

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

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The table presents experimental data (extracted from recent publications) for 178 magnetic-rotational dipole (*shear*) 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

${}^A_Z X_N$	<p>Denotes the specific nuclide with</p> <p style="margin-left: 40px;">X Chemical symbol</p> <p style="margin-left: 40px;">A Mass number</p> <p style="margin-left: 40px;">Z Atomic number</p> <p style="margin-left: 40px;">N Neutron number</p> <p style="margin-left: 40px;">A single blank row marks the end of entries for each band.</p> <p style="margin-left: 40px;">The number in the first column denotes band number.</p>
E_{level}	<p>Level energy in units of keV.</p> <p style="margin-left: 40px;">The energies in parentheses denote tentative levels.</p> <p style="margin-left: 40px;">Labels X, Y, Z, etc. indicate that excitation energies are unknown due to lack of knowledge about linking transitions to the lower levels.</p>
I^π	<p>I denotes the level spin for each band member.</p> <p style="margin-left: 40px;">π denotes the parity (+ or -).</p> <p style="margin-left: 40px;">I^π given in parentheses denote uncertain spin parity assignments</p>
$E_\gamma(\text{M1})$	<p>Gamma ray energies in units of keV for the M1($\Delta I=1$) transition $I \rightarrow I-1$.</p>
$E_\gamma(\text{E2})$	<p>Gamma ray energies in units of keV for the E2($\Delta I=2$) transition $I \rightarrow I-2$.</p>
$B(\text{M1})/B(\text{E2})$	<p>The ratio of reduced transition probabilities in units of $(\mu_N/\text{eb})^2$ given with the uncertainties in the last digits in parentheses [Eq.(6), $\delta=0$]. In some bands where E2 transitions are not observed, the lower limits for $B(\text{M1})/B(\text{E2})$ are given.</p>
References	<p>The references follow key numbers as assigned in the</p>

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**Br**₄₂

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: ⁷⁵As ($\alpha, 2n\gamma$), E(α)= 27 MeV, ⁷³Ge (⁷Li, 3n γ) and ⁷⁴Ge (⁷Li, 4n γ), E(⁷Li)= 35 MeV, ⁶⁵Cu (¹⁸O, $\alpha 2n\gamma$), E(¹⁸O)= 65 MeV.
Band intensity ~ 5% in (¹⁸O, $\alpha 2n\gamma$).

⁷⁹**Br**₄₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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_N², 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: ⁷⁶Ge (⁷Li, 4n), E(⁷Li)= 35 MeV, Band intensity ~ 6%.

⁸¹**Br**₄₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: ⁸⁰Se ($\alpha, p 2n\gamma$), E(α)= 35-48 MeV. Band intensity ~ 10%

⁸¹**Kr**₄₅

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	2419.7	13/2 ⁻				1986Fu03 2004Ma09
	2533.2	15/2 ⁻	113.3			
	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. $(\epsilon_2, \gamma) = (0.16, 60^\circ)$ 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) (μ_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: ⁸⁰Se(α, 3nγ), E(α)= 35-48 MeV, Band intensity ~ 15%.

⁸³**Kr**₄₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	2510.0	13/2 ⁻				1986Ke12 1984Ku23 2004Ma09
	2640.5	15/2 ⁻	130.5			
	2841.1	17/2 ⁻	200.6			
	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. $(\epsilon_2, \gamma) = (0.14, 59^\circ)$ 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) (μ_N)², respectively and that for the 201 keV transition from lifetime of 2841 keV level as given in 1984Ku23 is 0.9(4) (μ_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: ⁸²Se(α, 3nγ), E(α)= 27-45 MeV, Band intensity ~ 30%.

⁷⁹Rb₄₂

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ⁷⁷Br.
2. Regular band.
3. 601 keV M1 transition is from 1996Sm07.
4. Nuclear reactions: ⁶³Cu(¹⁹F, 2pn γ) and ⁶⁵Cu(¹⁸O, 4n γ), E(¹⁹F) and E(¹⁸O) = 65 MeV, Band intensity < 2%.

⁸¹Rb₄₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: ⁷⁹Br(α , 2n γ), E(α) = 27 MeV and ⁶⁸Zn(¹⁹F, α 2n γ), E(¹⁹F) = 72 MeV.

⁸²Rb₄₅

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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_N², 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: ⁷⁶Ge (¹¹B, 5n γ), E(¹¹B) = 45 MeV, band intensity ~ 20%.

83
37 Rb₄₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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. $\pi[(g_{9/2}) \otimes v[(g_{9/2}) \otimes (pf)^1]]$ from TAC calculations as given in 2001Am08
2. $(\epsilon_2, \gamma) = (0.18, 10^\circ)$ 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_N², respectively.
5. B(E2) value for the 964 keV transition is < 0.025 (eb)².
6. Regular band.
7. Nuclear reaction: ⁷⁶Ge (¹¹B, 4nγ), E(¹¹B)= 50 MeV. Band intensity ~ 12%

84
37 Rb₄₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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. $\pi[(g_{9/2})^2 \otimes (p_{3/2}/f_{5/2})^1] \otimes v(g_{9/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.14, -15^\circ)$ 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_N², 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: ⁷⁶Ge (¹¹B, 3nγ), E(¹¹B)= 50 MeV, band intensity ~ 20%.

⁸⁵Rb₄₈

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: $^{82}\text{Se}(^7\text{Li}, 4n\gamma)$, $E(^7\text{Li})=32$ MeV. Band intensity $\sim 2\%$

¹⁰⁵Rh₆₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) eV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	2019.3	13/2 ⁻				2004A103
	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 ⁻				2004A103
	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 ⁻				2004A103
	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 ⁺				2004A103
	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:

1. Regular band with small backbending at the top of the band.
2. Nuclear reaction: $^{100}\text{Mo}(^11\text{B}, \alpha 2n\gamma)$, $E(^11\text{B})=43$ MeV, band intensity $\sim 3.5\%$.
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. $B(M1)/B(E2) \geq 6$ (μ_N/eb)² for the 21/2 state.
4. Regular band.
5. Band intensity $\sim 2\%$.
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. $B(M1)/B(E2) \geq 6$ (μ_N/eb)² for the 21/2 state.
3. Regular band.
4. Band intensity $\sim 1\%$.
1. Regular band.
2. Band intensity $\sim 3\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	3357	21/2 ⁻				2003Da07 2003DaAA
	3667	23/2 ⁻	309			
	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 2003DaAA 2006De15
	3599	23/2 ⁻	160			
	3936	25/2 ⁻	337			
	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:

1. $\pi(g_{9/2}) \otimes \nu[h_{11/2}(d_{5/2}/g_{7/2})^1]$ from TAC calculations.
2. $(\epsilon_2, \gamma) = (0.14, 28^\circ)$ from TAC calculations.
3. Small signature splitting.
4. B(M1)/B(E2) values are from 2003DaAA.
5. Nuclear reaction: $^{76}\text{Ge} (^{35}\text{Cl}, \alpha 4n\gamma), E(^{35}\text{Cl}) = 132 \text{ MeV}$, band intensity $\sim 20\%$.
1. $\pi(g_{9/2}) \otimes \nu[h_{11/2}(d_{5/2}/g_{7/2})^1]$ from TAC calculations.
2. $(\epsilon_2, \gamma) = (0.14, 28^\circ)$ 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 h 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 $\sim 40\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

1. $\pi(g_{9/2}) \otimes \nu(h_{11/2})$ from TAC calculations.
 2. $(\epsilon_2, \gamma) = (0.17, 29^\circ)$ 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: ⁷⁶Ge(³⁵Cl, α 3n γ), E(³⁵Cl) = 132 MeV. Band intensity ~ 50%.
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. $(\epsilon_2, \gamma) = (0.09, 31^\circ)$ from TAC calculations.
 3. Irregular band.
 4. Band intensity ~ 6%.
1. $\pi(g_{9/2}) \otimes \nu[(g_{7/2}d_{5/2}) h_{11/2}]$ from TAC calculations.
 2. $(\epsilon_2, \gamma) = (0.18, 25^\circ)$ 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%.

¹⁰²Cd₅₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 from 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: $^{50}\text{Cr} (^{58}\text{Ni}, 4p2n\gamma)$, E(^{58}Ni) = 261 MeV, Band intensity ~ 45 %.

