

150
64Gd Δ : -75771.7 S_n : 8708.7 S_p : 6606.8 Q_α : 2809.6

Nuclear Bands

- A $\Delta J=2$ band
 B $\Delta J=2$ band
 C $\Delta J=2$ band
 D SD-1 band (89Fa02,91Fa07)
 E SD-2 band (93Be37)
 F SD-3 band (93Be37)
 G SD-4 band (93Be37)
 H SD-5 band (94Fa13,93Be37)
 I $\Delta J=2$ band

Levels and γ -ray branchings:B 0, 0⁺, 1.79×10⁶ s y, % α =100B 638.045 14, 2⁺ γ_{638} 638.050 16 (†,100) E2A 1134.297 17, 3⁻ γ_{638} 496.242 15 (†,100) E11207.135 20, 0⁺ γ_{638} 569.083 15 (†,100.5) E2+M1 γ_0 1207.22 (†,1.04 15) E0B 1288.42 3, 4⁺ γ_{1134} 154.07 6 (†,1.8 4) γ_{638} 650.36 (†,100) E21430.467 18, (2)⁺ γ_{638} 792.385 20 (†,100) E2 γ_0 1430.46 4 (†,56 4) (E2)1518.362 21, 2⁺ γ_{1134} 384.06 4 (†,13.2) γ_{638} 880.27 3 (†,100.5)M1+(E2+E0) γ_0 1518.34 (†,92.7) E21592.428 24, 1 γ_{1207} 385.35 (†,2.198) γ_{638} 954.46 4 (†,61 3) E1 γ_0 1592.51 4 (†,100.0 19) M11699.912 25, 5⁻ γ_{1288} 411.490 15 (†,77 4) M1 γ_{1134} 565.64 2 (†,100) E1 γ_{638} 1061.52 10 (†,15 3)1814.13 6, 3⁻ γ_{1288} 525.70 20 (†,35.21) γ_{638} 1176.08 6 (†,100 6) E1B 1936.31 16, 6⁺ γ_{1700} 235.9 3 (†,≈3) γ_{1288} 648.4 3 (†,100 26) E21947.36 3, 2⁻, 3⁻, 4⁻ γ_{1134} 813.06 2 (†,100) (E2)1955.371 22, 2⁺ γ_{1518} 436.980 25 (†,66 3) M1+E2: $\delta=1.2 4$ γ_{1430} 524.90 20(†,38.46) (M1) γ_{1207} 748.23 (†,33.85) γ_{1134} 821.067 20 (†,100 6) E1 γ_{638} 1317.50 6 (†,29.7 16) γ_0 1955.3 2 (†,7.2 16)1969.99 11 γ_{1592} 377.82 15 (†,83 25) γ_{1518} 450 (†,5) γ_{1430} 539.26 15(†,50 25) γ_{638} 1332.3 4 (†,100 40)1987.93 3, 2⁺, 3⁺, 4⁺ γ_{1430} 557.45 3 (†,36.5 16) E2 γ_{1288} 699.47 (†,22.22) γ_{638} 1349.83 (†,100) E22080.61 9, (2,3,4)⁺ γ_{1518} 560 (†,17.5) γ_{1430} 650.33 0 (†,75) (E2) γ_{1288} 792.38 (†,75) (E2) γ_{1134} 945.7 2 (†,30 8) γ_{638} 1442.7 1 (†, <100)2083.96 3, 2⁻, 3⁻ γ_{1592} 491.57 5 (†,2.3 23) γ_{1518} 565.71 (†,13.08) γ_{1134} 949.90 5 (†,100 5) (M1) γ_{638} 1446.1 1 (†,51 5)2091.623 25, 2⁺ γ_{1518} 573.30 (†,9.444) M1 γ_{1430} 661.18 4 (†,1.481) γ_{1288} 803 (†,0.9259) γ_{1207} 884.45 5 (†,5.7 4) γ_{1134} 957.33 4(†,19.6 12) E1 γ_{638} 1453.55 4 (†,100 6) (M1) γ_0 2091.56 10 (†,48.0 24)B 2115.75 9, 6⁺ γ_{1936} 179.4 3 (?) (†,≈1.3) E2 γ_{1700} 415.3 2 (†,25 11) E1 γ_{1288} 827.48 10 (†,100 14) E22157.5 7 γ_{1134} 1023 (†,4) γ_{638} 1519.6 (†,100)2179.912 21, 2⁺ γ_{1955} 224.4 1 (†,3.9 12) γ_{1592} 587 (†,2.809) γ_{1518} 661.55 4 (†,4.494) γ_{1430} 749.43 2 (†,3.933) γ_{1134} 1045.60 3(†,100 5) E1 γ_{638} 1541.94 6 (†,39.66 23) γ_0 2179.9 2 (†,33.1 17)2209.54 3, 2⁻, 3⁻ γ_{1430} 779.09 4 (†,47 5) γ_{1134} 1075.25 3 (†,100 5) M1 γ_{638} 1571.26 12 (†,21 4)A 2211.11 14, 7⁻ γ_{2116} 95.5 2 (†,2.0 4) γ_{1936} 274.9 3 (†,8 3) E1 γ_{1700} 511

(†,100 16) E2

2262.21 4 γ_{1518} 743.86 6 (†,20.83) γ_{1430} 831.73 7 (†,14.58) γ_{1134} 1127.7 1 (†,65 5) γ_{638} 1624.20 6 (†,100 7)2306.2 4, (5⁻, 6⁻) γ_{2211} =95 γ_{1700} 606.8 5 (†,100 10) γ_{1288} 1017.2 5

