^{146}Pr β^- decay 1978Ik03

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Yu. Khazov, A. Rodionov and G. Shulyak	NDS 136, 163 (2016)	14-Jul-2016

Parent: ^{146}Pr: E=0.0; J$^\pi$=(2$^-$); $T_{1/2}$=24.09 min *10*; Q(β^-)=4250 *30*; %β^- decay=100.0

^{146}Pr-Jpi, $T_{1/2}$ from 'Adopted Levels'.

1978Ik03: ^{146}Pr β^- decay [fission product of ^{235}U]; measured Eγ, Iγ, Eβ, $\gamma\gamma$, $\beta\gamma$ coin, $\gamma\gamma(\theta)$. ^{146}Nd; deduced levels, J^π, δ, log *ft*. Chemical separation, plastic, Ge, Ge(Li), NaI(Tl) detectors.

1977Ta15: ^{146}Pr β^- decay [from ^{146}Nd(n,p), E=14 MeV]; measured Eγ, Iγ, $\gamma\gamma$ coin. ^{146}Nd; deduced levels, J^π, log *ft*.

Others: 1980Ge10, 1972Oh08, 1968Da13, 1989Mo06, 1989Ma38, 1965Ra02, 1997Gr09.

Decay scheme is that from 1978Ik03. Levels at 2121, 2198, 2208, 2220, and 2336 keV have been added by the evaluators on the basis of data in (n,γ), (n,n$'\gamma$) levels that unplaced γ's in 1978Ik03 consistent with the decays of these levels.

^{146}Nd Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0	0$^+$		
453.85 *4*	2$^+$	23 ps *5*	$T_{1/2}$: from $\gamma\gamma$(t) (1989Mo06).
915.4 *3*	0$^+$		
1043.20 *14*	4$^+$		
1189.58 *6*	3$^-$		
1303.2 *4*	2$^+$		J$^\pi$: $\gamma\gamma(\theta)$ is consistent with J=2, not with J=0,1,3,4.
1376.90 *5*	1$^-$		
1470.66 *6*	2$^+$		
1602.7	0$^+$		E(level): from 1997Gr09.
1697.27 *18*	0$^+$		
1777.53 *13*	3$^+$		
1787.50 *17*	2$^+$		
1905.73 *10*	2$^+$		
1978.48 *5*	2$^+$		
2120.9 *10*	2$^+$		
2143.72 *13*	2$^+$		
2149.1 *8*	(1,2$^+$)		
2198.3 *4*	2$^+$		
2207.9 *10*	2$^+$		
2219.8 *4*	3$^+$		
2266.6 *5*	2$^+$		
2336.4 *10*	3$^-$		
2356.52 *14*	1$^+$		
2437.94 *20*	2$^+$		
2460.01 *17*	(1,2$^+$)		
2479.2 *5*	(2$^+$)		
2551.99 *13*	2$^+$		
2681.24 *18*	1$^-$		
2705.87 *7*	2,3$^{(-)}$		
2775.4 *4*	1,2$^+$		
2970.83 *18*	2$^+$		
3292.28 *22*	1		
3335.41 *25*			
3347.2 *9*	1,2$^+$		
3368.97 *22*	1$^-$,2		
3391.8 *3*	1$^-$		
3534.2 *4*	1$^-$		
3594.7 *4*			
3618.7 *4*			
3709.2 *14*	2$^+$		

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^{146}Pr β^- decay 1978Ik03 (continued)

^{146}Nd Levels (continued)

† From a least-squares fit to Eγ′s, normalized χ^2=0.45.
‡ From ‘Adopted Levels’.

β^- radiations

β feeding was determined from I(γ+ce) imbalance for each level and absolute value of I(453.9γ)=46.3% *19* which is weighted average of I(453.9γ)=48.0% *15* (1980Ge10) and I(453.9γ)=44.1% *17* (1996Gr20).
Iβ(453 level)/Iβ(g.s.)=0.43 *4* (1978Ik03); Iβ(453 level)/Iβ(g.s.)=0.29 *11* (evaluation from Iγ imbalance and adopted decay scheme).