¹⁰⁴Cd₅₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ¹⁰²Cd and from the shell model calculations.
2. Irregular band lying at the edge of magnetic rotation and collective rotation.
3. Nuclear reaction: $^{54}\text{Fe} (^{58}\text{Ni}, \alpha 4p\gamma)$, E(^{58}Ni) = 243 MeV, Band intensity ~ 28%.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 (β_2, γ) ~ (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_N²), respectively.
7. Lifetime of each of the 14⁻ and 15⁻ levels is <3 ps from 1994Th01.
8. Nuclear reaction: ⁹⁶Zr (¹⁶O, 4nγ), E(¹⁶O)= 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%

$^{109}_{48}\text{Cd}_{61}$

	E_{level} keV	I^π	$E_\gamma(\text{M1})$ keV	$E_\gamma(\text{E2})$ keV	$B(\text{M1})/B(\text{E2})$ $(\mu_{\text{N}}/\text{eb})^2$	Reference
1	3353.8	21/2 ⁻				1994Ju05 2000Ch04
	3548.8	23/2 ⁻	195.0			
	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 1994Ju05
	6002	31/2 ⁺	191			
	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:

- $\pi(g_{9/2})^{-2} \otimes \nu(h_{11/2})$ 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).
 - $(\beta_2, \gamma) \sim (0.106, 0^\circ)$ before and $(0.085, 12^\circ)$ after the backbending from 2000Ch04.
 - $B(\text{M1})/B(\text{E2})$ values range from $\sim 40 (\mu_{\text{N}}/\text{eb})^2$ to $\sim 150 (\mu_{\text{N}}/\text{eb})^2$.
 - $B(\text{M1})$ 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.
 - 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.
 - Regular band with a backbending at 31/2.
 - Nuclear reactions: $^{96}\text{Zr} (^{18}\text{O}, 5n\gamma)$, $E=73$ MeV, band intensity $\sim 4\%$.
- $\pi(g_{9/2})^{-2} \otimes \nu[h_{11/2}^2(d_{5/2}g_{7/2})^1]$ from TAC calculations.
 - $(\beta_2, \gamma) \sim (0.116, 10^\circ)$.
 - $B(\text{M1})/B(\text{E2})$ values $\geq 20 (\mu_{\text{N}}/\text{eb})^2$ for the two levels at 33/2 and 35/2 as given in 1994Ju05.
 - $B(\text{M1})$ 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.
 - 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.
 - Nuclear reactions: $^{96}\text{Zr} (^{18}\text{O}, 5n\gamma)$, $E=70$ MeV, Band intensity $\sim 2\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	5759.7	13 ⁻				1994Ju04
	5985.3	14 ⁻	225.6			
	6355.3	15 ⁻	370.0			
	6963.8	16 ⁻	608.5		>58	
	7576.2	17 ⁻	612.4		>317	
2	6584.2	14				1994Ju04
	6879.2	15	295.0			
	7280.6	16	401.4			
	7758.5	17	477.9			
3	8015.8	17				1994Ju04 1999Cl03
	8277.0	18	261.2			
	8594.6	19	317.6			
	8966.9	20	372.3			
	9429.4	21	462.5		>48	
	9990.4	22	561		>63	
	10664.2	23	673.8		>60	
	11450.2	24	786			

Configurations and Comments:

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.
 2. Prolate deformation.
 3. Lower limits on B(M1)/B(E2) values are from the unobserved $\Delta I = 2$ (E2) transitions.
 4. Regular band.
 5. Nuclear reactions: $^{96}\text{Zr} (^{18}\text{O}, 4n\gamma)$, $E(^{18}\text{O}) = 73$ MeV and $^{100}\text{Mo} (^{13}\text{C}, 3n\gamma)$, $E(^{13}\text{C}) = 44$ MeV, Band intensity $\sim 5\%$.
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.
 2. Prolate deformation.
 3. Regular band.
 4. Band intensity $\sim 1\%$.
1. Configuration may involve in addition to that of band 2, an aligned pair of neutrons in the $g_{7/2}$ orbital.
 2. Prolate deformation.
 3. Lower limits on B(M1)/B(E2) values are from the unobserved $\Delta I = 2$ (E2) transitions.
 4. Regular band.
 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.
 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.
 7. Band intensity $\sim 2.5\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	1119.4	8 ⁻				2001Ch71
	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
	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
	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			

Configurations and Comments:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ by comparison with a similar band in ¹⁰⁹Cd.
2. Small prolate deformation ($\beta_2, \gamma = 0.116, 10^\circ$) from TAC calculations.
3. Regular band with small backbending at 12⁻.
4. Nuclear reaction : ⁷⁶Ge(³⁷Cl, 5n γ), E(³⁷Cl)= 138 MeV and ⁹⁴Mo(¹⁸O, p3n γ), E(¹⁸O)= 85 MeV, Band intensity ~ 50%.
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 ¹⁰⁹Cd.
2. Small prolate deformation ($\beta_2, \gamma = 0.095, 15^\circ$) 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_N², 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%.
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 ¹⁰⁹Cd.
2. Small prolate deformation ($\beta_2, \gamma = 0.126, 10^\circ$) for the configuration before and ($\beta_2, \gamma = 0.063, 15^\circ$) 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_N², 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%.

¹¹⁰₄₉In₆₁

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ by comparison with a similar band in ¹⁰⁹Cd .
 2. Small prolate deformation ($\epsilon_2, \gamma = 0.11, 10^\circ$) from TAC calculations.
 3. Regular band.
 4. Nuclear reaction : ⁹⁶Zr(¹⁹F, 5n γ), E(¹⁹F)= 85 MeV, Band intensity ~ 80%.
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 ¹⁰⁹Cd .
 2. Small prolate deformation ($\epsilon_2, \gamma = 0.08, 10^\circ$) 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%.
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 ¹⁰⁹Cd.
 2. Small prolate deformation ($\epsilon_2, \gamma = 0.11, 10^\circ$) for the configuration before and ($\epsilon_2, \gamma = 0.08, 20^\circ$) 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%.

$^{111}_{49}\text{In}_{62}$

	E_{level} keV	I^π	$E_\gamma(\text{M1})$ keV	$E_\gamma(\text{E2})$ keV	$B(\text{M1})/B(\text{E2})$ $(\mu_N/\text{eb})^2$	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:

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. $B(\text{M1})/B(\text{E2}) > 50-100 (\mu_N/\text{eb})^2$ from unobserved $\Delta I=2$ (E2) transitions.
 4. Regular band with small backbending at 23/2.
 5. Nuclear reaction : $^{96}\text{Zr}(^{19}\text{F}, 4n\gamma)$, $E(^{19}\text{F})=72$ MeV, Band intensity $\sim 33\%$.
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. $B(\text{M1})/B(\text{E2}) > 50-100 (\mu_N/\text{eb})^2$ from unobserved $\Delta I=2$ (E2) transitions.
 4. Regular band with small backbending at 31/2.
 5. Band intensity $\sim 15\%$.
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. $X \sim 5500$ keV.
 4. $B(\text{M1})/B(\text{E2}) > 50-100 (\mu_N/\text{eb})^2$ from unobserved $\Delta I=2$ (E2) transitions.
 5. Regular band.
 6. Band intensity $\sim 9\%$.

¹¹³In₆₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	2233.2	15/2 ⁽⁻⁾				1997Ch01 2005Na37
	2396.4	17/2 ⁽⁻⁾	163.2			
	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 2005Na37
	3213.9	23/2 ⁽⁺⁾	91.8			
	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:

1. Tentatively assigned as $\pi(g_{9/2}^{-1}) \otimes \nu(g_{7/2}^{-1} h_{11/2})$.
2. Small prolate deformation ($\beta_2=0.09$).
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 : ¹¹⁰Pd(⁷Li, 4nγ), E(⁷Li) = 40 MeV, Band intensity ~ 31%.

1. Tentative Configuration $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2}^2)$.
2. Small prolate deformation ($\beta_2=0.09$).
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%.

¹⁰⁵Sn₅₅

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ($\beta_2=0.137$)
3. B(M1)/B(E2) > 100(μ_N/eb)² from the unobserved ΔI= 2 (E2) transitions.
4. Regular band with a backbending at 37/2.
5. Nuclear reaction : ⁵⁰Cr(⁵⁸Ni, 2pnγ), E(⁵⁸Ni)= 210 MeV, Band intensity ~ 20%.

