeV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	4953.0	17^-				**2001Wi11**
	5103.0	18^-	150.0			2001WiZZ
	5375.2	19^-	272.2	422.2		
	5672.5	20^-	297.3	569.4		
	6049.4	21^-	376.9	674.2		
	6485.6	22^-	436.2	813.0		
	6832.8	23^-	347.2	783.3		
	6971.7	24^-	138.9	486.1		
	7201.5	25^-	229.8			
	7497.2	26^-	295.7			
	7811.2	27^-	314.0			
	8125.2	28^-	314.0			
	8440.2	29^-	315.0			
	8735.9	30^-	295.7	610.6		
	9147.2	31^-	411.3	707.1		
	9584.0	32^-	436.8	848.2		
	10031.4	33^-	447.4	884.2		
2.	5639.6	(17^+)				**2001Wi11**
	5789.4	(18^+)	149.8			2001WiZZ
	6005.3	(19^+)	215.9			
	6261.0	(20^+)	255.7			
	6565.1	(21^+)	304.1			
	6894.0	(22^+)	328.9			
	7256.5	(23^+)	362.5			
	7639.7	(24^+)	383.2			
	8052.2	(25^+)	412.5			
	8481.4	(26^+)	429.2			
	8876.4	(27^+)	395.0			
3.	X					**2001Wi11**
	202+X		202.2			2001WiZZ
	366+X		164.0			
	653+X		286.8			
	945+X		292.4			
	1248+X		302.9			
	1556+X		307.8			
	1864+X		307.5			
	2185+X		321.1			
	2507+X		322.0			
	2821+X		314.1			
	3157+X		335.8			
	3511+X		354.0			
	3892+X		381.3			
	4303+X		410.7			
	4741+X		438.0			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{9/2}^{2}) \otimes \nu(i_{13/2}^{4})$ by comparison with neighboring ^{192}Hg isotopes.
2. Gamma ray transition energies are from 2001WiZZ.
3. Irregular band.
4. B(M1)/B(E2) values are close to 1 $(\mu_N/eb)^2$ for the transitions from 272 to 436 keV in the low spin region and lie between 1-6 $(\mu_N/eb)^2$ for the transitions from 296 to 447 keV in the high spin region of the band.
5. Nuclear reaction: ^{160}Gd (^{34}S, 4nγ), E(^{34}S) = 153 MeV, Band intensity ~ 2%.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}h_{11/2}^{-1})$ with a few holes in $\nu(i_{13/2})$ orbitals and a few particles in $\nu(p_{3/2}, f_{5/2}, p_{1/2})$ and the remaining holes in $\nu(h_{9/2}, f_{7/2})$ levels from the CNS calculations.
2. (β_2, γ) ~ (0.189, -90°).
3. Gamma ray transition energies are from 2001WiZZ.
4. Regular band.
5. B(M1)/B(E2) values lie close to 40 $(\mu_N/eb)^2$.
6. Band intensity ~ 1%.

Band 3:

1. Tentatively assigned as $\pi(h_{9/2}h_{11/2}^{-1})$ with a few holes in $\nu(i_{13/2})$ orbitals and a few particles in $\nu(p_{3/2}, f_{5/2}, p_{1/2})$ and the remaining holes in $\nu(h_{9/2}, f_{7/2})$ levels from the CNS calculations.
2. (β_2, γ) ~ (0.189, -90°).
3. Bandhead spin ~ 20±2 ħ.
4. E_{exc} ~ 5640 keV.
5. Gamma ray transition energies are from 2001WiZZ.
6. Regular band.
7. B(M1)/B(E2) values lie close to 40 $(\mu_N/eb)^2$.
8. Band intensity ~ 0.5%.

$^{192}_{80}Hg_{112}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	6879	$23^{(-)}$				**1994Le08**
	7036	$24^{(-)}$	157			
	7273	$25^{(-)}$	237	394		
	7517	$26^{(-)}$	244	480		
	7788	$27^{(-)}$	272	515		
	7927	$28^{(-)}$	139	(410)		
	8265	$29^{(-)}$	337	476		
	8545	$30^{(-)}$	280	617		
	8992	$31^{(-)}$	447	727		
	9446	$32^{(-)}$	454	900		
	9936	$33^{(-)}$	490	942		
	10467	$34^{(-)}$	(532)	1021		
2	6304	(22^+)				**1996Wi09**
	6433.8	(23^+)	129.8			1994Le08
	6710.1	(24^+)	276.3	405.9	1.7(+10-9)	
	7043.7	(25^+)	333.6	611	0.6(+∞-6)	
	7435.6	(26^+)	391.9	725.3	1.7(+42-10)	
	7960.0	(27^+)	524.4	915.6	6.7(+39-56)	
	8303.4	(28^+)	343.4	867.6	10.0(+∞-106)	
	8712.5	(29^+)	409.1	753.7	3.8(+∞-39)	
	8960.6	(30^+)	248.1	659.2	6.4(+110-43)	
	9195.4	(31^+)	234.8	483.2	8.7(+25-17)	
	9375.2	(32^+)	179.8	414.6	7.4(+24-18)	
	9665.2	(33^+)	290	470		
	10037.2	(34^+)	372			

Configurations and Comments:

Band 1:

1. $\pi(i_{13/2}h_{9/2}) \otimes \nu(i_{13/2}^{4})$ or $\pi(i_{13/2}h_{9/2}h_{11/2}^{2}) \otimes \nu(i_{13/2}^{2})$ based on 23^- or 25^- states from HF+BCS. calculations. For the upper part of the band a mixing with the $\pi(i_{13/2}h_{9/2}) \otimes \nu(i_{13/2}^{6})$ configuration is suggested.
2. Irregular band.
3. B(M1)/B(E2) ratios lie around $5.5(\mu_N/eb)^2$.
4. Nuclear reaction: ^{160}Gd (^{36}S, 4nγ), E(^{36}S) = 159 MeV, Band intensity ~ 10%.

Band 2:

1. $\pi(h_{9/2}^{2}) \otimes \nu(i_{13/2}^{4})$, I=22$^+$ or $\pi(h_{11/2}^{2}h_{9/2}^{2}) \otimes \nu(i_{13/2}^{2})$, I=23$^+$ from the HF+BCS calculations (1994Le08).
2. Small oblate deformation (1994Le08).
3. Mean lifetimes of the states with spins between (23^+) and (32^+) are 14.9(+50-39), 20.4(+40-52), 1.0(+10-16), 3.6(+19-10), 1.7(+14-15), 0.7(7), 0.2(+7-2), 1.3(6), 3.5(+6-5) and 2.2(5) ps, respectively.
4. Irregular band.
5. B(M1) ~ 0.01 μ_N^2 in the lower spin region and jumps to 1.1 μ_N^2 in the high spin region of the band.
6. Band intensity ~ 12%.

$^{193}_{80}Hg_{113}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	6418.7	$(53/2^-)$				**1995Fo13**
	6921.1	$(55/2^-)$	502.4			
	7275.8	$(57/2^-)$	354.7	857.1		
	7698.7	$(59/2^-)$	422.9	777.6		
	7837.5	$(61/2^-)$	138.8	561.8		
	8134.2	$(63/2^-)$	296.7	437.5		
	8392.0	$(65/2^-)$	257.8	556.5		
	8748.1	$(67/2^-)$	356.1	614.0		
	9218.7	$(69/2^-)$	470.6	826.6		
	9673.1	$(71/2^-)$	454.4	924.9		
	10287.6	$(73/2^-)$	614.5	1068.9		
	10850.6	$(75/2^-)$	(563)	1177.7		

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2}^{2}h_{11/2}^{-2}) \otimes \nu(i_{13/2}^{-3})$ in addition to $p_{3/2}$ neutrons because of its negative parity.
2. Small oblate deformation (β_2 ~ 0.15).
3. B(M1)/B(E2) values lie in the interval 2 – 4 $(\mu_N/eb)^2$.
4. Irregular band.
5. Nuclear reaction: ^{150}Nd (^{48}Ca, 5nγ), E(^{48}Ca) = 213 MeV, Band intensity ~ 20%.

2	5338.4	$(47/2^-)$				**1995Fo13**	1. Tentatively assigned as $\pi(h_{9/2}^2 h_{11/2}^{-2}) \otimes \nu(i_{13/2}^{-3})$
	5714.2	$(49/2^-)$	(375.8)				in addition to $p_{3/2}$ neutrons because of its
	6016.4	$(51/2^-)$	(302.2)	678.0			negative parity.
	6400.3	$(53/2^-)$					2. Small oblate deformation ($\beta_2 \sim 0.15$).
	6725.7	$(55/2^-)$	325.4				3. B(M1)/B(E2) values lie in the interval 2 – 4
	6978.0	$(57/2^-)$	252.3	577.6			$(\mu_N/eb)^2$.
	7245.0	$(59/2^-)$	267.0				4. Regular band with backbending at 57/2.
	7559.7	$(61/2^-)$	314.7	581.9			5. Band intensity ~ 6%.
	7919.3	$(63/2^-)$	359.6	674.1			
	8330.3	$(65/2^-)$	411.0	770.7			
	8757.2	$(67/2^-)$	426.9	837.8			
3	5546.9	$47/2^{(+)}$				**1995Fo13**	1. Tentatively assigned as $\pi(h_{9/2}^2 h_{11/2}^{-2}) \otimes \nu(i_{13/2}^{3})$
	5831.4	$49/2^{(+)}$	284.5			1993De42	from the CSM calculations.
	6067.0	$51/2^{(+)}$	235.6	520.1		1993Ro03	2. Small oblate deformation ($\beta_2 \sim 0.15$).
	6464.0	$53/2^{(+)}$	397.0	632.6			3. B(M1)/B(E2) values lie in the interval 2 – 4
	6839.4	$55/2^{(+)}$	375.4	772.2			$(\mu_N/eb)^2$.
	7037.0	$57/2^{(+)}$	197.6				4. Irregular band.
	7197.4	$59/2^{(+)}$	160.4				5. Band intensity ~ 20%.
	7554.7	$61/2^{(+)}$	357.3	517.6			
	7924.4	$63/2^{(+)}$	369.7	726.9			
	8388.4	$65/2^{(+)}$	464.0	833.6			
	8886.3	$67/2^{(+)}$	497.9	962.0			
	9408.5	$69/2^{(+)}$	522.2	1020.3			
	9922.6	$71/2^{(+)}$	514.1	1036.3			

