

Adopted Levels, Gammas

| Type | Author | History Citation | Literature Cutoff Date |
|-----------------|--------------|--------------------|------------------------|
| Full Evaluation | Balraj Singh | NDS 130, 21 (2015) | 15-Jul-2015 |

S(n)=11780 80; S(p)=1316 15; Q(α)=7066 6 [2012Wa38](#)

S(2n)=21038 18, S(2p)=1153 18, Q(ϵp)=6547 20 ([2012Wa38](#)).

^{182}Pb isotope first produced by [1982HeZM](#) in $^{104}\text{Pd}(^{82}\text{Kr},4\text{n})$ at 4.2-4.4 MeV/nucleon. Later works: [1984ScZQ](#) in $^{94}\text{Zr}(^{92}\text{Mo},4\text{n})$ at 58 MeV; [1986Ke03](#) in $^{94}\text{Mo}(^{90}\text{Zr},2\text{n})$ at 321-390 MeV; [1987To09](#) in $^{147}\text{Sm}(^{40}\text{Ca},5\text{n})$ at 194 MeV; [1999To11](#) in $^{92}\text{Zr}(^{92}\text{Mo},2\text{n})$.

[2009Se13](#), [2007De09](#): E=1.4 GeV; measured electromagnetic moments, and mean square charge radii using the Resonance

Ionization Laser Ion Source (RILIS) at the ISOLDE (CERN) online mass separator. Uranium carbonite was used as the target.

Isotope-shift measurement by laser spectroscopy: [2009Se13](#), [2007De09](#) also [2006Se18](#).

Structure calculations (rotational bands, 0^+ states): [2013Ya05](#), [2012Ca27](#), [2012No07](#), [2011Ga35](#), [2011To13](#), [2007Ha51](#), [2004Ro19](#), [2004Be27](#), [2001Ch54](#).

[Additional information 1](#).

^{182}Pb Levels

Cross Reference (XREF) Flags

- A ^{186}Po α decay (28 μs)
- B $^{144}\text{Sm}(^{42}\text{Ca},4\text{n}\gamma)$

| E(level) | J^π^\dagger | $T_{1/2}$ | XREF | Comments |
|---------------------|--------------------|-----------|------|--|
| 0.0 | 0^+ | 55 ms 5 | AB | $\% \alpha \approx 98$; $\% \epsilon + \% \beta^+ \approx 2$ $\% \epsilon + \% \beta^+ \approx 2$ (from syst, 2012Au07). $\langle r^2 \rangle^{1/2}$ (rms charge radius)=5.3788 fm 35 (2013An02 ,evaluation) Predicted $\% \alpha = 92$, $\% \epsilon + \% \beta^+ = 8$ based on calculated $T_{1/2}(\beta) = 1.38$ s and $T_{1/2}(\alpha) = 0.11$ s (1997Mo25). $T_{1/2}$: from decay curve for α lines (1999To11). Others: 55 ms +40-35 (1987To09), 331 ms 158 (1984ScZQ). Additional information 2 . Measured $\delta \langle r^2 \rangle (^{182}\text{Pb} - ^{208}\text{Pb}) = -1.299$ fm ² 25 (2009Se13 , 2007De09 , 2006Se18), optical-isotope shifts by in-source laser spectroscopy. Uncertainty in isotope shift is 0.012 fm ² This result is consistent with a spherical shape ($\beta_2 \approx +0.05$) for the g.s. |
| 888.3 \ddagger 3 | (2 ⁺) | | B | |
| 1119.5 \ddagger 4 | (4 ⁺) | | B | |
| 1433.2 \ddagger 4 | (6 ⁺) | | B | |
| 1825.5 \ddagger 5 | (8 ⁺) | | B | |
| 2288.2 \ddagger 6 | (10 ⁺) | | B | |
| 2812.2 \ddagger 8 | (12 ⁺) | | B | |

[†] From systematics; probable band assignment.

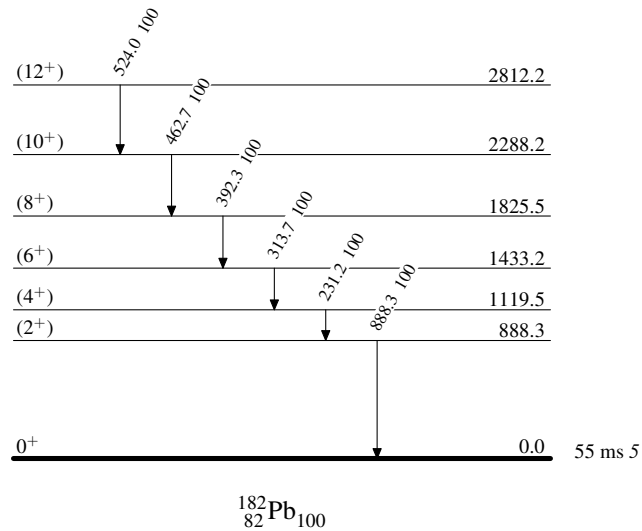
[‡] Band(A): $K^\pi = (2^+)$, prolate band.

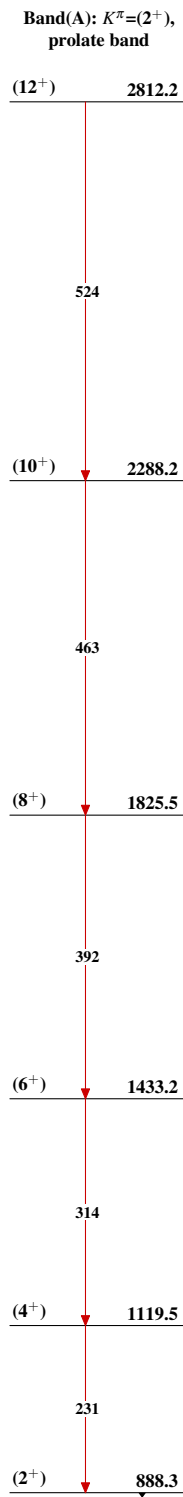
Adopted Levels, Gammas (continued) $\gamma(^{182}\text{Pb})$

| $E_i(\text{level})$ | J_i^π | E_γ | I_γ | E_f | J_f^π |
|---------------------|--------------------|------------|------------|--------|--------------------|
| 888.3 | (2 ⁺) | 888.3 | 3 100 | 0.0 | 0 ⁺ |
| 1119.5 | (4 ⁺) | 231.2 | 2 100 | 888.3 | (2 ⁺) |
| 1433.2 | (6 ⁺) | 313.7 | 2 100 | 1119.5 | (4 ⁺) |
| 1825.5 | (8 ⁺) | 392.3 | 3 100 | 1433.2 | (6 ⁺) |
| 2288.2 | (10 ⁺) | 462.7 | 4 100 | 1825.5 | (8 ⁺) |
| 2812.2 | (12 ⁺) | 524.0 | 4 100 | 2288.2 | (10 ⁺) |

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



Adopted Levels, Gammas $^{182}_{82}\text{Pb}_{100}$