^{137}Nd ε decay 1975Kl02,1973Bu18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 108,2173 (2007)	1-Oct-2006

Parent: ^{137}Nd: E=0.0; J^π=1/2$^+$; $T_{1/2}$=38.5 min *15*; Q(ε)=3597 *16*; %ε+%β^+ decay=100.0

Additional information 1.

Measured: γ, ce, $\gamma\gamma$ (1975Kl02,1973Bu18), β^+ (1973Bu18), γce (1980ZhZY) ceγ(t) (1973Bu18).

Decay scheme is that proposed by 1975Kl02.

1973Bu18 measured two β^+ components with E(β^+)=2400 *40* and 1700 *30* respectively. Q(β^+)=3485 *30* if 2400B$^+$ feeds the 75.5-keV level, and 1700B$^+$ the 761-keV level. Eβ^+=2590 *60* (1983AlZP).

^{137}Pr Levels

E(level)	J^π†	$T_{1/2}$	E(level)	J^π†	E(level)	J^π†
0.0	5/2$^+$	1.28 h *3*	929.16 *8*	(3/2$^+$)	1968.94 *12*	(1/2$^+$)
75.44 *6*	3/2$^+$	0.38 ns *3*	959.20 *15*		1976.91 *10*	(1/2$^+$)
230.51 *9*	7/2$^+$		1001.35 *10*	(1/2)$^+$	2008.54 *14*	(3/2)
313.59 *7*	(5/2$^+$)		1247.69 *25*		2044.62 *13*	
382.15 *7*	(3/2,1/2)$^+$	0.5 ns *2*	1293.6? *2*		2126.61 *10*	(1/2$^+$)
580.63 *6*	3/2$^+$		1309.96 *19*		2365.0? *4*	
724.96 *14*	(5/2$^+$)		1484.55 *15*		2410? *1*	
761.52 *8*	3/2$^+$		1625.16 *13*	1/2,3/2	2543.5? *5*	
857.00 *8*	(1/2)$^+$		1940.74 *14*		2590.5 *5*	

† From Adopted Levels.

ε,β^+ radiations

ε+β feedings have been determined from the assumption of no direct feeding to g.s. (1975Kl02).

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
(1007 *16*)	2590.5		0.08 *3*	7.2 *2*	0.08 *3*	εK=0.8410; εL=0.1237; εM+=0.03529 *5*
(1054 *16*)	2543.5?		≤0.2	≥6.9	≤0.2	εK=0.8415; εL=0.1234; εM+=0.03518 *4*
(1187 *16*)	2410?		≤0.3	≥6.8	≤0.3	εK=0.8425; εL=0.1225; εM+=0.03490
(1232 *16*)	2365.0?		≤0.2	≥7.0	≤0.2	εK=0.8428; εL=0.1223; εM+=0.03482
(1470 *16*)	2126.61	0.0083 *15*	2.8 *3*	6.0 *1*	2.8 *3*	av Eβ=213 *7*; εK=0.8417; εL=0.1210; εM+=0.03440
(1552 *16*)	2044.62	0.0063 *14*	1.1 *2*	6.5 *1*	1.1 *2*	av Eβ=249 *7*; εK=0.8397; εL=0.12037 *14*; εM+=0.03421 *4*
(1588 *16*)	2008.54	0.0096 *18*	1.3 *2*	6.4 *1*	1.3 *2*	av Eβ=264 *7*; εK=0.8384; εL=0.12006 *15*; εM+=0.03412 *5*
(1620 *16*)	1976.91	0.017 *3*	1.9 *2*	6.3 *1*	1.9 *2*	av Eβ=278 *7*; εK=0.8371; εL=0.11977 *16*; εM+=0.03403 *5*
(1628 *16*)	1968.94	0.006 *2*	0.6 *2*	6.8 *2*	0.6 *2*	av Eβ=282 *7*; εK=0.8367; εL=0.11969 *17*; εM+=0.03401 *5*
(1656 *16*)	1940.74	0.012 *3*	1.1 *2*	6.5 *1*	1.1 *2*	av Eβ=294 *7*; εK=0.8353 *9*; εL=0.11940 *18*; εM+=0.03392 *6*
(1972 *16*)	1625.16	0.14 *2*	2.8 *4*	6.3 *1*	2.9 *4*	av Eβ=432 *7*; εK=0.8059 *23*; εL=0.1144 *4*; εM+=0.03247 *11*
(2112 *16*)	1484.55	0.10 *2*	1.3 *2*	6.7 *1*	1.4 *2*	av Eβ=494 *7*; εK=0.784 *3*; εL=0.1110 *5*; εM+=0.03148 *13*
(2287 *16*)	1309.96	0.12 *1*	0.88 *9*	6.9 *1*	1.0 *1*	av Eβ=571 *8*; εK=0.748 *4*; εL=0.1056 *6*; εM+=0.02996 *16*
(2303‡ *16*)	1293.6?	≤0.06	≤0.4	≥7.2	≤0.5	av Eβ=579 *7*; εK=0.744 *4*; εL=0.1051 *6*; εM+=0.02980

