(HI,xnγ):highly deformed 2000Pf01,1993Ri02

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152, 331 (2018)	1-Apr-2018

2000Pf01: ^{105}Pd(^{35}Cl,2p2nγ) with E(^{35}Cl)= 173 and 180 MeV. Measured Eγ and γγ using Gammasphere array of 57 (thin target experiment) and 97 (backed target experiment) Compton-suppressed HPGe detectors, coupled with the MICROBALL array. Deduced transition quadrupole moments from lifetime measurements. Confirmed highly deformed band seen in 1993Ri02 and identified three additional highly-deformed structures. Summary of results presented in 2002La09.

1993Ri02: ^{106}Pd(^{34}S,p3nγ) with E(^{34}S)=165 MeV. Measured Eγ, γγ coincidences using 18 Compton-suppressed Ge detectors and 52 NaI elements of the Spin Spectrometer, coupled with the Washington University Dwarf Ball for charge particle-γ coincidences. Also ^{108}Pd(^{32}S,p3nγ) with E(^{32}S)=145 MeV. Measured Eγ, γγ coincidences using 9 Compton-suppressed Ge detectors plus a 28-element BGO sum energy/multiplicity ball.

^{136}Pm Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
v#	J	12955+v#	J+26	679+z&	J2+2	41+u[a]	J3
533+v#	J+2	w@	J1	1436+z&	J2+4	753+u[a]	J3+2
1136+v#	J+4	675+w@	J1+2	2263+z&	J2+6	1551+u[a]	J3+4
1799+v#	J+6	1386+w@	J1+4	3155+z&	J2+8	2418+u[a]	J3+6
2541+v#	J+8	2161+w@	J1+6	4112+z&	J2+10	3353+u[a]	J3+8
3368+v#	J+10	3019+w@	J1+8	5138+z&	J2+12	4352+u[a]	J3+10
4282+v#	J+12	3957+w@	J1+10	6231+z&	J2+14	5421+u[a]	J3+12
5282+v#	J+14	4974+w@	J1+12	7391+z&	J2+16	6557+u[a]	J3+14
6367+v#	J+16	6066+w@	J1+14	8617+z&	J2+18	7759+u[a]	J3+16
7535+v#	J+18	7232+w@	J1+16	9909+z&	J2+20	9027+u[a]	J3+18
8786+v#	J+20	8469+w@	J1+18	11274+z&	J2+22	10368+u[a]	J3+20
10116+v#	J+22	9779+w@	J1+20	12720+z&	J2+24	11787+u[a]	J3+22
11513+v#	J+24	z&	J2	u[a]	J3		

† From Eγ.

‡ Members of highly deformed rotational bands, based on the γ energies and intensity pattern.

Band(A): highly-deformed band #1. Q(intrinsic)=5.2 *3*. Configuration=$\pi h_{11/2}\nu i_{13/2}$. Population intensity=9% of the reaction channel.

@ Band(B): highly-deformed band #2. Q(intrinsic)=5.2 *4*. Configuration=$\pi h_{11/2}\nu i_{13/2}$. Band #1 and band #2 are probably signature partners. Population intensity=3% of the reaction channel. This band may feed the lower members of band #1.

& Band(C): highly-deformed band #3. Q(intrinsic)=5.7 *6*. Configuration=$\pi(d_{5/2}g_{7/2})\nu i_{13/2}$. Population intensity=3% of the reaction channel.

[a] Band(D): highly-deformed band #4. Q(intrinsic)=5.7 *6*. Configuration=$\pi(d_{5/2}g_{7/2})\nu i_{13/2}$. Band #3 and band #4 are probably signature partners. Population intensity=2% of the reaction channel.

γ(^{136}Pm)

Several ^{136}Pm γ's from the decay of low-spin, normal deformed bands were observed in coincidence with each of 4 rotational bands: 167.8 keV, 199.1 keV, 285.4 keV and 291.8 keV.

Continued on next page (footnotes at end of table)