(†,14 2)

2326.283 17 γ_{1988} 338.36 5 (†,36 6) γ_{1700} 626.47 10 (†,24 6) γ_{1518} 807.71 15 (†,20 4) γ_{1430} 895.86 5 (†,48 4) γ_{1288} 1037.9 3 (†,14 6) γ_{638} 1688.23 1 (†,100 10)2364.91 5, 1, 2⁺ γ_{1592} 772.52 8 (†,17.2 19) γ_{1518} 846.5 2 (†,3.1 19) γ_{1207} 1157.76 8 (†,16.0 13) γ_{1134} 1231 (†,1.840) γ_{638} 1726.85 15(†,23.9 25) γ_0 2364.93 10 (†,100 5)2392.06 17, (7)⁺ γ_{2211} 180.9 3 γ_{2116} 276 γ_{1936} 455.7 2 M12408.53 5, 2⁺ γ_{2081} 328 1 (†,6 4) γ_{1430} 977.78 8 (†,20.5 24) γ_{1288} 1120.1 5(†,16 8) γ_{1134} 1274.51 10 (†,45 4) γ_{638} 1770.45 6 (†,100 5)2416.7 5 (?) γ_{638} 1778.6 5 (†,100)2426.20 3, 1⁻, 2⁺ γ_{1518} 908.1 3 (†,1.9 12) γ_{1430} 995.38 10 (†,10.4 19) γ_{1134} 1291.66 3 (†,85 5) γ_{638} 1788.91 5 (†,100 5) γ_0 2425.98 10

(†,63 3)

2434.34 9 γ_{1518} 916.1 3 (†,19 7) γ_{1430} 1003.8 2 (†,9.375) γ_{638} 1796.29 10

(†,100 10)

2521.56 7, (2⁺, 3, 4⁺) γ_{1947} 574.1 5 (†,15.79) γ_{1518} 1003.2 2 (†,26.32) γ_{1430} 1091.0 1 (†,47.37) γ_{1288} 1233.2 2 (†,53 8) γ_{1134} 1387.2 (†,21 14) γ_{638} 1883.6 1 (†,100 8)B 2554.14 12, 8⁺ γ_{2392} 162.0 2 (†,14 4) M1 γ_{2211} 343.07 10 (†,59 19) E1 γ_{2116} 438.37 10 (†,100 45) E22558.51 20, 1, 2⁺ γ_{1207} 1351.2 (†,16.67) γ_0 2558.49 20 (†,100 10)2564.96 13, (1⁻, 2⁻, 3⁻) γ_{1592} 972.7 2 (†,27 14) γ_{1430} 1134 (†,90.91) γ_{1134} 1430.5 0 4 (†,90 90) (E2) γ_{638} 1926.6 2 (†,100 14) γ_0 2565.4 3

(†,50 14)

2593.9 7 γ_{1207} 1387.3 (†,50 70) γ_{1134} 1459 (†,100)2627.99 8 (?) γ_{1592} 1035.8 3 (†,30 13) γ_{1134} 1493.6 7 8 (†,100 13) γ_{638} 1989.6 8 (†,48 22)2654.39 7 γ_{1988} 666.49 8 (†,6.7 21) γ_{1955} 699.03 (†,12.75) γ_{1430} 1223.8 5(†,5.4 21) γ_{638} 2016.30 10 (†,100 5)2678.45 13, 1, 2⁺ γ_{1814} 864.41 (†,7.273) γ_{1430} 1247.9 2 (†,16 4) γ_{638} 2040.4 2 (†,100 8) γ_0 2678.6 3 (†,40 6)2686.84 4, 1⁻, 2, 3⁻ γ_{2365} 322.0 1 (†,16 4) γ_{2084} 602.78 6 (†,39 4) γ_{1947} 739.6 3 (†,7 5) γ_{1700} 987.3 3 (†,7 4) γ_{1592} 1094.41 5 (†,52.46) γ_{1518} 1168.64 6 (†,100 7) γ_{1430} 1256.4 (†,13 5) γ_{1134} 1544.1 5(†,28 14) γ_{638} 1552.3 5 (†,21 10)2754.58 6, 2⁺, 3, 4⁺ γ_{2262} 492.35 5 (†,15.62) γ_{1288} 1466.1 3 (†,5 8) γ_{1134} 1620.30 10 (†,33 5) γ_{638} 2116.8 2 (†,100 5) γ_0 2754.6 8 (†,25 8)2767.3 6 (?) (8⁺) γ_{1936} 831.0 5 (†,100)2786.49 5, 1⁻, 2⁺ γ_{1955} 831.18 7 (†,4.294) γ_{1947} 839.2 2 (†,4.3 13) γ_{1592} 1193.9 1 (†,8.0 19) γ_{1518} 1267 (†,4.294) γ_{1430} 1356.01 10(†,15.3 19) γ_{1134} 1652.26 (†,13.5 19) γ_{638} 2148.44 10 (†,100 5)A 2816.1 4, 9⁻ γ_{2211} 605.0 3 (†,100) E22827.81 7 γ_{2084} 743.84 6 (†,100) γ_{1955} 8742845.41 5, 1, 2⁺ γ_{2092} 753.8 3 (†,1.6 11) γ_{1518} 1326.7 2 (†,7.1 17) γ_{1430} 1414.95 6 (†,27.5 17) γ_{1207} 1638.06 10 (†,14.3 22) γ_{638} 2207.58 10 (†,100 5) γ_0 2845.65 25 (†,19 3)2857.7 6 γ_{2687} 146.2 5 (†,15 2) γ_{2306} 550.9 5 (†,100 10)2868.27 10 γ_{1288} 1579.92 10 (†,100 20) γ_{1134} 1733.7 2 (†,88 16)2906.0 5 (?) (8⁺) γ_{2116} 789.9 4 (?) (†,100) E22956.20 5 γ_{2210} 746 (†,12.70) γ_{2092} 864.55 (†,12.70) γ_{2084} 871.9 2(†,10 4) γ_{1988} 968.3 5 (†,32 8) γ_{1955} 1001.0 2 (†,27 7) γ_{1947} 1008.1 3(†,19 7) γ_{1592} 1365.3 3 (†,16 5) γ_{1430} 1525.70 5 (†,98 5) γ_{1134} 1822.2 5(†,16 7) γ_{638} 2318.14 10 (†,100 5)2984.95 11, 1, 2⁺ γ_{1988} 997.8 24 (†,19 6) γ_{1592} 1392.4 4 (†,17 6) γ_{1518} 1466.6 3 (†,10 7) γ_{1430} 1554.4 4 (†,38 9) γ_{1288} 1596 (†,8.333) γ_{1207} 1778.8 (†,27.78) γ_{638} 2346.9 2 (†,38 5) γ_0 2984.90 15 (†,100 6)3024.7 3 γ_{1430} 1596 (†,100) γ_0 3024.5 3 (†,100 17)3035.64 5, 1⁻, 2⁺ γ_{2210} 826.34 15 (†,7.1 11) γ_{2084} 952 (†,30.30) γ_{1592} 1443.3 1 (†,40.40) γ_{1518} 1517.4 (†,10.10) γ_{1430} 1605.44 11(†,22 3) γ_{1288} 1747.3 (†,30.30) γ_{1134} 1901.74 10 (†,97 5) γ_{638} 2397.04 10 (†,100 5) γ_0 3034.86 15 (†,53 3)3042.61 24 γ_{1134} 1908.6 4 (†,50 19) γ_0 3042.4 3 (†,100 9)3083.76 17 (?) γ_{1955} 1130.4 7 (†,20 14) γ_{1430} 1652.6 (†,20 10) γ_{1207} 1876.6 4 (†,20 10) γ_{1134} 1949.3 2 (†,100 10) γ_{638} 2446.1 10

