$^{146}_{64}$Gd

Δ: −76098 *5* **S_n:** 11220 *40* **S_p:** 5385 *5*
Q_{EC}: 1030 *8* **Q_α:** 474 *11*

Nuclear Bands

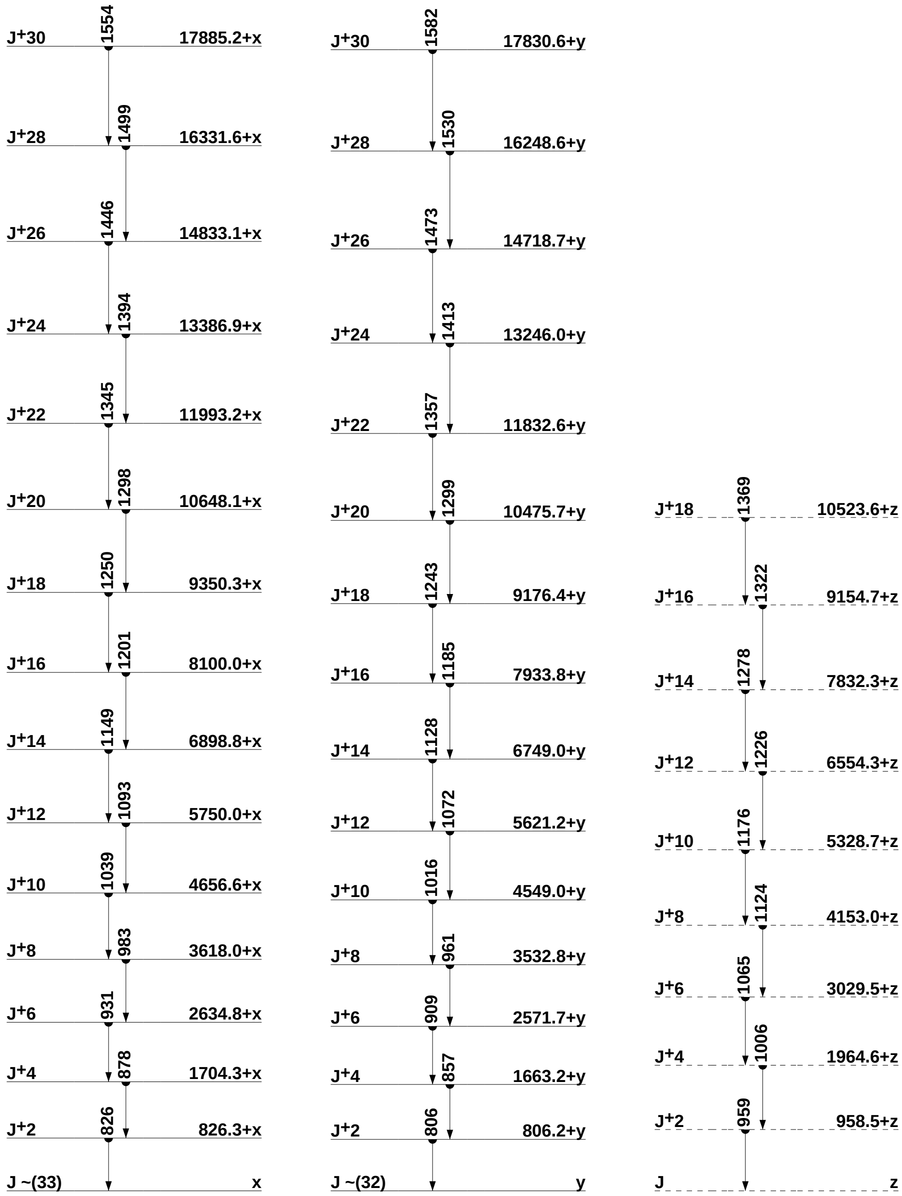
A SD-1 band (95Sc31,90He14,93Ha19)
B SD-2 band (95Sc31,91Rz01,93Ha19)
C SD-3 band? (95Sc31)

Levels and γ-ray branchings:

0, 0^+, 48.27 *10* d, %EC=100
1579.4 *1*, 3^-, 1.06 *12* ns γ_0***1579.3*** *1* ($\dagger_\gamma$100) E3
1971.9 *3*, 2^+, <0.7 ps γ_0***1972.0*** *3* ($\dagger_\gamma$100) E2
2165.0 *3*, 0^+, 375 *40* ps γ_{1972}***193.0*** *5* ($\dagger_\gamma$≈23) γ_0***2165.0*** *3* ($\dagger_e$100 *17*) E0
2611.5 *2*, 4^+ γ_{1972}***638*** *1* ($\dagger_\gamma$≈1.7) γ_{1579}***1032.1*** *1* ($\dagger_\gamma$100 *10*) E1
2658.0 *2*, 5^- γ_{1579}***1078.6*** *1* ($\dagger_\gamma$100) E2
2982.0 *3*, 7^-, 7.2 *4* ns γ_{2658}***324.0*** *1* ($\dagger_\gamma$100) E2
2986 *1*, (2^+) γ_0***2986*** *1* ($\dagger_\gamma$100)
2996.6 *4*, 4^- γ_{1579}***1417.2*** *3* ($\dagger_\gamma$100) M1
3020 *2*, 0^+ γ_0***3020*** *2* ($\dagger_\gamma$100) E0
3031.2 *3*, 3^+ γ_{1972}***1059.3*** *2* ($\dagger_\gamma$100 *30*) M1 γ_{1579}***1451.7*** *3* ($\dagger_\gamma$50 *20*)
3098.2, 6^- γ_{2982}***116.7*** γ_{2658}***440.9*** *1* M1
3182.5 *3*, 8^- γ_{2982}***200.5*** *1* ($\dagger_\gamma$100) M1+E2: δ=+0.151 $^{+4}_{-3}$
3190 *3*, 2^+
3238 *3*, 2^+
3287.2 *3*, $(3,5)^+$ γ_{2612}***675.7*** *2* ($\dagger_\gamma$100) M1
3290.2 *3*, 7^- γ_{2982}***308.2*** *2* ($\dagger_\gamma$100) M1
3293.5 *3*, 8^-, <300 ps γ_{3183}***111.1*** *1* ($\dagger_\gamma$32 *4*) M1 γ_{2982}***311.4*** *2* ($\dagger_\gamma$100 *9*) M1+E2: δ=−0.032 $^{+12}_{-13}$
3312.8 *5*, $5^{(-)}$ γ_{2658}***654.8*** *4* ($\dagger_\gamma$100 *29*) (M1) γ_{2612}***701.6*** *5* ($\dagger_\gamma$≈8.8)
3320 *3*
3359 *3*, 2^+
3383 *3*, 2^+
3384.0 *5*, 6^- γ_{3098}***285.2*** *2* ($\dagger_\gamma$24 *6*) M1 γ_{2982}***402.0*** *2* ($\dagger_\gamma$29 *12*) γ_{2658}***726.1*** *2* ($\dagger_\gamma$100 *12*) M1
3389 *1*, (3) γ_{1972}***1417*** *1* ($\dagger_\gamma$100)
