

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. A. Rodionov and S. Sakharov, Balraj Singh		NDS 104, 497 (2005)	1-Jul-2022

$Q(\beta^-) = -6.5 \times 10^3$ SY; $S(n) = 9.93 \times 10^3$ SY; $S(p) = 1.15 \times 10^3$ SY; $Q(\alpha) = 2.28 \times 10^3$ SY [2021Wa16](#)

[1985Wi07](#): E=175 MeV. Isotope separator OASIS, particle telescope, HPGe, Ge(Li) detectors. Measured γ , delayed protons, β^+ , x rays and mutual coincidences.

[1989McZU](#): E=180 MeV. Recoil separator, measured β^+ , γ , n, recoils and mutual coincidences.

$T_{1/2}$ and decay of ^{132}Pm : [1977Bo02](#), [1985Wi07](#), [1987Ko24](#), [1988BeYG](#), [1990Ko25](#).

 ^{132}Pm LevelsCross Reference (XREF) Flags

A $^{96}\text{Ru}(^{40}\text{Ca}, n3p\gamma)$

E(level) [†]	J ^π	T _{1/2}	XREF	Comments
0.0	(3 ⁺)	6.2 s 6		$\% \varepsilon + \% \beta^+ = 100$; $\% \varepsilon p \approx 5 \times 10^{-5}$ $\% \varepsilon p$: from thesis by P.A. Wilmarth (U.C., Berkeley (1988), also Rept. LBL-26101). E(p)=2.2-5.0 MeV. J ^π : direct β feeding to 2 ⁺ and 4 ⁺ . T _{1/2} : weighted average of 4 s 2 (1977Bo02), 5.0 s 7 (1985Wi07), 5.0 s 10 (1988BeYG), 6.3 s 4 (1989McZU), 8.8 s 8 (1990Ko25).
0+x [‡]			A	Additional information 1.
131.0+x [#] 8			A	
275.0+x [‡] 8			A	
435.0+x [#] 10			A	
609.0+x [‡] 11			A	
828.0+x [#] 12			A	
1058.0+x [‡] 13			A	
1348.0+x [#] 13			A	
1645.0+x [‡] 14			A	
1990.1+x [#] 15			A	
2352.8+x [‡] 16			A	
2735.5+x [#] 16			A	
3154.8+x [‡] 19			A	
3565.5+x [#] 19			A	
4026.8+x [‡] 21			A	
4469.5+x [#] 22			A	
4964.8+x [‡] 23			A	
0+y [@]			A	Additional information 2.
107.0+y ^{&} 8			A	
249.0+y [@] 8			A	
430.0+y ^{&} 10			A	
644.0+y [@] 11			A	
895.0+y ^{&} 12			A	
1173.0+y [@] 13			A	
1488.0+y ^{&} 13			A	
1823.0+y [@] 14			A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{132}Pm Levels (continued)

E(level) [†]	XREF	Comments
2193.0+y ^{&} 15	A	
2576.0+y [@] 16	A	
2993.0+y ^{&} 16	A	
3410.0+y [@] 19	A	
3866.0+y ^{&} 19	A	
0+z ^a	A	Additional information 3.
88.0+z ^b 8	A	
204.0+z ^a 8	A	
327.0+z ^b 10	A	
496.0+z ^a 11	A	
646.0+z ^b 12	A	
882.0+z ^a 13	A	
1057.0+z ^b 16	A	
1365.0+z ^a 16	A	
1574.0+z ^b 19	A	
1947.0+z ^a 19	A	
2201.0+z ^b 21	A	
2631.0+z ^a 22	A	
2934.0+z 23	A	
3765+z ^b 3	A	
4684+z ^b 3	A	
0+u ^c	A	Additional information 4.
104.3+u ^d 8	A	
218.7+u ^c 8	A	
368.1+u ^d 10	A	
532.5+u ^c 11	A	
720.9+u ^d 12	A	
949.3+u ^c 13	A	
1170.7+u ^d 13	A	
1456.0+u ^c 14	A	
1711.7+u ^d 17	A	
2048.0+u ^c 18	A	
2674.0+u ^d 20	A	
2724.0+u ^c 20	A	
3382.0+u ^d 23	A	
3484.0+u ^c 23	A	
4173.0+u ^d 25	A	
4331.0+u ^c 25	A	

[†] From least-squares fit to E γ 's, assuming $\Delta(E\gamma)=1$ keV for each γ .