(†,50 17)

3118.75 8 γ_{1518} 1600.10 15 (†,78 13) γ_{1430} 1688.27 10 (†,70 22) γ_{1288} 1830.7 5 (†,39 18) γ_{1134} 1984.9 2 (†,100 18)3134.13 6 γ_{1592} 1541.94 6 (†,27 16) γ_{1518} 1615.37 10 (†,58 12) γ_{1430} 1702.5 3 (†,31 12) γ_{638} 2494.7 8 (†,100 20) γ_0 3133.6 2 (†,58 8)3176.8 5 γ_{2554} 622.7 5 (†,100)3177.73 17 γ_{2084} 1094.19 5 (†,10.13) γ_{1592} 1585.19 14 (†,9 4) γ_{1518} 1659.9 (†,14 4) γ_{1430} 1747.8 (†,12.66) γ_{1134} 2043.7 10 (†,14 9) γ_{638} 2539.64 5 10 (†,100 5)

- 3220.3 4, 10⁻ γ_{2816} 404.3 3 (\dagger_{100}) M1+E2
 3251.5 5 γ_{1592} 1660.0 (\dagger_{100} 19) γ_{638} 2614.3 10 (\dagger_{80} 40) γ_0 3250.8 6 (\dagger_{38} 13)
 3269.32 11(?) γ_{2180} 1089.4 1 (\dagger_{100})
 B 3288.2 4, 10⁺ γ_{2554} 734.0 3 (\dagger_{100}) E2
 3298.34 22 γ_{1947} 1351.7 ($\dagger_{41.67}$) γ_{1288} 2006.0 5 (\dagger_{42} 17) γ_{638} 2661.20 25 (\dagger_{100} 13)
 3329.33 16 γ_{1592} 1737.2 6 (\dagger_{17} 10) γ_{1518} 1811.9 3 (\dagger_{24} 8) γ_{1134} 2194.6 2 (\dagger_{100} 8) γ_{638} 2691.0 5 (\dagger_{44} 8)
 3344.68 6, (2⁻) γ_{2409} 935.4 2 (\dagger_{7} 4) γ_{2092} 1253.0 1 (\dagger_{22} 4) γ_{2084} 1260.5 2 (\dagger_{10} 5) γ_{1955} 1389.6 4 (\dagger_{29} 7) γ_{1814} 1530.5 3 (\dagger_{12} 5) γ_{1700} 1645.5 2 (\dagger_{22} 5) γ_{1592} 1752.1 2 (\dagger_{32} 5) γ_{1518} 1826.2 5 (\dagger_{24} 9) γ_{1430} 1914.3 2 (\dagger_{100} 11) γ_{1288} 2056.3 2 (\dagger_{20} 5) γ_{1134} 2210 (\dagger_{33} 90) γ_{638} 2706.86 15 (\dagger_{88} 5) γ_0 3344.3 5 ($\dagger_{13.6}$ 17)
 A 3366.4 4, 11⁻ γ_{3288} ≈ 78(?) γ_{3220} 146.2 3 γ_{2816} 550.3 3
 3375.72 14 γ_{2326} 1049.3 4 (\dagger_{16} 10) γ_{1134} 2241.42 15 (\dagger_{53} 7) γ_{638} 2737.8 5 (\dagger_{100} 19) γ_0 3375.5 7 (\dagger_{14} 5)
 3378.11 11 γ_{1814} 1563.96 10 (\dagger_{50} 7) γ_{1430} 1947 ($\dagger_{16.67}$) γ_{638} 2740.3 4 (\dagger_{100} 17)
 3389.2 5 γ_{638} 2751.0 10 (\dagger_{60} 50) γ_0 3389.2 5 (\dagger_{100} 13)
 3461.7 5, 2⁺ γ_{1518} 1943 (\dagger_4) γ_{1288} 2173.4 5 (\dagger_{100} 30)
 3510.72 17, (1⁻, 2⁺) γ_{1592} 1918 ($\dagger_{17.95}$) γ_{1134} 2376.6 2 (\dagger_{85} 8) γ_{638} 2872.2 3 (\dagger_{100} 13)
 3522.4 6 γ_0 3522.4 6 (\dagger_{100})
 3631.4 3 γ_{1430} 2201.4 8 (\dagger_{100} 40) γ_{1134} 2498 ($\dagger_{28.57}$) γ_{638} 2993.2 3 (\dagger_{71} 15)
 3657.35 19(?), 2⁺ γ_{1988} 1668.8 3 (\dagger_{56} 17) γ_{1207} 2450.2 10 (\dagger_{44} 23) γ_0 3657.74 25 (\dagger_{100} 6)
 3712.40 22 γ_{2081} 1631.7 2 (\dagger_{100} 40) γ_{1134} 2579.5 8 (\dagger_{90} 40)
 3726.63 15 γ_{2210} 1518.24 ($\dagger_{85.11}$) γ_{1430} 2296.9 8 (\dagger_6 5) γ_{1134} 2592.25 15 (\dagger_{100} 7)
 3772.03 19 γ_{1134} 2636.8 5 (\dagger_{50} 30) γ_{638} 3134.1 2 (\dagger_{100})
 3828.4 4(?), (1, 2⁺) γ_{1207} 2621.8 5 (\dagger_{100} 40) γ_0 3828.0 4 (\dagger_{33} 7)
 3840.04 17 γ_{1988} 1852.2 ($\dagger_{16.39}$) γ_{1430} 2409.36 20 (\dagger_{100} 5) γ_{638} 3202.4 3 (\dagger_{20} 4)