3411.9 *5*, 4 γ_{2997}***415.2*** *3* ($\dagger_\gamma$100 *33*) γ_{2612}***800.6*** *5* ($\dagger_\gamma$≈67)
3416 *1*, 4 γ_{1579}***1837*** ($\dagger_\gamma$1100) D
3422.7 *5*, 3^- γ_{1579}***1843.3*** *5* ($\dagger_\gamma$100) D
3428.1 *5*, 9^-, <300 ps γ_{3294}***134.6*** *1* ($\dagger_\gamma$100 *6*) M1+E2: δ=−0.15 $^{+4}_{-6}$ γ_{3183}***245.6*** *2* ($\dagger_\gamma$7.5 *25*) M1+E2 γ_{2982}***446.1*** *3* ($\dagger_\gamma$7.5 *25*) E2
3436.3 *5*, (3) γ_{1972}***1464.3*** *3* ($\dagger_\gamma$100) D
3456 *1*, (5^-) γ_{1579}***1877*** *1* ($\dagger_\gamma$100) Q
3456.9, 6^+ γ_{2658}***798.9*** *3* ($\dagger_\gamma$100) E1
3460 *1*, (5^-) γ_{1579}***1881*** *1* ($\dagger_\gamma$100) Q
3463 *1* γ_{1579}***1884*** *1* ($\dagger_\gamma$100) D
3484.9 *5*, 6^+ γ_{2658}***826.9*** *2* ($\dagger_\gamma$100) E1
3485 *2*, 0^+ γ_0***3485*** *2* ($\dagger_\gamma$100) E0
3552 *3*, 2^+
3639 *2*, 0^+ γ_0***3639*** *2* ($\dagger_\gamma$100) E0
3660.2 *5*, 6^+ γ_{2658}***1002.2*** *4* ($\dagger_\gamma$100) E1
3687 *3*, (5^-)
3743 *3*, $(2^+,3^-)$
3765 *3*, (5^-)
3779.0 *5*, 8^+ γ_{2982}***797.0*** *3* ($\dagger_\gamma$100) E1
3783.7 *5*, $(5,6)^+$ γ_{2612}***1172.2*** *5* ($\dagger_\gamma$100) M1,E2
3854.2 *5*, 7^- γ_{3183}***671.7*** *3* ($\dagger_\gamma$63 *13*) M1 γ_{3098}***755.0*** *5* ($\dagger_\gamma$≈63) γ_{2982}***872.2*** *3* ($\dagger_\gamma$100 *38*) M1
3864.4 *4*, 10^+, <300 ps γ_{3428}***436.4*** *1* ($\dagger_\gamma$100) E1
3908 *3*
3971 *3*, (3^-)
4005 *6*, $(4^+,5^-)$
4107.1 *5*, 8^+ γ_{3183}***924.6*** *3* ($\dagger_\gamma$100 *33*) E1 γ_{2982}***1125.7*** *3* ($\dagger_\gamma$100 *33*) D
4121 *6*, $(4^+,5^-)$
4215 *6*
4230 *6*, (5^-)
4248.3 *6*, $(9,10^-)$ γ_{3183}***1065.8*** *5* ($\dagger_\gamma$100)
4299 *6*, (2^+)
4336 *6*, (4^+)
4368 *6*, (4^+)
4394 *6*
4409 *6*
4483 *6*, (4^+)
4501.7, 10^+ γ_{3428}***1073.6*** *3* ($\dagger_\gamma$100) E1
4534 *6*, 0^+
4541.0, 10^+ γ_{3428}***1112.6*** *3* ($\dagger_\gamma$100) D
4596 *6*, $(2^+,3^-)$
4638 *6*, $(5^-,6^+)$
4645.3, $11^{(-)}$ γ_{3864}***780.9*** *3* ($\dagger_\gamma$100) (E1)