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^{137}Nd ε decay 1975Kl02,1973Bu18 (continued)

ε,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ †	Iε†	Log *ft*	I(ε+β^+)†	Comments
						16
(2349 *16*)	1247.69	0.04 *1*	0.3 *1*	7.5 *2*	0.3 *1*	av Eβ=599 *8*; εK=0.733 *4*; εL=0.1035 *6*; εM+=0.02934 *17*
(2596 *16*)	1001.35	1.7 *2*	6.2 *9*	6.2 *1*	7.9 *11*	av Eβ=709 *8*; εK=0.667 *5*; εL=0.0939 *7*; εM+=0.02661 *19*
(2668 *16*)	929.16	1.1 *1*	3.6 *5*	6.4 *1*	4.7 *6*	av Eβ=741 *8*; εK=0.646 *5*; εL=0.0908 *7*; εM+=0.02574 *20*
(2740 *16*)	857.00	2.8 *4*	8.0 *11*	6.1 *1*	10.8 *15*	av Eβ=774 *8*; εK=0.624 *5*; εL=0.0877 *7*; εM+=0.02486 *20*
2722 *30*	761.52	3.4 *5*	8.1 *12*	6.1 *1*	11.5 *17*	av Eβ=816 *8*; εK=0.595 *5*; εL=0.0835 *7*; εM+=0.02367 *20*
(2872‡ *16*)	724.96	≤0.06	≤0.1	≥8.0	≤0.2	av Eβ=833 *8*; εK=0.584 *5*; εL=0.0819 *7*; εM+=0.02321 *20*
(3016 *16*)	580.63	7.5 *8*	13.0 *14*	6.0 *1*	20.5 *22*	av Eβ=898 *8*; εK=0.539 *5*; εL=0.0756 *7*; εM+=0.02141 *20*
(3215 *16*)	382.15	2.3 *3*	2.9 *5*	6.7 *1*	5.2 *8*	av Eβ=988 *8*; εK=0.480 *5*; εL=0.0671 *7*; εM+=0.01901 *19*
(3283 *16*)	313.59	0.69 *18*	0.81 *22*	7.3 *1*	1.5 *4*	av Eβ=1020 *8*; εK=0.460 *5*; εL=0.0643 *7*; εM+=0.01822 *19*
3422 *40*	75.44	13 *5*	11 *4*	6.2 *2*	24 *9*	av Eβ=1128 *8*; εK=0.395 *5*; εL=0.0552 *6*; εM+=0.01562 *17*

† Absolute intensity per 100 decays.

‡ Existence of this branch is questionable.

γ(^{137}Pr)

Iγ normalization: from Σ I(γ+ce) to g.s.=100.
α(K)exp normalized so that α(K)(581)=0.01 (M1) (1975Kl02).