[‡] Band(A): Band structure; K=(4). $\pi h_{11/2} \otimes \nu h_{11/2}$ or $\pi h_{11/2} \otimes \nu g_{7/2}$.

Band(a): Band structure; K=(4). $\pi h_{11/2} \otimes \nu h_{11/2}$ or $\pi h_{11/2} \otimes \nu g_{7/2}$.

@ Band(B): Band structure; K=(5). $\pi h_{11/2} \otimes \nu h_{11/2}$ or $\pi h_{11/2} \otimes \nu g_{7/2}$.

& Band(b): Band structure; K=(5). $\pi h_{11/2} \otimes \nu h_{11/2}$ or $\pi h_{11/2} \otimes \nu g_{7/2}$.

^a Band(C): Band structure; K=(5). $\pi g_{7/2} \otimes \nu h_{11/2}$ or $\pi g_{7/2} \otimes \nu g_{7/2}$.

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued) ^{132}Pm Levels (continued)^b Band(c): Band structure; K=(5). $\pi g_{7/2} \otimes \nu h_{11/2}$ or $\pi g_{7/2} \otimes \nu g_{7/2}$.^c Band(D): Band structure; K=(5). $\pi g_{7/2} \otimes \nu h_{11/2}$ or $\pi g_{7/2} \otimes \nu g_{7/2}$.^d Band(d): Band structure; K=(5). $\pi g_{7/2} \otimes \nu h_{11/2}$ or $\pi g_{7/2} \otimes \nu g_{7/2}$. $\gamma(^{132}\text{Pm})$ A possible 32γ , mult=(E1) reported by [1989McZU](#) in ^{132}Pm ε decay.

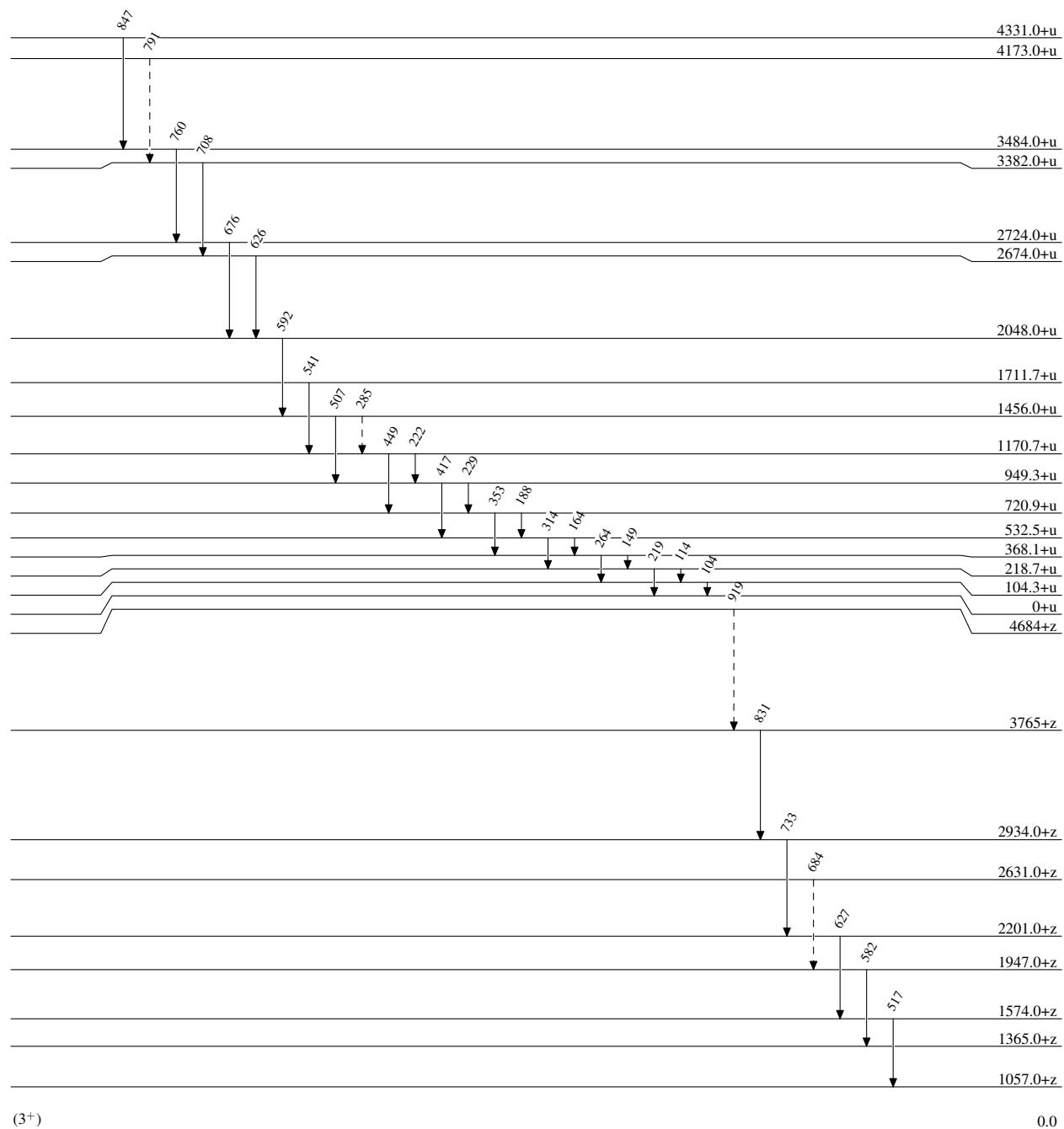
<u>$E_i(\text{level})$</u>	<u>E_γ</u>	<u>E_f</u>	<u>$E_i(\text{level})$</u>	<u>E_γ</u>	<u>E_f</u>	<u>$E_i(\text{level})$</u>	<u>E_γ</u>	<u>E_f</u>
131.0+x	131	0+x	644.0+y	214	430.0+y	1574.0+z	517	1057.0+z
275.0+x	144	131.0+x		395	249.0+y	1947.0+z	582	1365.0+z
	275	0+x	895.0+y	251	644.0+y	2201.0+z	627	1574.0+z
435.0+x	160	275.0+x		465	430.0+y	2631.0+z	684 [†]	1947.0+z
	304	131.0+x	1173.0+y	278	895.0+y	2934.0+z	733	2201.0+z
609.0+x	174	435.0+x		529	644.0+y	3765+z	831	2934.0+z
	334	275.0+x	1488.0+y	315	1173.0+y	4684+z	919 [†]	3765+z
828.0+x	219	609.0+x		593	895.0+y	104.3+u	104	0+u
	393	435.0+x	1823.0+y	335	1488.0+y	218.7+u	114	104.3+u
1058.0+x	230	828.0+x		650	1173.0+y		219	0+u
	449	609.0+x	2193.0+y	370	1823.0+y	368.1+u	149	218.7+u
1348.0+x	290	1058.0+x		705	1488.0+y		264	104.3+u
	520	828.0+x	2576.0+y	383	2193.0+y	532.5+u	164	368.1+u
1645.0+x	297	1348.0+x		753	1823.0+y		314	218.7+u
	587	1058.0+x	2993.0+y	417	2576.0+y	720.9+u	188	532.5+u
1990.1+x	345	1645.0+x		800	2193.0+y		353	368.1+u
	642	1348.0+x	3410.0+y	834	2576.0+y	949.3+u	229	720.9+u
2352.8+x	363	1990.1+x	3866.0+y	873	2993.0+y		417	532.5+u
	708	1645.0+x	88.0+z	88	0+z	1170.7+u	222	949.3+u
2735.5+x	383	2352.8+x	204.0+z	116	88.0+z		449	720.9+u
	745	1990.1+x		204	0+z	1456.0+u	285 [†]	1170.7+u
3154.8+x	802	2352.8+x	327.0+z	123	204.0+z		507	949.3+u
3565.5+x	830	2735.5+x		239	88.0+z	1711.7+u	541	1170.7+u
4026.8+x	872	3154.8+x	496.0+z	169	327.0+z	2048.0+u	592	1456.0+u
4469.5+x	904	3565.5+x		292	204.0+z	2674.0+u	626	2048.0+u
4964.8+x	938	4026.8+x	646.0+z	150	496.0+z	2724.0+u	676	2048.0+u
107.0+y	107	0+y		319	327.0+z	3382.0+u	708	2674.0+u
249.0+y	142	107.0+y	882.0+z	236	646.0+z	3484.0+u	760	2724.0+u
	249	0+y		386	496.0+z	4173.0+u	791 [†]	3382.0+u
430.0+y	181	249.0+y	1057.0+z	411	646.0+z	4331.0+u	847	3484.0+u
	323	107.0+y	1365.0+z	483	882.0+z			

[†] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

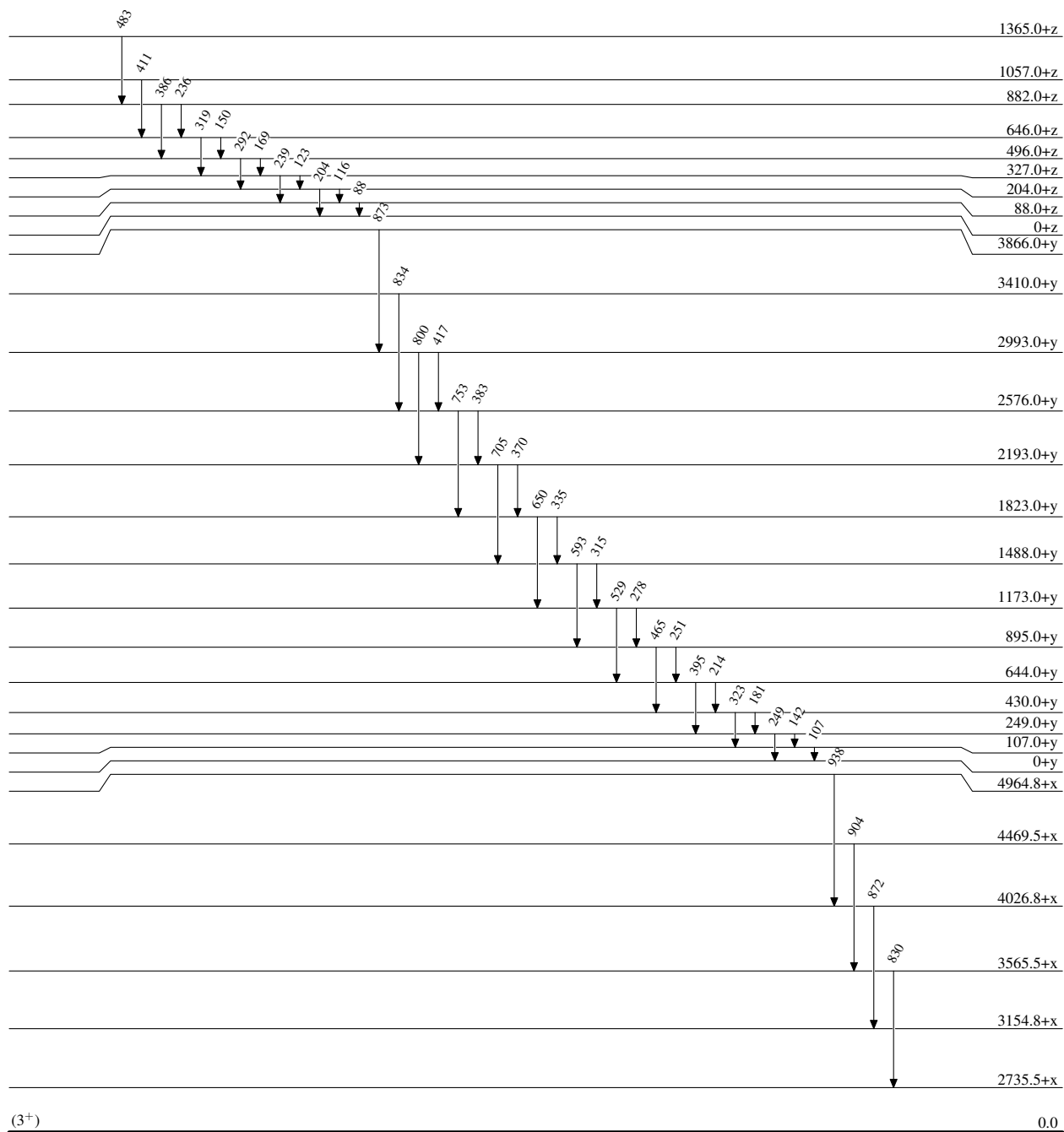
Legend

Level Scheme

-----► γ Decay (Uncertain)


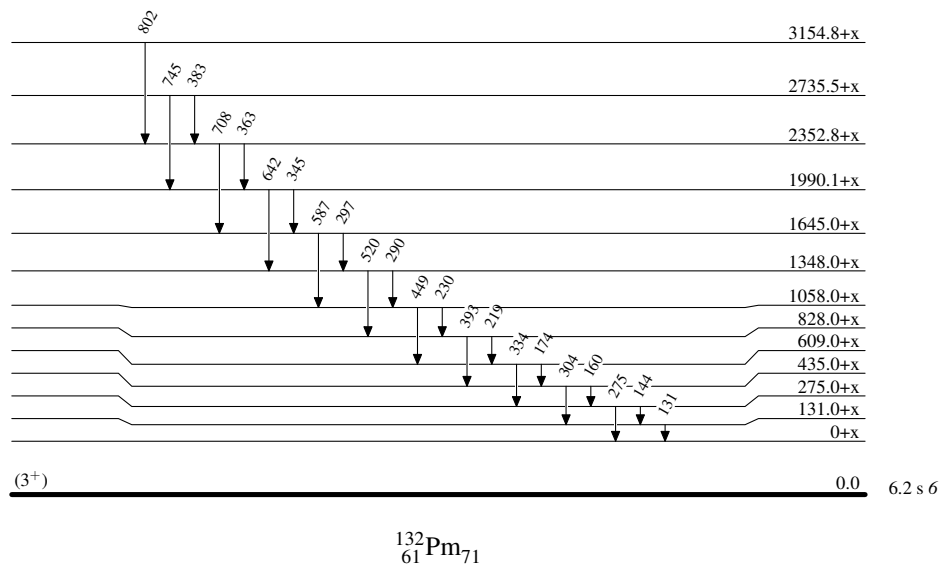
Adopted Levels, Gammas

Level Scheme (continued)

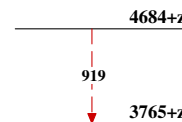


Adopted Levels, Gammas

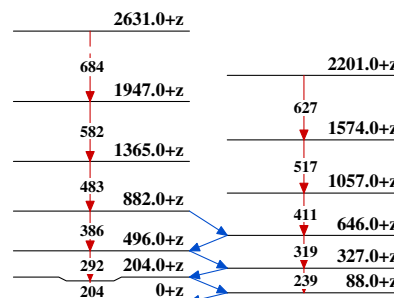
Level Scheme (continued)



**Band(c): Band structure;
K=(5)**

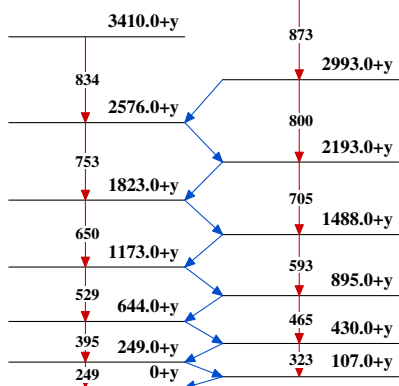


**Band(C): Band structure;
K=(5)**

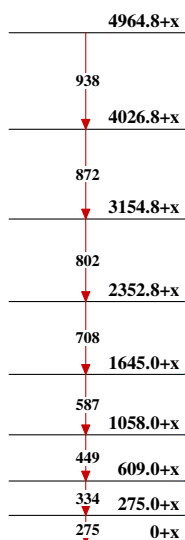


**Band(b): Band structure;
K=(5)**

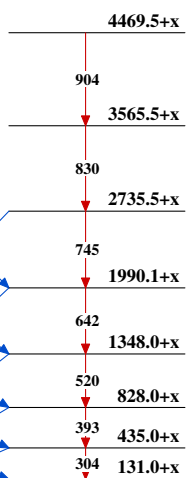
Band(B): Band structure;
K=(5)



**Band(A): Band structure;
K=(4)**



**Band(a): Band structure;
K=(4)**



Adopted Levels, Gammas (continued)

