

^{203}Pb IT decay (480 ms) [1977Li04](#),[1977Sa18](#),[1988Ro08](#)

| Type | Author | History Citation | Literature Cutoff Date |
|-----------------|--------------|--------------------|------------------------|
| Full Evaluation | F. G. Kondev | NDS 177, 509, 2021 | 4-Jul-2021 |

Parent: ^{203}Pb : E=2949.12 24; $J^\pi=29/2^-$; $T_{1/2}=480$ ms 7; %IT decay=100.0

^{203}Pb -E, J^π , $T_{1/2}$: From Adopted Levels.

 ^{203}Pb Levels

| E(level) [†] | J^π [‡] | $T_{1/2}$ [‡] |
|----------------------------|----------------------|------------------------|
| 0 [#] | 5/2 ⁻ | |
| 820.2 [@] 5 | 7/2 ⁻ | |
| 825.10 ^{&} 10 | 13/2 ⁺ | 6.21 s 8 |
| 1663.60 ^a 15 | 17/2 ⁺ | |
| 1921.98 ^b 17 | 21/2 ⁺ | 42 ns 3 |
| 1943.81 ^b 21 | 19/2 ⁺ | |
| 2117.61 22 | (19/2) ⁺ | |
| 2161.26 22 | (21/2) ⁺ | |
| 2795.75 19 | 23/2 ⁺ | |
| 2949.10 ^c 25 | 29/2 ⁻ | 480 ms 7 |

[†] From a least-squares fit to $E\gamma$.

[‡] From Adopted Levels.

[#] Dominant configuration: $\nu(f_{5/2}^{-1})$.

[@] Dominant configuration: $\nu(f_{5/2}^{-1})\otimes 2^+$.

[&] Dominant configuration: $\nu(i_{13/2}^{-1})$.

^a Dominant configuration: $\nu(i_{13/2}^{-1})\otimes 2^+$.

^b Dominant configuration: $\nu(i_{13/2}^{-1})\otimes 4^+$.

^c Configuration= $\nu(f_{5/2}^{-1}i_{13/2}^{-2})$.

$\gamma(^{203}\text{Pb})$

I_γ normalization: From I(γ+ce)(838.5γ)=100.

| E_γ [†] | I_γ ^{†@} | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. [‡] | δ | $\alpha^\#$ | $I_{(\gamma+ce)}$ [@] | Comments |
|-------------------------|--------------------------|---------------------|---------------------|---------|---------------------|--------------------|----------|-----------------------|--------------------------------|--|
| (5.0 5) | 9.7×10 ⁻¹⁰ 12 | 825.10 | 13/2 ⁺ | 820.2 | 7/2 ⁻ | [E3] | | 6.0×10 ⁹ 4 | 5.8 6 | E _γ : From level energy difference. I _γ : From I(γ+ce) and α. |
| (21.8 3) | 0.04 3 | 1943.81 | 19/2 ⁺ | 1921.98 | 21/2 ⁺ | [M1,E2] | | 152 7 | 5.8 44 | I _(γ+ce) : From intensity balance. ce(L)/(γ+ce)=0.759 23; ce(M)/(γ+ce)=0.179 10 ce(N)/(γ+ce)=0.045 3; ce(O)/(γ+ce)=0.0091 6; ce(P)/(γ+ce)=0.00097 6 α(L)=116 6; α(M)=27.4 13 α(N)=7.0 3; α(O)=1.39 7; α(P)=0.148 7 E _γ : From level energy difference. I _γ : From I(γ+ce) and α. |
| 153.4 2 | 5.7 3 | 2949.10 | 29/2 ⁻ | 2795.75 | 23/2 ⁺ | E3 | | 15.50 | | I _(γ+ce) : From intensity balance. α(K)=0.686 10; α(L)=10.87 17; α(M)=3.03 5 α(N)=0.772 13; α(O)=0.1381 22; α(P)=0.00629 10 |
| 173.9 3 | 1.3 2 | 2117.61 | (19/2) ⁺ | 1943.81 | 19/2 ⁺ | (M1) | | 1.94 | | α(K)=1.582 24; α(L)=0.273 4; α(M)=0.0639 10 α(N)=0.01625 25; α(O)=0.00324 5; α(P)=0.000346 6 |
| 217.4 3 | 0.9 2 | 2161.26 | (21/2) ⁺ | 1943.81 | 19/2 ⁺ | [M1,E2] | | 1.037 | | α(K)=0.847 13; α(L)=0.1455 22; α(M)=0.0341 5 α(N)=0.00867 13; α(O)=0.00173 3; α(P)=0.000185 3 |
| ^x 231.9 3 | 1.5 2 | | | | | | | | | |
| ^x 238.5 5 | 4.9 12 | | | | | | | | | E _γ : From 1977Li04. The origin is unknown. 238.5γ(t) gives T _{1/2} =1.3 s 5. |
| 239.3 2 | 12.9 6 | 2161.26 | (21/2) ⁺ | 1921.98 | 21/2 ⁺ | M1 | | 0.794 | | α(K)=0.649 10; α(L)=0.1113 16; α(M)=0.0261 4 α(N)=0.00663 10; α(O)=0.001321 19; α(P)=0.0001412 20 |
| 258.4 1 | 83 3 | 1921.98 | 21/2 ⁺ | 1663.60 | 17/2 ⁺ | E2 | | 0.183 | | α(K)=0.0924 13; α(L)=0.0676 10; α(M)=0.01749 25 α(N)=0.00442 7; α(O)=0.000807 12; α(P)=4.58×10 ⁻⁵ 7 |
| 280.2 2 | 4.0 5 | 1943.81 | 19/2 ⁺ | 1663.60 | 17/2 ⁺ | M1 | | 0.514 | | α(K)=0.420 6; α(L)=0.0719 11; α(M)=0.01683 24 α(N)=0.00428 6; α(O)=0.000853 12; α(P)=9.12×10 ⁻⁵ 13 |
| 453.8 3 | 1.0 2 | 2117.61 | (19/2) ⁺ | 1663.60 | 17/2 ⁺ | [M1,E2] | | 0.1397 | | α(K)=0.1144 17; α(L)=0.0193 3; α(M)=0.00452 7 α(N)=0.001148 17; α(O)=0.000229 4; α(P)=2.45×10 ⁻⁵ 4 |
| 634.5 2 | 21.1 11 | 2795.75 | 23/2 ⁺ | 2161.26 | (21/2) ⁺ | M1 | | 0.0577 | | α(K)=0.0474 7; α(L)=0.00792 12; α(M)=0.00185 3 α(N)=0.000470 7; α(O)=9.37×10 ⁻⁵ 14; α(P)=1.006×10 ⁻⁵ 15 |
| 678.1 2 | 3.7 4 | 2795.75 | 23/2 ⁺ | 2117.61 | (19/2) ⁺ | [E2] | | 0.01471 | | α(K)=0.01115 16; α(L)=0.00270 4; α(M)=0.000656 10 α(N)=0.0001663 24; α(O)=3.20×10 ⁻⁵ 5; α(P)=2.79×10 ⁻⁶ 4 |