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[a]	Comments
75.5 *1*	133 *15*	75.44	3/2$^+$	0.0	5/2$^+$	M1+E2	0.2 *1*	3.02 *14*	B(M1)(W.u.)=0.032 *3*; B(E2)(W.u.)=1.4×10^2 *14* α(K)=2.48 *4*; α(L)=0.43 *10*; α(M)=0.092 *23*; α(N+..)=0.024 *6* α(N)=0.020 *5*; α(O)=0.0032 *7*; α(P)=0.000188 *4* %Iγ=17.2 *9*, using the calculated normalization. Mult.: α(L)exp=0.36 *9* (1975Kl02) gives $\delta\le$0.2; K/L=4.7 *5* (1975Kl02) gives δ=0.3 *5*, δ=0.11 *2* (1975AlYU). E_γ: from 1975Kl02.
^{x}110.8 *3*	≤2								
144.5 *5*	≤0.5	1001.35	(1/2)$^+$	857.00	(1/2)$^+$				
^{x}148.96 *36*	1.1 *3*								
167.5 *5*	≤1.5	929.16	(3/2$^+$)	761.52	3/2$^+$				
^{x}170.20 *45*	0.7 *5*								
180.8 *5*	1.0 *2*	761.52	3/2$^+$	580.63	3/2$^+$				
198.5 *1*	5.0 *5*	580.63	3/2$^+$	382.15	(3/2,1/2)$^+$	M1,E2		0.192 *4*	α(K)=0.154 *9*; α(L)=0.030 *9*; α(M)=0.0066 *19*; α(N+..)=0.0017 *5* α(N)=0.0014 *4*; α(O)=0.00022 *6*; α(P)=1.06×10^{-5} *18* Mult.: α(K)exp=0.15 *3*, K/L=2.8 *9*.
^{x}227.82 *30*	1.6 *4*								
230.5 *1*	10.0 *10*	230.51	7/2$^+$	0.0	5/2$^+$	M1+E2		0.122 *5*	α(K)=0.100 *9*; α(L)=0.018 *4*; α(M)=0.0039 *8*; α(N+..)=0.00100 *19* α(N)=0.00086 *17*; α(O)=0.000131 *21*; α(P)=7.0×10^{-6} *13* Mult.: α(K)exp=0.10 *2*, K/L=5.9 *18*.
238.2 *1*	27.5 *20*	313.59	(5/2$^+$)	75.44	3/2$^+$	M1,E2		0.111 *6*	α(K)=0.091 *9*; α(L)=0.016 *3*; α(M)=0.0035 *7*; α(N+..)=0.00089 *16* α(N)=0.00077 *14*; α(O)=0.000118 *17*; α(P)=6.3×10^{-6} *12* Mult.: α(K)exp=0.083 *16*, K/L=6.4 *13*.
^{x}245.38 *46*	0.6 *2*								
^{x}251.96 *34*	0.9 *2*								
^{x}257.99 *41*	1.2 *4*								
267.0 *1*	7.5 *10*	580.63	3/2$^+$	313.59	(5/2$^+$)	M1,E2		0.079 *7*	α(K)=0.065 *8*; α(L)=0.0111 *13*; α(M)=0.0024 *3*; α(N+..)=0.00061 *7* α(N)=0.00053 *7*; α(O)=8.1×10^{-5} *7*; α(P)=4.6×10^{-6} *10* Mult.: α(K)exp=0.085 *17*, K/L=5.4 *22*.
276.3 *1*	5.0 *8*	857.00	(1/2)$^+$	580.63	3/2$^+$	M1+(E2)		0.072 *7*	α(K)=0.059 *8*; α(L)=0.0099 *10*; α(M)=0.00213 *24*; α(N+..)=0.00055 *6* α(N)=0.00047 *5*; α(O)=7.3×10^{-5} *5*; α(P)=4.2×10^{-6} *9* Mult.: α(K)exp=0.089 *18*, K/L=3.6 *15*.
288.5 *3*	≤1.5	1247.69		959.20					
306.60 *15*	78.0 *40*	382.15	(3/2,1/2)$^+$	75.44	3/2$^+$	M1,E2		0.053 *6*	B(M1)(W.u.)<0.0019; B(E2)(W.u.)<12

γ(^{137}Pr) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α[a]	Comments
								α(K)=0.044 *7*; α(L)=0.0071 *4*; α(M)=0.00152 *10*; α(N+..)=0.000394 *19* α(N)=0.000338 *18*; α(O)=5.26×10^{-5} *12*; α(P)=3.2×10^{-6} *7* Mult.: α(K)exp=0.053 *8*, K/L=6.8 *10*.
313.50 *15*	6.0 *10*	313.59	$(5/2^+)$	0.0	$5/2^+$	M1,E2	0.050 *6*	α(K)=0.042 *7*; α(L)=0.00665 *25*; α(M)=0.00142 *8*; α(N+..)=0.000367 *14* α(N)=0.000315 *14*; α(O)=4.91×10^{-5} *8*; α(P)=3.0×10^{-6} *7* Mult.: α(K)exp=0.034 *10*.
^{x}317.59 *28*	0.9 *3*							
^{x}323.21 *42*	0.9 *3*							
^{x}325.49 *30*	0.8 *3*							
^{x}327.06 *32*	0.8 *3*							
342.0 *5*	≤2	724.96	$(5/2^+)$	382.15	$(3/2,1/2)^+$			
348.50 *25*	≤2.0	929.16	$(3/2^+)$	580.63	$3/2^+$	E2,M1	0.037 *6*	α(K)=0.031 *6*; α(L)=0.00481 *9*; α(M)=0.001025 *16*; α(N+..)=0.000265 *5* α(N)=0.000228 *4*; α(O)=3.57×10^{-5} *13*; α(P)=2.2×10^{-6} *6* Mult.: for 348.5γ+350.0γ α(K)exp=0.076 *30*, K/L=5.5 *28*.
350.0 *5*	3.0 *10*	580.63	$3/2^+$	230.51	$7/2^+$			Mult.: α(K)exp=0.076 *30*, K/L=5.5 *28* for 350.0γ+348.5γ.
^{x}360.98[‡] *36*	1.5 *3*							
382.00 *15*	8.0 *10*	382.15	$(3/2,1/2)^+$	0.0	$5/2^+$	M1,E2	0.029 *5*	B(M1)(W.u.)<9.9×10^{-5}; B(E2)(W.u.)<0.42 α(K)=0.024 *5*; α(L)=0.00366 *17*; α(M)=0.00078 *3*; α(N+..)=0.000202 *10* α(N)=0.000173 *7*; α(O)=2.72×10^{-5} *19*; α(P)=1.7×10^{-6} *5* Mult.: α(K)exp=0.023 *5*, K/L=7.8 *39*.
^{x}384.53 *34*	0.9 *3*							
^{x}386.15 *42*	0.9 *3*							
^{x}395.02 *41*	0.8 *3*							
447.5 *5*	≤1.0	761.52	$3/2^+$	313.59	$(5/2^+)$			
474.90 *15*	9.0 *15*	857.00	$(1/2)^+$	382.15	$(3/2,1/2)^+$	M1+(E2)	0.016 *4*	α(K)=0.014 *3*; α(L)=0.00197 *22*; α(M)=0.00042 *5*; α(N+..)=0.000108 *12* α(N)=9.3×10^{-5} *10*; α(O)=1.47×10^{-5} *19*; α(P)=9.9×10^{-7} *25* Mult.: α(K)exp=0.016 *2*, K/L=8.4 *33*.
^{x}494.52 *25*	0.8 *2*							
505.1 *3*	70 *10*	580.63	$3/2^+$	75.44	$3/2^+$	M1,E2	0.014 *3*	α(K)=0.0116 *25*; α(L)=0.00166 *21*; α(M)=0.00035 *4*; α(N+..)=9.1×10^{-5} *12* α(N)=7.8×10^{-5} *10*; α(O)=1.24×10^{-5} *18*; α(P)=8.5×10^{-7} *22* Mult.: α(K)exp=0.013 *4*, K/L=6.8 *10*.
525.30 *15*	3.0 *5*	1484.55		959.20				Mult.: α(K)exp=0.018 *5*.
531.00 *15*	6.0 *10*	761.52	$3/2^+$	230.51	$7/2^+$	(E2)	0.00959	α(K)=0.00800 *12*; α(L)=0.001256 *18*; α(M)=0.000268 *4*; α(N+..)=6.91×10^{-5} *10* α(N)=5.93×10^{-5} *9*; α(O)=9.25×10^{-6} *13*; α(P)=5.59×10^{-7} *8* Mult.: α(K)exp=0.007 *3*.
^{x}540.7 *5*	≤2.0							