4656 *6*
4686 *6*, $(2^+,3^-)$
4719.1, 4^- γ_{3423}***1296.7*** γ_{2658}***2060.9*** γ_{1579}***3139.8***
4726 *6*, $(2^+,3^-)$
4747 *6*, $(2^+,3^-)$
4793 *6*, $(2^+,3^-)$
4825 *6*, $(2^+,3^-)$
4828.3, $(5)^-$ γ_{2997}***1831.9*** ($\dagger_\gamma$100)
4880 *6*, $(2^+,3^-)$
4905 *6*
4941 *6*, (2^+)
4976 *6*, $(2^+,3^-)$

5044 *6*, (2$^+$)
5086 *6*, (2$^+$,3)
5094.4, 11$^+$ γ_{4502}***592.7*** ($\dagger_\gamma$33.6) M1 γ_{3864}***1229.7*** *3* ($\dagger_\gamma$100) M1+E2: $\delta=-1.67$ *7*
5115 *6*
5151 *6*
5177 *6*
5217 *6*
5258 *6*, (2$^+$)
5277.1, 11$^+$ γ_{4541}***736.8*** γ_{4502}***775*** γ_{3864}***1412.5*** *3* M1+E2
5289 *6*
5342 *6*, (4$^+$,5$^-$)
5350.2, 12$^+$ γ_{3864}***1485.7*** *3* ($\dagger_\gamma$100) E2
5388 *6*
5443 *6*
5447.5, 12$^+$ γ_{4645}***802.1*** ($\dagger_\gamma$100) (E1) γ_{3864}***1583.1*** ($\dagger_\gamma$95) E2
5482 *6*
5528 *6*
5528.7, 12$^+$ γ_{5094}***434.3*** ($\dagger_\gamma$100) M1+E2: $\delta=+0.07^{+3}_{-4}$
5549 *6*
5700.2, (12)$^+$ γ_{3864}***1835.7*** ($\dagger_\gamma$100) (E2)
5729.7, (12)$^+$ γ_{3864}***1865.2*** ($\dagger_\gamma$100) (E2)
5791.2, 13$^+$ γ_{5448}***343.8*** ($\dagger_\gamma$10.4) M1+E2 γ_{5350}***440.9*** ($\dagger_\gamma$21.3) M1+E2 γ_{5277}***514.2*** ($\dagger_\gamma$41.5) E2 γ_{5094}***697.1*** ($\dagger_\gamma$100) E2
5893.7, 14$^+$ γ_{5791}***102.3*** ($\dagger_\gamma$83) D γ_{5448}***446.2*** ($\dagger_\gamma$100) E2 γ_{5350}***543.5*** ($\dagger_\gamma$87) E2
5995.5, 14$^+$ γ_{5350}***645.3*** ($\dagger_\gamma$100) E2
6119.6, 15$^+$ γ_{5996}***124*** γ_{5894}***225.8*** M1 γ_{5791}***328***
6398.3, 16$^+$ γ_{6120}***278.8*** D γ_{5996}***402.9*** E2 γ_{5894}***504.9*** Q
6470 *30*
6819.6, 17$(^+)$ γ_{6398}***421.3*** ($\dagger_\gamma$100) (M1+E2): $\delta=-0.13^{+8}_{-15}$
7033.3, 16$^-$ γ_{6120}***913.8*** ($\dagger_\gamma$100) E1
7164.2, 17$^-$ γ_{7033}***130.8*** ($\dagger_\gamma$17.7) M1+E2: $\delta=+0.28^{+21}_{-5}$ γ_{6398}***766.0*** ($\dagger_\gamma$100) E1
7201.2 γ_{6398}***803*** ($\dagger_\gamma$100)
