(HI,xnγ):SD **1998By02,1996De04,1995DeZZ**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 117, 1 (2014)	1-Oct-2013

Additional information 1.

1998By02: ^{124}Sn(^{30}Si,6nγ) E=158 MeV. Measured Eγ, Iγ, γγγ using EUROGAM array of 54 Compton-suppressed Ge detectors. Three new SD bands reported.

1996De04: ^{124}Sn(^{29}Si,5nγ) E=157 MeV. Discrete γ-ray data for 6-SD bands obtained with GASP array (40 Compton-suppressed Ge detectors and 80 BGO detectors).

1995DeZZ: ^{124}Sn(^{30}Si,6nγ). Discrete γ-ray data for 6-SD bands obtained from higher-fold γ-ray coincidence data using the EUROGAM array consisting of 54 Compton-suppressed Ge detectors.

1996Sa15 (see also 2001Cl05): ^{124}Sn(^{30}Si,6nγ) E=158 MeV. Measured lifetimes and deduced Q for SD-1, SD-2, SD-3 bands, using the EUROGAM array consisting of 54 Compton-suppressed Ge detectors.

1997Zh03: study of feeding mechanism of SD bands through observation of continuum γ rays feeding normal and superdeformed states, using GASP array, yrast-SD band reported.

1997Ha19: ^{124}Sn(^{29}Si,5nγ) E=158 MeV. Deduced six SD bands, evidence for ΔJ=2 staggering for SD-6 band.

1993Ha19: ^{124}Sn(^{30}Si,5nγ) E=155 MeV.

1992Fl02: ^{124}Sn(^{30}Si,5nγ) E=155 MeV, ^{122}Sn(^{30}Si,4nγ).

1988Dr01: ^{116}Cd(^{36}S,4nγ) E=170 MeV.

1988De10: ^{124}Sn(^{30}Si,5nγ) E=155 MeV and ^{104}Ru(^{48}Ca,4nγ) E=215 MeV.

^{148}Gd Levels

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
x[@]	J≈(29)[†]	4198.4+y[&]	J1+10	13304.3+z[a]	J2+24
699.9+x[@]	J+2	5188.8+y[&]	J1+12	14739.5+z[a]	J2+26
1447.8+x[@]	J+4	6228.5+y[&]	J1+14	16182.1+z[#a]	J2+28
2243.6+x[@]	J+6	7316.3+y[&]	J1+16	17629.8+z[a]	J2+30
3090.3+x[@]	J+8	8451.5+y[&]	J1+18	19101.8+z[a]	J2+32
3988.2+x[@]	J+10	9634.2+y[&]	J1+20	u[b]	J3
4938.5+x[@]	J+12	10865.4+y[&]	J1+22	849.7+u[b]	J3+2
5942.4+x[@]	J+14	12146.3+y[&]	J1+24	1739.7+u[b]	J3+4
7001.1+x[@]	J+16	13478.5+y[&]	J1+26	2678.4+u[b]	J3+6
8115.3+x[@]	J+18	14861.8+y[&]	J1+28	3666.8+u[b]	J3+8
9285.9+x[@]	J+20	16299.3+y[&]	J1+30	4706.4+u[b]	J3+10
10513.7+x[@]	J+22	17790.4+y[&]	J1+32	5797.5+u[b]	J3+12
11799.3+x[@]	J+24	19336.6+y[&]	J1+34	6941.7+u[b]	J3+14
13143.3+x[@]	J+26	z[a]	J2	8139.7+u[b]	J3+16
14545.8+x[@]	J+28	830.3+z[a]	J2+2	9392.5+u[b]	J3+18
16007.2+x[@]	J+30	1706.0+z[a]	J2+4	10700.6+u[b]	J3+20
17527.7+x[@]	J+32	2631.0+z[a]	J2+6	12065.0+u[b]	J3+22
19108.2+x[@]	J+34	3606.7+z[a]	J2+8	13486.3+u[b]	J3+24
20748.2+x[@]	J+36	4634.2+z[a]	J2+10	14964.8+u[b]	J3+26
22448.5+x[@]	J+38	5713.8+z[a]	J2+12	16501.7+u[b]	J3+28
y[&]	J1≈(30)[‡]	6846.5+z[a]	J2+14	v[c]	J4
741.8+y[&]	J1+2	8032.4+z[a]	J2+16	853.7+v[c]	J4+2
1530.7+y[&]	J1+4	9271.7+z[a]	J2+18	1753.6+v[c]	J4+4
2369.5+y[&]	J1+6	10564.6+z[a]	J2+20	2698.5+v[c]	J4+6
3258.6+y[&]	J1+8	11909.1+z[a]	J2+22	3689.9+v[c]	J4+8

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(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)

^{148}Gd Levels (continued)

E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$	E(level)	J$^\pi$
4727.8+v[c]	J4+10	5537.8+w[d]	J5+12	8817.6+r[e]	J6+16	14115.4+s[f]	J7+24
5812.4+v[c]	J4+12	6637.2+w[d]	J5+14	10152.6+r[e]	J6+18	15618.4+s[f]	J7+26
6944.3+v[c]	J4+14	7789.4+w[d]	J5+16	11530.7+r[e]	J6+20	t[g]	J8
8123.8+v[c]	J4+16	8996.2+w[d]	J5+18	12956.1+r[e]	J6+22	868.4+t[g]	J8+2
9350.3+v[c]	J4+18	10257.2+w[d]	J5+20	14431.3+r[e]	J6+24	1783.4+t[g]	J8+4
10624.1+v[c]	J4+20	11573.7+w[d]	J5+22	15960.2+r[e]	J6+26	2745.6+t[g]	J8+6
11946.2+v[c]	J4+22	12945.8+w[d]	J5+24	s[f]	J7	3755.3+t[g]	J8+8
13315.8+v[c]	J4+24	14374.4+w[d]	J5+26	887.0+s[f]	J7+2	4811.6+t[g]	J8+10
14732.9+v[c]	J4+26	15859.5+w[d]	J5+28	1822.4+s[f]	J7+4	5916.5+t[g]	J8+12
16197.8+v[c]	J4+28	17401.9+w[d]	J5+30	2812.3+s[f]	J7+6	7069.9+t[g]	J8+14
17710.9+v[c]	J4+30	r[e]	J6	3858.2+s[f]	J7+8	8271.5+t[g]	J8+16
19272.9+v[c]	J4+32	911.8+r[e]	J6+2	4961.4+s[f]	J7+10	9521.3+t[g]	J8+18
w[d]	J5	1873.7+r[e]	J6+4	6120.6+s[f]	J7+12	10818.5+t[g]	J8+20
802.2+w[d]	J5+2	2892.1+r[e]	J6+6	7332.7+s[f]	J7+14	12157.8+t[g]	J8+22
1651.6+w[d]	J5+4	3969.0+r[e]	J6+8	8596.7+s[f]	J7+16	13509.7+t[g]	J8+24
2549.0+w[d]	J5+6	5101.0+r[e]	J6+10	9908.0+s[f]	J7+18		
3494.9+w[d]	J5+8	6287.7+r[e]	J6+12	11263.4+s[f]	J7+20		
4491.0+w[d]	J5+10	7527.4+r[e]	J6+14	12664.8+s[f]	J7+22		

† From 699.9γ as a possible J=31 to J=29 transition based on the assignment (1993Ha19) of 652.3γ as a J=29 to J=27 transition. A tentative 652.3γ was reported by 1993Ha19 but is removed by 1995DeZZ. Theoretical analysis by 1993Ra07 suggests J=27, 29; J=25, 27 was proposed (1993Ra07) with the 652.3γ as the lowest energy transition.