¹⁰⁶₅₀Sn₅₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	8013.2	15 ⁻				1999Je07 1999JeZZ 1998Je03
	8560.3	16 ⁻	547.0			
	9103.3	17 ⁻	542.9			
	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:

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. $(\beta_2, \gamma) = (0.11, -13^\circ)$.
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_N², respectively.
6. Regular band with backbending at the top of the band.
7. Nuclear reaction: ⁵⁴Fe(⁵⁸Ni, α2pγ), E(⁵⁸Ni) = 243 MeV. Band intensity ~ 16%

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. $(\beta_2, \gamma) = (0.11, -13^\circ)$.
3. Regular band.
4. Band intensity ~ 8%

¹⁰⁸₅₀Sn₅₈

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	6665	12 ⁻				1998Je03 1999Je07
	6885.0	13 ⁻	220.0			
	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 ⁻			
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:

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 $(\beta_2, \gamma) = (0.08, 0^\circ)$ 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_N², respectively.
5. Regular band.
6. Nuclear reaction: ⁵⁴Fe(⁵⁸Ni, 4pγ), E(⁵⁸Ni) = 243 MeV. Band intensity ~ 8%

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 $(\beta_2, \gamma) = (0.11, 0^\circ)$ from 1999Je07.
3. Band intensity ~ 4%

¹⁰⁸Sb₅₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

1. $\pi[(g_{7/2}, d_{5/2})^2 g_{9/2}^{-1}] \otimes \nu(h_{11/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.116, 30^\circ)$ from TAC calculations.
3. B(M1)/B(E2) values range from ~ 5 (μ_N/eb)² to ~ 20 (μ_N/eb)².
4. Regular band.
5. Nuclear reaction: ⁵⁴Fe (⁵⁸Ni, 3pnγ), E(⁵⁸Ni)= 243 MeV, Band intensity $\sim 47\%$.

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. $(\beta_2, \gamma) = (0.116, 10^\circ)$ from TAC calculations.
3. B(M1)/B(E2) values range from ~ 5 (μ_N/eb)² to ~ 25 (μ_N/eb)².
4. Regular band with backbending at 15.
5. Band intensity $\sim 19\%$.

¹¹⁰Sb₅₉

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ¹⁰⁸Sb from 1998Je09.
4. Nuclear reaction: ⁵⁴Fe (⁵⁹Co, 2pnγ), E(⁵⁹Co) = 230 MeV, Band intensity $\sim 50\%$.

¹¹²Sb₆₁

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	1675.1	7 ⁻				1998La14 2005De02
	1747.5	8 ⁻	72.4			
	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:

1. $\pi(g_{9/2}^{-1}) \otimes \nu(h_{11/2})$ from TAC calculations.
2. $(\beta_2, \gamma) = (0.21, 0^\circ)$ 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_N², 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: ¹⁰³Rh (¹²C, 3nγ), E(¹²C)= 60 MeV and ⁹⁰Zr (³¹P, 2αnγ), E(³¹P)= 150 MeV and ⁸⁹Y (³⁰Si, α3nγ), E(³⁰Si)= 120 MeV (2005De02). Band intensity ~ 30%.

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%.

¹³⁵Te₈₃

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	4023.4	(19/2 ⁻)				2001Lu16 2001Fo02
	4393.6	(21/2 ⁻)	370.2			
	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 ¹³⁴Te isotope.
2. Irregular band.
3. Nuclear reaction: spontaneous fission of ²⁵²Cf and spontaneous fission of ²⁴⁸Cm as studied by 2001Fo02. Band intensity ~ 1%.

¹²³₅₄Xe₆₉

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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. $(\beta_2, \gamma) = (0.21, 29^\circ)$ from TAC calculations.
3. X ~ 5.5 MeV.
4. The observed B(M1)/B(E2) values vary from ~ 20 (μ_N/eb)² at a spin (39/2) and decrease to ~ 2 (μ_N/eb)² at a spin (45/2).
5. Regular band.
6. Nuclear reaction: ¹¹⁰Pd (¹⁸O, 5nγ), E(¹⁸O)= 75 MeV, Band intensity ~15 %.

¹²⁴₅₄Xe₇₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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. $(\beta_2, \gamma) = (0.20, 30^\circ)$ 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_N², respectively.
6. Irregular band with backbending at 8368 keV level and at the top of the band.
7. Nuclear reaction: ¹¹⁰Pd (¹⁸O, 4nγ), E(¹⁸O)= 86 MeV, Band intensity ~ 13%.

¹³¹₅₅Cs₇₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

1. $\pi(d_{5/2}/g_{7/2}) \otimes \nu(h_{11/2})^2$ from the decay pattern and TAC calculations.
2. Triaxial deformation (β_2, γ) ~ (0.11, 46°)
3. Small signature splitting.
4. Regular band with backbending at 27/2⁺.
5. The calculated B(M1) values decrease with frequency.
6. Nuclear reaction: ¹²⁴Sn (¹¹B, 4n γ), E(¹¹B) = 57 MeV, Band intensity~ 8%.

1. $\pi(h_{11/2}) \otimes \nu(h_{11/2})^2$ from the decay pattern and TAC calculations.
2. Prolate deformation (β_2, γ) ~ (0.11, 55°)
3. Small signature splitting.
4. Irregular band.
5. The experimental B(M1)/B(E2) have an average ~12 (μ_N/eb)².
6. The calculated B(M1) values decrease with frequency.
7. Band intensity~ 12% .

¹²⁸₅₆Ba₇₂

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	4652	12 ⁺				1998Wi20 1997Vo12 2000Di16 2000Pe20 1998Pe17
	4956	13 ⁺	305			
	5233	14 ⁺	277	582	6.29(+29-16)	
	5530	15 ⁺	296	574	6.63(+18-13)	
	5853	16 ⁺	324	619	6.00(+56-28)	
	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 (β_2, γ) ~ (0.20, 0°)
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_N², 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_N², 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: ⁹⁶Mo (³⁶S, 4n γ), E(³⁶S) = 150 MeV, Band intensity is less than 10 %.

¹³²Ba₇₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	4811.8	11 ⁺				1995Ju09 1989Pa17
	1997.2	12 ⁺	185.4			
	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 1989Pa17
	5891.3	15 ⁻	169.9			
	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:

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 ($\gamma \sim -60^\circ$).
3. Regular band.
4. Nuclear reaction: $^{124}\text{Sn} (^{13}\text{C}, 5n\gamma)$, $E(^{13}\text{C}) = 65.5$ MeV, Band intensity $\sim 2\%$.

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 ($\gamma \sim -60^\circ$).
3. Regular band.
4. Band intensity $\sim 1\%$.

¹³¹La₇₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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

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.

¹³⁴₅₈Ce₇₆

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ¹³⁶Ce.
2. $(\epsilon_2, \gamma) = (0.149, 43^\circ)$.
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_N²), respectively.
6. Nuclear reaction : ¹²⁰Sn(¹⁸O, 4nγ), E(¹⁸O) = 80 MeV, Band intensity ~ 17%.

¹³⁵₅₈Ce₇₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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)		
2	4183.8	27/2 ⁻				
	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		
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	

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 ($\gamma \sim 0^\circ$).
 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 : ¹²²Sn(¹⁸O, 5nγ), E(¹⁸O) = 85 and 89 MeV, Band intensity ~ 17%.
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 ($\gamma \sim 0^\circ$).
 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%.
1. Tentatively assigned as $\pi(h_{11/2}g_{7/2}) \otimes \nu(h_{11/2}^2s_{1/2})$.
 2. Collectively rotating oblate structure ($\gamma \sim -60^\circ$).
 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%.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	5305.5	15 ⁺				2005La29 2004LaAA
	5594.4	16 ⁺	288.9			
	6099.3	17 ⁽⁺⁾	504.9			
	6642.9	18 ⁽⁺⁾	543.6	1049		
	(7239)	(19 ⁺)	(596.1)	(1140)		
2.	5643.8	16 ⁺				2005La29 2004LaAA
	5878.2	17 ⁺	234.4			
	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 2004LaAA 2002La26 1990Pa05
	5809.9	15 ⁻	163.4			
	5995.8	16 ⁻	185.9	350	13.5(63)	
	6283.5	17 ⁻	287.7	474	14.4(42)	
	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:

1. $\pi(g_{7/2}h_{11/2}) \otimes \nu(g_{7/2}h_{11/2})$ from TAC calculations.
2. $(\epsilon_2, \gamma) = (0.11, 28^\circ)$ 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: $^{124}\text{Sn}(^{16}\text{O}, 4n\gamma), E(^{16}\text{O}) = 80 \text{ MeV}$. Band intensity $\sim 8\%$

1. $\pi(h_{11/2}^{-2}) \otimes \nu(h_{11/2}^{-2})$ from TAC calculations.
2. $(\epsilon_2, \gamma) = (0.13, 52^\circ)$ 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 $\sim 5\%$

