^{145}Pr β^- decay 1976Ja01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 110, 507 (2009)	1-Oct-2008

Parent: ^{145}Pr: E=0.0; $J^\pi=7/2^+$; $T_{1/2}$=5.984 h *10*; Q(β^-)=1805 *7*; %β^- decay=100.0

Additional information 1.

Measured: Eγ, $\gamma\gamma$ coin (1976Ja01,1975Hi03,1969Gr32,1966Bu13,1962Ho16); E,Iγ (1980Ge11), β^- (1962Ho16,1954Ma07). Eβ^-=1805 *10* (1962Ho16). Other:≤1700 (1954Ma07).

^{145}Nd Levels

E(level)	J^π†	E(level)	J^π†	E(level)	J^π†	E(level)	J^π†
0.0	$7/2^-$	780.43 *1*	$3/2^-$	1085.25 *1*	$3/2^+$	1285.52 *5*	$5/2^-$
67.23 *1*	$3/2^-$	920.681 *5*	$9/2^-$	1150.273 *3*	$7/2^-$	1338.65 *6*	$5/2^-$,$7/2^-$
72.489 *4*	$5/2^-$	936.94 *3*	$5/2^-$	1161.02 *1*	$3/2^-$,5/2,$7/2^-$	1403.920 *6*	$(5/2^-)$
657.676 *4*	$11/2^-$	1011.01 *2*	$11/2^{(+)}$	1162.34 *6*	$9/2^-$	1527.07 *2*	$9/2^-$
748.278 *4*	$9/2^-$	1051.435 *4*	$7/2^-$,$5/2^-$	1249.73 *2*	$5/2^-$		

† Adopted values.

β^- radiations

E(decay)	E(level)	Iβ^-†	Log *ft*	Comments
(278 *7*)	1527.07	0.016 *1*	7.88 *5*	av Eβ=78.4 *22*
(401 *7*)	1403.920	0.092 *1*	7.64 *3*	av Eβ=118.2 *24*
(466 *7*)	1338.65	2.1×10^{-3} *3*	9.50 *7*	av Eβ=140.3 *25*
(519 *7*)	1285.52	20×10^{-4} *4*	9.68 *9*	av Eβ=158.8 *25*
(555 *7*)	1249.73	7×10^{-3} *5*	9.2 *4*	av Eβ=172 *3*
(643 *7*)	1162.34	0.011 *1*	9.25 *5*	av Eβ=203 *3*
(644 *7*)	1161.02	0.024 *1*	8.9 *3*	av Eβ=204 *3*
(655 *7*)	1150.273	0.220 *6*	7.98 *2*	av Eβ=208 *3*
(754 *7*)	1051.435	0.40 *1*	7.93 *2*	av Eβ=245 *3*
(884 *7*)	920.681	0.221 *5*	8.42 *2*	av Eβ=295 *3*
(1057 *7*)	748.278	1.04 *2*	8.05 *1*	av Eβ=364 *3*
(1733 *7*)	72.489	0.32 *7*	9.37 *10*	av Eβ=651 *3*
1805 *10*	0.0	97.6 *1*	6.96 *7*	av Eβ=683 *3*

† Absolute intensity per 100 decays.

$\gamma(^{145}Nd)$

Iγ normalization: I(748γ)=0.525% 9 (1980Ge11).

E$_\gamma$‡	I$_\gamma$‡&	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.@	α†	Comments
67.10 *1*	17 *9*	67.23	$3/2^-$	0.0	$7/2^-$	E2	9.55	α(K)=3.33 *5*; α(L)=4.84 *8*; α(M)=1.109 *18*; α(N+..)=0.269 *5* α(N)=0.239 *4*; α(O)=0.0302 *5*; α(P)=0.0001423 *21*
72.500 *4*	498# *26*	72.489	$5/2^-$	0.0	$7/2^-$	M1	3.57	α(K)=3.04 *5*; α(L)=0.425 *6*; α(M)=0.0901 *13*; α(N+..)=0.0234 *4* α(N)=0.0202 *3*; α(O)=0.00306 *5*; α(P)=0.000197 *3* I$_\gamma$: Iγ=0.20% 4 (1966Bu13).

