(HI,xnγ):SD 1994Lu03,1997Lu03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 93, 599 (2001)	1-Dec-2000

Additional information 1.

1994Lu03: ^{100}Mo(^{48}Ti,4nγ) E=221 MeV. Measured γ, $\gamma\gamma$, SD band deduced.

1995Li24: ^{100}Mo(^{48}Ti,4nγ) E=215 MeV, SD band deduced.

1997Lu03 (also 1996UtZZ): ^{100}Mo(^{48}Ti,4nγ) E=215 and 209 MeV. Measured γ, $\gamma\gamma\gamma$, $\gamma\gamma\gamma$-n using GASP array (40 Compton-suppressed Ge detectors and 80 inner ball detectors). Deduced five SD bands.

1998Zh20: ^{74}Ge(^{74}Ge,4nγ) E=318 MeV, compared with ^{100}Mo(^{48}Ti,4nγ) E=215 MeV. Studied entrance channel effects on population of SD bands.

1999Ur02: ^{100}Mo(^{48}Ti,4nγ) E=214 MeV. Measured γ, $\gamma\gamma$, DSAM, yrast SD band quadrupole moment deduced.

Others:

1993SeZZ: ^{118}Sn(^{30}Si,4nγ) E=155 MeV. No evidence found for SD bands.

1992RzZY: ^{108}Pd(^{40}Ar,4nγ) E=182 MeV. Measured γ, $\gamma\gamma$. Deduced evidence for two possible SD bands: the first with a sequence of 1093, 1152, 1212, 1272, 1337, 1392, 1447, 1510, 1555, 1605, 1661, 1721 and the second with a sequence of 919, 967, 1015, 1073, 1130, 1188, 1243, 1291, 1332 keV γ rays. None of these sequences is confirmed by 1994Lu03.

1987Sc01: ^{120}Sn(^{28}Si,4nγ) E=145 MeV. No evidence for SD band.

1986Vi05: ^{120}Sn(^{28}Si,4nγ) E=125-155 MeV. No evidence for SD band.

^{144}Gd Levels

E(level)	J$^\pi$	Comments
x[†]	J≈(22)[a]	Quadrupole moment measurements reported in 1999Ur02: Q_0=11.6 eb +14-10 below the backbend and Q_0=13.7 eb +11-9 above.
802.8+x[†] *3*	J+2	
1649.0+x[†] *4*	J+4	
2528.2+x[†] *5*	J+6	
3430.7+x[†] *5*	J+8	
4323.3+x[†] *7*	J+10	
5257.5+x[†] *7*	J+12	
6237.5+x[†] *8*	J+14	
7268.8+x[†] *9*	J+16	
8353.4+x[†] *11*	J+18	
9492.9+x[†] *11*	J+20	
10687.6+x[†] *11*	J+22	
11937.4+x[†] *11*	J+24	
13243.0+x[†] *12*	J+26	
14605.0+x[†] *13*	J+28	
16022.8+x[†] *14*	J+30	
17497.3+x[†] *15*	J+32	
19029.1+x[†] *18*	J+34	
20617.1+x[†] *24*	J+36	
22262+x[†] *3*	J+38	
y[‡]	J≈(25)[a]	
774.5+y[‡]	J+2	
1609.3+y[‡] *7*	J+4	
2503.5+y[‡] *8*	J+6	
3456.9+y[‡] *9*	J+8	

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(HI,xnγ):SD 1994Lu03,1997Lu03 (continued)

^{144}Gd Levels (continued)