1. $\pi(g_{7/2}h_{11/2}) \otimes \nu(h_{11/2}^{-2})$ from TAC calculations.
2. $(\epsilon_2, \gamma) = (0.11, 52^\circ)$ 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 $\sim 25\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	2035.1	21/2 ⁻				2003Pa38 1988Hi04
	2475.3	23/2 ⁻	440.2			
	2955.2	(25/2 ⁻)	479.9	920.1	8.9(9)	
	3465.5	(27/2 ⁻)	510.3	990.2	8.3(9)	
	3960.7	(29/2 ⁻)	495.2	1005.3	6.0(6)	
2.	2203.9	19/2 ⁺				2003Pa38
	2352.7	21/2 ⁺	148.8			
	2598.3	23/2 ⁺	245.6			
	2925.4	25/2 ⁺	327.1	572.5	23.5(18)	
	3319.8	27/2 ⁺	394.4	722.0	16.9(14)	
	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 1988Hi04
	3371.8	23/2 ⁻	118.8			
	3536.8	25/2 ⁻	165.0			
	3787.7	27/2 ⁻	250.9			
	4124.4	29/2 ⁻	336.7			
	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 1988Hi04
	4252.3	(31/2 ⁻)	144.2			
	4379.1	(33/2 ⁻)	126.8			
	4575.0	(35/2 ⁻)	195.9			
	4818.8	(37/2 ⁻)	243.8	439.7		
	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		

Configurations and Comments:

1. $\pi(5/2[413]) \otimes \nu(9/2[514] \otimes 7/2[404])$, related to the $\nu(h_{11/2} g_{7/2})_{K^{\pi}=8^{-}}$ isomeric state in the ¹³²Ce core.
 2. Prolate configuration.
 3. The B(M1)/B(E2) values decrease from about 10 to 5 (μ_N/eb)² with increasing spin.
 4. Nuclear reaction: ¹⁰⁰Mo (³⁷Cl, 4nγ), E(³⁷Cl) = 155 MeV, Band intensity ~ 1.5%.
1. $\pi(3/2[413]) \otimes \nu(9/2[514] \otimes 7/2[404])$, related to the $\nu(h_{11/2} g_{7/2})_{K^{\pi}=8^{-}}$ isomeric state in the ¹³²Ce core.
 2. Prolate configuration.
 3. The B(M1)/B(E2) values decrease from about 25 to 10 (μ_N/eb)² with increasing spin.
 4. Regular band.
 5. Band intensity ~ 6%.
1. $\pi(h_{11/2})_{K=11/2} \otimes \nu(h_{11/2}^2)$ by comparison with a similar band in ¹³¹La isotone.
 2. Oblate configuration.
 3. The B(M1)/B(E2) values lie between 10-20 (μ_N/eb)².
 4. Regular band.
 5. Band intensity ~ 5%.
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.
 2. Prolate configuration.
 3. The B(M1)/B(E2) values lie between 10-25 (μ_N/eb)².
 4. Regular band.
 5. Band intensity ~ 4%.

¹³⁷Pr₇₈

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	3438.4	25/2 ⁻				2006AgAA 1989Xu01
	3550.3	27/2 ⁻	111.9			
	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: ¹²²Sn (¹⁹F, 4n γ), E(¹⁹F)= 80 MeV, Band intensity ~ 30%.
5. M1 assignment for several gamma rays from linear polarization measurements.

¹³⁴Nd₇₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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		
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		
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		

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 ($\beta_2=0.17$).
 3. B(M1)/B(E2) values > 3 (μ_N/eb)².
 4. Regular band with backbending at the top of the band.
 5. Nuclear reaction: ¹¹⁰Pd (²⁸Si, 4n γ), E(²⁸Si) = 130 MeV, Band intensity ~ 6%.
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 ($\beta_2=0.17$).
 3. B(M1)/B(E2) values are >10 (μ_N/eb)².
 4. Regular band with backbending at the top of the band.
 5. Band intensity ~ 6%.
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 ($\beta_2 = -0.17$).
 3. B(M1)/B(E2) values >10 (μ_N/eb)².
 4. Regular band with backbending at spin 20.
 5. Band intensity ~ 6%.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	3782	9 ⁽⁻⁾				1996Pe06
	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
	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
	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
	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 ⁽⁺⁾			
8756		23 ⁽⁺⁾	375			
9166		24 ⁽⁺⁾	410	785		
9619		25 ⁽⁺⁾	453	863		
10110		26 ⁽⁺⁾	491			
10639		27 ⁽⁺⁾	529	1020		

Configurations and Comments:

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: $^{110}\text{Pd} (^{30}\text{Si}, 4n\gamma)$, $E(^{30}\text{Si}) = 125$ and 130 MeV.
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 $(\mu_N/eb)^2$.
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.
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 $(\mu_N/eb)^2$.
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.

¹³⁷Nd₇₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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

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 $\sim 5\%$.

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 $\sim 1\%$.

¹³⁸Nd₇₈

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: $^{121}\text{Sb}(^{19}\text{F}, 4n\gamma)$, $E(^{19}\text{F}) = 75$ MeV, Band intensity $\sim 4\%$.

¹³⁹Sm₇₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: ¹¹⁰Pd (³⁴S, 5n γ), E(³⁴S) = 150 and 165 MeV, Band intensity~ 11% and (1996Br33): ⁶²Ni (⁸¹Br, p3n γ), E(⁸¹Br) = 350 MeV.

¹⁴³Sm₈₁

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ¹⁴²Gd.
2. Regular band with backbending at the top of the band.
3. Nuclear reaction: ¹³⁰Te (²⁰Ne, 7n γ), E(²⁰Ne) = 137 MeV. Band intensity ~ 15%

¹⁴¹₆₃Eu₇₈

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	3075.0	27/2 ⁻				2004Po13 2003Ma95
	3416.2	29/2 ⁻	341.2			
	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 2003Ma95
	5189.1	39/2 ⁻	170.2			
	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:

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 \hbar 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: ⁹⁹Ru (⁴⁸Ti, 3p3n γ), E(⁴⁸Ti) = 240 MeV, Band intensity ~ 15%.
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 \hbar 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%.
1. Regular band with backbending at the level energy 7197 keV.
 2. Band intensity ~ 10%.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	4770	12 ⁻				2005Pa07 2002Li22
	4992	13 ⁻	222.0			
	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 2002Li22 1997Su11
	5613	16 ⁻	193			
	5899	17 ⁻	286			
	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 ⁺			
6179		17 ⁺	264.0			
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:

- $\pi(h_{11/2}^{-1} d_{5/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations and $\pi(h_{11/2}^{-1} g_{7/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from SPAC model calculations.
- Level energies have been calculated using the energy of 16⁻ level in band 2 from 2002Li22.
- Irregular band.
- Nuclear reactions: $^{99}\text{Ru}(^{48}\text{Ti}, 2p3n\gamma)$, $E(^{48}\text{Ti}) = 240$ MeV; $^{114}\text{Sn}(^{32}\text{S}, 3p2n\gamma)$, $E(^{32}\text{S}) = 160$ MeV. Band intensity ~ 8%.
- $\pi(h_{11/2}^{-1} g_{7/2}^{-1}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations.
- Small oblate deformation ($\beta_2 \approx 0.106$) suggested from the TAC calculations.
- Level energies have been calculated using the energy of 16⁻ level in band 2 from 2002Li22.
- Irregular band.
- 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.
- 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_N², respectively.
- 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.
- Band intensity ~ 12%.
- $\pi(h_{11/2}^{-2}) \otimes \nu(h_{11/2}^{-2})$ from the TAC calculations.
- Small oblate deformation ($\beta_2 \approx 0.063$) suggested from the TAC calculations.
- Regular band with backbending at 20⁺.
- 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.
- 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_N², respectively.
- 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.
- Band intensity ~ 8%.

4.	7782	22 ⁺						2005Pa07	1. $\pi(h_{1/2}^2) \otimes \nu(h_{1/2}^{-4})$ from the TAC calculations.
	8251	23 ⁺	469.6					2002Li22	2. Small oblate deformation ($\beta_2 = 0.16$) 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 $\sim 5\%$.
5.	7551	(21 ⁻)						2005Pa07	1. $\pi(h_{1/2}^1 g_{7/2}^{-1}) \otimes \nu(h_{1/2}^{-4})$ from the TAC calculations.
	7906	(22 ⁻)	355					2002Li22	2. Small oblate deformation ($\beta_2 = 0.16$) 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 $\sim 5\%$.

