$^{197}_{82}$Pb

Δ: (–24800) **S_n:** (7450) **S_p:** (4620)
Q_{EC}: (3580) **Q_α:** (3850)

Nuclear Bands

A Band Structure
B Band Structure
C Band Structure
D SD-1 band (96Hi13)
E SD-2 band (96Hi13)

Levels and γ-ray branchings:

0, 3/2⁻, 8 *2* m
84.88 *7*, 5/2⁻ γ_0***84.9*** *1* (†$_\gamma$100) M1
C **319.31** *11*, 13/2⁺, 43 *1* m γ_{85}***234.4*** *1* (†$_\gamma$100) M4
952.04 *11*, 7/2⁻ γ_{85}***867.2*** *1* (†$_\gamma$100 *1*) M1 γ_0***952.1*** *3* (†$_\gamma$9.6 *5*) E2
988.95 *10*, 3/2⁻,5/2⁻ γ_{85}***904.5*** *3* (†$_\gamma$11.2 *12*) M1 γ_0***988.9*** *1* (†$_\gamma$100 *2*) E2+M1
1015.34 *22*, (5/2,7/2)⁻ γ_{85}***930.5*** *3* (†$_\gamma$96 *12*) γ_0***1015.3*** *3* (†$_\gamma$100 *12*)
1079.39 *12*, (7/2,9/2)⁻ γ_{85}***994.5*** *1* (†$_\gamma$100) E2
1089.41 *8*, 5/2⁻ γ_{85}***1004.5*** *1* (†$_\gamma$100 *2*) E2 γ_0***1089.4*** *1* (†$_\gamma$34 *1*) E2+M1
1147.49 *13*, 11/2⁺ γ_{319}***828.2*** *1* (†$_\gamma$100) E2
1164.88 *12*, (9/2)⁻ γ_{85}***1080.0*** *1* (†$_\gamma$100) E2
1166.66 *8*, (7/2)⁻ γ_{85}***1081.7*** *1* (†$_\gamma$47.3 *11*) M1 γ_0***1166.7*** *1* (†$_\gamma$100 *2*) E2
1173.77 *12*, 9/2⁺ γ_{319}***854.5*** *1* (†$_\gamma$100) E2
1295.12 *14*, 11/2⁺ γ_{319}***975.7*** *1* (†$_\gamma$100) E2+M1
C **1325.7** *24*, 17/2⁺ γ_{319}***1006.2*** *1* (†$_\gamma$100) E2
1401.92 *24*, 15/2⁺ γ_{319}***1082.3*** *1* (†$_\gamma$100) E2(+M1): δ>2.7
1430.51 *15*, 13/2⁺ γ_{319}***1111.2*** *1* (†$_\gamma$100) E0+M1+E2
1472.88 *12*, (7/2)⁻ γ_{952}***520.8*** *3* (†$_\gamma$20.3 *14*) M1 γ_{85}***1388.0*** *1* (†$_\gamma$100 *3*) E2
1495.05 *22*, 3/2⁻,5/2⁻,7/2⁻ γ_{1089}***405.4*** *3* (†$_\gamma$50 *7*) M1 γ_{85}***1410.4*** *3* (†$_\gamma$100 *10*) M1
1518.79 *12* γ_{85}***1433.9*** *1* (†$_\gamma$100)
1524.55 *12*, 9/2⁺ γ_{1295}***229.4*** *3* (†$_\gamma$9.2 *11*) γ_{1174}***350.8*** *1* (†$_\gamma$45.0 *15*) E0+M1+E2 γ_{952}***572.5*** *1* (†$_\gamma$100 *2*) E1+M2 γ_{319}***1205.2*** *3* (†$_\gamma$12.2 *11*)
1525.09 *12*, 7/2⁺ γ_{1147}***377.6*** *3* (†$_\gamma$16.2 *19*) γ_{85}***1440.2*** *1* (†$_\gamma$100 *3*) E1
1553.85 *18*, (5/2,7/2)⁻ γ_{952}***601.8*** *3* (†$_\gamma$100 *6*) E2 γ_{85}***1469.0*** *3* (†$_\gamma$43.1 *62*) γ_0***1553.8*** *3* (†$_\gamma$95.4 *62*) E2
1571.18 *14*, ⁻ γ_{1147}***424.0*** *3* (†$_\gamma$6.9 *12*) γ_{952}***619.4*** *3* (†$_\gamma$33.5 *12*) E2+M1 γ_{319}***1251.8*** *1* (†$_\gamma$100 *2*) E1+M2
1577.9 *3*, (9/2)⁻ γ_{85}***1493.0*** *3* (†$_\gamma$100) E2
1588.02 *17*, 11/2⁺,13/2⁺ γ_{1295}***292.9*** *1* (†$_\gamma$100) M1
1624.45 *14*, 11/2⁺ γ_{1295}***329.5*** *3* (†$_\gamma$20 *2*) γ_{1174}***450.8*** *3* (†$_\gamma$30 *2*) γ_{1147}***477.0*** *3* (†$_\gamma$7.1 *17*) E0+M1+E2 γ_{319}***1305.1*** *1* (†$_\gamma$100 *2*) M1+E2
1633.70 *14*, 11/2⁺,13/2⁺ γ_{1165}***468.9*** *3* (†$_\gamma$10.7 *11*) γ_{1147}***486.0*** *3* (†$_\gamma$17 *6*) γ_{319}***1314.4*** *1* (†$_\gamma$100 *3*) M1
1648.9 *3*, 3/2⁻,5/2⁻,7/2⁻ γ_{1089}***559.5*** *3* (†$_\gamma$100) M1+E2
1675.9 *3*, 5/2⁻ γ_{85}***1591.0*** *3* (†$_\gamma$100) E0+M1+E2
1689.1 *3*, 3/2⁺,5/2⁺,7/2⁺ γ_{85}***1604.2*** *3* (†$_\gamma$100) E1
1730.0 *4* γ_{989}***741.0*** *3* (†$_\gamma$100)
1739.91 *20*, 9/2⁺,11/2⁺,13/2⁺ γ_{1174}***566.2*** *2* (†$_\gamma$100 *6*) γ_{1147}***592.3*** *3* (†$_\gamma$40.3 *60*) M1
1748.9 *4* γ_{1174}***575.1*** *3* (†$_\gamma$100)
1773.56 *15*, 9/2⁺ γ_{1174}***600.0*** *3* (†$_\gamma$30.5 *29*) E0+M1+E2 γ_{1147}***626.0*** *1* (†$_\gamma$100 *4*) M1+E2 γ_{319}***1454.6*** *3* (†$_\gamma$25.7 *38*)
1856.55 *25*, 19/2⁺ γ_{1402}***454.3*** *1* (†$_\gamma$16.3 *3*) E2 γ_{1326}***531.5*** *1* (†$_\gamma$100 *3*) E2+M1: $\delta=-1.3^{+2}_{-3}$
C **1881.9** *3*, 21/2⁺ γ_{1326}***556.9*** *1* (†$_\gamma$100) E2
1914.10 *25*, 21/2⁻, 1.15 *20* μs γ_{1882}***32.4*** *1* (†$_\gamma$6.5 *35*) (E1) γ_{1857}***57.35*** *10* (†$_\gamma$100 *10*) (E1) γ_{1326}***589.0*** *2* (†$_\gamma$8.7 *55*) M2+E3: δ=1.4 *2*
1922.06 *13*, (5/2,7/2,9/2)⁺ γ_{1167}***755.4*** *1* (†$_\gamma$100) E1
1946.07 *21*, 11/2⁺ γ_{1295}***650.8*** *3* (†$_\gamma$21 *4*) E0+M1+E2 γ_{1174}***772.1*** *3* (†$_\gamma$100 *6*) M1 γ_{319}***1627.1*** *3* (†$_\gamma$77 *6*)
1985.40 *23* γ_{1167}***818.5*** *3* (†$_\gamma$92 *17*) γ_{952}***1033.6*** *3* (†$_\gamma$100 *13*)
2024.3 *4* γ_{989}***1035.3*** *3* (†$_\gamma$100)
2059.3 *3* γ_{1089}***969.9*** *3* (†$_\gamma$100)
2064.2 *3*, 21/2⁺ γ_{1326}***738.9*** *2* (†$_\gamma$100) E2
2200.54 *21*, 13/2⁺ γ_{1295}***904.5*** *3* (†$_\gamma$88 *9*) M1 γ_{1147}***1053.7*** *3* (†$_\gamma$55 *9*) γ_{319}***1881.5*** *3* (†$_\gamma$100 *9*) E0+M1+E2
2301.1 *3*, (23/2)⁻ γ_{1914}***387.0*** *1* (†$_\gamma$100)

M1

2392.7 *3*, (25/2)$^-$ γ_{2301}***91.6*** *1* (†$_\gamma$100) M1

2473.6 *3*, (27/2)$^-$ γ_{2393}***80.9*** *1* (†$_\gamma$100 *5*) M1 γ_{2301}***172.5*** *2* (†$_\gamma$38 *3*) E2

2653.6 *3*, (25/2)$^+$ γ_{2064}***589.2*** *2* (†$_\gamma$100 *9*) E2 γ_{1882}***772.3*** *3* (†$_\gamma$55 *9*) E2

2691.4 *4*, (23/2) γ_{2064}***627.4*** *4* (†$_\gamma$100 *11*) γ_{1882}***809.2*** *4* (†$_\gamma$56 *11*) γ_{1326}***1366.3*** *4* (†$_\gamma$17 *2*)

3080.2 *3*, (29/2)$^+$ γ_{2654}***426.7*** *2* (†$_\gamma$100) E2 γ_{2474}***606.5*** *1* (†$_\gamma$13.4 *4*) E1

3168.9 *3*, (33/2)$^+$, 55 *5* ns γ_{3080}***88.7*** *1* (†$_\gamma$100) E2

3314.5 *3*, (29/2) γ_{2654}***660.9*** *1* (†$_\gamma$100)

3756.9 *5* γ_{3315}***442.4*** *4* (†$_\gamma$100)

A **x**, (29/2)

A **112.30+x** *10*, (31/2) γ_x***112.3*** *1* (†$_\gamma$100) M1

A **263.10+x** *15*, (33/2), 1.2 *6* ps γ_{112+x}***150.8*** *1* (†$_\gamma$100) M1

A **463.60+x** *18*, (35/2), 0.62 *3* ps γ_{263+x}***200.5*** *1* (†$_\gamma$100) M1

A **729.80+x** *20*, (37/2), 0.83 *2* ps γ_{464+x}***266.2*** *1* (†$_\gamma$100) M1

A **1067.00+x** *23*, (39/2), 0.29 *8* ps γ_{730+x}***337.2*** *1* (†$_\gamma$100) M1

A **1470.60+x** *25*, (41/2), 0.16 *2* ps γ_{1067+x}***403.6*** *1* (†$_\gamma$100) M1 γ_{730+x}***740.8*** *4* (?) E2

A **1916.6+x** *3*, (43/2), 0.08 *4* ps γ_{1471+x}***446.0*** *1* (†$_\gamma$100 *6*) M1 γ_{1067+x}***849.6*** *4* (†$_\gamma$15 *3*) E2

A **2383.6+x** *3*, (45/2), 0.14 *3* ps γ_{1917+x}***467.0*** *1* (†$_\gamma$100 *5*) M1 γ_{1471+x}***913.0*** *4* (†$_\gamma$23 *5*) E2

A **2754.6+x** *5*, (47/2), 0.25 *9* ps γ_{2384+x}***371.0*** *4* (†$_\gamma$100) M1

B **y**, J

B **152.40+y** *10*, J+1, 2.1 *5* ps γ_y***152.4*** *1* (†$_\gamma$100) M1

B **585.10+y** *14*, J+2 γ_{152+y}***432.7*** *1* (†$_\gamma$100) M1

B **711.70+y** *17*, J+3 γ_{585+y}***126.6*** *1* (†$_\gamma$100) M1 γ_{152+y}***559.3*** *4* E2

B **982.11+y** *20*, J+4, 1.9 *3* ps γ_{712+y}***270.4*** *1* (†$_\gamma$100) M1

B **1341.34+y** *22*, J+5, 0.9 *2* ps, Q=1.07 *+15−11*, β_2=0.035 *+6−4* γ_{982+y}***359.2*** *1* (†$_\gamma$100 *2*) M1 γ_{712+y}***629.8*** *4* (†$_\gamma$9 *2*) E2

B **1711.28+y** *23*, J+6, 0.9 *2* ps γ_{1341+y}***369.9*** *1* (†$_\gamma$100 *4*) M1 γ_{982+y}***729.5*** *4* (†$_\gamma$10 *2*) E2

B **2096.41+y** *25*, J+7, 0.8 *2* ps, Q=0.94 *+16−11*, β_2=.0031 *+5−4* γ_{1711+y}***385.1*** *1* (†$_\gamma$100 *5*) M1 γ_{1341+y}***755.3*** *4* (†$_\gamma$21.4 *29*) E2

B **2461.8+y** *3*, J+8, 0.9 *2* ps, Q=0.95 *+13−9*, β_2=0.031 *+5−4* γ_{2096+y}***365.4*** *1* (†$_\gamma$100 *4*) M1 γ_{1711+y}***750.8*** *4* (†$_\gamma$16 *6*) E2

B **2755.5+y** *3*, J+9, 0.9 *2* ps, Q=1.06 *+15−11*, β_2=0.035 *+5−4* γ_{2462+y}***293.7*** *1* (†$_\gamma$100 *5*) M1 γ_{2096+y}***658.7*** *4* (†$_\gamma$7.7 *27*) E2

B **2983.2+y** *3*, J+10 γ_{2756+y}***227.6*** *1* (†$_\gamma$100 *4*) M1 γ_{2462+y}***522.3*** *4* (†$_\gamma$7.1 *25*) E2

B **3268.4+y** *3*, J+11 γ_{2983+y}***285.2*** *1* (†$_\gamma$100) M1 γ_{2756+y}***513*** E2

B **3513.6+y** *4*, J+12 γ_{3268+y}***245.2*** *1* (†$_\gamma$100 *3*) M1 γ_{2983+y}***530.3*** *4* (†$_\gamma$5.8 *26*) E2

B **3840.7+y** *4*, J+13 γ_{3514+y}***327.1*** *1* (†$_\gamma$100) M1 γ_{3268+y}***572*** E2

B **4179.5+y** *4*, J+14 γ_{3841+y}***338.8*** *1* (†$_\gamma$100) M1

B **4582.9+y** *4*, J+15 γ_{4180+y}***403.4*** *1* (†$_\gamma$100) M1

B **4936.5+y** *4*, J+16 γ_{4583+y}***353.6*** *1* (†$_\gamma$100) M1

B **5298.2+y** *4*, J+17 γ_{4937+y}***361.7*** *1* (†$_\gamma$100) M1

5396.9+y *6* γ_{4937+y}***460.4*** *4* (†$_\gamma$100)

B **5690.0+y** *4*, J+18 γ_{5298+y}***391.8*** *1* (†$_\gamma$100) M1

5912.2+y *7* γ_{5397+y}***515.3*** *4* (†$_\gamma$100)

B **6007.0+y** *5*, J+19 γ_{5690+y}***317.0*** *1* (†$_\gamma$100) M1

B **6283.8+y** *6*, J+20 γ_{6007+y}***276.8*** *4* (†$_\gamma$100) M1

6475.4+y *8* γ_{5912+y}***563.2*** *4* (†$_\gamma$100)