E(decay)†	E(level)	Iβ^-‡	Log *ft*	Comments
(5.4×10^2 *3*)	3709.2	0.084 *9*	6.93 *11*	av Eβ=165 *13* Iβ^-: 0.083 (1997Gr09).
(6.3×10^2 *3*)	3618.7	0.256 *18*	6.67 *10*	av Eβ=197 *13* Iβ^-: 0.50 (1997Gr09).
(6.6×10^2 *3*)	3594.7	0.156 *14*	6.95 *10*	av Eβ=206 *13* Iβ^-: 0.31 (1997Gr09).
(7.2×10^2 *3*)	3534.2	0.214 *14*	6.94 *9*	av Eβ=229 *14* Iβ^-: 0.57 (1997Gr09).
(8.6×10^2 *3*)	3391.8	0.211 *16*	7.23 *8*	av Eβ=283 *14* Iβ^-: 0.38 (1997Gr09).
(8.8×10^2 *3*)	3368.97	0.50 *5*	6.90 *8*	av Eβ=292 *14* Iβ^-: 0.91 (1997Gr09).
(9.0×10^2 *3*)	3347.2	0.069 *8*	7.80 *8*	av Eβ=301 *14* Iβ^-: 0.124 (1997Gr09).
(9.1×10^2 *3*)	3335.41	0.294 *19*	7.19 *7*	av Eβ=305 *14* Iβ^-: 0.53 (1997Gr09).
(9.6×10^2 *3*)	3292.28	0.48 *3*	7.05 *7*	av Eβ=323 *14* Iβ^-: 0.88 (1997Gr09).
(1.28×10^3 *3*)	2970.83	0.70 *4*	7.35 *6*	av Eβ=454 *15* Iβ^-: 1.25 (1997Gr09).
(1.47×10^3 *3*)	2775.4	0.208 *17*	8.11 *6*	av Eβ=537 *15* Iβ^-: 0.25 (1997Gr09).
(1.54×10^3 *3*)	2705.87	3.21 *16*	7.00 *5*	av Eβ=567 *16* Iβ^-: 3.81 (1997Gr09).
(1.57×10^3 *3*)	2681.24	0.86 *5*	7.60 *5*	av Eβ=578 *16* Iβ^-: 1.02 (1997Gr09).
(1.70×10^3 *3*)	2551.99	1.14 *7*	7.61 *5*	av Eβ=634 *16* Iβ^-: 1.35 (1997Gr09).
(1.77×10^3 *3*)	2479.2	0.154 *12*	8.55 *5*	av Eβ=666 *16* Iβ^-: 0.120 (1997Gr09).
(1.79×10^3 *3*)	2460.01	0.75 *5*	7.88 *5*	av Eβ=674 *16* Iβ^-: 0.60 (1997Gr09).
(1.81×10^3 *3*)	2437.94	0.285 *20*	8.32 *5*	av Eβ=684 *16* Iβ^-: 0.22 (1997Gr09).
(1.89×10^3 *3*)	2356.52	0.79 *8*	7.95 *6*	av Eβ=720 *16* Iβ^-: 1.04 (1997Gr09).
(1.91×10^3 *3*)	2336.4	0.061 *8*	9.09 *7*	av Eβ=729 *16* Iβ^-: 0.060 (1997Gr09).
(1.98×10^3 *3*)	2266.6	0.161 *18*	8.73 *6*	av Eβ=760 *16* Iβ^-: 0.273 (1997Gr09).
(2.03×10^3 *3*)	2219.8	0.069 *10*	9.13 *7*	av Eβ=781 *16* Iβ^-: 0.299 (1997Gr09).

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^{146}Pr β^- decay 1978Ik03 (continued)

β^- radiations (continued)

E(decay)†	E(level)	Iβ^-‡	Log *ft*	Comments
(2.04×10^3 *3*)	2207.9	0.056 *19*	9.23 *15*	av Eβ=786 *16* Iβ^-: 0.083 (1997Gr09).
(2.05×10^3 *3*)	2198.3	0.103 *11*	8.98 *6*	av Eβ=790 *16* Iβ^-: 0.153 (1997Gr09).
(2.10×10^3 *3*)	2149.1	0.053 *9*	9.31 *8*	av Eβ=812 *16* Iβ^-: 0.057 (1997Gr09).
(2.11×10^3 *3*)	2143.72	0.27 *5*	8.61 *9*	av Eβ=815 *16* Iβ^-: 0.134 (1997Gr09).
(2.13×10^3 *3*)	2120.9	0.086 *9*	9.12 *6*	av Eβ=825 *16* Iβ^-: 0.081 (1997Gr09).
2.16×10^3 *10*	1978.48	28.7 *15*	6.71 *4*	av Eβ=889 *16* Iβ^-: 23.18 (1997Gr09).
(2.34×10^3 *3*)	1905.73	2.25 *15*	7.87 *4*	av Eβ=922 *16* Iβ^-: 2.22 (1997Gr09).
(2.46×10^3 *3*)	1787.50	0.45 *5*	8.66 *6*	av Eβ=975 *16* Iβ^-: 0.45 (1997Gr09).
(2.47×10^3 *3*)	1777.53	0.14 *4*	9.17 *13*	av Eβ=980 *16* Iβ^-: 0.158 (1997Gr09).
(2.55×10^3 *3*)	1697.27	0.49 *4*	9.93^{1u} *5*	av Eβ=1004 *16* Iβ^-: 0.95 (1997Gr09).
(2.65×10^3 *3*)	1602.7			Iβ^-: 0.21 (1997Gr09).
(2.78×10^3 *3*)	1470.66	0.64 *11*	8.720 *24*	av Eβ=1120 *16* Iβ^-: 0.63 (1997Gr09).
(2.87×10^3 *3*)	1376.90	2.5 *3*	8.13 *12*	av Eβ=1119 *69* Iβ^-: 1.33 (1997Gr09).
(2.95×10^3 *3*)	1303.2			Iβ^-: 0.128 (1997Gr09).
(3.06×10^3 *3*)	1189.58	0.4 *5*	9.1 *6*	av Eβ=1249 *16* Iβ^-: 0.24 (1997Gr09).
(3.21×10^3 *3*)	1043.20	0.066 *23*	11.40^{1u} *16*	av Eβ=1298 *16*
(3.33×10^3 *3*)	915.4	0.046 *10*	11.66^{1u} *10*	av Eβ=1356 *16*
3.7×10^3 *1*	453.85	13 *3*	7.98 *11*	av Eβ=1588 *17* Iβ^-: 10.91 (1997Gr09).
4.15×10^3 *15*	0.0	45 *4*	9.31^{1u} *5*	av Eβ=1776 *17* Iβ^-: 44.1 *17* (1997Gr09).