Continued on next page (footnotes at end of table)

^{145}Pr β^- decay 1976Ja01 (continued)

$\gamma(^{145}Nd)$ (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π	Comments
91.1 *2*	14 *1*	748.278	9/2$^-$	657.676	11/2$^-$	
130.95 *15*	0.6 *3*	1051.435	7/2$^-$,5/2$^-$	920.681	9/2$^-$	
242.91 *3*	3.1 *3*	1403.920	(5/2$^-$)	1161.02	3/2$^-$,5/2,7/2$^-$	
262.886 *9*	7.9 *5*	920.681	9/2$^-$	657.676	11/2$^-$	
262.94	5.3 *5*	1011.01	11/2$^{(+)}$	748.278	9/2$^-$	
303.192 *9*	12.5 *5*	1051.435	7/2$^-$,5/2$^-$	748.278	9/2$^-$	
318.666 *6*	26.2 *5*	1403.920	(5/2$^-$)	1085.25	3/2$^+$	
352.481 *5*	70 *1*	1403.920	(5/2$^-$)	1051.435	7/2$^-$,5/2$^-$	I_γ: I(352γ+353γ)=88 *2* (1980Ge11).
353.544 *64*	7 *1*	1011.01	11/2$^{(+)}$	657.676	11/2$^-$	I_γ: I(352γ+353γ)=88 *2* (1980Ge11).
364.81 *25*	0.5 *2*	1527.07	9/2$^-$	1162.34	9/2$^-$	
402.101 *80*	1.3 *3*	1150.273	7/2$^-$	748.278	9/2$^-$	
[x]424.92 *15*	1.3 *4*					
[x]448.5[a] *5*	≤0.4					
467.03 *3*	4.9 *5*	1403.920	(5/2$^-$)	936.94	5/2$^-$	
475.606 *24*	8.1 *5*	1527.07	9/2$^-$	1051.435	7/2$^-$,5/2$^-$	
492.624 *5*	48.0[#] *12*	1150.273	7/2$^-$	657.676	11/2$^-$	
504.65 *16*	1.1 *4*	1162.34	9/2$^-$	657.676	11/2$^-$	
516.071 *15*	14 *1*	1527.07	9/2$^-$	1011.01	11/2$^{(+)}$	
606.42 *6*	3.3 *6*	1527.07	9/2$^-$	920.681	9/2$^-$	
623.502 *6*	45.4[#] *12*	1403.920	(5/2$^-$)	780.43	3/2$^-$	
657.668 *5*	122[#] *2*	657.676	11/2$^-$	0.0	7/2$^-$	
675.795 *5*	979[#] *14*	748.278	9/2$^-$	72.489	5/2$^-$	
707.949 *12*	19.0 *8*	780.43	3/2$^-$	72.489	5/2$^-$	
713.224 *17*	16.1 *8*	780.43	3/2$^-$	67.23	3/2$^-$	
748.278 *5*	1000 *4*	748.278	9/2$^-$	0.0	7/2$^-$	%Iγ=0.525 *9* (1980Ge11)
778.77 *15*	1.1 *5*	1527.07	9/2$^-$	748.278	9/2$^-$	
780.45 *3*	7.8 *8*	780.43	3/2$^-$	0.0	7/2$^-$	
848.237 *17*	138[#] *3*	920.681	9/2$^-$	72.489	5/2$^-$	
864.45 *6*	2.3 *5*	936.94	5/2$^-$	72.489	5/2$^-$	
869.38 *9*	1.1 *6*	1527.07	9/2$^-$	657.676	11/2$^-$	
869.47[a] *8*	1.7 *6*	936.94	5/2$^-$	67.23	3/2$^-$	869γ was not observed in (n,n$'\gamma$).
920.710 *5*	278 *5*	920.681	9/2$^-$	0.0	7/2$^-$	
937.05 *5*	5 *1*	936.94	5/2$^-$	0.0	7/2$^-$	
978.969 *15*	488[#] *9*	1051.435	7/2$^-$,5/2$^-$	72.489	5/2$^-$	
1011.0 *2*	1.6 *6*	1011.01	11/2$^{(+)}$	0.0	7/2$^-$	
1012.745 *21*	10.5 *6*	1085.25	3/2$^+$	72.489	5/2$^-$	
1017.999 *11*	18.2 *7*	1085.25	3/2$^+$	67.23	3/2$^-$	
1051.412 *5*	334[#] *6*	1051.435	7/2$^-$,5/2$^-$	0.0	7/2$^-$	
1088.52 *3*	10.8 *5*	1161.02	3/2$^-$,5/2,7/2$^-$	72.489	5/2$^-$	
1089.9 *1*	3.2 *4*	1162.34	9/2$^-$	72.489	5/2$^-$	
1093.778 *16*	10.3 *3*	1161.02	3/2$^-$,5/2,7/2$^-$	67.23	3/2$^-$	
1150.258 *3*	370[#] *8*	1150.273	7/2$^-$	0.0	7/2$^-$	
1161.04 *4*	28.6 *9*	1161.02	3/2$^-$,5/2,7/2$^-$	0.0	7/2$^-$	
1162.32 *7*	16.7 *9*	1162.34	9/2$^-$	0.0	7/2$^-$	
1177.22 *3*	7.2 *4*	1249.73	5/2$^-$	72.489	5/2$^-$	
1182.48 *7*	1.5 *3*	1249.73	5/2$^-$	67.23	3/2$^-$	
1213.08 *6*	1.4 *4*	1285.52	5/2$^-$	72.489	5/2$^-$	
1218.22 *9*	1.3 *4*	1285.52	5/2$^-$	67.23	3/2$^-$	
1249.73 *3*	4.5 *6*	1249.73	5/2$^-$	0.0	7/2$^-$	
[x]1259.0[a] *9*	0.5 *4*					
1266.13 *7*	1.2 *3*	1338.65	5/2$^-$,7/2$^-$	72.489	5/2$^-$	
1271.45 *9*	2.8 *4*	1338.65	5/2$^-$,7/2$^-$	67.23	3/2$^-$	
1285.48 *8*	1.0 *3*	1285.52	5/2$^-$	0.0	7/2$^-$	

