

145Sm

Δ : -80662.3 S_n : 6757.13 S_p : 6525.325

Q_{EC} : 616.424 Q_α : 1116.4

σ_γ : ≈220 b

Nuclear Bands

A SD-1 band (97HaAA)

B SD-2 band (97HaAA)

Levels and γ -ray branchings:

0, 7/2⁻, 340.3 d, %EC=100, μ =-1.116,
 Q =-0.5917

893.792 18, 3/2⁻, 36.12 ps γ_0 **893.733**
(\dagger_{γ} 100) E2

1105.02 18, 13/2⁺, 15.2 ns γ_0 **1105.02**
(\dagger_{γ} 100) E3

1423.233 3, 9/2⁻ γ_0 **1423.195** (\dagger_{γ} 100)
M1(+E2): δ =+0.48 $_{-3}^{+6}$

1436.372 25, 1/2⁺ γ_{894} **542.573** (\dagger_{γ} 100)
E1

1538.04 16, 11/2⁻ γ_{1105} **433.03** (\dagger_{γ} 22.9)
 γ_0 **1538.02** (\dagger_{γ} 100.13) Q

1547.310 23, 3/2⁺ γ_{1436} **110.943** 24
(\dagger_{γ} 12.87) M1+E2: δ =-1.986
 γ_{894} **653.512** 25 (\dagger_{γ} 100.5) E1
 γ_0 **1547.308** (\dagger_{γ} 0.363)
M2+E3: δ =+0.62 $_{-10}^{+12}$

1607.283 3, 1/2⁻ γ_{894} **713.485** (\dagger_{γ} 100)
M1

1627.754 4, 3/2⁺ γ_{1547} **80.46** 10 (\dagger_{γ} 2.42)
 γ_{1436} **191.383** (\dagger_{γ} 100.5)
M1+E2: δ =+0.08416

1658.568 21, 5/2⁻ γ_{894} **764.744**
(\dagger_{γ} 11.36) M1+E2: δ =+0.167
 γ_0 **1658.535** (\dagger_{γ} 100.5)
M1+E2: δ =-2.076

1706.13 19, 9/2⁻ γ_{1538} **168.03** (\dagger_{γ} 54.12)
M1+E2 γ_{1423} **283.13** (\dagger_{γ} 27.4)

γ_0 **1706.03** (\dagger_{γ} 100.23) M1+E2

1729.2 10, 1/2⁺ γ_{894} **835.4** (\dagger_{γ} 100)

1774.0 4, (15/2⁺) γ_{1105} **669.03** (\dagger_{γ} 100)
D+Q

1774.1 3, (9/2⁻) γ_0 **1774.03** (\dagger_{γ} 100)

1780.32 9, 9/2⁻ γ_0 **1780.27** 10 (\dagger_{γ} 100)

1804.25 4, 5/2⁺ γ_{1628} **176.629** (\dagger_{γ} 0.746)
 γ_{1547} **256.897** (\dagger_{γ} 2.0319) M1

γ_{894} **910.47** 11 (\dagger_{γ} 6.44) E1
 γ_0 **1804.265** (\dagger_{γ} 100.5) E1

1848.1 3, 9/2⁺ γ_0 **1848.13** (\dagger_{γ} 100)

1857.66 4, 7/2⁺ γ_{1659} **199.143** (\dagger_{γ} 7.68)
 γ_{1423} **434.434** (\dagger_{γ} 43.424) E1
 γ_0 **1857.665** (\dagger_{γ} 100.5) E1

1876.64 4, 7/2⁻ γ_{1659} **218.119**
(\dagger_{γ} 0.6910) γ_{1423} **453.426** (\dagger_{γ} 2.6620)
M1(+E2): δ =+0.0312 γ_{894} **982.62** 16
(\dagger_{γ} 0.155) γ_0 **1876.676** (\dagger_{γ} 100.5)
M1+E2: δ =-1.29 $_{-7}^{+6}$

1972.725 21, 3/2⁻ γ_{1659} **314.133**
(\dagger_{γ} 10.46) M1(+E2): δ =+0.04 $_{-29}^{+27}$
 γ_{1628} **344.92** 10 (\dagger_{γ} 2.13)
 γ_{1607} **365.515** (\dagger_{γ} 11.58)
M1+E2: δ =-2.2 $_{-13}^{+7}$ γ_{1547} **425.487**
(\dagger_{γ} 4.23) E1 γ_{1436} **536.15** 10 (\dagger_{γ} 6.014)
 γ_{894} **1078.913** (\dagger_{γ} 100.5)
M1+E2: δ =+0.041 γ_0 **1972.774**
(\dagger_{γ} 22.214) E2

