$^{194}_{81}$Tl

Δ: (–26960) **S_n:** (7600) **S_p:** (3180)
Q_{EC}: (5280) **Q_α:** (3490)

Nuclear Bands

A $\pi h_{9/2}\nu i_{13/2}$
B SD-1 band (91Az03)
C SD-2 band (91Az03)
D SD-3 band (91Az03)
E SD-4 band (91Az03)
F SD-5 band (91Az03)
G SD-6 band (91Az03)

Levels and γ-ray branchings:

0, 2^-, 33.0 *5* m, %EC+%β^+=100, %α<1×10^{-7}, μ=0.140 *3*, Q=–0.282 *7*

192.14 *4*, $(0)^-$ γ_0***192.02*** *5* ($\dagger_\gamma$100) E2

203.82 *3*, 1^- γ_0***203.80*** *6* ($\dagger_\gamma$100) M1(+E2): δ<0.3

225.01 *4*, $(2)^-$ γ_0***225.00*** *8* ($\dagger_\gamma$100) M1(+E2): δ<0.3

270.50 *3*, $(3)^-$ γ_{225}***45.5*** *10* ($\dagger_\gamma$≈1.4) γ_{204}***66.7*** *10* ($\dagger_\gamma$≈0.9) γ_0***270.52*** *4* ($\dagger_\gamma$100 *5*) M1(+E2): δ<0.25

367.76 *4*, 1^- γ_{225}***142.94*** *10* ($\dagger_\gamma$3.4 *4*) γ_{204}***163.90*** *10* ($\dagger_\gamma$5.14 *12*) M1+E2: δ≈1 γ_{192}***175.68*** *12* ($\dagger_\gamma$4.2 *2*) M1 γ_0***367.80*** *10* ($\dagger_\gamma$100 *8*) M1(+E2): δ<0.1

459.92 *4*, $(2)^-$ γ_{368}***92.2*** *2* ($\dagger_\gamma$2.3 *3*) γ_{271}***189.44*** *5* ($\dagger_\gamma$50 *7*) M1(+E2): δ<0.1 γ_{192}***267.92*** *10* (?) ($\dagger_\gamma$4.9 *2*) γ_0***460.05*** *10* ($\dagger_\gamma$100 *2*) M1+E2: δ=0.9 *2*

521.52 *3*, 1^- γ_{368}***153.8*** *2* ($\dagger_\gamma$6.0 *6*) (M1) γ_{225}***296.40*** *6* ($\dagger_\gamma$11.9 *3*) (M1) γ_{204}***317.70*** *5* ($\dagger_\gamma$14.2 *3*) M1(+E2): δ<0.5 γ_{192}***329.48*** *5* ($\dagger_\gamma$3.9 *4*) M1 γ_0***521.55*** *5* ($\dagger_\gamma$100 *2*) M1(+E2): δ<0.3

589.16 *4*, $(2)^-$ γ_{271}***318.69*** *5* ($\dagger_\gamma$100 *2*) M1(+E2): δ<0.4 γ_{204}***385.33*** *3* ($\dagger_\gamma$43 *4*) γ_0***589.1*** *2* ($\dagger_\gamma$59 *2*) M1(+E2): δ<0.3

752.94 *6*, (1^-) γ_{460}***292.98*** *6* (?) ($\dagger_\gamma$<56) γ_{225}***527.7*** *2* ($\dagger_\gamma$5.1 *8*) γ_{204}***549.0*** *1* ($\dagger_\gamma$53 *1*) (M1,E2) γ_0***752.8*** *2* ($\dagger_\gamma$100 *4*)

785.78 *5*, $(1)^-$ γ_{368}***417.92*** *6* ($\dagger_\gamma$12.1 *2*) M1(+E2): δ<0.3 γ_{225}***560.69*** *10* ($\dagger_\gamma$7.2 *15*) γ_{204}***581.82*** *10* ($\dagger_\gamma$100 *3*) M1(+E2): δ<0.4 γ_0***785.54*** *10* ($\dagger_\gamma$2.1 *12*)