$^{195}_{80}Hg_{115}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference	**Configurations and Comments:**
1	7412.2	$57/2^-$				**1998Ne01**	1. $\pi(h_{11/2}^2) \otimes \nu(i_{13/2}^{-4} f_{5/2}^{-1})$ from CSM calculations.
	7744.9	$59/2^-$	332.7				2. Small oblate deformation.
	8067.5	$61/2^-$	322.6	654.5			3. B(M1)/B(E2) ratios ~ 2 $(\mu_N/eb)^2$.
	8456.7	$63/2^-$	389.2	712.2			4. Irregular band with backbending at 61/2.
	8892.1	$65/2^-$	435.4	825.1			5. Nuclear reaction: $^{192}Os(^{9}Be, 6n\gamma)$, $E(^{9}Be) = 80$
	9331.2	$67/2^-$	439.1	875.7			MeV, Band intensity ~ 5%.
	9785.2	$69/2^-$	454.0	893.4			
	10220.6	$71/2^-$		889.4			
2	5174.7	$43/2^+$				**1998Ne01**	1. $\pi(h_{11/2}^2) \otimes \nu(i_{13/2}^{-3})$ from CSM calculations.
	5308.1	$45/2^+$	133.4				2. Small oblate deformation.
	5411.3	$47/2^+$	103.2				3. B(M1)/B(E2) ratios lie around 2 $(\mu_N/eb)^2$.
	5687.7	$49/2^+$	276.4				4. Irregular band.
	5893.6	$51/2^+$	205.9	481.3			5. Band intensity ~ 15%.
	6300.1	$53/2^+$	406.5	611.5			
	6652.1	$55/2^+$	352.0	758.3			
	7129.0	$57/2^+$	476.9	828.3			
	7538.2	$59/2^+$	409.2	886.1			
	8010.3	$61/2^+$	472.1	882.0			
	8383.3	$63/2^+$		845.1			
3	X					**1998Ne01**	1. This band has tentatively been assigned to the
	171.8+X		171.8				nucleus.
	443.3+X		271.5				2. Irregular band.
	749.0+X		305.7	576.9			3. Band intensity ~ 3%.

$^{196}_{80}Hg_{116}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	6400+X	(22^+)				**1993Ce04**
	6557+X	(23^+)	157			
	6659+X	(24^+)	102	259		
	6916+X	(25^+)	257	359		
	7094+X	(26^+)	178	435		
	7462+X	(27^+)	368	547		
	7750+X	(28^+)	288	656		
	8211+X	(29^+)	461	749		
	8609+X	(30^+)	398	859		

Configurations and Comments:

1. $\pi(h_{9/2}^{2}h_{11/2}^{-2}) \otimes \nu(i_{13/2}^{-2})$ from TRS calculations.
2. Small oblate shape $(\beta_2, \gamma) = (0.139, -72°)$.
3. $X \geq 0$ keV.
4. B(M1)/B(E2) values range from 0.5 - 3 $(\mu_N/eb)^2$
5. Irregular band.
6. Nuclear reaction: ^{192}Os (^{9}Be, 5nγ), E(^{9}Be) = 65 MeV, Band intensity ~ 19%.

$^{191}_{82}Pb_{109}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	2577.5+X	$(29/2^-)$				**1998Fo02**
	2811.5+X	$(31/2^-)$	234.0			
	3195.1+X	$(33/2^-)$	383.6			
	3604.4+X	$(35/2^-)$	409.3	792.9	23(5)	
	4030.5+X	$(37/2^-)$	426.1	835.5	20(5)	
	4377.2+X	$(39/2^-)$	346.7			
	4691.3+X	$(41/2^-)$	314.1			
	4929.9+X	$(43/2^-)$	238.6			
	5207.1+X	$(45/2^-)$	277.2			
2	2428.7	$27/2^+$				**1998Fo02**
	2765.9	$(29/2^+)$	337.2			
	3141.4	$(31/2^+)$	375.5			
	3551.3	$(33/2^+)$	409.9			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2}s_{1/2}^{-2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-1})$ below, and $\pi(h_{9/2}i_{13/2}s_{1/2}^{-2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-3})_{K=33/2}^{+}$ above the bandcrossing.
2. X ~ 72 keV.
3. All E_{level} given here are approximate since E_{level} of $13/2^+$ state is ~ 138 keV.
4. Regular band with backbending at 39/2.
5. Nuclear reaction: ^{173}Yb (^{24}Mg, 6nγ), E(^{24}Mg) = 134.5 MeV, Band intensity ~ 10%.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}^{2}s_{1/2}^{-2})_{K=8}^{+} \otimes \nu(i_{13/2}^{-1})$ or $\pi(i_{13/2}s_{1/2}^{-1})_{K=7}^{+} \otimes \nu(i_{13/2}^{-1})$.
2. All E_{level} given here are approximate since E_{level} of $13/2^+$ state is ~ 138 keV.
3. Regular band.
4. Band intensity ~ 7.5%.

$^{192}_{82}Pb_{110}$

	E_{level} keV	I^{π}	$E_\gamma(M1)$ keV	$E_\gamma(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	4241.2	15^-				**1993Pl02**
	4370.1	16^-	128.9			
	4519.2	17^-	149.1		>2.38	
	4702.3	18^-	183.1		>7.69	
	4989.6	19^-	287.3		>6.67	
	5276.9	20^-	287.3		>16.67	
	5559.5	21^-	282.6		>11.11	
	5708.6	(22^-)	149.1	431.7	<20	
2	4963.0	18^-				**1993Pl02**
	5087.1	19^-	124.1		>50	
	5286.3	20^-	199.2		>4	
	5531.7	21^-	245.4		>11.11	
	5871.0	22^-	339.3		>12.5	
	6232.1	23^-	361.1		>5.88	
	6666.0	(24^-)	433.9		>4	
	7155.5	(25^-)	489.5		>5.88	

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606]) \otimes \nu(i_{13/2}^2)$ based on CSM-TRS calculations and by comparison with ^{191}Tl.
2. Small oblate deformation.
3. The limits on B(M1)/B(E2) are by assuming that the unobserved E2 transitions are at the most half intense than the 489.5 keV γ ray in band 2.
4. Regular band with backbending at spin 21.
5. Nuclear reaction: ^{173}Yb (^{24}Mg, 5nγ), E(^{24}Mg) = 132 MeV.

Band 2:

1. Tentatively assigned as $\pi(7/2[514] \otimes 13/2[606]) \otimes \nu(i_{13/2}^2)$ from the CSM-TRS calculations and by comparison with ^{191}Tl.
2. Small oblate deformation.
3. The limits on B(M1)/B(E2) are by assuming that the unobserved E2 transitions are at the most half-intense than the 489.5 keV γ ray.
4. Regular band.

$^{193}_{82}Pb_{111}$

	E_{level} keV	I^{π}	$E_\gamma(M1)$ keV	$E_\gamma(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	2584.8+X	$29/2^-$				**1996Du18**
	2686.9+X	$31/2^-$	102.1			1996Ba54
	2939.2+X	$33/2^-$	252.3			1997Ch33
	3320.7+X	$35/2^-$	381.5	633.8	28(5)	2005Gl09
	3722.3+X	$37/2^-$	401.6	783.1	22(4)	
	4136.1+X	$39/2^-$	413.8	815.4	16(6)	
	4470.6+X	$41/2^-$	334.5	748.3		
	4828.3+X	$43/2^-$	357.7	692.3		
	5218.6+X	$45/2^-$	390.3			

Configurations and Comments:

1. $\pi(9/2[505] \otimes 13/2[606])_{K=11}^{-} \otimes \nu(i_{13/2})$ by comparison with similar bands in neighboring Pb nuclei.
2. Oblate deformation.
3. X ~ 100 keV from systematics.
4. For bandhead $T_{1/2}$ = 9.4(7) ns and g factor = 0.68(3) (1997Ch33).
5. The lifetimes for the transitions 252 and 381 keV as given in 2005Gl09 are 3.2(8) and ≤ 1 ps, respectively.
6. The B(M1) values as given in 2005Gl09 for the transitions 252 and 381 keV are 1.1(2) and ≥ 1.4 μ_N^2, respectively.
7. The B(E2) value for the transition 633 keV as given in 2005Gl09 is ≥ 0.1 $(eb)^2$.
8. Regular band with backbending at 41/2.
9. Nuclear reaction: ^{168}Er (^{30}Si, 5nγ), E(^{30}Si) = 159 MeV, Band intensity ~ 17%.

