

¹³⁴Nd ε decay **1977KoYN,1977BeWR**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	A. A. Sonzogni	NDS 103, 1 (2004)	31-Jul-2004

Parent: ¹³⁴Nd: E=0.0; J^π=0⁺; T_{1/2}=8.5 min 15; Q(ε)=2870 40; %ε+%β⁺ decay=100.0

¹³⁴Pr Levels

The decay scheme is based on γγ-coincidence measurements. Preliminary data. Other: [1975BaXC](#).

E(level)	J ^π †	T _{1/2}	E(level)	J ^π †	E(level)	J ^π †
0.0+x	2 ⁻	17 min 2	352.5+x 4	0,1	583.0+x? 5	
115.6+x 4	1 ⁻		379.2+x 3	1 ⁺	631.0+x 6	1 ⁺
163.1+x 3	1 ⁺		433.3+x 6	0,1	673.0+x? 5	
216.7+x 4	1 ⁺		458.8+x 4	0,1	1155.1+x 6	1 ⁺
289.0+x 4	1 ⁺		472.4+x 4	1 ⁺	1216.7+x 11	1 ⁺
335.9+x 4	(1,2) ⁺		483.4+x 3	1 ⁺		

† From Adopted Levels.

ε,β⁺ radiations

E(decay)	E(level)	Iβ ⁺ ‡	Iε ‡	Log ft †	I(ε+β ⁺) ‡	Comments
(8×10 ² # 8)	1216.7+x	0.043	4.1	5.3	4.1	av Eβ=288.8 88; εK=0.8359 11; εL=0.11953 22; εM+=0.03396 7
(9×10 ² # 9)	1155.1+x	0.027	1.8	5.7	1.8	av Eβ=315.7 88; εK=0.8324 14; εL=0.11883 25; εM+=0.03375 8
(1.1×10 ³ # 11)	673.0+x?	0.11	1.1	6.1	1.2	av Eβ=527.5 89; εK=0.769 4; εL=0.1088 6; εM+=0.03085 18
(1.1×10 ³ # 11)	631.0+x	0.28	2.5	5.8	2.8	av Eβ=546.0 89; εK=0.760 5; εL=0.1075 7; εM+=0.03048 19
(1.1×10 ³ # 12)	583.0+x?	0.14	1.1	6.2	1.2	av Eβ=567.3 89; εK=0.750 5; εL=0.1059 7; εM+=0.03004 20
(1.2×10 ³ # 12)	483.4+x	1.4	8.3	5.3	9.7	av Eβ=611.5 89; εK=0.726 5; εL=0.1024 8; εM+=0.02904 21
(1.2×10 ³ # 12)	472.4+x	0.55	3.2	5.7	3.8	av Eβ=616.4 89; εK=0.723 5; εL=0.1020 8; εM+=0.02893 22
(1.2×10 ³ # 12)	458.8+x	0.36	2.0	5.9	2.4	av Eβ=622.5 89; εK=0.720 6; εL=0.1015 8; εM+=0.02879 22
(1.2×10 ³ # 12)	433.3+x	0.27	1.4	6.1	1.7	av Eβ=633.8 90; εK=0.713 6; εL=0.1006 8; εM+=0.02851 22
(1.2×10 ³ # 13)	379.2+x	0.58	2.7	5.8	3.3	av Eβ=657.9 90; εK=0.699 6; εL=0.0985 8; εM+=0.02792 23
(1.3×10 ³ # 13)	352.5+x	0.26	1.1	6.2	1.4	av Eβ=669.8 90; εK=0.692 6; εL=0.0974 8; εM+=0.02761 23
(1.3×10 ³ # 13)	335.9+x	<0.06	<0.2	>6.9	<0.3	av Eβ=677.2 90; εK=0.687 6; εL=0.0967 9; εM+=0.02742 23
(1.3×10 ³ # 13)	289.0+x	0.84	3.3	5.8	4.1	av Eβ=698.2 90; εK=0.674 6; εL=0.0948 9; εM+=0.02688 24
(1.3×10 ³ # 13)	216.7+x	2.43	8.17	5.4	10.6	av Eβ=730.5 90; εK=0.653 6; εL=0.0918 9; εM+=0.02602 25

Continued on next page (footnotes at end of table)

¹³⁴Nd ε decay **1977KoYN,1977BeWR (continued)**

ε,β⁺ radiations (continued)

E(decay)	E(level)	Iβ ⁺ ‡	Iε ‡	Log ft †	I(ε+β ⁺) ‡	Comments
(1.4×10 ³ # 14)	163.1+x	13	39	4.7	52	av Eβ=754.6 90; εK=0.637 6; εL=0.0895 9; εM+=0.02537 25
(1.4×10 ³ # 14)	115.6+x	0.2	0.6	6.6	0.8	av Eβ=775.9 90; εK=0.622 6; εL=0.0874 9; εM+=0.02478 25

† Obtained assuming x=0.

‡ Absolute intensity per 100 decays.

Estimated for a range of levels.

γ(¹³⁴Pr)

I_γ normalization: From Σ I(γ+ce)=100 to g.s. (assuming no ε+β⁺ feeding to g.s.).

E _γ †	I _γ ‡	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.	α [#]	Comments
90.1 5	3.8	379.2+x	1 ⁺	289.0+x	1 ⁺	M1,E2	2.4 7	Mult.: α(K)exp=1.4.
93.3 5	0.5	472.4+x	1 ⁺	379.2+x	1 ⁺	M1,E2	2.2 6	Mult.: α(K)exp=1.8.
101.2 5	4.0	216.7+x	1 ⁺	115.6+x	1 ⁻	E1	0.2446	α(K)= 0.2077; α(L)= 0.0292; α(M)=0.00608; α(N+..)=0.00159
104.1 5	3.0	483.4+x	1 ⁺	379.2+x	1 ⁺	M1,E2	1.5 4	Mult.: α(K)exp=0.3.
115.7 5	3.0	115.6+x	1 ⁻	0.0+x	2 ⁻	M1,E2	1.1 2	Mult.: α(K)exp=1.4.
119.4 5	1.0	335.9+x	(1,2) ⁺	216.7+x	1 ⁺	M1,E2	1.0 2	Mult.: α(K)exp=0.9.
126.0 5	0.9	289.0+x	1 ⁺	163.1+x	1 ⁺	[M1+E2]	0.81 13	
130.6 5	0.9	483.4+x	1 ⁺	352.5+x	0,1			
144.3 5	2.8	433.3+x	0,1	289.0+x	1 ⁺			
147.8 5	2.2	483.4+x	1 ⁺	335.9+x	(1,2) ⁺			
163.2 5	100	163.1+x	1 ⁺	0.0+x	2 ⁻	E1	0.0658	α(K)= 0.0562; α(L)=0.00760; α(M)=0.00159; α(N+..)=0.00042 Mult.: α(K)exp=0.061 6, K/L=6.6 12.
183.5 5	1.4	472.4+x	1 ⁺	289.0+x	1 ⁺	[M1+E2]	0.25 1	
189.4 5	1.7	352.5+x	0,1	163.1+x	1 ⁺			
216.8 5	21.3	216.7+x	1 ⁺	0.0+x	2 ⁻	[E1]	0.0305	α(K)= 0.0261; α(L)=0.00348; α(M)=0.00073; α(N+..)=0.00019
288.9 5	22.4	289.0+x	1 ⁺	0.0+x	2 ⁻	E1	0.01435	α(K)=0.01230; α(L)=0.00162; α(M)=0.00034 Mult.: α(K)exp<0.02.
295.5 5	2.9	458.8+x	0,1	163.1+x	1 ⁺			
309.2 5	2.9	472.4+x	1 ⁺	163.1+x	1 ⁺	[M1+E2]	0.052 6	
320.5 5	1.8	483.4+x	1 ⁺	163.1+x	1 ⁺	[M1+E2]	0.048 6	
336.0 5	0.7	335.9+x	(1,2) ⁺	0.0+x	2 ⁻			α(K)=0.00838; α(L)=0.00110; α(M)=0.00023
352.0 5	1.5	352.5+x	0,1	0.0+x	2 ⁻			
379.1 5	1.8	379.2+x	1 ⁺	0.0+x	2 ⁻	[E1]	0.00724	α(K)=0.00622; α(L)=0.00081; α(M)=0.00017
459.0 5	1.1	458.8+x	0,1	0.0+x	2 ⁻			
467.9 5	4.8	631.0+x	1 ⁺	163.1+x	1 ⁺			
483.5 5	4.0	483.4+x	1 ⁺	0.0+x	2 ⁻	[E1]	0.00406	α(K)=0.00349; α(L)=0.00045
583.0 5	2.0	583.0+x?		0.0+x	2 ⁻			
673.0 5	2.0	673.0+x?		0.0+x	2 ⁻			
992.0 5	3.1	1155.1+x	1 ⁺	163.1+x	1 ⁺			
1000	7.0	1216.7+x	1 ⁺	216.7+x	1 ⁺			

† 0.5 keV uncertainty assigned to E_γ.

‡ For absolute intensity per 100 decays, multiply by 0.59.

Continued on next page (footnotes at end of table)

^{134}Nd ε decay [1977KoYN,1977BeWR](#) (continued)

$\gamma(^{134}\text{Pr})$ (continued)

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.

¹³⁴Nd ε decay 1977KoYN,1977BeWR

Decay Scheme

Intensities: I_γ per 100 parent decays

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}
- Coincidence

0+ 0.0 8.5 min 15
 Q_ε=2870 40
¹³⁴Nd₇₄