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$\gamma(^{136}Pm)$ (continued)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ	E_i(level)	J_i^π	E_f	J_f^π
533‡	533+v	J+2	v	J	1017	4974+w	J1+12	3957+w	J1+10
603	1136+v	J+4	533+v	J+2	1026	5138+z	J2+12	4112+z	J2+10
663	1799+v	J+6	1136+v	J+4	1069	5421+u	J3+12	4352+u	J3+10
675	675+w	J1+2	w	J1	1085	6367+v	J+16	5282+v	J+14
679	679+z	J2+2	z	J2	1092	6066+w	J1+14	4974+w	J1+12
711	1386+w	J1+4	675+w	J1+2	1093	6231+z	J2+14	5138+z	J2+12
712	753+u	J3+2	41+u	J3	1136	6557+u	J3+14	5421+u	J3+12
742	2541+v	J+8	1799+v	J+6	1160	7391+z	J2+16	6231+z	J2+14
753	753+u	J3+2	u	J3	1166	7232+w	J1+16	6066+w	J1+14
757	1436+z	J2+4	679+z	J2+2	1168	7535+v	J+18	6367+v	J+16
775	2161+w	J1+6	1386+w	J1+4	1202	7759+u	J3+16	6557+u	J3+14
798	1551+u	J3+4	753+u	J3+2	1226	8617+z	J2+18	7391+z	J2+16
x818†					1237	8469+w	J1+18	7232+w	J1+16
827	3368+v	J+10	2541+v	J+8	1251	8786+v	J+20	7535+v	J+18
827	2263+z	J2+6	1436+z	J2+4	1268	9027+u	J3+18	7759+u	J3+16
858	3019+w	J1+8	2161+w	J1+6	1292	9909+z	J2+20	8617+z	J2+18
867	2418+u	J3+6	1551+u	J3+4	1310	9779+w	J1+20	8469+w	J1+18
892	3155+z	J2+8	2263+z	J2+6	1330	10116+v	J+22	8786+v	J+20
914	4282+v	J+12	3368+v	J+10	1341	10368+u	J3+20	9027+u	J3+18
935	3353+u	J3+8	2418+u	J3+6	1365	11274+z	J2+22	9909+z	J2+20
938	3957+w	J1+10	3019+w	J1+8	1397	11513+v	J+24	10116+v	J+22
957	4112+z	J2+10	3155+z	J2+8	1419	11787+u	J3+22	10368+u	J3+20
999	4352+u	J3+10	3353+u	J3+8	1442	12955+v	J+26	11513+v	J+24
1000	5282+v	J+14	4282+v	J+12	1446	12720+z	J2+24	11274+z	J2+22

† Observed as a stopped transition in the thick target data and assigned to the decay of Band 1 to the normally deformed states.
‡ 2000Pf01 assign transition as member of Band 1, whereas 1993Ri02 identify a 533γ as the yrast (8^-) to (6^-) transition in ^{136}Pm.
x γ ray not placed in level scheme.