2	4297.7+X	$(39/2^+)$				**1996Du18**	1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{K=11}{}^{-} \otimes \nu(i_{13/2}{}^2\, p_{3/2})$ by comparison with similar bands in neighboring Pb nuclei. 2. Oblate deformation. 3. X ~ 100 keV from systematics. 4. The B(M1) values as given in 1998Cl06 for the transitions from 291 to 416 keV are 5.27(64), 4.32(+56-75), 4.01(+95-76) and 2.83(34) ($\mu_N{}^2$), respectively. 5. The mean lifetimes of levels having spin values from 45/2 to 51/2 as given in 1998Cl06 are 0.33(4), 0.23(+4-3), 0.21(+4-5) and 0.25(3) ps, respectively. 6. Regular band with backbending at spin 59/2. 7. Band intensity ~ 7%.
	4387.7+X	$(41/2^+)$	90.0			1998Cl06	
	4536.6+X	$(43/2^+)$	148.9				
	4768.6+X	$(45/2^+)$	232.0				
	5060.2+X	$(47/2^+)$	291.6				
	5425.4+X	$(49/2^+)$	365.2	656.8	15(3)		
	5815.0+X	$(51/2^+)$	389.6	754.7	12(3)		
	6231.1+X	$(53/2^+)$	416.1	805.6			
	6657.2+X	$(55/2^+)$	426.1	842.2	15(3)		
	7089.9+X	$(57/2^+)$	432.7	858.8			
	(7516.0+X)	$(59/2^+)$	(426.1)				
	(7932.1+X)	$(61/2^+)$	(416.1)				
3	4944.8+X	$(43/2^+)$				**1996Du18**	1. $\pi(9/2[505] \otimes 13/2[606])_{K=11}{}^{-} \otimes \nu(i_{13/2}{}^2\, f_{5/2})$ by comparison with similar bands in neighboring Pb nuclei. 2. Oblate deformation. 3. X ~ 100 keV from systematics. 4. Regular band. 5. Band intensity ~ 3%.
	5169.1+X	$(45/2^+)$	224.3				
	5436.6+X	$(47/2^+)$	267.5				
	5762.8+X	$(49/2^+)$	326.2				
	6145.2+X	$(51/2^+)$	382.4				
4	5092.7+X	$(45/2^-)$				**1996Du18**	1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{K=11}{}^{-} \otimes \nu(i_{13/2})^3$ by comparison with similar bands in neighboring Pb nuclei. 2. Oblate deformation. 3. X ~ 100 keV from systematics. 4. Regular band. 5. Band intensity ~ 0.6%.
	5331.8+X	$(47/2^-)$	239.1			1996Ba54	
	5597.4+X	$(49/2^-)$	265.6				
	5926.9+X	$(51/2^-)$	329.5				
	6302.5+X	$(53/2^-)$	375.6				
	6715.4+X	$(55/2^-)$	412.9				
	7154.6+X	$(57/2^-)$	439.2				
5	5825.3+X	$(49/2^-)$				**1996Du18**	1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{K=11}{}^{-} \otimes \nu(i_{13/2})^3$ or $\pi(9/2[505] \otimes 13/2[606])_{K=11}{}^{-} \otimes \nu(i_{13/2} h_{9/2}{}^2)$ from HF+BCS calculations. 2. X ~ 100 keV from systematics. 3. Parity assignment is based on three M1 transitions to band 1. 4. Regular band. 5. Band intensity ~ 0.6%.
	6001.6+X	$(51/2^-)$	176.3				
	6285.3+X	$(53/2^-)$	283.7				
	6597.2+X	$(55/2^-)$	311.9				
	6927.6+X	$(57/2^-)$	330.4				
	7312.1+X	$(59/2^-)$	384.5				
	7713.6+X	$(61/2^-)$	401.5				

$^{194}_{82}Pb_{112}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	4375.9	13^+				**2002Ka01**
	4506.0	14^+	130.1			
	4642.6	15^+	136.6			
	4805.5	16^+	162.9			
	5108.7	17^+	303.2			
	5505.6	18^+	396.9	700.0	17(3)	
	5882.0	19^+	376.4	773.5	18(4)	
	6245.0	20^+	363.0	739.8	16(3)	
	6505.6	21^+	260.6			

Configurations and Comments:

1. Tentatively assigned as $\pi(9/2[505]\otimes13/2[606])_{K=11}^{-} \otimes \nu\{i_{13/2}(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity and from a comparison with the isotone ^{192}Hg.
2. Regular band with backbending at 19^+.
3. Nuclear reaction: ^{184}W (^{16}O, 6nγ), E(^{16}O) = 113 MeV, Band intensity ~ 11%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
2.	4726.5	16^+				**2002Ka01**
	4887.7	17^+	162.2			1993Me12
	5121.5	18^+	232.8			
	5409.4	19^+	287.9			
	5757.2	20^+	347.8	636.0	8(3)	
	6131.5	21^+	374.3	722.2	7(3)	
	6528.4	22^+	396.9	771.1	6(2)	
	6905.9		377.5			
	7266.9		361.0			

1. Tentatively assigned as $\pi(9/2[505] \otimes 7/2[514])_{K=8}^{+} \otimes \nu(i_{13/2}^{2})$ at low spin and $\pi(9/2[505] \otimes 7/2[514])_{K=8}^{+} \otimes \nu(i_{13/2}^{4})$ at higher spin from the excitation energy, spin and parity.
2. Regular band with backbending at the top of the band.
3. Band intensity ~ 2%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
3	4963.1	16^-				**2002Ka01**
	5082.3	17^-	119.2			1993Me12
	5227.0	18^-	144.7			1994Po08
	5396.9	19^-	196.9			1995Ka19
	5657.0	20^-	260.1			1998Cl06
	5993.2	21^-	336.2			1998Ka59
	6368.7	22^-	375.5	711.7	18(5)	
	6785.8	23^-	417.1	793.3	13(3)	
	7209.5	24^-	423.7	(840)		
	7651.4	25^-	441.9			
	8079.6	26^-	428.2			
	8464.6	(27)	385			

1. Tentatively assigned as $\pi(9/2[505]\otimes13/2[606])_{K=11}^{-} \otimes \nu(i_{13/2}^{2})$ before and $\pi(9/2[505] \otimes 13/2[606])_{K=11}^{-} \otimes \nu(i_{13/2}^{4})$ after the up-bending at around 7.2 MeV from the excitation energy, spin, mom. of inertia, alignments and from a comparison with the isotone ^{192}Hg.
2. Regular band with an up-bending at 24^-.
3. The B(M1) values as given in 1998Cl06 for the transitions from 260 to 417 keV are 9.79(+255 -170), 5.86(+56-56), 5.13(+114-143) and 3.90 (87) (μ_N^2), respectively.
4. The mean lifetimes of levels having spin values from 20 to 23 as given in 1998Cl06 are 0.23(+4-6), 0.21(2), 0.18(+5-4) and 0.18(4) ps, respectively.
5. Band intensity ~ 12%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
4	5461.9	(17^-)				**2002Ka01**
	5590.9	(18^-)	129.0			
	5786.7	(19^-)	195.8			
	5995.1	(20^-)	208.4			
	6264.5	(21^-)	269.4			

1. Tentatively assigned as $\pi(9/2[505]\otimes13/2[606])_{K=11}^{-} \otimes \nu(i_{13/2}^{2})$ from the spin, parity and from a comparison with the isotone ^{192}Hg.
2. Regular band.
3. Band intensity ~ 2.5%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
5	6291.4	20^+				**2002Ka01**
	6639.4	21^+	348.0	(757)		
	6990.0	22^+	350.6	(699)		
	7306.4	23^+	316.4			
	7611.4	(24)	305.0			
	7907.9	(25)	296.5			

1. Tentatively assigned as $\pi(9/2[505]\otimes13/2[606])_{K=11}^{-} \otimes \nu\{h_{11/2}^{2}\, i_{13/2}(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity.
2. Irregular band.
3. Band intensity ~ 2.5%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
6	X					**2002Ka01**
	201.9+X		201.9			
	451.0+X		249.1			
	727.3+X		276.3			
	1044.8+X		317.5			

1. Tentatively assigned as $\pi(9/2[505] \otimes 7/2[514])_{K=8}^{+} \otimes \nu\{i_{13/2}^{3}(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity.
2. X ~ 6.4 keV.
3. Regular band.

	1407.9+X		363.1				4. Band intensity ~ 1%.
	1792.6+X		384.7				
	2205.1+X		412.5				
7	6505.6	21^+				**2002Ka01**	1. Tentatively assigned as $\pi(9/2[505]\otimes 13/2[606])_{K=11}^{-} \otimes \nu\{i_{13/2}\,(f_{5/2}i_{13/2})^1\}$ from the spin and parity. 2. Regular band. 3. Band intensity ~ 3.5%.
	6717.8	22^+	212.2			1998Ka59	
	6945.4	23^+	227.6			1993Me12	
	7212.7	24^+	267.3			1994Po08	
	7519.6	25^+	306.9			1995Ka19	
	7880.6	26^+	361.0				
	8274.2	27^+	393.6				
	8695.1	(28)	420.9				
	9136.0	(29)	440.9				
	9598.0	(30)	462.0				
	10082.2	(31)	484.2				
	10587.2	(32)	505.0				
	11112.2	(33)	525				
8	Y					**2002Ka01**	1. Tentatively assigned as $\pi(9/2[505]\otimes 13/2[606])_{K=11}^{-} \otimes \{\pi(h_{11/2}^{2})\ \nu(i_{13/2}^{2})\}$ from the spin and parity. 2. Regular band with backbending at the top of the band. 3. Band intensity ~ 2%.
	328.6+Y		328.6				
	692.1+Y		363.5				
	1064.9+Y		372.8				
	1461.5+Y		396.6				
	1849.3+Y		387.8				

$^{195}_{82}Pb_{113}$

	E_{level} keV	I^π	E_γ(M1) keV	E_γ(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References	**Configurations and Comments:**
1	2968.3	$27/2^-$				**1996Ka15**	1. $\pi(9/2[505]\otimes 13/2[606])_{K^\pi=11^-} \otimes \nu(i_{13/2})$ by comparison with the neighboring ^{194}Pb and ^{195}Tl. 2. Oblate shape 3. Parities are from 1995Fa19. 4. Irregular band with backbending at the top of the band. 5. Nuclear reaction: ^{184}W (^{16}O, 5nγ), E(^{16}O) = 113 MeV, Band intensity ~ 5%.
	3098.0	$29/2^-$	129.7			1995Fa19	
	3362.0	$31/2^-$	264.0				
	3734.7	$33/2^-$	372.7	637.0	16(4)		
	4119.9	$35/2^-$	385.2	757.7	18(3)		
	4566.2	$(37/2^-)$	446.3	832.0	13(3)		
	4966.8	$(39/2^-)$	400.6				
2	5123.6	$(39/2^-)$				**1996Ka15**	1. $\pi(9/2[505]\otimes 13/2[606])_{K^\pi=11^-} \otimes \nu(i_{13/2}^{3})$ by comparison with the neighboring ^{194}Pb and ^{195}Tl. 2. Oblate shape 3. Parities are from 1995Fa19. 4. Regular band. 5. The B(M1) values as given in 1998Cl06 for the transitions from 276 to 366 keV are 7.01(+200 -125), 6.14(88) and 4.48 (+41-61) (μ_N^2), respectively. 6. The mean lifetimes of levels having spin values from 47/2 to 51/2 as given in 1998Cl06 are 0.28(+5-8), 0.21(3) and 0.22(+3-2) ps, respectively.
	5270.4	$(41/2^-)$	146.8			1995Fa19	
	5467.7	$(43/2^-)$	197.3			1998Cl06	
	5702.5	$(45/2^-)$	234.8				
	5978.4	$(47/2^-)$	275.9				
	6308.1	$(49/2^-)$	329.7				
	6674.2	$(51/2^-)$	366.1				
	7090.8	$(53/2^-)$	416.6				
	7536.8	$(55/2^-)$	(446.0)				