 3963.64 23 γ_{1592} 2372 ($\dagger_{27.78}$) γ_{1430} 2532.5 3 (\dagger_{100} 30) γ_{1134} 2828.5 6 (\dagger_{33} 17) γ_{638} 3327.7 5 (\dagger_{67} 6)
 4021.2 4(?), (1, 2⁺) γ_{638} 3383.6 5 (\dagger_{100} 50) γ_0 4020.8 4 ($\dagger_{0.71}$ 7)
 C 4105.4 10, 12⁺ γ_{3288} 817 (\dagger_{100}) E2
 4111.07 25(?), 1⁻, 2⁺ γ_{1288} 2822.7 6 (\dagger_{27} 14) γ_{1134} 2975.9 6 (\dagger_{40} 14) γ_0 4111.2 3 (\dagger_{100} 14)
 A 4131.1 5, 13⁻ γ_{3366} 764.7 2 (\dagger_{100}) E2
 4143.8 3(?), (1⁻, 2⁺) γ_{1134} 3008.9 3 (\dagger_{100} 17) γ_0 4145.4 5 (\dagger_{67} 9)
 4151.0 4 γ_{638} 3512.1 7 (\dagger_{100} 40) γ_0 4151.3 5 (\dagger_{40} 9)
 4164.0 4, 2⁺ γ_{1288} 2876.6 6 (\dagger_{100} 23) γ_{638} 3525.7 8 (\dagger_{23} 9) γ_0 4163.3 5 ($\dagger_{13.6}$ 23)
 4178.6 5 γ_{1207} 2971.7 10 (\dagger_{100} 70) γ_0 4178.5 5 (\dagger_{80} 17)
 4186.9 5, (12⁻) γ_{3220} 966.6 3 (\dagger_{100}) E2
 4206.9 3, (1, 2⁺) γ_{638} 3570.6 6 (\dagger_{52} 8) γ_0 4206.4 3 (\dagger_{100} 6)
 4235.2 6(?), (1⁻, 2⁺) γ_0 4235.1 6 (\dagger_{100})
 4246.2 3(?), (1, 2⁺) γ_{638} 3609.4 8 (\dagger_{43} 11) γ_0 4246.0 3 (\dagger_{100} 6)
 4258.0 3, (1⁻, 2⁺) γ_{1134} 3124.0 3 (\dagger_{100} 14) γ_0 4256.5 6 (\dagger_{14} 4)
 4264.6 3, 2⁺ γ_0 4264.5 3 (\dagger_{100})
 4283.1 10(?), (1, 2⁺) γ_0 4283.0 10 (\dagger_{100})
 4289.4 3(?), (1, 2⁺) γ_0 4289.3 3 (\dagger_{100})
 4296.7 10 γ_0 4296.6 10 (\dagger_{100})
 4303.2 3 γ_{1207} 3096.1 3 (\dagger_{100} 11) γ_0 4302.4 8 (\dagger_7 3)
 4314.0 3, 1, 2⁺ γ_{638} 3675.3 5 (\dagger_{100} 23) γ_0 4314.2 3 (\dagger_{70} 6)
 4322.0 3, 2⁺ γ_{638} 3684.3 4 (\dagger_{65} 11) γ_0 4321.6 4 (\dagger_{100} 6)
 4343.9 4, (1, 2⁺) γ_{1430} 2913.7 4 (\dagger_{100} 20) γ_0 4343.3 6 (\dagger_{10} 3)
 4378.6 6(?), (1⁺, 2⁺) γ_0 4378.5 6 (\dagger_{100})
 4405.3 3, (1, 2⁺) γ_{638} 3768.4 10 (\dagger_{70} 40) γ_0 4405.1 3 (\dagger_{100} 6)
 4435.2 6 γ_{638} 3797.4 7 (\dagger_{100} 40) γ_0 4434.4 10 (\dagger_{19} 10)
 4445.9 3, 1, 2⁺ γ_{1207} 3239.2 5 (\dagger_{61} 7) γ_0 4445.7 3 (\dagger_{100} 5)
- 4462.3 8 γ_0 4462.2 8 (\dagger_{100})
 4492.8 7 γ_{638} 3854.5 8 (\dagger_{100} 50) γ_0 4493.3 15 (\dagger_{12} 9)
 4499.8 8 γ_0 4499.7 8 (\dagger_{100})
 4522.8 6(?) γ_{638} 3884.7 6 (\dagger_{100})
 4529.4 4(?), (1, 2⁺) γ_{1592} 2935.6 4 (\dagger_{100} 20) γ_0 4531.5 5 ($\dagger_{9.0}$ 20)
 4545.6 6 γ_{638} 3907.5 6 (\dagger_{100})
 4557.2 10 γ_0 4557.1 10 (\dagger_{100})
 4563.3 10 γ_0 4563.2 10 (\dagger_{100})
 C 4739.6 11, 14⁺ γ_{4105} 634 (\dagger_{100})
 4744.9 3 γ_{1592} 3152.4 3 (\dagger_{100} 15) γ_{1430} 3314.5 6 (\dagger_{29} 8)
 A 4834.9 10, 15⁻ γ_{4131} 704 (\dagger_{100})
 C 5428.8 11, 16⁺ γ_{4835} 594 γ_{4740} 689
 A 5450.9 13, 17⁻ γ_{4835} 616 (\dagger_{100})
 5632.8 14, 17⁺ γ_{5429} 204 (\dagger_{100})
 B 5764.8 13, 18⁺ γ_{5633} 132 γ_{5451} 314 D γ_{5429} 336
 6311.8 16, (19⁻) γ_{5765} 547 (\dagger_{100})
 B 6450.8 16, (20⁺) γ_{5765} 686 (\dagger_{100})
 I 6495.8 19, (21⁻) γ_{6312} 184 (\dagger_{100})
 I 7275.8 22, (23⁻) γ_{6496} 780 (\dagger_{100})
 I 7929.8 24, (25⁻) γ_{7276} 654 (\dagger_{100})