7512.4, 16$^+$ γ_{6398}***1114.2*** ($\dagger_\gamma$100) M1+E2: $\delta=+0.2$ *2*
7565.4, 17$^-$ γ_{6398}***1167.2*** ($\dagger_\gamma$100) E1
7658.3 γ_{6820}***838.8*** ($\dagger_\gamma$100) γ_{6398}***1260***
7738.0, 17$^+$ γ_{7512}***226*** M1
7998.9, 18$^+$ γ_{7738}***260.9*** ($\dagger_\gamma$100) M1+E2: $\delta=-0.07^{+5}_{-8}$
8029.3, 18$^+$, 1.5 *6* ns γ_{7738}***291.3*** ($\dagger_\gamma$35.8) M1+E2: $\delta=-0.021^{+20}_{-24}$ γ_{7565}***463.9*** ($\dagger_\gamma$3.9) E1 γ_{7512}***516.8*** ($\dagger_\gamma$22.4) E2 γ_{7164}***865.1*** ($\dagger_\gamma$100) E1 γ_{6398}***1631.0*** ($\dagger_\gamma$14.7) E2
8076.5 γ_{7201}***875*** ($\dagger_\gamma$100)
8367.4, 18$^+$ γ_{7738}***629.4*** ($\dagger_\gamma$10.6) M1+E2: $\delta=+4.5^{+31}_{-42}$ γ_{7658}***709.1*** ($\dagger_\gamma$100)
8648.8, 19$(^-)$ γ_{7999}***649.9*** ($\dagger_\gamma$100) (E1)
8665.0, 19$^+$ γ_{8367}***297.6*** ($\dagger_\gamma$100) M1+E2: $\delta=-0.086^{+23}_{-28}$
8803.9 γ_{8077}***727*** ($\dagger_\gamma$100)
8914.8, 20$^-$, 4.3 *3* ns γ_{8029}***885.5*** ($\dagger_\gamma$100) M2+E3: $\delta=-0.13^{+6}_{-4}$
9082.8, 20$^+$ γ_{8665}***417.8*** ($\dagger_\gamma$100) M1+E2: $\delta=-0.27^{+4}_{-6}$ γ_{8649}***433.9***
9224.6, 21$^-$ γ_{8915}***309.8*** ($\dagger_\gamma$100) M1+E2: $\delta=-0.058^{+15}_{-17}$
9253.3, 21 γ_{9083}***170.5*** ($\dagger_\gamma$100)
9256.3, 21$^-$ γ_{9083}***173.5*** ($\dagger_\gamma$100) E1
9481.2, 22$^-$ γ_{9225}***257*** ($\dagger_\gamma$100)
9494.7 γ_{8804}***691*** ($\dagger_\gamma$100)
9526.1, 22$^-$ γ_{9256}***269.8*** ($\dagger_\gamma$100) M1+E2
9745.3 γ_{8804}***941*** ($\dagger_\gamma$100)
9961.9, 22$^-$ γ_{8915}***1047.1*** ($\dagger_\gamma$100) E2
10005.5, 23$^-$ γ_{9526}***479.4*** ($\dagger_\gamma$100) M1+E2: $\delta=-0.47^{+10}_{-17}$
10086.1, 23$^-$ γ_{9225}***861.5*** ($\dagger_\gamma$100) E2
10265.6, 23$^-$ γ_{9225}***1041.0*** ($\dagger_\gamma$100) E2
10440.2 γ_{9745}***695*** γ_{9495}***945***