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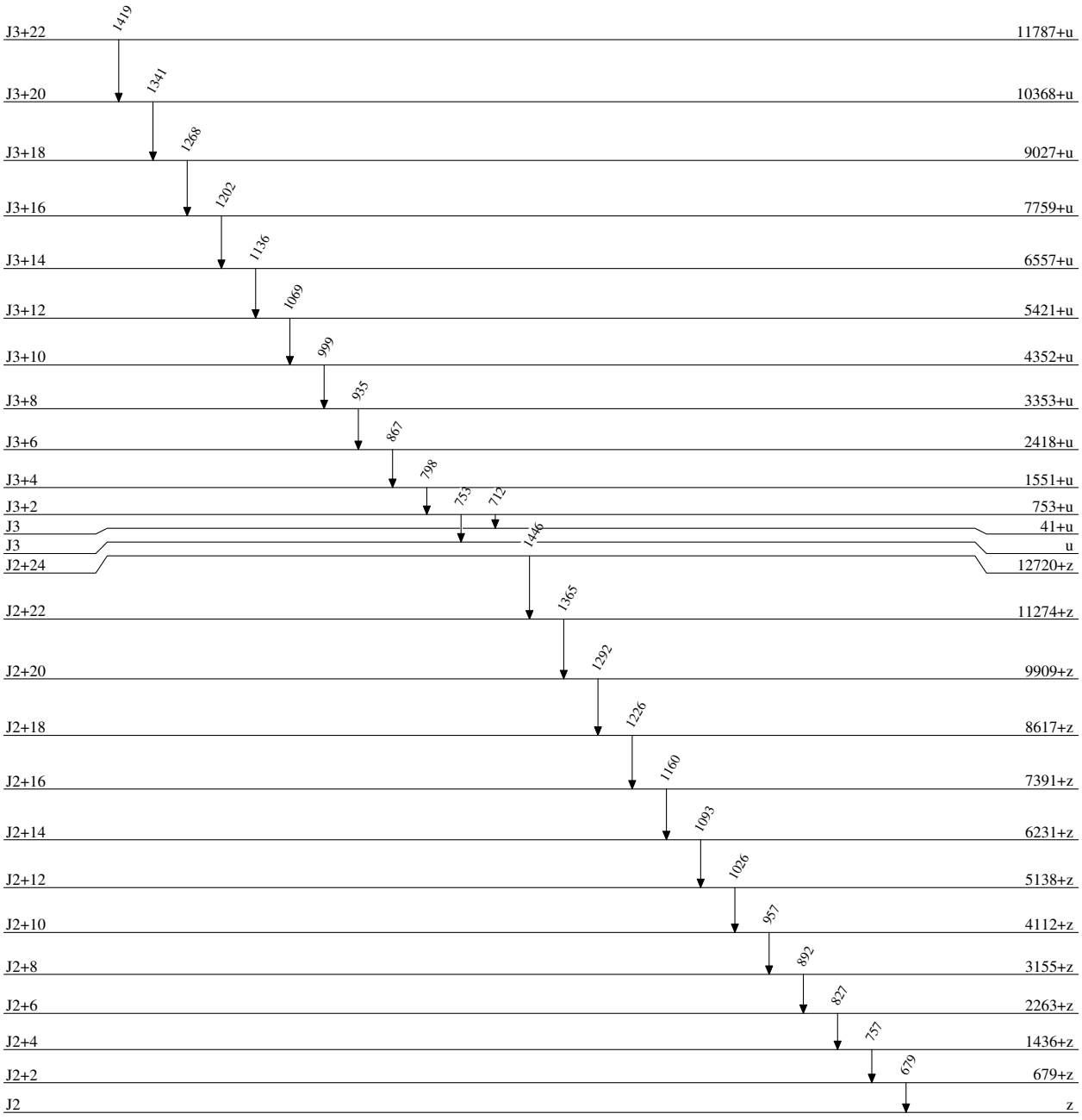
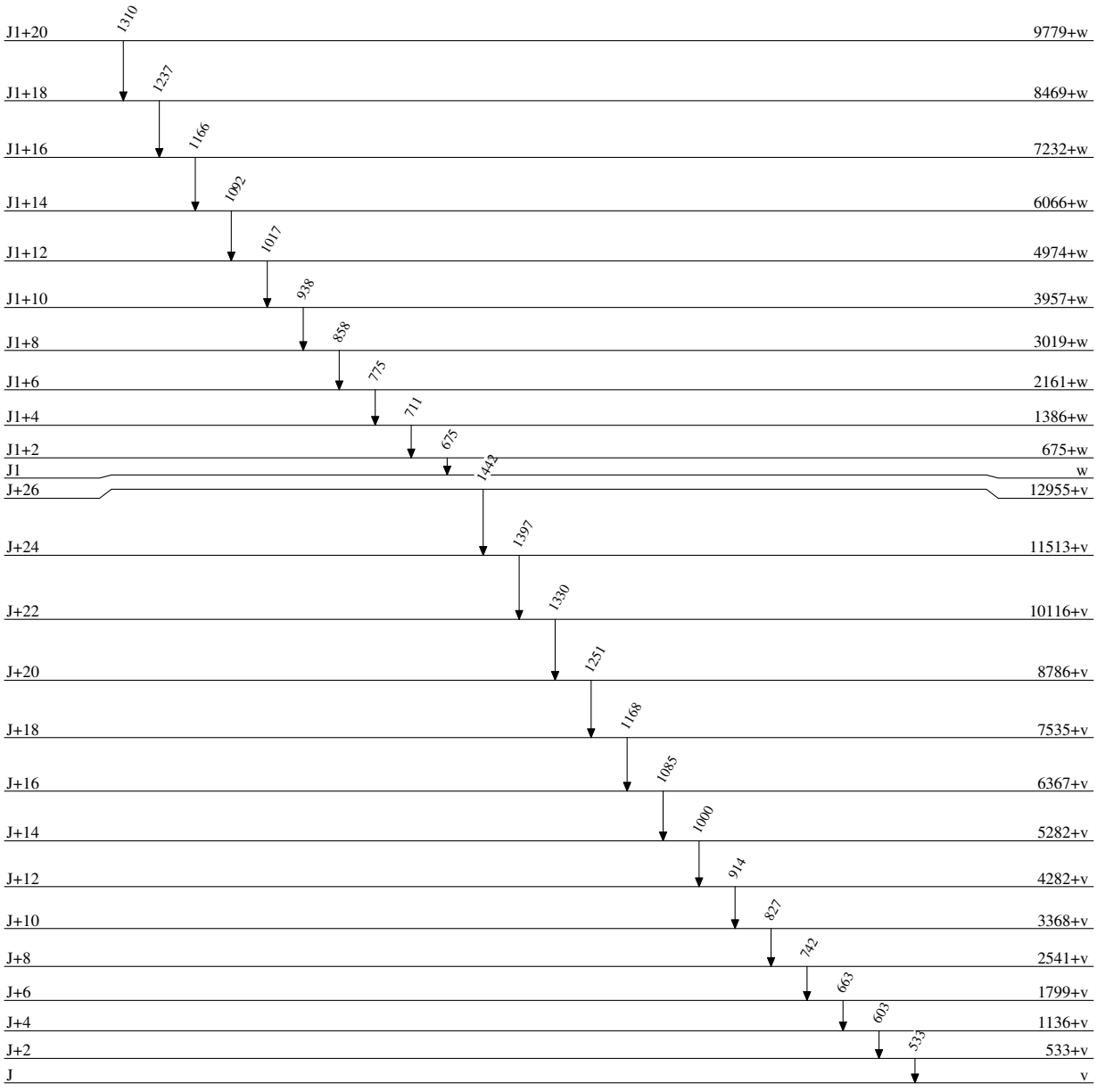
Level Scheme