 I 8325 3, (27⁻) γ_{7930} 395 (\dagger_{100})
 9410 3(?), (28⁺) γ_{8325} 1085 (\dagger_{100})
 9497 3, (29⁻) γ_{8325} 1172 (\dagger_{100})
 9582 3, (29⁺) γ_{9410} 172 (\dagger_{100})
 9851 3, (30⁺) γ_{9582} 269 γ_{9497} 354
 10532 3, (31⁺) γ_{9582} 950 (\dagger_{100})
 11231 4, (33⁺) γ_{10532} 699 (\dagger_{100})
 12185 4, (34⁻) γ_{11231} 954 (\dagger_{100})
 12678 4, (36⁻, 34⁺) γ_{12185} 493 (\dagger_{100})
 D x, J=(32)
 D 814.9+x, J+2 γ_x 814.9 3 ($\dagger_{0.82}$ 9) I⁽¹⁾=81.7, I⁽²⁾=117.6, $\hbar\omega$ =0.416
 D 1663.8+x, J+4 γ_{815+x} 848.9 1 ($\dagger_{1.03}$ 8) I⁽¹⁾=82.9, I⁽²⁾=102.3, $\hbar\omega$ =0.434
 D 2551.8+x, J+6 γ_{1664+x} 888.0 1 ($\dagger_{0.91}$ 9) I⁽¹⁾=83.6, I⁽²⁾=97.3, $\hbar\omega$ =0.454
 D 3480.9+x, J+8 γ_{2552+x} 929.1 1 ($\dagger_{1.03}$ 10) I⁽¹⁾=84.2, I⁽²⁾=95.5, $\hbar\omega$ =0.475
 D 4451.9+x, J+10 γ_{3481+x} 971.0 3 ($\dagger_{0.93}$ 9) I⁽¹⁾=84.7, I⁽²⁾=94.6, $\hbar\omega$ =0.496
 D 5465.2+x, J+12 γ_{4452+x} 1013.3 2 ($\dagger_{1.06}$ 7) I⁽¹⁾=85.0, I⁽²⁾=93.2, $\hbar\omega$ =0.517
 D 6521.4+x, J+14 γ_{5465+x} 1056.2 2 ($\dagger_{1.10}$ 6) I⁽¹⁾=85.3, I⁽²⁾=90.7, $\hbar\omega$ =0.539
 D 7621.7+x, J+16 γ_{6521+x} 1100.3 2 ($\dagger_{0.92}$ 12) I⁽¹⁾=85.5, I⁽²⁾=90.9, $\hbar\omega$ =0.561
 D 8766.0+x, J+18 γ_{7622+x} 1144.3 3 ($\dagger_{1.00}$ 9) I⁽¹⁾=85.7, I⁽²⁾=86.6, $\hbar\omega$ =0.584
 D 9956.5+x, J+20 γ_{8766+x} 1190.5 2 ($\dagger_{0.98}$ 6) I⁽¹⁾=85.7, I⁽²⁾=84.6, $\hbar\omega$ =0.607
 D 11194.3+x, J+22 γ_{9957+x} 1237.8 2 ($\dagger_{0.82}$ 8) I⁽¹⁾=85.6, I⁽²⁾=82.1, $\hbar\omega$ =0.631
 D 12480.8+x, J+24 $\gamma_{11194+x}$ 1286.5 3 ($\dagger_{0.56}$ 7) I⁽¹⁾=85.4, I⁽²⁾=79.5, $\hbar\omega$ =0.656
 D 13817.6+x, J+26 $\gamma_{12481+x}$ 1336.8 3 ($\dagger_{0.52}$ 6) I⁽¹⁾=85.2, I⁽²⁾=79.7, $\hbar\omega$ =0.681
 D 15204.6+x, J+28 $\gamma_{13818+x}$ 1387.0 3 ($\dagger_{0.35}$ 6) I⁽¹⁾=84.9, I⁽²⁾=76.5, $\hbar\omega$ =0.707
 D 16643.9+x, J+30 $\gamma_{15205+x}$ 1439.3 4 ($\dagger_{0.21}$ 4) I⁽¹⁾=84.5, I⁽²⁾=72.9, $\hbar\omega$ =0.733
 D 18138.1+x, J+32 $\gamma_{16644+x}$ 1494.2 6 ($\dagger_{0.10}$ 8)
 E y, (29⁻)
 E 727.9+y, (31⁻) γ_y 727.9 I⁽¹⁾=82.7, I⁽²⁾=91.7, $\hbar\omega$ =0.375
 E 1499.4+y, (33⁻) γ_{728+y} 771.5 ($\dagger_{0.34}$ 10) I⁽¹⁾=83.3, I⁽²⁾=94.1, $\hbar\omega$ =0.396
 E 2313.4+y, (35⁻) γ_{1499+y} 814.0 ($\dagger_{0.69}$ 15) I⁽¹⁾=83.8, I⁽²⁾=93.5, $\hbar\omega$ =0.418
 E 3170.2+y, (37⁻) γ_{2313+y} 856.8 ($\dagger_{0.84}$ 10) I⁽¹⁾=84.2, I⁽²⁾=91.1, $\hbar\omega$ =0.439
 E 4070.9+y, (39⁻) γ_{3170+y} 900.7 ($\dagger_{0.99}$ 20) I⁽¹⁾=84.5, I⁽²⁾=90.7, $\hbar\omega$ =0.461
 E 5015.7+y, (41⁻) γ_{4071+y} 944.8 ($\dagger_{0.96}$ 20) I⁽¹⁾=84.8, I⁽²⁾=88.3, $\hbar\omega$ =0.484
 E 6005.8+y, (43⁻) γ_{5016+y} 990.1 ($\dagger_{0.82}$ 10) I⁽¹⁾=84.9, I⁽²⁾=87.0, $\hbar\omega$ =0.507
 E 7041.9+y, (45⁻) γ_{6006+y} 1036.1 ($\dagger_{0.75}$ 15) I⁽¹⁾=85.0, I⁽²⁾=86.8, $\hbar\omega$ =0.530
 E 8124.1+y, (47⁻) γ_{7042+y} 1082.2 ($\dagger_{0.88}$ 20) I⁽¹⁾=85.0, I⁽²⁾=83.3, $\hbar\omega$ =0.553