10769.4, 24$^-$ γ_{9962}***807.7*** ($\dagger_\gamma$63) E2 γ_{9481}***1288.1*** ($\dagger_\gamma$100) E2
11022.8, 24$^+$ γ_{10266}***757.1*** ($\dagger_\gamma$24.6) E1 γ_{10086}***936.7*** ($\dagger_\gamma$100) E1
11098.9 γ_{10440}***659*** ($\dagger_\gamma$100)
11243.2, 25$^-$ γ_{10769}***474*** γ_{10266}***977.6*** ($\dagger_\gamma$100) E2
11439.2, 25$^+$ γ_{11023}***416.6*** ($\dagger_\gamma$30.2) M1+E2: $\delta=-0.25^{+6}_{-8}$ γ_{10769}***669.9*** ($\dagger_\gamma$100) E1
11450.2 γ_{11099}***351*** ($\dagger_\gamma$100)
11496.7, (25) γ_{10769}***727.1*** ($\dagger_\gamma$100)
11528.4, 25$^-$ γ_{11023}***505.6*** ($\dagger_\gamma$100) E1
11637.0, 26$^+$ γ_{11528}***107.8*** ($\dagger_\gamma$17.8) E1 γ_{11497}***140.2*** ($\dagger_\gamma$35.6) γ_{11439}***197.8*** ($\dagger_\gamma$35.6) M1+E2 γ_{11243}***393.8*** ($\dagger_\gamma$100) E1
11932.0, 27$^+$ γ_{11637}***295.0*** ($\dagger_\gamma$100) M1+E2: $\delta=+0.042^{+12}_{-13}$
12890.2, 29$^+$ γ_{11932}***958.2*** ($\dagger_\gamma$100) E2

13694.8, (30) γ_{12890}***805.0*** ($\dagger_\gamma$100)
14012.8 γ_{12890}***1123*** ($\dagger_\gamma$100)
14175.7 γ_{14013}***163*** γ_{13695}***480***
14195.7 γ_{12890}***1306*** ($\dagger_\gamma$100)
14442.4 γ_{14196}***247*** ($\dagger_\gamma$100)
14593.8 γ_{13695}***899*** γ_{12890}***1704***
15067.6 γ_{14594}***474*** ($\dagger_\gamma$100)
15441.3 γ_{15068}***374*** ($\dagger_\gamma$100)
15755.8 γ_{15441}***315*** ($\dagger_\gamma$100)
16310.3 γ_{15756}***555*** ($\dagger_\gamma$100)
A **x**, J≈(33)
A **826.3+x**, J+2 γ_{x}***826.3*** *3* ($\dagger_\gamma$0.61 *5*) $I^{(2)}$*=77.4,* $\hbar\omega$*=0.426*
A **1704.3+x**, J+4 γ_{826+x}***878.0*** *3* ($\dagger_\gamma$0.71 *8*) $I^{(2)}$*=76.2,* $\hbar\omega$*=0.452*
A **2634.8+x**, J+6 γ_{1704+x}***930.5*** *2* ($\dagger_\gamma$0.84 *7*) $I^{(2)}$*=75.9,* $\hbar\omega$*=0.478*
A **3618.0+x**, J+8 γ_{2635+x}***983.2*** *2* ($\dagger_\gamma$0.91 *5*) $I^{(2)}$*=72.2,* $\hbar\omega$*=0.505*
A **4656.6+x**, J+10 γ_{3618+x}***1038.6*** *3* ($\dagger_\gamma$1.00 *6*) $I^{(2)}$*=73.0,* $\hbar\omega$*=0.533*
