$^{133}_{59}$Pr

Δ: (–78060) **S_n:** (10800) **S_p:** (2900)
Q_{EC}: (4300) **Q_α:** (870)

Nuclear Bands

A 7/2[413] α=1
B 7/2[413] α=-1
C Yrast band
D Band Structure
E Band Structure
F Band Structure
G SD-1 band (95Wi13,97Ha05)
H SD-2 band (95Wi13)
I SD-3 band (95Wi13)
J SD-4 band (95Wi13)

Levels and γ-ray branchings:

0, ($3/2^+$), 6.5 *3* m, %EC+%β^+=100

A **61.69** *7*, ($5/2^+$) γ_0***61.7*** *1* ($\dagger_\gamma$100 *13*) M1

166.71 *6*, ($3/2^+$,$5/2^+$,$7/2^+$) γ_{62}***105.1*** *2* ($\dagger_\gamma$100 *16*) M1+E2: δ=0.6 *2* γ_0***166.7*** *1* ($\dagger_\gamma$11 *2*)

C **192.05** *14*, ($1/2^-$), >1 µs γ_{62}***130.4*** *2* ($\dagger_\gamma$100 *18*) E3

B **225.87** *8*, ($7/2^+$) γ_{167}***59.1*** *3* (?) ($\dagger_\gamma$1.7 *4*) γ_{62}***164.2*** *1* ($\dagger_\gamma$100) M1(+E2): δ<0.35 γ_0***225.9*** *3* ($\dagger_\gamma$19 *4*)

295.63 *10*, ($7/2^-$) γ_{192}***103.6*** *2* ($\dagger_\gamma$100 *20*) E2 γ_{62}***233.9*** *1* ($\dagger_\gamma$100 *20*) E1

402.79 *10*, ($1/2^+$,$3/2^+$,$5/2^+$) γ_{62}***341.0*** *3* ($\dagger_\gamma$3 *1*) γ_0***402.8*** *1* ($\dagger_\gamma$100) M1

428.61 *8*, ($3/2^+$,$5/2^+$,$7/2^+$) γ_{226}***202.7*** *1* ($\dagger_\gamma$7 *1*) γ_{167}***261.9*** *2* ($\dagger_\gamma$16 *3*) γ_{62}***367.0*** *2* ($\dagger_\gamma$100 *14*) M1(+E2) γ_0***428.6*** *4* ($\dagger_\gamma$45 *6*)

A **475.81** *10*, ($9/2^+$) γ_{226}***250.0*** *2* ($\dagger_\gamma$45 *7*) M1(+E2) γ_{62}***414.3*** *2* ($\dagger_\gamma$100 *10*)

488.29 *10*, ($3/2^+$,$5/2^+$,$7/2^+$) γ_{226}***262.5*** *2* ($\dagger_\gamma$39 *8*) γ_{167}***321.2*** *3* ($\dagger_\gamma$10 *2*) γ_{62}***426.6*** *4* ($\dagger_\gamma$100 *15*) γ_0***488.3*** *2* ($\dagger_\gamma$47 *9*)

C **502.35** *21*, ($15/2^-$) γ_{192}***310.3*** *2* ($\dagger_\gamma$100) E2

551.39 *14* γ_{296}***255.7*** *2* ($\dagger_\gamma$29 *4*) γ_{192}***359.1*** *4* ($\dagger_\gamma$100 *14*)

586.32 *11*, $^+$ γ_{167}***419.6*** *1* ($\dagger_\gamma$100 *10*) M1+E2 γ_{62}***524.7*** *3* ($\dagger_\gamma$62 *12*) γ_0***586.4*** *4* ($\dagger_\gamma$34 *17*)

619.09 *9*, ($5/2^+$,$7/2^+$,$9/2^+$) γ_{476}***143.2*** *4* ($\dagger_\gamma$8 *2*) γ_{429}***190.5*** *2* ($\dagger_\gamma$15 *3*) γ_{226}***393.3*** *2* ($\dagger_\gamma$63 *13*) M1(+E2) γ_{167}***452.4*** *1* ($\dagger_\gamma$100 *13*) E2(+M1) γ_{62}***557.4*** *3* ($\dagger_\gamma$35 *53*)

639.06 *11* γ_{167}***472.1*** *3* ($\dagger_\gamma$38 *14*) γ_{62}***577.4*** *1* ($\dagger_\gamma$100 *19*) γ_0***639.1*** *4* ($\dagger_\gamma$52 *14*)

656.4 *4* γ_{296}***360.8*** *3* ($\dagger_\gamma$100 *10*)

679.20 *19* γ_{296}***383.5*** *2* ($\dagger_\gamma$100 *20*)

B **702.47** *10*, ($11/2^+$) γ_{476}***226.6*** *3* ($\dagger_\gamma$26 *5*) γ_{226}***476.6*** *1* ($\dagger_\gamma$100 *13*) E2(+M1)

744.01 *8* γ_{167}***577.4*** *1* ($\dagger_\gamma$38 *12*) γ_{62}***682.3*** *2* ($\dagger_\gamma$36 *6*) γ_0***743.9*** *1* ($\dagger_\gamma$100 *10*)

753.08 *10* γ_{488}***264.8*** *2* ($\dagger_\gamma$18 *3*) γ_{226}***527.2*** *2* ($\dagger_\gamma$65 *13*) γ_{167}***586.3*** *3* ($\dagger_\gamma$16 *3*) γ_{62}***691.4*** *2* ($\dagger_\gamma$37 *7*) γ_0***753.1*** *2* ($\dagger_\gamma$100 *17*)

791.0 *3*, ($13/2^-$) γ_{502}***289.3*** *10* ($\dagger_\gamma$37 *12*) γ_{192}***598.9*** *3* ($\dagger_\gamma$100 *12*)

859.7 *4* γ_{296}***564.1*** *3* ($\dagger_\gamma$100 *33*)

862.96 *11* γ_{488}***374.4*** *3* ($\dagger_\gamma$20 *5*) γ_{476}***387.4*** *2* ($\dagger_\gamma$24 *5*) γ_{226}***637.1*** *1* ($\dagger_\gamma$100 *20*) γ_{167}***696.1*** *3* ($\dagger_\gamma$56 *11*) γ_{62}***801.0*** *3* ($\dagger_\gamma$76 *14*)

872.17 *12* γ_{488}***383.9*** *4* ($\dagger_\gamma$39 *7*) γ_{476}***396.3*** *2* ($\dagger_\gamma$72 *14*) γ_{429}***443.9*** *4* ($\dagger_\gamma$18 *4*) γ_{226}***646.3*** *3* ($\dagger_\gamma$72 *14*) γ_{62}***810.5*** *5* ($\dagger_\gamma$61 *10*) γ_0***872.2*** *2* ($\dagger_\gamma$100 *20*)

898.82 *17* γ_{744}***154.6*** *4* ($\dagger_\gamma$26 *8*) γ_{403}***496.1*** *4* ($\dagger_\gamma$8 *8*) γ_{167}***732.1*** *3* ($\dagger_\gamma$18 *8*) γ_{62}***836.9*** *4* ($\dagger_\gamma$26 *11*) γ_0***899.2*** *4* ($\dagger_\gamma$100 *11*)

903.61 *14* γ_{476}***428.1*** *5* ($\dagger_\gamma$97 *22*) γ_{429}***475.0*** *2* ($\dagger_\gamma$63 *16*) γ_{226}***677.8*** *4* ($\dagger_\gamma$100 *16*) γ_{167}***736.7*** *3* ($\dagger_\gamma$78 *19*) γ_{62}***841.9*** *4* ($\dagger_\gamma$53 *16*) γ_0***903.7*** *4* ($\dagger_\gamma$44 *16*)

910.97 *18* γ_{679}***231.7*** *2* ($\dagger_\gamma$27 *8*) γ_{551}***359.4*** *4* ($\dagger_\gamma$100 *20*) γ_{296}***615.2*** *6* ($\dagger_\gamma$86 *18*)

916.53 *22* γ_{551}***365.1*** *2* ($\dagger_\gamma$100 *25*) γ_{192}***724.6*** *4* ($\dagger_\gamma$70 *35*)

938.3 *8* γ_{502}***436***

939.2 *4* γ_{167}***772.5*** *4* ($\dagger_\gamma$65 *18*) γ_{62}***877.6*** *5* ($\dagger_\gamma$100 *21*)

977.3 *3* γ_{167}***810.5*** *5* ($\dagger_\gamma$43 *11*) γ_0***977.3*** *3* ($\dagger_\gamma$100 *20*)

984.44 *11* γ_{488}***496.3*** *4* ($\dagger_\gamma$35 *7*) γ_{476}***508.6*** *4* ($\dagger_\gamma$100 *36*) γ_{429}***555.7*** *2* ($\dagger_\gamma$27 *5*) γ_{226}***758.3*** *4* ($\dagger_\gamma$18 *5*) γ_{167}***818.1*** *3* ($\dagger_\gamma$38 *7*) γ_{62}***922.8*** *2* ($\dagger_\gamma$66 *13*)

1001.58 *21* γ_{551}***450.3*** *2* (?) ($\dagger_\gamma$100 *20*) γ_{476}***525.7*** *3* ($\dagger_\gamma$51 *11*) γ_{429}***572.9*** *4* ($\dagger_\gamma$48 *10*) γ_{62}***939.9*** *4* ($\dagger_\gamma$52 *0*)

1027.29 *12* γ_{476}***551.5*** *2* ($\dagger_\gamma$63 *13*) γ_{429}***598.7*** *1* ($\dagger_\gamma$100 *15*)

1041.99 *22* γ_{403}***639.2*** *2* ($\dagger_\gamma$100 *40*)

C **1053.9** *3*, ($9/2^-$) γ_{502}***551.6*** *3* ($\dagger_\gamma$100 *9*) E2

1055.67 *10* γ_{702}***353.3*** *2* ($\dagger_\gamma$14 *3*) γ_{619}***436.4*** *2* ($\dagger_\gamma$36 *6*) γ_{476}***580.0*** *4*

(†$_\gamma$36 *6*) γ_{429}***627.1*** *1* (†$_\gamma$100 *10*)
γ_{226}***829.7*** *3* (†$_\gamma$15 *5*) γ_{167}***888.9*** *2*
(†$_\gamma$49 *10*) γ_{62}***993.5*** *6* (†$_\gamma$27 *6*)
1058.42 *15* γ_{619}***439.0*** *2* (?) (†$_\gamma$43 *7*)
γ_{488}***569.9*** *4* (?) (†$_\gamma$90 *18*)
γ_{429}***629.6*** *4* (?) (†$_\gamma$57 *12*) γ_{226}***832.5*** *5*
(†$_\gamma$45 *10*) γ_{167}***891.8*** *2* (†$_\gamma$100 *18*)
A **1081.43** *22*, (13/2$^+$) γ_{476}***605.6*** *2*
(†$_\gamma$100 *17*)
1129.9 γ_{551}***578.4*** (†$_\gamma$71 *36*) γ_{167}***963.4***
(†$_\gamma$100 *36*)
1167.12 *14* γ_{167}***1000.3*** *2* (†$_\gamma$86 *16*)
γ_{62}***1105.4*** *2* (†$_\gamma$100 *19*)
1171.92 *24*, (15/2) γ_{791}***381.0*** *2*
(†$_\gamma$100 *14*) γ_{502}***669.5*** *2* (†$_\gamma$43 *14*)
γ_{192}***980***
1188.4 *4* γ_{619}***569.3*** *4* (†$_\gamma$64 *21*)
γ_{476}***712.5*** *8* (†$_\gamma$100 *43*)
1220.4 *5* γ_{488}***732.1*** *4* (†$_\gamma$1.2 *5*)
1231.52 *25* γ_{429}***802.8*** *4* (†$_\gamma$74 *18*)
γ_{62}***1169.9*** *3* (†$_\gamma$100 *21*)
1255.88 *10* γ_{753}***502.81*** *3* (†$_\gamma$100 *20*)
γ_{429}***826.8*** *3* (†$_\gamma$95 *25*)
1265.0 *3* γ_{502}***762.7*** *2* (†$_\gamma$100 *8*)
1284.1 *4* γ_{476}***808.3*** *5* (†$_\gamma$100 *24*)
γ_{429}***855.5*** *4* (†$_\gamma$59 *17*)
1295.7 *5* γ_{476}***819.9*** *4* (†$_\gamma$100 *22*)
1297.3 *3* γ_{753}***544.2*** *3* (†$_\gamma$100 *19*)
γ_{702}***594.8*** *5* (†$_\gamma$71 *16*)
1308.5 *3* γ_{226}***1082.6*** *3* (†$_\gamma$100 *29*)
1312.7 *4* γ_{476}***836.9*** *3* (†$_\gamma$100 *29*)
1325.49 *15* γ_{753}***572.3*** *2* (†$_\gamma$53 *13*)
γ_{488}***837.2*** *3* (†$_\gamma$91 *22*) γ_{476}***850.1*** *6*
(†$_\gamma$100 *19*) γ_{0}***1325.7*** *3* (†$_\gamma$91 *19*)
B **1325.60** *21*, (15/2$^+$) γ_{702}***623.1*** *2*
(†$_\gamma$100 *12*) E2
1366.5 *4* γ_{429}***937.9*** *4* (†$_\gamma$100 *33*)
1428.2 *3* γ_{226}***1202.3*** *3* (†$_\gamma$100 *23*)
1431.3 *4* γ_{429}***1002.7*** *4* (†$_\gamma$100 *23*)
1648.3 *4* γ_{1172}***476.3*** *3* (†$_\gamma$100 *10*)
γ_{1058}***584*** (?) γ_{938}***710***
1656.76 *20* γ_{863}***793.7*** *6* (†$_\gamma$77 *23*)
γ_{702}***954.5*** *9* (†$_\gamma$23 *13*) γ_{551}***1105.4*** *2*
(†$_\gamma$77 *23*) γ_{429}***1228.0*** *4* (†$_\gamma$100 *23*)
1671.1 *5* γ_{1265}***406*** γ_{1172}***499*** γ_{1054}***617***
γ_{502}***1169***
1706.05 *16* γ_{1058}***647.7*** *3* (†$_\gamma$41 *10*)
γ_{984}***721.3*** *4* (†$_\gamma$35 *7*) γ_{872}***833.8*** *5*
(†$_\gamma$100 *21*) γ_{702}***1004.1*** *7* (†$_\gamma$15 *5*)
γ_{429}***1277.4*** *9* (†$_\gamma$24 *6*) γ_{296}***1410.4*** *2*
(†$_\gamma$51 *10*) γ_{192}***1514.1*** *4* (†$_\gamma$41 *10*)
1723.07 *11* γ_{1058}***664.7*** *2* (†$_\gamma$36 *2*)
γ_{1056}***667.4*** *2* (†$_\gamma$100 *20*) γ_{984}***738.7*** *2*
(†$_\gamma$63 *95*) γ_{753}***969.8*** *3* (†$_\gamma$19 *5*)
γ_{551}***1171.6*** *2* (†$_\gamma$20 *5*) γ_{429}***1294.5*** *2*
(†$_\gamma$89 *19*) γ_{226}***1497.2*** *4* (†$_\gamma$39 *8*)
C **1762.9** *3*, (3/2$^-$) γ_{1054}***709.0*** *2* (†$_\gamma$100 *10*)
E2
1785.27 *12* γ_{1167}***617.8*** *4* (†$_\gamma$37 *8*)
γ_{1027}***758.3*** *4* (†$_\gamma$31 *9*) γ_{1002}***783.4*** *5*
(†$_\gamma$68 *12*) γ_{984}***801.0*** *3* (†$_\gamma$100 *18*)
γ_{702}***1082.6*** *2* (†$_\gamma$45 *9*) γ_{619}***1166.5*** *2*
(†$_\gamma$75 *15*) γ_{551}***1233.8*** *9* (†$_\gamma$14 *6*)
γ_{429}***1356.4*** *3* (†$_\gamma$31 *8*) γ_{226}***1559.4*** *2*
(†$_\gamma$89 *18*) γ_{62}***1723.2*** *5* (†$_\gamma$66 *15*)
A **1788.7** *5*, (17/2$^+$) γ_{1081}***707.2*** *4* (†$_\gamma$100 *25*)
1796.58 *18* γ_{1167}***629.4*** *2* (†$_\gamma$61 *13*)
γ_{1056}***740.8*** *2* (?) (†$_\gamma$61 *14*) γ_{872}***924.6*** *3*
(†$_\gamma$75 *14*) γ_{429}***1368.1*** *4* (?) (†$_\gamma$34 *9*)
γ_{226}***1570.6*** *4* (†$_\gamma$100 *21*)
1828.4 *4* (?) γ_{1002}***826.8*** *4* (†$_\gamma$100 *19*)
1950.1 *11* γ_{1054}***896*** (?)
B **1992.7** *3*, (19/2$^+$) γ_{1325}***667.3*** *3* (†$_\gamma$100 *14*)
γ_{1054}***938.5*** *4*
2033.2 *4* γ_{1265}***768.2*** *2* (†$_\gamma$100 *10*)
B **2045.6** *3*, (19/2$^+$) γ_{1326}***719.9*** *3* (†$_\gamma$100 *17*)
γ_{1054}***992***
2118.32 *14* γ_{1056}***1062.6*** *4* (†$_\gamma$59 *11*)
γ_{911}***1207.2*** *2* (†$_\gamma$12 *5*) γ_{702}***1416.0*** *5*
(†$_\gamma$16 *7*) γ_{476}***1642.5*** *2* (†$_\gamma$100 *19*)
γ_{429}***1689.8*** *2* (†$_\gamma$63 *12*) γ_{226}***1892.5*** *7*
(†$_\gamma$23 *8*)
2179.9 *5* γ_{1058}***1121.5*** *4* (†$_\gamma$100 *25*)
D **2203.4** *4*, (23/2$^-$) γ_{2033}***170.2*** *3*
γ_{1648}***555.0*** *3* (†$_\gamma$100 *9*) γ_{1054}***1149.6*** *7*
(†$_\gamma$36 *9*)
2331.2 *6* γ_{1950}***400*** (?) γ_{1763}***568***
γ_{1671}***660*** γ_{1054}***1277***
D **2352.6** *4* γ_{2203}***149.2*** *2* (†$_\gamma$100 *7*)
A **2356.5** *5*, (21/2$^+$) γ_{1789}***567.3*** (†$_\gamma$50 *12*)
γ_{1054}***1303.0*** *5* (†$_\gamma$100 *12*)
B **2445.3** *3*, (23/2$^+$) γ_{2046}***399.7*** *2* (†$_\gamma$40 *10*)
γ_{1993}***452.4*** *4* (†$_\gamma$70 *10*) γ_{1763}***682.5*** *3*
(†$_\gamma$100 *10*)
2473.4 *11* (?) γ_{2033}***440*** (?)
2554.7 *8* γ_{167}***2388.0*** *8* (†$_\gamma$100 *42*)
C **2575.5** *4*, (27/2$^-$) γ_{1763}***812.6*** *2* (†$_\gamma$100 *12*)
E2
D **2598.5** *5* γ_{2353}***245.9*** *3* (†$_\gamma$100 *8*)
2674 *8* γ_{1789}***885*** *8*
B **2692.3** *8* γ_{2203}***489*** (?) γ_{1763}***929*** (?)
A **2744.9** *5*, (25/2$^+$) γ_{2357}***388.4*** *2* (†$_\gamma$100 *10*)
γ_{1763}***981.8*** *5* (†$_\gamma$25 *6*)
D **2925.5** *6* γ_{2599}***327.0*** *3* (†$_\gamma$100 *20*)
B **2933.4** *4*, (27/2$^+$) γ_{2445}***488.1*** *3* (†$_\gamma$100 *14*)
E2

3078.8 *8* γ_{2576}***504*** γ_{2331}***747***

A **3274.7** *6*, $(29/2^+)$ γ_{2745}***529.8*** *3* ($\dagger_\gamma$100 *13*)
E2

D **3320.2** *6* γ_{2926}***394.7*** *2* ($\dagger_\gamma$100 *33*)

E **3371.1** *7* γ_{2353}***1019*** *1* ($\dagger_\gamma$100)

C **3439.6** *9*, $(31/2^-)$ γ_{2576}***864*** ($\dagger_\gamma$100 *9*)

E **3536.4** *7* γ_{3371}***165.4*** *3* ($\dagger_\gamma$100 *14*)
γ_{2599}***937.8*** *5*

B **3565.0** *5*, $(31/2^+)$ γ_{2933}***631.6*** *3* ($\dagger_\gamma$100 *8*)
E2

D **3768.0** *12* γ_{3320}***447.8*** ($\dagger_\gamma$100)

E **3787.6** *7* γ_{3536}***251.2*** *2* ($\dagger_\gamma$100 *20*)

3820.7 *10* γ_{3440}***381*** γ_{3079}***742***

A **3973.0** *6*, $(33/2^+)$ γ_{3275}***698.3*** *2* ($\dagger_\gamma$100 *14*)

E **4124.4** *7* γ_{3788}***336.8*** *2* ($\dagger_\gamma$100 *33*)

4264.6 *16* (?) γ_{3768}***496.4*** *10* (?)

C **4305.6** *14*, $(35/2^-)$ γ_{3440}***866*** ($\dagger_\gamma$100 *9*)

B **4352.1** *7*, $(35/2)^+$ γ_{3565}***787.1*** *4* ($\dagger_\gamma$100 *25*)

E **4533.7** *8* γ_{4124}***409.3*** *2*

A **4805.6** *6*, $(37/2^+)$ γ_{3973}***832.6*** *2*

E **5005.4** *8* γ_{4534}***471.7*** *3* ($\dagger_\gamma$100)

C **5173.6** *17*, $(39/2^-)$ γ_{4306}***868*** ($\dagger_\gamma$100 *9*)

B **5260.7** *9*, $(39/2^+)$ γ_{4352}***908.6*** *5*

A **5744.8** *7*, $(41/2^+)$ γ_{4806}***939.2*** *3*

C **6095.4** *17*, $(43/2^-)$ γ_{5174}***921.8*** *2* ($\dagger_\gamma$100)

B **6264.7** *13*, $(43/2^+)$ γ_{5261}***1004*** *1* ($\dagger_\gamma$100)

A **6765.0** *9*, $(45/2^+)$ γ_{5745}***1020.2*** *5*

C **7086.1** *18* (?) γ_{6095}***990.5*** *4* (?)

B **7280.9** *17* (?) γ_{6265}***1016*** *1* (?)

F **x**

F **196.1+x** *8* γ_{x}***196.1*** *8*

F **440.1+x** *9* γ_{196+x}***244.0*** *3* ($\dagger_\gamma$100 *17*)

F **736.7+x** *10* γ_{440+x}***296.6*** *4* ($\dagger_\gamma$100 *25*)

F **1087.6+x** *10* γ_{737+x}***350.9*** *3* ($\dagger_\gamma$100 *25*)

F **1491.3+x** *11* γ_{1088+x}***403.7*** *3* ($\dagger_\gamma$100 *50*)

F **1945.7+x** *12* γ_{1491+x}***454.4*** *5* ($\dagger_\gamma$100 *50*)

F **2444.1+x** *15* (?) γ_{1946+x}***498.4*** *10* (?)

H **y**, J≈(51/2)

G **390+y**, J+1 γ_{y}***390*** (?)

H **800+y**, J+2 γ_{390+y}***410*** γ_{y}***800***
($\dagger_\gamma$0.15 *10*) *I(2)=56.3, ħω=0.418*

G **1230+y**, J+3 γ_{800+y}***430*** ($\dagger_\gamma$0.15 *3*)
γ_{390+y}***840*** ($\dagger_\gamma$0.75 *5*) *I(1)=6.9,*
I(2)=58.8, ħω=0.437

H **1671+y**, J+4 γ_{1230+y}***441*** ($\dagger_\gamma$0.16 *5*)
γ_{800+y}***871*** ($\dagger_\gamma$0.95 *5*) *I(2)=55.6,*
ħω=0.454

G **2138+y**, J+5 γ_{1671+y}***467*** γ_{1230+y}***908***
($\dagger_\gamma$0.88 *5*) *I(1)=10.6, I(2)=56.3,*
ħω=0.472

H **2617+y**, J+6 γ_{2138+y}***476*** ($\dagger_\gamma$0.19 *4*)
γ_{1671+y}***943*** ($\dagger_\gamma$1.00 *5*) *I(2)=57.1,*
ħω=0.489

G **3117+y**, J+7 γ_{2138+y}***979*** ($\dagger_\gamma$0.95 *5*)
I(1)=13.8, I(2)=56.3, ħω=0.507

H **3627+y**, J+8 γ_{2617+y}***1013*** ($\dagger_\gamma$0.95 *5*)
I(2)=55.6, ħω=0.524

G **4167+y**, J+9 γ_{3117+y}***1050*** ($\dagger_\gamma$0.90 *5*)
I(1)=16.6, I(2)=56.3, ħω=0.543

H **4712+y**, J+10 γ_{3627+y}***1085*** ($\dagger_\gamma$0.85 *5*)
I(2)=56.3, ħω=0.560

G **5288+y**, J+11 γ_{4167+y}***1121*** ($\dagger_\gamma$0.80 *5*)
I(1)=19.0, I(2)=56.3, ħω=0.578

H **5868+y**, J+12 γ_{4712+y}***1156*** ($\dagger_\gamma$0.80 *5*)
I(2)=55.6, ħω=0.596

G **6480+y**, J+13 γ_{5288+y}***1192*** ($\dagger_\gamma$0.75 *5*)
I(1)=21.2, I(2)=54.8, ħω=0.614

H **7096+y**, J+14 γ_{5868+y}***1228*** ($\dagger_\gamma$0.65 *5*)
I(2)=56.3, ħω=0.632

G **7745+y**, J+15 γ_{6480+y}***1265*** ($\dagger_\gamma$0.55 *5*)
I(1)=23.2, I(2)=71.4, ħω=0.647

H **8395+y**, J+16 γ_{7096+y}***1299*** *I(2)=49.4,*
ħω=0.670

G **9066+y**, J+17 γ_{7745+y}***1321*** ($\dagger_\gamma$0.40 *5*)
I(1)=24.9, I(2)=44.0, ħω=0.683

H **9775+y**, J+18 γ_{8395+y}***1380*** ($\dagger_\gamma$0.34 *5*)
I(2)=57.1, ħω=0.708

G **10478+y**, J+19 γ_{9066+y}***1412*** ($\dagger_\gamma$0.25 *5*)
I(1)=26.2, I(2)=51.9, ħω=0.725

H **11225+y**, J+20 γ_{9775+y}***1450*** ($\dagger_\gamma$0.18 *5*)
I(2)=50.0, ħω=0.745

G **11967+y**, J+21 $\gamma_{10478+y}$***1489*** ($\dagger_\gamma$0.20 *5*)

H **12755+y**, J+22 $\gamma_{11225+y}$***1530*** ($\dagger_\gamma$0.23 *5*)

I **z**, J≈(53/2)

I **784+z**, J+2 γ_{z}***784*** ($\dagger_\gamma$0.35 *5*) *I(2)=57.1,*
ħω=0.410

I **1638+z**, J+4 γ_{784+z}***854*** ($\dagger_\gamma$0.50 *5*)
I(2)=50.6, ħω=0.447

I **2571+z**, J+6 γ_{1638+z}***933*** ($\dagger_\gamma$0.50 *5*)
I(2)=50.0, ħω=0.487

I **3584+z**, J+8 γ_{2571+z}***1013*** ($\dagger_\gamma$0.55 *5*)
I(2)=47.1, ħω=0.528

I **4682+z**, J+10 γ_{3584+z}***1098*** ($\dagger_\gamma$0.50 *5*)
I(2)=47.6, ħω=0.570

I **5864+z**, J+12 γ_{4682+z}***1182*** ($\dagger_\gamma$0.45 *5*)
I(2)=47.6, ħω=0.612

I **7130+z**, J+14 γ_{5864+z}***1266*** ($\dagger_\gamma$0.52 *5*)
I(2)=47.1, ħω=0.654

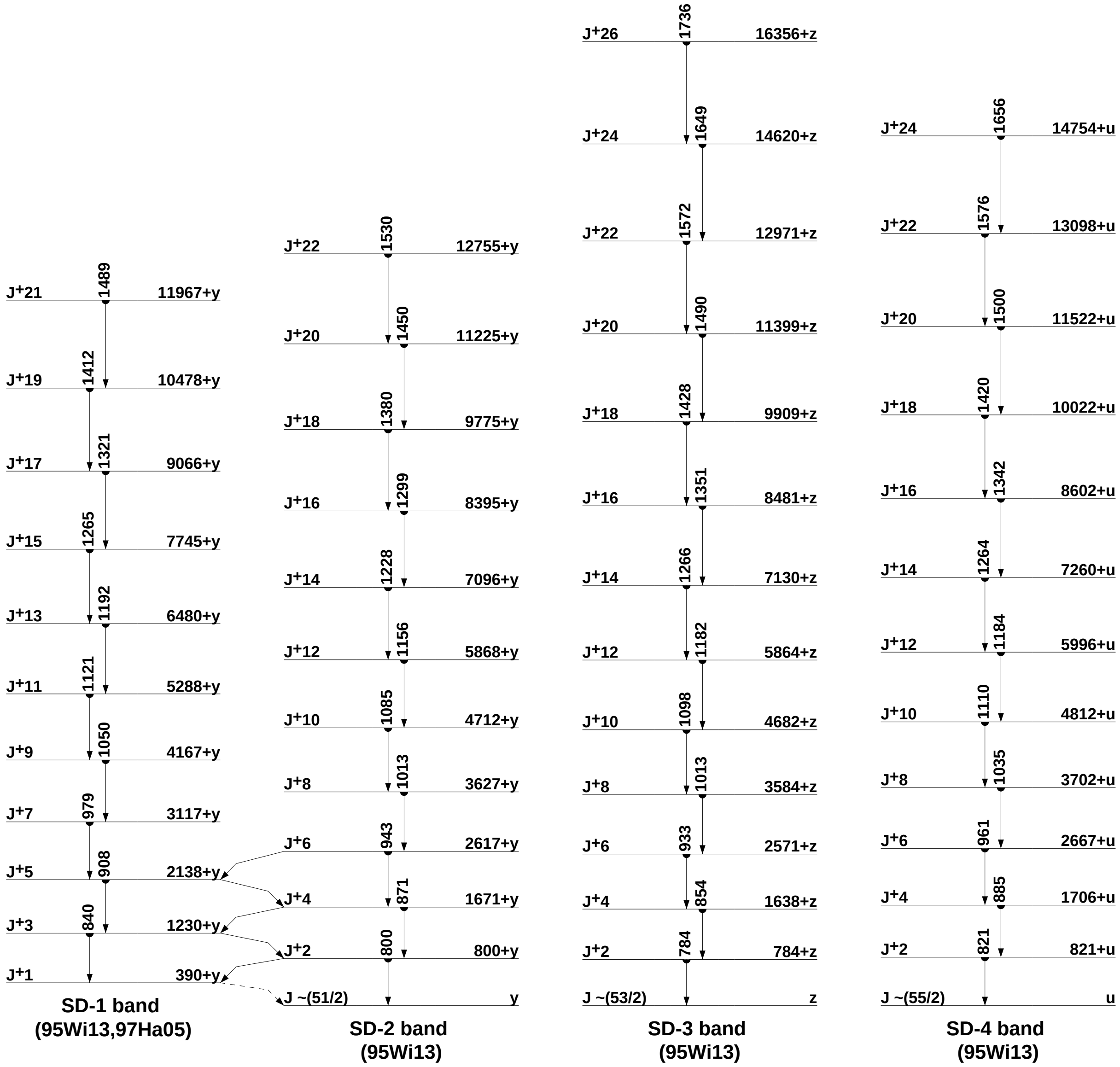
I **8481+z**, J+16 γ_{7130+z}***1351*** ($\dagger_\gamma$0.40 *5*)
I(2)=51.9, ħω=0.695