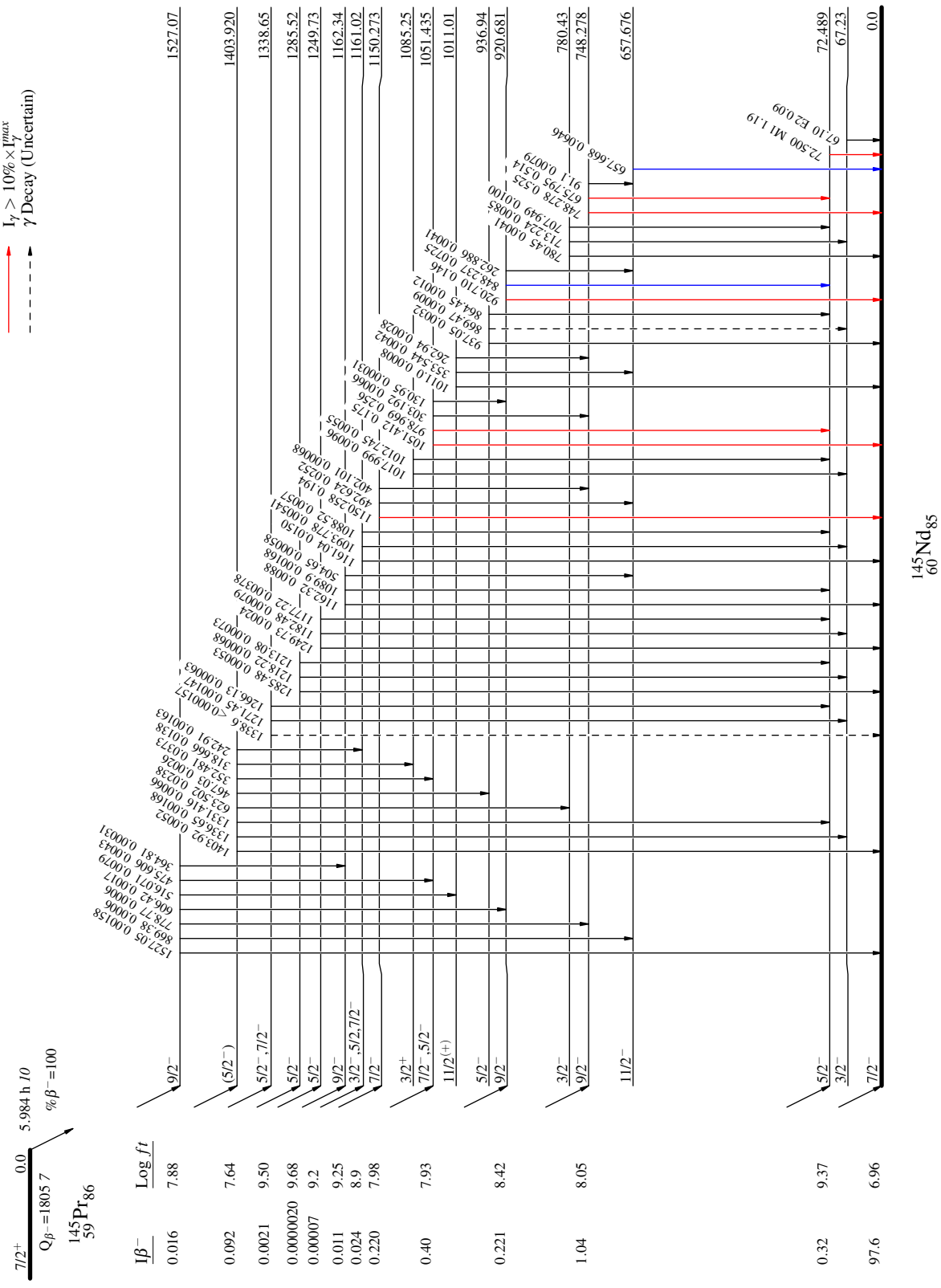
Continued on next page (footnotes at end of table)

