$^{131}_{58}$Ce

Δ: −79700 *400* **S_n:** (8300) **S_p:** (5300)
Q_{EC}: 4000 *400* **Q_α:** 700 *400*

Nuclear Bands

- *A* $\nu h_{11/2}$
- *B* $\nu g_{7/2}$
- *C* $\nu g_{7/2}\pi h_{11/2}{}^2$
- *D* $\nu h_{11/2}\pi h_{11/2}\pi g_{7/2}$
- *E* $\nu h_{11/2}\pi h_{11/2}{}^2$
- *F* SD-1 band (96Se04,88Lu01)(87Be32,93Pa02)
- *G* SD-2 band (96Se03)

Levels and γ-ray branchings:

B **0**, (7/2$^+$), 10.2 *3* m, %EC+%β^+=100
0+x, (1/2$^+$), 5.0 *10* m, %EC+%β^+=100
72.82+x *4*, (3/2$^+$) γ_{0+x} ***72.82*** *6* ($\dagger_\gamma$100)
A **162.00** *9*, (9/2$^-$), 70 *5* ns γ_0 ***161.9*** *1* ($\dagger_\gamma$100) (E1)
B **257.31** *19*, (9/2$^+$) γ_0 ***257.2*** *2* ($\dagger_\gamma$100) (M1,E2)
266.16+x *5* γ_{73+x} ***193.36*** *6* ($\dagger_\gamma$5.6 *5*) γ_{0+x} ***266.13*** *7* ($\dagger_\gamma$100)
279.54+x *5* γ_{73+x} ***206.72*** *6* ($\dagger_\gamma$56 *4*) γ_{0+x} ***279.55*** *7* ($\dagger_\gamma$100 *10*)
285.40+x *5* γ_{73+x} ***212.55*** *7* ($\dagger_\gamma$56 *4*) γ_{0+x} ***285.39*** *7* ($\dagger_\gamma$100 *10*)
A **300.24** *13*, (11/2$^-$) γ_{162} ***138.2*** *1* ($\dagger_\gamma$100) (M1,E2)
324.33+x *6* γ_{73+x} ***251.47*** *7* ($\dagger_\gamma$40.3 *26*) γ_{0+x} ***324.35*** *8* ($\dagger_\gamma$100 *9*)
364.81+x *6* γ_{285+x} ***79.36*** *10* ($\dagger_\gamma$14 *4*) γ_{73+x} ***292.04*** *7* ($\dagger_\gamma$100 *10*) γ_{0+x} ***364.7*** *2* ($\dagger_\gamma$74 *20*)
384.70 *11* γ_{162} ***222.63*** *10* ($\dagger_\gamma$100 *9*) γ_0 ***385.0*** *2* ($\dagger_\gamma$45 *14*)
407.82+x *9* γ_{280+x} ***128.2*** *2* ($\dagger_\gamma$5.3 *21*) γ_{73+x} ***334.95*** *10* ($\dagger_\gamma$100 *11*)
440.57 *10* γ_{162} ***278.53*** *16* ($\dagger_\gamma$18 *7*) γ_0 ***440.60*** *12* ($\dagger_\gamma$100 *10*)
B **542.70** *24*, (11/2$^+$) γ_{257} ***285.2*** *2* ($\dagger_\gamma$100 *20*) γ_0 ***543.5*** *5* ($\dagger_\gamma$91 *9*) (E2)
581.73+x *15* γ_{266+x} ***315.5*** *2* ($\dagger_\gamma$100 *11*) γ_{0+x} ***581.8*** *2* ($\dagger_\gamma$80 *18*)
585.02+x *11* γ_{280+x} ***305.42*** *10* ($\dagger_\gamma$100)
588.94 *15* γ_{162} ***426.94*** *12* ($\dagger_\gamma$100)
599.93 *22* γ_{300} ***299.6*** *3* ($\dagger_\gamma$95 *40*) γ_{162} ***438.0*** *5* ($\dagger_\gamma$≈100)
A **636.85** *25*, (13/2$^-$) γ_{300} ***336.4*** *3* ($\dagger_\gamma$100 *7*) (M1,E2) γ_{162} ***475.3*** *4* ($\dagger_\gamma$27 *4*) (E2)
785.26+x *8* γ_{408+x} ***377.25*** *17* ($\dagger_\gamma$21 *6*) γ_{365+x} ***420.45*** *15* ($\dagger_\gamma$100 *15*) γ_{73+x} ***712.46*** *12* ($\dagger_\gamma$51 *5*) γ_{0+x} ***785.4*** *2* ($\dagger_\gamma$37 *5*)
A **809.8** *3*, (15/2$^-$) γ_{637} ***173.0*** *2* ($\dagger_\gamma$14 *3*) (M1,E2) γ_{300} ***509.4*** *5* ($\dagger_\gamma$100 *17*)