E 9254.3+y, (49 ⁻)	γ_{6124+y} 1130.2 ($\dagger_{\gamma}0.82\ 10$) $I^{(1)}=84.9$, $I^{(2)}=82.8$, $\hbar\omega=0.577$	H v, J=(34)
E 10432.8+y, (51 ⁻)	γ_{9254+y} 1178.5 ($\dagger_{\gamma}0.97\ 20$) $I^{(1)}=84.7$, $I^{(2)}=79.7$, $\hbar\omega=0.602$	H 909.9+v, J+2 γ_0 909.95 ($\dagger_{\gamma}0.50\ 10$) $I^{(1)}=81.2$, $I^{(2)}=76.3$, $\hbar\omega=0.468$
E 11661.5+y, (53 ⁻)	$\gamma_{10433+y}$ 1228.7 ($\dagger_{\gamma}0.97\ 20$) $I^{(1)}=84.8$, $I^{(2)}=92.0$, $\hbar\omega=0.625$	H 1874.4+v, J+4 γ_{910+v} 964.55 ($\dagger_{\gamma}0.63\ 10$) $I^{(1)}=77.6$, $I^{(2)}=133.3$, $\hbar\omega=0.490$
E 12933.7+y, (55 ⁻)	$\gamma_{11662+y}$ 1272.2 ($\dagger_{\gamma}0.54\ 10$) $I^{(1)}=84.6$, $I^{(2)}=71.8$, $\hbar\omega=0.650$	H 2868.9+v, J+6 γ_{1874+v} 994.55 ($\dagger_{\gamma}0.50\ 10$) $I^{(1)}=81.5$, $I^{(2)}=148.7$, $\hbar\omega=0.491$
E 14261.6+y, (57 ⁻)	$\gamma_{12934+y}$ 1327.9 ($\dagger_{\gamma}0.11\ 10$) $I^{(1)}=84.3$, $I^{(2)}=79.5$, $\hbar\omega=0.677$	H 3836.5+v, J+8 γ_{2869+v} 967.65 ($\dagger_{\gamma}0.68\ 10$) $I^{(1)}=85.4$, $I^{(2)}=129.0$, $\hbar\omega=0.492$
E 15639.8+y, (59 ⁻)	$\gamma_{14262+y}$ 1378.2 ($I^{(1)}=84.1$, $I^{(2)}=79.1$, $\hbar\omega=0.702$)	H 4835.1+v, J+10 γ_{3837+v} 998.65 ($\dagger_{\gamma}0.84\ 10$) $I^{(1)}=86.1$, $I^{(2)}=84.4$, $\hbar\omega=0.511$
E 17068.6+y, (61 ⁻)	$\gamma_{15640+y}$ 1428.8 ($I^{(1)}=83.8$, $I^{(2)}=76.2$, $\hbar\omega=0.728$)	H 5881.1+v, J+12 γ_{4835+v} 1046.05 ($\dagger_{\gamma}1.00\ 5$) $I^{(1)}=85.9$, $I^{(2)}=80.8$, $\hbar\omega=0.535$
E 18549.9+y, (63 ⁻)	$\gamma_{17069+y}$ 1481.3 ($I^{(1)}=83.6$, $I^{(2)}=77.5$, $\hbar\omega=0.754$)	H 6976.6+v, J+14 γ_{5881+v} 1095.55 ($\dagger_{\gamma}0.93\ 5$) $I^{(1)}=85.6$, $I^{(2)}=76.3$, $\hbar\omega=0.561$
E 20082.8+y, (65 ⁻)	$\gamma_{18550+y}$ 1532.9 ($I^{(1)}=83.4$, $I^{(2)}=78.9$, $\hbar\omega=0.779$)	H 8124.5+v, J+16 γ_{6977+v} 1147.95 ($\dagger_{\gamma}0.93\ 5$) $I^{(1)}=85.2$, $I^{(2)}=77.4$, $\hbar\omega=0.587$
E 21666.4+y, (67 ⁻)	$\gamma_{20083+y}$ 1583.6	H 9324.1+v, J+18 γ_{8125+v} 1199.65 ($\dagger_{\gamma}1.08\ 5$) $I^{(1)}=84.9$, $I^{(2)}=79.1$, $\hbar\omega=0.612$
F z, (24 ⁻)		H 10574.3+v, J+20 γ_{9324+v} 1250.25 ($\dagger_{\gamma}1.00\ 5$) $I^{(1)}=84.7$, $I^{(2)}=80.3$, $\hbar\omega=0.638$
F 617.1+z, (26 ⁻)	γ_2 617.1 ($\dagger_{\gamma}0.55$) $I^{(1)}=81.2$, $I^{(2)}=84.7$, $\hbar\omega=0.320$	H 11874.3+v, J+22 $\gamma_{10574+v}$ 1300.05 ($\dagger_{\gamma}0.89\ 7$) $I^{(1)}=84.5$, $I^{(2)}=79.2$, $\hbar\omega=0.663$
F 1281.4+z, (28 ⁻)	γ_{617+z} 664.3 ($\dagger_{\gamma}0.75$) $I^{(1)}=81.3$, $I^{(2)}=83.0$, $\hbar\omega=0.344$	H 13224.8+v, J+24 $\gamma_{11874+v}$ 1350.55 ($\dagger_{\gamma}0.87\ 5$) $I^{(1)}=84.4$, $I^{(2)}=81.5$, $\hbar\omega=0.688$
F 1993.9+z, (30 ⁻)	γ_{1281+z} 712.5 ($\dagger_{\gamma}0.9$) $I^{(1)}=81.4$, $I^{(2)}=81.1$, $\hbar\omega=0.369$	H 14624.4+v, J+26 $\gamma_{13225+v}$ 1399.67 ($\dagger_{\gamma}0.58\ 5$) $I^{(1)}=84.3$, $I^{(2)}=81.5$, $\hbar\omega=0.712$
F 2755.7+z, (32 ⁻)	γ_{1994+z} 761.8 ($\dagger_{\gamma}1.0$) $I^{(1)}=81.4$, $I^{(2)}=82.8$, $\hbar\omega=0.393$	H 16073.1+v, J+28 $\gamma_{14624+v}$ 1448.77 ($\dagger_{\gamma}0.50\ 7$) $I^{(1)}=84.2$, $I^{(2)}=82.0$, $\hbar\omega=0.737$
