^{142}Nd(^{48}Ti,4nγ)   **2003Re33**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. C. Batchelder and A. M. Hurst, M. S. Basunia	NDS 183, 1 (2022)	1-Mar-2022

Adapted/edited the XUNDL dataset Compiled by B. Singh (McMaster) November 27, 2003.

E=230, 238 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, A$_2$/A$_0$, R using GAMMASPHERE array with 102 Ge detectors with BGO Compton- suppressor shields and HERCULES detectors for evaporation residues.

^{186}Pb Levels

E(level)[†]	J$^{\pi}$[#]	Comments
0.0	0$^+$	
662.3[‡] 2	2$^+$	
922.9[‡] 2	4$^+$	
1259.7[‡] 3	6$^+$	
1348.5? 9		E(level): Uncertain level − not adopted − see depopulating γ-ray comment.
1674.3[‡] 4	8$^+$	
1813.1? 9		E(level): Uncertain level − not adopted − see depopulating γ-ray comments.
2160.4[‡] 5	10$^+$	
2709.5[‡] 6	(12$^+$)	
3305.0?[‡] 9	(14$^+$)	E(level): Uncertain level − not adopted. Adopted (14$^+$) state of the prolate band is proposed at 3315.7 in (^{83}Kr,3nγ).

[†] From Eγ's.
[‡] Band(A): Rotational band.
[#] Proposed by 2003Re33 based on γ-ray angular distribution measurements and band assignment.

$\gamma(^{186}$Pb)

E$_{\gamma}$	I$_{\gamma}$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Mult.[†]	Comments
260.6 1	100 9	922.9	4$^+$	662.3	2$^+$	Q	A$_2$=+0.17 7 R(anisotropy)=1.15 19.
336.8 2	83 9	1259.7	6$^+$	922.9	4$^+$	Q	A$_2$=+0.26 6 R(anisotropy)=1.11 15.
414.6 2	64 8	1674.3	8$^+$	1259.7	6$^+$	Q	A$_2$=+0.23 10 R(anisotropy)=1.06 20.
425[‡] 1		1348.5?		922.9	4$^+$		E$_{\gamma}$: Comparable 424.1γ placed from 8$_2^+$ to 6$_2^+$ in Adopted Level scheme from (^{83}Kr,3nγ).
464[‡] 1		1813.1?		1348.5?			E$_{\gamma}$: Comparable 462.7γ placed from 10+$_2$ to 8+$_2$ in Adopted Level scheme from (^{83}Kr,3nγ).
486.1 3	40 7	2160.4	10$^+$	1674.3	8$^+$	Q	A$_2$=+0.38 33 R(anisotropy)=1.27 24.
549.1 4	22 5	2709.5	(12$^+$)	2160.4	10$^+$		
554[‡] 1		1813.1?		1259.7	6$^+$		E$_{\gamma}$: Not adopted. See notes for depopulating level. No comparable γ in other studies.
595.5[‡] 6	10 4	3305.0?	(14$^+$)	2709.5	(12$^+$)		E$_{\gamma}$: Uncertain placement − depopulation level not adopted.
662.3 2	≥100	662.3	2$^+$	0.0	0$^+$	Q	A$_2$=+0.21 3 R(anisotropy)=1.07 21.

[†] Assigned by evaluators based on $\gamma(\theta)$ and γ(anisotropy) R$_{ani}$=I$\gamma(\theta_{FB})$/I$\gamma(\theta_S)$ with 31.7°≤θ_{FB}≤50.1°, 129.9°≤θ_{FB}≤148.3°, and 79.2°≤θ_S≤100.8°. Pure stretched E2 are expected to have R$_{ani}$ = 1.2 7.
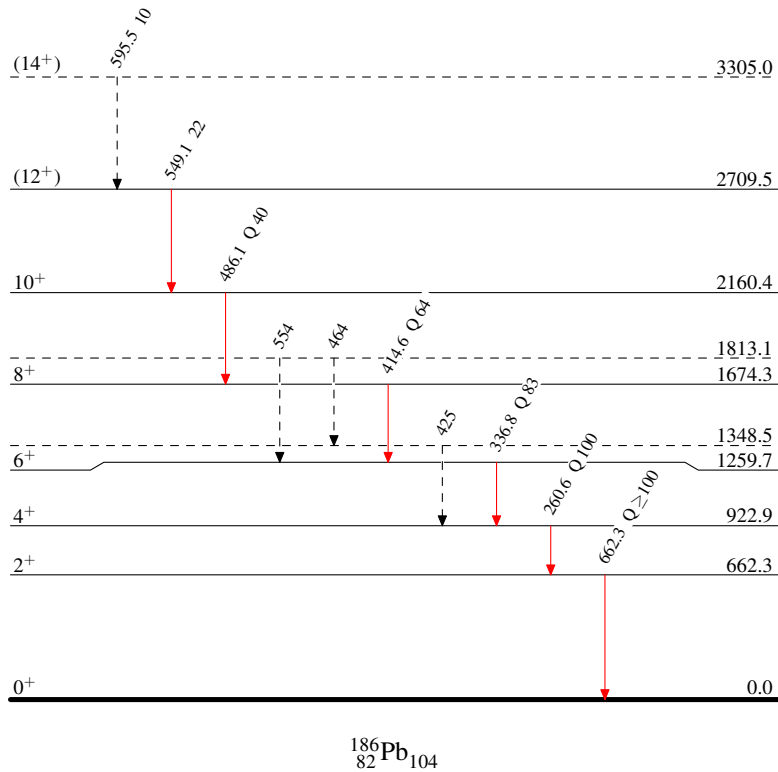[‡] Placement of transition in the level scheme is uncertain.

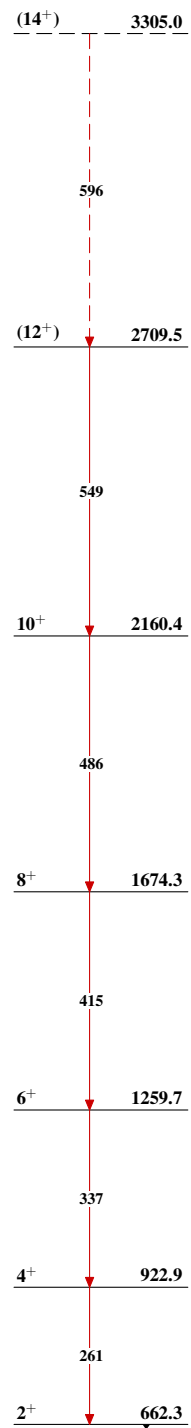^{142}Nd(^{48}Ti,4nγ)   **2003Re33**

Legend

<u>Level Scheme</u>

Intensities: Relative I$_\gamma$

I$_\gamma$ < 2%×I$_\gamma^{max}$
I$_\gamma$ < 10%×I$_\gamma^{max}$
I$_\gamma$ > 10%×I$_\gamma^{max}$
γ Decay (Uncertain)

$^{186}_{82}$Pb$_{104}$

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Band(A): Rotational band

(14$^+$)		3305.0
	596	
(12$^+$)		2709.5
	549	
10$^+$		2160.4
	486	
8$^+$		1674.3
	415	
6$^+$		1259.7
	337	
4$^+$		922.9
	261	
2$^+$		662.3

$^{186}_{82}Pb_{104}$