A **5750.0+x**, J+12 γ_{4657+x}***1093.4*** *3* ($\dagger_\gamma$0.92 *5*) $I^{(2)}$*=72.2,* $\hbar\omega$*=0.561*
A **6898.8+x**, J+14 γ_{5750+x}***1148.8*** *2* ($\dagger_\gamma$0.81 *5*) $I^{(2)}$*=76.3,* $\hbar\omega$*=0.587*
A **8100.0+x**, J+16 γ_{6899+x}***1201.2*** *3* ($\dagger_\gamma$0.60 *4*) $I^{(2)}$*=81.5,* $\hbar\omega$*=0.613*
A **9350.3+x**, J+18 γ_{8100+x}***1250.3*** *4* ($\dagger_\gamma$0.52 *4*) $I^{(2)}$*=84.2,* $\hbar\omega$*=0.637*
A **10648.1+x**, J+20 γ_{9350+x}***1297.8*** *3* ($\dagger_\gamma$0.51 *5*) $I^{(2)}$*=84.6,* $\hbar\omega$*=0.661*
A **11993.2+x**, J+22 $\gamma_{10648+x}$***1345.1*** *3* ($\dagger_\gamma$0.47 *5*) $I^{(2)}$*=82.3,* $\hbar\omega$*=0.685*
A **13386.9+x**, J+24 $\gamma_{11993+x}$***1393.7*** *4* ($\dagger_\gamma$0.37 *6*) $I^{(2)}$*=76.2,* $\hbar\omega$*=0.710*
A **14833.1+x**, J+26 $\gamma_{13387+x}$***1446.2*** *5* ($\dagger_\gamma$0.23 *4*) $I^{(2)}$*=76.5,* $\hbar\omega$*=0.736*
A **16331.6+x**, J+28 $\gamma_{14833+x}$***1498.5*** *7* ($\dagger_\gamma$0.24 *5*) $I^{(2)}$*=72.6,* $\hbar\omega$*=0.763*
A **17885.2+x**, J+30 $\gamma_{16332+x}$***1553.6*** *9* ($\dagger_\gamma$0.16 *5*)
B **y**, J≈(32)
B **806.2+y**, J+2 γ_{y}***806.2*** *3* ($\dagger_\gamma$0.51 *5*) $I^{(2)}$*=78.7,* $\hbar\omega$*=0.416*
B **1663.2+y**, J+4 γ_{806+y}***857.0*** *3* ($\dagger_\gamma$0.68 *6*) $I^{(2)}$*=77.7,* $\hbar\omega$*=0.441*
B **2571.7+y**, J+6 γ_{1663+y}***908.5*** *3* ($\dagger_\gamma$0.89 *9*) $I^{(2)}$*=76.0,* $\hbar\omega$*=0.467*
B **3532.8+y**, J+8 γ_{2572+y}***961.1*** *2* ($\dagger_\gamma$1.00 *7*) $I^{(2)}$*=72.6,* $\hbar\omega$*=0.494*
B **4549.0+y**, J+10 γ_{3533+y}***1016.2*** *2* ($\dagger_\gamma$0.91 *7*) $I^{(2)}$*=71.4,* $\hbar\omega$*=0.522*
B **5621.2+y**, J+12 γ_{4549+y}***1072.2*** *2* ($\dagger_\gamma$0.78 *8*) $I^{(2)}$*=71.9,* $\hbar\omega$*=0.550*
B **6749.0+y**, J+14 γ_{5621+y}***1127.8*** *3* ($\dagger_\gamma$0.77 *7*) $I^{(2)}$*=70.2,* $\hbar\omega$*=0.578*