²⁰³Pb IT decay (480 ms) [1977Li04](#),[1977Sa18](#),[1988Ro08](#) (continued)

| <u>$\gamma(^{203}\text{Pb})$ (continued)</u> | | | | | | | | | |
|---|------------------------|---------------------|-------------------|---------|-------------------|--------------------|----------|-------------|--|
| E_γ^\dagger | $I_\gamma^{\ddagger@}$ | $E_i(\text{level})$ | J_i^π | E_f | J_f^π | Mult. [‡] | δ | $\alpha^\#$ | Comments |
| 820.2 5 | 5.7 6 | 820.2 | 7/2 ⁻ | 0 | 5/2 ⁻ | E2+M1 | 5.4 3 | 0.01053 17 | $\alpha(\text{K})=0.00826$ 14; $\alpha(\text{L})=0.00173$ 3; $\alpha(\text{M})=0.000416$ 7 $\alpha(\text{N})=0.0001053$ 16; $\alpha(\text{O})=2.05\times 10^{-5}$ 3; $\alpha(\text{P})=1.91\times 10^{-6}$ 3 I_γ : From intensity balance. |
| 825.1 1 | 73.3 4 | 825.10 | 13/2 ⁺ | 0 | 5/2 ⁻ | M4 | | 0.299 | $\alpha(\text{K})=0.216$ 3; $\alpha(\text{L})=0.0628$ 9; $\alpha(\text{M})=0.01586$ 23 $\alpha(\text{N})=0.00407$ 6; $\alpha(\text{O})=0.000795$ 12; $\alpha(\text{P})=7.35\times 10^{-5}$ 11 I_γ : From intensity balance and $I_\gamma(820.0\gamma)/I_\gamma(825.3\gamma)=7.8\%$ 5 (1977Li04). |
| 838.5 1 | 100 | 1663.60 | 17/2 ⁺ | 825.10 | 13/2 ⁺ | E2 | | 0.00945 | $\alpha(\text{K})=0.00739$ 11; $\alpha(\text{L})=0.001566$ 22; $\alpha(\text{M})=0.000376$ 6 $\alpha(\text{N})=9.53\times 10^{-5}$ 14; $\alpha(\text{O})=1.85\times 10^{-5}$ 3; $\alpha(\text{P})=1.716\times 10^{-6}$ 24 |
| 851.9 3 | 4.5 4 | 2795.75 | 23/2 ⁺ | 1943.81 | 19/2 ⁺ | [E2] | | 0.00915 | $\alpha(\text{K})=0.00717$ 10; $\alpha(\text{L})=0.001506$ 22; $\alpha(\text{M})=0.000362$ 5 $\alpha(\text{N})=9.16\times 10^{-5}$ 13; $\alpha(\text{O})=1.779\times 10^{-5}$ 25; $\alpha(\text{P})=1.657\times 10^{-6}$ 24 |
| 873.8 1 | 51.1 23 | 2795.75 | 23/2 ⁺ | 1921.98 | 21/2 ⁺ | M1+E2 | 1.4 3 | 0.0143 19 | $\alpha(\text{K})=0.0115$ 16; $\alpha(\text{L})=0.00210$ 24; $\alpha(\text{M})=0.00049$ 6 $\alpha(\text{N})=0.000126$ 14; $\alpha(\text{O})=2.5\times 10^{-5}$ 3; $\alpha(\text{P})=2.5\times 10^{-6}$ 4 |
| 1027.0 3 | 15.3 8 | 2949.10 | 29/2 ⁻ | 1921.98 | 21/2 ⁺ | M4 | | 0.1412 | $\alpha(\text{K})=0.1054$ 15; $\alpha(\text{L})=0.0270$ 4; $\alpha(\text{M})=0.00672$ 10 $\alpha(\text{N})=0.001721$ 25; $\alpha(\text{O})=0.000338$ 5; $\alpha(\text{P})=3.25\times 10^{-5}$ 5 |

[†] From [1977Sa18](#), unless otherwise stated.

[‡] From adopted gammas and the decay scheme.

[#] [Additional information 1](#).

[@] For absolute intensity per 100 decays, multiply by 0.99064 12.

^x γ ray not placed in level scheme.

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