γ(^{137}Pr) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[a]	Comments
546.90 *15*	3.0	929.16	(3/2$^+$)	382.15	(3/2,1/2)$^+$			
^{x}576.42 *28*	2.5 *2*							
580.6 *1*	100	580.63	3/2$^+$	0.0	5/2$^+$	M1,E2	0.0096 *21*	α(K)=0.0082 *18*; α(L)=0.00114 *17*; α(M)=0.00024 *4*; α(N+..)=6.3×10^{-5} *10* α(N)=5.4×10^{-5} *8*; α(O)=8.6×10^{-6} *14*; α(P)=6.0×10^{-7} *15* Mult.: α(K)exp=0.010 *2*, M1 was assumed by 1975Kl02, E2 by 1973Bu18.
^{x}598.14[‡] *20*	2.3 *5*							
615.6 *1*	8.1 *8*	929.16	(3/2$^+$)	313.59	(5/2$^+$)	M1,E2	0.0083 *18*	α(K)=0.0071 *16*; α(L)=0.00098 *16*; α(M)=0.00021 *4*; α(N+..)=5.4×10^{-5} *9* α(N)=4.6×10^{-5} *8*; α(O)=7.4×10^{-6} *13*; α(P)=5.2×10^{-7} *13* Mult.: α(K)exp=0.009 *5*.
619.2 *1*	4.5 *5*	1001.35	(1/2)$^+$	382.15	(3/2,1/2)$^+$	M1,E2	0.0082 *18*	α(K)=0.0070 *16*; α(L)=0.00096 *16*; α(M)=0.00020 *3*; α(N+..)=5.3×10^{-5} *9* α(N)=4.5×10^{-5} *7*; α(O)=7.2×10^{-6} *13*; α(P)=5.1×10^{-7} *13* Mult.: α(K)exp=0.012 *6*.
623.8 *5*	2.4 *5*	1625.16	1/2,3/2	1001.35	(1/2)$^+$			Mult.: α(K)exp=0.009 *5*.
627.5 *5*	≤1.4	1484.55		857.00	(1/2)$^+$			
^{x}631.73 *28*	0.40 *15*							
^{x}635.04 *30*	0.46 *15*							
^{x}637.61 *28*	0.79 *25*							
^{x}644.42 *30*	0.7 *2*							
^{x}646.82 *32*	0.9 *3*							
649.4 *3*	≤1.5	724.96	(5/2$^+$)	75.44	3/2$^+$	M1+(E2)	0.0073 *16*	α(K)=0.0062 *14*; α(L)=0.00085 *14*; α(M)=0.00018 *3*; α(N+..)=4.7×10^{-5} *8* α(N)=4.0×10^{-5} *7*; α(O)=6.4×10^{-6} *12*; α(P)=4.5×10^{-7} *12* Mult.: α(K)exp=0.011 *6*.
^{x}653.92 *40*	<0.4							
^{x}661.15 *30*	0.8 *2*							
667.2 *5*	≤2.0	1247.69		580.63	3/2$^+$			
^{x}678.13 *30*	0.8 *3*							
686.1 *1*	14.0 *20*	761.52	3/2$^+$	75.44	3/2$^+$	E2+(M1)	0.0064 *14*	α(K)=0.0054 *12*; α(L)=0.00074 *13*; α(M)=0.00016 *3*; α(N+..)=4.1×10^{-5} *7* α(N)=3.5×10^{-5} *6*; α(O)=5.6×10^{-6} *10*; α(P)=4.0×10^{-7} *10* Mult.: α(K)exp=0.004 *1*.
688.0 *5*	≤1.0	1001.35	(1/2)$^+$	313.59	(5/2$^+$)			
^{x}696.79 *32*								
^{x}708.35 *30*	<0.4							
^{x}711.48 *27*	0.7 *2*							
724.8 *3*	≤2.0	724.96	(5/2$^+$)	0.0	5/2$^+$			
^{x}727.02 *30*	0.6 *2*							
^{x}748.03 *30*	0.9 *3*							
761.6 *2*	70 *10*	761.52	3/2$^+$	0.0	5/2$^+$	M1,E2	0.0050 *11*	α(K)=0.0042 *10*; α(L)=0.00057 *10*; α(M)=0.000120 *21*;