‡ From assignment of 789γ as J=34 to 32 transition. Negative parity is suggested by 1993Ha19. 1993Ra07 suggest J=30, 32 (assuming 789γ as the lowest transition).

The ordering of the 1447.7γ-1442.6γ cascade is adopted from 1996De04, based on relative Iγ′s. A reverse ordering is proposed by 1995DeZZ.

@ Band(A): SD-1 band (1995DeZZ,1993Ha19,1988De10). configuration=$\pi 6^2$ $\nu(7^1 1/2[651],\alpha=-1/2)$ (1998By02). Q(intrinsic)=14.6 *2* (1996Sa15). Percent population=1.6 *1* (1996De04), 1.30 *15* (1993Ha19), 0.72 *25* (1997Zh03) in ^{124}Sn(^{29}Si,5nγ) E=157 MeV (1996De04,1997Zh03), E=155 MeV (1993Ha19). Other values from 1992Fl02: 1.9 *5* in ^{76}Ge(^{76}Ge,4nγ); 0.8 *2* in ^{124}Sn(^{29}Si,5nγ) and 0.5 *2* in ^{122}Sn(^{30}Si,4nγ).

& Band(B): SD-2 band (1995DeZZ,1993Ha19,1996De04). configuration=$\pi 6^2$ $\nu(7^1 1/2[651],\alpha=+1/2)$ (1998By02). Promotion of neutron from 1/2[651],α=−1/2 to 1/2[651],α=+1/2. Q(intrinsic)=14.8 *3* (1996Sa15). Percent population=0.7 *2* (1996De04), 0.62 *20* (1993Ha19).

a Band(C): SD-3 band (1995DeZZ,1996De04). This band reveals a backbend at a rotational frequency of≈0.72 MeV. configuration=$\pi 6^2$ $\nu((1/2[651],\alpha=-1/2)(1/2[651],\alpha=+1/2))$ (1998By02). Promotion of neutron from 1/2[770],α=−1/2 to 1/2[651],α=+1/2. Q(intrinsic)=17.8 *13* (1996Sa15). Percent population=0.4 *2* (1996De04), 18% 3 of SD-1 (1995DeZZ).

b Band(D): SD-4 band (1995DeZZ,1996De04). configuration=$\pi 6^2$ $\nu(7^1(1/2[651],\alpha=-1/2)(1/2[651],\alpha=+1/2))$ (1998By02). Promotion of neutron from 5/2[642],α=+1/2 to 1/2[651],α=+1/2. Percent population=0.5 *2* (1996De04), 12% 4 of SD-1 band (1995DeZZ).

c Band(E): SD-5 band (1995DeZZ,1996De04). configuration=$\pi(6^4 1/2[301]^{-2})$ $\nu(7^2(1/2[651],\alpha=-1/2)$ $(1/2[651],\alpha=+1/2))$ (1998By02). This involves promotion of two neutrons from 1/2[411] to 7^1 and 1/2[651],α=+1/2 orbitals. Or configuration=$\pi(6^2(1/2[301],\alpha=-1/2)^{-1}(3/2[651],\alpha=+1/2))$ $\nu(7^1 1/2[651],\alpha=-1/2)$ (1998By02). This band is identical (in transition energies) to ^{152}Dy SD-1 band. Percent population=0.5 *1* (1996De04), 23% 4 of SD-1 band (1995DeZZ).

d Band(F): SD-6 band (1995DeZZ,1996De04,1997Ha19). configuration=$\pi 6^2$ $\nu(7^1(1/2[651],\alpha=-1/2)(1/2[651],\alpha=+1/2))$ (1998By02). Promotion of neutron from 1/2[411],α=+1/2 to 1/2[651],α=+1/2. 1997Ha19 provide evidence for ΔJ=2 staggering of 0.37 keV *12*, and propose that this band is identical to ^{149}Gd SD-1, yrast band. Percent population=0.4 *1* (1996De04), 16% 3 of SD-1 band (1995DeZZ).

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(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)

^{148}Gd Levels (continued)

[e] Band(G): SD-7 band (1998By02). configuration=$\pi 6^2$ $\nu(7^1(5/2[402]$ or $9/2[514]))$ (1998By02). Promotion of neutron from 1/2[651],α=−1/2 to 5/2[402] or 9/2[514]. Bands SD-7 and SD-8 are probably signature partners. Percent population=5-10% of SD-1 band (1998By02).

[f] Band(H): SD-8 band (1998By02). configuration=$\pi 6^2$ $\nu(7^1(5/2[402]$ or $9/2[514]))$ (1998By02). Promotion of neutron from 1/2[651],α=−1/2 to 5/2[402] or 9/2[514]. Bands SD-7 and SD-8 are probably signature partners. Percent population=5-10% of SD-1 band (1998By02).

[g] Band(I): SD-9 band (1998By02). percent population=5-10% of SD-1 band (1998By02).

$\gamma(^{148}Gd)$

Two additional SD bands are reported by 1998By02 with the following γ-ray cascades. The assignment to ^{148}Gd is not firm. The first band (u1) is similar to SD-9 band in the moment of inertia plot with Eγ's close to the midpoint energies of SD-9 band. The second band (u2) has transition energies close to 3/4 point energies of SD-2 band, but the moment plots show differences.

