Adopted **Levels, Gammas**

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	M. S. Basunia	NDS 110, 999 (2009)	1-Nov-2008

Q(β^-)=−8607 *17*; S(n)=8370 *14*; S(p)=208×10^1 *18*; Q(α)=6395 *6*   2003Au03

Assignment:
    ^{155}Gd(^{40}Ar,8n)   excit (1972Ga27, 1974Le02),
    ^{150}Sm(^{40}Ca,3n)   excit (1980Sc09, 1975Ca06),
    ^{142}Nd(^{48}Ti,3n)   Mass Spectrometer (1980Sc09, 1981Mi12),
    ^{107}Ag(^{84}Kr,p3n)   Mass Spectrometer (1981Mi12).

^{187}Pb Levels

Cross Reference (XREF) Flags

A ^{191}Po α decay (22 ms)
B ^{191}Po α decay (93 ms)
C ^{155}Gd(^{36}Ar,4nγ)

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$	XREF	Comments
0.0	(3/2$^-$)	15.2 s *3*	ABC	%α=9.5 *20* %ε+%β^+=90.5 *20* %α: From 2002An19, Other: 7 *2* (1999An36). %ε+%β^+: 100%-%α. J$^{\pi}$: (ν p$_{3/2}$)⊗π(0p−0h) configuration suggested in 1999An10. From systematics of g.s. J$^{\pi}$ in ^{189}Pb, ^{193}Pb, ^{195}Pb, ^{197}Pb, and ^{199}Pb, the low-spin isomer is expected to be the ground state. T$_{1/2}$: measurement of 1981Mi12. Δ<r^2>(^{187}Pb,^{208}Pb)=−0.993 *10* fm^2 (2007De09).
33[@] *13*	(13/2$^+$)	18.3 s *3*	ABC	%α=12 *2* (1999An36); %ε+%β^+=88 *2* Additional information 1. %α: From 1999An36. %α=2.0 estimated by 1974Le02 from comparison of Iα(6073) with the ^{196}Po α produced by ^{164}Dy(^{40}Ar,8n) reaction. %α=0.7 was estimated by 1972Ga27 from comparison of cross sections for the formation of Pb and Po nuclides by ^{155}Gd(^{40}Ar,xn) and ^{164}Dy(^{40}Ar,xn) reactions. E(level): From ^{187}Pb and ^{187}Pb^m mass measurements by 2005We11. 2 keV *15* is established in ^{191}Po α decay (22 ms). 19 keV *10* in 2012Wa38-AME. J$^{\pi}$: analogous to high-spin isomers of ^{193}Pb, ^{195}Pb, ^{197}Pb; (ν i$_{13/2}$)⊗π(0p−0h) configuration suggested in 1999An10. T$_{1/2}$: measurement of 1981Mi12. Other measured values: 17.5 s *36* (1972Ga27), 17 s *4* (1974Le02). Δ<r^2>(^{187}Pb,^{208}Pb)=−1.025 *10* fm^2 (2007De09).
375.0 *10*	(3/2$^-$)	<10[#] ns	A	E(level): Relative to the 33 keV level. For absolute energy ΔE=13 keV of the 33 keV level should be considered in propagation. J$^{\pi}$: (ν p$_{3/2}$)⊗π(2p−2h) configuration suggested in 1999An10.
505.0 *10*	(9/2$^+$)		B	J$^{\pi}$: from 472γ (E2) to (13/2$^+$) and HF of the 6909α decay (2002An19).
527.0 *10*	(13/2$^+$)	<10[#] ns	B	J$^{\pi}$: from 494γ (M1) to (13/2$^+$), HF, and the J$^{\pi}$ of the parent nucleus (2002An19). Possible configuration (ν i$_{13/2}$)⊗π(2p−2h). T$_{1/2}$: based on observation of 6888α and 494γ in prompt coincidence (1999An10).
607 *15*	(9/2$^+$)		B	J$^{\pi}$: Based on the J$^{\pi}$=(13/2$^+$) of 527 keV level and the (80γ) (E2).
627.0? *10*			B	
864[@]	(17/2$^+$)		C	
1280[@]	(21/2$^+$)		C	
1756[@]	(25/2$^+$)		C	

Adopted Levels, Gammas (continued)

^{187}Pb Levels (continued)

† From G-ray energies.

‡ Values given without comment are from (^{36}Ar,4nγ), based on analogy with heavier odd-A Pb isotopes in which a sequence of three stretched Q transitions connect the yrast $25/2^+$ state to a low-energy $13/2^+$ isomer.

Limit deduced from observation of αγ prompt coincidence in ^{191}Po α decay.

@ Band(A): π=+ yrast states (1998Ba88). Possible configuration is (ν i$_{13/2}$) − weakly coupled to near-spherical ^{186}Pb core states.