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γ(^{137}Pr) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α[a]	Comments
								α(N+..)=3.1×10^{-5} 6 α(N)=2.7×10^{-5} 5; α(O)=4.3×10^{-6} 8; α(P)=3.1×10^{-7} 8 Mult.: α(K)exp=0.0045 7, K/L=7.5 11.
[x]776.32 27	1.1 4							
781.6 1	73.0 80	857.00	(1/2)$^+$	75.44	3/2$^+$	M1+(E2)	0.0047 10	α(K)=0.0040 9; α(L)=0.00054 10; α(M)=0.000113 20; α(N+..)=3.0×10^{-5} 6 α(N)=2.5×10^{-5} 5; α(O)=4.0×10^{-6} 8; α(P)=2.9×10^{-7} 7 Mult.: α(K)exp=0.0046 7, K/L=6.7 10.
785.3[b] 3	≤1.5	2410?		1625.16	1/2,3/2			
[x]797.38 32	0.5 2							
[x]799.77 30	0.6 2							
[x]811.39 35	0.7 2							
[x]814.48[‡] 45	1.3 4							
[x]847.69 39	0.6 2							
[x]849.49 42	0.4 2							
857.0 2	≤1.8	857.00	(1/2)$^+$	0.0	5/2$^+$			
[x]860.17 30	1.6 5							
863.4 4	≤2.6	1625.16	1/2,3/2	761.52	3/2$^+$			
[x]879.75 32	0.8 2							
883.7 2	≤2.5	959.20		75.44	3/2$^+$			
925.90 15	57.0 60	1001.35	(1/2)$^+$	75.44	3/2$^+$	M1+(E2)	0.0031 7	α(K)=0.0027 6; α(L)=0.00036 7; α(M)=7.5×10^{-5} 13; α(N+..)=2.0×10^{-5} 4 α(N)=1.7×10^{-5} 3; α(O)=2.7×10^{-6} 5; α(P)=2.0×10^{-7} 5 Mult.: α(K)exp=0.0028 4, K/L=9.5 24.
929.20 15	23.0 30	929.16	(3/2$^+$)	0.0	5/2$^+$	M1+(E2)	0.0031 7	α(K)=0.0027 6; α(L)=0.00035 7; α(M)=7.4×10^{-5} 13; α(N+..)=1.9×10^{-5} 4 α(N)=1.7×10^{-5} 3; α(O)=2.7×10^{-6} 5; α(P)=2.0×10^{-7} 5 Mult.: α(K)exp=0.0030 5, K/L=6.5 16.
[x]940.07 29	0.7 2							
[x]942.89 32	0.81 22							
959.2 5	≤0.5	959.20		0.0	5/2$^+$			
[x]967.23 36	0.6 2							
[x]971.12 35	0.7 2							
1001.2 5	≤2.0	1001.35	(1/2)$^+$	0.0	5/2$^+$			
[x]1029.58 32	1.2 4							
1044.50 15	7.5 8	1625.16	1/2,3/2	580.63	3/2$^+$			Mult.: α(K)exp=0.0022 4.
[x]1048.22 29	0.7 3							
1102.8 10	2.3 5	1484.55		382.15	(3/2,1/2)$^+$			
[x]1116.71 32	0.7 2							
1119.9 2	4.5 10	1976.91	(1/2$^+$)	857.00	(1/2)$^+$			
[x]1166.78 48	1.0 3							
[x]1176.14 36	1.0 3							
1179.8 5	≤1.0	1940.74		761.52	3/2$^+$			

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$\gamma(^{137}$Pr) (continued)