† From β and $\beta\gamma$ measurements 4150 *150*, 3700 *100*, 2160 *100* keV (1978Ik03) and 4100 *200*, 3600 *100*, 2800 *200*, 2100 *100* keV (1968Da13).

‡ Absolute intensity per 100 decays.

$\gamma(^{146}$Nd)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@d]	α[c]	Comments
146.4[a] *5*	0.93 *9*	1189.58	3^-	1043.20	4^+	[E1]		0.0914 *16*	α(K)=0.0778 *13*; α(L)=0.01075 *19*; α(M)=0.00227 *4* α(N)=0.000502 *9*; α(O)=7.35×10^{-5} *13*; α(P)=4.07×10^{-6} *7*
191.2[a] *8*	0.32 *15*	1978.48	2^+	1787.50	2^+	[M1+E2]		0.229 *5*	α(K)=0.181 *15*; α(L)=0.037 *11*; α(M)=0.0082 *25* α(N)=0.0018 *6*; α(O)=0.00025 *6*; α(P)=1.05×10^{-5} *22*
446.4[a] *10*	1.60 *20*	2143.72	2^+	1697.27	0^+	[E2]		0.01608 *25*	α(K)=0.01321 *21*; α(L)=0.00225 *4*; α(M)=0.000487 *8* α(N)=0.0001078 *17*; α(O)=1.561×10^{-5} *25*; α(P)=7.66×10^{-7} *12*
453.86 *5*	1000 *50*	453.85	2^+	0.0	0^+	[E2]		0.01535	α(K)=0.01263 *18*; α(L)=0.00214 *3*; α(M)=0.000462 *7* α(N)=0.0001023 *15*; α(O)=1.484×10^{-5} *21*; α(P)=7.33×10^{-7} *11* I(453γ)=48.0% *15* (1980Ge10), 48% *3* (1968Da13).
461.6[a] *3*	0.95 *19*	915.4	0^+	453.85	2^+	[E2]		0.01464	α(K)=0.01206 *17*; α(L)=0.00203 *3*; α(M)=0.000439 *7* α(N)=9.71×10^{-5} *14*; α(O)=1.409×10^{-5} *20*; α(P)=7.02×10^{-7} *10*
481.5[a] *5*	0.8 *5*	2460.01	$(1,2^+)$	1978.48	2^+				
508.0[a] *2*	9.6 *5*	1978.48	2^+	1470.66	2^+	[M1+E2]		0.014 *4*	α(K)=0.012 *3*; α(L)=0.00176 *25*; α(M)=0.00038 *5* α(N)=8.4×10^{-5} *12*; α(O)=1.25×10^{-5} *20*; α(P)=7.5×10^{-7} *21*
562.10 *14*	7.7 *4*	2705.87	$2,3^{(-)}$	2143.72	2^+	[E1]		0.00303	α(K)=0.00260 *4*; α(L)=0.000337 *5*; α(M)=7.09×10^{-5} *10* α(N)=1.582×10^{-5} *23*; α(O)=2.39×10^{-6} *4*; α(P)=1.518×10^{-7} *22*
587.8[a] *5*	1.5 *3*	1777.53	3^+	1189.58	3^-	[E1]		0.00275	α(K)=0.00236 *4*; α(L)=0.000305 *5*; α(M)=6.41×10^{-5} *9* α(N)=1.432×10^{-5} *21*; α(O)=2.16×10^{-6} *3*; α(P)=1.379×10^{-7} *20*
589.35 *14*	7.2 *4*	1043.20	4^+	453.85	2^+	[E2]		0.00765	α(K)=0.00640 *9*; α(L)=0.000991 *14*; α(M)=0.000212 *3* α(N)=4.72×10^{-5} *7*; α(O)=6.95×10^{-6} *10*; α(P)=3.80×10^{-7} *6*
597.8[a] *8*	1.65 *17*	1787.50	2^+	1189.58	3^-	[E1]		0.00265	α(K)=0.00227 *4*; α(L)=0.000294 *5*; α(M)=6.18×10^{-5} *9* α(N)=1.379×10^{-5} *20*; α(O)=2.08×10^{-6} *3*; α(P)=1.330×10^{-7} *19*
601.57 *2*	162 *3*	1978.48	2^+	1376.90	1^-	[E1]		0.00261	α(K)=0.00224 *4*; α(L)=0.000290 *4*; α(M)=6.09×10^{-5} *9* α(N)=1.360×10^{-5} *19*; α(O)=2.05×10^{-6} *3*; α(P)=1.312×10^{-7} *19*
716.0[a] *4*	1.33 *16*	1905.73	2^+	1189.58	3^-	[E1]		0.00181	α(K)=0.001554 *22*; α(L)=0.000199 *3*; α(M)=4.19×10^{-5} *6* α(N)=9.35×10^{-6} *14*; α(O)=1.415×10^{-6} *20*; α(P)=9.13×10^{-8} *13*
727.20 *14*	11.8 *6*	2705.87	$2,3^{(-)}$	1978.48	2^+				
735.72 *6*	156 *8*	1189.58	3^-	453.85	2^+	[E1+M2]	−0.07 *2*	0.00179 *7*	α(K)=0.00154 *6*; α(L)=0.000199 *8*; α(M)=4.18×10^{-5} *16* α(N)=9.3×10^{-6} *4*; α(O)=1.41×10^{-6} *6*; α(P)=9.1×10^{-8} *4*
766.4[a] *10*	0.76 *17*	2143.72	2^+	1376.90	1^-	[E1]		1.57×10^{-3}	α(K)=0.001353 *20*; α(L)=0.0001729 *25*;