Unassigned SD band u1 Eγ	unassigned SD band u2 Eγ
888.1 13	934.3 7
933.7 9	977.6 7
980.6 8	1028.0 6
1027.5 7	1074.6 8
1078.0 8	1122.5 6
1127.3 7	1172.9 7
1177.3 10	1222.8 7
1227.5 9	1272.7 7
1278.1 9	1324.3 8
1335.9 11	1375.6 7
	1426.9 8
	1477.0 10
	1530.4 10

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
699.9 *1*	0.54 *15*	699.9+x	J+2	x	J≈(29)	E_γ: 700.2 *1* (1996De04).
741.8 *3*		741.8+y	J1+2	y	J1≈(30)	E_γ: γ not reported by 1996De04.
747.9 *1*	0.87 *9*	1447.8+x	J+4	699.9+x	J+2	E_γ: 748.6 *1* (1996De04).
788.9 *2*	0.46 *10*	1530.7+y	J1+4	741.8+y	J1+2	E_γ: 790.2 *5* (1996De04).
795.8 *1*	0.99 *8*	2243.6+x	J+6	1447.8+x	J+4	E_γ: 797.7 *1* (1996De04).
802.2 *3*		802.2+w	J5+2	w	J5	E_γ: from 1995DeZZ. γ not reported by 1996De04 and 1997Ha19.
830.3 *6*	0.23 *5*	830.3+z	J2+2	z	J2	E_γ,I_γ: from 1996De04 only.
838.8 *2*	0.88 *9*	2369.5+y	J1+6	1530.7+y	J1+4	E_γ: 839.3 *3* (1996De04).
846.7 *1*	0.97 *8*	3090.3+x	J+8	2243.6+x	J+6	E_γ: 847.8 *1* (1996De04).
849.44 *22*		1651.6+w	J5+4	802.2+w	J5+2	E_γ: 849.0 *2* (1995DeZZ). γ not reported by 1996De04.
849.7 *3*		849.7+u	J3+2	u	J3	E_γ: not reported by 1996De04.
853.7 *3*	0.45 *6*	853.7+v	J4+2	v	J4	E_γ: 853.8 *9* (1996De04).
868.4 *3*		868.4+t	J8+2	t	J8	
875.7 *3*	0.42 *6*	1706.0+z	J2+4	830.3+z	J2+2	E_γ: 875.8 *5* (1996De04).
887.0 *3*		887.0+s	J7+2	s	J7	
889.1 *2*	0.89 *9*	3258.6+y	J1+8	2369.5+y	J1+6	E_γ: 890.1 *2* (1996De04).
890.0 *2*	0.62 *15*	1739.7+u	J3+4	849.7+u	J3+2	E_γ: 891.1 *3* (1996De04).
897.40 *16*	0.91 *12*	2549.0+w	J5+6	1651.6+w	J5+4	E_γ: 897.6 *2* (1995DeZZ), 899.0 *3* (1996De04).
897.9 *1*	1.00 *8*	3988.2+x	J+10	3090.3+x	J+8	E_γ: 899.1 *1* (1996De04).
899.9 *2*	0.83 *9*	1753.6+v	J4+4	853.7+v	J4+2	E_γ: 900.9 *3* (1996De04).

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(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)

γ(^{148}Gd) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
911.8 *4*		911.8+r	J6+2	r	J6	
915.0 *3*		1783.4+t	J8+4	868.4+t	J8+2	
925.0 *2*	0.43 *7*	2631.0+z	J2+6	1706.0+z	J2+4	E_γ: 925.7 *8* (1996De04).
935.4 *4*		1822.4+s	J7+4	887.0+s	J7+2	
938.7 *2*	0.60 *12*	2678.4+u	J3+6	1739.7+u	J3+4	E_γ: 939.6 *4* (1996De04).
939.8 *2*	0.93 *15*	4198.4+y	J1+10	3258.6+y	J1+8	E_γ: 941.3 *2* (1996De04).
944.9 *3*	0.85 *10*	2698.5+v	J4+6	1753.6+v	J4+4	E_γ: 945.4 *3* (1996De04).
945.86 *15*	1.00 *12*	3494.9+w	J5+8	2549.0+w	J5+6	E_γ: 946.1 *4* (1995DeZZ), 946.7 *5* (1996De04).
950.3 *1*	0.97 *8*	4938.5+x	J+12	3988.2+x	J+10	E_γ: 951.5 *1* (1996De04).
961.9 *3*		1873.7+r	J6+4	911.8+r	J6+2	
962.2 *3*		2745.6+t	J8+6	1783.4+t	J8+4	
975.7 *3*	0.62 *7*	3606.7+z	J2+8	2631.0+z	J2+6	E_γ: 976.8 *6* (1996De04).
988.4 *3*	0.64 *10*	3666.8+u	J3+8	2678.4+u	J3+6	E_γ: 988.6 *4* (1996De04).
989.9 *4*		2812.3+s	J7+6	1822.4+s	J7+4	
990.4 *3*	1.00 *11*	5188.8+y	J1+12	4198.4+y	J1+10	E_γ: 990.8 *2* (1996De04).
991.4 *2*	0.86 *10*	3689.9+v	J4+8	2698.5+v	J4+6	E_γ: 992.4 *3* (1996De04).