E(level)	Jπ	E(level)	Jπ	E(level)	Jπ
4468.5+y‡ *9*	J+10	5357.4+z# *15*	J+12	8452.6+u@ *16*	J+16
5538.1+y‡ *10*	J+12	6457.6+z# *15*	J+14	9769.1+u@ *17*	J+18
6666.0+y‡ *11*	J+14	7617.6+z# *16*	J+16	11144.6+u@ *19*	J+20
7852.6+y‡ *13*	J+16	8833.6+z# *16*	J+18	12581.6+u@ *24*	J+22
9098.1+y‡ *14*	J+18	10110.7+z# *19*	J+20	v&	J≈(32)[a]
10402.0+y‡ *16*	J+20	11443.7+z# *23*	J+22	936.8+v& *5*	J+2
11764.6+y‡ *19*	J+22	12837+z# *3*	J+24	1935.2+v& *10*	J+4
13186.6+y‡ *24*	J+24	14289+z# *4*	J+26	2993.1+v& *11*	J+6
14668+y‡ *3*	J+26	u@	J≈(29)[a]	4105.7+v& *13*	J+8
16208+y‡ *4*	J+28	852.9+u@ *4*	J+2	5277.7+v& *16*	J+10
z#	J≈(24)[a]	1764.6+u@ *6*	J+4	6507.7+v& *19*	J+12
743.6+z# *8*	J+2	2735.3+u@ *8*	J+6	7794.7+v& *24*	J+14
1548.3+z# *11*	J+4	3764.5+u@ *10*	J+8	9144+v& *4*	J+16
2409.7+z# *12*	J+6	4850.0+u@ *12*	J+10	10554+v& *4*	J+18
3332.8+z# *13*	J+8	5994.0+u@ *14*	J+12		
4316.0+z# *14*	J+10	7194.1+u@ *15*	J+14		

† Band(A): SD-1 band (1994Lu03,1997Lu03). Percent population=1.6 (1998Zh20) in ^{74}Ge(^{74}Ge,4nγ) E=318 MeV. Configuration=$\pi 6^2$; (π,α)=(+,0) (1997Lu03). Percent feeding=1.2 *1* at E(^{48}Ti)=215 MeV, 0.7 *1* at E(^{48}Ti)=221 MeV (1997Lu03). Observed band crossing is interpreted (1995Li24) as due to alignment of $\pi 6^2$.

‡ Band(B): SD-2 band (1997Lu03). Configuration=$\pi 6^1 \pi 9/2[404]$; (π,α)=(+,1) (1997Lu03). Percent feeding=0.31 *10* at E(^{48}Ti)=215 MeV (1997Lu03).

Band(C): SD-3 band (1997Lu03). Configuration=$\pi 6^1 \pi 9/2[404]$; (π,α)=(+,0) (1997Lu03). Percent feeding=0.31 *10* (1997Lu03). SD-2 and SD-3 are possible signature partners.

@ Band(D): SD-4 band (1997Lu03). Configuration=$\pi 6^1 \pi 3/2[411]$; (π,α)=(+,1) (1997Lu03). Percent feeding=0.28 *10* (1997Lu03).

& Band(E): SD-5 band (1997Lu03). Configuration=$\pi 6^1 \pi 3/2[411]$; (π,α)=(+,0) (1997Lu03). Percent feeding=0.18 *10* (1997Lu03). SD-4 and SD-5 are possible signature partners.

[a] From 1997Lu03, π=+ from proposed configuration.

γ(^{144}Gd)

Eγ†	Iγ†	Ei(level)	J_i^π	Ef	J_f^π	Mult.‡
743.6 *8*	0.44 *8*	743.6+z	J+2	z	J≈(24)	
774.5 *5*	0.39 *8*	774.5+y	J+2	y	J≈(25)	
802.8 *3*	0.22 *4*	802.8+x	J+2	x	J≈(22)	
804.7 *7*	0.52 *8*	1548.3+z	J+4	743.6+z	J+2	
834.8 *4*	0.48 *8*	1609.3+y	J+4	774.5+y	J+2	
846.2 *2*	0.43 *5*	1649.0+x	J+4	802.8+x	J+2	
852.9 *4*	0.62 *9*	852.9+u	J+2	u	J≈(29)	
861.4 *5*	0.59 *13*	2409.7+z	J+6	1548.3+z	J+4	
879.2 *2*	0.55 *5*	2528.2+x	J+6	1649.0+x	J+4	(E2)
892.6 *5*	1.00 *3*	4323.3+x	J+10	3430.7+x	J+8	(E2)
894.2 *4*	0.56 *7*	2503.5+y	J+6	1609.3+y	J+4	
902.5 *2*	0.87 *4*	3430.7+x	J+8	2528.2+x	J+6	(E2)
911.7 *4*	0.83 *13*	1764.6+u	J+4	852.9+u	J+2	
923.1 *5*	1.11 *15*	3332.8+z	J+8	2409.7+z	J+6	
934.2 *2*	1.00 *3*	5257.5+x	J+12	4323.3+x	J+10	(E2)