$^{146}_{60}$Nd$_{86}$-4

γ(^{146}Nd) (continued)

E_γ [†]	I_γ [‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [#]	δ [@d]	α [c]	Comments
									α(M)=3.63×10^{-5} *6* α(N)=8.11×10^{-6} *12*; α(O)=1.229×10^{-6} *18*; α(P)=7.96×10^{-8} *12*
772.3[a] *10*	0.64 *14*	2149.1	(1,2$^+$)	1376.90	1$^-$	[E1]		1.55×10^{-3}	α(K)=0.001332 *19*; α(L)=0.0001702 *25*; α(M)=3.58×10^{-5} *5* α(N)=7.99×10^{-6} *12*; α(O)=1.210×10^{-6} *18*; α(P)=7.84×10^{-8} *12*
774.47 *17*	5.4 *3*	2551.99	2$^+$	1777.53	3$^+$				
788.90 *6*	131 *7*	1978.48	2$^+$	1189.58	3$^-$	[E1]		1.48×10^{-3}	α(K)=0.001276 *18*; α(L)=0.0001629 *23*; α(M)=3.42×10^{-5} *5* α(N)=7.65×10^{-6} *11*; α(O)=1.159×10^{-6} *17*; α(P)=7.52×10^{-8} *11*
816.5[a] *10*	0.35 *15*	3368.97	1$^-$,2	2551.99	2$^+$				
839.5[a] *10*	0.60 *17*	3391.8	1$^-$	2551.99	2$^+$				
849.1[a] *5*	1.64 *20*	1303.2	2$^+$	453.85	2$^+$	[M1+E2]		0.0041 *9*	α(K)=0.0035 *8*; α(L)=0.00047 *9*; α(M)=0.000100 *19* α(N)=2.2×10^{-5} *5*; α(O)=3.4×10^{-6} *7*; α(P)=2.2×10^{-7} *6*
922.92 *8*	48.5 *24*	1376.90	1$^-$	453.85	2$^+$	[E1+M2]	−0.01 *4*	0.00109 *3*	α(K)=0.000939 *23*; α(L)=0.000119 *4*; α(M)=2.50×10^{-5} *7* α(N)=5.59×10^{-6} *15*; α(O)=8.49×10^{-7} *23*; α(P)=5.55×10^{-8} *15*
928.15 *30*	3.50 *23*	2705.87	2,3$^{(-)}$	1777.53	3$^+$				
954.0[a] *15*	0.34 *7*	2143.72	2$^+$	1189.58	3$^-$	[E1]		1.02×10^{-3}	α(K)=0.000881 *13*; α(L)=0.0001116 *16*; α(M)=2.34×10^{-5} *4* α(N)=5.24×10^{-6} *8*; α(O)=7.95×10^{-7} *12*; α(P)=5.21×10^{-8} *8*
1012.7[&] *6*	2.8 *8*	3368.97	1$^-$,2	2356.52	1$^+$				
1016.79 *7*	25.6 *13*	1470.66	2$^+$	453.85	2$^+$	[M1+E2]	−13 *+8−19*	0.00217 *5*	α(K)=0.00185 *4*; α(L)=0.000253 *5*; α(M)=5.37×10^{-5} *11* α(N)=1.198×10^{-5} *24*; α(O)=1.80×10^{-6} *4*; α(P)=1.12×10^{-7} *3*
1081.30 *14*	16.5 *9*	2551.99	2$^+$	1470.66	2$^+$				
1148.9[a] *4*	4.7 *3*	3292.28	1	2143.72	2$^+$				
[x]1164.8 *5*	2.62 *23*								
1183.1[a] *5*	1.94 *16*	2970.83	2$^+$	1787.50	2$^+$				
1192.2[a] *8*	0.97 *13*	3335.41		2143.72	2$^+$				
1235.25 *13*	7.6 *4*	2705.87	2,3$^{(-)}$	1470.66	2$^+$				
1243.42 *18*	13.4 *7*	1697.27	0$^+$	453.85	2$^+$	[E2]		1.44×10^{-3}	α(K)=0.001223 *18*; α(L)=0.0001631 *23*; α(M)=3.44×10^{-5} *5* α(N)=7.69×10^{-6} *11*; α(O)=1.164×10^{-6} *17*; α(P)=7.42×10^{-8} *11*; α(IPF)=1.156×10^{-5} *17*
1247.9[a] *10*	1.01 *19*	2437.94	2$^+$	1189.58	3$^-$				