3	4465.6	$(33/2^-)$				**1996Ka15**
	4560.4	$(35/2^-)$	94.8			1995Fa19
	4693.9	$(37/2^-)$	133.5			
	4866.5	$(39/2^-)$	172.6			
	5108.1	$(41/2^-)$	241.6			
	5412.9	$(43/2^-)$	304.8			
	5770.9	$(45/2^-)$	358.0	663.0	17(4)	
	6144.7	$(47/2^-)$	373.8	732.0	23(5)	
	6529.5	$(49/2^-)$	384.8	759.0	13(3)	
	6907.2	$(51/2^-)$	377.7	763.0	10(3)	
	7281.2	$(53/2^-)$	374.0			

1. $\pi(9/2[505] \otimes 13/2[606])_{K=11} \otimes \nu(i_{13/2}^{2}(f_{5/2}/p_{3/2})^{1})$ at low spin and $\pi(9/2[505] \otimes 13/2[606])_{K=11} \otimes \nu(i_{13/2}^{4}(f_{5/2}/p_{3/2})^{1})$ at high spin, by comparison with a similar band of ^{194}Pb.
2. Oblate shape ($\beta_2 \sim -0.15$).
3. Regular band with backbending at the top of the band.
4. Parities are from 1995Fa19.
5. Band intensity ~ 15%.

$^{196}_{82}Pb_{114}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	4385.0	14^-				**2002Si20**
	4561.2	15^-	176.2			
	4864.4	16^-	303.2			
	5212.3	17^-	347.9	651.1	12(4)	
	5558.8	18^-	346.5	694.4	14(4)	
	5896.2	19^-	337.4	683.9	9(3)	
	6160.3	20^-	264.1			
	6369.3	21^-	209.0			
	6602.1	22^-	232.8			
	6881.3	23^-	279.2			
	7211.7	24^-	330.4			
	7564.0	25^-	352.3			
	7940.5	26^-	376.5			
	8383.1	27^-	442.6			
	8850.8	28^-	467.7			
	9374.5	29^-	523.7			

Configurations and Comments:

1. $\pi(h_{9/2}^{2})_{K=8^+} \otimes \nu[i_{13/2}^{-1}(p_{3/2}f_{5/2})^{1}]$ before and $\pi(h_{9/2}^{2})_{K=8^+} \otimes \nu[i_{13/2}^{-3}(p_{3/2}f_{5/2})^{1}]$ after the band crossing from the TAC calculations.
2. Oblate deformation ($|\beta_2|<0.1$).
3. Irregular band with backbending at 19^-.
4. Nuclear reaction: ^{170}Er (^{30}Si, 4nγ), E(^{30}Si) = 144 MeV and ^{186}W(^{16}O, 6nγ), E(^{16}O) = 110 MeV, Band intensity ~ 5%.

2.	4658.2	14^+				**2002Si20**
	4748.2	15^+	90.0			
	4852.5	16^+	104.3			
	5035.2	17^+	182.7			
	5283.3	18^+	248.1			
	5577.2	19^+	293.9	542.0	15(4)	
	5934.0	20^+	356.8	650.7	13(3)	
	6294.1	21^+	360.1	716.9	<16	
	6689.7	22^+	395.6	755.7	17(5)	
	7074.4	23^+	384.7	780.3	16(5)	
	7465.0	24^+	390.6	775.3	14(5)	
	7825.6	25^+	360.6	751.2		
	8166.3	26^+	340.7			
	8516.7	27^+	350.4			

1. $\pi(h_{9/2}^{2})_{K=8^+} \otimes \nu(i_{13/2}^{-2})$ before and $\pi(h_{9/2}^{2})_{K=8^+} \otimes \nu(i_{13/2}^{-4})$ after the band crossing from the TAC calculations.
2. Oblate deformation ($|\beta_2|<0.1$).
3. Regular band that becomes irregular after 20^+.
4. Band intensity ~ 7%.

3.	4995.4	17^+				**2002Si20**	1. $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-1}(p_{3/2}f_{5/2})^1]$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-3}(p_{3/2}f_{5/2})^1]$ after the band crossing from the TAC calculations. 2. Oblate deformation ($\lvert\beta_2\rvert<0.1$). 3. Regular band with backbending at 20^+. 4. Lifetimes of levels from 18^+ to 20^+ as given in 2001Ke12 are 1.28(22), 0.96(20) and 1.34(50) ps, respectively, those of levels from 25^+ to 27^+ as given in 1998Cl06 are 0.19(+3-4), 0.17(+3-4), and 0.15(3) ps, respectively and those of levels from 28^+ to 31^+ as given in 2002Si29 are 0.13(+3-2), 0.14(2), 0.13(3) and 0.16(3) ps, respectively. 5. B(M1) values for the transitions from 193 to 375 keV as given in 2001Ke12 are 2.4(+5-3), 1.4(+4-2) and 0.7(+4-2) μ_N^2, respectively, for transitions 286 and 339 keV as given in 1998Cl06 are 9.57(+201-151) and 7.05(+166 -124) and those for the transitions from 398 to 526 keV as given in 2002Si29 are 5.12(+80-119), 3.24(50), 2.75(66) and 1.80(36) μ_N^2, respectively. 6. B(E2) values for the transitions from 736 to 1017 keV as given in 2002Si29 are 0.269(+82-94), 0.191(63), 0.131(54) and 0.078(31) $(eb)^2$, respectively. 7. Band intensity ~ 30%.
	5188.1	18^+	192.7			2002Si29	
	5502.6	19^+	314.5	507.2	16(4)	2001Ke12	
	5877.2	20^+	374.6	689.1	19(4)	1996Ba53	
	6232.5	21^+	355.3	729.9	21(4)	1993Hu01	
	6574.1	22^+	341.6	696.9	19(5)	1995Mo01	
	6817.7	23^+	243.6	585.2	47(12)	1998Cl06	
	7027.5	24^+	209.8	453.4	42(13)		
	7266.9	25^+	239.4	449.2			
	7553.0	26^+	286.1	525.5			
	7891.7	27^+	338.7	624.8	25(7)		
	8289.4	28^+	397.7	736.4	19(5)		
	8738.1	29^+	448.7	846.4	17(5)		
	9228.3	30^+	490.2	938.9	21(7)		
	9754.7	31^+	526.4	1016.6	23(8)		
	10310.6	32^+	555.9	1082.3	16(8)		
	10883.7	33^+	573.1	1129.0			
	11456.3	34^+	572.6	1145.7			
	12023.0	35^+	566.7				
	12585.5	36^+	562.5				
4.	5155.3	16^-				**2002Si20**	1. $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2})$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu(i_{13/2}^{-4})$ after the band crossing from the TAC calculations. 2. Oblate deformation ($\lvert\beta_2\rvert<0.1$). 3. Regular band with backbending at 26^-. 4. The value of deformation parameter β_2 = -0.13 is based on experimental measurement of Q for 11^- level by 2002Vy02. 5. The mean lifetimes of levels having spin values from 23^- to 28^- as given in 1995Mo01 are ≤0.4, 0.21(+15-12), 0.17(+12 -8), 0.39(11), 0.47(+10-14) and 0.23(9) ps, respectively. 6. Band intensity ~ 22%.
	5236.0	17^-	80.7			2002Vy02	
	5342.9	18^-	106.9			1995Mo01	
	5480.9	19^-	138.0			1993Hu01	
	5684.8	20^-	203.9			1996Ba53	
	5952.6	21^-	267.8	471.7	24(6)		
	6284.4	22^-	331.8	599.6	33(9)		
	6651.4	23^-	367.0	698.8	20(5)		
	7043.6	24^-	392.2	759.2	19(5)		
	7441.3	25^-	397.7	789.9	17(4)		
	7849.4	26^-	408.3	805.8	15(4)		
	8222.8	27^-	373.4	781.5	29(8)		
	8556.3	28^-	333.5	706.9	38(9)		
	8892.8	29^-	336.5	670.0	27(10)		
	9251.3	30^-	358.5	695.0	16(5)		
	9646.8	31^-	395.5	754.0	14(5)		
	10088.9	32^-	442.1	837.6	11(4)		
	10578.3	33^-	489.4				
	11111.8	34^-	533.5				
	11683.1	35^-	571.3				
	12282.6	36^-	599.5				
5.	5265.4	16^-				**2002Si20**	1. Irregular band showing a different behavior than the other MR bands. Due to its irregularity the MR assignment to this band is uncertain. 2. Band intensity ~ 1.5%.
	5381.1	17^-	115.7				
	5658.6	18^-	277.5				
	5870.6	19^-	212.0				
	6196.7	20^-	326.1				
	6498.9	21^-	302.2				
	6857.9	22^-	359.0				
	7213.5	23^-	355.6				
	7593.2	24^-	379.7				