1996.96 3, 5/2⁻ γ_{1877} **120.448** (\dagger_{γ} 0.249)
 γ_{1659} **338.373** (\dagger_{γ} 0.755)
M1+E2: δ =+1.9 $_{-8}^{+4}$ γ_{1423} **573.55** 12
(\dagger_{γ} 0.092) γ_{894} **1103.12** 25 (\dagger_{γ} 0.081)
 γ_0 **1997.004** (\dagger_{γ} 100.6)
M1+E2: δ =+0.24111

2049.96 25, 15/2⁻, ≈3 ns γ_{1105} **944.92**
(\dagger_{γ} 100) E1

2110.60 5, 5/2⁻, 7/2⁻, 9/2⁻ γ_0 **2110.585**
(\dagger_{γ} 100) M1

2113.1 8, 11/2⁽⁺⁾ γ_{1538} **575** γ_{1423} **690**

2133.43 3, 3/2⁻ γ_{1973} **160.706** (\dagger_{γ} 7.26)
 γ_{1659} **474.89** 10 (\dagger_{γ} 11.315)

γ_{1607} **526.104** (\dagger_{γ} 43.927)
M1+E2: δ =+0.31 $_{-9}^{+10}$ γ_{1547} **586.069**
(\dagger_{γ} 9.315) γ_{894} **1239.606** (\dagger_{γ} 54.930)
M1+E2: δ =-0.61 $_{-9}^{+7}$ γ_0 **2133.425**
(\dagger_{γ} 100.12) E2

2155.50 5, (5/2⁻, 7/2⁻) γ_{1659} **497.34**
(\dagger_{γ} 3.36) γ_{894} **1261.92** (\dagger_{γ} 3.36)
 γ_0 **2155.465** (\dagger_{γ} 100.5) M1

2160.3 5, 1/2⁻

2192.98 5, 5/2⁻, 7/2⁻, 9/2⁻ γ_0 **2192.965**
(\dagger_{γ} 100) M1

2230.0 3, 17/2⁻ γ_{2050} **180.02** (\dagger_{γ} 100) M1

2276.55 4, 5/2⁺ γ_{1547} **729.09** 14 (\dagger_{γ} 26.3)
 γ_0 **2276.544** (\dagger_{γ} 100.6)
E1(+M2): δ =+0.06730

2292.82 13, 9/2⁺ γ_0 **2292.80** 13 (\dagger_{γ} 100)

2329.30 9, 5/2⁻, 7/2⁻, 3/2⁻ γ_0 **2329.289**
(\dagger_{γ} 100) E2,(M1)

2340.63 8 γ_{2111} **230.0120** (\dagger_{γ} 16.3)
 γ_{1780} **560.24** 13 (\dagger_{γ} 19.3) γ_0 **2340.649**
(\dagger_{γ} 100.9)

2346.39 4, 5/2⁻ γ_{2133} **212.946** (\dagger_{γ} 10.77)
E2 γ_{1997} **349.435** (\dagger_{γ} 14.110) M1

γ_{1973} **373.684** (\dagger_{γ} 31.817)
M1(+E2): δ =-0.19 $_{-8}^{+21}$ γ_{1877} **469.66** 10
(\dagger_{γ} 13.5) M1,(E2) γ_{1659} **687.836**
(\dagger_{γ} 15.113) γ_{1423} **923.15** 19 (\dagger_{γ} 3.07)
 γ_{894} **1452.605** (\dagger_{γ} 35.823) (M1)
 γ_0 **2346.42** 10 (\dagger_{γ} 100.5)
M1(+E2): δ =+0.81 $_{-10}^{+18}$

2385.90 4, 3/2⁺ γ_{1804} **581.60** 12

- $(\dagger_{\gamma}18.5\ 19)$ γ_{1659} **727.34**₁₀ $(\dagger_{\gamma}46\ 10)$
 γ_{1628} **758.13**₆ $(\dagger_{\gamma}44\ 4)$ E2,M1
 γ_{1607} **778.60**₇ $(\dagger_{\gamma}34\ 3)$ γ_{1547} **838.61**₄
 $(\dagger_{\gamma}100\ 6)$ M1 γ_{1436} **949.53**₅ $(\dagger_{\gamma}72\ 4)$
M1
2387.61₇ γ_{1423} **965.13**₃ $(\dagger_{\gamma}14.6\ 24)$
 γ_0 **2387.55**₇ $(\dagger_{\gamma}100\ 7)$ (M1)
2425.96₃, 5/2⁻ γ_{2156} **270.48**₃₀ $(\dagger_{\gamma}0.8\ 2)$
(E2) γ_{2133} **292.47**₄ $(\dagger_{\gamma}7.3\ 6)$ (M1)
 γ_{1997} **429.25**₁₅ $(\dagger_{\gamma}1.9\ 4)$
 γ_{1877} **549.34**₁₂ $(\dagger_{\gamma}4.8\ 10)$
 γ_{1804} **621.79**₈ $(\dagger_{\gamma}1.5\ 2)$
 γ_{1423} **1002.77**₁₀ $(\dagger_{\gamma}3.1\ 6)$
 γ_{894} **1532.14**₇ $(\dagger_{\gamma}100\ 5)$ M1
 γ_0 **2425.96**₆ $(\dagger_{\gamma}39.6\ 21)$ M1
2438.0₃, 17/2⁺ γ_{1105} **1333.0**₂ $(\dagger_{\gamma}100)$
E2
2482.15₆ γ_{1423} **1058.75**₁₂ $(\dagger_{\gamma}33\ 4)$
 γ_{894} **1588.42**₂₀ $(\dagger_{\gamma}31\ 6)$ γ_0 **2482.17**₆
 $(\dagger_{\gamma}100\ 5)$
2508.31₇, 5/2⁻, 7/2⁻ γ_{894} **1614.67**₁₅
 $(\dagger_{\gamma}30\ 9)$ (D,E2) γ_0 **2508.24**₈ $(\dagger_{\gamma}100\ 7)$
M1+E2
2512.97₉, - γ_0 **2512.95**₉ $(\dagger_{\gamma}100)$ E2,M1
2559.4₄ γ_0 **2559.4**₄ $(\dagger_{\gamma}100)$
2629₁₅
2670.0₁₁, 11/2⁺, 13/2⁺ γ_{1105} **1565**
 $(\dagger_{\gamma}100)$
2678.3₅, 1/2⁻, 3/2⁻
2710.4₃, 19/2⁻ γ_{2230} **480.4**₂ $(\dagger_{\gamma}100)$ M1
2724₁₆
2750₁₈ γ_{2386} **346.9**₃(?) $(\dagger_{\gamma}10\ 4)$
 γ_{2193} **555.0**₃(?) $(\dagger_{\gamma}10\ 4)$
2797₁₂
2824₁₄
2842₁₉
- 2926**₁₃
2931.2₃, 21/2⁺ γ_{2710} **221.0**₂ $(\dagger_{\gamma}20\ 2)$ E1
 γ_{2438} **493.6**₂ $(\dagger_{\gamma}100\ 7)$ E2
2960₁₆
2964.3₅, 19/2^(*) γ_{2230} **734.3**₄ $(\dagger_{\gamma}100)$ D
2978.7₃, 21/2⁺ γ_{2710} **268.0**₂ $(\dagger_{\gamma}100\ 8)$
E1 γ_{2438} **540.0**₃ $(\dagger_{\gamma}7\ 3)$
3018₁₃
3096₁₀
3119.6₄, 23/2⁺ γ_{2979} **140.2**₂ $(\dagger_{\gamma}75\ 6)$ D
 γ_{2931} **189.0**₂ $(\dagger_{\gamma}100\ 8)$ M1
3140.1₅, 3/2⁻
3183₁₅
3246₂₀
3275₂₀
3302₁₃
3323.2₅, (23/2) γ_{2931} **392.0**₄ $(\dagger_{\gamma}100)$
(D)
3335₁₇
3366₁₄
3369.3₄, 25/2⁺ γ_{2931} **438.1**₂ $(\dagger_{\gamma}100)$ E2
3397₁₄
3433₁₇
3446₂₀
3480₂₀
3483.8₄, 25/2⁺ γ_{3120} **364.2**₂ $(\dagger_{\gamma}100)$ M1
3506₂₀
3534₂₀
3558₁₄
3596₁₄
3633₂₁
3655₂₁
3679₁₄
3726₁₄
3783₁₅
3833₁₅
3856₂₁
3882₁₅
3916₂₀
- 4010**₂₀
4027₁₅
A x, J
A **1011.3+x**₄, J+2 γ_x **1011.3**₄ $I^{(2)}=146.5$,
 $\bar{h}\omega=0.512$
A **2049.9+x**₆, J+4 γ_{1011+x} **1038.6**₄
 $I^{(2)}=84.7$, $\bar{h}\omega=0.531$
A **3135.7+x**₈, J+6 γ_{2050+x} **1085.8**₅
 $I^{(2)}=78.1$, $\bar{h}\omega=0.556$
A **4272.7+x**₁₀, J+8 γ_{3136+x} **1137.0**₆
 $I^{(2)}=78.7$, $\bar{h}\omega=0.581$
A **5460.5+x**₁₄, J+10 γ_{4273+x} **1187.8**₁₀
 $I^{(2)}=76.9$, $\bar{h}\omega=0.607$
A **6700.3+x**₁₅, J+12 γ_{5461+x} **1239.8**₄
 $I^{(2)}=74.8$, $\bar{h}\omega=0.633$
A **7993.6+x**₁₆, J+14 γ_{6700+x} **1293.3**₅
 $I^{(2)}=72.2$, $\bar{h}\omega=0.661$
A **9342.3+x**₁₆, J+16 γ_{7994+x} **1348.7**₅
 $I^{(2)}=76.2$, $\bar{h}\omega=0.687$
A **10743.5+x**₁₈, J+18 γ_{9342+x} **1401.2**₆
 $I^{(2)}=72.7$, $\bar{h}\omega=0.714$
A **12199.8+x**₁₉, J+20 $\gamma_{10744+x}$ **1456.2**₇
 $I^{(2)}=66.7$, $\bar{h}\omega=0.743$
A **13716+x**₃, J+22 $\gamma_{12200+x}$ **1516.2**₁₉
 $I^{(2)}=78.7$, $\bar{h}\omega=0.771$
A **15283+x**₃, J+24 $\gamma_{13716+x}$ **1567.0**₁₀
B y, J
B **945.1+y**₈, J+2 γ_y **945.1**₈ $I^{(2)}=82.0$,
 $\bar{h}\omega=0.485$
B **1939.0+y**₂₀, J+4 γ_{945+y} **993.9**₁₈
 $I^{(2)}=78.6$, $\bar{h}\omega=0.510$
B **2983.8+y**₂₂, J+6 γ_{1939+y} **1044.8**₈
 $I^{(2)}=72.3$, $\bar{h}\omega=0.536$
B **4083.9+y**₂₃, J+8 γ_{2984+y} **1100.1**₉
 $I^{(2)}=81.3$, $\bar{h}\omega=0.562$
B **5233+y**₃, J+10 γ_{4084+y} **1149.3**₁₈