γ(^{146}Nd) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	δ[@d]	α[c]	Comments
1303.4[a] *5*	1.48 *18*	1303.2	2+	0.0	0+				
1323.63 *17*	11.6 *6*	1777.53	3+	453.85	2+	[M1+E2]	+4.6 *+60−28*	0.00131 *10*	α(K)=0.00110 *9*; α(L)=0.000145 *11*; α(M)=3.07×10^{-5} *22* α(N)=6.9×10^{-6} *5*; α(O)=1.04×10^{-6} *8*; α(P)=6.7×10^{-8} *6*; α(IPF)=2.57×10^{-5} *4*
1328.96 *17*	12.0 *6*	2705.87	2,3(−)	1376.90	1−				
1333.6[a] *2*	14.4 *7*	1787.50	2+	453.85	2+	[M1+E2]	+1.4 *+9−8*	0.00144 *20*	α(K)=0.00121 *18*; α(L)=0.000158 *21*; α(M)=3.3×10^{-5} *5* α(N)=7.5×10^{-6} *10*; α(O)=1.14×10^{-6} *16*; α(P)=7.4×10^{-8} *12*; α(IPF)=2.82×10^{-5} *6*
[x]1338.6 *5*	2.70 *22*								
1376.76 *8*	91 *5*	1376.90	1−	0.0	0+	[E1]		6.49×10^{-4}	α(K)=0.000453 *7*; α(L)=5.68×10^{-5} *8*; α(M)=1.190×10^{-5} *17* α(N)=2.66×10^{-6} *4*; α(O)=4.05×10^{-7} *6*; α(P)=2.69×10^{-8} *4*; α(IPF)=0.0001240 *18*
[x]1411.1 *5*	1.69 *17*								
1436.0[a] *4*	3.32 *22*	2479.2	(2+)	1043.20	4+				
1451.89 *9*	47.5 *24*	1905.73	2+	453.85	2+	[M1+E2]	+0.68 *+56−42*	0.00137 *12*	α(K)=0.00113 *10*; α(L)=0.000146 *12*; α(M)=3.08×10^{-5} *25* α(N)=6.9×10^{-6} *6*; α(O)=1.05×10^{-6} *9*; α(P)=7.0×10^{-8} *7*; α(IPF)=6.26×10^{-5} *13*
1463.8[a] *7*	1.12 *15*	3368.97	1−,2	1905.73	2+				
1470.70 *8*	24.8 *13*	1470.66	2+	0.0	0+	[E2]		1.09×10^{-3}	α(K)=0.000881 *13*; α(L)=0.0001154 *17*; α(M)=2.43×10^{-5} *4* α(N)=5.44×10^{-6} *8*; α(O)=8.25×10^{-7} *12*; α(P)=5.35×10^{-8} *8*; α(IPF)=6.65×10^{-5} *10*
1500.0[a] *5*	1.8 *2*	2970.83	2+	1470.66	2+				
1504.9[a] *10*	0.8 *2*	3292.28	1	1787.50	2+				
1508.6[a] *8*	1.62 *15*	2551.99	2+	1043.20	4+				
1515.9[a] *5*	5.4 *6*	2705.87	2,3(−)	1189.58	3−				
1524.78 *8*	325 *16*	1978.48	2+	453.85	2+	[M1+E2]	+0.03 *3*	1.37×10^{-3}	α(K)=0.001103 *16*; α(L)=0.0001420 *20*; α(M)=2.99×10^{-5} *5* α(N)=6.70×10^{-6} *10*; α(O)=1.025×10^{-6} *15*; α(P)=6.88×10^{-8} *10*; α(IPF)=8.97×10^{-5} *13*
[x]1529.8 *10*	2.6 *4*								
1555.6[a] *8*	1.66 *15*	3534.2	1−	1978.48	2+				
1593.9[a] *5*	2.86 *20*	2970.83	2+	1376.90	1−				
1614.1[a] *7*	1.16 *14*	3391.8	1−	1777.53	3+				
1650.1[a] *10*	1.25 *14*	3347.2	1,2+	1697.27	0+				
1690.1 *4*	12.9 *7*	2143.72	2+	453.85	2+	[M1+E2]		0.00106 *13*	α(K)=0.00078 *10*; α(L)=0.000100 *13*; α(M)=2.1×10^{-5} *3*