6.	5886.6	18^-				**2002Si20** 1996Ba53 1993Hu01 1995Mo01	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-2}(p_{3/2}f_{5/2})^2]$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-2}(p_{3/2}f_{5/2})^4]$ after the band crossing by comparison with the configuration of band 4 and the alignment properties. 2. Oblate deformation ($\lvert\beta_2\rvert$<0.1). 3. Regular band with backbending at 26^-. 4. Band intensity ~ 5%.
	6041.6	19^-	155.0				
	6185.3	20^-	143.7				
	6349.4	21^-	164.1				
	6557.7	22^-	208.3				
	6807.9	23^-	250.2				
	7117.0	24^-	309.1				
	7492.1	25^-	375.1				
	7896.5	26^-	404.4				
	8271.3	27^-	374.8				
	8666.3	28^-	395.0				
	9070.4	29^-	404.1	799.1	19(5)		
	9498.4	30^-	428.0				
	9951.0	31^-	452.6	880.6	14(5)		
	10438.6	32^-	487.6				
	10956.2	33^-	517.6				
7.	6780.1	22^+				**2002Si20** 2002Si29 1995Mo01 1996Ba53	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-3}(p_{3/2}f_{5/2})^1]$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-2}(p_{3/2}f_{5/2})^4]$ after the gain in alignment at a frequency around 0.45 MeV by comparison with the configuration of band 3 and a similar band in ^{194}Pb. 2. Oblate deformation ($\lvert\beta_2\rvert$<0.1). 3. The bandhead could have been one of the 21^+ states at 6534.1 and 6589.7 keV also. 4. Lifetimes of levels from 26^+ to 31^+ as given in 2002Si29 are 0.17(3), 0.15(+3-2), 0.13(+3-2), 0.14(+3-2), 0.11(2) and 0.13(+3-2) ps, respectively. 5. B(M1) values for the transitions from 343 to 454 keV as given in 2002Si29 are 6.30(111), 5.60(+75-112), 5.24(+81-121), 4.30(+61-92), 5.12(93) and 4.08(+63-94) μ_N^2, respectively. 6. Band intensity ~ 3.5%.
	7041.8	23^+	261.7				
	7336.7	24^+	294.9				
	7634.6	25^+	297.9				
	7977.5	26^+	342.9				
	8356.9	27^+	379.4				
	8769.2	28^+	412.3				
	9201.7	29^+	432.5				
	9645.4	30^+	443.7				
	10099.4	31^+	454.0				
	10568.0	32^+	468.6				
	11059.4	33^+	491.4				
	11585.6	34^+	526.2				
8.	7912.0	$26^{(+)}$				**2002Si20** 2002Si29	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes \nu[i_{13/2}^{-3}(p_{3/2}f_{5/2})^1]$ by comparison with the configuration of band 3 and with the similar decay pattern between the similar bands in ^{199}Pb. 2. Oblate deformation ($\lvert\beta_2\rvert$<0.1). 3. Lifetimes of levels from $27^{(+)}$ to $31^{(+)}$ as given in 2002Si29 are 0.23(4), 0.15(+3-2), 0.13(2), 0.14(+3-2) and 0.14(3) ps, respectively. 4. B(M1) values for the transitions from 289 to 513 keV as given in 2002Si29 are 6.84(119), 7.37(+98-147), 5.68(+87), 3.57(+51-77), and 2.72(58) μ_N^2, respectively. 5. Band intensity ~ 2%.
	8201.0	$27^{(+)}$	289.0				
	8540.3	$28^{(+)}$	339.3				
	8939.8	$29^{(+)}$	399.5				
	9403.9	$30^{(+)}$	464.1				
	9917.1	$31^{(+)}$	513.2				
	10461.7	$32^{(+)}$	544.6				
	11027.9	$33^{(+)}$	566.2				
	11625.1	$34^{(+)}$	597.2				

9.	X				**2002Si20**
	150.3+X	150.3			2002Si29
	331.3+X	181.0			
	529.9+X	198.6			
	774.2+X	244.3			
	1071.9+X	297.7			
	1420.7+X	348.8			
	1783.5+X	362.8			
	2177.1+X	393.6			
	2590.8+X	413.7			
	3011.6+X	420.8			
	3435.3+X	423.7			
	3893.1+X	457.8			
	4386.6+X	493.5			
	(4906.8+X)	(520.2)			

1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-2})$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^{-} \otimes \nu[i_{13/2}^{-2}(p_{3/2}f_{5/2})^{2}]$ after the band crossing at a frequency around 0.42 MeV by comparison with the configuration of band 4.
2. Oblate deformation ($|\beta_2|<0.1$).
3. Bandhead spin tentatively assigned as 17^- from the decay pattern.
4. Lifetimes of levels having transitions 349, 363, 414 and 424 keV as given in 2002Si29 are 0.16(+4-3), 0.15(3), 0.20(4), and 0.16(3) ps, respectively.
5. B(M1) values for the transitions 349, 363, 414 and 424 keV as given in 2002Si29 are 6.45(+119-159), 6.26(125), 3.38(56) and and 3.97(75) μ_N^2, respectively.
6. Band intensity ~ 2%.

$^{197}_{82}Pb_{115}$

	E_{level} KeV	I^{π}	$E_{\gamma}(M1)$ KeV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1.	3283.4	$27/2^-$				**2001Go06**
	3436.0	$29/2^-$	152.6			2001Co19
	3706.5	$31/2^-$	270.5			1999Po13
	4065.6	$33/2^-$	359.1	629.8	30(11)	1995Ba35
	4435.4	$35/2^-$	369.8	729.0	26(8)	1992Ku06
	4820.4	$37/2^-$	385.0	754.9	21(6)	1994Cl01
	5185.6	$39/2^-$	365.2	750.2	21(6)	1998Cl06
	5479.4	$41/2^-$	293.8	659.2	54(21)	
	5707.0	$43/2^-$	227.6	521.7	35(11)	
	5952.4	$45/2^-$	245.4	473.2	57(29)	
	6237.6	$47/2^-$	285.2	531.0	33(15)	
	6564.8	$49/2^-$	327.2	612.4	25(10)	
	6903.7	$51/2^-$	338.9	666.1	84(43)	
	7257.0	$53/2^-$	353.3	692.1	68(34)	
	7659.8	$55/2^-$	402.8	756.0	46(23)	
	8120.1	$57/2^-$	460.3	862.8	41(20)	
	8635.2	$59/2^-$	515.1	975.1	16(6)	
	9197.8	$61/2^-$	562.6	1077.4	18(8)	
	9793.8	$63/2^-$	596.0	1158.1	57(29)	
	10405.5	$65/2^-$	611.7	1207.4	47(25)	

Configurations and Comments:

1. $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes\nu(i_{13/2}^{-1})$ below crossing, $\pi(h_{9/2}i_{13/2})_{K=11} \otimes\nu(i_{13/2}^{-3})$ above the first band crossing and $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes\nu(i_{13/2}^{-3}(f_{5/2}p_{3/2})^{-2})$, above second crossing by comparison with the similar band in neighboring Pb isotopes and from the TAC model calculations.
2. Small oblate deformation.
3. Regular band showing a backbend at 41/2.
4. The mean lifetimes of levels from 3436 to 5707 keV as given in 2001Co19 are 1.1(3), 0.71(19), 0.60(16), 0.49(15), 1.0(5), 0.8(4), 0.7(2) and 0.8(3) ps, respectively and that for levels from 6238 to 7257 keV as given in 1998Cl06 are 0.40(2), 0.29(+3-2), 0.17(+2-1) and 0.17(+2-1) ps, respectively.
5. The B(M1) values for the transitions from 153 to 228 keV as given in 2001Co19 are 3.8(9), 2.5(4), 1.6(3), 1.8(4), 0.8(4), 1.1(4), 2.1(5) and 3.1(12) (μ_N^2), respectively and that for transitions from 285 to 353 keV as given in 1998Cl06 are 4.59(23), 4.53(+31-47), 7.05(+41-83) and 6.35 (+37-75) (μ_N^2), respectively.
6. Nuclear reaction: $^{186}W(^{18}O, 7n\gamma)$ $E(^{18}O)$ = 104, 110 and 115 MeV, Band intensity ~ 18 %.

2.	4794.0	$37/2^+$				**2001Go06**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2}f_{5/2}^{-1})$ below and $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-4}f_{5/2}^{-1})$ above the bandcrossing from the TAC model calculations. 2. Small oblate deformation. 3. The mean lifetimes for the transitions from 151.3 to 266.7 keV as given in 1994Cl01 are 1.8(8), 0.9(4) and 1.2(3) ps, and from 337 to 467 as given in 1998Cl06 are 0.17(3), 0.13(+3 -2), 0.16(2) and 0.28(+5-6) ps, respectively. 4. The B(M1) values as given in 1994Cl01 for the transitions from 151 to 267 keV are 2.32(+232 -77), 3.66(+220-100) and 1.78(+118-51) (μ_N^2), respectively, and that for transitions from 337 to 467 keV, as given in 1998Cl06 are 7.18(127), 5.88(+90-136), 3.72 (47) and 1.90(+41-34) (μ_N^2), respectively. 5. Band intensity ~ 5%.
	4906.4	$39/2^+$	112.4			1999Po13	
	5057.7	$41/2^+$	151.3			1995Ba35	
	5258.3	$43/2^+$	200.6			1992Ku06	
	5525.0	$45/2^+$	266.7			1993Hu08	
	5861.7	$47/2^+$	336.7			1994Cl01	
	6265.6	$49/2^+$	403.9	740.7	85(47)	1998Cl06	
	6711.7	$51/2^+$	446.1	849.9	28(11)		
	7178.8	$53/2^+$	467.1	913.3	38(17)		
	7612.5	$55/2^+$	433.7	900.6	65(35)		
	7983.9	$57/2^+$	371.4				
	8371.5	$59/2^+$	387.6				
	8794.1	$61/2^+$	422.6				
	9245.8	$63/2^+$	451.7				
	9722.9	$65/2^+$	477.1				
3.	5232.6	$39/2^{(+)}$				**2001Go06**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2}p_{3/2}^{-1})$ below and $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-4}f_{5/2}^{-1})$ above the bandcrossing by comparison with the configuration of band 2. 2. Small oblate deformation. 3. Irregular band. 4. Band intensity ~ 2%.
	5395.3	$41/2^{(+)}$	162.7			1995Ba35	
	5614.1	$43/2^{(+)}$	218.8			1999Po13	
	5878.8	$45/2^{(+)}$	264.7				
	6195.4	$47/2^{(+)}$	316.6				
	6558.7	$49/2^{(+)}$	363.3				
	6912.5	$51/2^{(+)}$	353.8				
	7286.4	$53/2^{(+)}$	373.9				
	7677.5	$55/2^{(+)}$	391.1				
	8067.7	$57/2^{(+)}$	390.2				
	8438.7	$59/2^{(+)}$	371.0				
	8830.5	$61/2^{(+)}$	391.8				
4.	6014.1	$43/2^-$				**2001Go06**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-3} f_{5/2}^{-2})$, by comparison with band 1 and TAC calcualations. 2. Small oblate deformation. 3. Regular band. 4. Band intensity ~ 2%.
	6202.1	$45/2^-$	188.0				
	6407.9	$47/2^-$	205.8				
	6659.3	$49/2^-$	251.4				
	6993.4	$51/2^-$	334.1				
	7406.6	$53/2^-$	413.2				
	7859.5	$55/2^-$	452.9	866.1	27(10)		
	8352.7	$57/2^-$	493.2	946.1	23(9)		
	8878.1	$59/2^-$	525.4				
	9441.0	$61/2^-$	562.9				
	10022.9	$63/2^-$	581.9				
5.	6262.6	$45/2^{(+)}$				**2001Go06**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2} (f_{5/2}p_{3/2})^{-3}$, by comparison with band 1, 4 and TAC calcualations. 2. Small oblate deformation. 3. Regular band. 4. Band intensity ~ 1.5%.
	6517.9	$47/2^{(+)}$	255.3				
	6806.5	$49/2^{(+)}$	288.6				
	7147.2	$51/2^{(+)}$	340.7				
	7550.8	$53/2^{(+)}$	403.6				
	8015.4	$55/2^{(+)}$	464.6	868.2	54(23)		
	8516.6	$57/2^{(+)}$	504.2	968.8	17(8)		
	9041.4	$59/2^{(+)}$	521.8				
	9581.3	$61/2^{(+)}$	539.9				