996.08 *19*	1.00 *22*	4491.0+w	J5+10	3494.9+w	J5+8	E_γ: 996.0 *3* (1995DeZZ), 997.0 *5* (1996De04).
1003.9 *1*	1.00 *10*	5942.4+x	J+14	4938.5+x	J+12	E_γ: 1004.8 *2* (1996De04).
1009.7 *2*		3755.3+t	J8+8	2745.6+t	J8+6	
1018.4 *3*		2892.1+r	J6+6	1873.7+r	J6+4	
1027.5 *2*	0.63 *8*	4634.2+z	J2+10	3606.7+z	J2+8	E_γ: 1028.8 *4* (1996De04).
1037.9 *2*	0.85 *20*	4727.8+v	J4+10	3689.9+v	J4+8	E_γ: 1038.7 *2* (1996De04).
1039.6 *3*	0.68 *10*	4706.4+u	J3+10	3666.8+u	J3+8	E_γ: 1041 *1* (1996De04).
1039.7 *2*	0.95 *20*	6228.5+y	J1+14	5188.8+y	J1+12	E_γ: 1040.0 *2* (1996De04).
1045.9 *3*		3858.2+s	J7+8	2812.3+s	J7+6	
1046.83 *14*	1.00 *10*	5537.8+w	J5+12	4491.0+w	J5+10	E_γ: 1046.9 *2* (1995DeZZ), 1047.8 *5* (1996De04).
1056.3 *2*		4811.6+t	J8+10	3755.3+t	J8+8	
1058.7 *1*	0.98 *9*	7001.1+x	J+16	5942.4+x	J+14	E_γ: 1059.5 *1* (1996De04).
1076.9 *3*		3969.0+r	J6+8	2892.1+r	J6+6	
1079.6 *3*	0.95 *11*	5713.8+z	J2+12	4634.2+z	J2+10	E_γ: 1080.6 *4* (1996De04).
1084.6 *2*	1.00 *15*	5812.4+v	J4+12	4727.8+v	J4+10	E_γ: 1086.5 *3* (1996De04).
1087.8 *2*	1.03 *15*	7316.3+y	J1+16	6228.5+y	J1+14	E_γ: 1088.9 *3* (1996De04).
1091.1 *3*	0.92 *15*	5797.5+u	J3+12	4706.4+u	J3+10	E_γ: 1092.7 *4* (1996De04).
1099.39 *16*	0.95 *18*	6637.2+w	J5+14	5537.8+w	J5+12	E_γ: 1099.1 *4* (1995DeZZ), 1099 *1* (1996De04).
1103.2 *10*		4961.4+s	J7+10	3858.2+s	J7+8	
1104.9 *2*		5916.5+t	J8+12	4811.6+t	J8+10	
1114.2 *1*	0.99 *10*	8115.3+x	J+18	7001.1+x	J+16	E_γ: 1114.9 *1* (1996De04).
1131.9 *2*	1.00 *13*	6944.3+v	J4+14	5812.4+v	J4+12	E_γ: 1133.8 *3* (1996De04).
1132.0 *4*		5101.0+r	J6+10	3969.0+r	J6+8	
1132.7 *2*	1.00 *12*	6846.5+z	J2+14	5713.8+z	J2+12	E_γ: 1133.4 *4* (1996De04).
1135.2 *2*	0.94 *10*	8451.5+y	J1+18	7316.3+y	J1+16	E_γ: 1136.0 *2* (1996De04).
1144.2 *3*	1.05 *20*	6941.7+u	J3+14	5797.5+u	J3+12	E_γ: 1145.3 *3* (1996De04).
1152.20 *15*	0.97 *10*	7789.4+w	J5+16	6637.2+w	J5+14	E_γ: 1152.0 *2* (1995DeZZ), 1152.4 *4* (1996De04).
1153.4 *2*		7069.9+t	J8+14	5916.5+t	J8+12	
1159.2 *3*		6120.6+s	J7+12	4961.4+s	J7+10	
1170.6 *1*	1.00 *15*	9285.9+x	J+20	8115.3+x	J+18	E_γ: 1171.4 *2* (1996De04).
1179.5 *2*	0.90 *10*	8123.8+v	J4+16	6944.3+v	J4+14	E_γ: 1180.4 *3* (1996De04).
1182.7 *2*	0.82 *8*	9634.2+y	J1+20	8451.5+y	J1+18	E_γ: 1183.1 *3* (1996De04).
1185.9 *3*	0.93 *30*	8032.4+z	J2+16	6846.5+z	J2+14	E_γ: 1186 *1* (1996De04).
1186.7 *3*		6287.7+r	J6+12	5101.0+r	J6+10	
1198.0 *3*	1.00 *15*	8139.7+u	J3+16	6941.7+u	J3+14	E_γ: 1199 *1* (1996De04).
1201.6 *3*		8271.5+t	J8+16	7069.9+t	J8+14	
1206.76 *24*	1.00 *15*	8996.2+w	J5+18	7789.4+w	J5+16	E_γ: 1206.2 *2* (1995DeZZ), 1206 *1* (1996De04).
1212.1 *3*		7332.7+s	J7+14	6120.6+s	J7+12	
1226.5 *2*	0.80 *10*	9350.3+v	J4+18	8123.8+v	J4+16	E_γ: 1228.7 *9* (1996De04).
1227.8 *1*	0.84 *7*	10513.7+x	J+22	9285.9+x	J+20	E_γ: 1228.4 *1* (1996De04).
1231.2 *2*	0.79 *8*	10865.4+y	J1+22	9634.2+y	J1+20	E_γ: 1233.3 *3* (1996De04).