$\gamma(^{187}$Pb)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	α@	Comments
375.0	$(3/2^-)$	375‡ *1*	100	0.0	$(3/2^-)$	(E0+M1+E2)	≈1.1	Mult.: From α(K)exp=0.88 *30* (2002An19). α: Estimated by the evaluator from α(K)exp=0.88.
505.0	$(9/2^+)$	472# *1*	100	33	$(13/2^+)$	(E2)	0.0338	Mult.: from α(K)exp≤0.06.
527.0	$(13/2^+)$	494# *1*	100	33	$(13/2^+)$	(M1)	0.1115	B(M1)(W.u.)>1.6×10^{-5} Mult.: from α(K)exp 0.076 *20*.
607	$(9/2^+)$	(80 *15*)	100	527.0	$(13/2^+)$	(E2)	2.×10^1 *3*	Mult.,α: From α, α≥10 (2002An19).
627.0?		594#& *1*	100	33	$(13/2^+)$			
864	$(17/2^+)$	831	100	33	$(13/2^+)$			
1280	$(21/2^+)$	416	100	864	$(17/2^+)$			
1756	$(25/2^+)$	476	100	1280	$(21/2^+)$			

† From (^{36}Ar,4nγ), except otherwise noted.

‡ From ^{191}Po α decay (22 ms).

From ^{191}Po α decay (93 ms).

@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
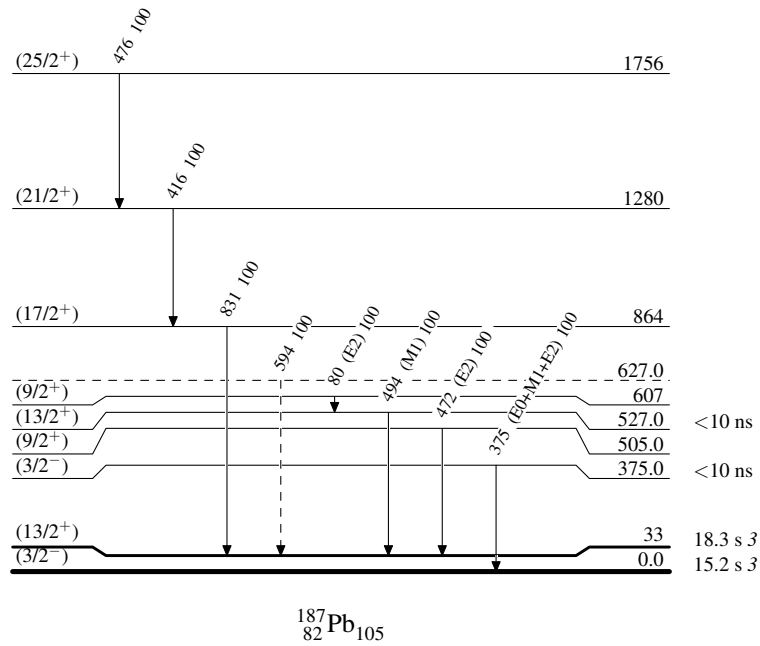
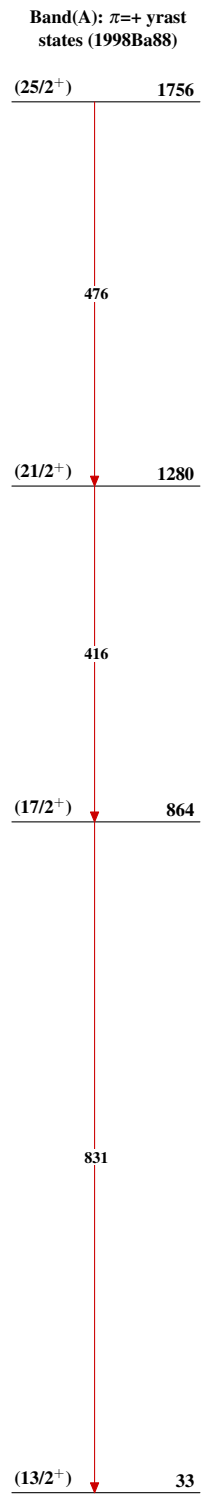& Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas   Legend

Level Scheme

Intensities: Relative photon branching from each level

- - - - - ▶ γ Decay (Uncertain)

$^{187}_{82}$Pb$_{105}$

Adopted Levels, Gammas

**Band(A): π=+ yrast
states (1998Ba88)**

$(25/2^+)$ **1756**

476

$(21/2^+)$ **1280**

416

$(17/2^+)$ **864**

831

$(13/2^+)$ **33**

$^{187}_{82}$Pb$_{105}$