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f
[x]1182.05 *46*	0.8 *2*				
[x]1191.09 *47*	0.6 *2*				
[x]1204.31 *29*	0.7 *2*				
[x]1213.08 *35*	1.0 *3*				
1218.3[b] *3*	≤1.5	1293.6?		75.44	$3/2^+$
1234.5 *2*	4.0 *6*	1309.96		75.44	$3/2^+$
1243.1 *2*	11.0 *10*	1625.16	1/2,3/2	382.15	$(3/2,1/2)^+$
1247.5 *5*	≤1.0	1247.69		0.0	$5/2^+$
[x]1253.48 *32*	0.5 *2*				
[x]1256.52 *32*	1.4 *5*				
[x]1262.95 *42*	0.6 *2*				
[x]1268.02 *43*	0.7 *2*				
1293.6[b] *2*	3.0 *5*	1293.6?		0.0	$5/2^+$
1296.5[b] *5*	≤0.2	2590.5		1293.6?	
1310.0 *4*	3.5 *5*	1309.96		0.0	$5/2^+$
[x]1320.12 *42*	0.7 *2*				
[x]1340.44 *36*	0.6 *2*				
[x]1351.22 *37*	0.8 *3*				
1360.0 *2*	5.0 *10*	1940.74		580.63	$3/2^+$
1365.1 *2*	≤2.0	2126.61	$(1/2^+)$	761.52	$3/2^+$
[x]1372.24 *45*	0.7 *2*				
1388.5 *2*	≤2.5	1968.94	$(1/2^+)$	580.63	$3/2^+$
1401.50 *15*	2.5 *5*	2126.61	$(1/2^+)$	724.96	$(5/2^+)$
[x]1409.66 *38*	0.9 *3*				
1427.7 *3*	≤0.5	2008.54	(3/2)	580.63	$3/2^+$
[x]1434.04 *42*	1.3 *4*				
[x]1443.96 *42*	0.85 *25*				
1464.1 *2*	5.8 *10*	2044.62		580.63	$3/2^+$
[x]1472.28 *36*	0.7 *2*				
1484.6 *2*	4.8 *8*	1484.55		0.0	$5/2^+$
[x]1493.44 *36*	0.9 *4*				
[x]1542.50 *39*	0.7 *2*				
1546.0 *2*	3.0 *6*	2126.61	$(1/2^+)$	580.63	$3/2^+$
[x]1551.67 *48*	0.5 *2*				
[x]1574.50 *42*	0.8 *3*				
1586.5 *2*	2.5 *5*	1968.94	$(1/2^+)$	382.15	$(3/2,1/2)^+$
1594.5 *2*	3.5 *5*	1976.91	$(1/2^+)$	382.15	$(3/2,1/2)^+$
[x]1607.76[‡] *32*	1.3 *4*				
1626.4 *2*	7.0 *5*	2008.54	(3/2)	382.15	$(3/2,1/2)^+$
[x]1646.50 *70*	1.3 *5*				

E_γ[†]	I_γ[&]	E_i(level)	J^π_i	E_f	J^π_f
1662.5 *3*	≤1.0	2044.62		382.15	$(3/2,1/2)^+$
[x]1700.61 *40*	0.8 *2*				
1731.1 *3*	≤2.0	2044.62		313.59	$(5/2^+)$
1744.6 *5*	≤0.5	2126.61	$(1/2^+)$	382.15	$(3/2,1/2)^+$
[x]1764.92 *40*	2.3 *4*				
[x]1769.69[‡] *42*	2.5 *8*				
[x]1779.51 *39*	0.9 *3*				
[x]1791.3 *5*	≤0.5				
1813.1 *2*	6.5 *8*	2126.61	$(1/2^+)$	313.59	$(5/2^+)$
[x]1845.57 *24*	0.6 *2*				
1865.3 *2*	2.8 *5*	1940.74		75.44	$3/2^+$
[x]1893.82[‡] *31*	2.5 *8*				
1901.5 *1*	6.0 *5*	1976.91	$(1/2^+)$	75.44	$3/2^+$
1933.5[b] *3*	3.0 *5*	2008.54	(3/2)	75.44	$3/2^+$
1940.8 *5*	≤0.2	1940.74		0.0	$5/2^+$
[x]1964.53 *46*	0.80 *20*				
1969.0[#@] *2*	<2.5	1968.94	$(1/2^+)$	0.0	$5/2^+$
1969.0[@] *2*	<2.5	2044.62		75.44	$3/2^+$
1977.3 *5*	≤0.7	1976.91	$(1/2^+)$	0.0	$5/2^+$
[x]1999.66[‡] *46*	0.6 *2*				
2008.6 *2*	2.5 *5*	2008.54	(3/2)	0.0	$5/2^+$
2051.3 *2*	7.5 *5*	2126.61	$(1/2^+)$	75.44	$3/2^+$
[x]2091.19 *50*	0.5 *2*				
2095.7[b] *5*	≤0.7	2410?		313.59	$(5/2^+)$
2126.5 *3*	≤1.3	2126.61	$(1/2^+)$	0.0	$5/2^+$
[x]2205.12 *50*	0.4 *2*				
2230.6[b] *5*	≤0.5	2543.5?		313.59	$(5/2^+)$
2275.7 *10*	≤0.5	2590.5		313.59	$(5/2^+)$
2288.7[b] *3*	≤1.5	2365.0?		75.44	$3/2^+$
2333.3[b] *10*	≤0.3	2410?		75.44	$3/2^+$
2365.6[b] *5*	≤0.1	2365.0?		0.0	$5/2^+$
2515.3 *5*	≤0.7	2590.5		75.44	$3/2^+$
2543.5[b] *5*	≤0.6	2543.5?		0.0	$5/2^+$
[x]2570.5 *5*	≤0.3				
2590.5 *10*	≤0.1	2590.5		0.0	$5/2^+$
[x]2639.5 *10*	≤0.3				
[x]2753.8 *10*	≤0.1				
[x]2801.0 *10*	≤0.1				
[x]2831.0 *10*	≤0.1				