^{145}Pr β^- decay 1976Ja01 (continued)

$\gamma(^{145}Nd)$ (continued)

E_γ[‡]	I_γ[‡&]	E_i(level)	J_i^π	E_f	J_f^π
1331.416 *16*	12.6 *6*	1403.920	(5/2$^-$)	72.489	5/2$^-$
1336.65 *4*	3.2 *4*	1403.920	(5/2$^-$)	67.23	3/2$^-$
1338.6[a]	≤0.3	1338.65	5/2$^-$,7/2$^-$	0.0	7/2$^-$
1403.92 *4*	9 *1*	1403.920	(5/2$^-$)	0.0	7/2$^-$
1527.05 *4*	3.0 *4*	1527.07	9/2$^-$	0.0	7/2$^-$
[x]1532.02 *1*	0.8 *3*				

† Additional information 2.
‡ From 1976Ja01, unless otherwise specified.
# From 1980Ge11.
@ From ce data in ^{145}Pm ε decay.
& For absolute intensity per 100 decays, multiply by 0.000525 *9*.
[a] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.


145Pr β− decay 1976Ja01
Decay Scheme
Intensities: I(γ+ce) per 100 parent decays
Legend
Iγ < 2%×Iγmax
Iγ < 10%×Iγmax
Iγ > 10%×Iγmax
γ Decay (Uncertain)
7/2+
0.0
5.984 h 10
%β−=100
Qβ−=1805 7
145 59Pr86
Iβ− Log ft
0.016 7.88
0.092 7.64
0.0021 9.50
0.0000020 9.68
0.00007 9.2
0.011 9.25
0.024 8.9
0.220 7.98
0.40 7.93
0.221 8.42
1.04 8.05
0.32 9.37
97.6 6.96
9/2−
(5/2−)
5/2− ,7/2−
5/2−
5/2−
9/2−
3/2− ,5/2,7/2−
7/2−
3/2+
7/2− ,5/2−
11/2(+)
5/2−
9/2−
3/2−
9/2−
11/2−
5/2−
3/2−
7/2−
1527.07
1403.920
1338.65
1285.52
1249.73
1162.34
1161.02
1150.273
1085.25
1051.435
1011.01
936.94
920.681
780.43
748.278
657.676
72.489
67.23
0.0
1527.03 0.00158
869.38 0.0006
778.77 0.0006
606.42 0.0006
516.071 0.0017
475.606 0.0079
364.81 0.0043
1403.92 0.0052
1336.63 0.00168
1331.416 0.0066
623.303 0.0238
467.03 0.0036
352.381 0.0373
318.666 0.0138
242.91 0.00163
1338.6 <0.000157
1271.45 0.000147
1266.13 0.00063
1285.48 0.00053
1218.22 0.00068
1213.08 0.00073
1249.73 0.0024
1182.48 0.00079
1177.22 0.00378
1162.32 0.0088
1089.9 0.00168
504.65 0.00058
1161.04 0.0150
1093.778 0.00541
1088.52 0.0057
1150.258 0.194
492.624 0.0252
402.101 0.00068
1012.745 0.00096
1051.412 0.0035
978.969 0.173
303.192 0.256
130.95 0.0066
1011.0 0.0008
353.544 0.0042
262.94 0.0028
937.05 0.0032
869.47 0.0009
864.45 0.0012
920.710 0.146
848.237 0.0725
262.886 0.0041
780.45 0.0041
713.224 0.0085
707.949 0.0100
675.795 0.514
748.278 0.525
91.1 0.0079
657.668 0.0646
72.500 M1 1.19
67.10 E2 0.09
145 60Nd85