I **9909+z**, J+18 γ_{8481+z}***1428*** ($\dagger_\gamma$0.37 *5*)
I(2)=64.5, ħω=0.729

I **11399+z**, J+20 γ_{9909+z}***1490*** ($\dagger_\gamma$0.30 *5*)
I(2)=48.8, ħω=0.765

I **12971+z**, J+22 $\gamma_{11399+z}$***1572*** ($\dagger_\gamma$0.28 *5*)
I(2)=51.9, ħω=0.805

I **14620+z**, J+24 $\gamma_{12971+z}$***1649*** († $_{\gamma}$0.23 *5*)
$I^{(2)}$*=46.0, ħω=0.846*
I **16356+z**, J+26 $\gamma_{14620+z}$***1736*** († $_{\gamma}$0.13 *5*)
J **u**, J≈(55/2)
J **821+u**, J+2 γ_{0}***821*** († $_{\gamma}$0.17 *5*) $I^{(2)}$*=62.5, ħω=0.426*
J **1706+u**, J+4 γ_{821+u}***885*** († $_{\gamma}$0.20 *5*)
$I^{(2)}$*=52.6, ħω=0.462*
J **2667+u**, J+6 γ_{1706+u}***961*** († $_{\gamma}$0.20 *5*)
$I^{(2)}$*=54.1, ħω=0.499*
J **3702+u**, J+8 γ_{2667+u}***1035*** († $_{\gamma}$0.22 *5*)
$I^{(2)}$*=53.3, ħω=0.536*
J **4812+u**, J+10 γ_{3702+u}***1110*** († $_{\gamma}$0.22 *5*)
$I^{(2)}$*=54.1, ħω=0.573*
J **5996+u**, J+12 γ_{4812+u}***1184*** († $_{\gamma}$0.20 *5*)
$I^{(2)}$*=50.0, ħω=0.612*
J **7260+u**, J+14 γ_{5996+u}***1264*** († $_{\gamma}$0.20 *5*)
$I^{(2)}$*=51.3, ħω=0.651*
J **8602+u**, J+16 γ_{7260+u}***1342*** († $_{\gamma}$0.20 *5*)
$I^{(2)}$*=51.3, ħω=0.691*
J **10022+u**, J+18 γ_{8602+u}***1420*** († $_{\gamma}$0.13 *5*)
$I^{(2)}$*=50.0, ħω=0.730*
J **11522+u**, J+20 $\gamma_{10022+u}$***1500*** († $_{\gamma}$0.13 *5*)
$I^{(2)}$*=52.6, ħω=0.769*
J **13098+u**, J+22 $\gamma_{11522+u}$***1576*** († $_{\gamma}$0.11 *5*)
$I^{(2)}$*=50.0, ħω=0.808*
J **14754+u**, J+24 $\gamma_{13098+u}$***1656*** († $_{\gamma}$0.08 *5*)



J+21 1489 11967+y
J+19 1412 10478+y
J+17 1321 9066+y
J+15 1265 7745+y
J+13 1192 6480+y
J+11 1121 5288+y
J+9 1050 4167+y
J+7 979 3117+y
J+5 908 2138+y
J+3 840 1230+y
J+1 390+y
SD-1 band
(95Wi13,97Ha05)
J+22 1530 12755+y
J+20 1450 11225+y
J+18 1380 9775+y
J+16 1299 8395+y
J+14 1228 7096+y
J+12 1156 5868+y
J+10 1085 4712+y
J+8 1013 3627+y
J+6 943 2617+y
J+4 871 1671+y
J+2 800 800+y
J ~(51/2) y
SD-2 band
(95Wi13)
J+26 1736 16356+z
J+24 1649 14620+z
J+22 1572 12971+z
J+20 1490 11399+z
J+18 1428 9909+z
J+16 1351 8481+z
J+14 1266 7130+z
J+12 1182 5864+z
J+10 1098 4682+z
J+8 1013 3584+z
J+6 933 2571+z
J+4 854 1638+z
J+2 784 784+z
J ~(53/2) z
SD-3 band
(95Wi13)
J+24 1656 14754+u
J+22 1576 13098+u
J+20 1500 11522+u
J+18 1420 10022+u
J+16 1342 8602+u
J+14 1264 7260+u
J+12 1184 5996+u
J+10 1110 4812+u
J+8 1035 3702+u
J+6 961 2667+u
J+4 885 1706+u
J+2 821 821+u
J ~(55/2) u
SD-4 band
(95Wi13)

$^{133}_{59}$Pr