¹⁴³Gd₇₉

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

1. $\pi(h_{11/2}^2) \otimes \nu(h_{11/2}^{-1})$ by comparison with similar band in ¹⁴²Gd.
2. Small oblate deformation.
3. Irregular band.
4. The level energies and the transition energies are from 1997Ri16.
5. Nuclear reaction: ⁹⁷Mo(⁵¹V, p4n γ), E(⁵¹V) = 238 MeV. Band intensity ~ 30%.

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%.

1. Irregular band.
2. B(M1)/B(E2) ≥ 10 (μ_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%.

¹⁴⁴Gd₈₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ($\beta_2 \sim -0.12$).
3. Irregular band.
4. Nuclear reaction: ¹⁰⁸Pd(⁴⁰Ar, 4n γ), E(⁴⁰Ar) = 182 MeV, Band intensity ~ 15%.

¹⁴⁶Tb₈₁

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: $^{115}\text{In} (^3\text{S}, 3n\gamma)$, $E(^3\text{S}) = 140 \text{ MeV}$, Band intensity $\sim 2\%$.

	E _{level} KeV	I ^π	E _γ (M1) KeV	E _γ (E2) KeV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	4953.0	17 ⁻				2001Wi11 2001WiZZ
	5103.0	18 ⁻	150.0			
	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 2001WiZZ
	5789.4	(18 ⁺)	149.8			
	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 2001WiZZ
	202+X		202.2			
	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:

1. Tentatively assigned as $\pi(h_{9/2}^2) \otimes \nu(i_{13/2}^4)$ by comparison with neighboring ¹⁹²Hg isotopes.
2. Gamma ray transition energies are from 2001WiZZ.
3. Irregular band.
4. B(M1)/B(E2) values are close to 1 (μ_N/eb)² for the transitions from 272 to 436 keV in the low spin region and lie between 1-6 (μ_N/eb)² for the transitions from 296 to 447 keV in the high spin region of the band.
5. Nuclear reaction: ¹⁶⁰Gd (³⁴S, 4nγ), E(³⁴S) = 153 MeV, Band intensity ~ 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. (β₂, 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 (μ_N/eb)².
6. Band intensity ~ 1%.

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. (β₂, 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 (μ_N/eb)².
8. Band intensity ~ 0.5%.

¹⁹²Hg₈₀112

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ⁺)				
	6433.8	(23 ⁺)	129.8			
	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:

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: ¹⁶⁰Gd(³⁶S, 4n γ), E(³⁶S) = 159 MeV, Band intensity ~ 10%.

1. $\pi(h_{9/2}^2) \otimes \nu(i_{13/2}^4)$, I=22⁺ or $\pi(h_{11/2}^2h_{9/2}^2) \otimes \nu(i_{13/2}^2)$, 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_N² in the lower spin region and jumps to 1.1 μ_N² in the high spin region of the band.
6. Band intensity ~ 12%.

¹⁹³Hg₈₀113

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 $\pi(h_{9/2}^2h_{11/2}^2) \otimes \nu(i_{13/2}^{-3})$ in addition to p_{3/2} neutrons because of its negative parity.
2. Small oblate deformation (β₂ ~ 0.15).
3. B(M1)/B(E2) values lie in the interval 2 – 4 (μ_N/eb)².
4. Irregular band.
5. Nuclear reaction: ¹⁵⁰Nd(⁴⁸Ca, 5n γ), E(⁴⁸Ca) = 213 MeV, Band intensity ~ 20%.

2	5338.4	(47/2 ⁻)			
	5714.2	(49/2 ⁻)	(375.8)		
	6016.4	(51/2 ⁻)	(302.2)	678.0	
	6400.3	(53/2 ⁻)			
	6725.7	(55/2 ⁻)	325.4		
	6978.0	(57/2 ⁻)	252.3	577.6	
	7245.0	(59/2 ⁻)	267.0		
	7559.7	(61/2 ⁻)	314.7	581.9	
	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 ⁽⁺⁾			
	5831.4	49/2 ⁽⁺⁾	284.5		
	6067.0	51/2 ⁽⁺⁾	235.6	520.1	
	6464.0	53/2 ⁽⁺⁾	397.0	632.6	
	6839.4	55/2 ⁽⁺⁾	375.4	772.2	
	7037.0	57/2 ⁽⁺⁾	197.6		
	7197.4	59/2 ⁽⁺⁾	160.4		
	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	

1995Fo13

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 ($\beta_2 \sim 0.15$).
3. B(M1)/B(E2) values lie in the interval 2 – 4 $(\mu_N/eb)^2$.
4. Regular band with backbending at 57/2.
5. Band intensity $\sim 6\%$.

1995Fo13

1993De42

1993Ro03

1. Tentatively assigned as $\pi(h_{9/2}^2 h_{11/2}^{-2}) \otimes \nu(i_{13/2}^3)$ from the CSM calculations.
2. Small oblate deformation ($\beta_2 \sim 0.15$).
3. B(M1)/B(E2) values lie in the interval 2 – 4 $(\mu_N/eb)^2$.
4. Irregular band.
5. Band intensity $\sim 20\%$.

¹⁹⁵Hg₈₀¹¹⁵

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) $(\mu_N/eb)^2$	Reference
1	7412.2	57/2 ⁻				1998Ne01
	7744.9	59/2 ⁻	332.7			
	8067.5	61/2 ⁻	322.6	654.5		
	8456.7	63/2 ⁻	389.2	712.2		
	8892.1	65/2 ⁻	435.4	825.1		
	9331.2	67/2 ⁻	439.1	875.7		
	9785.2	69/2 ⁻	454.0	893.4		
	10220.6	71/2 ⁻		889.4		
2	5174.7	43/2 ⁺				1998Ne01
	5308.1	45/2 ⁺	133.4			
	5411.3	47/2 ⁺	103.2			
	5687.7	49/2 ⁺	276.4			
	5893.6	51/2 ⁺	205.9	481.3		
	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
	171.8+X		171.8			
	443.3+X		271.5			
	749.0+X		305.7	576.9		

Configurations and Comments:

1. $\pi(h_{11/2}^2) \otimes \nu(i_{13/2}^{-4} f_{5/2}^{-1})$ from CSM calculations.
2. Small oblate deformation.
3. B(M1)/B(E2) ratios $\sim 2 (\mu_N/eb)^2$.
4. Irregular band with backbending at 61/2.
5. Nuclear reaction: ¹⁹²Os (⁹Be, 6n γ), E(⁹Be) = 80 MeV, Band intensity $\sim 5\%$.

1. $\pi(h_{11/2}^2) \otimes \nu(i_{13/2}^{-3})$ from CSM calculations.
2. Small oblate deformation.
3. B(M1)/B(E2) ratios lie around 2 $(\mu_N/eb)^2$.
4. Irregular band.
5. Band intensity $\sim 15\%$.

1. This band has tentatively been assigned to the nucleus.
2. Irregular band.
3. Band intensity $\sim 3\%$.

¹⁹⁶Hg₈₀¹¹⁶

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 (β_2, γ) = (0.139, -72°).
3. X ≥ 0 keV.
4. B(M1)/B(E2) values range from 0.5 - 3 (μ_N/eb)²
5. Irregular band.
6. Nuclear reaction: ¹⁹²Os (⁹Be, 5nγ), E(⁹Be) = 65 MeV, Band intensity ~ 19%.

¹⁹¹Pb₈₂¹⁰⁹

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ⁺				
	2765.9	(29/2 ⁺)	337.2			
	3141.4	(31/2 ⁺)	375.5			
	3551.3	(33/2 ⁺)	409.9			

Configurations and Comments:

1. Tentatively assigned as $\pi(h_{9/2}^2 i_{13/2} s_{1/2}^{-2})_{K=11^-} \otimes \nu(i_{13/2}^{-1})$ below, and $\pi(h_{9/2}^2 i_{13/2} s_{1/2}^{-2})_{K=11^-} \otimes \nu(i_{13/2}^{-3})_{K=33/2^+}$ 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: ¹⁷³Yb (²⁴Mg, 6nγ), E(²⁴Mg) = 134.5 MeV, Band intensity ~ 10%.
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%.

¹⁹²Pb₁₁₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	4241.2	15 ⁻				1993PI02
	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 ⁻				1993PI02
	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:

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 ¹⁹¹Tl.
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: ¹⁷³Yb (²⁴Mg, 5n γ), E(²⁴Mg) = 132 MeV.

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 ¹⁹¹Tl.
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.