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(HI,xnγ):SD 1994Lu03,1997Lu03 (continued)

γ(^{144}Gd) (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]
936.8 *5*	0.89 *11*	936.8+v	J+2	v	J≈(32)	
953.4 *3*	0.77 *9*	3456.9+y	J+8	2503.5+y	J+6	
970.7 *5*	0.95 *10*	2735.3+u	J+6	1764.6+u	J+4	
980.0 *2*	0.99 *3*	6237.5+x	J+14	5257.5+x	J+12	(E2)
983.2 *4*	1.03 *10*	4316.0+z	J+10	3332.8+z	J+8	
998.4 *8*	0.80 *11*	1935.2+v	J+4	936.8+v	J+2	
1011.6 *4*	1.00 *3*	4468.5+y	J+10	3456.9+y	J+8	
1029.2 *6*	1.03 *14*	3764.5+u	J+8	2735.3+u	J+6	
1031.3 *5*	1.01 *5*	7268.8+x	J+16	6237.5+x	J+14	(E2)
1041.4 *5*	1.00 *7*	5357.4+z	J+12	4316.0+z	J+10	
1057.9 *5*	1.01 *8*	2993.1+v	J+6	1935.2+v	J+4	
1069.6 *4*	0.84 *6*	5538.1+y	J+12	4468.5+y	J+10	
1084.6 *5*	0.92 *4*	8353.4+x	J+18	7268.8+x	J+16	(E2)
1085.5 *6*	1.00 *6*	4850.0+u	J+10	3764.5+u	J+8	
1100.2 *3*	0.96 *12*	6457.6+z	J+14	5357.4+z	J+12	
1112.6 *6*	0.97 *12*	4105.7+v	J+8	2993.1+v	J+6	
1127.9 *5*	1.00 *8*	6666.0+y	J+14	5538.1+y	J+12	
1139.5 *2*	0.87 *5*	9492.9+x	J+20	8353.4+x	J+18	(E2)
1144.0 *7*	0.63 *15*	5994.0+u	J+12	4850.0+u	J+10	
1160.0 *5*	1.09 *10*	7617.6+z	J+16	6457.6+z	J+14	
1172 *1*	1.00 *8*	5277.7+v	J+10	4105.7+v	J+8	
1186.6 *5*	1.03 *9*	7852.6+y	J+16	6666.0+y	J+14	
1194.7 *2*	0.83 *7*	10687.6+x	J+22	9492.9+x	J+20	(E2)
1200.1 *5*	0.52 *11*	7194.1+u	J+14	5994.0+u	J+12	
1216.0 *4*	0.85 *13*	8833.6+z	J+18	7617.6+z	J+16	
1230 *1*	0.90 *11*	6507.7+v	J+12	5277.7+v	J+10	
1245.5 *6*	0.79 *14*	9098.1+y	J+18	7852.6+y	J+16	
1249.8 *2*	0.74 *7*	11937.4+x	J+24	10687.6+x	J+22	
1258.5 *6*	0.45 *11*	8452.6+u	J+16	7194.1+u	J+14	
1277.1 *9*	0.68 *10*	10110.7+z	J+20	8833.6+z	J+18	
1287.0 *15*	0.57 *11*	7794.7+v	J+14	6507.7+v	J+12	
1303.9 *7*	0.65 *11*	10402.0+y	J+20	9098.1+y	J+18	
1305.6 *5*	0.65 *7*	13243.0+x	J+26	11937.4+x	J+24	(E2)
1316.5 *5*	0.38 *9*	9769.1+u	J+18	8452.6+u	J+16	
1333.0 *13*	0.43 *14*	11443.7+z	J+22	10110.7+z	J+20	
1349 *2*	0.50 *13*	9144+v	J+16	7794.7+v	J+14	
1362.0 *5*	0.55 *5*	14605.0+x	J+28	13243.0+x	J+26	
1362.6 *10*	0.48 *10*	11764.6+y	J+22	10402.0+y	J+20	
1375.5 *8*	0.28 *10*	11144.6+u	J+20	9769.1+u	J+18	
1393.0 *15*	0.37 *18*	12837+z	J+24	11443.7+z	J+22	
1410 *2*	0.44 *8*	10554+v	J+18	9144+v	J+16	
1417.8 *5*	0.43 *4*	16022.8+x	J+30	14605.0+x	J+28	
1422.0 *15*	0.36 *7*	13186.6+y	J+24	11764.6+y	J+22	
1437.0 *15*	0.19 *9*	12581.6+u	J+22	11144.6+u	J+20	
1452.0 *25*	0.26 *14*	14289+z	J+26	12837+z	J+24	
1474.5 *6*	0.34 *5*	17497.3+x	J+32	16022.8+x	J+30	
1481.0 *15*	0.22 *6*	14668+y	J+26	13186.6+y	J+24	
1531.8 *10*	0.24 *4*	19029.1+x	J+34	17497.3+x	J+32	
1540 *2*	0.16 *5*	16208+y	J+28	14668+y	J+26	
1588.0 *15*	0.16 *3*	20617.1+x	J+36	19029.1+x	J+34	
1645 *2*	0.09 *2*	22262+x	J+38	20617.1+x	J+36	