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γ(^{146}Nd) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[#]	α[c]	Comments
								α(N)=4.7×10^{-6} *6*; α(O)=7.2×10^{-7} *10*; α(P)=4.8×10^{-8} *7*; α(IPF)=0.000155 *6* δ: if for 2143.7 keV level J=1 δ=−0.07 *13*, if J=2 δ=−2.5 *10*.
[x]1741.2[&] *9*	2.3 *6*							
1744.4[b] *4*	2.23 *22*	2198.3	2+	453.85	2+			
1765.9[&] *4*	1.5 *2*	2219.8	3+	453.85	2+			
1781.3 *5*	1.59 *9*	2970.83	2+	1189.58	3−			
1787.5[a] *4*	1.78 *8*	1787.50	2+	0.0	0+	[E2]	9.01×10^{-4}	α(K)=0.000610 *9*; α(L)=7.86×10^{-5} *11*; α(M)=1.653×10^{-5} *24* α(N)=3.70×10^{-6} *6*; α(O)=5.63×10^{-7} *8*; α(P)=3.70×10^{-8} *6*; α(IPF)=0.000192 *3*
1812.7[a] *5*	2.18 *17*	2266.6	2+	453.85	2+			
1831.1 *3*	4.98 *29*	3618.7		1787.50	2+			
1882.5[ab] *10*	1.31 *15*	2336.4	3−	453.85	2+			
1902.2 *5*	2.7 *8*	2356.52	1+	453.85	2+			
1905.7[a] *10*	0.92 *14*	1905.73	2+	0.0	0+	[E2]	8.76×10^{-4}	α(K)=0.000542 *8*; α(L)=6.95×10^{-5} *10*; α(M)=1.461×10^{-5} *21* α(N)=3.27×10^{-6} *5*; α(O)=4.98×10^{-7} *7*; α(P)=3.29×10^{-8} *5*; α(IPF)=0.000247 *4*
1915.1[a] *5*	1.77 *15*	3292.28	1	1376.90	1−			
1920.9[a] *5*	1.13 *14*	3391.8	1−	1470.66	2+			
[x]1940.1 *8*	1.56 *16*							
1958.4 *3*	3.83 *24*	3335.41		1376.90	1−			
[x]1961.3 *10*	0.86 *12*							
1978.3[a] *5*	4.5 *3*	1978.48	2+	0.0	0+	[E2]	8.68×10^{-4}	α(K)=0.000506 *7*; α(L)=6.47×10^{-5} *9*; α(M)=1.361×10^{-5} *19* α(N)=3.05×10^{-6} *5*; α(O)=4.64×10^{-7} *7*; α(P)=3.07×10^{-8} *5*; α(IPF)=0.000281 *4*
1984.1 *2*	5.14 *29*	2437.94	2+	453.85	2+			
1991.9 *5*	1.26 *14*	3368.97	1−,2	1376.90	1−			
2005.5[a] *5*	5.08 *29*	2460.01	(1,2+)	453.85	2+			
2098.3[a] *8*	2.03 *27*	2551.99	2+	453.85	2+			
2120.9[b] *10*	1.85 *17*	2120.9	2+	0.0	0+			
[x]2126.9 *10*	1.87 *17*							
2143.7 *4*	3.63 *23*	2143.72	2+	0.0	0+	[E2]	8.67×10^{-4}	α(K)=0.000437 *7*; α(L)=5.57×10^{-5} *8*; α(M)=1.170×10^{-5} *17* α(N)=2.62×10^{-6} *4*; α(O)=3.99×10^{-7} *6*; α(P)=2.65×10^{-8} *4*; α(IPF)=0.000360 *5*
2149.0[a] *12*	0.50 *11*	2149.1	(1,2+)	0.0	0+	[M1+E2]	0.00093 *7*	α(K)=0.00048 *5*; α(L)=6.1×10^{-5} *6*; α(M)=1.28×10^{-5} *12* α(N)=2.9×10^{-6} *3*; α(O)=4.4×10^{-7} *4*; α(P)=2.9×10^{-8} *3*; α(IPF)=0.000378 *17*
2157.1[a] *7*	1.15 *14*	3534.2	1−	1376.90	1−			
2179.3[a] *3*	4.42 *26*	3368.97	1−,2	1189.58	3−			
2207.9[&] *10*	1.2 *4*	2207.9	2+	0.0	0+			
2217.7 *5*	1.70 *22*	3594.7		1376.90	1−			

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γ(^{146}Nd) (continued)