$$I^{(2)}=70.7, \bar{h}\omega=0.589$$

$$B \quad 6439+y^3, J+12 \quad \gamma_{5233+y} \quad 1205.98$$

$$I^{(2)}=73.7, \bar{h}\omega=0.617$$

$$B \quad 7699+y^4, J+14 \quad \gamma_{6439+y} \quad 1260.210$$

$$I^{(2)}=69.6, \bar{h}\omega=0.644$$

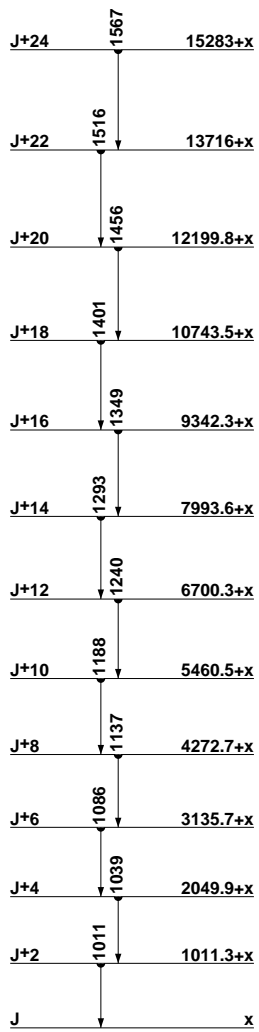
$$B \quad 9017+y^4, J+16 \quad \gamma_{7699+y} \quad 1317.710$$

$$I^{(2)}=74.6, \bar{h}\omega=0.672$$

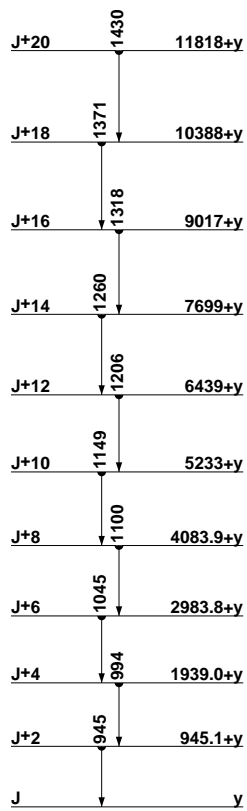
$$B \quad 10388+y^4, J+18 \quad \gamma_{9017+y} \quad 1371.317$$

$$I^{(2)}=68.0, \bar{h}\omega=0.700$$

$$B \quad 11818+y^5, J+20 \quad \gamma_{10388+y} \quad 1430.122$$



SD-1 band
(97HaAA)



SD-2 band
(97HaAA)