$^{198}_{82}Pb_{116}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
1	4882.7	(14^+)				**2001Go06**
	4975.7	(15^+)	93.0			1993Cl05
	5092.2	(16^+)	116.5			1992Wa20
	5248.9	(17^+)	156.7			1994Cl01
	5476.5	(18^+)	227.6			1997Cl03
	5812.5	(19^+)	336.0			
	6241.0	(20^+)	428.5			
	6659.4	(21^+)	418.4			
	6866.8	(22^+)	206.5			
	7073.3	(23^+)	206.5			
	7311.0	(24^+)	237.7			
	7590.5	(25^+)	279.5			
	7916.1	(26^+)	325.6			
	8290.5	(27^+)	374.4	700.2	76(41)	
	8712.2	(28^+)	421.7	796.1	>91	
	9175.8	(29^+)	463.6	885.3	>79	
	9681.1	(30^+)	505.3	968.9	68(34)	
	10230.5	(31^+)	549.4	1054.6	40(24)	
	10820.8	(32^+)	590.3	1139.7	>35	
	11438.5	(33^+)	617.7	1208.0	9(5)	
	12059.5	(34^+)	621.0	1238.7	>16	
	12699.0	(35^+)	639.5			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-1}f_{5/2}^{-1})$ before, $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-3}f_{5/2}^{1})$ above first band crossing and $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-3}(f_{5/2}p_{3/2})^{-3})$ above the second band crossing from TAC calculations and by comparison with similar bands in neighboring Pb isotopes.
2. Nearly oblate shape.
3. The mean lifetimes for the transitions from 207 to 506 keV as given in 1994Cl01 are 2.1(4), 0.85(30), 1.1(6), 0.58(15), 0.36(10), 0.20(4), 0.099(25) and 0.052(11) ps, respectively.
4. B(M1) values for the transitions from 207 to 506 keV as given in 1994Cl01 are 1.32(+32-21), 2.64(+140-70), 1.41(+176-53), 1.94(+88-53), 2.11(+88-53), 2.82 (+88-53), 4.58(+158-88) and 6.51(+194-158) (μ_N^2), respectively.
5. Regular band.
6. Nuclear reaction: $^{186}W(^{18}O, 6n\gamma)$ $E(^{18}O)$ = 104, 110 and 115 MeV, Band intensity ~ 10%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
2	6518.9	(20^-)				**2001Go06**
	6734.2	(21^-)	215.3			1993Cl05
	7016.7	(22^-)	282.5			
	7360.4	(23^-)	343.7			
	7778.9	(24^-)	418.5			
	8255.5	(25^-)	476.6			
	8739.4	(26^-)	483.9			
	9154.4	(27^-)	415.0			

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-2}(f_{5/2}p_{3/2})^{-2})$ before and $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-4}(f_{5/2}p_{3/2})^{-2})$ after the band crossing from TAC calculations and by comparison with band 3.
2. Small oblate deformation.
3. Regular band.
4. Band intensity ~ 3%.

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References
3	5379.1	16^-				**2001Go06**
	5492.7	17^-	113.6			1993Cl05
	5648.4	18^-	155.7			1992Wa20
	5863.4	19^-	215.0			1994Cl01
	6141.8	20^-	278.4			1997Cl03
	6484.0	21^-	342.2	621.0	40(17)	1998Kr20
	6872.8	22^-	388.8	731.0	39(17)	
	7295.2	23^-	422.4	811.2	38(17)	
	7739.3	24^-	444.1	866.5	24(7)	
	8210.8	25^-	471.5	915.6	21(6)	
	8686.0	26^-	475.2	946.7	26(10)	
	9112.3	27^-	426.3	901.5	34(14)	
	9512.3	28^-	400.0	826.3	50(16)	
	9930.5	29^-	418.2	818.2	>40	
	10380.3	30^-	449.8			
	10869.3	31^-	489.0			
	11398.7	32^-	529.4			
	11970.8	33^-	572.1			
	12579.8	34^-	609.0			

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-2})$ before and $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{3/2}^{-4})$ after the band crossing from TAC calculations.
2. Small oblate deformation.
3. The mean lifetimes for the transitions from 156 to 476 keV as given in 1994Cl01 are 2.7(9), 1.8(5), 2.1(5), 1.14(23), 0.72(10), 0.46(10), 0.24(4), 0.22(6), and 0.27(7) ps, respectively and B(M1) values for these transitions are 1.18(+60-30), 1.46(+56-32), 0.79 (+21-16), 0.84(+19-14), 0.97(+19-14), 1.21(+46 -21), 1.88(+67-30), 1.74(+86-33) and 1.30(+60 -25) μ_N^2, respectively.
4. The mean lifetimes for the transitions from 156 to 342.8 keV as given in 1998Kr20 are 0.63(10), 0.70(+10-20), 0.34(+15-10) and 0.20(+20-10) ps and the B(M1) values for these transitions are 6.2(+11-9), 3.8(+15-5), 4.9(+20-15) and 4.9(+48-28) μ_N^2 respectively.
5. Band intensity ~ 10%.

4	(6392.6)	(18^-)				**2001Go06**	1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2}(f_{5/2}p_{3/2})^{-2})$ before and $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-4}(f_{5/2}p_{3/2})^{-2})$ after the bandcrossing from TAC calculations. 2. Small oblate deformation. 3. Regular band. 4. Band intensity ~ 5%.
	(6515.3)	(19^-)	122.7			1993Cl05	
	(6674.4)	(20^-)	159.1				
	(6878.3)	(21^-)	203.9				
	(7142.9)	(22^-)	264.6				
	(7480.1)	(23^-)	337.2				
	(7835.0)	(24^-)	354.9				
	(8243.5)	(25^-)	408.5				
	(8695.0)	(26^-)	451.5				
	(9146.5)	(27^-)	451.5	903.0			
5.	7333.4	(23^+)				**2001Go06**	1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-1}P_{3/2}^{-1})$ before and $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-3}P_{3/2}^{-1})$ after the bandcrossing from TAC calculations and by comparison with the neighboring Pb isotopes. 2. Small oblate deformed structure. 3. Regular band. 4. Band intensity ~ 7%.
	7554.4	(24^+)	221.0			1993Cl05	
	7794.8	(25^+)	240.4				
	8076.1	(26^+)	281.3				
	8408.2	(27^+)	332.1				
	8799.7	(28^+)	391.5				
	9254.9	(29^+)	455.2				
	9770.1	(30^+)	515.2	969.8			
	10329.1	(31^+)	559.0				
	10921.3	(32^+)	592.2				

$^{199}_{82}Pb_{117}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	References	**Configurations and Comments:**
1	3604.2	($25/2^-$)				**1995Ne09**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-1})$ below and $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-3})$ above the bandcrossing from the TAC model calculations. 2. Small oblate deformation $(\beta_2,\gamma) \sim (0.1, -70°)$ 3. Mean lifetimes of states with spins from 43/2 to 49/2 are 0.37(+51-29), 0.31(+31-24), 0.17(+6-4) and 0.13(+4-3), and for the states with spins 51/2 to 57/2 as given in 1997Cl03 are 0.20(5), 0.16(+5-4), 0.15(+5-4) and 0.21(+6-5) ps, respectively. 4. B(M1) values for the transitions 234.6, 240.1 and 273.8 keV are 6.6(+25-38), 7.4(+24-38) and 10.6(+34-29) μ_N^2 and for the transitions from 363.1 to 508.3 keV as given in 1997Cl03 are 4.8(13), 4.4(+12-15), 3.0(+7-9) and 1.7(+4-5) μ_N^2, respectively. 5. Regular band with backbending at 41/2. 6. Nuclear reaction: $^{186}W(^{18}O, 5n\gamma)$ $E(^{18}O)$ = 92 and 94 MeV. Band intensity ~ 18%
	3694.1	($27/2^-$)	89.9			1999Po13	
	3868.0	($29/2^-$)	173.9			1994Ba43	
	4143.4	($31/2^-$)	275.4			1997Cl03	
	4502.8	($33/2^-$)	359.4	634.8			
	4904.1	($35/2^-$)	401.3	760.8			
	5324.8	($37/2^-$)	420.7	822.1			
	5746.3	($39/2^-$)	421.5	842.4			
	6074.9	($41/2^-$)	328.6	750.1			
	6309.5	($43/2^-$)	234.6				
	6549.6	($45/2^-$)	240.1				
	6823.4	($47/2^-$)	273.8				
	7139.7	($49/2^-$)	316.3	590.1	35(+22-20)		
	7502.8	($51/2^-$)	363.1	679.5	27(+18-14)		
	7914.1	($53/2^-$)	411.3	774.6	27(+15-18)		
	8373.4	($55/2^-$)	459.3	870.9	38(20)		
	8881.7	($57/2^-$)	508.3	967.7			
	9436.5	($59/2^-$)	554.8	(1063)			

