$^{133}_{60}$Nd

Δ: (–72500) **S_n:** (8900) **S_p:** (4400)
Q_{EC}: (5600) **Q_α:** (1400)

Nuclear Bands

A α=-1/2 7/2[404]
B α=1/2 7/2[404]
C α=-1/2 9/2[514]
D 1/2[541]
E 1/2[530]
F SD band
(87Wa18,93Pa02)(93Ba20,94Ba25)
G α=-1/2 1/2[400]
H α=1/2 1/2[400]
I α=1/2 9/2[514]
J α=-1/2 5/2[402]
K α=1/2 5/2[402]
L Band Structure
M Band Structure

Levels and γ-ray branchings:

A **0**, (7/2$^+$), 70 *10* s, %EC+%β$^+$=100
G **127.97** *11*, (1/2)$^+$, ≈ 70 s γ_{0}***127.9*** *6* (†$_\gamma$100 *50*) M3
H **173.06** *9*, (3/2$^+$) γ_{128}***45.1*** *1* (†$_\gamma$100 *12*) M1(+E2): δ<0.41
C **176.10** *10*, (9/2$^-$), ≈ 300 ns γ_{0}***176.1*** *1* (†$_\gamma$100 *10*) E1
B **245.49** *10*, (9/2)$^+$ γ_{0}***245.5*** *1* (†$_\gamma$100 *13*) E2
K **291.38** *8*, (5/2$^+$) γ_{173}***118.3*** *1* (†$_\gamma$36 *5*) M1(+E2): δ<0.36 γ_{0}***291.4*** *1* (†$_\gamma$100 *9*) M1
I **338.87** *22*, (11/2$^-$) γ_{176}***162.8*** *2* (†$_\gamma$100 *28*) M1+E2
345.23 *9*, $^+$ γ_{291}***54.0*** *2* (†$_\gamma$2.3 *6*) γ_{0}***345.2*** *1* (†$_\gamma$100 *11*) E2
E **353.64** *12*, (3/2$^-$), ≈ 50 ns γ_{291}***62.3*** *3* (†$_\gamma$2.4 *8*) γ_{173}***180.6*** *1* (†$_\gamma$100) E1
G **397.93** *11*, (5/2$^+$) γ_{173}***224.9*** *1* (†$_\gamma$100 *15*) M1 γ_{128}***270.0*** *4* (†$_\gamma$92 *17*) E2
399.81 *19*, (1/2,3/2)$^+$ γ_{128}***271.9*** *4* (†$_\gamma$100 *20*) M1
442.51 *14*, (7/2,9/2,11/2)$^-$ γ_{176}***266.4*** *1* (†$_\gamma$100 *12*) M1+E2
444.67 *14* γ_{173}***271.4*** *4* (†$_\gamma$84 *20*) γ_{128}***316.7*** *1* (†$_\gamma$100 *24*)
472.15 *11*, (3/2,5/2,7/2)$^+$ γ_{291}***180.8*** *5* (†$_\gamma$19 *4*) E2 γ_{173}***299.1*** *1* (†$_\gamma$100 *13*) E2 γ_{0}***472.2*** *2* (†$_\gamma$42 *8*)
J **483.52** *11*, (7/2$^+$) γ_{291}***192.1*** *1* (†$_\gamma$100 *14*) E2 γ_{0}***483.5*** *2* (†$_\gamma$55 *6*)
H **491.90** *19*, (7/2$^+$) γ_{291}***200.5*** *4* (†$_\gamma$100 *27*) E2 γ_{173}***318.8*** *4* (†$_\gamma$55 *27*) γ_{0}***491.9*** *3* (†$_\gamma$40 *5*)
E **492.32** *21*, (7/2$^-$) γ_{354}***138.7*** *2* (†$_\gamma$100 *10*) E2
A **519.4** *6*, (11/2$^+$) γ_{245}***274*** γ_{0}***519***
D **523.84** *16*, (5/2$^-$) γ_{354}***170.2*** *1* (†$_\gamma$100 *11*) E2
554.99 *13*, (1/2$^+$,3/2,5/2$^+$) γ_{398}***157.2*** *2* (†$_\gamma$6.6 *11*) γ_{173}***381.9*** *1* (†$_\gamma$100 *22*) M1+E2 γ_{128}***427.0*** *4* (†$_\gamma$78 *17*)
585.4 *4* γ_{176}***409.4*** *4* (†$_\gamma$100 *31*)
587.1 *4* γ_{173}***414.0*** *4* (†$_\gamma$100 *24*)
628.3 *4* γ_{339}***289.6*** *5* (†$_\gamma$30 *4*) γ_{176}***452.1*** *4* (†$_\gamma$100 *20*)
C **646.6** *7*, (13/2$^-$) γ_{339}***307.7*** (†$_\gamma$91 *18*) M1+E2 γ_{176}***470.8*** (†$_\gamma$100 *11*) E2
660.30 *21* γ_{445}***215.6*** *6* (†$_\gamma$68 *9*) γ_{173}***487.2*** *2* (†$_\gamma$100 *30*) γ_{128}***532.7*** *6* (†$_\gamma$8 *2*)
674.61 *16* γ_{400}***274.7*** *6* (†$_\gamma$21 *3*) γ_{345}***329.4*** *2* (†$_\gamma$100 *10*) γ_{245}***429.1*** *4* (†$_\gamma$100 *20*) γ_{128}***546.6*** *4* (†$_\gamma$50 *20*) γ_{0}***674.6*** *4* (†$_\gamma$83 *8*)
K **687.7** *6*, (9/2$^+$) γ_{484}***204*** γ_{291}***396*** γ_{245}***443***
738.84 *22* γ_{398}***340.9*** *2* (†$_\gamma$100 *33*) γ_{173}***565.8*** *7* (†$_\gamma$83 *33*)
D **758.8** *11*, (9/2$^-$) γ_{524}***235***
787.83 *14* γ_{398}***389.9*** *2* (†$_\gamma$100 *9*) γ_{345}***442.5*** *2* (†$_\gamma$80 *9*) γ_{173}***614.8*** *4* (†$_\gamma$91 *23*) γ_{0}***788.0*** *3* (†$_\gamma$73 *9*)
806.45 *20* γ_{472}***334.5*** *3* (†$_\gamma$64 *6*) γ_{445}***361.7*** *4* (†$_\gamma$50 *13*) γ_{400}***406.5*** *4* (†$_\gamma$50 *13*) γ_{398}***408.4*** *4* (†$_\gamma$75 *25*) γ_{291}***514.9*** *8* (†$_\gamma$100 *25*)
E **808.2** *9*, (11/2$^-$) $\gamma_{491.9}$***316***
G **825.0** *7*, (9/2$^+$) $\gamma_{491.9}$***332*** γ_{398}***428***
B **826.5** *7*, (13/2$^+$) γ_{519}***307*** γ_{245}***581***
I **836.9** *7*, (15/2$^-$) γ_{647}***190.3*** (†$_\gamma$19 *4*) M1+E2 γ_{339}***498.0*** (†$_\gamma$100) E2
837.5 *5* γ_{445}***392.8*** *4* (†$_\gamma$100)
879.37 *17* $\gamma_{491.9}$***387.5*** *4* (†$_\gamma$30 *15*) γ_{291}***588.0*** *6* (†$_\gamma$30 *15*) γ_{245}***633.9*** *2* (†$_\gamma$56 *6*) γ_{173}***706.3*** *4* (†$_\gamma$30 *15*) γ_{0}***879.2*** *5* (†$_\gamma$100 *11*)
J **912.7** *7*, (11/2$^+$) γ_{688}***225*** γ_{484}***429***
932.2 *6* γ_{345}***587.0*** *6* (†$_\gamma$100 *25*)
937.09 *17* γ_{400}***537.3*** *3* (†$_\gamma$11 *5*) γ_{398}***539.1*** *4* (†$_\gamma$14 *6*) γ_{345}***591.9*** *8* (†$_\gamma$25 *4*) γ_{291}***645.7*** *2* (†$_\gamma$100 *27*)
H **963.3** *8*, (11/2$^+$) $\gamma_{492.3}$***471***
979.8 *7* γ_{354}***626.2*** *6* (†$_\gamma$100 *33*)
985.91 *16* γ_{400}***586.1*** *6* (†$_\gamma$9 *4*) γ_{398}***588.1*** *6* (†$_\gamma$35 *4*) γ_{354}***632.4*** *3* (†$_\gamma$22 *9*) γ_{173}***812.9*** *2* (†$_\gamma$100 *17*) γ_{128}***857.8*** *2* (†$_\gamma$37 *4*)
999.2 *5* γ_{585}***413.9*** *4* (†$_\gamma$42 *12*)

γ_{443}***556.4*** *6* (†$_\gamma$100 *50*)
1007.0 *5* γ_{585}***421.6*** *2* (†$_\gamma$100 *12*)
1013.67 *14* $\gamma_{491.9}$***521.5*** *4* (†$_\gamma$16 *2*)
γ_{484}***529.9*** *3* (†$_\gamma$15 *2*) γ_{354}***660.1*** *2* (†$_\gamma$31 *3*) γ_{291}***722.2*** *4* (†$_\gamma$75 *17*)
γ_{128}***885.7*** *2* (†$_\gamma$100 *8*) γ_0***1013.7*** *4* (†$_\gamma$19 *4*)

D **1116.8** *15*, (13/2$^-$) γ_{759}***358***
1120.21 *23* γ_{484}***636.5*** *5* (†$_\gamma$22 *11*)
γ_{400}***720.5*** *4* (†$_\gamma$29 *16*) γ_{398}***722.3*** *4* (†$_\gamma$44 *22*) γ_{291}***828.8*** *7* (†$_\gamma$100 *11*)
γ_{245}***874.7*** *5* (†$_\gamma$67 *22*)

K **1130.7** *9*, (13/2$^+$) γ_{913}***218*** γ_{688}***443***

A **1150.6** *8*, (15/2$^+$) γ_{827}***324*** γ_{519}***631***
1154.5 *3* γ_{291}***863.1*** *4* (†$_\gamma$56 *15*)
γ_0***1154.5*** *4* (†$_\gamma$100 *19*)
1183.1 *6* γ_{354}***829.5*** *5* (†$_\gamma$100 *20*)
1195.6 *5* γ_{354}***842.0*** *4* (†$_\gamma$100 *20*)
1206.0 *7* $\gamma_{492.3}$***713.7*** *6* (†$_\gamma$100 *12*)
1209.1 *4* γ_{354}***855.5*** *3* (†$_\gamma$100 *40*)
1230.1 *5* γ_{354}***876.5*** *5* (†$_\gamma$100 *24*)
γ_{245}***984.5*** *8* (†$_\gamma$26 *26*)

C **1271.4** *9*, (17/2$^-$) γ_{838}***434*** γ_{647}***625***

E **1280.0** *9*, (15/2$^-$) γ_{808}***472***
1280.4 *7* γ_{354}***926.8*** *6* (†$_\gamma$100 *17*)

G **1359.6** *8*, (13/2$^+$) γ_{963}***396*** γ_{825}***535***

J **1364.7** *10*, (15/2$^+$) γ_{1131}***234*** γ_{913}***452***

I **1460.6** *10*, (19/2$^-$) γ_{1271}***189*** γ_{837}***624.0*** E2

B **1491.6** *9*, (17/2$^+$) γ_{1151}***341*** γ_{827}***665***

H **1540.5** *9*, (15/2$^+$) γ_{963}***577***
1595.8 *4* γ_{555}***1041.1*** *9* (†$_\gamma$24 *24*)
γ_{345}***1251.0*** *5* (†$_\gamma$82 *11*) γ_0***1595.2*** *5* (†$_\gamma$100 *16*)

D **1598.8** *18*, (17/2$^-$) γ_{1117}***482***

K **1622.7** *11*, (17/2$^+$) γ_{1365}***258*** γ_{1131}***492***
1770.5 *5* γ_{345}***1425.3*** *5* (†$_\gamma$100 *21*)

A **1798.7** *10*, (19/2$^+$) γ_{1492}***307*** γ_{1151}***648***
1834.3 *8* γ_{345}***1489.1*** *8* (†$_\gamma$100 *69*)

E **1871.2** *11*, (19/2$^-$) $\gamma_{1280.0}$***591***
1886.5 *4* γ_{354}***1532.7*** *4* (†$_\gamma$100 *28*)
γ_{345}***1541.6*** *6* (†$_\gamma$52 *31*)

J **1934.7** *12*, (19/2$^+$) γ_{1623}***312*** γ_{1365}***570***

G **1962.5** *9*, (17/2$^+$) γ_{1541}***422*** γ_{1360}***603***
2005.0 *4* γ_{354}***1651.4*** *3* (†$_\gamma$100 *22*)

C **2010.5** *11*, (21/2$^-$) γ_{1461}***550*** γ_{1271}***739***

F **2026.6** *7*, (17/2$^+$) γ_{1541}***486*** (†$_\gamma$0.024 *6*)
γ_{1360}***667*** (†$_\gamma$0.20 *3*) $\gamma_{1280.0}$***747*** (†$_\gamma$0.06 *1*) γ_{837}***1190*** (†$_\gamma$0.043 *12*)
2043.4 *4* γ_{354}***1689.8*** *3* (†$_\gamma$100)
2076.7 γ_{354}***1723.1*** *3*

B **2088.8** *10*, (21/2$^+$) γ_{1799}***290*** γ_{1492}***597***

H **2159.5** *13*, (19/2$^+$) γ_{1541}***619***

D **2185.8** *20*, (21/2$^-$) γ_{1599}***587***

I **2199.5** *12*, (23/2$^-$) γ_{2011}***189*** γ_{1461}***739***

K **2311.7** *13*, (21/2$^+$) γ_{1935}***377*** γ_{1623}***689***

F **2371.3** *9*, (21/2$^+$), 4.9 *15* ps γ_{2027}***345*** (†$_\gamma$0.33 *4*) I$^{(1)}$*=53.4,* I$^{(2)}$*=41.7,* ħω*=0.197* γ_{1963}***409*** (†$_\gamma$0.25 *3*) γ_{1871}***500*** (†$_\gamma$0.045 *10*)

A **2383.7** *11*, (23/2$^+$) γ_{2089}***295*** γ_{1799}***585***
2451.2 *3* γ_{400}***2051.5*** *5* (†$_\gamma$75 *25*)
γ_{398}***2053.0*** *5* (†$_\gamma$100 *25*) γ_{291}***2160.0*** *5* (†$_\gamma$50 *25*)

E **2538.2** *15*, (23/2$^-$) γ_{1871}***667***

G **2553.6** *10*, (21/2$^+$) γ_{2027}***527*** γ_{1963}***591***

J **2674.7** *14*, (23/2$^+$) γ_{2312}***363*** γ_{1935}***740***

B **2692.8** *11*, (25/2$^+$) γ_{2384}***309*** γ_{2089}***604***

H **2764.5** *17*, (23/2$^+$) γ_{2160}***605***

F **2812.0** *10*, (25/2$^+$), 2.1 *7* ps γ_{2371}***441*** (†$_\gamma$0.61 *5*) (E2) I$^{(1)}$*=52.4,* I$^{(2)}$*=54.8,* ħω*=0.239* γ_{2089}***723*** (†$_\gamma$0.029 *7*)

C **2813.5** *13*, (25/2$^-$) γ_{2200}***614*** γ_{2011}***803***

D **2848.8** *23*, (25/2$^-$) γ_{2186}***663***

M **3019.5** *15* γ_{2011}***1009***

A **3019.7** *11*, (27/2$^+$) γ_{2693}***327*** γ_{2384}***636***

I **3027.5** *13*, (27/2$^-$) γ_{2814}***214*** γ_{2200}***828***

L **3030.5** *15* γ_{2011}***1020***

K **3089.7** *16*, (25/2$^+$) γ_{2312}***778***

G **3128.6** *14*, (25/2$^+$) γ_{2554}***575***

M **3019+x**

E **3205.2** *18*, (27/2$^-$) γ_{2538}***667***

F **3326.1** *11*, (29/2$^+$), <1.25 ps $\gamma_{3019.5}$***307*** (†$_\gamma$0.05 *1*) γ_{2812}***514*** (†$_\gamma$0.65 *5*) (E2) I$^{(1)}$*=51.9,* I$^{(2)}$*=44.4,* ħω*=0.279* γ_{2693}***633*** (†$_\gamma$0.24 *3*)

B **3364.8** *11*, (29/2$^+$) $\gamma_{3019.5}$***345*** γ_{2812}***553*** γ_{2693}***672***

L **3401.5** *18* γ_{3031}***371***

H **3418.5** *20*, (27/2$^+$) γ_{2765}***654***

D **3550.8** *25*, (29/2$^-$) γ_{2849}***702***

C **3568.5** *14* γ_{3028}***541*** γ_{2814}***755***

M **3511.0+x** *10* γ_{3019+x}***492***

A **3714.8** *13*, (31/2$^+$) γ_{3365}***350*** $\gamma_{3019.5}$***695***

G **3764.6** *18*, (29/2$^+$) γ_{3129}***636***

E **3770.2** *20*, (31/2$^-$) γ_{3205}***565***

I **3909.5** *17*, (31/2$^-$) γ_{3028}***882***

F **3930.0** *13*, (33/2$^+$) γ_{3365}***565*** (†$_\gamma$0.07 *2*) γ_{3326}***604*** (†$_\gamma$0.93 *6*) I$^{(1)}$*=51.2,* I$^{(2)}$*=50.0,* ħω*=0.322*