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)

γ(^{148}Gd) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1239.3 *3*	0.72 *15*	9271.7+z	J2+18	8032.4+z	J2+16	E_γ: 1239.8 *4* (1996De04).
1239.7 *4*		7527.4+r	J6+14	6287.7+r	J6+12	
1249.8 *2*		9521.3+t	J8+18	8271.5+t	J8+16	
1252.8 *3*	1.02 *13*	9392.5+u	J3+18	8139.7+u	J3+16	E_γ: 1253.4 *5* (1996De04).
1261.00 *16*	1.00 *19*	10257.2+w	J5+20	8996.2+w	J5+18	E_γ: 1260.5 *2* (1995DeZZ), 1260.7 *4* (1996De04).
1264.0 *3*		8596.7+s	J7+16	7332.7+s	J7+14	
1273.8 *2*	0.80 *10*	10624.1+v	J4+20	9350.3+v	J4+18	E_γ: 1275.5 *5* (1996De04).
1280.9 *2*	0.77 *8*	12146.3+y	J1+24	10865.4+y	J1+22	E_γ: 1281.7 *5* (1996De04).
1285.6 *1*	0.71 *8*	11799.3+x	J+24	10513.7+x	J+22	E_γ: 1286.4 *1* (1996De04).
1290.2 *3*		8817.6+r	J6+16	7527.4+r	J6+14	
1292.9 *3*	0.95 *20*	10564.6+z	J2+20	9271.7+z	J2+18	E_γ: 1293.2 *4* (1996De04).
1297.2 *3*		10818.5+t	J8+20	9521.3+t	J8+18	
1308.1 *3*	0.88 *15*	10700.6+u	J3+20	9392.5+u	J3+18	E_γ: 1309.2 *5* (1996De04).
1311.3 *3*		9908.0+s	J7+18	8596.7+s	J7+16	
1316.57 *14*	0.96 *10*	11573.7+w	J5+22	10257.2+w	J5+20	E_γ: 1315.7 *3* (1995DeZZ), 1317.3 *5* (1996De04).
1322.1 *2*	0.52 *8*	11946.2+v	J4+22	10624.1+v	J4+20	E_γ: 1323.2 *4* (1996De04).
1332.2 *2*	0.62 *7*	13478.5+y	J1+26	12146.3+y	J1+24	E_γ: 1333.1 *5* (1996De04).
1335.0 *3*		10152.6+r	J6+18	8817.6+r	J6+16	
1339.3 *6*		12157.8+t	J8+22	10818.5+t	J8+20	
1344.0 *2*	0.66 *7*	13143.3+x	J+26	11799.3+x	J+24	E_γ: 1344.4 *1* (1996De04).
1344.5 *3*	0.71 *18*	11909.1+z	J2+22	10564.6+z	J2+20	E_γ: 1347.0 *8* (1996De04).
1351.9 *7*		13509.7+t	J8+24	12157.8+t	J8+22	
1355.4 *4*		11263.4+s	J7+20	9908.0+s	J7+18	
1364.4 *3*	0.90 *18*	12065.0+u	J3+22	10700.6+u	J3+20	E_γ: 1365.1 *5* (1996De04).
1369.6 *2*	0.50 *10*	13315.8+v	J4+24	11946.2+v	J4+22	E_γ: 1370.0 *4* (1996De04).
1372.10 *22*	0.78 *9*	12945.8+w	J5+24	11573.7+w	J5+22	E_γ: 1372.1 *2* (1995DeZZ), 1372.7 *5* (1996De04).
1378.1 *4*		11530.7+r	J6+20	10152.6+r	J6+18	
1383.3 *3*	0.56 *6*	14861.8+y	J1+28	13478.5+y	J1+26	E_γ: 1385.7 *5* (1996De04).
1395.2 *4*	0.64 *15*	13304.3+z	J2+24	11909.1+z	J2+22	E_γ: 1395.9 *10* (1996De04).
1401.4 *4*		12664.8+s	J7+22	11263.4+s	J7+20	
1402.5 *2*	0.55 *6*	14545.8+x	J+28	13143.3+x	J+26	E_γ: 1404.0 *2* (1996De04).
1417.1 *3*	0.44 *7*	14732.9+v	J4+26	13315.8+v	J4+24	E_γ: 1417.1 *5* (1996De04).
1421.3 *4*	0.82 *10*	13486.3+u	J3+24	12065.0+u	J3+22	E_γ: 1422 *1* (1996De04).
1425.4 *4*		12956.1+r	J6+22	11530.7+r	J6+20	
1428.55 *24*	0.77 *10*	14374.4+w	J5+26	12945.8+w	J5+24	E_γ: 1428.5 *3* (1995DeZZ), 1429 *1* (1996De04).
1435.2 *5*	0.46 *8*	14739.5+z	J2+26	13304.3+z	J2+24	E_γ: 1436.3 *10* (1996De04).
1437.5 *5*	0.44 *5*	16299.3+y	J1+30	14861.8+y	J1+28	E_γ: 1438 *1* (1996De04).
1442.6 *10*	0.40 *12*	16182.1+z	J2+28	14739.5+z	J2+26	E_γ: 1445.9 *15* (1996De04).
1447.7 *6*	0.18 *9*	17629.8+z	J2+30	16182.1+z	J2+28	E_γ: 1449.5 *15* (1996De04).
1450.6 *4*		14115.4+s	J7+24	12664.8+s	J7+22	
1461.4 *2*	0.48 *7*	16007.2+x	J+30	14545.8+x	J+28	E_γ: 1462.7 *2* (1996De04).
1464.9 *4*	0.31 *5*	16197.8+v	J4+28	14732.9+v	J4+26	E_γ: 1465.6 *5* (1996De04).
1472.0 *10*	0.22 *8*	19101.8+z	J2+32	17629.8+z	J2+30	E_γ: 1474 *2* (1996De04).
1475.2 *4*		14431.3+r	J6+24	12956.1+r	J6+22	
1478.5 *4*	0.57 *9*	14964.8+u	J3+26	13486.3+u	J3+24	E_γ: 1480 *1* (1996De04).
1485.15 *26*	0.70 *15*	15859.5+w	J5+28	14374.4+w	J5+26	E_γ: 1483.6 *6* (1995DeZZ), 1485 *1* (1996De04).
1491.1 *8*	0.27 *4*	17790.4+y	J1+32	16299.3+y	J1+30	E_γ: 1492 *1* (1996De04).
1503.0 *5*		15618.4+s	J7+26	14115.4+s	J7+24	
1513.1 *10*	0.26 *4*	17710.9+v	J4+30	16197.8+v	J4+28	E_γ: 1513 *1* (1996De04).
1520.5 *3*	0.34 *5*	17527.7+x	J+32	16007.2+x	J+30	E_γ: 1521.0 *2* (1996De04).
1528.9 *5*		15960.2+r	J6+26	14431.3+r	J6+24	
1536.9 *10*	0.30 *10*	16501.7+u	J3+28	14964.8+u	J3+26	E_γ: 1538 *1* (1996De04).
1542.4 *4*	0.63 *15*	17401.9+w	J5+30	15859.5+w	J5+28	E_γ: 1540 *1* (1996De04).
1546.2 *10*	0.23 *4*	19336.6+y	J1+34	17790.4+y	J1+32	E_γ: 1544 *1* (1996De04).
1562 *1*	0.20 *6*	19272.9+v	J4+32	17710.9+v	J4+30	E_γ: from 1996De04 only.
1580.5 *6*	0.19 *3*	19108.2+x	J+34	17527.7+x	J+32	E_γ: 1581.2 *3* (1996De04).

Continued on next page (footnotes at end of table)

(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)

γ(^{148}Gd) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1640.0 *10*	0.15 *5*	20748.2+x	J+36	19108.2+x	J+34	E_γ: 1640.0 *4* (1996De04).
1700.3 *6*	0.07 *3*	22448.5+x	J+38	20748.2+x	J+36	E_γ,I_γ: from 1996De04 only.

[†] From 1995DeZZ for SD-1 to SD-5 bands; from 1997Ha19 for SD-6 band; from 1998By02 for SD-7 to SD-9 bands, unless otherwise stated. Values for six SD bands are also available from 1996De04, but seem to be higher than those quoted by 1995DeZZ, systematically, by≈1 keV. Earlier values are available from 1988De10 (for SD-1) and 1993Ha19 (for SD-1 and SD-2).

[‡] For SD bands, values are relative intensities within each band taken from 1996De04. Values for SD-1 and SD-2 bands are also available from 1993Ha19.