$^{136}_{61}Pm_{75}$

(HI,xnγ):highly deformed 2000Pf01,1993Ri02

Level Scheme (continued)



$^{136}_{61}Pm_{75}$

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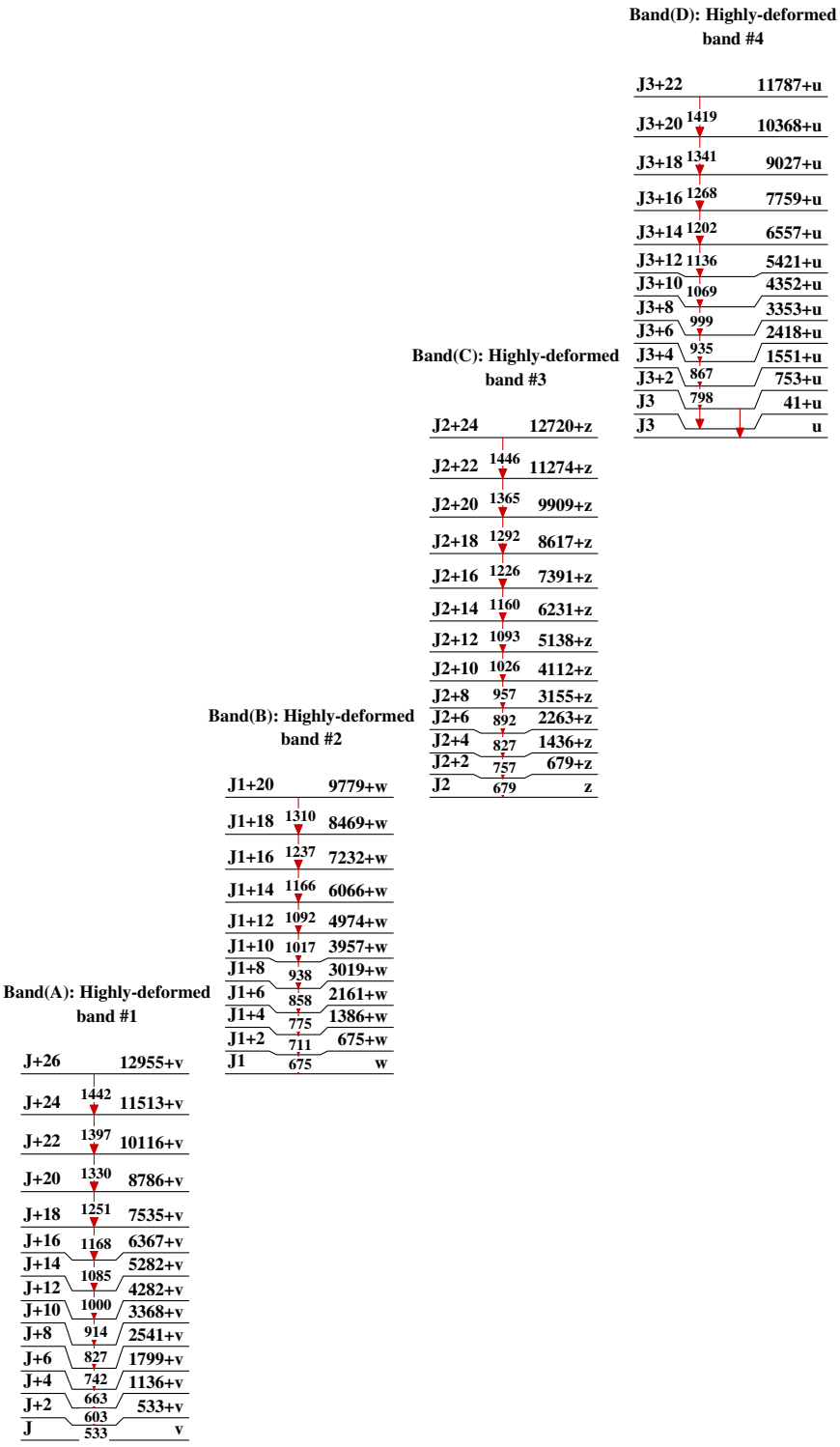

$^{136}_{61}Pm_{75}$