¹⁹³Pb₁₁₁

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	2584.8+X	29/2 ⁻				1996Du18 1996Ba54 1997Ch33 2005G109
	2686.9+X	31/2 ⁻	102.1			
	2939.2+X	33/2 ⁻	252.3			
	3320.7+X	35/2 ⁻	381.5	633.8	28(5)	
	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 2005G109 are 3.2(8) and ≤ 1 ps, respectively.
6. The B(M1) values as given in 2005G109 for the transitions 252 and 381 keV are 1.1(2) and ≥ 1.4 μ_N², respectively.
7. The B(E2) value for the transition 633 keV as given in 2005G109 is ≥ 0.1 (eb)².
8. Regular band with backbending at 41/2.
9. Nuclear reaction: ¹⁶⁸Er (³⁰Si, 5n γ), E(³⁰Si) = 159 MeV, Band intensity ~ 17%.

2	4297.7+X	(39/2 ⁺)					1996Du18	1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^2 p_{3/2})$ by comparison with similar bands in neighboring Pb nuclei.
	4387.7+X	(41/2 ⁺)	90.0				1998Cl06	2. Oblate deformation.
	4536.6+X	(43/2 ⁺)	148.9					3. X ~ 100 keV from systematics.
	4768.6+X	(45/2 ⁺)	232.0					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) (μ_N^2), respectively.
	5060.2+X	(47/2 ⁺)	291.6					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.
	5425.4+X	(49/2 ⁺)	365.2	656.8	15(3)			6. Regular band with backbending at spin 59/2.
	5815.0+X	(51/2 ⁺)	389.6	754.7	12(3)			7. Band intensity ~ 7%.
	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. $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^2 f_{5/2})$ by comparison with similar bands in neighboring Pb nuclei.
	5169.1+X	(45/2 ⁺)	224.3					2. Oblate deformation.
	5436.6+X	(47/2 ⁺)	267.5					3. X ~ 100 keV from systematics.
	5762.8+X	(49/2 ⁺)	326.2					4. Regular band.
	6145.2+X	(51/2 ⁺)	382.4					5. Band intensity ~ 3%.
4	5092.7+X	(45/2 ⁻)					1996Du18	1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^3)$ by comparison with similar bands in neighboring Pb nuclei.
	5331.8+X	(47/2 ⁻)	239.1				1996Ba54	2. Oblate deformation.
	5597.4+X	(49/2 ⁻)	265.6					3. X ~ 100 keV from systematics.
	5926.9+X	(51/2 ⁻)	329.5					4. Regular band.
	6302.5+X	(53/2 ⁻)	375.6					5. Band intensity ~ 0.6%.
	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 $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^3)$ or $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2} h_{9/2}^2)$ from HF+BCS calculations.
	6001.6+X	(51/2 ⁻)	176.3					2. X ~ 100 keV from systematics.
	6285.3+X	(53/2 ⁻)	283.7					3. Parity assignment is based on three M1 transitions to band 1.
	6597.2+X	(55/2 ⁻)	311.9					4. Regular band.
	6927.6+X	(57/2 ⁻)	330.4					5. Band intensity ~ 0.6%.
	7312.1+X	(59/2 ⁻)	384.5					
	7713.6+X	(61/2 ⁻)	401.5					

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References	Configurations and Comments:
1.	4375.9 4506.0 4642.6 4805.5 5108.7 5505.6 5882.0 6245.0 6505.6	13 ⁺ 14 ⁺ 15 ⁺ 16 ⁺ 17 ⁺ 18 ⁺ 19 ⁺ 20 ⁺ 21 ⁺	130.1 136.6 162.9 303.2	700.0 376.4 739.8	17(3) 18(4) 16(3)	2002Ka01	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu\{i_{13/2}(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity and from a comparison with the isotone ¹⁹²Hg. 2. Regular band with backbending at 19⁺. 3. Nuclear reaction: ¹⁸⁴W (¹⁶O, 6nγ), E(¹⁶O) = 113 MeV, Band intensity ~ 11%.
2.	4726.5 4887.7 5121.5 5409.4 5757.2 6131.5 6528.4 6905.9 7266.9	16 ⁺ 17 ⁺ 18 ⁺ 19 ⁺ 20 ⁺ 21 ⁺ 22 ⁺	162.2 232.8 287.9 347.8 374.3 396.9 377.5 361.0	636.0 722.2 771.1	8(3) 7(3) 6(2)	2002Ka01 1993Me12	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 7/2[514])_{\kappa=8^+} \otimes \nu(i_{13/2}^2)$ at low spin and $\pi(9/2[505] \otimes 7/2[514])_{\kappa=8^+} \otimes \nu(i_{13/2}^4)$ 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%.
3.	4963.1 5082.3 5227.0 5396.9 5657.0 5993.2 6368.7 6785.8 7209.5 7651.4 8079.6 8464.6	16 ⁻ 17 ⁻ 18 ⁻ 19 ⁻ 20 ⁻ 21 ⁻ 22 ⁻ 23 ⁻ 24 ⁻ 25 ⁻ 26 ⁻ (27)	119.2 144.7 196.9 260.1 336.2 375.5 417.1 423.7 441.9 428.2 385	711.7 793.3 (840)	18(5) 13(3)	2002Ka01 1993Me12 1994Po08 1995Ka19 1998Cl06 1998Ka59	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^2)$ before and $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^4)$ 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 ¹⁹²Hg. 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_N²), 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%.
4.	5461.9 5590.9 5786.7 5995.1 6264.5	(17) (18 ⁻) (19 ⁻) (20 ⁻) (21 ⁻)	129.0 195.8 208.4 269.4			2002Ka01	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^2)$ from the spin, parity and from a comparison with the isotone ¹⁹²Hg. 2. Regular band. 3. Band intensity ~ 2.5%.
5.	6291.4 6639.4 6990.0 7306.4 7611.4 7907.9	20 ⁺ 21 ⁺ 22 ⁺ 23 ⁺ (24) (25)	348.0 350.6 316.4 305.0 296.5	(757) (699)		2002Ka01	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu\{h_{11/2}^2 i_{13/2}(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity. 2. Irregular band. 3. Band intensity ~ 2.5%.
6.	X 201.9+X 451.0+X 727.3+X 1044.8+X		201.9 249.1 276.3 317.5			2002Ka01	<ol style="list-style-type: none"> 1. Tentatively assigned as $\pi(9/2[505] \otimes 7/2[514])_{\kappa=8^+} \otimes \nu\{i_{13/2}^3(p_{3/2}f_{5/2})^1\}$ from the excitation energy, spin and parity. 2. X ~ 6.4 keV. 3. Regular band.

1407.9+X	363.1
1792.6+X	384.7
2205.1+X	412.5

4. Band intensity ~ 1%.

7	6505.6	21 ⁺		2002Ka01
	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	

1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu\{i_{13/2} (f_{5/2} i_{13/2})^1\}$ from the spin and parity.
2. Regular band.
3. Band intensity ~ 3.5%.

8	Y			2002Ka01
	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	

1. Tentatively assigned as $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \{\pi(h_{11/2}^2) \nu(i_{13/2}^2)\}$ from the spin and parity.
2. Regular band with backbending at the top of the band.
3. Band intensity ~ 2%.

¹⁹⁵Pb₁₁₃

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	2968.3	27/2 ⁻				1996Ka15
	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
	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)			

Configurations and Comments:

1. $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2})$ by comparison with the neighboring ¹⁹⁴Pb and ¹⁹⁵Tl.
2. Oblate shape
3. Parities are from 1995Fa19.
4. Irregular band with backbending at the top of the band.
5. Nuclear reaction: ¹⁸⁴W (¹⁶O, 5nγ), E(¹⁶O) = 113 MeV, Band intensity ~ 5%.
1. $\pi(9/2[505] \otimes 13/2[606])_{\kappa=11^-} \otimes \nu(i_{13/2}^3)$ by comparison with the neighboring ¹⁹⁴Pb and ¹⁹⁵Tl.
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.

3	4465.6	(33/2 ⁻)					1996Ka15 1995Fa19
	4560.4	(35/2 ⁻)	94.8				
	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 $\sim 15\%$.

$^{196}\text{Pb}_{114}$

	E_{level} keV	I^π	$E_\gamma(\text{M1})$ keV	$E_\gamma(\text{E2})$ keV	$B(\text{M1})/B(\text{E2})$ (μ_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					
	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						

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: $^{170}\text{Er} (^{30}\text{Si}, 4n\gamma)$, $E(^{30}\text{Si}) = 144$ MeV and $^{186}\text{W} (^{16}\text{O}, 6n\gamma)$, $E(^{16}\text{O}) = 110$ MeV, Band intensity $\sim 5\%$.
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 $\sim 7\%$.