D **u**, J

D **184.4+u**, J+2 γ_0***184.4*** (†$_\gamma$0.54 *10*)
$I^{(2)}$*=99.3, ħω=0.102*

D **409.1+u**, J+4 γ_{184+u}***224.7*** (†$_\gamma$0.94 *8*)
$I^{(2)}$*=99.0, ħω=0.122*

D **674.2+u**, J+6 γ_{409+u}***265.1*** (†$_\gamma$0.95 *9*)
$I^{(2)}$*=100.5, ħω=0.143*

D **979.1+u**, J+8 γ_{674+u}***304.9*** (†$_\gamma$0.96 *6*)
$I^{(2)}$*=99.3, ħω=0.163*

D **1324.2+u**, J+10 γ_{979+u}***345.2*** (†$_\gamma$0.95 *6*)
$I^{(2)}$*=101.5, ħω=0.182*

D **1708.9+u**, J+12 γ_{1324+u}***384.6*** (†$_\gamma$0.91 *7*)
$I^{(2)}$*=101.0, ħω=0.202*

D **2133.1+u**, J+14 γ_{1709+u}***424.2*** (†$_\gamma$1.00 *7*)
$I^{(2)}$*=102.3, ħω=0.222*

D **2596.4+u**, J+16 γ_{2133+u}***463.3*** (†$_\gamma$0.84 *6*)
$I^{(2)}$*=103.4, ħω=0.241*

D **3098.4+u**, J+18 γ_{2596+u}***502.0*** (†$_\gamma$0.71 *5*)
$I^{(2)}$*=103.1, ħω=0.261*

D **3639.2+u**, J+20 γ_{3098+u}***540.8*** (†$_\gamma$0.65 *4*)
$I^{(2)}$*=104.7, ħω=0.280*

D **4218.2+u**, J+22 γ_{3639+u}***579.0*** (†$_\gamma$0.64 *4*)
$I^{(2)}$*=104.7, ħω=0.299*

D **4835.4+u**, J+24 γ_{4218+u}***617.2*** (†$_\gamma$0.54 *4*)
$I^{(2)}$*=105.5, ħω=0.318*

D **5490.5+u**, J+26 γ_{4835+u}***655.1*** (†$_\gamma$0.46 *4*)
$I^{(2)}$*=106.7, ħω=0.337*

D **6183.1+u**, J+28 γ_{5491+u}***692.6*** (†$_\gamma$0.35 *4*)
$I^{(2)}$*=106.7, ħω=0.356*

D **6913.2+u**, J+30 γ_{6183+u}***730.1*** (†$_\gamma$0.24 *3*)
$I^{(2)}$*=107.8, ħω=0.374*

D **7680.4+u**, J+32 γ_{6913+u}***767.2*** (†$_\gamma$0.14 *2*)
$I^{(2)}$*=114.3, ħω=0.392*

D **8482.6+u**, J+34 γ_{7680+u}***802.2*** (†$_\gamma$0.10 *2*)

E **v**, J

E **205.5+v**, J+2 γ_0***205.5*** (†$_\gamma$0.71 *8*)
$I^{(2)}$*=98.3, ħω=0.113*

E **451.7+v**, J+4 γ_{206+v}***246.2*** (†$_\gamma$0.95 *9*)
$I^{(2)}$*=98.0, ħω=0.133*

E **738.7+v**, J+6 γ_{452+v}***287.0*** (†$_\gamma$0.89 *6*)
$I^{(2)}$*=97.3, ħω=0.154*

E **1066.8+v**, J+8 γ_{739+v}***328.1*** (†$_\gamma$1.00 *6*)
$I^{(2)}$*=97.6, ħω=0.174*

E **1435.9+v**, J+10 γ_{1067+v}***369.1*** (†$_\gamma$0.57 *5*)
$I^{(2)}$*=97.1, ħω=0.195*