F 3565.8+z, (34 ⁻)	γ_{2756+z} 810.1 ($\dagger_{\gamma}1.1$) $I^{(1)}=81.4$, $I^{(2)}=80.6$, $\hbar\omega=0.417$	H 17570.6+v, J+30 $\gamma_{16073+v}$ 1497.57 ($\dagger_{\gamma}0.20\ 9$) $I^{(1)}=84.1$, $I^{(2)}=84.2$, $\hbar\omega=0.761$
F 4425.5+z, (36 ⁻)	γ_{3566+z} 859.7 ($\dagger_{\gamma}1.0$) $I^{(1)}=81.4$, $I^{(2)}=79.7$, $\hbar\omega=0.442$	H 19115.6+v, J+32 $\gamma_{17571+v}$ 1545.07 ($\dagger_{\gamma}0.08\ 6$)
F 5335.4+z, (38 ⁻)	γ_{4426+z} 909.9 ($\dagger_{\gamma}1.1$) $I^{(1)}=81.2$, $I^{(2)}=76.3$, $\hbar\omega=0.468$	
F 6297.7+z, (40 ⁻)	γ_{5335+z} 962.3 ($\dagger_{\gamma}0.9$) $I^{(1)}=81.0$, $I^{(2)}=77.1$, $\hbar\omega=0.494$	
F 7311.9+z, (42 ⁻)	γ_{6298+z} 1014.2 ($\dagger_{\gamma}1.0$) $I^{(1)}=80.7$, $I^{(2)}=74.6$, $\hbar\omega=0.521$	
F 8379.7+z, (44 ⁻)	γ_{7312+z} 1067.8 ($\dagger_{\gamma}0.9$) $I^{(1)}=80.4$, $I^{(2)}=74.2$, $\hbar\omega=0.547$	
F 9501.4+z, (46 ⁻)	γ_{8380+z} 1121.7 ($I^{(1)}=80.1$, $I^{(2)}=73.5$, $\hbar\omega=0.574$)	
F 10677.5+z, (48 ⁻)	γ_{9501+z} 1176.1 ($I^{(1)}=79.7$, $I^{(2)}=72.2$, $\hbar\omega=0.602$)	
F 11909.0+z, (50 ⁻)	$\gamma_{10678+z}$ 1231.5 ($I^{(1)}=79.4$, $I^{(2)}=72.1$, $\hbar\omega=0.630$)	
F 13196.0+z, (52 ⁻)	$\gamma_{11909+z}$ 1287.0 ($I^{(1)}=79.1$, $I^{(2)}=71.7$, $\hbar\omega=0.657$)	
F 14538.8+z, (54 ⁻)	$\gamma_{13196+z}$ 1342.8 ($I^{(1)}=78.8$, $I^{(2)}=71.6$, $\hbar\omega=0.685$)	
F 15937.5+z, (56 ⁻)	$\gamma_{14539+z}$ 1398.7 ($I^{(1)}=78.5$, $I^{(2)}=70.7$, $\hbar\omega=0.713$)	
F 17392.8+z, (58 ⁻)	$\gamma_{15938+z}$ 1455.3 ($I^{(1)}=78.2$, $I^{(2)}=70.5$, $\hbar\omega=0.742$)	
F 18904.8+z, (60 ⁻)	$\gamma_{17393+z}$ 1512.0 ($I^{(1)}=77.9$, $I^{(2)}=72.3$, $\hbar\omega=0.770$)	
F 20472.1+z, (62 ⁻)	$\gamma_{18905+z}$ 1567.3	
G u, (27 ⁻)		
G 688.3+u, (29 ⁻)	γ_0 688.3 ($I^{(1)}=81.4$, $I^{(2)}=83.3$, $\hbar\omega=0.356$)	
G 1424.6+u, (31 ⁻)	γ_{688+u} 736.3 ($I^{(1)}=81.5$, $I^{(2)}=81.1$, $\hbar\omega=0.380$)	
G 2210.2+u, (33 ⁻)	γ_{1425+u} 785.6 ($I^{(1)}=81.5$, $I^{(2)}=81.6$, $\hbar\omega=0.405$)	
G 3044.8+u, (35 ⁻)	γ_{2210+u} 834.6 ($I^{(1)}=81.4$, $I^{(2)}=79.1$, $\hbar\omega=0.430$)	
G 3930.0+u, (37 ⁻)	γ_{3045+u} 885.2 ($I^{(1)}=81.3$, $I^{(2)}=78.3$, $\hbar\omega=0.455$)	
G 4866.3+u, (39 ⁻)	γ_{3930+u} 936.3 ($I^{(1)}=81.1$, $I^{(2)}=76.9$, $\hbar\omega=0.481$)	
G 5854.6+u, (41 ⁻)	γ_{4866+u} 988.3 ($I^{(1)}=80.8$, $I^{(2)}=76.3$, $\hbar\omega=0.507$)	
G 6895.3+u, (43 ⁻)	γ_{5855+u} 1040.7 ($I^{(1)}=80.6$, $I^{(2)}=74.2$, $\hbar\omega=0.534$)	
G 7989.9+u, (45 ⁻)	γ_{6895+u} 1094.6 ($I^{(1)}=80.2$, $I^{(2)}=74.2$, $\hbar\omega=0.561$)	
G 9138.4+u, (47 ⁻)	γ_{7990+u} 1148.5 ($I^{(1)}=80.0$, $I^{(2)}=73.7$, $\hbar\omega=0.588$)	
G 10341.2+u, (49 ⁻)	γ_{9138+u} 1202.8 ($I^{(1)}=79.6$, $I^{(2)}=72.3$, $\hbar\omega=0.615$)	
G 11599.3+u, (51 ⁻)	$\gamma_{10341+u}$ 1258.1 ($I^{(1)}=79.4$, $I^{(2)}=73.4$, $\hbar\omega=0.643$)	
G 12911.9+u, (53 ⁻)	$\gamma_{11599+u}$ 1312.6 ($I^{(1)}=78.9$, $I^{(2)}=63.4$, $\hbar\omega=0.672$)	
G 14287.6+u, (55 ⁻)	$\gamma_{12912+u}$ 1375.7 ($I^{(1)}=78.5$, $I^{(2)}=77.2$, $\hbar\omega=0.701$)	
G 15715.1+u, (57 ⁻)	$\gamma_{14288+u}$ 1427.5 ($I^{(1)}=78.3$, $I^{(2)}=71.4$, $\hbar\omega=0.728$)	
G 17198.6+u, (59 ⁻)	$\gamma_{15715+u}$ 1483.5 ($I^{(1)}=78.1$, $I^{(2)}=70.5$, $\hbar\omega=0.756$)	
G 18738.8+u, (61 ⁻)	$\gamma_{17199+u}$ 1540.2 ($I^{(1)}=77.7$, $I^{(2)}=67.3$, $\hbar\omega=0.785$)	
G 20338.4+u, (63 ⁻)	$\gamma_{18739+u}$ 1599.6	