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$\gamma(^{137}Pr)$ (continued)

† γ rays placed in the decay scheme are from 1975Kl02; unplaced γ rays are from 1973Bu18, except 540γ, 1791γ, and γ rays with E$\gamma \geq$2570.5, which are from 1975Kl02.

‡ Observed by 1975Kl02 and 1973Bu18.

May depopulate the 2044.6-keV level.

@ May depopulate the 1968.9-keV level.

& For absolute intensity per 100 decays, multiply by 0.130 *11*.

[a] 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.

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

[x] γ ray not placed in level scheme.

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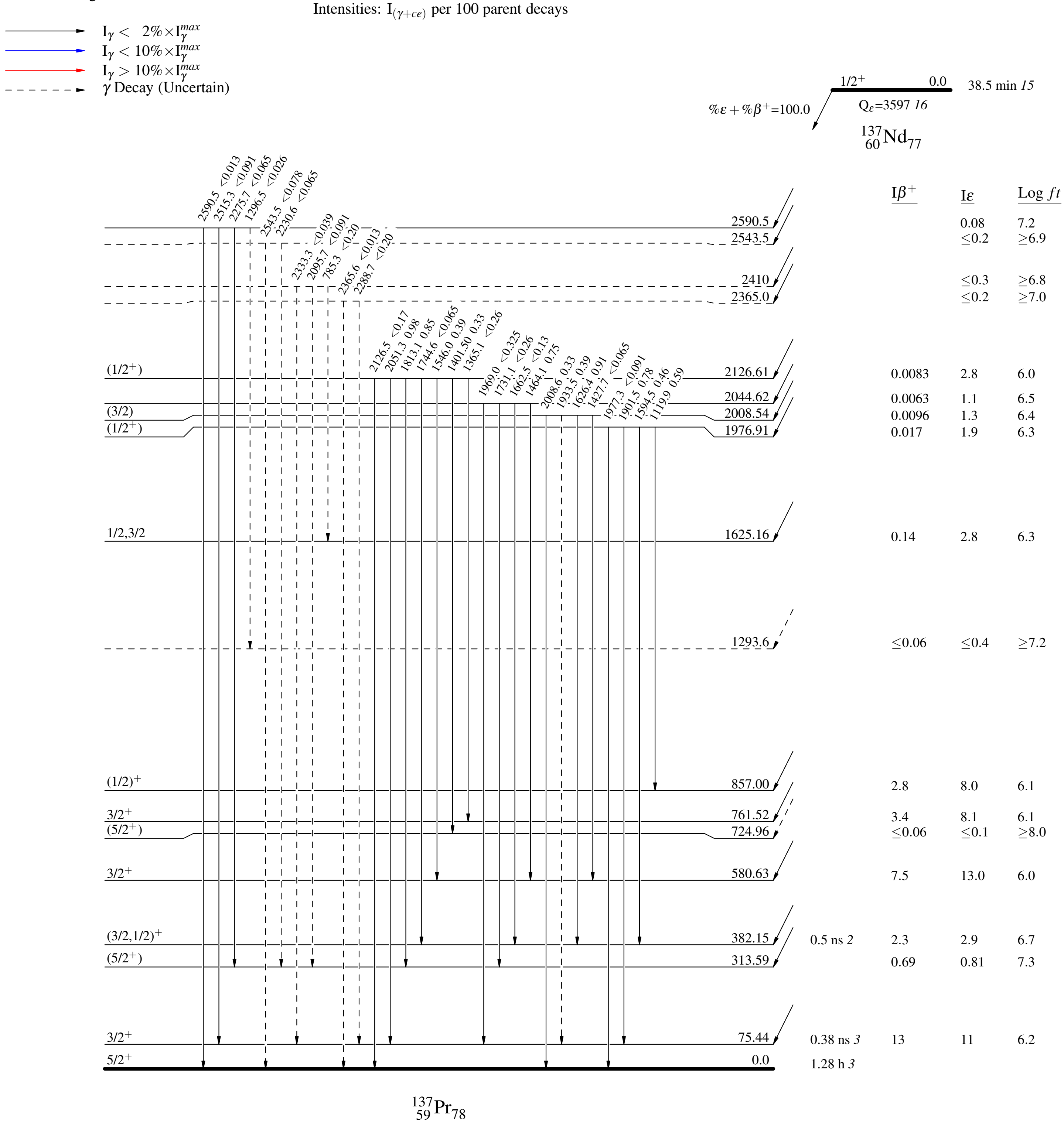
^{137}Nd ε decay 1975Kl02,1973Bu18