865.59+x *12* γ_{585+x} ***280.42*** *16* ($\dagger_\gamma$100 *40*) γ_{280+x} ***586.15*** *13* ($\dagger_\gamma$72 *14*)
B **866.2** *4*, (13/2$^+$) γ_{543} ***323.4*** *3* ($\dagger_\gamma$18 *4*) (M1,E2) γ_{257} ***609.4*** *6* ($\dagger_\gamma$100 *18*) (E2)
884.17 *20* γ_{600} ***284.2*** *2* ($\dagger_\gamma$100 *40*) γ_{385} ***499.5*** *2* ($\dagger_\gamma$95 *20*)
947.42 *22* γ_{257} ***690.6*** ($\dagger_\gamma$100) γ_{162} ***785.4*** *2* ($\dagger_\gamma$550 *67*)
1054.63+x *8* γ_{408+x} ***646.5*** ($\dagger_\gamma$≈17) γ_{285+x} ***769.21*** *10* ($\dagger_\gamma$92 *8*) γ_{280+x} ***775.12*** *10* ($\dagger_\gamma$100 *8*)
1176.4 *5*, (15/2$^-$) γ_{810} ***367*** γ_{637} ***539.5*** *5* ($\dagger_\gamma$100) (M1,E2)
B **1212.0** *5*, (15/2$^+$) γ_{866} ***345.9*** *4* ($\dagger_\gamma$8 *3*) γ_{543} ***669.1*** *7* ($\dagger_\gamma$100 *8*) (E2)
1213.43+x *11* γ_{785+x} ***428.15*** *8* ($\dagger_\gamma$100 *14*) γ_{365+x} ***848.7*** *2* ($\dagger_\gamma$17 *4*)
A **1295.1** *4*, (17/2$^-$) γ_{810} ***485.5*** *4* ($\dagger_\gamma$84 *11*) (M1,E2) γ_{637} ***657.8*** *6* ($\dagger_\gamma$100 *17*) (E2)
1408.9 *11*
A **1451.7** *6*, (19/2$^-$) γ_{1295} ***156*** γ_{810} ***641.7*** *6* ($\dagger_\gamma$100) (E2)
B **1590.9** *6*, (17/2$^+$) γ_{1212} ***379*** γ_{866} ***724.8*** *7* ($\dagger_\gamma$100) (E2)
1695.7 *7*, (17/2$^-$) γ_{1176} ***519.3*** *5* ($\dagger_\gamma$100) (M1,E2)
1805.3 *7*, (19/2$^-$) γ_{1295} ***510*** (?) γ_{1176} ***629*** γ_{810} ***996***
B **1976.3** *7*, (19/2$^+$) γ_{1591} ***385*** (?) γ_{1212} ***764.3*** *7* ($\dagger_\gamma$100) (E2)
1994.26+x *15* γ_{1055+x} ***940.2*** ($\dagger_\gamma$≈23) γ_{324+x} ***1669.7*** *2* ($\dagger_\gamma$71 *10*) γ_{73+x} ***1921.8*** *3* ($\dagger_\gamma$100 *16*) γ_{0+x} ***1994.3*** *3* ($\dagger_\gamma$71 *16*)
A **2067.3** *7*, (21/2$^-$) γ_{1452} ***615*** γ_{1295} ***773***
A **2202.0** *8*, (23/2$^-$) γ_{2067} ***135*** γ_{1452} ***749.9*** *7* ($\dagger_\gamma$100) (E2)
2286.7 *11* γ_{1409} ***878***
2313.3 *10* (?), (19/2$^-$) γ_{1696} ***617.5*** *6* (?) ($\dagger_\gamma$100) (M1,E2)
D **2352.1** *8*, (19/2$^+$) γ_{1409} ***943*** γ_{1212} ***1140***
B **2386.8** *8*, (21/2$^+$) γ_{1976} ***411*** γ_{1591} ***795.6*** *8* ($\dagger_\gamma$100) (E2)
D **2505.4** *8*, (21/2$^+$) γ_{2352} ***153*** γ_{2287} ***219*** γ_{1976} ***529*** γ_{1591} ***915***
2563.7 *8*, (23/2$^-$) γ_{2067} ***496*** γ_{1805} ***759*** γ_{1452} ***1112***
D **2685.2** *8*, (23/2$^+$) γ_{2505} ***180*** γ_{2387} ***298*** γ_{2352} ***333*** γ_{1976} ***709***
C **2761.3** *9*, (23/2$^+$) γ_{2387} ***375*** γ_{1976} ***784.6*** *7* ($\dagger_\gamma$100) (E2)
D **2909.3** *10*, (25/2$^+$) γ_{2685} ***224*** γ_{2505} ***404***
A **2912.3** *9*, (25/2$^-$) γ_{2202} ***710*** γ_{2067} ***845***

A **3028.7** *10*, (27/2$^-$) γ_{2202}***826.6*** *8* (†$_\gamma$100) (E2)

C **3035.6** *10*, (25/2$^+$) γ_{2761}***274*** γ_{2387}***649***

E **3069.3** *11*, (25/2$^-$) γ_{2912}***157***

D **3198.3** *11*, (27/2$^+$) γ_{2909}***289*** γ_{2685}***513***

C **3272.1** *11*, (27/2$^+$) γ_{3036}***236*** γ_{2761}***511***

E **3287.4** *9*, (27/2$^-$) γ_{3069}***218*** γ_{3029}***258*** (?) γ_{2912}***375*** γ_{2564}***724*** γ_{2202}***1086*** (?)

D **3522.3** *12*, (29/2$^+$) γ_{3198}***324*** γ_{2909}***613***

C **3539.3** *12*, (29/2$^+$) γ_{3272}***267*** γ_{3036}***504***

E **3543.9** *11*, (29/2$^-$) γ_{3287}***257*** γ_{3069}***475*** (?) γ_{3029}***515***

E **3817.7** *11*, (31/2$^-$) γ_{3544}***274*** γ_{3287}***530*** γ_{3029}***789***

C **3840.2** *13*, (31/2$^+$) γ_{3539}***301*** γ_{3272}***568***

D **3893.3** *13*, (31/2$^+$) γ_{3522}***371*** γ_{3198}***695***

A **3920.7** *14*, (31/2$^-$) γ_{3029}***892***

E **4152.8** *12*, (33/2$^-$) γ_{3818}***335*** γ_{3544}***609***

C **4177.4** *14*, (33/2$^+$) γ_{3840}***337*** γ_{3539}***638***

D **4313.3** *13*, (33/2$^+$) γ_{3893}***420*** γ_{3522}***791***

E **4510.7** *13*, (35/2$^-$) γ_{4153}***358*** γ_{3818}***693***

C **4549.0** *14*, (35/2$^+$) γ_{4177}***371*** γ_{3840}***709***

D **4745.3** *14*, (35/2$^+$) γ_{4313}***432*** γ_{3893}***852***

A **4842.7** *17*, (35/2$^-$) γ_{3921}***922***

E **4908.9** *13*, (37/2$^-$) γ_{4511}***398*** γ_{4153}***756***

C **4954.9** *15*, (37/2$^+$) γ_{4549}***405*** γ_{4177}***778***

D **5244.3** *17*, (37/2$^+$) γ_{4313}***931***

E **5341.4** *14*, (39/2$^-$) γ_{4909}***432*** γ_{4511}***831***

C **5389.5** *16*, (39/2$^+$) γ_{4955}***434*** γ_{4549}***841***

D **5714.3** *18*, (39/2$^+$) γ_{4745}***969***

E **5796.6** *15*, (41/2$^-$) γ_{5341}***455*** γ_{4909}***888***

A **5804.7** *20*, (39/2$^-$) γ_{4843}***962***

C **5859.7** *17*, (41/2$^+$) γ_{5390}***470*** γ_{4955}***905***

E **6292.5** *16*, (43/2$^-$) γ_{5797}***496*** γ_{5341}***951***

C **6351.6** *19*, (43/2$^+$) γ_{5860}***491*** (?) γ_{5390}***962***

D **6742.3** *20*, (43/2$^+$) γ_{5714}***1028***

E **6808.6** *18*, (45/2$^-$) γ_{6293}***515*** (?) γ_{5797}***1012***

C **6879.7** *19*, (45/2$^+$) γ_{6352}***529*** (?) γ_{5860}***1020***

E **7354.5** *19*, (47/2$^-$) γ_{6809}***547*** (?) γ_{6293}***1062***

C **7421.6** *21*, (47/2$^+$) γ_{6352}***1070***

D **7801.3** *23*, (47/2$^+$) γ_{6742}***1059***

E **7931.6** *21*, (49/2$^-$) γ_{6809}***1123***

C **8008.7** *22*, (49/2$^+$) γ_{6880}***1129***

C **8576.4** *23* (?), (51/2$^+$) γ_{7422}***1155*** (?)

F **y**, J≈(29/2)

F **590.73+y** *5*, J+2 γ_{y}***590.73*** *5* (†$_\gamma$0.5 *1*) *$I^{(1)}$=52.7, $I^{(2)}$=56.1, $\hbar\omega$=0.313*

F **1252.72+y** *7*, J+4 γ_{591+y}***661.99*** *5* (†$_\gamma$1.0 *1*) *$I^{(1)}$=53.1, $I^{(2)}$=56.7, $\hbar\omega$=0.349*

F **1985.24+y** *9*, J+6 γ_{1253+y}***732.52*** *5* (†$_\gamma$1.1 *1*) *$I^{(1)}$=53.4, $I^{(2)}$=55.7, $\hbar\omega$=0.384*

F **2789.51+y** *10*, J+8 γ_{1985+y}***804.27*** *5* (†$_\gamma$0.9 *1*) *$I^{(1)}$=53.6, $I^{(2)}$=57.4, $\hbar\omega$=0.420*

F **3663.46+y** *11*, J+10 γ_{2790+y}***873.95*** *5* (†$_\gamma$1.0 *1*) *$I^{(1)}$=53.9, $I^{(2)}$=58.0, $\hbar\omega$=0.454*

F **4606.39+y** *12*, J+12 γ_{3663+y}***942.93*** *5* (†$_\gamma$1.1 *1*) *$I^{(1)}$=54.2, $I^{(2)}$=58.5, $\hbar\omega$=0.489*

F **5617.72+y** *13*, J+14 γ_{4606+y}***1011.33*** *5* (†$_\gamma$1.0 *1*) *$I^{(1)}$=54.5, $I^{(2)}$=57.8, $\hbar\omega$=0.523*

F **6698.20+y** *15*, J+16 γ_{5618+y}***1080.48*** *6* (†$_\gamma$0.8 *1*) *$I^{(1)}$=54.7, $I^{(2)}$=56.5, $\hbar\omega$=0.558*

F **7849.48+y** *16*, J+18 γ_{6698+y}***1151.28*** *6* (†$_\gamma$0.6 *1*) *$I^{(1)}$=54.7, $I^{(2)}$=54.3, $\hbar\omega$=0.594*

F **9074.48+y** *17*, J+20 γ_{7849+y}***1225.00*** *6* (†$_\gamma$0.5 *1*) *$I^{(1)}$=54.6, $I^{(2)}$=52.4, $\hbar\omega$=0.632*

F **10375.86+y** *18*, J+22 γ_{9074+y}***1301.38*** *6* (†$_\gamma$0.5 *1*) *$I^{(1)}$=54.4, $I^{(2)}$=50.2, $\hbar\omega$=0.671*

F **11756.97+y** *20*, J+24 $\gamma_{10376+y}$***1381.11*** *8* (†$_\gamma$0.3 *1*) *$I^{(1)}$=54.1, $I^{(2)}$=48.2, $\hbar\omega$=0.711*

F **13221.03+y** *21*, J+26 $\gamma_{11757+y}$***1464.06*** *8* (†$_\gamma$0.4 *1*) *$I^{(1)}$=53.8, $I^{(2)}$=46.6, $\hbar\omega$=0.753*

F **14770.92+y** *23*, J+28 $\gamma_{13221+y}$***1549.89*** *10* *$I^{(1)}$=53.3, $I^{(2)}$=44.3, $\hbar\omega$=0.798*

F **16411.2+y** *3*, J+30 $\gamma_{14771+y}$***1640.26*** *12* *$I^{(1)}$=52.8, $I^{(2)}$=43.8, $\hbar\omega$=0.843*

F **18142.7+y** *3*, J+32 $\gamma_{16411+y}$***1731.50*** *15* *$I^{(1)}$=52.3, $I^{(2)}$=44.2, $\hbar\omega$=0.888*

F **19964.7+y** *4*, J+34 $\gamma_{18143+y}$***1822.0*** *3*

G **z**, J≈(47/2)

G **846.80+z**, J+2 γ_{z}***846.80*** *10* (†$_\gamma$1.00 *10*) *$I^{(1)}$=58.1, $I^{(2)}$=65.3, $\hbar\omega$=0.439*

G **1754.87+z**, J+4 γ_{847+z}***908.07*** *10* (†$_\gamma$1.00 *10*) *$I^{(1)}$=58.4, $I^{(2)}$=59.3, $\hbar\omega$=0.471*

G **2730.39+z**, J+6 γ_{1755+z}***975.52*** *10* (†$_\gamma$1.02 *10*) *$I^{(1)}$=58.5, $I^{(2)}$=59.2, $\hbar\omega$=0.505*

G **3773.52+z**, J+8 γ_{2730+z}***1043.13*** *10* (†$_\gamma$1.15 *10*) *$I^{(1)}$=58.5, $I^{(2)}$=57.9, $\hbar\omega$=0.539*

G **4885.76+z**, J+10 γ_{3774+z}***1112.24*** *11* (†$_\gamma$1.20 *10*) *$I^{(1)}$=58.4, $I^{(2)}$=57.9, $\hbar\omega$=0.573*

G **6067.04+z**, J+12 γ_{4886+z}***1181.28*** *12* (†$_\gamma$1.10 *10*) *$I^{(1)}$=58.4, $I^{(2)}$=57.6, $\hbar\omega$=0.608*

G **7317.75+z**, J+14 γ_{6067+z}***1250.71*** *12*

($\dagger_{\gamma}$1.15 *10*) $I^{(1)}$*=58.3,* $I^{(2)}$*=56.1,*
$\hbar\omega$*=0.643*

G **8639.79+z**, J+16 $\gamma_{\mathbf{7318+z}}$***1322.04*** *12*
($\dagger_{\gamma}$0.97 *15*) $I^{(1)}$*=58.1,* $I^{(2)}$*=53.9,*
$\hbar\omega$*=0.680*

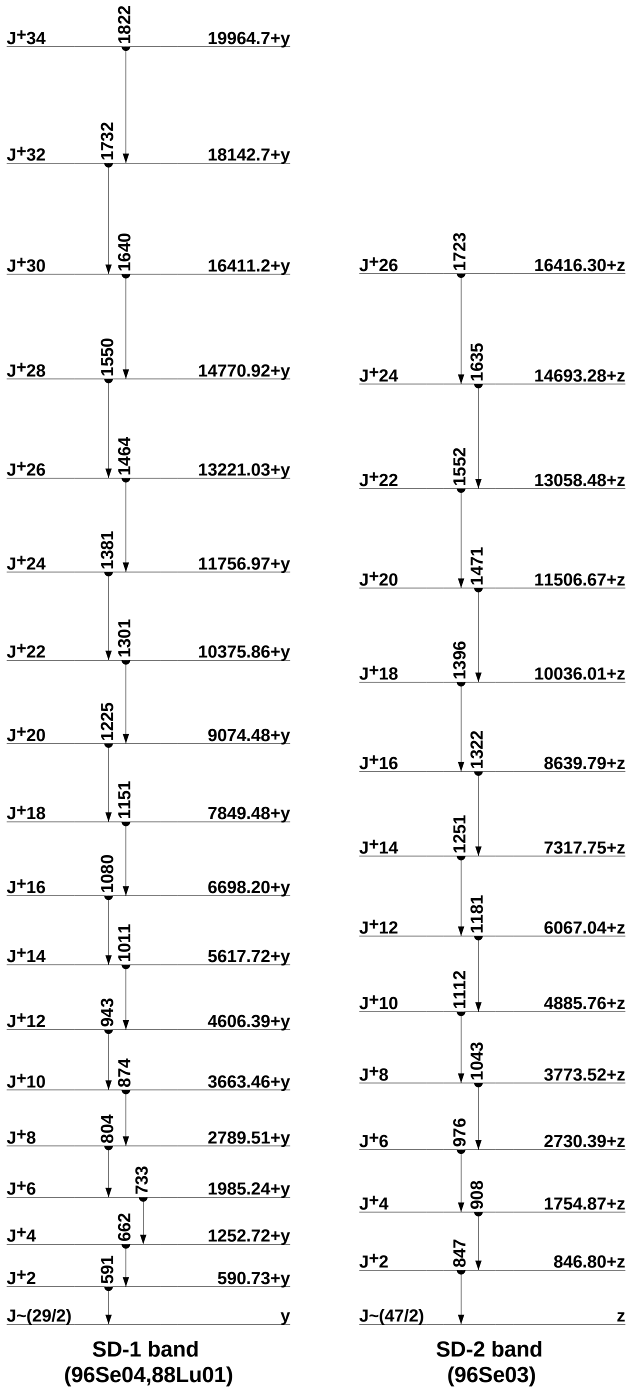
G **10036.01+z**, J+18 $\gamma_{\mathbf{8640+z}}$***1396.22*** *15*
($\dagger_{\gamma}$0.95 *15*) $I^{(1)}$*=57.9,* $I^{(2)}$*=53.7,*
$\hbar\omega$*=0.717*

G **11506.67+z**, J+20 $\gamma_{\mathbf{10036+z}}$***1470.66*** *15*
($\dagger_{\gamma}$0.70 *15*) $I^{(1)}$*=57.6,* $I^{(2)}$*=49.3,*
$\hbar\omega$*=0.756*

G **13058.48+z**, J+22 $\gamma_{\mathbf{11507+z}}$***1551.81*** *19*
($\dagger_{\gamma}$0.55 *15*) $I^{(1)}$*=57.1,* $I^{(2)}$*=48.2,*
$\hbar\omega$*=0.797*

G **14693.28+z**, J+24 $\gamma_{\mathbf{13058+z}}$***1634.80*** *20*
($\dagger_{\gamma}$0.50 *15*) $I^{(1)}$*=56.6,* $I^{(2)}$*=45.3,*
$\hbar\omega$*=0.839*

G **16416.30+z**, J+26 $\gamma_{\mathbf{14693+z}}$***1723.02*** *25*


J+34 1822 19964.7+y
J+32 1732 18142.7+y
J+30 1640 16411.2+y
J+28 1550 14770.92+y
J+26 1464 13221.03+y
J+24 1381 11756.97+y
J+22 1301 10375.86+y
J+20 1225 9074.48+y
J+18 1151 7849.48+y
J+16 1080 6698.20+y
J+14 1011 5617.72+y
J+12 943 4606.39+y
J+10 874 3663.46+y
J+8 804 2789.51+y
J+6 733 1985.24+y
J+4 662 1252.72+y
J+2 591 590.73+y
J~(29/2) y
J+26 1723 16416.30+z
J+24 1635 14693.28+z
J+22 1552 13058.48+z
J+20 1471 11506.67+z
J+18 1396 10036.01+z
J+16 1322 8639.79+z
J+14 1251 7317.75+z
J+12 1181 6067.04+z
J+10 1112 4885.76+z
J+8 1043 3773.52+z
J+6 976 2730.39+z
J+4 908 1754.87+z
J+2 847 846.80+z
J~(47/2) z
SD-1 band
(96Se04,88Lu01)
(87Be32,93Pa02)
SD-2 band
(96Se03)

$^{131}_{58}$Ce