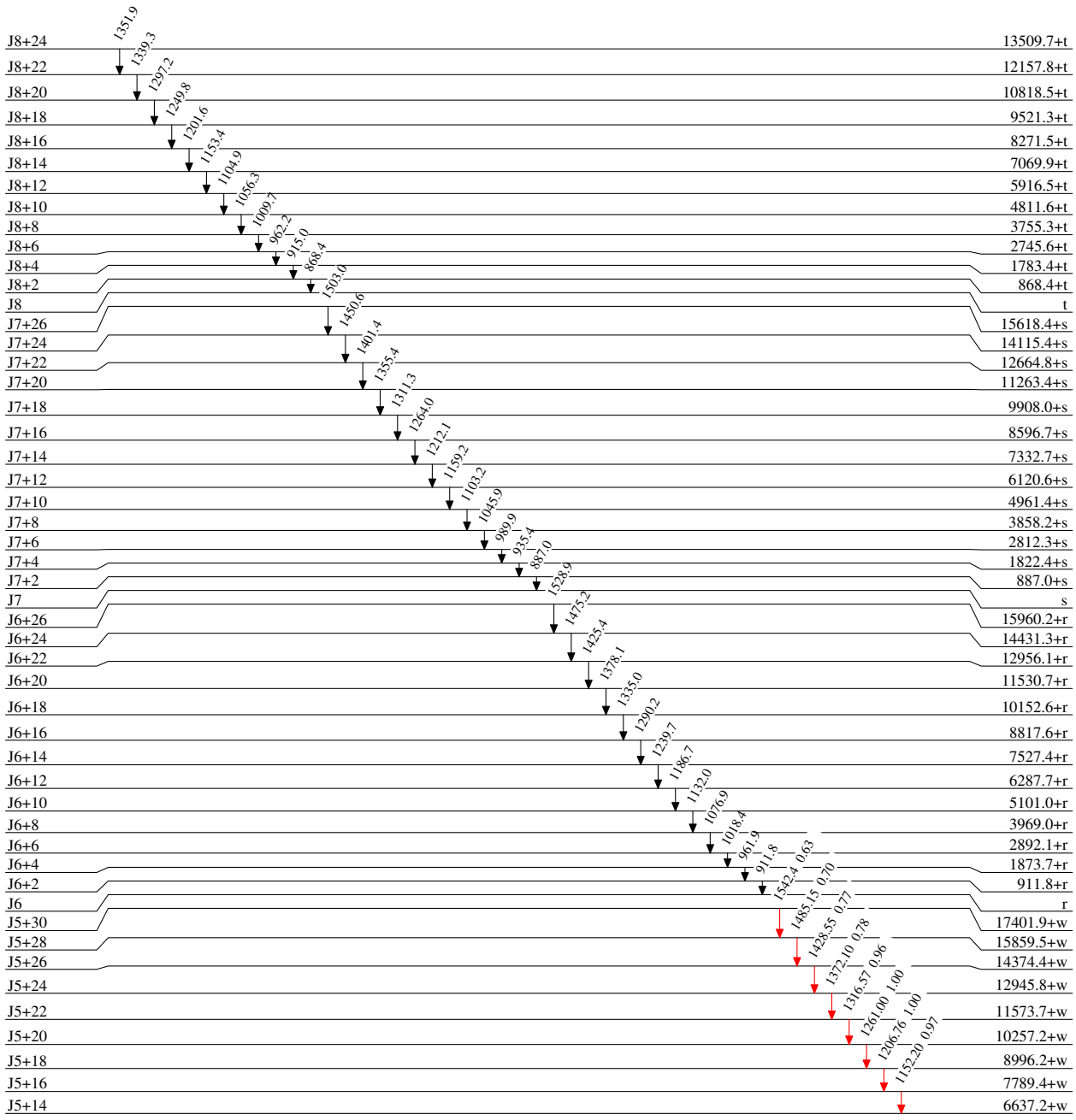
(HI,xnγ):SD 1998By02,1996De04,1995DeZZ

Legend

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

Level Scheme

Intensities: Type not specified



$^{148}_{64}Gd_{84}$

(HI,xnγ):SD 1998By02,1996De04,1995DeZZ

Level Scheme (continued)

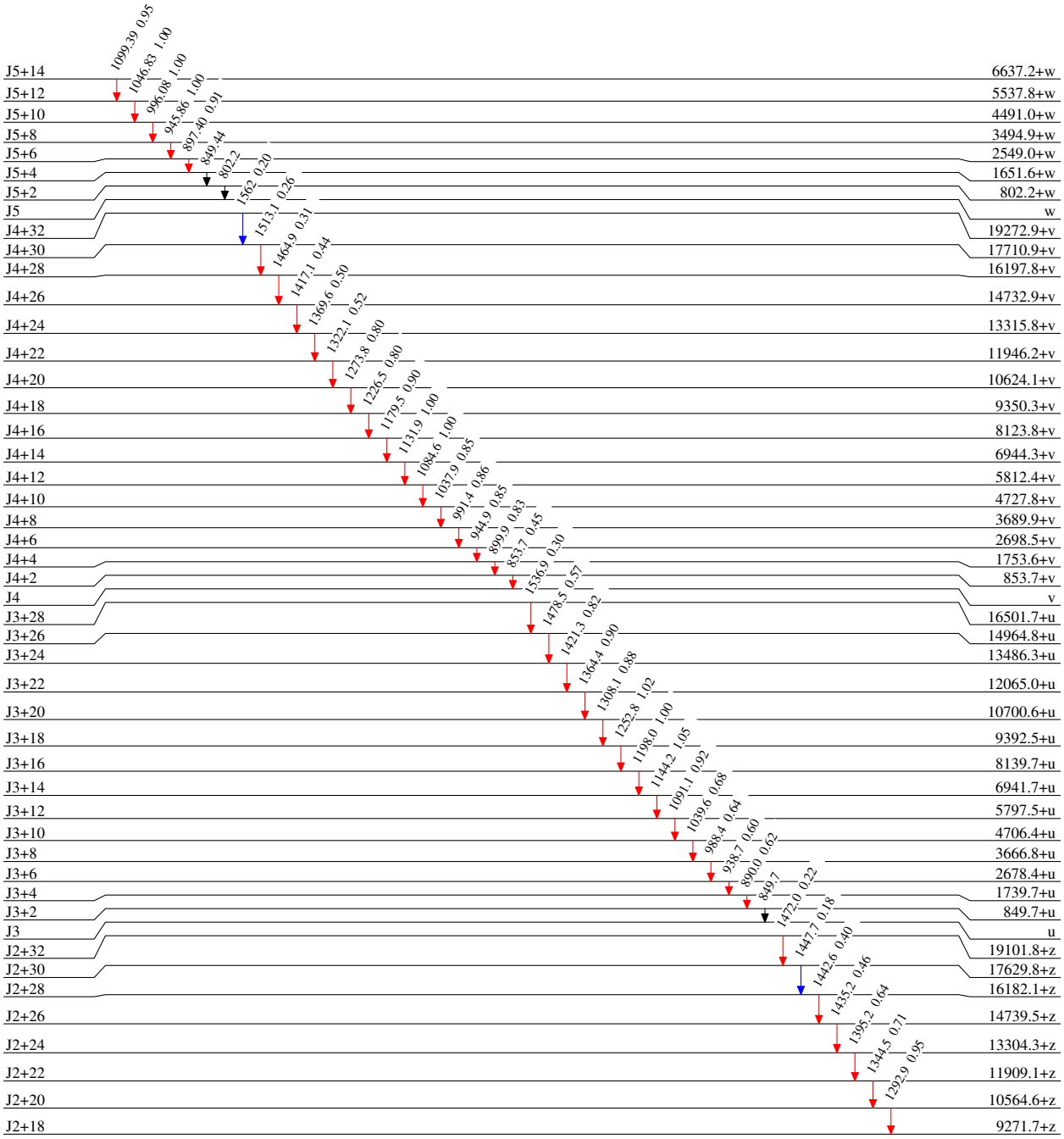
Intensities: Type not specified

Legend

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

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

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



$^{148}_{64}Gd_{84}$

(HI,xnγ):SD 1998By02,1996De04,1995DeZZ

Level Scheme (continued)