2	X	(35/2$^+$)				**1999Po13**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-2}f_{5/2}^{-1})$ below and
	98.2+X	(37/2$^+$)	98.2			1995Ne09	$\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-4}f_{5/2}^{-1})$ above the
	223.2+X	(39/2$^+$)	125.0			1992Ba13	bandcrossing from the TAC model
	388.8+X	(41/2$^+$)	165.6			1994Ba43	calculations.
	603.4+X	(43/2$^+$)	214.6			1997Cl03	2. Small oblate deformation (β_2,γ) ~ (0.1, -70°)
	871.2+X	(45/2$^+$)	267.8				suggested in 1995Ne09.
	1194.3+X	(47/2$^+$)	323.1				3. Mean lifetimes of states with spins from 47/2 to
	1571.4+X	(49/2$^+$)	377.1	700.1	28(9)		55/2 are 0.19(+15-8), 0.14(+6-4), 0.10(+3-2),
	2001.7+X	(51/2$^+$)	430.3	807.1	49(28)		0.06(2) and 0.11(2) ps, respectively and that
	2483.6+X	(53/2$^+$)	481.9	912.4	52(20)		for spin 57/2 as given in 1997Cl03 is 0.14(+3-2)
	3015.6+X	(55/2$^+$)	532.0	1014.2	30(9)		4. B(M1) value for the transition 323.1 keV is
	3589.2+X	(57/2$^+$)	573.6	1105.7	34(10)		6.6(+47-29) μ_N^2 from 1995Ne09.
	4207.4+X	(59/2$^+$)	618.5	1192.1	45(11)		5. B(M1)/B(E2) values are from 1992Ba13.
	4546.6+X	(61/2$^+$)	339.2				6. Regular band with backbending at spin 61/2.
	4932.5+X	(63/2$^+$)	385.9				7. Nuclear reactions: ^{192}Os (^{12}C, 5nγ), E(^{12}C) = 82
	5353.5+X	(65/2$^+$)	421.0				MeV, and ^{186}W (^{18}O, 5nγ), E(^{18}O) = 94 MeV,
	5806.9+X	(67/2$^+$)	453.4				Band intensity ~ 12%.
	6303.4+X	(69/2$^+$)	496.5				
	6845.9+X	(71/2$^+$)	542.5				
	7433.6+X	(73/2$^+$)	587.7				
3	Y	(39/2$^+$)				**1994Ba43**	1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes$
	137.7+Y	(41/2$^+$)	137.7			1999Po13	$\nu(i_{13/2}^{-2}\ f_{5/2}^{-1})$ from the TAC model calculation.
	302.3+Y	(43/2$^+$)	164.6			1995Ne09	2. Small oblate deformation (β_2,γ) ~ (0.1, -70°)
	510.6+Y	(45/2$^+$)	208.3				3. The topmost transition is from 1999Po13.
	781.6+Y	(47/2$^+$)	271.0				4. Regular band.
	1123.6+Y	(49/2$^+$)	342.0				5. Band intensity ~ 5%
	1540.6+Y	(51/2$^+$)	417.0				
	2023.3+Y	(53/2$^+$)	482.7	900.0			
	2560.1+Y	(55/2$^+$)	536.8	1019.6			
	3145.3+Y	(57/2$^+$)	585.2	1122.0			
4	Z					**1994Ba43**	1. Tentatively assigned as $\pi(h_{9/2}^{2})_{K=8}^{+} \otimes \nu(i_{13/2}^{-3})$.
	97.7+Z		97.7			1999Po13	2. The estimated bandhead spin is 37/2 since it
	232.9+Z		135.2				populates states with spin around 33/2.
	426.1+Z		193.2				3. The two topmost transitions are from 1999Po13
	673.5+Z		247.4				4. Regular band with signature splitting and
	967.6+Z		294.1	541.4			backbending at the top of the band.
	1349.7+Z		382.1	676.2			5. Band intensity ~ 9%.
	1743.9+Z		394.2	776.4			
	2227.4+Z		483.5	877.6			
	2737.9+Z		510.5	994.2			
	3256.7+Z		518.8	1029.4			
	3594.9+Z		338.2				
5	U					**1994Ba43**	1. Tentatively assigned as $\pi(h_{9/2}^{2})_{K=8}^{+} \otimes \nu(i_{13/2}^{-4}$
	242.9+U		242.9				$p_{3/2}^{-1})$.
	550.2+U		307.3				2. The estimated bandhead spin is 45/2 since it
	863.2+U		313.0	620.5			populates states with spin around 41/2.
	1247.8+U		384.6	697.6			3. Regular band with signature splitting.
	1661.8+U		414.0	798.7			4. Band intensity ~ 5%.
	2148.8+U		487.0	901.4			

$^{200}_{82}\mathrm{Pb}_{118}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X					**1994Ba43**
	100.6+X		100.6			
	223.9+X		123.3			
	384.2+X		160.3			
	592.8+X		208.6			
	855.3+X		262.5			
	1174.8+X		319.5			
	1549.5+X		374.7			
	1978.9+X		429.4			
	2459.5+X		480.6			
	2992.5+X		533.0	(1014)		
	3574.6+X		582.1			
	4207.0+X		632.4	1214.3		
2	Y					**1994Ba43**
	212.5+Y		212.5			
	452.8+Y		240.3			
	736.1+Y		283.3			
	1065.7+Y		329.6			
	1445.8+Y		380.1			
	1884.6+Y		438.8			
3	Z					**1994Ba43**
	237.5+Z		237.5			
	518.8+Z		281.3			
	853.4+Z		334.6			
	1234.8+Z		381.4			
	1658.3+Z		423.5			

Configurations and Comments:

Band 1:

1. $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-2})$ from the TAC model calculation.
2. Small oblate deformation.
3. Tentative bandhead spin is around 17.
4. Regular band.
5. Nuclear reaction (1992Ba13): ^{192}Os (^{13}C, 5nγ) E(^{13}C) = 81 MeV, Band intensity ~ 12%.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-3}\, p_{3/2}^{-1})$ from the TAC model calculation.
2. Tentative bandhead spin is around 23.
3. Regular band.
4. Band intensity ~ 7%.

Band 3:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-3}\, f_{5/2}^{-1})$ from the TAC model calculation.
2. Tentative bandhead spin is ~ 23.
3. Regular band.

$^{201}_{82}\mathrm{Pb}_{119}$

	E_{level} keV	I^{π}	E_{γ}(M1) keV	E_{γ}(E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference	**Configurations and Comments:**
1	X					**1995Ba70**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-1})$ by comparison with a similar band in ^{199}Pb. 2. Regular band. 3. Nuclear reaction: ^{192}Os (^{14}C, 5nγ), E(^{14}C) = 76 MeV, Band intensity ~ 11(4)%.
	109.2+X		109.2				
	290.8+X		181.6				
	554.6+X		263.8				
	895.4+X		340.8				
	1299.4+X		404.0	744.6			
	1758.4+X		459.0	862.8			
	2264.1+X		505.7	964.7			
	2822.6+X		558.5				
2	6146.0+Y	35/2				**1995Ba70**	1. $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-2}p_{3/2}^{-1})$ by comparison with ^{199}Pb and TAC model calculations. 2. Small oblate deformation. 3. From 47/2 and above, there is a forking of the band with very close lying transitions having energies 333.1, 394.8 and 492.5 keV. 4. Regular band. 5. Band intensity ~ 11(3)%.
	6247.7+Y	37/2	101.7				
	6377.4+Y	39/2	129.7				
	6549.0+Y	41/2	171.6				
	6769.5+Y	43/2	220.5				
	7045.4+Y	45/2	275.9				
	7380.0+Y	47/2	334.6				
	7773.3+Y	49/2	393.3				
	8227.2+Y	51/2	453.9				
3	Z					**1995Ba70**	1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-} \otimes \nu(i_{13/2}^{-2} f_{5/2}^{-1})$, because of the similarity in the moment of inertia of the bands 2 and 3. 2. Regular band. 3. Band intensity ~ 8(3)%.
	139.6+Z		139.6				
	315.4+Z		175.8				
	537.7+Z		222.3				
	814.1+Z		276.4				
	1146.4+Z		332.3				
	1534.5+Z		388.1				
	1975.8+Z		441.3	829.4			
	2467.5+Z		491.7	933.1			
	3007.3+Z		539.8	1031.4			
4	U					**1995Ba70**	1. Regular band. 2. Band intensity ~ 7(4)%.
	176.5+U		176.5				
	402.2+U		225.7				
	680.4+U		278.2				
	1007.1+U		326.7				
	1387.5+U		380.4				
	1817.2+U		429.7				
	2300.3+U		483.1				
	2830.5+U		530.2				
5	V					**1995Ba70**	1. Regular band. 2. Band intensity ~ 8(4)%.
	152.9+V		152.9				
	351.5+V		198.6				
	601.5+V		250.0				
	913.5+V		312.0				
	1287.9+V		374.4				
	1723.9+V		436.0				
	2217.3+V		493.4				

$^{202}_{82}Pb_{120}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	X					**2000Go47**
	161.3+X		161.3			1995Ba70
	404.6+X		243.3			
	737.5+X		332.9			
	1145.1+X		407.6			
	1611.6+X		466.5			
	2129.3+X		517.7			
2.	Y					**2000Go47**
	130.0+Y		130.0			
	321.7+Y		191.7			
	591.5+Y		269.8			
	940.9+Y		349.4			
	1357.3+Y		416.4			
	1835.2+Y		477.9			
	2358.6+Y		523.4			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-}\otimes\nu(i_{13/2}^{-2})$ by comparison with the lighter mass Pb isotopes.
2. Small oblate deformation.
3. X > 5.3 MeV and the bandhead spin > 17.
4. Regular band.
5. Nuclear reaction: ^{198}Pt (^{9}Be, 5nγ), E(^{9}Be) = 60 MeV, Band intensity ~ 6%.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^{-}\otimes\nu(i_{13/2}^{-1}p_{3/2}^{-1})$ by comparison with the lighter mass Pb isotopes.
2. Small oblate deformation.
3. Y > 5.059 MeV.
4. Regular band.
5. Band intensity ~ 14%.