L **4000.5** *21* γ_{3402}***599***

B **4076.8** *13*, (33/2$^+$) γ_{3715}***362*** γ_{3365}***712***

H **4123.5** *22*, (31/2$^+$) γ_{3419}***705***

D **4281** *3*, (33/2$^-$) γ_{3551}***730***

M **4219.0+x** *15* γ_{3511+x}***708***

E **4407.2** *23*, (35/2$^-$) γ_{3770}***637***

A **4457.8** *14*, (35/2$^+$) γ_{4077}***381*** γ_{3715}***743***

G **4468.6** *20*, (33/2$^+$) γ_{3765}***704***

F **4614.0** *16*, (37/2$^+$) γ_{3930}***684*** (†$_\gamma$1.00)

$I^{(1)}$*=51.2,* $I^{(2)}$*=51.3,* $\hbar\omega$*=0.362*

I **4684.5** *20* γ_{3910}***775***

L **4787.5** *23* γ_{4001}***787***

B **4859.8** *17*, (37/2$^+$) γ_{4077}***783***

H **4877.5** *24*, (35/2$^+$) γ_{4124}***754***

L **4933.5** *23* γ_{4001}***933***

D **5056** *3*, (37/2$^-$) γ_{4281}***775***

E **5167.2** *25*, (39/2$^-$) γ_{4407}***760***

M **5089.0+x** *18* γ_{4219+x}***870***

G **5210.6** *23*, (37/2$^+$) γ_{4469}***742***

A **5278.8** *18*, (39/2$^+$) γ_{4458}***821***

F **5376.0** *19*, (41/2$^+$), μ=6.3 *16* γ_{4614}***762***

(†$_\gamma$0.75) $I^{(1)}$*=51.3,* $I^{(2)}$*=54.1,* $\hbar\omega$*=0.400*

H **5668** *3*, (39/2$^+$) γ_{4878}***790***

B **5711.8** *19*, (41/2$^+$) γ_{4860}***852***

B **5897** *3*, (41/2$^-$) γ_{5056}***841***

L **5956.5** *25* γ_{4934}***1023***

G **5968.6** *25*, (41/2$^+$) γ_{5211}***758***

E **6052** *3*, (43/2$^-$) γ_{5167}***885***

A **6157.8** *20*, (43/2$^+$) γ_{5279}***879***

F **6212.0** *22*, (45/2$^+$) γ_{5376}***836*** (†$_\gamma$0.65)

$I^{(1)}$*=51.7,* $I^{(2)}$*=58.8,* $\hbar\omega$*=0.435*

B **6618.8** *22*, (45/2$^+$) γ_{5712}***907***

D **6817** *4*, (45/2$^-$) γ_{5897}***920***

E **7039** *3*, (47/2$^-$) γ_{6052}***987***

A **7094.8** *23*, (47/2$^+$) γ_{6158}***937***

F **7116.0** *24*, (49/2$^+$) γ_{6212}***904*** (†$_\gamma$0.55)

$I^{(1)}$*=52.4,* $I^{(2)}$*=63.5,* $\hbar\omega$*=0.468*

B **7586.8** *24*, (49/2$^+$) γ_{6619}***968***

D **7823** *4*, (49/2$^-$) γ_{6817}***1006***

F **8083** *3*, (53/2$^+$) γ_{7116}***967*** (†$_\gamma$0.40)

$I^{(1)}$*=53.1,* $I^{(2)}$*=64.5,* $\hbar\omega$*=0.499*

A **8096.8** *25*, (51/2$^+$) γ_{7095}***1002***

E **8116** *3*, (51/2$^-$) γ_{7039}***1077***

B **8623** *3*, (53/2$^+$) γ_{7587}***1036***

D **8911** *4*, (53/2$^-$) γ_{7823}***1088***

F **9112** *3*, (57/2$^+$), <0.03 ps γ_{8083}***1029***

(†$_\gamma$0.32) $I^{(1)}$*=53.7,* $I^{(2)}$*=63.5,* $\hbar\omega$*=0.530*

A **9169** *3*, (55/2$^+$) γ_{8097}***1072***

E **9275** *4*, (55/2$^-$) γ_{8116}***1159***

B **9730** *3*, (57/2$^+$) γ_{8623}***1107***

D **10093** *4*, (57/2$^-$) γ_{8911}***1182***

F **10204** *3*, (61/2$^+$), <0.03 ps γ_{9112}***1092***

(†$_\gamma$0.20) $I^{(1)}$*=54.2,* $I^{(2)}$*=60.6,* $\hbar\omega$*=0.563*

A **10316** *3*, (59/2$^+$) γ_{9169}***1147***

E **10513** *4*, (59/2$^-$) γ_{9275}***1238***

B **10914** *3*, (61/2$^+$) γ_{9730}***1184***

F **11362** *3*, (65/2$^+$), <0.03 ps γ_{10204}***1158***

(†$_\gamma$0.15) $I^{(1)}$*=54.5,* $I^{(2)}$*=57.1,* $\hbar\omega$*=0.597*

A **11541** *3*, (63/2$^+$) γ_{10316}***1225***

B **12180** *4*, (65/2$^+$) γ_{10914}***1266***

F **12590** *4*, (69/2$^+$), <0.03 ps γ_{11362}***1228***

(†$_\gamma$0.10) $I^{(1)}$*=54.6,* $I^{(2)}$*=55.6,* $\hbar\omega$*=0.632*

A **12841** *4*, (67/2$^+$) γ_{11541}***1300***

F **13890** *4*, (73/2$^+$), <0.03 ps γ_{12590}***1300***

(†$_\gamma$0.04) $I^{(1)}$*=54.5,* $I^{(2)}$*=51.9,* $\hbar\omega$*=0.669*

F **15267** *4*, (77/2$^+$), <0.03 ps γ_{13890}***1377***

$I^{(1)}$*=54.3,* $I^{(2)}$*=49.4,* $\hbar\omega$*=0.709*

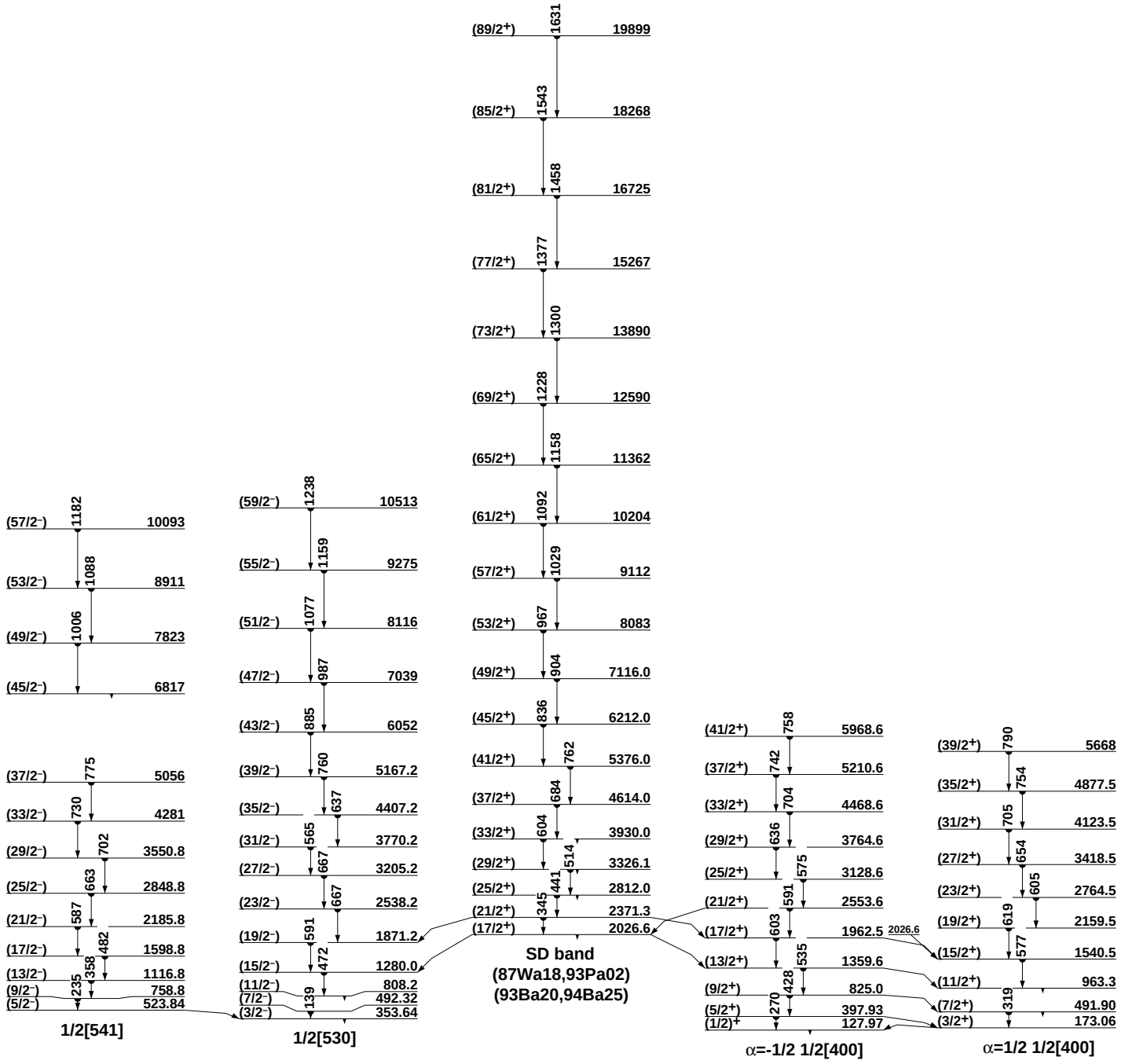
F **16725** *4*, (81/2$^+$), <0.03 ps γ_{15267}***1458***