3.	4995.4	17 ⁺			
	5188.1	18 ⁺	192.7		
	5502.6	19 ⁺	314.5	507.2	16(4)
	5877.2	20 ⁺	374.6	689.1	19(4)
	6232.5	21 ⁺	355.3	729.9	21(4)
	6574.1	22 ⁺	341.6	696.9	19(5)
	6817.7	23 ⁺	243.6	585.2	47(12)
	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		

2002Si20
2002Si29
2001Ke12
1996Ba53
1993Hu01
1995Mo01
1998Cl06

- $\pi(i_{13/2}h_{9/2})_{K=11^-} \otimes \nu[i_{13/2}^{-1}(p_{3/2}f_{5/2})^1]$ 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.
- Oblate deformation ($|\beta_2| < 0.1$).
- Regular band with backbending at 20⁺.
- 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.
- 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.
- 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.
- Band intensity ~ 30%.

4.	5155.3	16 ⁻			
	5236.0	17 ⁻	80.7		
	5342.9	18 ⁻	106.9		
	5480.9	19 ⁻	138.0		
	5684.8	20 ⁻	203.9		
	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		

2002Si20
2002Vy02
1995Mo01
1993Hu01
1996Ba53

- $\pi(i_{13/2}h_{9/2})_{K=11^-} \otimes \nu(i_{13/2}^{-2})$ 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.
- Oblate deformation ($|\beta_2| < 0.1$).
- Regular band with backbending at 26⁻.
- The value of deformation parameter $\beta_2 = -0.13$ is based on experimental measurement of Q for 11⁻ level by 2002Vy02.
- 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.
- Band intensity ~ 22%.

5.	5265.4	16 ⁻			
	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		

2002Si20

- Irregular band showing a different behavior than the other MR bands. Due to its irregularity the MR assignment to this band is uncertain.
- Band intensity ~ 1.5%.

6.	5886.6	18 ⁻				2002Si20	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes$
	6041.6	19 ⁻	155.0			1996Ba53	$v[i_{13/2}^{-2}(p_{3/2}f_{5/2})^2]$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes$
	6185.3	20 ⁻	143.7			1993Hu01	$v[i_{13/2}^{-2}(p_{3/2}f_{5/2})^4]$ after the band crossing by
	6349.4	21 ⁻	164.1			1995Mo01	comparison with the configuration of band 4
	6557.7	22 ⁻	208.3				and the alignment properties.
	6807.9	23 ⁻	250.2				2. Oblate deformation ($ \beta_2 < 0.1$).
	7117.0	24 ⁻	309.1				3. Regular band with backbending at 26 ⁻ .
	7492.1	25 ⁻	375.1				4. Band intensity $\sim 5\%$.
	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	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes$
	7041.8	23 ⁺	261.7			2002Si29	$v[i_{13/2}^{-3}(p_{3/2}f_{5/2})^1]$ before and $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes$
	7336.7	24 ⁺	294.9			1995Mo01	$v[i_{13/2}^{-2}(p_{3/2}f_{5/2})^4]$ after the gain in alignment at
	7634.6	25 ⁺	297.9			1996Ba53	a frequency around 0.45 MeV by comparison
	7977.5	26 ⁺	342.9				with the configuration of band 3 and a
	8356.9	27 ⁺	379.4				similar band in ¹⁹⁴ Pb.
	8769.2	28 ⁺	412.3				2. Oblate deformation ($ \beta_2 < 0.1$).
	9201.7	29 ⁺	432.5				3. The bandhead could have been one of the 21 ⁺
	9645.4	30 ⁺	443.7				states at 6534.1 and 6589.7 keV also.
	10099.4	31 ⁺	454.0				4. Lifetimes of levels from 26 ⁺ to 31 ⁺ as given in
	10568.0	32 ⁺	468.6				2002Si29 are 0.17(3), 0.15(+3-2), 0.13(+3-2),
	11059.4	33 ⁺	491.4				0.14(+3-2), 0.11(2) and 0.13(+3-2) ps,
	11585.6	34 ⁺	526.2				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 $\sim 3.5\%$.
8.	7912.0	26 ⁽⁺⁾				2002Si20	1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11}^- \otimes$
	8201.0	27 ⁽⁺⁾	289.0			2002Si29	$v[i_{13/2}^{-3}(p_{3/2}f_{5/2})^1]$ by comparison with the
	8540.3	28 ⁽⁺⁾	339.3				configuration of band 3 and with the
	8939.8	29 ⁽⁺⁾	399.5				similar decay pattern between the similar
	9403.9	30 ⁽⁺⁾	464.1				bands in ¹⁹⁹ Pb.
	9917.1	31 ⁽⁺⁾	513.2				2. Oblate deformation ($ \beta_2 < 0.1$).
	10461.7	32 ⁽⁺⁾	544.6				3. Lifetimes of levels from 27 ⁽⁺⁾ to 31 ⁽⁺⁾ as given in
	11027.9	33 ⁽⁺⁾	566.2				2002Si29 are 0.23(4), 0.15(+3-2), 0.13(2),
	11625.1	34 ⁽⁺⁾	597.2				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 $\sim 2\%$.

9.	X	
	150.3+X	150.3
	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)

2002Si20
2002Si29

1. Tentatively assigned as $\pi(i_{13/2}h_{9/2})_{K=11^-} \otimes v(i_{13/2}^{-2})$ before and $\pi(i_{13/2}h_{9/2})_{K=11^-} \otimes v[i_{13/2}^{-2}(p_{3/2}f_{5/2})^2]$ 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 3.97(75) μ_N^2 , respectively.
6. Band intensity $\sim 2\%$.

¹⁹⁷Pb₁₁₅

	E _{level} KeV	I ^π	E _γ (M1) KeV	E _γ (E2) keV	B(M1)/B(E2) (μ_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. $\pi(h_{9/2}i_{13/2})_{K=11^-} \otimes v(i_{13/2}^{-1})$ below crossing, $\pi(h_{9/2}i_{13/2})_{K=11^-} \otimes v(i_{13/2}^{-3})$ above the first band crossing and $\pi(h_{9/2}i_{13/2})_{K=11^-} \otimes v(i_{13/2}^{-3}(f_{5/2}p_{3/2})^{-2})$, 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: $^{186}\text{W} (^{18}\text{O}, 7n\gamma) E(^{18}\text{O}) = 104, 110 \text{ and } 115 \text{ MeV}$, Band intensity $\sim 18\%$.

2.	4794.0	37/2 ⁺				2001Go06 1999Po13 1995Ba35 1992Ku06 1993Hu08 1994Cl01 1998Cl06	<ol style="list-style-type: none"> 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 \sim 5%.
	4906.4	39/2 ⁺	112.4				
	5057.7	41/2 ⁺	151.3				
	5258.3	43/2 ⁺	200.6				
	5525.0	45/2 ⁺	266.7				
	5861.7	47/2 ⁺	336.7				
	6265.6	49/2 ⁺	403.9	740.7	85(47)		
	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 1995Ba35 1999Po13	<ol style="list-style-type: none"> 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 \sim 2%. 	
	5395.3	41/2 ⁽⁺⁾	162.7				
	5614.1	43/2 ⁽⁺⁾	218.8				
	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	<ol style="list-style-type: none"> 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 calculations. 2. Small oblate deformation. 3. Regular band. 4. Band intensity \sim 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	<ol style="list-style-type: none"> 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 calculations. 2. Small oblate deformation. 3. Regular band. 4. Band intensity \sim 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				

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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				
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			
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				

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: $^{186}\text{W} (^{18}\text{O}, 6n\gamma) E(^{18}\text{O}) = 104, 110 \text{ and } 115 \text{ MeV, Band intensity } \sim 10\%$.
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 $\sim 3\%$.
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 $\sim 10\%$.

4	(6392.6)	(18 ⁻)		
	(6515.3)	(19 ⁻)	122.7	
	(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

2001Go06
1993Cl05

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 $\sim 5\%$.

5.	7333.4	(23 ⁺)		
	7554.4	(24 ⁺)	221.0	
	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	

2001Go06
1993Cl05

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 $\sim 7\%$.