[†] From 1997Lu03. For SD-1 band, values are also available from 1994Lu03. Intensities are relative within each band.
[‡] From R(DCO)≈1 (1997Lu03).

(HI,xnγ):SD 1994Lu03,1997Lu03

Level Scheme

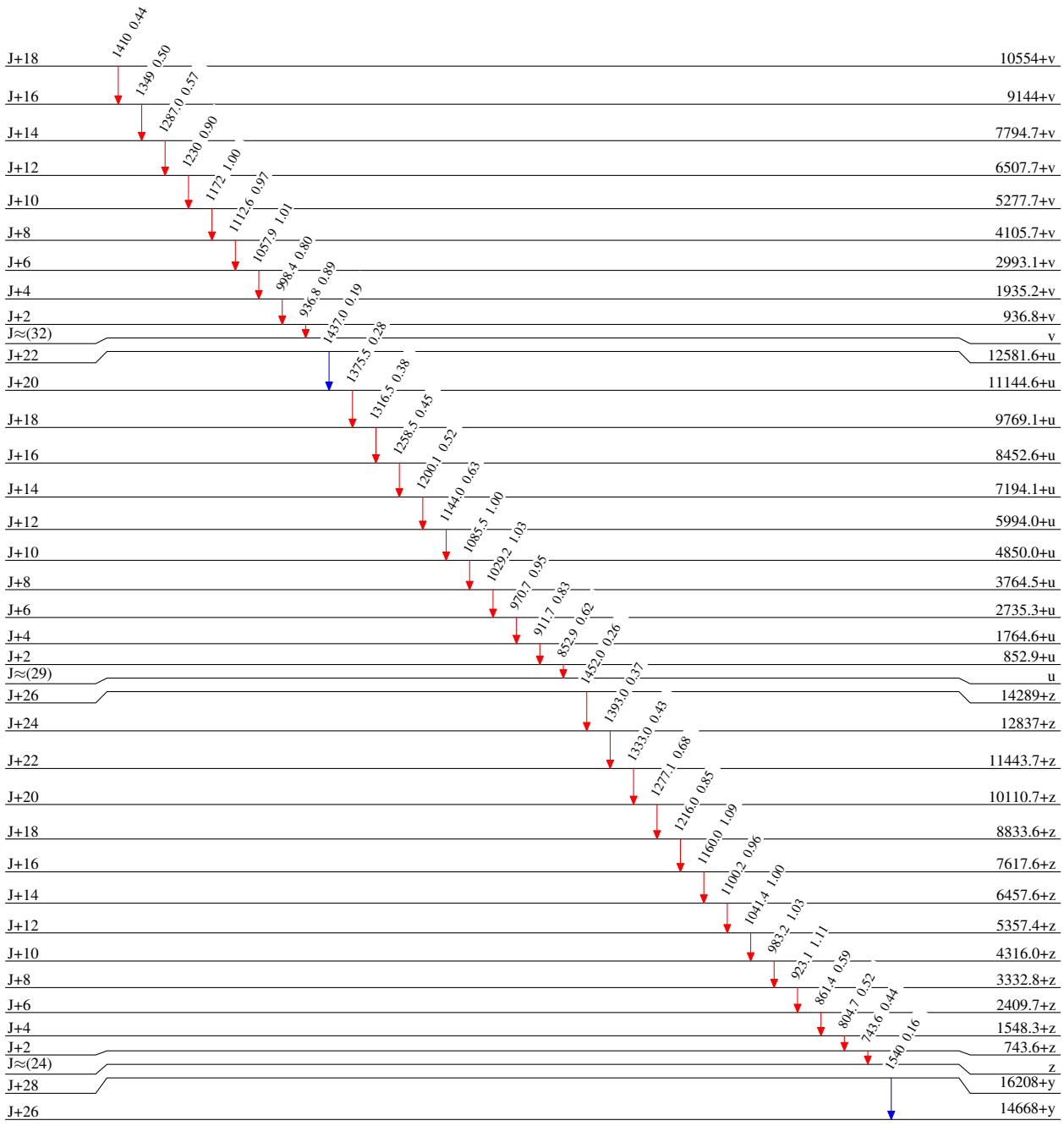