E **1846.2+v**, J+12 γ_{1436+v}***410.3*** (†$_\gamma$0.47 *5*)
$I^{(2)}$*=97.3, ħω=0.215*

E **2297.6+v**, J+14 γ_{1846+v}***451.4*** (†$_\gamma$0.24 *4*)
$I^{(2)}$*=97.8, ħω=0.236*

E **2789.9+v**, J+16 γ_{2298+v}***492.3*** (†$_\gamma$0.31 *5*)
$I^{(2)}$*=98.3, ħω=0.256*

E **3322.9+v**, J+18 γ_{2790+v}***533.0*** (†$_\gamma$0.25 *4*)
$I^{(2)}$*=98.8, ħω=0.277*

E **3896.4+v**, J+20 γ_{3323+v}***573.5*** (†$_\gamma$0.24 *4*)
$I^{(2)}$*=100.5, ħω=0.297*

E **4509.7+v**, J+22 γ_{3896+v}***613.3*** (†$_\gamma$0.33 *4*)
$I^{(2)}$*=100.8, ħω=0.317*

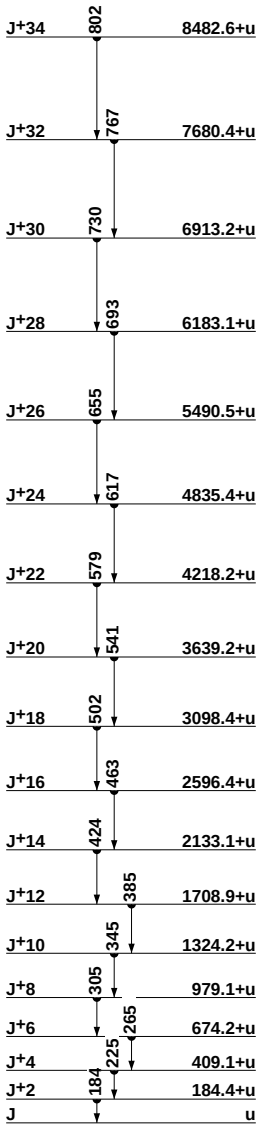
E **5162.7+v**, J+24 γ_{4510+v}***653.0*** (†$_\gamma$0.26 *4*)
$I^{(2)}$*=101.3, ħω=0.336*

E **5855.2+v**, J+26 γ_{5163+v}***692.5*** (†$_\gamma$0.12 *2*)
$I^{(2)}$*=101.5, ħω=0.356*

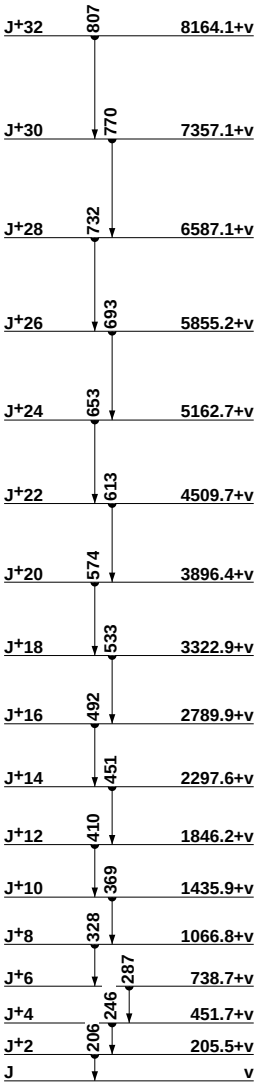
E **6587.1+v**, J+28 γ_{5855+v}***731.9*** (†$_\gamma$0.09 *5*)
$I^{(2)}$*=105.0, ħω=0.375*

E **7357.1+v**, J+30 γ_{6587+v}***770.0*** (†$_\gamma$0.06 *4*)
$I^{(2)}$*=108.1, ħω=0.394*

E **8164.1+v**, J+32 γ_{7357+v}***807.0*** (†$_\gamma$0.15 *4*)



SD-1 band
(96Hi13)



SD-2 band
(96Hi13)

$^{197}_{82}$Pb