¹⁹⁹Pb₁₁₇

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	References
1	3604.2	(25/2 ⁻)				1995Ne09
	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)		

Configurations and Comments:

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 (β_2, γ) $\sim (0.1, -70^\circ)$
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_N² 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_N², respectively.
5. Regular band with backbending at 41/2.
6. Nuclear reaction: ¹⁸⁶W (¹⁸O, 5nγ) E(¹⁸O) = 92 and 94 MeV. Band intensity $\sim 18\%$

2	X	(35/2 ⁺)			
	98.2+X	(37/2 ⁺)	98.2		
	223.2+X	(39/2 ⁺)	125.0		
	388.8+X	(41/2 ⁺)	165.6		
	603.4+X	(43/2 ⁺)	214.6		
	871.2+X	(45/2 ⁺)	267.8		
	1194.3+X	(47/2 ⁺)	323.1		
	1571.4+X	(49/2 ⁺)	377.1	700.1	28(9)
	2001.7+X	(51/2 ⁺)	430.3	807.1	49(28)
	2483.6+X	(53/2 ⁺)	481.9	912.4	52(20)
	3015.6+X	(55/2 ⁺)	532.0	1014.2	30(9)
	3589.2+X	(57/2 ⁺)	573.6	1105.7	34(10)
	4207.4+X	(59/2 ⁺)	618.5	1192.1	45(11)
	4546.6+X	(61/2 ⁺)	339.2		
	4932.5+X	(63/2 ⁺)	385.9		
	5353.5+X	(65/2 ⁺)	421.0		
	5806.9+X	(67/2 ⁺)	453.4		
	6303.4+X	(69/2 ⁺)	496.5		
	6845.9+X	(71/2 ⁺)	542.5		
	7433.6+X	(73/2 ⁺)	587.7		

1999Po13
1995Ne09
1992Ba13
1994Ba43
1997Cl03

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 $(\beta_2, \gamma) \sim (0.1, -70^\circ)$ suggested in 1995Ne09.
3. Mean lifetimes of states with spins from 47/2 to 55/2 are 0.19(+15-8), 0.14(+6-4), 0.10(+3-2), 0.06(2) and 0.11(2) ps, respectively and that for spin 57/2 as given in 1997Cl03 is 0.14(+3-2)
4. B(M1) value for the transition 323.1 keV is 6.6(+47-29) μ_N^2 from 1995Ne09.
5. B(M1)/B(E2) values are from 1992Ba13.
6. Regular band with backbending at spin 61/2.
7. Nuclear reactions: $^{192}\text{Os} (^{12}\text{C}, 5n\gamma)$, $E(^{12}\text{C}) = 82$ MeV, and $^{186}\text{W} (^{18}\text{O}, 5n\gamma)$, $E(^{18}\text{O}) = 94$ MeV, Band intensity $\sim 12\%$.

3	Y	(39/2 ⁺)			
	137.7+Y	(41/2 ⁺)	137.7		
	302.3+Y	(43/2 ⁺)	164.6		
	510.6+Y	(45/2 ⁺)	208.3		
	781.6+Y	(47/2 ⁺)	271.0		
	1123.6+Y	(49/2 ⁺)	342.0		
	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	

1994Ba43
1999Po13
1995Ne09

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2})_{K=11}^- \otimes \nu(i_{13/2}^{-2}f_{5/2}^{-1})$ from the TAC model calculation.
2. Small oblate deformation $(\beta_2, \gamma) \sim (0.1, -70^\circ)$
3. The topmost transition is from 1999Po13.
4. Regular band.
5. Band intensity $\sim 5\%$

4	Z				
	97.7+Z		97.7		
	232.9+Z		135.2		
	426.1+Z		193.2		
	673.5+Z		247.4		
	967.6+Z		294.1	541.4	
	1349.7+Z		382.1	676.2	
	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		

1994Ba43
1999Po13

1. Tentatively assigned as $\pi(h_{9/2}^2)_{K=8}^+ \otimes \nu(i_{13/2}^{-3})$.
2. The estimated bandhead spin is 37/2 since it populates states with spin around 33/2.
3. The two topmost transitions are from 1999Po13
4. Regular band with signature splitting and backbending at the top of the band.
5. Band intensity $\sim 9\%$.

5	U				
	242.9+U		242.9		
	550.2+U		307.3		
	863.2+U		313.0	620.5	
	1247.8+U		384.6	697.6	
	1661.8+U		414.0	798.7	
	2148.8+U		487.0	901.4	

1994Ba43

1. Tentatively assigned as $\pi(h_{9/2}^2)_{K=8}^+ \otimes \nu(i_{13/2}^{-4}p_{3/2}^{-1})$.
2. The estimated bandhead spin is 45/2 since it populates states with spin around 41/2.
3. Regular band with signature splitting.
4. Band intensity $\sim 5\%$.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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): ¹⁹²Os (¹³C, 5nγ)
E(¹³C) = 81 MeV, Band intensity ~ 12%.

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%.

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.

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1	X					1995Ba70
	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
	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
	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
	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
	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			

Configurations and Comments:

1. $\pi(h_{9/2}i_{13/2})_{K=11^-} \otimes \nu(i_{13/2}^{-1})$ by comparison with a similar band in ¹⁹⁹Pb.
2. Regular band.
3. Nuclear reaction: ¹⁹²Os (¹⁴C, 5n γ), E(¹⁴C) = 76 MeV, Band intensity ~ 11(4)%.

1. $\pi(h_{9/2}i_{13/2})_{K=11^-} \otimes \nu(i_{13/2}^{-2}p_{3/2}^{-1})$ by comparison with ¹⁹⁹Pb 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)%.

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)%.

1. Regular band.
2. Band intensity ~ 7(4)%.

1. Regular band.
2. Band intensity ~ 8(4)%.

²⁰²₈₂Pb₁₂₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _N /eb) ²	Reference
1.	X					2000Go47 1995Ba70
	161.3+X		161.3			
	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:

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: ¹⁹⁸Pt (⁹Be, 5nγ), E(⁹Be) = 60 MeV, Band intensity ~ 6%.

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%.

¹⁹⁷₈₃Bi₁₁₄

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 ¹⁹⁶Pb and ¹⁹⁹Bi.
2. Oblate deformation (β₂ = 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: ¹⁸¹Ta (²²Ne, 6nγ), E(²²Ne) = 125 MeV.

¹⁹⁸Bi₈₃¹¹⁵

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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 $\mathfrak{Z}^{(2)}$ with that of band 2 of ¹⁹⁶Pb.
 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: ¹⁸⁴W (¹⁹F, 5n γ), E(¹⁹F) = 107 MeV, intensity of 202.3 keV transition ~ 22(2)% relative to the lowest lying 345.4 keV transition.
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.
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.
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: ¹⁸⁶W (¹⁹F, 7n γ), E(¹⁹F) = 115 and 105 MeV, Band intensity ~ 25% relative to the low lying 630 keV transition.

¹⁹⁹Bi₈₃¹¹⁶

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: ¹⁸⁶W (¹⁹F, 6n γ), E(¹⁹F) = 115 and 105 MeV, Band intensity ~ 20% relative to 495 keV 31/2⁻ → 29/2⁻ transition.

²⁰⁰Bi₈₃¹¹⁷

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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: ¹⁸⁶W (¹⁹F, 5n γ), E(¹⁹F) = 115 and 105 MeV, Band intensity ~ 20% relative to the low lying 326 keV transition.
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) ≥ 10 (μ_N/eb)².
 3. Regular band.
 4. Band intensity ~ 30% relative to the low lying 326 keV transition.

²⁰²₈₃Bi₁₁₉

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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:

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: $^{196}\text{Pt} (^{11}\text{B}, 5n\gamma)$, $E(^{11}\text{B}) = 75$ MeV, Band intensity $\sim 15\%$.

1. Tentatively assigned as $\pi(h_{9/2}i_{13/2}s_{1/2}^{-1})$ or $\pi(h_{9/2}^2s_{1/2}^{-1})$ 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 $\sim 4\%$.

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 $\sim 3\%$.

²⁰³₈₃Bi₁₂₀

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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: $^{198}\text{Pt} (^{11}\text{B}, 6n\gamma)$, $E(^{11}\text{B}) = 74$ MeV, Band intensity $\sim 15\%$ relative to the 689 keV transition.

²⁰⁵**Rn**₈₆₁₁₉

	E _{level} keV	I ^π	E _γ (M1) keV	E _γ (E2) keV	B(M1)/B(E2) (μ _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 $\pi(h_{9/2}i_{13/2}) \otimes v(i_{13/2})$ from the TAC calculations. Since the observed parities are positive, the configuration $\pi(i_{13/2}^2) \otimes v(i_{13/2})$ is tentatively assigned.
2. Small oblate deformation, $\beta_2 \sim -0.1$.
3. X ~ 600 keV from systematics.
4. Irregular band.
5. Nuclear reaction: $^{170}\text{Er} (^{40}\text{Ar}, 5n\gamma), E(^{40}\text{Ar}) = 183 \text{ MeV}$, band intensity ~ 25%.

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