E_γ[†]	I_γ[‡e]	E_i(level)	J^π_i	E_f	J^π_f
2227.25 *25*	9.5 *5*	2681.24	1$^-$	453.85	2$^+$
[x]2245.9 *10*	0.84 *12*				
2252.13 *10*	21.4 *11*	2705.87	2,3$^{(-)}$	453.85	2$^+$
2266.7[a] *10*	1.3 *3*	2266.6	2$^+$	0.0	0$^+$
[x]2322.0 *15*	0.62 *10*				
2356.55 *14*	17.2 *9*	2356.52	1$^+$	0.0	0$^+$
2460.08 *19*	10.4 *5*	2460.01	(1,2$^+$)	0.0	0$^+$
[x]2477.6 *4*	0.88 *10*				
2517.04 *24*	6.9 *4*	2970.83	2$^+$	453.85	2$^+$
2681.35 *25*	9.0 *5*	2681.24	1$^-$	0.0	0$^+$
2775.4[b] *4*	4.5 *3*	2775.4	1,2$^+$	0.0	0$^+$
[x]2779.0[&] *20*	0.7 *4*				
[x]2830.3 *3*	4.7 *3*				
2881.6 *5*	1.58 *11*	3335.41		453.85	2$^+$
2893.0[a] *15*	0.23 *2*	3347.2	1,2$^+$	453.85	2$^+$
2915.1 *8*	0.91 *8*	3368.97	1$^-$,2	453.85	2$^+$
2938.4[a] *5*	1.67 *11*	3391.8	1$^-$	453.85	2$^+$
3080.4 *5*	1.82 *11*	3534.2	1$^-$	453.85	2$^+$
3140.9[a] *6*	1.67 *12*	3594.7		453.85	2$^+$
3165.6[a] *10*	0.55 *6*	3618.7		453.85	2$^+$
3255.5[a] *18*	0.48 *6*	3709.2	2$^+$	453.85	2$^+$
3292.12 *30*	3.14 *17*	3292.28	1	0.0	0$^+$
[x]3386.2 *12*	0.31 *4*				
3709.0[a] *20*	1.34 *15*	3709.2	2$^+$	0.0	0$^+$

† Weighted average of 1977Ta15 and 1978Ik03, except as noted.
‡ From 1978Ik03.
\# Assigned by the evaluators according to the level scheme of 1978Ik03, the level spins in the scheme were determined by authors using $\gamma\gamma$ correlation results.
@ From $\gamma\gamma(\theta)$ (1978Ik03).
& Observed by 1977Ta15.
a From 1978Ik03.
b Placed by the evaluators according to (n,n′γ) data.
c Additional information 1.
d If No value given it was assumed δ=1.00 for E2/M1.
e For absolute intensity per 100 decays, multiply by 0.0463 *19*.
x γ ray not placed in level scheme.

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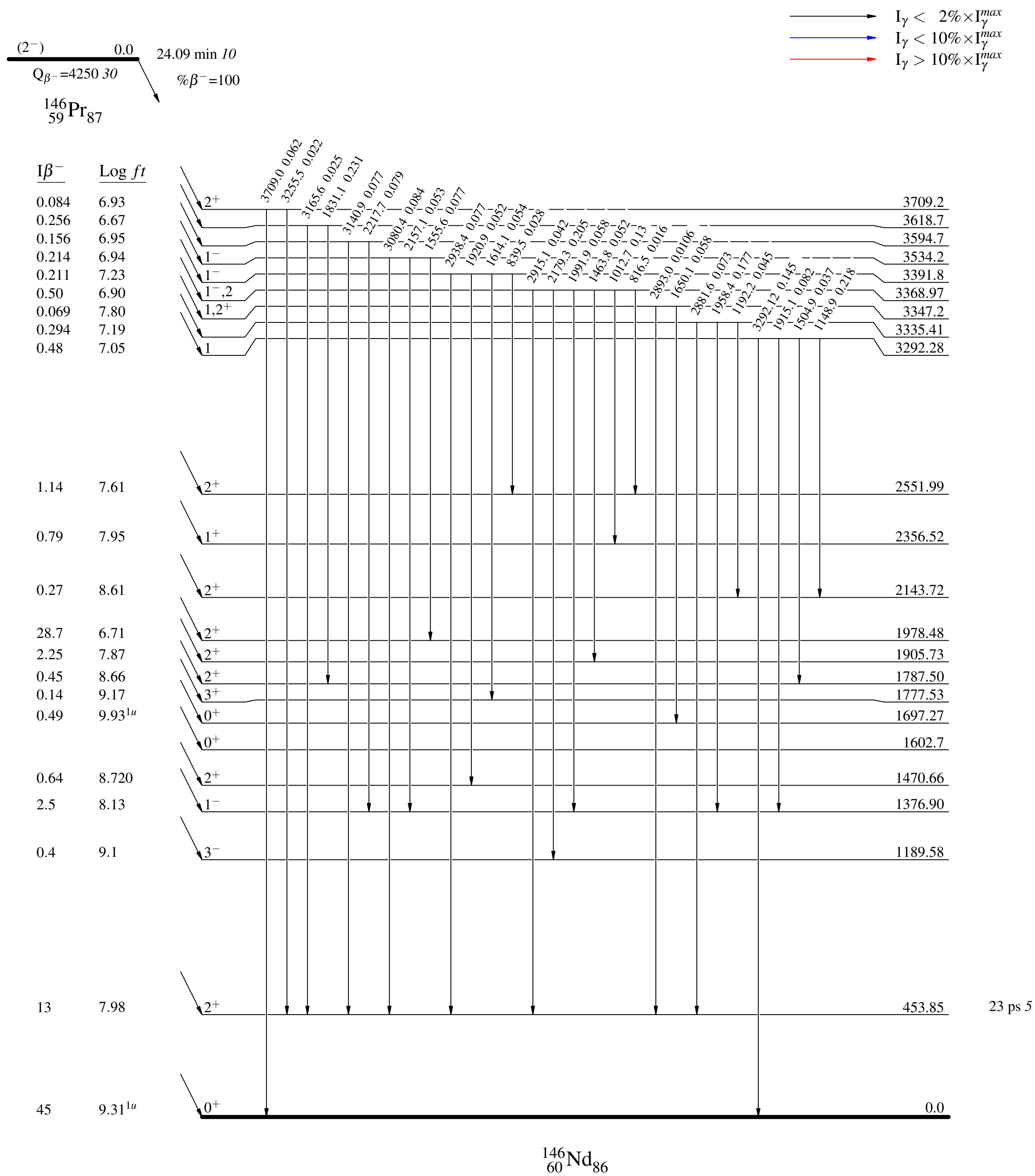
^{146}Pr β^- decay 1978Ik03