833.28 *4*, $(1)^-$ γ_{522}***311.84*** *5* ($\dagger_\gamma$37 *3*) M1+E2: δ=1.0 *3* γ_{460}***373.39*** *4* ($\dagger_\gamma$43 *3*) M1(+E2): δ<0.5 γ_{368}***465.8*** *2* ($\dagger_\gamma$21 *2*) (M1) γ_{204}***629.9*** *3* ($\dagger_\gamma$100 *11*) (M1) γ_{192}***640.55*** *8* ($\dagger_\gamma$90 *13*) γ_0***833.4*** *3* ($\dagger_\gamma$24 *8*)

979.01 *11*, $(1^-,2^-)$ γ_{522}***457.5*** *2* ($\dagger_\gamma$59 *15*) γ_{368}***611.0*** *3* ($\dagger_\gamma$39 *4*) γ_{225}***754.4*** *2* ($\dagger_\gamma$100 *11*) γ_{204}***774.9*** *3* ($\dagger_\gamma$26 *1*) (M1) γ_{192}***786.7*** *1* (?) ($\dagger_\gamma$22 *11*)

998.43 *8*, 1^- γ_{753}***244.93*** *10* ($\dagger_\gamma$9.8 *6*) γ_{368}***630.8*** *3* ($\dagger_\gamma$≈10) γ_{225}***773.46*** *20* ($\dagger_\gamma$20.2 *6*) M1(+E2): δ<0.7 γ_{204}***794.85*** *7* ($\dagger_\gamma$54 *5*) (M1,E2) γ_0***998.47*** *10* ($\dagger_\gamma$100 *8*) M1(+E2): δ<0.7

1010.52 *5*, $(1)^-$ γ_{753}***257.95*** *10* ($\dagger_\gamma$23 *2*) γ_{522}***489.0*** *2* ($\dagger_\gamma$25 *1*) γ_{460}***550.6*** *3* ($\dagger_\gamma$18 *1*) γ_{368}***642.79*** *8* ($\dagger_\gamma$80 *9*) (M1) γ_{225}***785.54*** *10* ($\dagger_\gamma$29 *18*) γ_{204}***806.52*** *7* ($\dagger_\gamma$91 *3*) γ_{192}***818.0*** *2* ($\dagger_\gamma$77 *3*) M1 γ_0***1010.54*** *10* ($\dagger_\gamma$100 *5*)

1152.01 *7*, $(1)^-$ γ_{368}***784.2*** *4* ($\dagger_\gamma$25 *12*) γ_{225}***926.97*** *9* ($\dagger_\gamma$100 *21*) M1(+E2): δ<0.7 γ_0***1152.04*** *9* ($\dagger_\gamma$38 *1*)

1178.81 *8*, (1^-) γ_{786}***392.63*** *10* ($\dagger_\gamma$27 *4*) E2(+M1): δ>3 γ_{368}***811.49*** *10* ($\dagger_\gamma$72 *3*) (M1,E2) γ_0***1178.6*** *2* ($\dagger_\gamma$100 *4*)

1187.56 *7*, $(0,1)^-$ γ_{998}***189.0*** *4* ($\dagger_\gamma$≈5) γ_{522}***666.05*** *8* ($\dagger_\gamma$74 *1*) M1(+E2): δ<0.4 γ_{368}***819.50*** *20* ($\dagger_\gamma$100 *2*) γ_{225}***962.64*** *12* ($\dagger_\gamma$49 *1*) (E2)

1272.20 *8*, $(0^-,1^-,2^-)$ γ_{979}***292.98*** *6* (?) ($\dagger_\gamma$<210) γ_{833}***438.83*** *10* ($\dagger_\gamma$54 *3*) γ_{204}***1068.47*** *10* ($\dagger_\gamma$100 *9*) (M1)

1519.34 *6*, 1^+ γ_{979}***540.5*** *2* ($\dagger_\gamma$2.61 *8*) γ_{833}***685.93*** *10* ($\dagger_\gamma$3.80 *7*) γ_{460}***1059.38*** *10* ($\dagger_\gamma$23.6 *4*) E1 γ_{225}***1294.4*** *2* ($\dagger_\gamma$11.6 *4*) E1 γ_{204}***1315.6*** *2* ($\dagger_\gamma$3.4 *4*) γ_0***1519.45*** *13* ($\dagger_\gamma$100 *8*)

1553.10 *13*, (0,1) γ_{368}***1185.35*** *15* ($\dagger_\gamma$92 *5*) γ_{204}***1349.25*** *20* ($\dagger_\gamma$100 *4*)

1602.8 *2*, $(0^-,1,2^-)$ γ_0***1602.8*** *2* ($\dagger_\gamma$100)

1639.07 *7*, $(1)^-$ γ_{1011}***628.1*** *3* (?) ($\dagger_\gamma$21 *4*) γ_{786}***852.94*** *10* ($\dagger_\gamma$59 *2*) E2(+M1): δ>2 γ_{368}***1271.98*** *25* ($\dagger_\gamma$100 *2*) γ_{225}***1414.3*** *5* ($\dagger_\gamma$30 *6*) γ_0***1639.29*** *10* ($\dagger_\gamma$68 *2*)

1707.61 *9*, $(1)^-$ γ_{589}***1118.44*** *10* ($\dagger_\gamma$100 *13*) M1,E2 γ_{368}***1339.6*** *2* ($\dagger_\gamma$54 *18*) γ_{225}***1482.9*** *2* ($\dagger_\gamma$62 *5*) γ_{192}***1515*** *1* ($\dagger_\gamma$≈13)

1722.97 *17*, $(0^-,1)$ γ_{522}***1200.9*** *3* ($\dagger_\gamma$31 *4*) γ_0***1723.2*** *2* ($\dagger_\gamma$100 *20*)

1753.13 *15*, (0,1) γ_{522}***1231.5*** *2* ($\dagger_\gamma$53 *3*) γ_{204}***1549.4*** *2* ($\dagger_\gamma$100 *4*)

1810.46 *12*, (1) γ_{225}***1585.3*** *2* ($\dagger_\gamma$26 *1*) γ_{192}***1618.5*** *2* ($\dagger_\gamma$35 *1*) γ_0***1810.4*** *2* ($\dagger_\gamma$100 *2*)

1858.8 *10*, $(0,1,2^-)$ γ_{1639}***220.05*** *12* (?) ($\dagger_\gamma$160 *16*) γ_{204}***1655*** *1* ($\dagger_\gamma$100 *20*)

2192.7 *3*, (1,2⁻) γ_{1639}***553.3*** *2* (?)
(†$_\gamma$172 *10*) γ_{522}***1671*** *1* (†$_\gamma$42 *22*)
γ_{192}***2000.6*** *3* (†$_\gamma$100 *7*)

2343.4 *5*, (0⁻,1) γ_0***2343.4*** *5* (†$_\gamma$100)

0+s, (7⁺), 32.8 *2* m, %EC+%β^+=100, μ=0.540 *5*, Q=0.607 *16*

292.8+s, (8⁻) γ_{0+s}***292.8*** *2* (†$_\gamma$100)

A **292.8+t**, (8⁻,9⁻,10⁻)

A **389.1+t**, (9⁻,10⁻,11⁻) γ_{293+t}***96.3*** *2* (†$_\gamma$100)

A **667.0+t**, (10⁻,11⁻,12⁻) γ_{389+t}***277.9*** *2* (†$_\gamma$100 *6*) γ_{293+t}***373.5*** (?) (†$_\gamma$8 *4*)

A **911.7+t**, (11⁻,12⁻,13⁻) γ_{667+t}***244.7*** *2* (†$_\gamma$100 *11*) γ_{389+t}***522.7*** *2* (†$_\gamma$54 *9*)

A **1314.9+t**, (12⁻,13⁻,14⁻) γ_{912+t}***403.2*** *2* (†$_\gamma$100 *10*) γ_{667+t}***648.5*** *2* (†$_\gamma$43 *7*)

A **1598.2+t**, (13⁻,14⁻,15⁻) γ_{1315+t}***283.3*** *2* (†$_\gamma$60 *7*) γ_{912+t}***686.7*** *2* (†$_\gamma$100 *10*)

A **2056.8+t**, (14⁻,15⁻,16⁻) γ_{1598+t}***458.6*** *2* (†$_\gamma$100 *11*) γ_{1315+t}***741.9*** *2* (†$_\gamma$46 *7*)

A **2346.2+t**, (15⁻,16⁻,17⁻) γ_{2057+t}***289.4*** *2* (†$_\gamma$100 *11*) γ_{1598+t}***748.6*** (?)

B **u**, J≈(12)

B **268.0+u**, J+2 γ_0***268.0*** *3* $I^{(2)}$*=102.6, ħω=0.144*

B **575.0+u**, J+4 γ_{268+u}***307.0*** *3* $I^{(2)}$*=105.0, ħω=0.163*

B **920.1+u**, J+6 γ_{575+u}***345.1*** *3* $I^{(2)}$*=102.3, ħω=0.182*

B **1304.3+u**, J+8 γ_{920+u}***384.2*** *3* $I^{(2)}$*=108.7, ħω=0.201*

B **1725.3+u**, J+10 γ_{1304+u}***421.0*** *3* $I^{(2)}$*=111.1, ħω=0.220*

B **2182.3+u**, J+12 γ_{1725+u}***457.0*** *5* $I^{(2)}$*=105.5, ħω=0.238*

B **2677.2+u**, J+14 γ_{2182+u}***494.9*** *5* $I^{(2)}$*=111.1, ħω=0.256*

B **3208.1+u**, J+16 γ_{2677+u}***530.9*** *5* $I^{(2)}$*=110.8, ħω=0.274*

B **3775.1+u**, J+18 γ_{3208+u}***567.0*** *5* $I^{(2)}$*=117.0, ħω=0.292*

B **4376.3+u**, J+20 γ_{3775+u}***601.2*** *10* $I^{(2)}$*=118.7, ħω=0.309*

B **5011.2+u**, J+22 γ_{4376+u}***634.9*** *10* $I^{(2)}$*=114.6, ħω=0.326*

B **5681.0+u**, J+24 γ_{5011+u}***669.8*** *10* $I^{(2)}$*=118.3, ħω=0.343*

B **6384.6+u**, J+26 γ_{5681+u}***703.6*** *10*

C **v**, J≈(9)

C **209.3+v**, J+2 γ_0***209.3*** *3* $I^{(2)}$*=102.3, ħω=0.114*

C **457.7+v**, J+4 γ_{209+v}***248.4*** *3* $I^{(2)}$*=102.3, ħω=0.134*

C **745.2+v**, J+6 γ_{458+v}***287.5*** *3* $I^{(2)}$*=103.9, ħω=0.153*

C **1071.2+v**, J+8 γ_{745+v}***326.0*** *3* $I^{(2)}$*=104.2, ħω=0.173*

C **1435.6+v**, J+10 γ_{1071+v}***364.4*** *3* $I^{(2)}$*=107.2, ħω=0.192*

C **1837.3+v**, J+12 γ_{1436+v}***401.7*** *5* $I^{(2)}$*=106.4, ħω=0.210*

C **2276.6+v**, J+14 γ_{1837+v}***439.3*** *5* $I^{(2)}$*=109.3, ħω=0.229*

C **2752.5+v**, J+16 γ_{2277+v}***475.9*** *5* $I^{(2)}$*=110.8, ħω=0.247*

C **3264.5+v**, J+18 γ_{2753+v}***512.0*** *5* $I^{(2)}$*=111.1, ħω=0.265*

C **3812.5+v**, J+20 γ_{3265+v}***548.0*** *5* $I^{(2)}$*=112.7, ħω=0.283*

C **4396.0+v**, J+22 γ_{3813+v}***583.5*** *10* $I^{(2)}$*=117.6, ħω=0.300*

C **5013.5+v**, J+24 γ_{4396+v}***617.5*** *10* $I^{(2)}$*=115.9, ħω=0.317*

C **5665.5+v**, J+26 γ_{5014+v}***652.0*** *10* $I^{(2)}$*=118.0, ħω=0.334*

C **6351.4+v**, J+28 γ_{5666+v}***685.9*** *10*

D **w**, J≈(10,11)

D **240.5+w**, J+2 γ_0***240.5*** *3* $I^{(2)}$*=101.3, ħω=0.130*

D **520.5+w**, J+4 γ_{241+w}***280.0*** *3* $I^{(2)}$*=103.1, ħω=0.150*

D **839.3+w**, J+6 γ_{521+w}***318.8*** *3* $I^{(2)}$*=101.8, ħω=0.169*

D **1197.4+w**, J+8 γ_{839+w}***358.1*** *3* $I^{(2)}$*=102.3, ħω=0.189*

D **1594.6+w**, J+10 γ_{1197+w}***397.2*** *3* $I^{(2)}$*=105.0, ħω=0.208*

D **2029.9+w**, J+12 γ_{1595+w}***435.3*** *3* $I^{(2)}$*=106.1, ħω=0.227*

D **2502.9+w**, J+14 γ_{2030+w}***473.0*** *3* $I^{(2)}$*=105.5, ħω=0.246*

D **3013.8+w**, J+16 γ_{2503+w}***510.9*** *5* $I^{(2)}$*=112.0, ħω=0.264*

D **3560.4+w**, J+18 γ_{3014+w}***546.6*** *5* $I^{(2)}$*=112.4, ħω=0.282*

D **4142.6+w**, J+20 γ_{3560+w}***582.2*** *5* $I^{(2)}$*=113.6, ħω=0.300*

D **4760.0+w**, J+22 γ_{4143+w}***617.4*** *5* $I^{(2)}$*=115.6, ħω=0.317*

D **5412.0+w**, J+24 γ_{4760+w}***652.0*** *10* $I^{(2)}$*=118.0, ħω=0.334*

D **6097.5+w**, J+26 γ_{5412+w}***685.5*** *10* $I^{(2)}$*=125.0, ħω=0.351*

D **6815.0+w** (?), J+28 γ_{6098+w}***717.5*** *10* (?)

E **x**, J≈(9,10)

E **220.3+x**, J+2 γ_x***220.3*** *3* $I^{(2)}$*=102.3, ħω=0.120*

E **479.7+x**, J+4 γ_{220+x} ***259.4*** *3* $I^{(2)}$*=99.3, ħω=0.140*

E **779.4+x**, J+6 γ_{480+x} ***299.7*** *3* $I^{(2)}$*=102.6, ħω=0.160*

E **1118.1+x**, J+8 γ_{779+x} ***338.7*** *3* $I^{(2)}$*=101.0, ħω=0.179*

E **1496.8+x**, J+10 γ_{1118+x} ***378.3*** *3* $I^{(2)}$*=107.5, ħω=0.198*

E **1912.3+x**, J+12 γ_{1497+x} ***415.5*** *3* $I^{(2)}$*=103.4, ħω=0.217*

E **2366.5+x**, J+14 γ_{1912+x} ***454.2*** *5* $I^{(2)}$*=107.2, ħω=0.236*

E **2858.0+x**, J+16 γ_{2367+x} ***491.5*** *5* $I^{(2)}$*=110.2, ħω=0.255*

E **3385.8+x**, J+18 γ_{2858+x} ***527.8*** *5* $I^{(2)}$*=110.5, ħω=0.273*

E **3949.8+x**, J+20 γ_{3386+x} ***564.0*** *5* $I^{(2)}$*=112.0, ħω=0.291*

E **4549.5+x** (?), J+22 γ_{3950+x} ***599.7*** *10* (?) $I^{(2)}$*=117.6, ħω=0.308*

E **5183.2+x** (?), J+24 γ_{4550+x} ***633.7*** *10* (?) $I^{(2)}$*=112.7, ħω=0.326*

E **5852.4+x** (?), J+26 γ_{5183+x} ***669.2*** *10* (?) $I^{(2)}$*=117.0, ħω=0.343*

E **6555.8+x** (?), J+28 γ_{5852+x} ***703.4*** *10* (?)

F **y**, J≈(8,9)

F **187.9+y**, J+2 γ_{y} ***187.9*** *3* $I^{(2)}$*=104.2, ħω=0.104*

F **414.2+y**, J+4 γ_{188+y} ***226.3*** *3* $I^{(2)}$*=106.1, ħω=0.123*

F **678.2+y**, J+6 γ_{414+y} ***264.0*** *3* $I^{(2)}$*=105.3, ħω=0.142*

F **980.2+y**, J+8 γ_{678+y} ***302.0*** *3* $I^{(2)}$*=107.5, ħω=0.160*

F **1319.4+y**, J+10 γ_{980+y} ***339.2*** *3* $I^{(2)}$*=107.0, ħω=0.179*

F **1696.0+y**, J+12 γ_{1319+y} ***376.6*** *3* $I^{(2)}$*=107.8, ħω=0.198*

F **2109.7+y**, J+14 γ_{1696+y} ***413.7*** *5* $I^{(2)}$*=110.2, ħω=0.216*

F **2559.7+y**, J+16 γ_{2110+y} ***450.0*** *5* $I^{(2)}$*=110.8, ħω=0.234*

F **3045.8+y**, J+18 γ_{2560+y} ***486.1*** *5* $I^{(2)}$*=112.0, ħω=0.252*

F **3567.6+y**, J+20 γ_{3046+y} ***521.8*** *5* $I^{(2)}$*=109.3, ħω=0.270*

F **4126.0+y**, J+22 γ_{3568+y} ***558.4*** *10* $I^{(2)}$*=113.3, ħω=0.288*

F **4719.7+y**, J+24 γ_{4126+y} ***593.7*** *10* $I^{(2)}$*=117.6, ħω=0.305*

F **5347.4+y** (?), J+26 γ_{4720+y} ***627.7*** *10* (?)

G **z**, J≈(9,10)

G **207.0+z**, J+2 γ_{z} ***207.0*** *3* $I^{(2)}$*=104.2, ħω=0.113*

G **452.4+z**, J+4 γ_{207+z} ***245.4*** *3* $I^{(2)}$*=104.4, ħω=0.132*

G **736.1+z**, J+6 γ_{452+z} ***283.7*** *3* $I^{(2)}$*=105.0, ħω=0.151*

G **1057.9+z**, J+8 γ_{736+z} ***321.8*** *3* $I^{(2)}$*=109.9, ħω=0.170*

G **1416.1+z**, J+10 γ_{1058+z} ***358.2*** *3* $I^{(2)}$*=105.3, ħω=0.189*

G **1812.3+z**, J+12 γ_{1416+z} ***396.2*** *3* $I^{(2)}$*=110.2, ħω=0.207*

G **2244.8+z**, J+14 γ_{1812+z} ***432.5*** *5* $I^{(2)}$*=106.4, ħω=0.226*

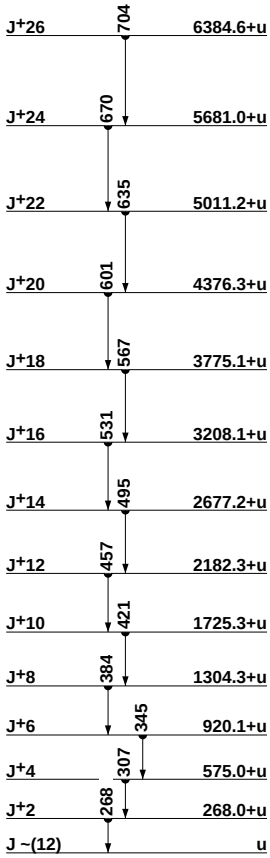
G **2714.9+z**, J+16 γ_{2245+z} ***470.1*** *5* $I^{(2)}$*=110.8, ħω=0.244*

G **3221.1+z**, J+18 γ_{2715+z} ***506.2*** *5* $I^{(2)}$*=106.7, ħω=0.262*

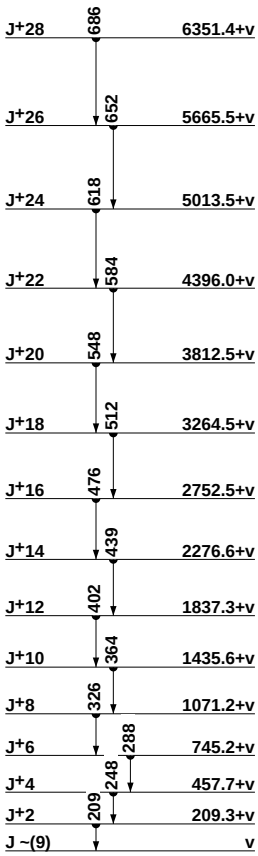
G **3764.8+z**, J+20 γ_{3221+z} ***543.7*** *5* $I^{(2)}$*=113.0, ħω=0.281*

G **4343.9+z**, J+22 γ_{3765+z} ***579.1*** *10* $I^{(2)}$*=118.0, ħω=0.298*

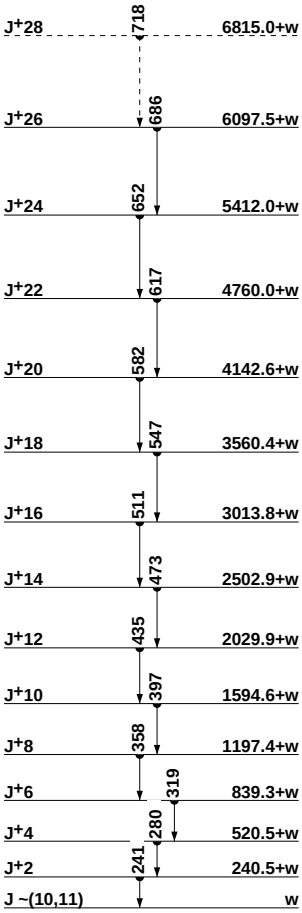
G **4956.9+z**, J+24 γ_{4344+z} ***613.0*** *10*



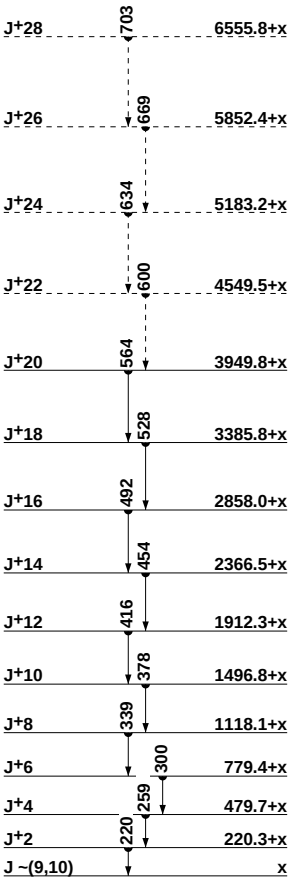
SD-1 band
(91Az03)



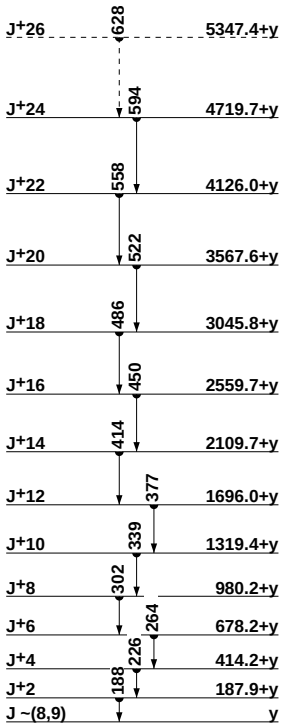
SD-2 band
(91Az03)



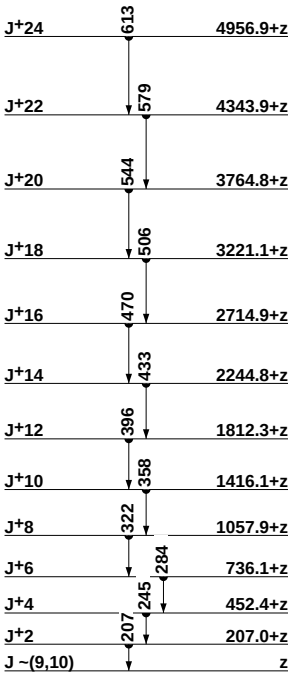
SD-3 band
(91Az03)



SD-4 band
(91Az03)



SD-5 band
(91Az03)



SD-6 band
(91Az03)

$^{194}_{81}$Tl