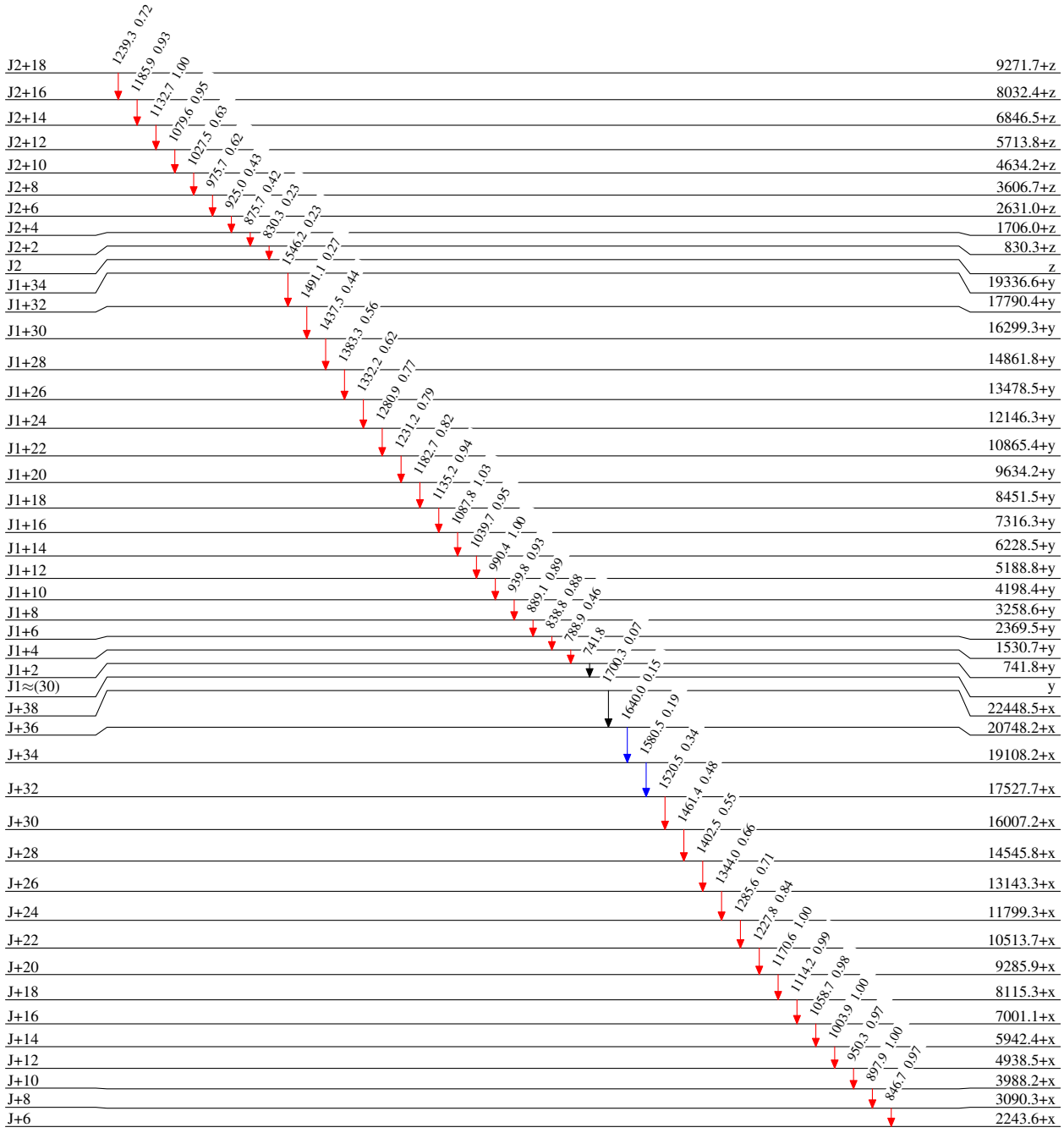
Intensities: Type not specified

Legend

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

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

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



$^{148}_{64}Gd_{84}$

(HI,xnγ):SD 1998By02,1996De04,1995DeZZ

Level Scheme (continued)