$^{197}_{83}Bi_{114}$

E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
4019.2	(37/2)				**2005Ma51**
4237.4	(39/2)	218.2			
4492.2	(41/2)	254.8			
4784.5	(43/2)	292.3			
5111.9	(45/2)	327.4			
5376.1	(47/2)	264.2			
5678.3	(49/2)	302.2			
6033.8	(51/2)	355.5			
(6429.8)		(396.0)			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2}^{2}\,i_{13/2})_{K=14.5}$ coupled to $\nu[i_{13/2}\,(p_{3/2}f_{5/2})^{1}]$ by comparison with similar bands in neighboring ^{196}Pb and ^{199}Bi.
2. Oblate deformation (β_2 = 0.17) for the three high-K proton configuration from the TRS calculations.
3. Regular band with backbending at 5376 keV level.
4. The ordering of 264, 302 and 356 keV transitions is arbitrary.
5. Nuclear reaction: ^{181}Ta (^{22}Ne, 6nγ), E(^{22}Ne) = 125 MeV.

$^{198}_{83}Bi_{115}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1.	X					**2000Zw02**
	203.3+X		203.3			
	429.3+X		226.0			
	718.8+X		289.5		>17	
	1082.1+X		363.3		>9	
	1508.7+X		426.6		>20	
	1978.0+X		469.3		>15	
	2473.9+X		495.9		>15	
	2989.1+X		515.2			
2.	Y					**2000Zw02**
	372.2+Y		372.2			
	614.3+Y		242.1		>8	
	827.3+Y		213.0		>8	
	1145.1+Y		317.8		>5	
	1441.8+Y		296.7	614.5	5.7(3)	
	1735.5+Y		293.7	590.4	6.5(3)	
	2023.0+Y		287.5			
3.	Z					**2000Zw02**
	345.4+Z		345.4			
	846.2+Z		500.8			
	1329.6+Z		483.4			
	1631.5+Z		301.9			
	2208.5+Z		577.0			
	2528.8+Z		320.3			
	2789.8+Z		261.0			
4.	U					**1994Da17**
	165+U		165			
	416+U		251			
	731+U		315			
	1108+U		377			
	1517+U		409			

Configurations and Comments:

Band 1 (X):

1. $\pi(h_{9/2}i_{13/2}s_{1/2}^{-1}) \otimes \nu(i_{13/2}^{-4}p_{3/2}^{-1})$ by comparison of the $\Im^{(2)}$ with that of band 2 of ^{196}Pb.
2. Oblate deformation.
3. The limits on B(M1)/B(E2) are from the intensities of the unobserved expected E2 transitions.
4. Regular band.
5. Nuclear reaction: ^{184}W (^{19}F, 5nγ), E(^{19}F) = 107 MeV, intensity of 202.3 keV transition ~ 22(2)% relative to the lowest lying 345.4 keV transition.

Band 2 (Y):

1. Tentative proton configuration $\pi(h_{9/2}^{2})_{K=8}^{+}$ by comparison with magnetic dipole bands in $^{196,\,197}$Pb.
2. Oblate deformation.
3. The limits on B(M1)/B(E2) are from the intensities of the unobserved expected E2 transitions.
4. Irregular band.
5. Intensity of 372.2 keV transition ~ 60(2)% relative to the lowest lying 345.4 keV transition.

Band 3 (Z):

1. Tentative proton configuration $\pi(h_{9/2}s_{1/2})_{K=5}^{-}$ by comparison with magnetic dipole bands in $^{196,\,197}$Pb.
2. Oblate deformation.
3. Irregular band.
4. Intensity of 372.2 keV transition ~ 60(2)% relative to the lowest lying 345.4 keV transition.

Band 4 (U):

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ coupled to one or three $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. B(M1)/B(E2) ratios are large due to the nonobservation of crossover E2 transitions.
3. Regular band.
4. Nuclear reaction: ^{186}W (^{19}F, 7nγ), E(^{19}F) = 115 and 105 MeV, Band intensity ~ 25% relative to the low lying 630 keV transition.

$^{199}_{83}Bi_{116}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X					**1994Da17**
	184.4+X		184.4			
	400.2+X		215.8			
	642.0+X		241.8			
	923.2+X		281.2			
	1236.7+X		313.5			
	1590.3+X		353.6			
	1950.8+X		360.5			
	2316.7+X		365.9			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ coupled to two $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. The band depopulates around 37/2.
3. B(M1)/B(E2) ratios are large due to the nonobservation of crossover E2 transitions.
4. Regular band.
5. Nuclear reaction: $^{186}W(^{19}F, 6n\gamma)$, $E(^{19}F) = 115$ and 105 MeV, Band intensity ~ 20% relative to 495 keV $31/2^- \rightarrow 29/2^-$ transition.

$^{200}_{83}Bi_{117}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X					**1994Da17**
	193+X		193			
	431+X		238			
	720+X		289			
	1056+X		336			
	1432+X		376			
	1855+X		423			
2	Y					**1994Da17**
	199.0+Y		199.0			
	446.2+Y		247.2			
	740.7+Y		294.5			
	1083.8+Y		343.1			
	1475.2+Y		391.4			
	1918.8+Y		443.6			
	2417.8+Y		499.0			
	2970.7+Y		552.9			
	3577.7+Y		607.0			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ coupled to one or three $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. B(M1)/B(E2) ratios are large due to the nonobservation of crossover E2 transitions.
3. Regular band.
4. Nuclear reaction: $^{186}W(^{19}F, 5n\gamma)$, $E(^{19}F) = 115$ and 105 MeV, Band intensity ~ 20% relative to the low lying 326 keV transition.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ coupled to one or three $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. $B(M1)/B(E2) \geq 10\ (\mu_N/eb)^2$.
3. Regular band.
4. Band intensity ~ 30% relative to the low lying 326 keV transition.

$^{202}_{83}Bi_{119}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X					**1993Cl02**
	164+X		164			
	423+X		259			
	775+X		352			
	1199+X		424			
	1680+X		481			
	2210+X		530			
	2780+X		570			
2	Y					**1993Cl02**
	180+Y		180			
	394+Y		214			
	659+Y		265			
	984+Y		325			
	1374+Y		390			
3	Z					**1993Cl02**
	250+Z		250			
	550+Z		300			
	907+Z		357			
	1320+Z		413			
	1785+Z		465			
	2302+Z		517			

Configurations and Comments:

Band 1:

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ coupled to one or two $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. The estimated bandhead spin is about 10-16.
3. $B(M1)/B(E2) \geq 12\ (\mu_N/eb)^2$.
4. Regular band.
5. Nuclear reaction: $^{196}Pt\ (^{11}B, 5n\gamma)$, $E(^{11}B) = 75$ MeV, Band intensity ~ 15%.

Band 2:

1. Tentatively assigned as $\pi(h_{9/2}\, i_{13/2}\, s_{1/2}^{-1})$ or $\pi(h_{9/2}^{2} s_{1/2}^{-1})$ coupled to one or two $i_{13/2}$ neutron holes by comparison with the similar band in neighboring Pb isotopes.
2. The estimated bandhead spin is about 10-16.
3. $B(M1)/B(E2) \geq 6\ (\mu_N/eb)^2$.
4. Regular band.
5. Band intensity ~ 4%.

Band 3:

1. Tentatively assigned as $\pi(h_{9/2} i_{13/2} s_{1/2}^{-1})$ coupled to one or two $i_{13/2}$ neutron holes by comparison with the similar band in neighboring Pb isotopes. The estimated bandhead spin is about 11-19.
2. $B(M1)/B(E2) \geq 5\ (\mu_N/eb)^2$.
3. Regular band.
4. Band intensity ~ 3%.

$^{203}_{83}Bi_{120}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	X					**1994Da17**
	175+X		175			
	421+X		246			
	759+X		338			
	1201+X		442			
	1718+X		517			
	2295+X		577			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2} i_{13/2} s_{1/2}^{-1})$ coupled to two $i_{13/2}$ neutron holes by comparison with a similar band in neighboring Pb isotopes.
2. B(M1)/B(E2) ratios are large due to the nonobservation of crossover E2 transitions.
3. Regular band.
4. Nuclear reaction: $^{198}Pt\ (^{11}B, 6n\gamma)$, $E(^{11}B) = 74$ MeV, Band intensity ~ 15% relative to the 689 keV transition.

$^{205}_{86}Rn_{119}$

	E_{level} keV	I^{π}	$E_{\gamma}(M1)$ keV	$E_{\gamma}(E2)$ keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	1680+X	$(21/2^+)$				**1999No03**
	1796.7+X	$(23/2^+)$	116.7			
	1966.9+X	$(25/2^+)$	170.2			
	2124.8+X	$(27/2^+)$	157.9		2.0(2)	
	2246.0+X	$(29/2^+)$	121.2		>4	
	2494.0+X	$(31/2^+)$	248.0		>7	
	2861.7+X	$(33/2^+)$	367.7		>10	
	3164.1+X	$(35/2^+)$	302.4		>33	
	3452.3+X	$(37/2^+)$	288.2		>18	
	3653.6+X	$(39/2^+)$	201.3			
	4059.4+X	$(41/2^+)$	405.8			

Configurations and Comments:

1. The most likely configuration is the negative parity $\pi(h_{9/2}i_{13/2}) \otimes \nu(i_{13/2})$ from the TAC calculations. Since the observed parities are positive, the configuration $\pi(i_{13/2}^{2}) \otimes \nu(i_{13/2})$ is tentatively assigned.
2. Small oblate deformation , $\beta_2 \sim -0.1$.
3. X ~ 600 keV from systematics.
4. Irregular band.
5. Nuclear reaction: ^{170}Er (^{40}Ar, 5nγ), E(^{40}Ar) = 183 MeV, band intensity ~ 25%.

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