Intensities: Relative I_γ

Legend

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

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

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

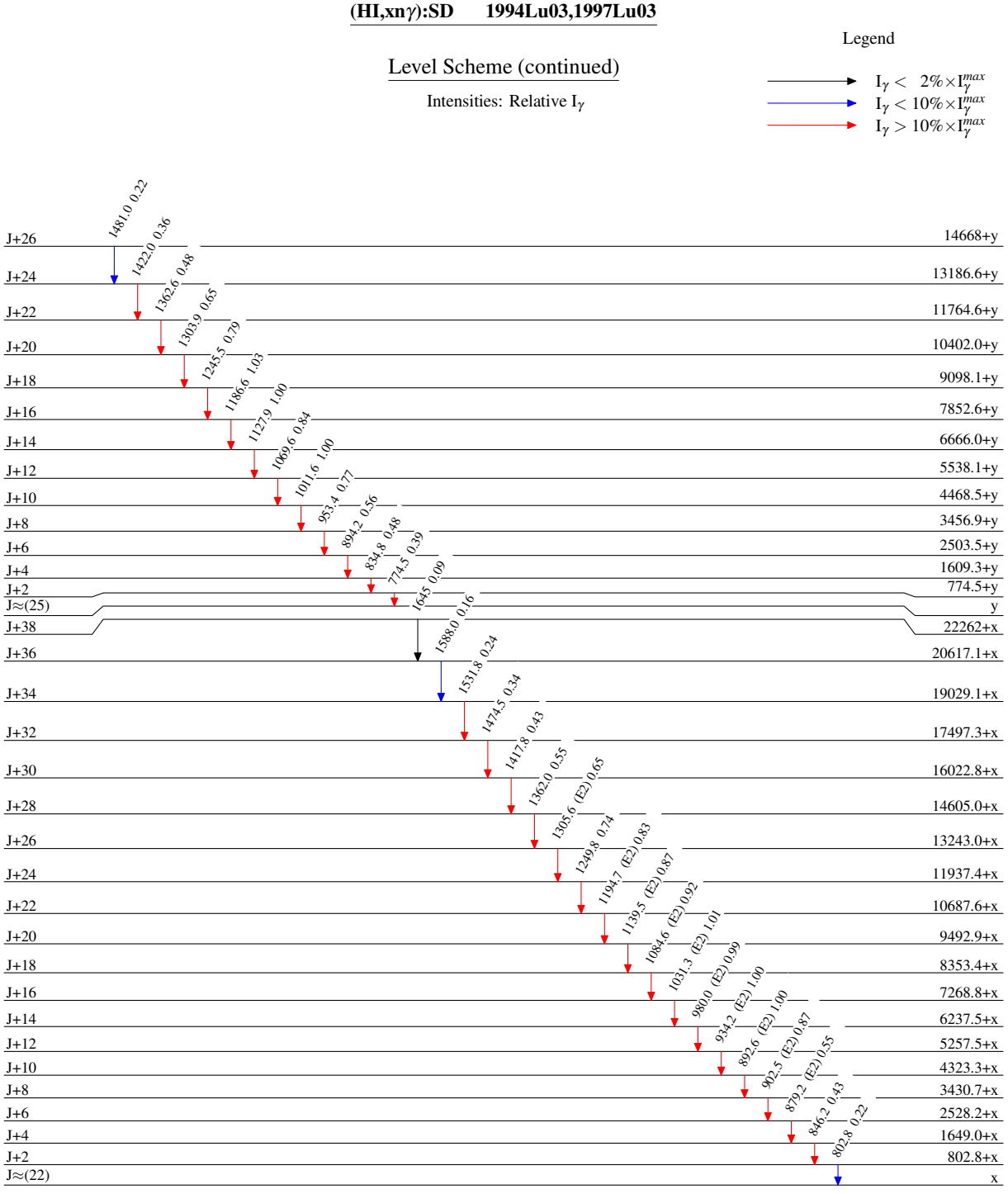


$^{144}_{64}Gd_{80}$

(HI,xnγ):SD 1994Lu03,1997Lu03

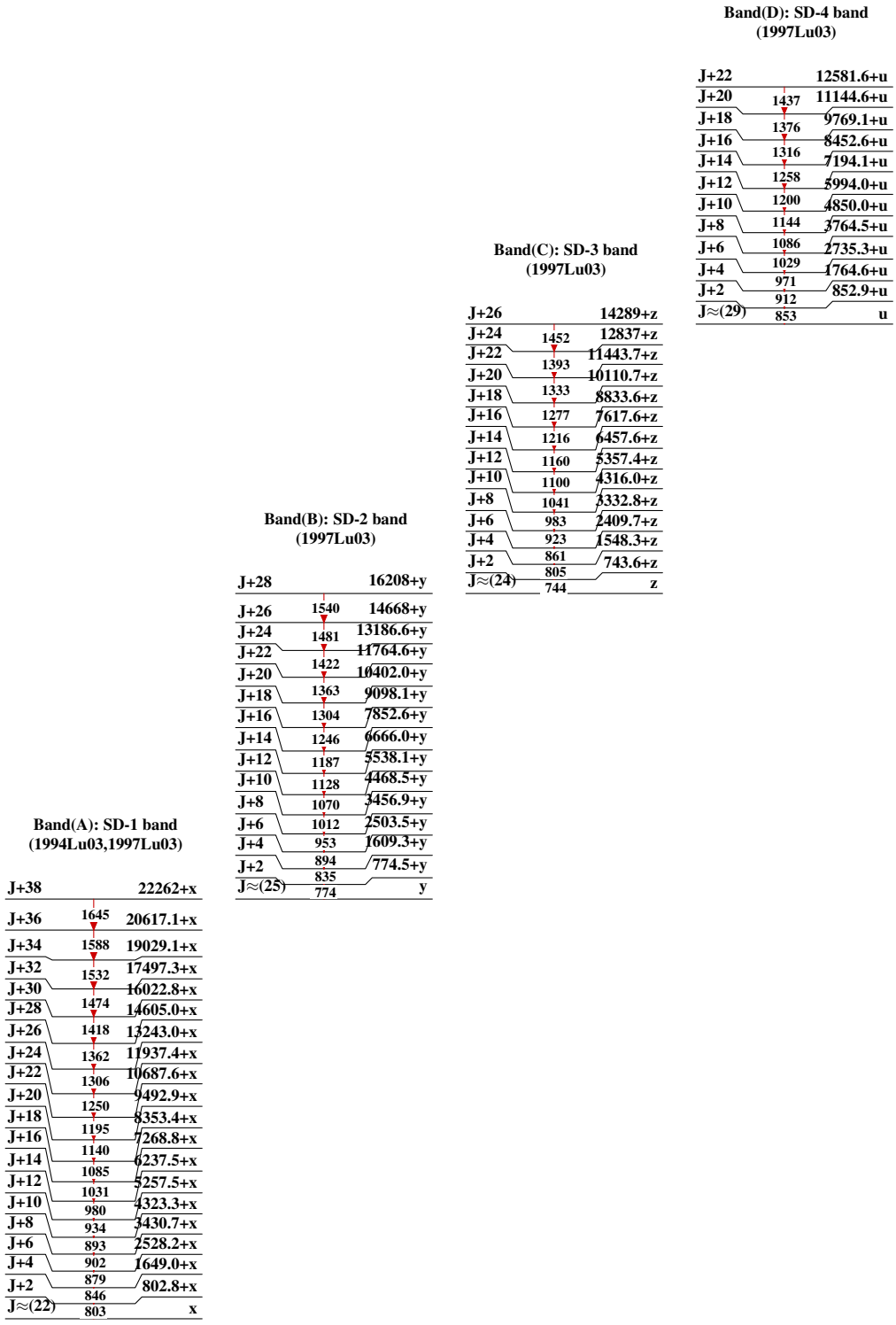
Level Scheme (continued)

Intensities: Relative I_γ



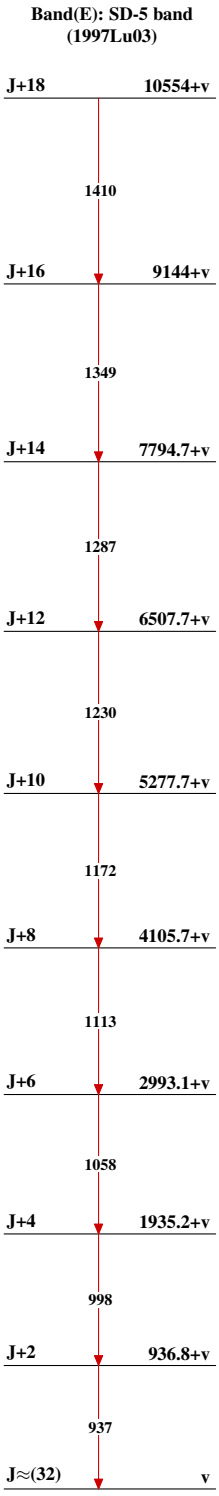
$^{144}_{64}Gd_{80}$

(HI,xnγ):SD 1994Lu03,1997Lu03



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

(HI,xnγ):SD 1994Lu03,1997Lu03 (continued)



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