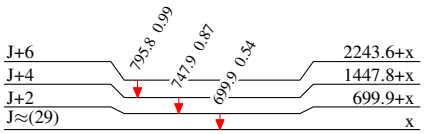
Intensities: Type not specified

Legend

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

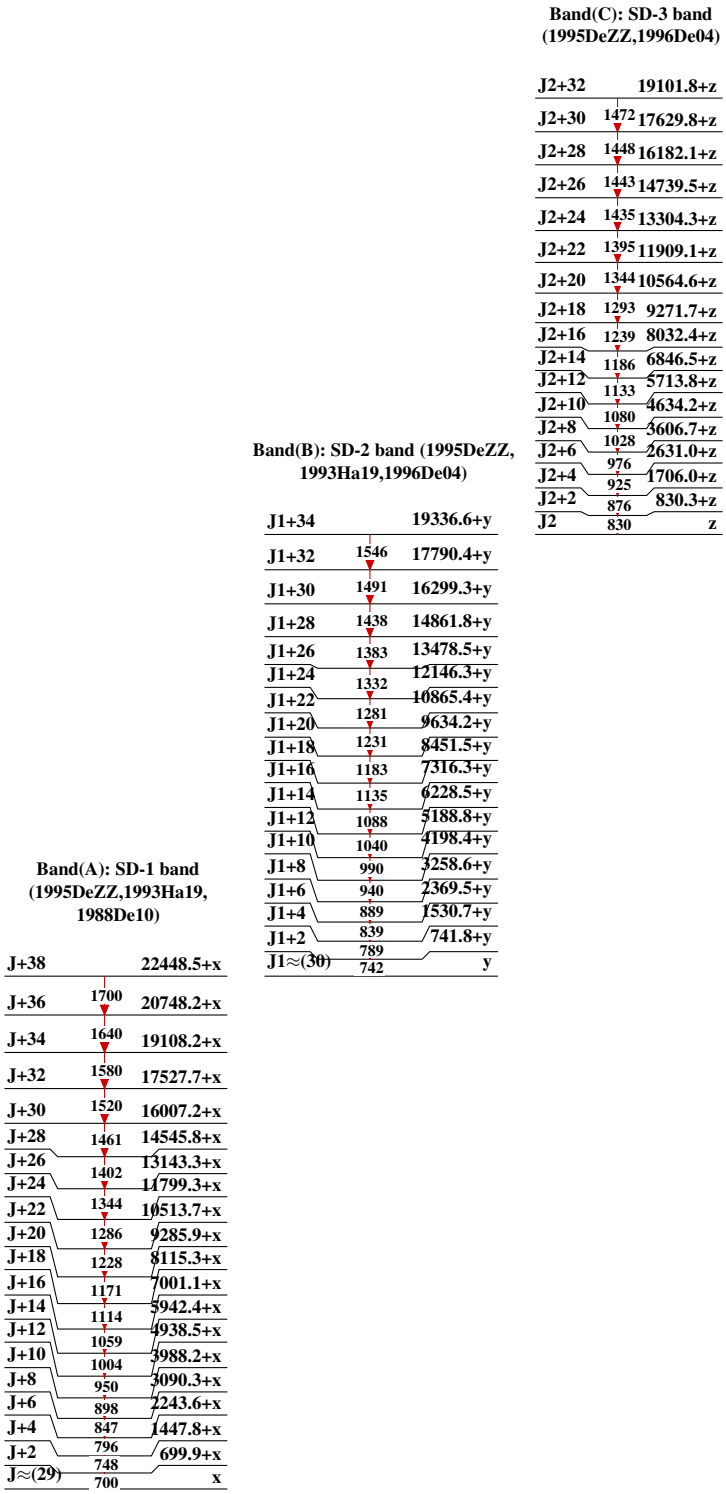
$I_\gamma < 10\% \times I_\gamma^{max}$

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

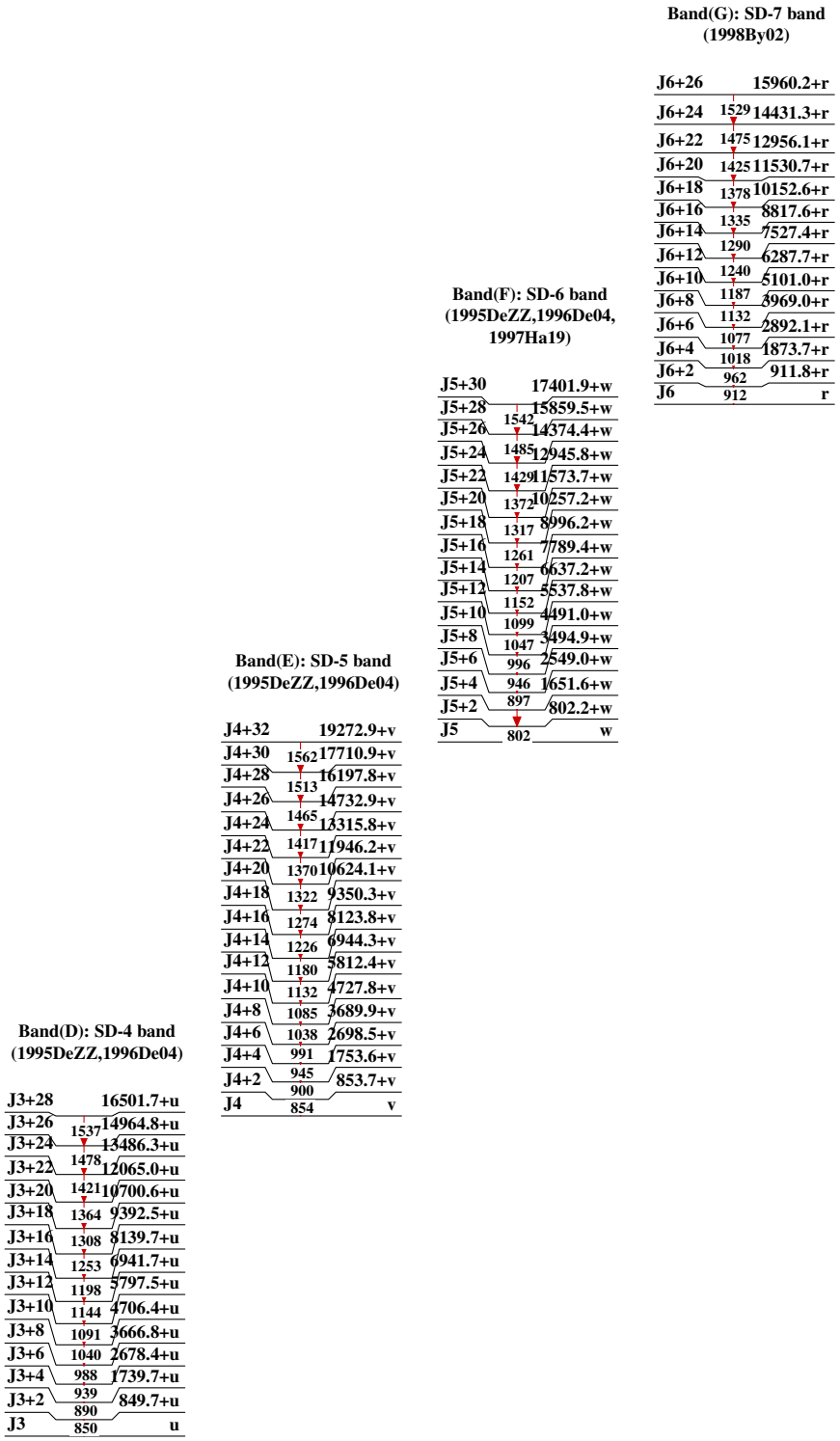


$^{148}_{64}Gd_{84}$

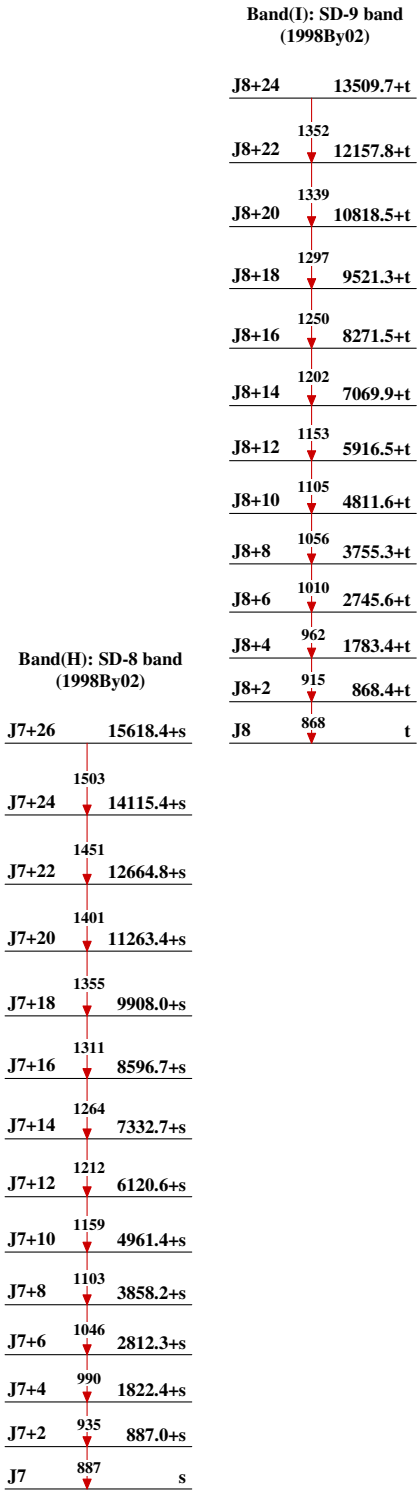
(HI,xnγ):SD 1998By02,1996De04,1995DeZZ



(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)



(HI,xnγ):SD 1998By02,1996De04,1995DeZZ (continued)



$^{148}_{64}Gd_{84}$