B **7933.8+y**, J+16 γ_{6749+y}***1184.8*** *3* ($\dagger_\gamma$0.73 *8*) $I^{(2)}$*=69.2,* $\hbar\omega$*=0.607*
B **9176.4+y**, J+18 γ_{7934+y}***1242.6*** *3* ($\dagger_\gamma$0.73 *7*) $I^{(2)}$*=70.5,* $\hbar\omega$*=0.635*
B **10475.7+y**, J+20 γ_{9176+y}***1299.3*** *4* ($\dagger_\gamma$0.60 *7*) $I^{(2)}$*=69.4,* $\hbar\omega$*=0.664*
B **11832.6+y**, J+22 $\gamma_{10476+y}$***1356.9*** *4* ($\dagger_\gamma$0.55 *6*) $I^{(2)}$*=70.8,* $\hbar\omega$*=0.693*
B **13246.0+y**, J+24 $\gamma_{11833+y}$***1413.4*** *4* ($\dagger_\gamma$0.37 *5*) $I^{(2)}$*=67.5,* $\hbar\omega$*=0.722*
B **14718.7+y**, J+26 $\gamma_{13246+y}$***1472.7*** *6* ($\dagger_\gamma$0.20 *4*) $I^{(2)}$*=69.9,* $\hbar\omega$*=0.751*
B **16248.6+y**, J+28 $\gamma_{14719+y}$***1529.9*** *8* ($\dagger_\gamma$0.13 *3*) $I^{(2)}$*=76.8,* $\hbar\omega$*=0.778*
B **17830.6+y**, J+30 $\gamma_{16249+y}$***1582.0*** *11* ($\dagger_\gamma$0.12 *4*)
C **z** (?), J
C **958.5+z** (?), J+2 γ_{z}***958.5*** *5* ($\dagger_\gamma$1.00 *16*) $I^{(2)}$*=84.0,* $\hbar\omega$*=0.491*
C **1964.6+z** (?), J+4 γ_{959+z}***1006.1*** *6* ($\dagger_\gamma$0.84 *14*) $I^{(2)}$*=68.0,* $\hbar\omega$*=0.518*
C **3029.5+z** (?), J+6 γ_{1965+z}***1064.9*** *6* ($\dagger_\gamma$0.94 *16*) $I^{(2)}$*=68.3,* $\hbar\omega$*=0.547*
C **4153.0+z** (?), J+8 γ_{3030+z}***1123.5*** *8* ($\dagger_\gamma$0.73 *16*) $I^{(2)}$*=76.6,* $\hbar\omega$*=0.575*
C **5328.7+z** (?), J+10 γ_{4153+z}***1175.7*** *8* ($\dagger_\gamma$0.69 *16*) $I^{(2)}$*=80.2,* $\hbar\omega$*=0.600*
C **6554.3+z** (?), J+12 γ_{5329+z}***1225.6*** *10* ($\dagger_\gamma$0.64 *18*) $I^{(2)}$*=76.3,* $\hbar\omega$*=0.626*
C **7832.3+z** (?), J+14 γ_{6554+z}***1278.0*** *14* ($\dagger_\gamma$0.49 *17*) $I^{(2)}$*=90.1,* $\hbar\omega$*=0.650*
C **9154.7+z** (?), J+16 γ_{7832+z}***1322.4*** *11* ($\dagger_\gamma$0.59 *17*) $I^{(2)}$*=86.0,* $\hbar\omega$*=0.673*
C **10523.6+z** (?), J+18 γ_{9155+z}***1368.9*** *19* ($\dagger_\gamma$0.30 *17*)



SD-1 band (95Sc31,90He14,93Ha19)

SD-2 band (95Sc31,91Rz01,93Ha19)

SD-3 band? (95Sc31)

$^{146}_{64}$Gd