$I^{(1)}$*=54.0,* $I^{(2)}$*=47.1,* $\hbar\omega$*=0.750*

F **18268** *4*, (85/2$^+$), <0.03 ps γ_{16725}***1543***

$I^{(1)}$*=53.6,* $I^{(2)}$*=45.5,* $\hbar\omega$*=0.793*

F **19899** *4*, (89/2$^+$), <0.03 ps γ_{18268}***1631***


(89/2+) 1631 19899
(85/2+) 1543 18268
(81/2+) 1458 16725
(77/2+) 1377 15267
(73/2+) 1300 13890
(69/2+) 1228 12590
(65/2+) 1158 11362
(61/2+) 1092 10204
(57/2+) 1029 9112
(53/2+) 967 8083
(49/2+) 904 7116.0
(45/2+) 836 6212.0
(41/2+) 762 5376.0
(37/2+) 684 4614.0
(33/2+) 604 3930.0
(29/2+) 514 3326.1
(25/2+) 441 2812.0
(21/2+) 345 2371.3
(17/2+) 2026.6
SD band
(87Wa18,93Pa02)
(93Ba20,94Ba25)
(59/2−) 1238 10513
(55/2−) 1159 9275
(51/2−) 1077 8116
(47/2−) 987 7039
(43/2−) 885 6052
(39/2−) 760 5167.2
(35/2−) 637 4407.2
(31/2−) 565 3770.2
(27/2−) 667 3205.2
(23/2−) 667 2538.2
(19/2−) 591 1871.2
(15/2−) 472 1280.0
(11/2−) 808.2
(7/2−) 139 492.32
(3/2−) 353.64
1/2[530]
(57/2−) 1182 10093
(53/2−) 1088 8911
(49/2−) 1006 7823
(45/2−) 6817
(37/2−) 775 5056
(33/2−) 730 4281
(29/2−) 702 3550.8
(25/2−) 663 2848.8
(21/2−) 587 2185.8
(17/2−) 482 1598.8
(13/2−) 358 1116.8
(9/2−) 235 758.8
(5/2−) 523.84
1/2[541]
(41/2+) 758 5968.6
(37/2+) 742 5210.6
(33/2+) 704 4468.6
(29/2+) 636 3764.6
(25/2+) 575 3128.6
(21/2+) 591 2553.6
(17/2+) 603 1962.5
(13/2+) 535 1359.6
(9/2+) 428 825.0
(5/2+) 270 397.93
(1/2)+ 127.97
α=-1/2 1/2[400]
2026.6
(39/2+) 790 5668
(35/2+) 754 4877.5
(31/2+) 705 4123.5
(27/2+) 654 3418.5
(23/2+) 605 2764.5
(19/2+) 619 2159.5
(15/2+) 577 1540.5
(11/2+) 963.3
(7/2+) 319 491.90
(3/2+) 173.06
α=1/2 1/2[400]

$^{133}_{60}$Nd