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

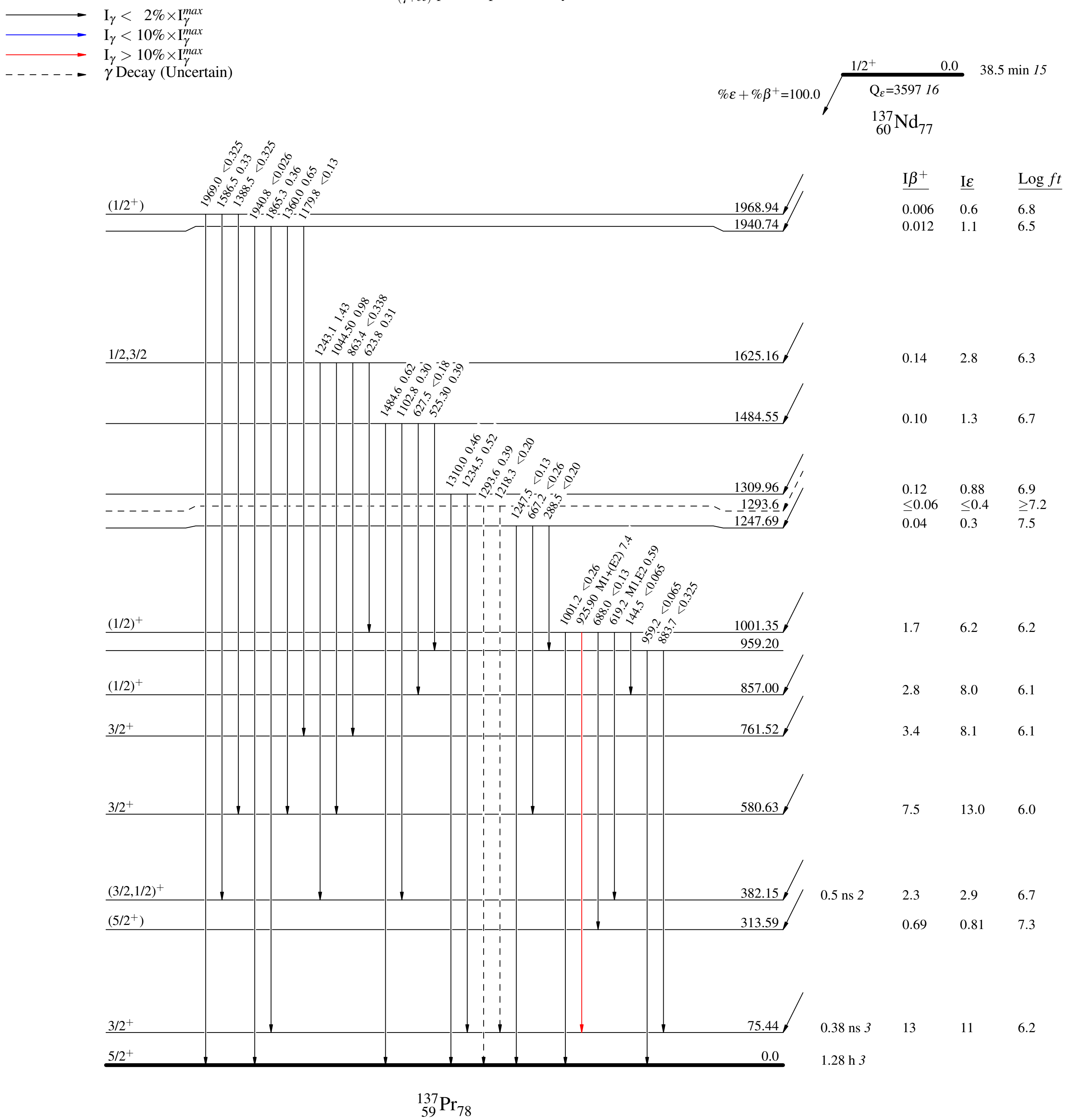


^{137}Nd ε decay 1975Kl02,1973Bu18

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays

Legend



^{137}Nd ε decay 1975Kl02,1973Bu18

Decay Scheme (continued)

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays