

150 64 Gd

Δ : -75772 7 S_n : 8706 7 S_p : 6609 7 Q_α : 2809 6

Nuclear Bands

- A Band Structure
- B Band Structure
- C Band Structure
- D SD-1 band (91Fa07)
- E SD-2 band (93Be37)
- F SD-3 band (93Be37)
- G SD-4 band (93Be37)
- H SD-5 band (94Fa13)
- I Band Structure

Levels and γ -ray branchings:

- B 0, 0⁺, 1.79×10⁸ s γ , % α =100
- B 638.045 14, 2⁺ γ_0 638.050 16 († _{γ} 100) E2
- A 1134.297 17, 3⁻ γ_{638} 496.242 15 († _{γ} 100) E1
- 1207.135 20, 0⁺ γ_{638} 569.083 15 († _{γ} 100 5) E2+M1 γ_0 1207.22 († _{α} 1.04 15) E0
- B 1288.42 3, 4⁺ γ_{1134} 154.07 6 († _{γ} 1.8 4) γ_{638} 650.36 († _{γ} 100) E2
- 1430.467 18, (2)⁺ γ_{638} 792.385 20 († _{γ} 100) E2 γ_0 1430.46 4 († _{γ} 56 4) (E2)
- 1518.362 21, 2⁺ γ_{1134} 384.06 4 († _{γ} 13.2) γ_{638} 880.27 3 († _{γ} 100 5) M1(+E2+E0) γ_0 1518.34 († _{γ} 92.7) E2
- 1592.428 24, 1 γ_{1207} 385.35 († _{γ} 2.198) γ_{638} 954.46 4 († _{γ} 61 3) E1 γ_0 1592.51 4 († _{γ} 100.0 19) M1
- 1699.912 25, 5⁻ γ_{1288} 411.490 15 († _{γ} 77 4) M1 γ_{1134} 565.64 2 († _{γ} 100) E1 γ_{638} 1061.52 10 († _{γ} 15 3)
- 1814.13 6, 3⁻ γ_{1288} 525.70 20 († _{γ} 35.21) γ_{638} 1176.08 6 († _{γ} 100 6) E1
- B 1936.31 16, 6⁺ γ_{1700} 235.9 3 († _{γ} ≈3)

- γ_{1288} 648.4 3 († _{γ} 100 26) E2
- 1947.36 3, 2⁻, 3⁻, 4⁻ γ_{1134} 813.06 2 († _{γ} 100) (E2)
- 1955.371 22, 2⁺ γ_{1518} 436.980 25 († _{γ} 66 3) M1+E2: δ =1.2 4
- γ_{1430} 524.90 20 († _{γ} 38.46) (M1)
- γ_{1207} 748.23 († _{γ} 33.85)
- γ_{1134} 821.067 20 († _{γ} 100 6) E1
- γ_{638} 1317.50 6 († _{γ} 29.7 16) γ_0 1955.3 2 († _{γ} 7.2 16)
- 1969.99 11 γ_{1592} 377.82 15 († _{γ} 83 25) γ_{1518} 450 († _{γ} 5) γ_{1430} 539.26 15 († _{γ} 50 25) γ_{638} 1332.3 4 († _{γ} 100 40)
- 1987.93 3, 2⁺, 3⁺, 4⁺ γ_{1430} 557.45 3 († _{γ} 36.5 16) E2 γ_{1288} 699.47 († _{γ} 22.22) γ_{638} 1349.83 († _{γ} 100) E2
- 2080.61 9, (2, 3, 4)⁺ γ_{1518} 560 († _{γ} 17.5) γ_{1430} 650.33 0 († _{γ} 75) (E2) γ_{1288} 792.38 († _{γ} 75) (E2) γ_{1134} 945.7 2 († _{γ} 30 8) γ_{638} 1442.7 1 († _{γ} <100)
- 2083.96 3, 2⁻, 3⁻ γ_{1592} 491.57 5 († _{γ} 2.3 23) γ_{1518} 565.71 († _{γ} 13.08) γ_{1134} 949.90 5 († _{γ} 100 5) (M1) γ_{638} 1446.1 1 († _{γ} 51 5)
- 2091.623 25, 2⁺ γ_{1518} 573.30 († _{γ} 9.444) M1 γ_{1430} 661.18 4 († _{γ} 1.481) γ_{1288} 803 († _{γ} 0.9259) γ_{1207} 884.45 5 († _{γ} 5.7 4) γ_{1134} 957.33 4 († _{γ} 19.6 12) E1 γ_{638} 1453.55 4 († _{γ} 100 6) (M1) γ_0 2091.56 10 († _{γ} 48.0 24)
- B 2115.75 9, 6⁺ γ_{1936} 179.4 3(?) († _{γ} ≈1.3) E2 γ_{1700} 415.3 2 († _{γ} 25 11) E1 γ_{1288} 827.48 10 († _{γ} 100 14) E2
- 2157.5 7 γ_{1134} 1023 († _{γ} 4) γ_{638} 1519.6 († _{γ} 100)
- 2179.912 21, 2⁺ γ_{1955} 224.4 1 († _{γ} 3.9 12) γ_{1592} 587 († _{γ} 2.809) γ_{1518} 661.55 4

- († _{γ} 4.494) γ_{1430} 749.43 2 († _{γ} 3.933) γ_{1134} 1045.60 3 († _{γ} 100 5) E1 γ_{638} 1541.94 6 († _{γ} 39.66 23) γ_0 2179.9 2 († _{γ} 33.1 17)
- 2209.54 3, 2⁻, 3⁻ γ_{1430} 779.09 4 († _{γ} 47 5) γ_{1134} 1075.25 3 († _{γ} 100 5) M1 γ_{638} 1571.26 12 († _{γ} 21 4)
- A 2211.11 14, 7⁻ γ_{2116} 95.5 2 († _{γ} 2.0 4) γ_{1936} 274.9 3 († _{γ} 8 3) E1 γ_{1700} 511 († _{γ} 100 16) E2
- 2262.21 4 γ_{1518} 743.86 6 († _{γ} 20.83) γ_{1430} 831.73 7 († _{γ} 14.58) γ_{1134} 1127.7 1 († _{γ} 65 5) γ_{638} 1624.20 6 († _{γ} 100 7)
- 2306.2 4, (5⁻, 6⁺) γ_{2211} ≈95 γ_{1700} 606.8 5 († _{γ} 100 10) γ_{1288} 1017.2 5 († _{γ} 14 2)
- 2326.283 17 γ_{1988} 338.36 5 († _{γ} 36 6) γ_{1700} 626.47 10 († _{γ} 24 6) γ_{1518} 807.71 15 († _{γ} 20 4) γ_{1430} 895.86 5 († _{γ} 48 4) γ_{1288} 1037.9 3 († _{γ} 14 6) γ_{638} 1688.23 1 († _{γ} 100 10)
- 2364.91 5, 1, 2⁺ γ_{1592} 772.52 8 († _{γ} 17.2 19) γ_{1518} 846.5 2 († _{γ} 3.1 19) γ_{1207} 1157.76 8 († _{γ} 16.0 13) γ_{1134} 1231 († _{γ} 1.840) γ_{638} 1726.85 15 († _{γ} 23.9 25) γ_0 2364.93 10 († _{γ} 100 5)
- 2392.06 17, (7)⁺ γ_{2211} 180.9 3 γ_{2116} 276 γ_{1936} 455.7 2 M1
- 2408.53 5, 2⁺ γ_{2081} 328 1 († _{γ} 6 4) γ_{1430} 977.78 8 († _{γ} 20.5 24) γ_{1288} 1120.1 5 († _{γ} 16 8) γ_{1134} 1274.51 10 († _{γ} 45 4) γ_{638} 1770.45 6 († _{γ} 100 5)
- 2416.7 5(?) γ_{638} 1778.6 5 († _{γ} 100)
- 2426.20 3, 1⁻, 2⁺ γ_{1518} 908.1 3 († _{γ} 1.9 12) γ_{1430} 995.38 10 († _{γ} 10.4 19) γ_{1134} 1291.66 3 († _{γ} 85 5)

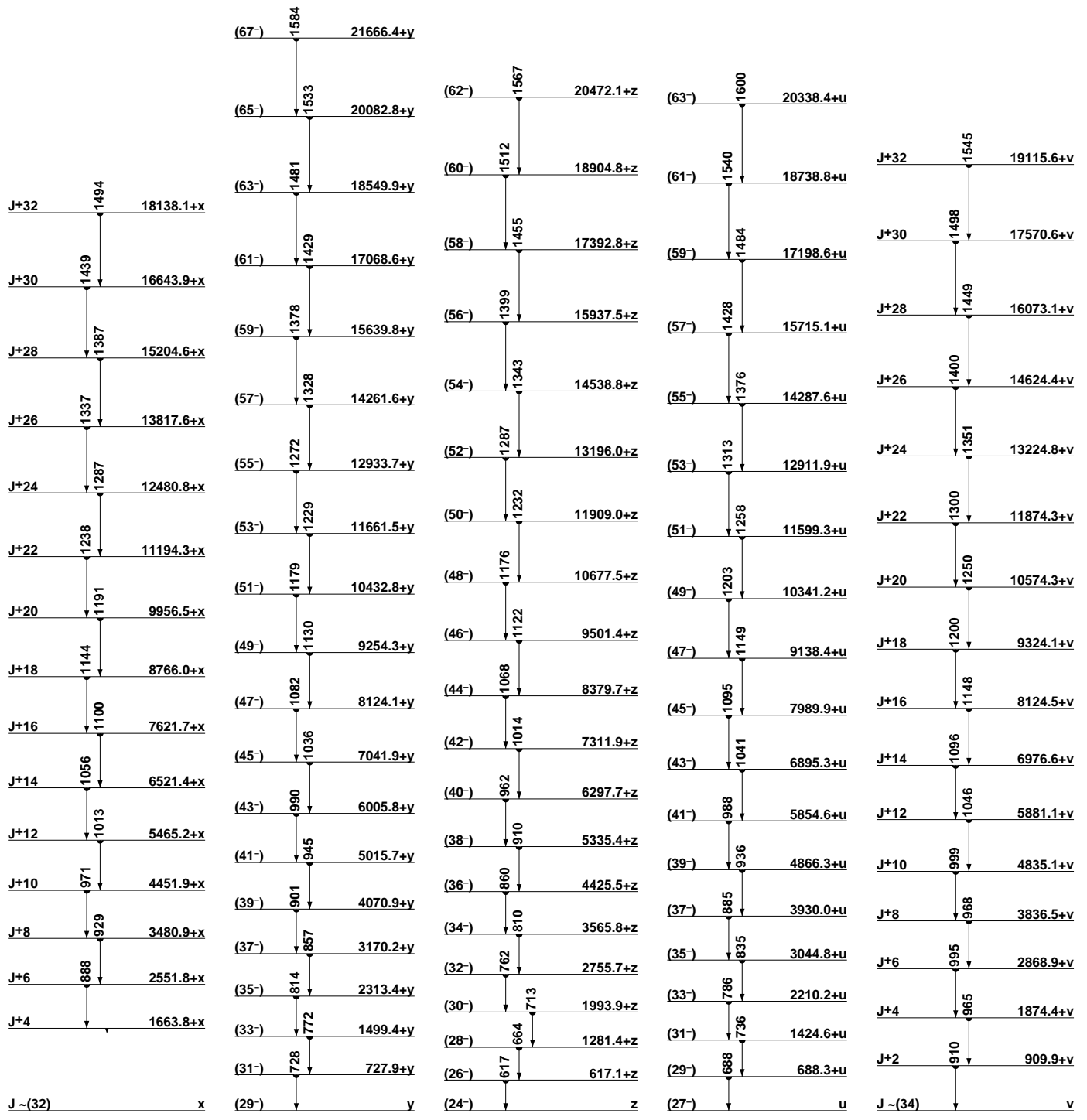
- $\gamma_{638} 1788.915$ (\dagger_{1005})
 $\gamma_0 2425.9810$ (\dagger_{633})
 2434.34⁹ $\gamma_{1518} 916.13$ (\dagger_{197})
 $\gamma_{1430} 1003.82$ ($\dagger_{9.375}$)
 $\gamma_{638} 1796.2910$ (\dagger_{10010})
 2521.56⁷, (2⁺, 3, 4⁺) $\gamma_{1947} 574.15$
 ($\dagger_{15.79}$) $\gamma_{1518} 1003.22$ ($\dagger_{26.32}$)
 $\gamma_{1430} 1091.01$ ($\dagger_{47.37}$)
 $\gamma_{1288} 1233.22$ ($\dagger_{53.8}$) $\gamma_{1134} 1387.2$
 ($\dagger_{21.14}$) $\gamma_{638} 1883.61$ (\dagger_{1008})
- B
- 2554.14¹², 8⁺ $\gamma_{2392} 162.02$ ($\dagger_{14.4}$) M1
 $\gamma_{2211} 343.0710$ ($\dagger_{59.19}$) E1
 $\gamma_{2116} 438.3710$ (\dagger_{10045}) E2
 2558.51²⁰, 1, 2⁺ $\gamma_{1207} 1351.2$ ($\dagger_{16.67}$)
 $\gamma_0 2558.4920$ (\dagger_{10010})
 2564.96¹³, (1⁻, 2⁻, 3⁻) $\gamma_{1592} 972.72$
 ($\dagger_{27.14}$) $\gamma_{1430} 1134$ ($\dagger_{90.91}$)
 $\gamma_{1134} 1430.504$ ($\dagger_{90.90}$) (E2)
 $\gamma_{638} 1926.62$ (\dagger_{10014}) $\gamma_0 2565.43$
 ($\dagger_{50.14}$)
 2593.9⁷ $\gamma_{1207} 1387.3$ ($\dagger_{50.70}$)
 $\gamma_{1134} 1459$ (\dagger_{100})
 2627.99⁸(?) $\gamma_{1592} 1035.83$ ($\dagger_{30.13}$)
 $\gamma_{1134} 1493.678$ (\dagger_{10013})
 $\gamma_{638} 1989.68$ ($\dagger_{48.22}$)
 2654.39⁷ $\gamma_{1988} 666.498$ ($\dagger_{6.721}$)
 $\gamma_{1955} 699.03$ ($\dagger_{12.75}$) $\gamma_{1430} 1223.85$
 ($\dagger_{5.421}$) $\gamma_{638} 2016.3010$ (\dagger_{1005})
 2678.45¹³, 1, 2⁺ $\gamma_{1814} 864.41$ ($\dagger_{7.273}$)
 $\gamma_{1430} 1247.92$ ($\dagger_{16.4}$) $\gamma_{1134} 1544.15$
 ($\dagger_{31.15}$) $\gamma_{638} 2040.42$ (\dagger_{1008})
 $\gamma_0 2678.63$ ($\dagger_{40.6}$)
 2686.84⁴, 1⁻, 2, 3⁻ $\gamma_{2365} 322.01$ ($\dagger_{16.4}$)
 $\gamma_{2084} 602.786$ ($\dagger_{39.4}$) $\gamma_{1947} 739.63$
 ($\dagger_{7.5}$) $\gamma_{1700} 987.33$ ($\dagger_{7.4}$)
- $\gamma_{1592} 1094.415$ ($\dagger_{52.46}$)
 $\gamma_{1518} 1168.646$ (\dagger_{1007}) $\gamma_{1430} 1256.4$
 ($\dagger_{13.5}$) $\gamma_{1134} 1552.35$ ($\dagger_{21.10}$)
 2754.58⁶, 2⁺, 3, 4⁺ $\gamma_{2262} 492.355$
 ($\dagger_{15.62}$) $\gamma_{1288} 1466.13$ ($\dagger_{5.8}$)
 $\gamma_{1134} 1620.3010$ ($\dagger_{33.5}$)
 $\gamma_{638} 2116.82$ (\dagger_{1005}) $\gamma_0 2754.68$
 ($\dagger_{25.8}$)
 2767.3⁶(?), (8⁺) $\gamma_{1936} 831.05$ (\dagger_{100})
 2786.49⁵, 1⁻, 2⁺ $\gamma_{1955} 831.187$ ($\dagger_{4.294}$)
 $\gamma_{1947} 839.22$ ($\dagger_{4.313}$) $\gamma_{1592} 1193.91$
 ($\dagger_{8.019}$) $\gamma_{1518} 1267$ ($\dagger_{4.294}$)
 $\gamma_{1430} 1356.0110$ ($\dagger_{15.319}$)
 $\gamma_{1134} 1652.26$ ($\dagger_{13.519}$)
 $\gamma_{638} 2148.4410$ (\dagger_{1005})
- A
- 2816.1⁴, 9⁻ $\gamma_{2211} 605.03$ (\dagger_{100}) E2
 2827.81⁷ $\gamma_{2084} 743.846$ (\dagger_{100})
 $\gamma_{1955} 874$
 2845.41⁵, 1, 2⁺ $\gamma_{2092} 753.83$ ($\dagger_{1.611}$)
 $\gamma_{1518} 1326.72$ ($\dagger_{7.117}$)
 $\gamma_{1430} 1414.956$ ($\dagger_{27.517}$)
 $\gamma_{1207} 1638.0610$ ($\dagger_{14.322}$)
 $\gamma_{638} 2207.5810$ (\dagger_{1005})
 $\gamma_0 2845.6525$ ($\dagger_{19.3}$)
 2868.27¹⁰ $\gamma_{1288} 1579.9210$ (\dagger_{10020})
 $\gamma_{1134} 1733.72$ ($\dagger_{88.16}$)
 2906.0⁵(?), 8⁺ $\gamma_{2116} 789.94$ (?) (\dagger_{100})
 E2
 2956.20⁵ $\gamma_{2210} 746$ ($\dagger_{12.70}$)
 $\gamma_{2092} 864.55$ ($\dagger_{12.70}$) $\gamma_{2084} 871.92$
 ($\dagger_{10.4}$) $\gamma_{1988} 968.35$ ($\dagger_{32.8}$)
 $\gamma_{1955} 1001.02$ ($\dagger_{27.7}$) $\gamma_{1947} 1008.13$
 ($\dagger_{19.7}$) $\gamma_{1592} 1365.33$ ($\dagger_{16.5}$)
 $\gamma_{1430} 1525.705$ ($\dagger_{98.5}$) $\gamma_{1134} 1822.25$
 ($\dagger_{16.7}$) $\gamma_{638} 2318.1410$ (\dagger_{1005})
- 2984.95¹¹, 1, 2⁺ $\gamma_{1988} 997.824$ ($\dagger_{19.6}$)
 $\gamma_{1592} 1392.44$ ($\dagger_{17.6}$) $\gamma_{1518} 1466.63$
 ($\dagger_{10.7}$) $\gamma_{1430} 1554.44$ ($\dagger_{38.9}$)
 $\gamma_{1207} 1778.8$ ($\dagger_{27.78}$) $\gamma_{638} 2346.92$
 ($\dagger_{38.5}$) $\gamma_0 2984.9015$ (\dagger_{1006})
 3024.7³ $\gamma_{1430} 1596$ (\dagger_{100}) $\gamma_0 3024.53$
 (\dagger_{10017})
 3035.64⁵, 1⁻, 2⁺ $\gamma_{2210} 826.3415$
 ($\dagger_{7.111}$) $\gamma_{2084} 952$ ($\dagger_{30.30}$)
 $\gamma_{1592} 1443.31$ ($\dagger_{>40.40}$)
 $\gamma_{1518} 1517.4$ ($\dagger_{10.10}$)
 $\gamma_{1430} 1605.4411$ ($\dagger_{22.3}$) $\gamma_{1288} 1747.3$
 ($\dagger_{30.30}$) $\gamma_{1134} 1901.7410$ ($\dagger_{97.5}$)
 $\gamma_{638} 2397.0410$ (\dagger_{1005})
 $\gamma_0 3034.8615$ ($\dagger_{53.3}$)
 3042.61²⁴ $\gamma_{1134} 1908.64$ ($\dagger_{50.19}$)
 $\gamma_0 3042.43$ (\dagger_{1009})
 3083.76¹⁷(?) $\gamma_{1955} 1130.47$ ($\dagger_{20.14}$)
 $\gamma_{1430} 1652.6$ ($\dagger_{20.10}$) $\gamma_{1207} 1876.64$
 ($\dagger_{20.10}$) $\gamma_{1134} 1949.32$ (\dagger_{10010})
 $\gamma_{638} 2446.110$ ($\dagger_{50.17}$)
 3118.75⁸ $\gamma_{1518} 1600.1015$ ($\dagger_{78.13}$)
 $\gamma_{1430} 1688.2710$ ($\dagger_{70.22}$)
 $\gamma_{1288} 1830.75$ ($\dagger_{39.18}$) $\gamma_{1134} 1984.92$
 (\dagger_{10018})
 3134.13⁶ $\gamma_{1592} 1541.946$ ($\dagger_{27.16}$)
 $\gamma_{1518} 1615.3710$ ($\dagger_{58.12}$)
 $\gamma_{1430} 1702.53$ ($\dagger_{31.12}$) $\gamma_{638} 2494.78$
 (\dagger_{10020}) $\gamma_0 3133.62$ ($\dagger_{58.8}$)
 3176.8⁵ $\gamma_{2554} 622.75$ (\dagger_{100})
 3177.732¹⁷ $\gamma_{2084} 1094.195$ ($\dagger_{10.13}$)
 $\gamma_{1592} 1585.1914$ ($\dagger_{9.4}$) $\gamma_{1518} 1659.9$
 ($\dagger_{14.4}$) $\gamma_{1430} 1747.8$ ($\dagger_{12.66}$)
 $\gamma_{1134} 2043.710$ ($\dagger_{14.9}$)
 $\gamma_{638} 2539.64510$ (\dagger_{1005})

- 3220.3 4, 10⁻ γ_{2816} **404.3** 3 ($\dagger_{\gamma}100$)
M1+E2
- 3251.5 5 γ_{1592} **1660.0** ($\dagger_{\gamma}100$ 19)
 γ_{638} **2614.3** 10 ($\dagger_{\gamma}80$ 40) γ_0 **3250.8** 6
($\dagger_{\gamma}38$ 13)
- 3269.32 11(?) γ_{2180} **1089.4** 1 ($\dagger_{\gamma}100$)
- B 3288.2 4, 10⁺ γ_{2554} **734.0** 3 ($\dagger_{\gamma}100$) E2
- 3298.34 22 γ_{1947} **1351.7** ($\dagger_{\gamma}41.6$ 7)
 γ_{1288} **2006.0** 5 ($\dagger_{\gamma}42$ 17)
 γ_{638} **2661.2** 25 ($\dagger_{\gamma}100$ 13)
- 3329.33 16 γ_{1592} **1737.2** 6 ($\dagger_{\gamma}17$ 10)
 γ_{1518} **1811.9** 3 ($\dagger_{\gamma}24$ 8) γ_{1134} **2194.6** 2
($\dagger_{\gamma}100$ 8) γ_{638} **2691.0** 5 ($\dagger_{\gamma}44$ 8)
- 3344.68 6, (2⁺) γ_{2409} **935.4** 2 ($\dagger_{\gamma}7$ 4)
 γ_{2092} **1253.0** 1 ($\dagger_{\gamma}22$ 4) γ_{2084} **1260.5** 2
($\dagger_{\gamma}10$ 5) γ_{1955} **1389.6** 4 ($\dagger_{\gamma}29$ 7)
 γ_{1814} **1530.5** 3 ($\dagger_{\gamma}12$ 5) γ_{1700} **1645.5** 2
($\dagger_{\gamma}22$ 5) γ_{1592} **1752.1** 2 ($\dagger_{\gamma}32$ 5)
 γ_{1518} **1826.2** 5 ($\dagger_{\gamma}24$ 9) γ_{1430} **1914.3** 2
($\dagger_{\gamma}100$ 11) γ_{1288} **2056.3** 2 ($\dagger_{\gamma}20$ 5)
 γ_{1134} **2210** ($\dagger_{\gamma}33.9$ 0) γ_{638} **2706.8** 6 15
($\dagger_{\gamma}88$ 5) γ_0 **3344.3** 5 ($\dagger_{\gamma}13.6$ 17)
- A 3366.4 4, 11⁻ $\gamma_{3288} \approx 78$ (?) γ_{3220} **146.2** 3
 γ_{2816} **550.3** 3
- 3375.72 14 γ_{2326} **1049.3** 4 ($\dagger_{\gamma}16$ 10)
 γ_{1134} **2241.4** 2 15 ($\dagger_{\gamma}53$ 7)
 γ_{638} **2737.8** 5 ($\dagger_{\gamma}100$ 19) γ_0 **3375.5** 7
($\dagger_{\gamma}14$ 5)
- 3378.11 11 γ_{1814} **1563.9** 6 10 ($\dagger_{\gamma}50$ 7)
 γ_{1430} **1947** ($\dagger_{\gamma}16.6$ 7) γ_{638} **2740.3** 4
($\dagger_{\gamma}100$ 17)
- 3389.2 5 γ_{638} **2751.0** 10 ($\dagger_{\gamma}60$ 50)
 γ_0 **3389.2** 5 ($\dagger_{\gamma}100$ 13)
- 3461.7 5, 2⁺ γ_{1518} **1943** ($\dagger_{\gamma}4$)
 γ_{1288} **2173.4** 5 ($\dagger_{\gamma}100$ 30)
- 3510.72 17, (1⁻, 2⁺) γ_{1592} **1918** ($\dagger_{\gamma}17.9$ 5)
 γ_{1134} **2376.6** 2 ($\dagger_{\gamma}85$ 8) γ_{638} **2872.2** 3
($\dagger_{\gamma}100$ 13)
- 3522.4 6 γ_0 **3522.4** 6 ($\dagger_{\gamma}100$)
- 3631.4 3 γ_{1430} **2201.4** 8 ($\dagger_{\gamma}100$ 40)
 γ_{1134} **2498** ($\dagger_{\gamma}28.5$ 7) γ_{638} **2993.2** 3
($\dagger_{\gamma}71$ 15)
- 3657.35 19(?), 2⁺ γ_{1988} **1668.8** 3
($\dagger_{\gamma}56$ 17) γ_{1207} **2450.2** 10 ($\dagger_{\gamma}44$ 23)
 γ_0 **3657.7** 4 25 ($\dagger_{\gamma}100$ 6)
- 3712.40 22 γ_{2081} **1631.7** 2 ($\dagger_{\gamma}100$ 40)
 γ_{1134} **2579.5** 8 ($\dagger_{\gamma}90$ 40)
- 3726.63 15 γ_{2210} **1518.2** 4 ($\dagger_{\gamma}85.1$ 1)
 γ_{1430} **2296.9** 8 ($\dagger_{\gamma}6$ 5) γ_{1134} **2592.2** 5 15
($\dagger_{\gamma}100$ 7)
- 3772.03 19 γ_{1134} **2636.8** 5 ($\dagger_{\gamma}50$ 30)
 γ_{638} **3134.1** 2 ($\dagger_{\gamma}100$)
- 3828.4 4(?), (1, 2⁺) γ_{1207} **2621.8** 5
($\dagger_{\gamma}100$ 40) γ_0 **3828.0** 4 ($\dagger_{\gamma}33$ 7)
- 3840.04 17 γ_{1988} **1852** 2 ($\dagger_{\gamma}16.3$ 9)
 γ_{1430} **2409.3** 6 20 ($\dagger_{\gamma}100$ 5)
 γ_{638} **3202.4** 3 ($\dagger_{\gamma}20$ 4)
- 3963.64 23 γ_{1592} **2372** ($\dagger_{\gamma}27.7$ 8)
 γ_{1430} **2532.5** 3 ($\dagger_{\gamma}100$ 30)
 γ_{1134} **2828.5** 6 ($\dagger_{\gamma}33$ 17) γ_{638} **3327.7** 5
($\dagger_{\gamma}67$ 6)
- 4021.2 4(?), (1, 2⁺) γ_{638} **3383.6** 5
($\dagger_{\gamma}100$ 50) γ_0 **4020.8** 4 ($\dagger_{\gamma}0.7$ 1 7)
- C 4105.4 10, 12⁺ γ_{3288} **817** ($\dagger_{\gamma}100$) E2
- 4111.07 25(?), 1⁻, 2⁺ γ_{1288} **2822.7** 6
($\dagger_{\gamma}27$ 14) γ_{1134} **2975.9** 6 ($\dagger_{\gamma}40$ 14)
 γ_0 **4111.2** 3 ($\dagger_{\gamma}100$ 14)
- A 4131.1 5, 13⁻ γ_{3366} **764.7** 2 ($\dagger_{\gamma}100$) E2
- 4143.8 3(?), (1⁻, 2⁺) γ_{1134} **3008.9** 3
($\dagger_{\gamma}100$ 17) γ_0 **4145.4** 5 ($\dagger_{\gamma}67$ 9)
- 4151.0 4 γ_{638} **3512.1** 7 ($\dagger_{\gamma}100$ 40)
 γ_0 **4151.3** 5 ($\dagger_{\gamma}40$ 9)
- 4164.0 4, 2⁺ γ_{1288} **2876.6** 6 ($\dagger_{\gamma}100$ 23)
 γ_{638} **3525.7** 8 ($\dagger_{\gamma}23$ 9) γ_0 **4163.3** 5
($\dagger_{\gamma}13.6$ 23)
- 4178.6 5 γ_{1207} **2971.7** 10 ($\dagger_{\gamma}100$ 70)
 γ_0 **4178.5** 5 ($\dagger_{\gamma}80$ 17)
- 4186.9 5, (12⁻) γ_{3220} **966.6** 3 ($\dagger_{\gamma}100$) E2
- 4206.9 3, (1, 2⁺) γ_{638} **3570.6** 6 ($\dagger_{\gamma}52$ 8)
 γ_0 **4206.4** 3 ($\dagger_{\gamma}100$ 6)
- 4235.2 6(?), (1⁻, 2⁺) γ_0 **4235.1** 6 ($\dagger_{\gamma}100$)
- 4246.2 3(?), (1, 2⁺) γ_{638} **3609.4** 8
($\dagger_{\gamma}43$ 11) γ_0 **4246.0** 3 ($\dagger_{\gamma}100$ 6)
- 4258.0 3, (1⁻, 2⁺) γ_{1134} **3124.0** 3
($\dagger_{\gamma}100$ 14) γ_0 **4256.5** 6 ($\dagger_{\gamma}14$ 4)
- 4264.6 3, 2⁺ γ_0 **4264.5** 3 ($\dagger_{\gamma}100$)
- 4283.1 10(?), (1, 2⁺) γ_0 **4283.0** 10
($\dagger_{\gamma}100$)
- 4289.4 3(?), (1, 2⁺) γ_0 **4289.3** 3 ($\dagger_{\gamma}100$)
- 4296.7 10 γ_0 **4296.6** 10 ($\dagger_{\gamma}100$)
- 4303.2 3 γ_{1207} **3096.1** 3 ($\dagger_{\gamma}100$ 11)
 γ_0 **4302.4** 8 ($\dagger_{\gamma}7$ 3)
- 4314.0 3, 1, 2⁺ γ_{638} **3675.3** 5 ($\dagger_{\gamma}100$ 23)
 γ_0 **4314.2** 3 ($\dagger_{\gamma}70$ 6)
- 4322.0 3, 2⁺ γ_{638} **3684.3** 4 ($\dagger_{\gamma}65$ 11)
 γ_0 **4321.6** 4 ($\dagger_{\gamma}100$ 6)
- 4343.9 4, (1, 2⁺) γ_{1430} **2913.7** 4 ($\dagger_{\gamma}100$ 20)
 γ_0 **4343.3** 6 ($\dagger_{\gamma}10$ 3)
- 4378.6 6(?), (1⁺, 2⁺) γ_0 **4378.5** 6 ($\dagger_{\gamma}100$)
- 4405.3 3, (1, 2⁺) γ_{638} **3768.4** 10 ($\dagger_{\gamma}70$ 40)
 γ_0 **4405.1** 3 ($\dagger_{\gamma}100$ 6)
- 4435.2 6 γ_{638} **3797.4** 7 ($\dagger_{\gamma}100$ 40)
 γ_0 **4434.4** 10 ($\dagger_{\gamma}19$ 10)
- 4445.9 3, 1, 2⁺ γ_{1207} **3239.2** 5 ($\dagger_{\gamma}61$ 7)

- $\gamma_0 4445.73$ ($\dagger_{\gamma} 1005$)
4462.38 $\gamma_0 4462.28$ ($\dagger_{\gamma} 100$)
4492.87 $\gamma_{638} 3854.58$ ($\dagger_{\gamma} 10050$)
 $\gamma_0 4493.315$ ($\dagger_{\gamma} 129$)
4499.88 $\gamma_0 4499.78$ ($\dagger_{\gamma} 100$)
4522.86(?) $\gamma_{638} 3884.76$ ($\dagger_{\gamma} 100$)
4529.44(?), (1,2⁺) $\gamma_{1592} 2935.64$
($\dagger_{\gamma} 10020$) $\gamma_0 4531.55$ ($\dagger_{\gamma} 9.020$)
4545.66 $\gamma_{638} 3907.56$ ($\dagger_{\gamma} 100$)
4557.210 $\gamma_0 4557.110$ ($\dagger_{\gamma} 100$)
4563.310 $\gamma_0 4563.210$ ($\dagger_{\gamma} 100$)
C **4739.611, 14⁺** $\gamma_{4105} 634$ ($\dagger_{\gamma} 100$)
4744.93 $\gamma_{1592} 3152.43$ ($\dagger_{\gamma} 10015$)
 $\gamma_{1430} 3314.56$ ($\dagger_{\gamma} 298$)
A **4834.910, 15⁻** $\gamma_{4131} 704$ ($\dagger_{\gamma} 100$)
C **5428.811, 16⁺** $\gamma_{4835} 594$ $\gamma_{4740} 689$
A **5450.913, 17⁻** $\gamma_{4835} 616$ ($\dagger_{\gamma} 100$)
5632.814, 17⁺ $\gamma_{5429} 204$ ($\dagger_{\gamma} 100$)
B **5764.813, 18⁺** $\gamma_{5633} 132$ $\gamma_{5451} 314$ D
 $\gamma_{5429} 336$
6311.816, (19⁻) $\gamma_{5765} 547$ ($\dagger_{\gamma} 100$)
B **6450.816, (20⁺)** $\gamma_{5765} 686$ ($\dagger_{\gamma} 100$)
I **6495.819, (21⁻)** $\gamma_{6312} 184$ ($\dagger_{\gamma} 100$)
I **7275.822, (23⁻)** $\gamma_{6496} 780$ ($\dagger_{\gamma} 100$)
I **7929.824, (25⁻)** $\gamma_{7276} 654$ ($\dagger_{\gamma} 100$)
I **8325.3, (27⁻)** $\gamma_{7930} 395$ ($\dagger_{\gamma} 100$)
9410.3(?), (28⁺) $\gamma_{8325} 1085$ ($\dagger_{\gamma} 100$)
9497.3, (29⁻) $\gamma_{8325} 1172$ ($\dagger_{\gamma} 100$)
9582.3, (29⁺) $\gamma_{9410} 172$ ($\dagger_{\gamma} 100$)
9851.3, (30⁺) $\gamma_{9582} 269$ $\gamma_{9497} 354$
10532.3, (31⁺) $\gamma_{9582} 950$ ($\dagger_{\gamma} 100$)
11231.4, (33⁺) $\gamma_{10532} 699$ ($\dagger_{\gamma} 100$)
12185.4, (34⁻) $\gamma_{11231} 954$ ($\dagger_{\gamma} 100$)
- 12678.4, (36⁻, 34⁺)** $\gamma_{12185} 493$ ($\dagger_{\gamma} 100$)
D **x, J=**(32)
814.9+x, J+2 $\gamma_x 814.93$ ($\dagger_{\gamma} 0.829$)
D **1663.8+x, J+4** $\gamma_{815+x} 848.91$ ($\dagger_{\gamma} 1.038$)
D **2551.8+x, J+6** $\gamma_{1664+x} 888.01$ ($\dagger_{\gamma} 0.919$)
 $I^{(2)}=97.3, \bar{h}\omega=0.454$
D **3480.9+x, J+8** $\gamma_{2552+x} 929.11$
($\dagger_{\gamma} 1.0310$) $I^{(2)}=95.5, \bar{h}\omega=0.475$
D **4451.9+x, J+10** $\gamma_{3481+x} 971.03$
($\dagger_{\gamma} 0.939$) $I^{(2)}=94.6, \bar{h}\omega=0.496$
D **5465.2+x, J+12** $\gamma_{4452+x} 1013.32$
($\dagger_{\gamma} 1.067$) $I^{(2)}=93.2, \bar{h}\omega=0.517$
D **6521.4+x, J+14** $\gamma_{5465+x} 1056.22$
($\dagger_{\gamma} 1.106$) $I^{(2)}=90.7, \bar{h}\omega=0.539$
D **7621.7+x, J+16** $\gamma_{6521+x} 1100.32$
($\dagger_{\gamma} 0.9212$) $I^{(2)}=90.9, \bar{h}\omega=0.561$
D **8766.0+x, J+18** $\gamma_{7622+x} 1144.33$
($\dagger_{\gamma} 1.009$) $I^{(2)}=86.6, \bar{h}\omega=0.584$
D **9956.5+x, J+20** $\gamma_{8766+x} 1190.52$
($\dagger_{\gamma} 0.986$) $I^{(2)}=84.6, \bar{h}\omega=0.607$
D **11194.3+x, J+22** $\gamma_{9957+x} 1237.82$
($\dagger_{\gamma} 0.828$) $I^{(2)}=82.1, \bar{h}\omega=0.631$
D **12480.8+x, J+24** $\gamma_{11194+x} 1286.53$
($\dagger_{\gamma} 0.567$) $I^{(2)}=79.5, \bar{h}\omega=0.656$
D **13817.6+x, J+26** $\gamma_{12481+x} 1336.83$
($\dagger_{\gamma} 0.526$) $I^{(2)}=79.7, \bar{h}\omega=0.681$
D **15204.6+x, J+28** $\gamma_{13818+x} 1387.03$
($\dagger_{\gamma} 0.356$) $I^{(2)}=76.5, \bar{h}\omega=0.707$
D **16643.9+x, J+30** $\gamma_{15205+x} 1439.34$
($\dagger_{\gamma} 0.214$) $I^{(2)}=72.9, \bar{h}\omega=0.733$
D **18138.1+x, J+32** $\gamma_{16644+x} 1494.26$
($\dagger_{\gamma} 0.108$)
E **y, (29⁻)**
E **727.9+y, (31⁻)** $\gamma_y 727.9$ $I^{(1)}=82.7$
- $I^{(2)}=91.7, \bar{h}\omega=0.375$
E **1499.4+y, (33⁻)** $\gamma_{728+y} 771.5$ ($\dagger_{\gamma} 0.3410$)
 $I^{(1)}=83.3, I^{(2)}=94.1, \bar{h}\omega=0.396$
E **2313.4+y, (35⁻)** $\gamma_{1499+y} 814.0$
($\dagger_{\gamma} 0.6915$) $I^{(1)}=83.8, I^{(2)}=93.5,$
 $\bar{h}\omega=0.418$
E **3170.2+y, (37⁻)** $\gamma_{2313+y} 856.8$
($\dagger_{\gamma} 0.8410$) $I^{(1)}=84.2, I^{(2)}=91.1,$
 $\bar{h}\omega=0.439$
E **4070.9+y, (39⁻)** $\gamma_{3170+y} 900.7$
($\dagger_{\gamma} 0.9920$) $I^{(1)}=84.5, I^{(2)}=90.7,$
 $\bar{h}\omega=0.461$
E **5015.7+y, (41⁻)** $\gamma_{4071+y} 944.8$
($\dagger_{\gamma} 0.9620$) $I^{(1)}=84.8, I^{(2)}=88.3,$
 $\bar{h}\omega=0.484$
E **6005.8+y, (43⁻)** $\gamma_{5016+y} 990.1$
($\dagger_{\gamma} 0.8210$) $I^{(1)}=84.9, I^{(2)}=87.0,$
 $\bar{h}\omega=0.507$
E **7041.9+y, (45⁻)** $\gamma_{6006+y} 1036.1$
($\dagger_{\gamma} 0.7515$) $I^{(1)}=85.0, I^{(2)}=86.8,$
 $\bar{h}\omega=0.530$
E **8124.1+y, (47⁻)** $\gamma_{7042+y} 1082.2$
($\dagger_{\gamma} 0.8820$) $I^{(1)}=85.0, I^{(2)}=83.3,$
 $\bar{h}\omega=0.553$
E **9254.3+y, (49⁻)** $\gamma_{8124+y} 1130.2$
($\dagger_{\gamma} 0.8210$) $I^{(1)}=84.9, I^{(2)}=82.8,$
 $\bar{h}\omega=0.577$
E **10432.8+y, (51⁻)** $\gamma_{9254+y} 1178.5$
($\dagger_{\gamma} 0.9720$) $I^{(1)}=84.7, I^{(2)}=79.7,$
 $\bar{h}\omega=0.602$
E **11661.5+y, (53⁻)** $\gamma_{10433+y} 1228.7$
($\dagger_{\gamma} 0.9720$) $I^{(1)}=84.8, I^{(2)}=92.0,$
 $\bar{h}\omega=0.625$
E **12933.7+y, (55⁻)** $\gamma_{11662+y} 1272.2$

- ($\dagger_0.54$ 10) $I^{(1)}=84.6$, $I^{(2)}=71.8$, $\bar{h}\omega=0.650$
- E **14261.6+y**, (57⁻) $\Upsilon_{12934+y}$ **1327.9**
($\dagger_0.11$ 10) $I^{(1)}=84.3$, $I^{(2)}=79.5$, $\bar{h}\omega=0.677$
- E **15639.8+y**, (59⁻) $\Upsilon_{14262+y}$ **1378.2**
 $I^{(1)}=84.1$, $I^{(2)}=79.1$, $\bar{h}\omega=0.702$
- E **17068.6+y**, (61⁻) $\Upsilon_{15640+y}$ **1428.8**
 $I^{(1)}=83.8$, $I^{(2)}=76.2$, $\bar{h}\omega=0.728$
- E **18549.9+y**, (63⁻) $\Upsilon_{17069+y}$ **1481.3**
 $I^{(1)}=83.6$, $I^{(2)}=77.5$, $\bar{h}\omega=0.754$
- E **20082.8+y**, (65⁻) $\Upsilon_{18550+y}$ **1532.9**
 $I^{(1)}=83.4$, $I^{(2)}=78.9$, $\bar{h}\omega=0.779$
- E **21666.4+y**, (67⁻) $\Upsilon_{20083+y}$ **1583.6**
- F **z**, (24⁻)
- F **617.1+z**, (26⁻) $\Upsilon_{617.1}$ ($\dagger_0.55$)
 $I^{(1)}=81.2$, $I^{(2)}=84.7$, $\bar{h}\omega=0.320$
- F **1281.4+z**, (28⁻) Υ_{617+z} **664.3** ($\dagger_0.75$)
 $I^{(1)}=81.3$, $I^{(2)}=83.0$, $\bar{h}\omega=0.344$
- F **1993.9+z**, (30⁻) Υ_{1281+z} **712.5** ($\dagger_0.9$)
 $I^{(1)}=81.4$, $I^{(2)}=81.1$, $\bar{h}\omega=0.369$
- F **2755.7+z**, (32⁻) Υ_{1994+z} **761.8** ($\dagger_1.0$)
 $I^{(1)}=81.4$, $I^{(2)}=82.8$, $\bar{h}\omega=0.393$
- F **3565.8+z**, (34⁻) Υ_{2756+z} **810.1** ($\dagger_1.1$)
 $I^{(1)}=81.4$, $I^{(2)}=80.6$, $\bar{h}\omega=0.417$
- F **4425.5+z**, (36⁻) Υ_{3566+z} **859.7** ($\dagger_1.0$)
 $I^{(1)}=81.4$, $I^{(2)}=79.7$, $\bar{h}\omega=0.442$
- F **5335.4+z**, (38⁻) Υ_{4426+z} **909.9** ($\dagger_1.1$)
 $I^{(1)}=81.2$, $I^{(2)}=76.3$, $\bar{h}\omega=0.468$
- F **6297.7+z**, (40⁻) Υ_{5335+z} **962.3** ($\dagger_0.9$)
 $I^{(1)}=81.0$, $I^{(2)}=77.1$, $\bar{h}\omega=0.494$
- F **7311.9+z**, (42⁻) Υ_{6298+z} **1014.2** ($\dagger_1.0$)
 $I^{(1)}=80.7$, $I^{(2)}=74.6$, $\bar{h}\omega=0.521$
- F **8379.7+z**, (44⁻) Υ_{7312+z} **1067.8** ($\dagger_0.9$)
- $I^{(1)}=80.4$, $I^{(2)}=74.2$, $\bar{h}\omega=0.547$
- F **9501.4+z**, (46⁻) Υ_{8380+z} **1121.7** $I^{(1)}=80.1$,
 $I^{(2)}=73.5$, $\bar{h}\omega=0.574$
- F **10677.5+z**, (48⁻) Υ_{9501+z} **1176.1**
 $I^{(1)}=79.7$, $I^{(2)}=72.2$, $\bar{h}\omega=0.602$
- F **11909.0+z**, (50⁻) $\Upsilon_{10678+z}$ **1231.5**
 $I^{(1)}=79.4$, $I^{(2)}=71.7$, $\bar{h}\omega=0.630$
- F **13196.0+z**, (52⁻) $\Upsilon_{11909+z}$ **1287.0**
 $I^{(1)}=79.1$, $I^{(2)}=71.6$, $\bar{h}\omega=0.657$
- F **14538.8+z**, (54⁻) $\Upsilon_{13196+z}$ **1342.8**
 $I^{(1)}=78.8$, $I^{(2)}=71.6$, $\bar{h}\omega=0.685$
- F **15937.5+z**, (56⁻) $\Upsilon_{14539+z}$ **1398.7**
 $I^{(1)}=78.5$, $I^{(2)}=70.7$, $\bar{h}\omega=0.713$
- F **17392.8+z**, (58⁻) $\Upsilon_{15938+z}$ **1455.3**
 $I^{(1)}=78.2$, $I^{(2)}=70.5$, $\bar{h}\omega=0.742$
- F **18904.8+z**, (60⁻) $\Upsilon_{17393+z}$ **1512.0**
 $I^{(1)}=77.9$, $I^{(2)}=72.3$, $\bar{h}\omega=0.770$
- F **20472.1+z**, (62⁻) $\Upsilon_{18905+z}$ **1567.3**
- G **u**, (27⁻)
- G **688.3+u**, (29⁻) Υ_0 **688.3** $I^{(1)}=81.4$,
 $I^{(2)}=83.3$, $\bar{h}\omega=0.356$
- G **1424.6+u**, (31⁻) Υ_{688+u} **736.3** $I^{(1)}=81.5$,
 $I^{(2)}=81.1$, $\bar{h}\omega=0.380$
- G **2210.2+u**, (33⁻) Υ_{1425+u} **785.6** $I^{(1)}=81.5$,
 $I^{(2)}=81.6$, $\bar{h}\omega=0.405$
- G **3044.8+u**, (35⁻) Υ_{2210+u} **834.6** $I^{(1)}=81.4$,
 $I^{(2)}=79.1$, $\bar{h}\omega=0.430$
- G **3930.0+u**, (37⁻) Υ_{3045+u} **885.2** $I^{(1)}=81.3$,
 $I^{(2)}=78.3$, $\bar{h}\omega=0.455$
- G **4866.3+u**, (39⁻) Υ_{3930+u} **936.3** $I^{(1)}=81.1$,
 $I^{(2)}=76.9$, $\bar{h}\omega=0.481$
- G **5854.6+u**, (41⁻) Υ_{4866+u} **988.3** $I^{(1)}=80.8$,
 $I^{(2)}=76.3$, $\bar{h}\omega=0.507$
- G **6895.3+u**, (43⁻) Υ_{5855+u} **1040.7** $I^{(1)}=80.6$,
 $I^{(2)}=74.2$, $\bar{h}\omega=0.534$
- G **7989.9+u**, (45⁻) Υ_{6895+u} **1094.6** $I^{(1)}=80.2$,
 $I^{(2)}=74.2$, $\bar{h}\omega=0.561$
- G **9138.4+u**, (47⁻) Υ_{7990+u} **1148.5** $I^{(1)}=80.0$,
 $I^{(2)}=73.7$, $\bar{h}\omega=0.588$
- G **10341.2+u**, (49⁻) Υ_{9138+u} **1202.8**
 $I^{(1)}=79.6$, $I^{(2)}=72.3$, $\bar{h}\omega=0.615$
- G **11599.3+u**, (51⁻) $\Upsilon_{10341+u}$ **1258.1**
 $I^{(1)}=79.4$, $I^{(2)}=73.4$, $\bar{h}\omega=0.643$
- G **12911.9+u**, (53⁻) $\Upsilon_{11599+u}$ **1312.6**
 $I^{(1)}=78.9$, $I^{(2)}=63.4$, $\bar{h}\omega=0.672$
- G **14287.6+u**, (55⁻) $\Upsilon_{12912+u}$ **1375.7**
 $I^{(1)}=78.5$, $I^{(2)}=77.2$, $\bar{h}\omega=0.701$
- G **15715.1+u**, (57⁻) $\Upsilon_{14288+u}$ **1427.5**
 $I^{(1)}=78.3$, $I^{(2)}=71.4$, $\bar{h}\omega=0.728$
- G **17198.6+u**, (59⁻) $\Upsilon_{15715+u}$ **1483.5**
 $I^{(1)}=78.1$, $I^{(2)}=70.5$, $\bar{h}\omega=0.756$
- G **18738.8+u**, (61⁻) $\Upsilon_{17199+u}$ **1540.2**
 $I^{(1)}=77.7$, $I^{(2)}=67.3$, $\bar{h}\omega=0.785$
- G **20338.4+u**, (63⁻) $\Upsilon_{18739+u}$ **1599.6**
- H **v**, J=(34)
- H **909.9+v**, J+2 Υ_0 **909.9** 5 ($\dagger_0.50$ 10)
 $I^{(1)}=81.2$, $I^{(2)}=76.3$, $\bar{h}\omega=0.468$
- H **1874.4+v**, J+4 Υ_{910+v} **964.5** 5 ($\dagger_0.63$ 10)
 $I^{(2)}=133.3$, $\bar{h}\omega=0.490$
- H **2868.9+v**, J+6 Υ_{1874+v} **994.5**
($\dagger_0.50$ 10) $I^{(2)}=-148.7$, $\bar{h}\omega=0.491$
- H **3836.5+v**, J+8 Υ_{2869+v} **967.6** 5
($\dagger_0.68$ 10) $I^{(2)}=129.0$, $\bar{h}\omega=0.492$
- H **4835.1+v**, J+10 Υ_{3837+v} **998.6** 5
($\dagger_0.84$ 10) $I^{(2)}=84.4$, $\bar{h}\omega=0.511$
- H **5881.1+v**, J+12 Υ_{4835+v} **1046.0** 5
($\dagger_1.00$ 5) $I^{(2)}=80.8$, $\bar{h}\omega=0.535$

- H **6976.6+v**, J+14 γ_{5881+v} **1095.5**
 $(\dagger_{\gamma} 0.935)$ $I^{(2)}=76.3$, $\bar{h}\omega=0.561$
- H **8124.5+v**, J+16 γ_{6977+v} **1147.9**
 $(\dagger_{\gamma} 0.935)$ $I^{(2)}=77.4$, $\bar{h}\omega=0.587$
- H **9324.1+v**, J+18 γ_{8125+v} **1199.6**
 $(\dagger_{\gamma} 1.085)$ $I^{(2)}=79.1$, $\bar{h}\omega=0.612$
- H **10574.3+v**, J+20 γ_{9324+v} **1250.2**
 $(\dagger_{\gamma} 1.005)$ $I^{(2)}=80.3$, $\bar{h}\omega=0.638$
- H **11874.3+v**, J+22 $\gamma_{10574+v}$ **1300.0**
 $(\dagger_{\gamma} 0.897)$ $I^{(2)}=79.2$, $\bar{h}\omega=0.663$
- H **13224.8+v**, J+24 $\gamma_{11874+v}$ **1350.5**
 $(\dagger_{\gamma} 0.875)$ $I^{(2)}=81.5$, $\bar{h}\omega=0.688$
- H **14624.4+v**, J+26 $\gamma_{13225+v}$ **1399.6**
 $(\dagger_{\gamma} 0.585)$ $I^{(2)}=81.5$, $\bar{h}\omega=0.712$
- H **16073.1+v**, J+28 $\gamma_{14624+v}$ **1448.7**
 $(\dagger_{\gamma} 0.507)$ $I^{(2)}=82.0$, $\bar{h}\omega=0.737$
- H **17570.6+v**, J+30 $\gamma_{16073+v}$ **1497.5**
 $(\dagger_{\gamma} 0.209)$ $I^{(2)}=84.2$, $\bar{h}\omega=0.761$
- H **19115.6+v**, J+32 $\gamma_{17571+v}$ **1545.0**
 $(\dagger_{\gamma} 0.086)$



$^{150}_{64}\text{Gd}$