Decay Scheme

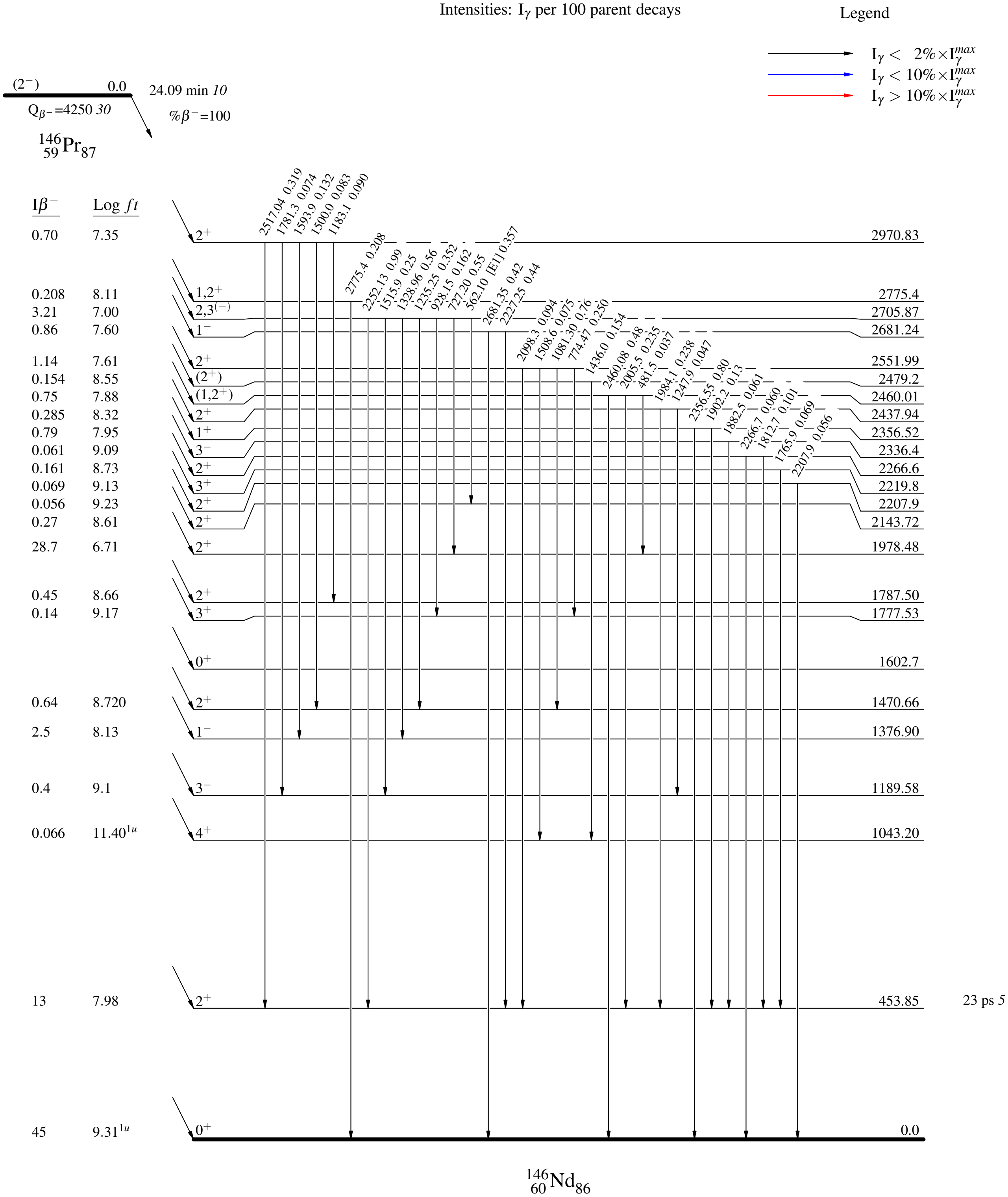
Intensities: I_γ per 100 parent decays



^{146}Pr β^- decay 1978Ik03

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays



^{146}Pr β^- decay 1978Ik03

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays