^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	N. Nica and B. Singh	NDS 181, 1 (2022)	9-Mar-2022

Parent: ^{147}Pr: E=0.0; J^π=(3/2$^+$); $T_{1/2}$=13.44 min *10*; Q(β^-)=2703 *16*; %β^- decay=100.0

^{147}Pr-E,J^π,$T_{1/2}$: from ^{147}Pr Adopted Levels.

^{147}Pr-Q(β^-): From 2021Wa16.

2015Ru09 was compiled for XUNDL compilation by B. Singh (McMaster).

2015Ru09: ^{147}Pr obtained in the β^- decay chain ^{147}Cs -> ^{147}Ba -> ^{147}La -> ^{147}Ce -> ^{147}Pr using the OSIRIS on-line fission-product mass separator at Studsvik. Measured Eγ, Iγ, $\beta\gamma\gamma$-coin, half-life of ^{147}Pr isotope, level half-lives by $\beta\gamma\gamma$(t) from gates above and below and deduced levels, J, π, B(M1), B(E2), electric dipole moment D_0, nonzero octupole deformation, 2-quasiparticle configurations. Calculated potential energy surface.

1997Gr09, 1996Gr20: ^{252}Cf SF, measured β^--decay intensity distribution by total absorption γ-ray spectrometer (TAGS).

1993Sh33 (supersedes 1981Ya06): ^{235}U(n,F), E=th; used HPGe, Ge(Li), LEPS, and plastic scintillator detectors. Measured Eγ, Iγ, I(ce), $\gamma\gamma$, $\beta\gamma$(t).

1980Ha13: ^{146}Nd(d,pγ), measured $T_{1/2}$'s for low-energy states by direct timing technique.

1975Pi03: ^{235}U(n,F), measured Eγ, Iγ(abs) (based on I(91γ,abs)=27% in ^{147}Nd β^- decay, 1967Ba21).

1964Ho03: ^{235}U(n,F), scintillator detectors, Iγ(abs).

Others: 1995Ik03 (Qβ), 1979Bo26 (Eγ with curved-crystal spectrometer), 1977Re11 (Eγ, Iγ), 1975Do15 (Eγ, Iγ, $\gamma\gamma$, $T_{1/2}$), 1972Ho08 (Eγ), 1971Ba28 ($T_{1/2}$).

Level scheme from 1993Sh33.

^{147}Nd Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	Comments
0.0	5/2$^-$	11.03 d *3*	%β^-=100 $T_{1/2}$: adopted value.
49.88 *5*	7/2$^-$	1.0 ns *3*	$T_{1/2}$: other: 2.5 ns *5* (1980Ha13).
127.78 *5*	5/2$^-$	0.4 ns *1*	$T_{1/2}$: other: ≤0.8 ns (1980Ha13).
214.60 *6*	1/2$^-$	4.53 ns *6*	$T_{1/2}$: other: 5.8 ns *8* (1980Ha13). Additional information 1.
314.64 *6*	3/2$^-$	≤0.1 ns	
463.53 *6*	3/2$^-$	≤0.1 ns	
517.23 *6*	5/2$^-$		
580.9 *3*	7/2$^-$		
604.22 *6*	1/2$^-$	<0.8 ns	$T_{1/2}$: other: from 1980Ha13.
631.54 *6*	3/2$^-$		
769.22 *8*	3/2$^+$		
792.25 *6*	3/2$^+$		
829.94 *7*	(1/2,3/2,5/2$^-$)		
942.16 *8*	(1/2$^-$,3/2,5/2)		
957.21 *6*	3/2$^-$		
1041.24 *12*	1/2$^-$		
1112.02 *8*	3/2$^+$		
1260.63 *7*	(1/2$^-$,3/2,5/2$^-$)		
1264.11 *8*	3/2$^+$		
1310.76 *8*	3/2$^+$		
1351.02 *8*	5/2$^-$		
1398.08 *10*	3/2$^+$		
1444.58 *9*	1/2$^+$		
1544.01 *11*	(1/2$^-$,3/2,5/2$^+$)		
1593.40 *20*	5/2$^+$		
1617.52 *14*	3/2$^+$,5/2$^+$		
1673.69 *14*	3/2$^-$,5/2		
1733.58 *11*	5/2$^-$		

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^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

^{147}Nd Levels (continued)

E(level)[†]	Jπ[‡]	E(level)[†]	Jπ[‡]
1761.90 *9*	(1/2⁻,3/2⁻)	2164.44 *24*	(1/2⁻,3/2,5/2⁻)
2070.27 *15*	(1/2,3/2,5/2⁻)	2310.13 *16*	(3/2⁺,5/2⁺)
2123.0 *4*	(1/2,3/2,5/2⁻)	2335.6 *3*	(5/2⁺)
		2423.1 *4*	1/2⁺

[†] From least-squares fit of γ's to levels; normalized χ^2=4.7 is greater than critical χ^2=1.4.
[‡] From Adopted Levels.
[#] From 1993Sh33 ($\beta\gamma$(t)), except as noted (same as in Adopted Levels).

β^- radiations

E(decay)	E(level)	Iβ⁻[†]	Log *ft*	Comments
(280 *16*)	2423.1	0.15 *5*	5.49 *17*	av Eβ=79.0 *51* Iβ⁻: 0.50 (1997Gr09).
(367 *16*)	2335.6	0.35 *9*	5.50 *13*	av Eβ=107.0 *53* Iβ⁻: 0.32 (1997Gr09).
(393 *16*)	2310.13	0.55 *7*	5.40 *9*	av Eβ=115.4 *54* Iβ⁻: 1.67 (1997Gr09).
(539 *16*)	2164.44	0.28 *5*	6.16 *9*	av Eβ=165.6 *57* Iβ⁻: 0.54 (1997Gr09).
(580 *16*)	2123.0	0.35 *8*	6.17 *11*	av Eβ=180.4 *58* Iβ⁻: 0.54 (1997Gr09).
(633 *16*)	2070.27	0.126 *16*	6.74 *7*	av Eβ=199.6 *59*
(941 *16*)	1761.90	0.27 *4*	7.02 *7*	av Eβ=317.9 *64*
(969 *16*)	1733.58	0.59 *8*	6.73 *7*	av Eβ=329.2 *65* Iβ⁻: 0.54 (1997Gr09).
(1029 *16*)	1673.69	1.90 *21*	6.32 *6*	av Eβ=353.3 *65* Iβ⁻: 1.74 (1997Gr09).
(1085 *16*)	1617.52	0.71 *14*	6.83 *9*	av Eβ=376.2 *66* Iβ⁻: 0.91 (1997Gr09).
(1110 *16*)	1593.40	0.82 *16*	6.80 *9*	av Eβ=386.1 *66* Iβ⁻: 0.98 (1997Gr09).
(1159 *16*)	1544.01	0.45 *5*	7.13 *6*	av Eβ=406.4 *67* Iβ⁻: 0.30 (1997Gr09).
(1258 *16*)	1444.58	0.163 *19*	7.71 *6*	av Eβ=447.8 *68*
(1305 *16*)	1398.08	1.29 *14*	6.87 *6*	av Eβ=467.3 *68* Iβ⁻: 2.38 (1997Gr09).
(1352 *16*)	1351.02	5.1 *6*	6.33 *6*	av Eβ=487.2 *68* Iβ⁻: 4.22 (1997Gr09).
(1392 *16*)	1310.76	9.6 *10*	6.10 *5*	av Eβ=504.3 *69* Iβ⁻: 9.41 (1997Gr09).
(1439 *16*)	1264.11	2.03 *21*	6.83 *5*	av Eβ=524.2 *69* Iβ⁻: 5.08 (1997Gr09).
(1442 *16*)	1260.63	5.0 *6*	6.44 *6*	av Eβ=525.7 *69* Iβ⁻: 0.0 (1997Gr09).
(1591 *16*)	1112.02	0.148 *23*	8.14 *7*	av Eβ=589.7 *70*
(1662 *16*)	1041.24	0.045 *9*	8.73 *9*	av Eβ=620.5 *70*
(1746 *16*)	957.21	0.39 *5*	7.87 *6*	av Eβ=657.2 *71*
(1761 *16*)	942.16	1.76 *19*	7.23 *5*	av Eβ=663.8 *71* Iβ⁻: 2.16 (1997Gr09).
(1873 *16*)	829.94	0.47 *6*	7.91 *6*	av Eβ=713.3 *71*
(1911 *16*)	792.25	23.0 *24*	6.26 *5*	av Eβ=730.0 *71*

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^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
				Iβ^-: 24.70 (1997Gr09).
(1934 *16*)	769.22	21.5 *22*	6.31 *5*	av Eβ=740.2 *71* Iβ^-: 24.06 (1997Gr09).
(2071 *16*)	631.54	<0.8	>7.9	av Eβ=801.5 *72*
(2099 *16*)	604.22	0.33 *13*	8.26 *18*	av Eβ=813.7 *72* Iβ^-: 0.54 (1997Gr09).
(2122 *16*)	580.9	0.15 *6*	8.62 *18*	av Eβ=824.2 *72* Iβ^-: 0.22 (1997Gr09).
(2186 *16*)	517.23	1.6 *5*	7.65 *14*	av Eβ=852.7 *72* Iβ^-: 1.62 (1997Gr09).
(2239 *16*)	463.53	<0.9	>7.9	av Eβ=876.9 *72* Iβ^-: GTOL method 1, 90% c.l.; 0.54 (1997Gr09).
(2388 *16*)	314.64	12.6 *15*	6.91 *6*	av Eβ=944.1 *73* Iβ^-: 11.89 (1997Gr09).
(2488 *16*)	214.60	1.5 *15*	7.9 *5*	av Eβ=989.4 *73* Iβ^-: 3.2 *21* (1997Gr09) for summed β^- feeding to g.s., 50, 128, and 215 levels.
(2575 *16*)	127.78	<6	>7.4	av Eβ=1028.9 *73* Iβ^-: ≤8.0 (GTOL method 1, 90% c.l.).
(2653 *16*)	49.88			Iβ^-: included in g.s. feeding.
(2703 *16*)	0.0	2.5 *25*	7.8 *5*	av Eβ=1087.1 *73* Iβ^-: sum of β^- feeding for g.s. and 50 level (1993Sh33).

[†] Absolute intensity per 100 decays.

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$

Iγ normalization: 0.074 *7* from sum of β^- feeding to ^{147}Nd g.s. and 49.9-keV level ≤5% (1993Sh33, 1964Ho03). Same value is obtained based on total absorption γ-ray spectrometer (TAGS) measurement of 3.2% *21* β feeding to 0.0+49.9+127.9+214.6 levels (1997Gr09). This supersedes the Iγ normalization adopted previously by 1992De38 based on I(315γ,abs)=12.60% *15* (1975Pi03), which in turn had superseded the Iγ normalization of 1978Ha22 based on I(315γ,abs)=24% (based on complex 315-keV γ peak absolute intensity measurement with NaI(Tl), 1964Ho03). Later a series of studies showed that the observed β^- feeding to g.s. and low-lying states in A=147 isobars is compatible with I(315γ,abs)=24%, rather than I(315γ,abs)=12.6% (1989Ro20, ^{147}La β^- decay; 1993Ma39, ^{147}Ce β^- decay; 1996Gr20, 1997Gr09, ^{147}Ce and ^{147}Pr β^- decays, (TAGS)). However, if I(315γ,abs)=24% is used for Iγ normalization with the latest ^{147}Pr β^- decay data (1993Sh33, 2015Ru09), it results in a strong negative β^- feeding to ^{147}Nd g.s. and 49.9-keV level. The Iγ normalization adopted here gives I(315γ,abs)=18.2 % *18* and reconciles the previous values discrepant by almost a factor of two.

α(K)exp, α(L)exp, α(exp), and K/L values shown in table comments are from 1993Sh33 (x-γ and conversion electron measurements; normalized to 128γ, M1).

E_γ [#]	I_γ [@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [a]	δ [‡a]	α [†]	Comments
49.88 *5*	54 *5*	49.88	7/2$^-$	0.0	5/2$^-$	M1+E2	<0.42	12.1 *16*	%Iγ=4.0 *4* α(K)=8.7 *4*; α(L)=2.7 *14*; α(M)=0.59 *33* α(N)=0.130 *70*; α(O)=0.0177 *86*; α(P)=0.00056 *3* I_γ: 58 *4* (1993Sh33), 48 *5* (2015Ru09). α(K)exp=10.1 *15*.
77.97 *5*	131 *8*	127.78	5/2$^-$	49.88	7/2$^-$	M1+E2	<0.48	3.13 *25*	%Iγ=9.7 *9* α(K)=2.45 *4*; α(L)=0.54 *20*; α(M)=0.117 *45* α(N)=0.0259 *96*; α(O)=0.0037 *12*; α(P)=0.000154 *6* I_γ: 137 *10* (1993Sh33), 122 *12* (2015Ru09). α(exp)=3.29 *15*, α(K)exp=2.4 *3*, α(L)exp=0.29 *6*, K/L=8.2 *18*. Branching: Iγ(78γ)/Iγ(128γ)=1.8 *3* (1975Ro16), 1.0 *1* (1977Re11, ^{147}Pr β^- decay).
86.69 *5*	72 *4*	214.60	1/2$^-$	127.78	5/2$^-$	E2		3.67	%Iγ=5.4 *6* α(K)=1.79 *3*; α(L)=1.467 *21*; α(M)=0.335 *5* α(N)=0.0723 *11*; α(O)=0.00926 *14*; α(P)=7.66×10^{-5} *11* I_γ: 74 *5* (1993Sh33), 69 *7* (2015Ru09). α(L)exp=1.66 *13*. Branching: Iγ(87γ)/Iγ(214γ)=6.7 *3* (1975Ro16), 4.0 *3* (av: ^{147}Pr β^- decay).
86.69 *5*	1.6 *2*	604.22	1/2$^-$	517.23	5/2$^-$	[E2]		3.67	%Iγ=0.119 *18* α(K)=1.79 *3*; α(L)=1.467 *21*; α(M)=0.335 *5* α(N)=0.0723 *11*; α(O)=0.00926 *14*; α(P)=7.66×10^{-5} *11* γ ray observed only by 2015Ru09.
99.90 *10*	5.8 *6*	314.64	3/2$^-$	214.60	1/2$^-$	[M1]		1.420	%Iγ=0.43 *6* α(K)=1.207 *18*; α(L)=0.1681 *24*; α(M)=0.0357 *5* α(N)=0.00799 *12*; α(O)=0.001212 *18*; α(P)=7.82×10^{-5} *12*

$^{147}_{60}Nd_{87}$-4

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[‡a]	α[†]	Comments
									I_γ: 7.2 *12* (1993Sh33), 5.5 *5* (2015Ru09). Branching: Iγ(315γ)/Iγ(265γ)/Iγ(187γ)/Iγ(100γ)=100/2.0 *3*/4.0 *6*/3.5 *5* (1975Ro16), 100/1.1 *1*/6 *1*/1.3 *2* (1975Do15, ^{147}Pr β^- decay).
127.8 *2*	100 *5*	127.78	5/2$^-$	0.0	5/2$^-$	M1(+E2)	<0.40	0.720 *18*	%Iγ=7.4 *8* α(K)=0.599 *9*; α(L)=0.095 *13*; α(M)=0.020 *3* α(N)=0.0046 *6*; α(O)=0.00067 *8*; α(P)=3.80×10^{-5} *10* I_γ: 100 *5* (1993Sh33), 100 *10* (2015Ru09). α(K)exp=0.71 *21*, α(L)exp=0.088 *7*, K/L=7.0 *5*. E_γ: 127.923 *2* (1979Bo26). Branching: Iγ(78γ)/Iγ(128γ)=1.8 *3* (1975Ro16), 1.0 *1* (1977Re11, ^{147}Pr β^- decay).
[x]140.62[b] *10*	6.1 *3*								%Iγ=0.45 *5* Branching: Iγ(190γ)/Iγ(140γ)=1.7 *2* (1975Pi03) ^{147}Pr β^- decay.
141.0 *2*	3.3 *3*	604.22	1/2$^-$	463.53	3/2$^-$	[M1+E2]		0.59 *6*	%Iγ=0.25 *3* α(K)=0.444 *13*; α(L)=0.116 *53*; α(M)=0.026 *13* α(N)=0.0056 *27*; α(O)=7.7×10^{-4} *32*; α(P)=2.5×10^{-5} *5* I_γ: 18.3 *11* (1993Sh33), 3.3 *3* (2015Ru09). These values are discrepant. Value of 2015Ru09 that observed several low intensity γ's unobserved by 1993Sh33 was adopted.
148.7 *3*	0.50 *20*	463.53	3/2$^-$	314.64	3/2$^-$	[M1+E2]		0.50 *4*	%Iγ=0.037 *16* α(K)=0.379 *14*; α(L)=0.095 *41*; α(M)=0.0209 *94* α(N)=0.0046 *20*; α(O)=6.3×10^{-4} *25*; α(P)=2.1×10^{-5} *4* I_γ: 0.89 *20* (1993Sh33), 0.4 *1* (2015Ru09).
161.1 *2*	6.5 *50*	792.25	3/2$^+$	631.54	3/2$^-$	[E1]		0.0704	%Iγ=0.5 *4* α(K)=0.0600 *9*; α(L)=0.00824 *12*; α(M)=0.00174 *3* α(N)=0.000385 *6*; α(O)=5.65×10^{-5} *9*; α(P)=3.18×10^{-6} *5* I_γ: unweighted mean of 11.7 *9* (1993Sh33), 1.7 *2* (2015Ru09).
165.02 *4*	1.5 *2*	957.21	3/2$^-$	792.25	3/2$^+$	[E1]		0.0659	%Iγ=0.112 *18* α(K)=0.0562 *8*; α(L)=0.00771 *11*; α(M)=0.001626 *23* α(N)=0.000360 *5*; α(O)=5.29×10^{-5} *8*; α(P)=2.99×10^{-6} *5* γ ray observed only by 2015Ru09.
168.2 *3*	1.4 *8*	631.54	3/2$^-$	463.53	3/2$^-$	[M1+E2]		0.340 *14*	%Iγ=0.10 *6* α(K)=0.264 *15*; α(L)=0.059 *21*; α(M)=0.0131 *50* α(N)=0.0029 *11*; α(O)=4.0×10^{-4} *13*; α(P)=1.5×10^{-5} *3* I_γ: 0.60 *22* (1993Sh33), 2.1 *2* (2015Ru09).
186.5 *2*	13.6 *18*	314.64	3/2$^-$	127.78	5/2$^-$	E2		0.248	%Iγ=1.01 *16* α(K)=0.181 *3*; α(L)=0.0528 *8*; α(M)=0.01177 *18* α(N)=0.00257 *4*; α(O)=0.000347 *5*; α(P)=9.04×10^{-6} *13* I_γ: 15.4 *12* (1993Sh33), 11.7 *12* (2015Ru09). α(K)exp=0.14 *3*. Branching: Iγ(315γ)/Iγ(265γ)/Iγ(187γ)/Iγ(100γ)=100/2.0 *3*/4.0

$^{147}_{60}Nd_{87}$-5

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[‡a]	α[†]	Comments
									6/3.5 5 (1975Ro16), 100/1.1 1/6 1/1.3 2 (1975Do15, ^{147}Pr β^- decay).
[x]190.47[b] 8	10.5 7								%Iγ=0.78 9 Branching: Iγ(190γ)/Iγ(140γ)=1.7 2 (1975Pi03) ^{147}Pr β^- decay.
202.8 3	1.9 8	517.23	5/2$^-$	314.64	3/2$^-$	[M1+E2]		0.191 6	%Iγ=0.14 6 α(K)=0.153 14; α(L)=0.030 8; α(M)=0.0066 18 α(N)=0.00146 38; α(O)=0.00021 5; α(P)=8.9×10^{-6} 19 I_γ: 4.1 6 (1993Sh33), 1.6 2 (2015Ru09). Branching: Iγ(389γ)/Iγ(467γ)/Iγ(517γ)/Iγ(202γ)=100/91 13/81 11/27 4 (1975Ro16), 100/86 20/53 15/– (1975Do15, ^{147}Pr β^- decay).
214.6 2	17.2 11	214.60	1/2$^-$	0.0	5/2$^-$	E2		0.1548	%Iγ=1.28 14 α(K)=0.1163 17; α(L)=0.0302 5; α(M)=0.00669 10 α(N)=0.001463 22; α(O)=0.000200 3; α(P)=6.00×10^{-6} 9 I_γ: 16.5 12 (1993Sh33), 19 2 (2015Ru09). α(K)exp=0.118 14. Mult.,δ: E2(+M1), δ>1.0 (1993Sh33); M1 mixture excluded from ΔJ=2, Δπ=no transition. Branching: Iγ(87γ)/Iγ(214γ)=6.7 3 (1975Ro16), 4.0 3 (av: ^{147}Pr β^- decay).
239.1 1	0.6 1	1351.02	5/2$^-$	1112.02	3/2$^+$				%Iγ=0.045 9 γ ray observed only by 2015Ru09.
[x]239.3 3	1.8 6								%Iγ=0.13 5
249.2 2	17.7 18	463.53	3/2$^-$	214.60	1/2$^-$	M1+E2	0.9 +35−9	0.104 9	%Iγ=1.32 18 α(K)=0.085 12; α(L)=0.0148 20; α(M)=0.0032 5 α(N)=0.00071 11; α(O)=0.000103 10; α(P)=5.1×10^{-6} 12 I_γ: 19.0 11 (1993Sh33), 15.3 15 (2015Ru09). α(K)exp=0.087 12. Branching: Iγ(464γ)/Iγ(414γ)/Iγ(336γ)/Iγ(249γ)=3.2 5/22 3/100/25 4 (1975Ro16), –/20 3/100/27 3 (av: ^{147}Pr β^- decay).
264.6 2	4.7 12	314.64	3/2$^-$	49.88	7/2$^-$	[E2]		0.0780	%Iγ=0.35 10 α(K)=0.0607 9; α(L)=0.01356 20; α(M)=0.00298 5 α(N)=0.000654 10; α(O)=9.11×10^{-5} 13; α(P)=3.26×10^{-6} 5 I_γ: 6.9 7 (1993Sh33), 4.0 4 (2015Ru09). Branching: Iγ(315γ)/Iγ(265γ)/Iγ(187γ)/Iγ(100γ)=100/2.0 3/4.0 6/3.5 5 (1975Ro16), 100/1.1 1/6 1/1.3 2 (1975Do15, ^{147}Pr β^- decay).
304.6[c] 3	2.6 4	769.22	3/2$^+$	463.53	3/2$^-$	[E1]		0.01304	%Iγ=0.19 4 α(K)=0.01116 16; α(L)=0.001485 22; α(M)=0.000313 5 α(N)=6.96×10^{-5} 10; α(O)=1.039×10^{-5} 15; α(P)=6.29×10^{-7} 9 I_γ: 3.4 4 (1993Sh33), 2.4 2 (2015Ru09).

$^{147}_{60}Nd_{87}$-6

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	δ[‡a]	α[†]	Comments
310.7 *1*	0.7 *1*	942.16	(1/2$^-$,3/2,5/2)	631.54	3/2$^-$				%Iγ=0.052 *9* γ ray observed only by 2015Ru09.
314.7 *2*	244 *11*	314.64	3/2$^-$	0.0	5/2$^-$	M1+E2	1.3 *+9−4*	0.051 *4*	%Iγ=18.2 *18* α(K)=0.042 *4*; α(L)=0.00713 *12*; α(M)=0.00154 *3* α(N)=0.000341 *6*; α(O)=4.96×10^{-5} *8*; α(P)=2.5×10^{-6} *3* I_γ: 242 *12* (1993Sh33), 255 *25* (2015Ru09). α(K)exp=0.041 *3*, α(L)exp=0.0068 *8*, K/L=6.0 *5*. E_γ: 314.657 *39* (1979Bo26). Branching: Iγ(315γ)/Iγ(265γ)/Iγ(187γ)/Iγ(100γ)=100/2.0 *3*/4.0 *6*/3.5 *5* (1975Ro16), 100/1.1 *1*/6 *1*/1.3 *2* (1975Do15, ^{147}Pr β^- decay).
316.89 *5*	1.2 *1*	631.54	3/2$^-$	314.64	3/2$^-$	[M1+E2]		0.052 *8*	%Iγ=0.089 *11* α(K)=0.043 *8*; α(L)=0.00695 *15*; α(M)=0.00150 *5* α(N)=0.000332 *9*; α(O)=4.87×10^{-5} *10*; α(P)=2.6×10^{-6} *7* γ ray observed only by 2015Ru09.
328.8 *2*	54.0 *28*	792.25	3/2$^+$	463.53	3/2$^-$	E1		0.01075	%Iγ=4.0 *4* α(K)=0.00921 *13*; α(L)=0.001221 *18*; α(M)=0.000257 *4* α(N)=5.72×10^{-5} *8*; α(O)=8.56×10^{-6} *12*; α(P)=5.22×10^{-7} *8* I_γ: 53.7 *32* (1993Sh33), 55 *6* (2015Ru09). α(K)exp≤0.0066. Branching: Iγ(578γ)/Iγ(478γ)/Iγ(329γ)=100/17 *6*/38 *5* (1975Ro16), 100/34 *4*/32 *5* (1975Do15, ^{147}Pr β^- decay).
335.7 *2*	63.5 *29*	463.53	3/2$^-$	127.78	5/2$^-$	E2(+M1)	3.6 *+20−8*	0.0380 *8*	%Iγ=4.7 *5* α(K)=0.0307 *8*; α(L)=0.00577 *9*; α(M)=0.001257 *18* α(N)=0.000277 *4*; α(O)=3.95×10^{-5} *6*; α(P)=1.74×10^{-6} *6* I_γ: 62.8 *32* (1993Sh33), 67 *7* (2015Ru09). α(K)exp=0.031 *4*, α(L)exp=0.0060 *18*, K/L=5.1 *14*. Branching: Iγ(464γ)/Iγ(414γ)/Iγ(336γ)/Iγ(249γ)=3.2 *5*/22 *3*/100/25 *4* (1975Ro16), –/20 *3*/100/27 *3* (av: ^{147}Pr β^- decay).
[x]343.8 *3*	4.5 *6*								%Iγ=0.33 *6*
366.59[c] *5*	1.6 *2*	829.94	(1/2,3/2,5/2$^-$)	463.53	3/2$^-$				%Iγ=0.119 *19* γ ray observed only by 2015Ru09.
[x]366.6 *2*	5.3 *6*								%Iγ=0.39 *6* γ placed by 1981Ya06 to 581 level but shown as unplaced by 1993Sh33.
[x]372.8 *3*	3.1 *5*								%Iγ=0.23 *5*
388.8[c] *2*	19.0 *11*	517.23	5/2$^-$	127.78	5/2$^-$	M1+E2	<0.82	0.0325 *23*	%Iγ=1.41 *15* α(K)=0.0276 *21*; α(L)=0.00390 *12*; α(M)=0.000829 *21* α(N)=0.000185 *5*; α(O)=2.79×10^{-5} *11*; α(P)=1.74×10^{-6}

$^{147}_{60}Nd_{87}$-7

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								16 I_γ: 19.5 *14* (1993Sh33), 18 *2* (2015Ru09). α(K)exp=0.035 *9*. Branching: Iγ(389γ)/Iγ(467γ)/Iγ(517γ)/Iγ(202γ)=100/91 *13*/81 *11*/27 *4* (1975Ro16), 100/86 *20*/53 *15*/ (no data) (1975Do15, ^{147}Pr β^- decay, with 202γ undetected).
(389.94 *6*)	0.6 *2*	604.22	1/2$^-$	214.60	1/2$^-$	[M1,E2]	0.029 *6*	α(K)=0.024 *6*; α(L)=0.00372 *25*; α(M)=0.00080 *5* α(N)=0.000177 *11*; α(O)=2.63×10^{-5} *24*; α(P)=1.49×10^{-6} *40* %Iγ=0.045 *16* Mult.: (M1) in Table I of 2015Ru09 but [M1+E2] in ^{147}Nd Adopted dataset.
413.7 *2*	13.5 *9*	463.53	3/2$^-$	49.88	7/2$^-$	[E2]	0.0199	%Iγ=1.00 *11* α(K)=0.01629 *23*; α(L)=0.00287 *4*; α(M)=0.000622 *9* α(N)=0.0001374 *20*; α(O)=1.98×10^{-5} *3*; α(P)=9.37×10^{-7} *14* I_γ: 13.6 *12* (1993Sh33), 13.3 *13* (2015Ru09). Branching: Iγ(464γ)/Iγ(414γ)/Iγ(336γ)/Iγ(249γ)=3.2 *5*/22 *3*/100/25 *4* (1975Ro16), –/20 *3*/100/27 *3* (av: ^{147}Pr β^- decay).
416.9 *1*	0.9 *1*	631.54	3/2$^-$	214.60	1/2$^-$	[M1+E2]	0.024 *5*	%Iγ=0.067 *10* α(K)=0.020 *5*; α(L)=0.0031 *3*; α(M)=0.00066 *5* α(N)=0.000146 *13*; α(O)=2.17×10^{-5} *24*; α(P)=1.25×10^{-6} *34* γ ray observed only by 2015Ru09.
454.8 *2*	1.41 *10*	769.22	3/2$^+$	314.64	3/2$^-$	[E1]	0.00490	%Iγ=0.105 *12* α(K)=0.00420 *6*; α(L)=0.000550 *8*; α(M)=0.0001157 *17* α(N)=2.58×10^{-5} *4*; α(O)=3.88×10^{-6} *6*; α(P)=2.43×10^{-7} *4* I_γ: 1.5 *3* (1993Sh33), 1.4 *1* (2015Ru09).
463.5[e] *3*	2.8 *3*	463.53	3/2$^-$	0.0	5/2$^-$	[M1+E2]	0.018 *4*	%Iγ=0.21 *3* α(K)=0.015 *4*; α(L)=0.0023 *3*; α(M)=0.00048 *6* α(N)=0.000108 *13*; α(O)=1.61×10^{-5} *23*; α(P)=9.5×10^{-7} *26* I_γ: ≤0.2 *12* (1993Sh33), 2.8 *3* (2015Ru09). E_γ,I_γ: In 1993Sh33 γ neither associated with a particular level, nor marked as "unplaced". The (tentative) placement adopted here was done based on the placement of 463.53 *13* γ ray in (n,γ) dataset. 2015Ru09 positively measured and placed this γ ray, the intensity of which was adopted here. Branching: Iγ(464γ)/Iγ(414γ)/Iγ(336γ)/Iγ(249γ)=3.2 *5*/22 *3*/100/25 *4* (1975Ro16), –/20 *3*/100/27 *3* (av: ^{147}Pr β^- decay).
466.8 *2*	23 *4*	517.23	5/2$^-$	49.88	7/2$^-$	[M1+E2]	0.018 *4*	%Iγ=1.7 *4* α(K)=0.015 *4*; α(L)=0.0022 *3*; α(M)=0.00048 *6* α(N)=0.000106 *13*; α(O)=1.58×10^{-5} *22*; α(P)=9.3×10^{-7} *26* I_γ: 25.8 *15* (1993Sh33), 18 *2* (2015Ru09). Branching: Iγ(389γ)/Iγ(467γ)/Iγ(517γ)/Iγ(202γ)=100/91 *13*/81 *11*/27 *4* (1975Ro16), 100/86 *20*/53 *15*/– (1975Do15, ^{147}Pr β^- decay).

$^{147}_{60}Nd_{87}$-8

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
468.37 *5*	1.9 *2*	1260.63	(1/2$^-$,3/2,5/2$^-$)	792.25	3/2$^+$			%Iγ=0.141 *20* γ ray observed only by 2015Ru09.
476.80 *6*	1.6 *2*	604.22	1/2$^-$	127.78	5/2$^-$	[E2]	0.01339	%Iγ=0.119 *19* α(K)=0.01106 *16*; α(L)=0.00184 *3*; α(M)=0.000397 *6* α(N)=8.79×10^{-5} *13*; α(O)=1.278×10^{-5} *18*; α(P)=6.45×10^{-7} *9* γ ray observed only by 2015Ru09.
477.9 *2*	61.8 *28*	792.25	3/2$^+$	314.64	3/2$^-$	E1	0.00437	%Iγ=4.6 *5* α(K)=0.00375 *6*; α(L)=0.000489 *7*; α(M)=0.0001029 *15* α(N)=2.30×10^{-5} *4*; α(O)=3.46×10^{-6} *5*; α(P)=2.17×10^{-7} *3* I_γ: 62.9 *31* (1993Sh33), 56 *7* (2015Ru09). α(K)exp≤0.006. Branching: Iγ(578γ)/Iγ(478γ)/Iγ(329γ)=100/17 *6*/38 *5* (1975Ro16), 100/34 *4*/32 *5* (1975Do15, ^{147}Pr β^- decay).
478.51 *8*	3.8 *4*	942.16	(1/2$^-$,3/2,5/2)	463.53	3/2$^-$			%Iγ=0.28 *4* γ ray observed only by 2015Ru09.
491.4 *3*	6.2 *11*	1260.63	(1/2$^-$,3/2,5/2$^-$)	769.22	3/2$^+$			%Iγ=0.46 *9* I_γ: 7.1 *4* (1993Sh33), 4.8 *5* (2015Ru09).
493.53 *7*	1.1 *1*	957.21	3/2$^-$	463.53	3/2$^-$	[M1+E2]	0.016 *4*	%Iγ=0.082 *11* α(K)=0.013 *3*; α(L)=0.0019 *3*; α(M)=0.00041 *5* α(N)=9.1×10^{-5} *12*; α(O)=1.36×10^{-5} *21*; α(P)=8.1×10^{-7} *22* γ ray observed only by 2015Ru09.
494.9 *1*	0.7 *1*	1264.11	3/2$^+$	769.22	3/2$^+$	[M1+E2]	0.015 *4*	%Iγ=0.052 *9* α(K)=0.013 *3*; α(L)=0.0019 *3*; α(M)=0.00040 *5* α(N)=9.0×10^{-5} *12*; α(O)=1.35×10^{-5} *21*; α(P)=8.0×10^{-7} *22* γ ray observed only by 2015Ru09.
503.5 *3*	4.9 *4*	631.54	3/2$^-$	127.78	5/2$^-$	[M1+E2]	0.015 *4*	%Iγ=0.36 *5* α(K)=0.012 *3*; α(L)=0.00181 *25*; α(M)=0.00039 *5* α(N)=8.6×10^{-5} *12*; α(O)=1.28×10^{-5} *20*; α(P)=7.7×10^{-7} *21* I_γ: 5.0 *6* (1993Sh33), 4.8 *5* (2015Ru09).
516.7 *2*	18 *4*	517.23	5/2$^-$	0.0	5/2$^-$	[M1+E2]	0.014 *3*	%Iγ=1.3 *4* α(K)=0.012 *3*; α(L)=0.00168 *24*; α(M)=0.00036 *5* α(N)=8.0×10^{-5} *11*; α(O)=1.20×10^{-5} *19*; α(P)=7.2×10^{-7} *20* I_γ: 23.4 *14* (1993Sh33), 15 *1* (2015Ru09). Branching: Iγ(389γ)/Iγ(467γ)/Iγ(517γ)/Iγ(202γ)=100/91 *13*/81 *11*/27 *4* (1975Ro16), 100/86 *20*/53 *15*/– (1975Do15, ^{147}Pr β^- decay).
518.43 *8*	1.0 *1*	1310.76	3/2$^+$	792.25	3/2$^+$	[M1+E2]	0.014 *3*	%Iγ=0.074 *10* α(K)=0.012 *3*; α(L)=0.00167 *24*; α(M)=0.00036 *5* α(N)=7.9×10^{-5} *11*; α(O)=1.19×10^{-5} *19*; α(P)=7.1×10^{-7} *20* γ ray observed only by 2015Ru09.
[x]525.3 *2*	4.8 *8*							%Iγ=0.36 *7*
554.7 *2*	79 *4*	769.22	3/2$^+$	214.60	1/2$^-$	E1	0.00312	%Iγ=5.9 *6* α(K)=0.00268 *4*; α(L)=0.000347 *5*; α(M)=7.30×10^{-5} *11* α(N)=1.630×10^{-5} *23*; α(O)=2.46×10^{-6} *4*; α(P)=1.562×10^{-7} *22*

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@ &d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								I_γ: 80 *4* (1993Sh33), 76 *8* (2015Ru09). α(K)exp=0.0042 *23*. Branching: Iγ(641γ)/Iγ(555γ)=100/42 *6* (1975Ro16), 100/42 *6* (1975Do15, ^{147}Pr β^- decay).
577.9 *2*	189 *9*	792.25	$3/2^+$	214.60	$1/2^-$	E1	0.00285	%Iγ=14.1 *14* α(K)=0.00245 *4*; α(L)=0.000317 *5*; α(M)=6.66×10^{-5} *10* α(N)=1.487×10^{-5} *21*; α(O)=2.24×10^{-6} *4*; α(P)=1.430×10^{-7} *20* I_γ: 190 *10* (1993Sh33), 187 *19* (2015Ru09). α(K)exp=0.0027 *10*. Branching: Iγ(578γ)/Iγ(478γ)/Iγ(329γ)=100/17 *6*/38 *5* (1975Ro16), 100/34 *4*/32 *5* (1975Do15, ^{147}Pr β^- decay).
581.0 *3*	3.7 *3*	580.9	$7/2^-$	0.0	$5/2^-$	[M1+E2]	0.0103 *24*	%Iγ=0.28 *4* α(K)=0.0087 *21*; α(L)=0.00123 *20*; α(M)=0.00026 *4* α(N)=5.8×10^{-5} *10*; α(O)=8.8×10^{-6} *16*; α(P)=5.4×10^{-7} *15* γ ray observed only by 1993Sh33.
596.1 *2*	0.6 *1*	1112.02	$3/2^+$	517.23	$5/2^-$	[E1]	0.00266	%Iγ=0.045 *9* α(K)=0.00229 *4*; α(L)=0.000296 *5*; α(M)=6.22×10^{-5} *9* α(N)=1.388×10^{-5} *20*; α(O)=2.10×10^{-6} *3*; α(P)=1.338×10^{-7} *19* γ ray observed only by 2015Ru09.
604.5 *2*	8.0 *8*	604.22	$1/2^-$	0.0	$5/2^-$	[E2]	0.00718	%Iγ=0.60 *8* α(K)=0.00601 *9*; α(L)=0.000924 *13*; α(M)=0.000198 *3* α(N)=4.39×10^{-5} *7*; α(O)=6.48×10^{-6} *9*; α(P)=3.57×10^{-7} *5* I_γ: 7.4 *7* (1993Sh33), 9.1 *9* (2015Ru09).
[x]615.0 *2*	5.2 *5*							%Iγ=0.39 *5*
615.07[c] *6*	4.8 *5*	829.94	(1/2,3/2,5/2$^-$)	214.60	$1/2^-$			%Iγ=0.36 *5* γ ray observed only by 2015Ru09.
[x]621.5 *3*	3.4 *4*							%Iγ=0.25 *4*
627.6 *2*	4.35 *28*	942.16	(1/2$^-$,3/2,5/2)	314.64	$3/2^-$			%Iγ=0.32 *4* I_γ: 4.3 *4* (1993Sh33), 4.4 *4* (2015Ru09). Branching: Iγ(627γ)/Iγ(942γ)=44 *5* (1975Ro16), 30 *6* (1975Do15, ^{147}Pr β^- decay).
631.6 *2*	8.9 *6*	631.54	$3/2^-$	0.0	$5/2^-$	[M1+E2]	0.0083 *19*	%Iγ=0.66 *8* α(K)=0.0071 *17*; α(L)=0.00099 *18*; α(M)=0.00021 *4* α(N)=4.7×10^{-5} *8*; α(O)=7.1×10^{-6} *14*; α(P)=4.4×10^{-7} *12* I_γ: 8.5 *7* (1993Sh33), 9.7 *10* (2015Ru09).
641.4 *2*	216 *10*	769.22	$3/2^+$	127.78	$5/2^-$	E1	0.00227	%Iγ=16.1 *16* α(K)=0.00196 *3*; α(L)=0.000252 *4*; α(M)=5.30×10^{-5} *8* α(N)=1.182×10^{-5} *17*; α(O)=1.79×10^{-6} *3*; α(P)=1.146×10^{-7} *16* I_γ: 216 *11* (1993Sh33), 215 *22* (2015Ru09). α(K)exp=0.0014 *10*. Branching: Iγ(641γ)/Iγ(555γ)=100/42 *6* (1975Ro16), 100/42 *6* (1975Do15, ^{147}Pr β^- decay).

$^{147}_{60}Nd_{87}$-10

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
642.42 *8*	1.2 *1*	957.21	3/2$^-$	314.64	3/2$^-$			%Iγ=0.089 *11* γ ray observed only by 2015Ru09.
656.1 *2*	2.48 *28*	1260.63	(1/2$^-$,3/2,5/2$^-$)	604.22	1/2$^-$			%Iγ=0.18 *3* I_γ: 2.9 *3* (1993Sh33), 2.3 *2* (2015Ru09).
664.5 *2*	3.1 *3*	792.25	3/2$^+$	127.78	5/2$^-$	[E1]	0.00211	%Iγ=0.23 *3* α(K)=0.00181 *3*; α(L)=0.000233 *4*; α(M)=4.91×10^{-5} *7* α(N)=1.095×10^{-5} *16*; α(O)=1.657×10^{-6} *24*; α(P)=1.065×10^{-7} *15* I_γ: 3.1 *6* (1993Sh33), 3.1 *3* (2015Ru09).
706.8 *3*	6.9 *5*	1310.76	3/2$^+$	604.22	1/2$^-$	[E1]	0.00185	%Iγ=0.51 *6* α(K)=0.001596 *23*; α(L)=0.000205 *3*; α(M)=4.30×10^{-5} *6* α(N)=9.61×10^{-6} *14*; α(O)=1.454×10^{-6} *21*; α(P)=9.38×10^{-8} *14* I_γ: 6.8 *8* (1993Sh33), 6.9 *7* (2015Ru09).
718.9 *2*	4.5 *15*	769.22	3/2$^+$	49.88	7/2$^-$			%Iγ=0.33 *12* I_γ: 7.3 *7* (1993Sh33), 3.8 *4* (2015Ru09).
718.9 *2*	5.6 *12*	1351.02	5/2$^-$	631.54	3/2$^-$			%Iγ=0.42 *10* I_γ: 7.3 *7* (1993Sh33), 4.7 *5* (2015Ru09).
726.6 *1*	0.6 *1*	1041.24	1/2$^-$	314.64	3/2$^-$	[M1+E2]	0.0059 *14*	%Iγ=0.045 *9* α(K)=0.0050 *12*; α(L)=0.00069 *13*; α(M)=0.00015 *3* α(N)=3.3×10^{-5} *6*; α(O)=5.0×10^{-6} *10*; α(P)=3.13×10^{-7} *81* γ ray observed only by 2015Ru09.
746.9 *1*	1.3 *1*	1264.11	3/2$^+$	517.23	5/2$^-$	[E1]	1.66×10^{-3}	%Iγ=0.097 *12* α(K)=0.001425 *20*; α(L)=0.000182 *3*; α(M)=3.83×10^{-5} *6* α(N)=8.56×10^{-6} *12*; α(O)=1.296×10^{-6} *19*; α(P)=8.39×10^{-8} *12* γ ray observed only by 2015Ru09.
746.9 *3*	3.6 *3*	1351.02	5/2$^-$	604.22	1/2$^-$			%Iγ=0.27 *4* I_γ: 3.5 *6* (1993Sh33), 3.6 *4* (2015Ru09).
769.3 *2*	4.7 *4*	769.22	3/2$^+$	0.0	5/2$^-$	[E1]	1.56×10^{-3}	%Iγ=0.35 *5* α(K)=0.001342 *19*; α(L)=0.0001716 *24*; α(M)=3.60×10^{-5} *5* α(N)=8.05×10^{-6} *12*; α(O)=1.220×10^{-6} *17*; α(P)=7.90×10^{-8} *11* I_γ: 4.5 *6* (1993Sh33), 4.8 *5* (2015Ru09).
793.8 *2*	18.5 *11*	1310.76	3/2$^+$	517.23	5/2$^-$	[E1]	1.46×10^{-3}	%Iγ=1.38 *15* α(K)=0.001260 *18*; α(L)=0.0001609 *23*; α(M)=3.38×10^{-5} *5* α(N)=7.55×10^{-6} *11*; α(O)=1.144×10^{-6} *16*; α(P)=7.43×10^{-8} *11* I_γ: 18.5 *11* (1993Sh33), 17.8 *18* (2015Ru09).
797.23 *8*	2.0 *2*	1112.02	3/2$^+$	314.64	3/2$^-$	[E1]	1.45×10^{-3}	%Iγ=0.149 *20* α(K)=0.001250 *18*; α(L)=0.0001595 *23*; α(M)=3.35×10^{-5} *5* α(N)=7.48×10^{-6} *11*; α(O)=1.134×10^{-6} *16*; α(P)=7.36×10^{-8} *11* γ ray observed only by 2015Ru09.
800.4 *2*	2.26 *18*	1264.11	3/2$^+$	463.53	3/2$^-$	[E1]	1.44×10^{-3}	%Iγ=0.168 *20* α(K)=0.001240 *18*; α(L)=0.0001582 *23*; α(M)=3.32×10^{-5} *5* α(N)=7.42×10^{-6} *11*; α(O)=1.125×10^{-6} *16*; α(P)=7.31×10^{-8} *11* I_γ: 2.1 *4* (1993Sh33), 2.3 *2* (2015Ru09).

$^{147}_{60}Nd_{87}$-11

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ [#]	I_γ [@ &d]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [a]	α [†]	Comments
814.9 *3*	1.26 *14*	942.16	(1/2$^-$,3/2,5/2)	127.78	5/2$^-$			%Iγ=0.094 *14* I$_\gamma$: 0.7 *4* (1993Sh33), 1.3 *1* (2015Ru09).
840.4 *1*	1.1 *1*	1444.58	1/2$^+$	604.22	1/2$^-$	[E1]	1.31×10^{-3}	%Iγ=0.082 *11* α(K)=0.001125 *16*; α(L)=0.0001433 *20*; α(M)=3.01×10^{-5} *5* α(N)=6.73×10^{-6} *10*; α(O)=1.020×10^{-6} *15*; α(P)=6.64×10^{-8} *10* γ ray observed only by 2015Ru09.
846.9 *3*	4.1 *27*	1310.76	3/2$^+$	463.53	3/2$^-$	[E1]	1.29×10^{-3}	%Iγ=0.31 *21* α(K)=0.001109 *16*; α(L)=0.0001412 *20*; α(M)=2.96×10^{-5} *5* α(N)=6.62×10^{-6} *10*; α(O)=1.005×10^{-6} *14*; α(P)=6.54×10^{-8} *10* I$_\gamma$: 10.4 *7* (1993Sh33), 3.0 *3* (2015Ru09).
853.7 *3*	1.47 *24*	2164.44	(1/2$^-$,3/2,5/2$^-$)	1310.76	3/2$^+$			%Iγ=0.109 *21* I$_\gamma$: 1.6 *4* (1993Sh33), 1.4 *3* (2015Ru09).
881.5 *3*	4.3 *4*	1398.08	3/2$^+$	517.23	5/2$^-$	[E1]	1.19×10^{-3}	%Iγ=0.32 *4* α(K)=0.001025 *15*; α(L)=0.0001303 *19*; α(M)=2.74×10^{-5} *4* α(N)=6.12×10^{-6} *9*; α(O)=9.28×10^{-7} *13*; α(P)=6.05×10^{-8} *9* I$_\gamma$: 3.8 *6* (1993Sh33), 4.6 *5* (2015Ru09).
887.0 *2*	6.65 *42*	1351.02	5/2$^-$	463.53	3/2$^-$			%Iγ=0.49 *6* I$_\gamma$: 6.8 *6* (1993Sh33), 6.5 *6* (2015Ru09).
903.8[cc] *2*	11.9 *10*	1673.69	3/2$^-$,5/2	769.22	3/2$^+$			%Iγ=0.89 *11* γ ray observed only by 1993Sh33.
934.45 *9*	1.2 *1*	1398.08	3/2$^+$	463.53	3/2$^-$	[E1]	1.06×10^{-3}	%Iγ=0.089 *11* α(K)=0.000916 *13*; α(L)=0.0001162 *17*; α(M)=2.44×10^{-5} *4* α(N)=5.45×10^{-6} *8*; α(O)=8.28×10^{-7} *12*; α(P)=5.42×10^{-8} *8* γ ray observed only by 2015Ru09.
942.3 *2*	13.7 *10*	942.16	(1/2$^-$,3/2,5/2)	0.0	5/2$^-$			%Iγ=1.02 *12* I$_\gamma$: 14.5 *9* (1993Sh33), 12.3 *12* (2015Ru09). Branching: Iγ(627γ)/Iγ(942γ)=44 *5* (1975Ro16), 30 *6* (1975Do15, ^{147}Pr β^- decay).
949.3 *2*	2.2 *3*	1264.11	3/2$^+$	314.64	3/2$^-$	[E1]	1.03×10^{-3}	%Iγ=0.16 *3* α(K)=0.000889 *13*; α(L)=0.0001127 *16*; α(M)=2.37×10^{-5} *4* α(N)=5.29×10^{-6} *8*; α(O)=8.03×10^{-7} *12*; α(P)=5.26×10^{-8} *8* I$_\gamma$: 2.9 *5* (1993Sh33), 2.1 *2* (2015Ru09).
957.8 *2*	1.3 *1*	957.21	3/2$^-$	0.0	5/2$^-$	[M1+E2]	0.0031 *7*	α(K)=0.0027 *6*; α(L)=0.00036 *7*; α(M)=7.5×10^{-5} *14* α(N)=1.7×10^{-5} *3*; α(O)=2.5×10^{-6} *5*; α(P)=1.6×10^{-7} *4* %Iγ=0.097 *12* γ ray observed only by 2015Ru09.
981.0 *1*	1.1 *1*	1444.58	1/2$^+$	463.53	3/2$^-$	[E1]	9.69×10^{-4}	%Iγ=0.082 *11* α(K)=0.000835 *12*; α(L)=0.0001058 *15*; α(M)=2.22×10^{-5} *4* α(N)=4.96×10^{-6} *7*; α(O)=7.54×10^{-7} *11*; α(P)=4.94×10^{-8} *7* γ ray observed only by 2015Ru09.
996.0 *2*	20.4 *10*	1310.76	3/2$^+$	314.64	3/2$^-$	[E1]	9.42×10^{-4}	%Iγ=1.52 *16* α(K)=0.000812 *12*; α(L)=0.0001027 *15*; α(M)=2.16×10^{-5} *3*

$^{147}_{60}Nd_{87}$-12

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								α(N)=4.82×10^{-6} *7*; α(O)=7.32×10^{-7} *11*; α(P)=4.80×10^{-8} *7* I$_\gamma$: 20.5 *12* (1993Sh33), 20 *2* (2015Ru09).
1036.6 *3*	2.0 *2*	1351.02	5/2$^-$	314.64	3/2$^-$			%Iγ=0.15 *2* I$_\gamma$: 2.5 *6* (1993Sh33), 1.9 *2* (2015Ru09).
1046.06 *8*	1.8 *2*	1260.63	(1/2$^-$,3/2,5/2$^-$)	214.60	1/2$^-$			%Iγ=0.134 *19* γ ray observed only by 2015Ru09.
1080.4 *1*	1.1 *1*	1544.01	(1/2$^-$,3/2,5/2$^+$)	463.53	3/2$^-$			%Iγ=0.082 *11* γ ray observed only by 2015Ru09.
1083.8 *3*	10.6 *8*	1398.08	3/2$^+$	314.64	3/2$^-$	[E1]	8.05×10^{-4}	%Iγ=0.79 *9* α(K)=0.000694 *10*; α(L)=8.76×10^{-5} *13*; α(M)=1.84×10^{-5} *3* α(N)=4.11×10^{-6} *6*; α(O)=6.25×10^{-7} *9*; α(P)=4.11×10^{-8} *6* I$_\gamma$: 10.5 *13* (1993Sh33), 10.6 *10* (2015Ru09).
1096.8 *3*	3.7 *18*	1310.76	3/2$^+$	214.60	1/2$^-$	[E1]	7.87×10^{-4}	%Iγ=0.28 *14* α(K)=0.000679 *10*; α(L)=8.56×10^{-5} *12*; α(M)=1.80×10^{-5} *3* α(N)=4.02×10^{-6} *6*; α(O)=6.11×10^{-7} *9*; α(P)=4.02×10^{-8} *6* I$_\gamma$: 9.7 *10* (1993Sh33), 3.2 *3* (2015Ru09).
1101.4[c] *3*	3.5 *16*	1617.52	3/2$^+$,5/2$^+$	517.23	5/2$^-$			%Iγ=0.26 *12* I$_\gamma$: 7.8 *8* (1993Sh33), 2.9 *3* (2015Ru09).
1102.0 *1*	1.3 *1*	1733.58	5/2$^-$	631.54	3/2$^-$			%Iγ=0.097 *12* γ ray observed only by 2015Ru09.
1112.1 *4*	1.7 *6*	2423.1	1/2$^+$	1310.76	3/2$^+$	[M1+E2]	0.0022 *5*	%Iγ=0.13 *5* α(K)=0.0019 *4*; α(L)=0.00025 *5*; α(M)=5.3×10^{-5} *10* α(N)=1.19×10^{-5} *21*; α(O)=1.8×10^{-6} *4*; α(P)=1.18×10^{-7} *25*; α(IPF)=5.44×10^{-7} *13* γ ray observed only by 1993Sh33.
1129.9 *3*	2.9 *3*	1593.40	5/2$^+$	463.53	3/2$^-$	[E1]	7.52×10^{-4}	%Iγ=0.22 *3* α(K)=0.000643 *9*; α(L)=8.10×10^{-5} *12*; α(M)=1.700×10^{-5} *24* α(N)=3.80×10^{-6} *6*; α(O)=5.78×10^{-7} *8*; α(P)=3.81×10^{-8} *6*; α(IPF)=5.83×10^{-6} *10* I$_\gamma$: 3.1 *2* (1993Sh33), 2.5 *3* (2015Ru09).
1130.2[e] *2*	0.6 *1*	1761.90	(1/2$^-$,3/2$^-$)	631.54	3/2$^-$			%Iγ=0.045 *9* γ ray observed only by 2015Ru09.
1136.53 *7*	19.1 *10*	1351.02	5/2$^-$	214.60	1/2$^-$			%Iγ=1.42 *15* γ ray placed by 1993Sh33 at 1264 level and reassigned at this 1351 level by 2015Ru09. I$_\gamma$: 19.1 *11* (1993Sh33), 19 *2* (2015Ru09).
1154.6 *3*	2.32 *18*	1617.52	3/2$^+$,5/2$^+$	463.53	3/2$^-$			%Iγ=0.173 *21* I$_\gamma$: 2.4 *4* (1993Sh33), 2.3 *2* (2015Ru09).
1157.4 *4*	1.49 *10*	1673.69	3/2$^-$,5/2	517.23	5/2$^-$			%Iγ=0.111 *13* I$_\gamma$: 1.3 *4* (1993Sh33), 1.5 *1* (2015Ru09).
1182.8 *3*	14.1 *8*	1310.76	3/2$^+$	127.78	5/2$^-$	[E1]	7.07×10^{-4}	%Iγ=1.05 *11* α(K)=0.000592 *9*; α(L)=7.45×10^{-5} *11*; α(M)=1.563×10^{-5} *22*

$^{147}_{60}Nd_{87}$-13

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@ &d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								α(N)=3.49×10^{-6} *5*; α(O)=5.32×10^{-7} *8*; α(P)=3.51×10^{-8} *5*; α(IPF)=2.03×10^{-5} *3*
								I_γ: 14.2 *10* (1993Sh33), 14.0 *14* (2015Ru09).
[x]1197.2 *3*	3.7 *4*							%Iγ=0.28 *4*
1214.8 *4*	4.5 *5*	1264.11	3/2$^+$	49.88	7/2$^-$			%Iγ=0.33 *5*
								I_γ: 5.2 *6* (1993Sh33), 4.2 *4* (2015Ru09).
1217.0 *4*	1.96 *18*	1733.58	5/2$^-$	517.23	5/2$^-$			%Iγ=0.146 *19*
								I_γ: 1.8 *4* (1993Sh33), 2.0 *2* (2015Ru09).
1230.4 *4*	2.20 *19*	1544.01	(1/2$^-$,3/2,5/2$^+$)	314.64	3/2$^-$			%Iγ=0.164 *20*
								I_γ: 2.2 *6* (1993Sh33), 2.2 *2* (2015Ru09).
1261.1 *3*	55.8 *24*	1260.63	(1/2$^-$,3/2,5/2$^-$)	0.0	5/2$^-$			%Iγ=4.2 *4*
								I_γ: 56.4 *28* (1993Sh33), 54 *5* (2015Ru09).
1261.1 *3*	56.4 *28*	1310.76	3/2$^+$	49.88	7/2$^-$			%Iγ=4.2 *5*
								γ ray observed only by 1993Sh33.
1264.2 *3*	16.4 *8*	1264.11	3/2$^+$	0.0	5/2$^-$	[E1]	6.68×10^{-4}	%Iγ=1.22 *13*
								α(K)=0.000526 *8*; α(L)=6.60×10^{-5} *10*; α(M)=1.385×10^{-5} *20*
								α(N)=3.10×10^{-6} *5*; α(O)=4.71×10^{-7} *7*; α(P)=3.12×10^{-8} *5*; α(IPF)=5.81×10^{-5} *9*
								I_γ: 16.9 *10* (1993Sh33), 15.3 *15* (2015Ru09).
1298.5 *1*	1.3 *2*	1761.90	(1/2$^-$,3/2$^-$)	463.53	3/2$^-$			%Iγ=0.097 *18*
								γ ray observed only by 2015Ru09.
1300.4 *3*	30.8 *24*	1351.02	5/2$^-$	49.88	7/2$^-$			%Iγ=2.3 *3*
								I_γ: 34 *4* (1993Sh33), 29 *3* (2015Ru09).
1303.4 *4*	2.9 *3*	1617.52	3/2$^+$,5/2$^+$	314.64	3/2$^-$			%Iγ=0.22 *3*
								I_γ: 3.0 *18* (1993Sh33), 2.9 *3* (2015Ru09).
1310.7 *3*	7.1 *5*	1310.76	3/2$^+$	0.0	5/2$^-$	[E1]	6.55×10^{-4}	%Iγ=0.53 *6*
								α(K)=0.000494 *7*; α(L)=6.19×10^{-5} *9*; α(M)=1.298×10^{-5} *19*
								α(N)=2.90×10^{-6} *4*; α(O)=4.42×10^{-7} *7*; α(P)=2.93×10^{-8} *5*; α(IPF)=8.26×10^{-5} *12*
								I_γ: 7.1 *6* (1993Sh33), 7.1 *7* (2015Ru09).
1358.7 *4*	2.7 *3*	1673.69	3/2$^-$,5/2	314.64	3/2$^-$			%Iγ=0.20 *3*
								I_γ: 2.9 *5* (1993Sh33), 2.6 *3* (2015Ru09).
[x]1391.5 *4*	0.7 *5*							%Iγ=0.05 *4*
1398.0 *4*	1.3 *3*	1398.08	3/2$^+$	0.0	5/2$^-$	[E1]	6.50×10^{-4}	%Iγ=0.097 *24*
								α(K)=0.000442 *7*; α(L)=5.53×10^{-5} *8*; α(M)=1.158×10^{-5} *17*
								α(N)=2.59×10^{-6} *4*; α(O)=3.95×10^{-7} *6*; α(P)=2.62×10^{-8} *4*; α(IPF)=0.0001386 *20*
								I_γ: 1.0 *5* (1993Sh33), 1.4 *3* (2015Ru09).
1416.4 *4*	2.8 *3*	1544.01	(1/2$^-$,3/2,5/2$^+$)	127.78	5/2$^-$			%Iγ=0.21 *3*
								I_γ: 3.0 *6* (1993Sh33), 2.7 *3* (2015Ru09).
1464.4 *5*	2.1 *15*	1593.40	5/2$^+$	127.78	5/2$^-$	[E1]	6.58×10^{-4}	%Iγ=0.16 *12*
								α(K)=0.000408 *6*; α(L)=5.10×10^{-5} *8*; α(M)=1.069×10^{-5} *15*
								α(N)=2.39×10^{-6} *4*; α(O)=3.64×10^{-7} *6*; α(P)=2.42×10^{-8} *4*;

$^{147}_{60}Nd_{87}$-14

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@ &d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
								α(IPF)=0.000186 *3* I_γ: 6.6 *6* (1993Sh33), 1.6 *2* (2015Ru09).
1518.0 *2*	1.6 *2*	2310.13	(3/2$^+$,5/2$^+$)	792.25	3/2$^+$			%Iγ=0.119 *19* γ ray observed only by 2015Ru09.
1518.8 *4*	3.5 *7*	2123.0	(1/2,3/2,5/2$^-$)	604.22	1/2$^-$			%Iγ=0.26 *6* γ ray observed only by 1993Sh33.
1544.0 *4*	3.5 *9*	1593.40	5/2$^+$	49.88	7/2$^-$	[E1]	6.77×10^{-4}	%Iγ=0.26 *7* α(K)=0.000373 *6*; α(L)=4.66×10^{-5} *7*; α(M)=9.76×10^{-6} *14* α(N)=2.18×10^{-6} *3*; α(O)=3.33×10^{-7} *5*; α(P)=2.22×10^{-8} *4*; α(IPF)=0.000245 *4* I_γ: 5.3 *6* (1993Sh33), 3.0 *3* (2015Ru09).
1547.2 *1*	2.3 *2*	1761.90	(1/2$^-$,3/2$^-$)	214.60	1/2$^-$			%Iγ=0.171 *21* γ ray observed only by 2015Ru09.
1547.7[cc] *4*	4.3 *5*	1673.69	3/2$^-$,5/2	127.78	5/2$^-$			%Iγ=0.32 *5* γ ray observed only by 1993Sh33.
1559.9 *5*	1.0 *4*	2164.44	(1/2$^-$,3/2,5/2$^-$)	604.22	1/2$^-$			%Iγ=0.07 *3* I_γ: 1.9 *4* (1993Sh33), 0.8 *2* (2015Ru09).
1593.6 *4*	2.64 *24*	1593.40	5/2$^+$	0.0	5/2$^-$	[E1]	6.92×10^{-4}	%Iγ=0.196 *25* α(K)=0.000354 *5*; α(L)=4.41×10^{-5} *7*; α(M)=9.25×10^{-6} *13* α(N)=2.07×10^{-6} *3*; α(O)=3.15×10^{-7} *5*; α(P)=2.10×10^{-8} *3*; α(IPF)=0.000282 *4* I_γ: 2.9 *4* (1993Sh33), 2.5 *3* (2015Ru09).
1605.9 *5*	0.7 *5*	1733.58	5/2$^-$	127.78	5/2$^-$			%Iγ=0.05 *4* I_γ: ≤0.25 (1993Sh33), 1.1 *1* (2015Ru09).
1616.6[c] *2*	0.9 *2*	1617.52	3/2$^+$,5/2$^+$	0.0	5/2$^-$			%Iγ=0.067 *16* γ ray observed only by 2015Ru09.
1623.8 *4*	3.4 *3*	1673.69	3/2$^-$,5/2	49.88	7/2$^-$			%Iγ=0.25 *4* I_γ: 3.2 *5* (1993Sh33), 3.4 *3* (2015Ru09).
1673.9 *4*	1.9 *4*	1673.69	3/2$^-$,5/2	0.0	5/2$^-$			%Iγ=0.14 *4* I_γ: 4.2 *6* (1993Sh33), 1.8 *2* (2015Ru09).
1683.3 *4*	1.8 *4*	1733.58	5/2$^-$	49.88	7/2$^-$			%Iγ=0.13 *4* I_γ: 2.7 *6* (1993Sh33), 1.6 *3* (2015Ru09).
1733.8 *4*	2.2 *3*	1733.58	5/2$^-$	0.0	5/2$^-$			%Iγ=0.16 *3* I_γ: 1.9 *6* (1993Sh33), 2.3 *3* (2015Ru09).
1754.8 *4*	1.7 *6*	2335.6	(5/2$^+$)	580.9	7/2$^-$			%Iγ=0.13 *5* γ ray observed only by 1993Sh33.
1755.6 *2*	0.5 *1*	2070.27	(1/2,3/2,5/2$^-$)	314.64	3/2$^-$			%Iγ=0.037 *9* γ ray observed only by 2015Ru09.
1793.5 *4*	2.65 *25*	2310.13	(3/2$^+$,5/2$^+$)	517.23	5/2$^-$			%Iγ=0.20 *3* I_γ: 2.5 *5* (1993Sh33), 2.7 *3* (2015Ru09).
1808.4 *5*	1.2 *7*	2123.0	(1/2,3/2,5/2$^-$)	314.64	3/2$^-$			%Iγ=0.09 *6* γ ray observed only by 1993Sh33.
1846.2 *5*	0.6 *1*	2310.13	(3/2$^+$,5/2$^+$)	463.53	3/2$^-$			%Iγ=0.045 *9* I_γ: 0.7 *4* (1993Sh33), 0.6 *1* (2015Ru09).

$^{147}_{60}Nd_{87}$-15

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09 (continued)

$\gamma(^{147}Nd)$ (continued)

E_γ[#]	I_γ[@&d]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[a]	α[†]	Comments
1942.5 *2*	1.2 *1*	2070.27	(1/2,3/2,5/2$^-$)	127.78	5/2$^-$			%Iγ=0.089 *11* γ ray observed only by 2015Ru09.
1995.9 *4*	1.7 *3*	2310.13	(3/2$^+$,5/2$^+$)	314.64	3/2$^-$			%Iγ=0.126 *25* I_γ: 2.8 *7* (1993Sh33), 1.6 *2* (2015Ru09).
2164.7 *5*	1.3 *3*	2164.44	(1/2$^-$,3/2,5/2$^-$)	0.0	5/2$^-$			%Iγ=0.097 *24* I_γ: 0.8 *7* (1993Sh33), 1.4 *3* (2015Ru09).
2207.2 *5*	0.27 *10*	2335.6	(5/2$^+$)	127.78	5/2$^-$			%Iγ=0.020 *8* γ ray observed only by 1993Sh33.
2208.8 *5*	0.27 *10*	2423.1	1/2$^+$	214.60	1/2$^-$	[E1]	9.70×10^{-4}	%Iγ=0.020 *8* α(K)=0.000210 *3*; α(L)=2.59×10^{-5} *4*; α(M)=5.43×10^{-6} *8* α(N)=1.214×10^{-6} *17*; α(O)=1.85×10^{-7} *3*; α(P)=1.246×10^{-8} *18*; α(IPF)=0.000728 *11* γ ray observed only by 1993Sh33.
2308.8[c] *4*	0.9 *2*	2310.13	(3/2$^+$,5/2$^+$)	0.0	5/2$^-$			%Iγ=0.068 *16* I_γ: 1.0 *8* (1993Sh33), 0.9 *2* (2015Ru09).
2336.1 *5*	2.7 *8*	2335.6	(5/2$^+$)	0.0	5/2$^-$			%Iγ=0.20 *7* γ ray observed only by 1993Sh33.

† Additional information 2.
‡ Additional information 3.
# From 1993Sh33 unless mentioned otherwise. 2015Ru09 give unrealistically precise values that differ from the ΔE(level) values by 3σ or more, reason for which the more realistic values of 1993Sh33 were adopted where possible.
@ Relative intensity, weighted average of the values given in comments unless stated otherwise.
& In order to test that the relative intensities of 1993Sh33 and 2015Ru09 are consistent the evaluator summed the intensities of first five most intense 77γ, 128γ, 315γ, 578γ, and 641γ transitions and obtained 879 *41* (2015Ru09) and 885 *22* (1993Sh33). As their ratio is 1.007 *54* (unity, which means that both references used the same relative intensity scale), the relative intensities as listed in the two references were used in the averaging operation.
[a] From α(exp), α(K)exp, α(L)exp, and K/L ratios (1993Sh33), same as adopted values.
[b] From 1975Pi03.
[c] Differs by 3σ or more from ΔE(level).
[d] For absolute intensity per 100 decays, multiply by 0.074 *7*.
[e] Placement of transition in the level scheme is uncertain.
[x] γ ray not placed in level scheme.

$^{147}_{60}Nd_{87}$-16

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09

Decay Scheme

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

Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- γ Decay (Uncertain)
- Coincidence
- Coincidence (Uncertain)

$(3/2^+)$ 0.0 13.44 min *10*

Q_{β^-}=2703 *16* $\%\beta^-$=100.0

$^{147}_{59}Pr_{88}$

Iβ⁻	Log *ft*			
0.15	5.49	$1/2^+$	2423.1	
0.35	5.50	$(5/2^+)$	2335.6	
0.55	5.40	$(3/2^+,5/2^+)$	2310.13	
0.28	6.16	$(1/2^-,3/2,5/2^-)$	2164.44	
0.35	6.17	$(1/2,3/2,5/2^-)$	2123.0	
0.126	6.74	$(1/2,3/2,5/2^-)$	2070.27	
0.27	7.02	$(1/2^-,3/2^-)$	1761.90	
0.59	6.73	$5/2^-$	1733.58	
1.90	6.32	$3/2^-,5/2$	1673.69	
9.6	6.10	$3/2^+$	1310.76	
23.0	6.26	$3/2^+$	792.25	
21.5	6.31	$3/2^+$	769.22	
<0.8	>7.9	$3/2^-$	631.54	
0.33	8.26	$1/2^-$	604.22	<0.8 ns
0.15	8.62	$7/2^-$	580.9	
1.6	7.65	$5/2^-$	517.23	
<0.9	>7.9	$3/2^-$	463.53	≤0.1 ns
12.6	6.91	$3/2^-$	314.64	≤0.1 ns
1.5	7.9	$1/2^-$	214.60	4.53 ns *6*
<6	>7.4	$5/2^-$	127.78	0.4 ns *1*
		$7/2^-$	49.88	1.0 ns *3*
2.5	7.8	$5/2^-$	0.0	11.03 d *3*

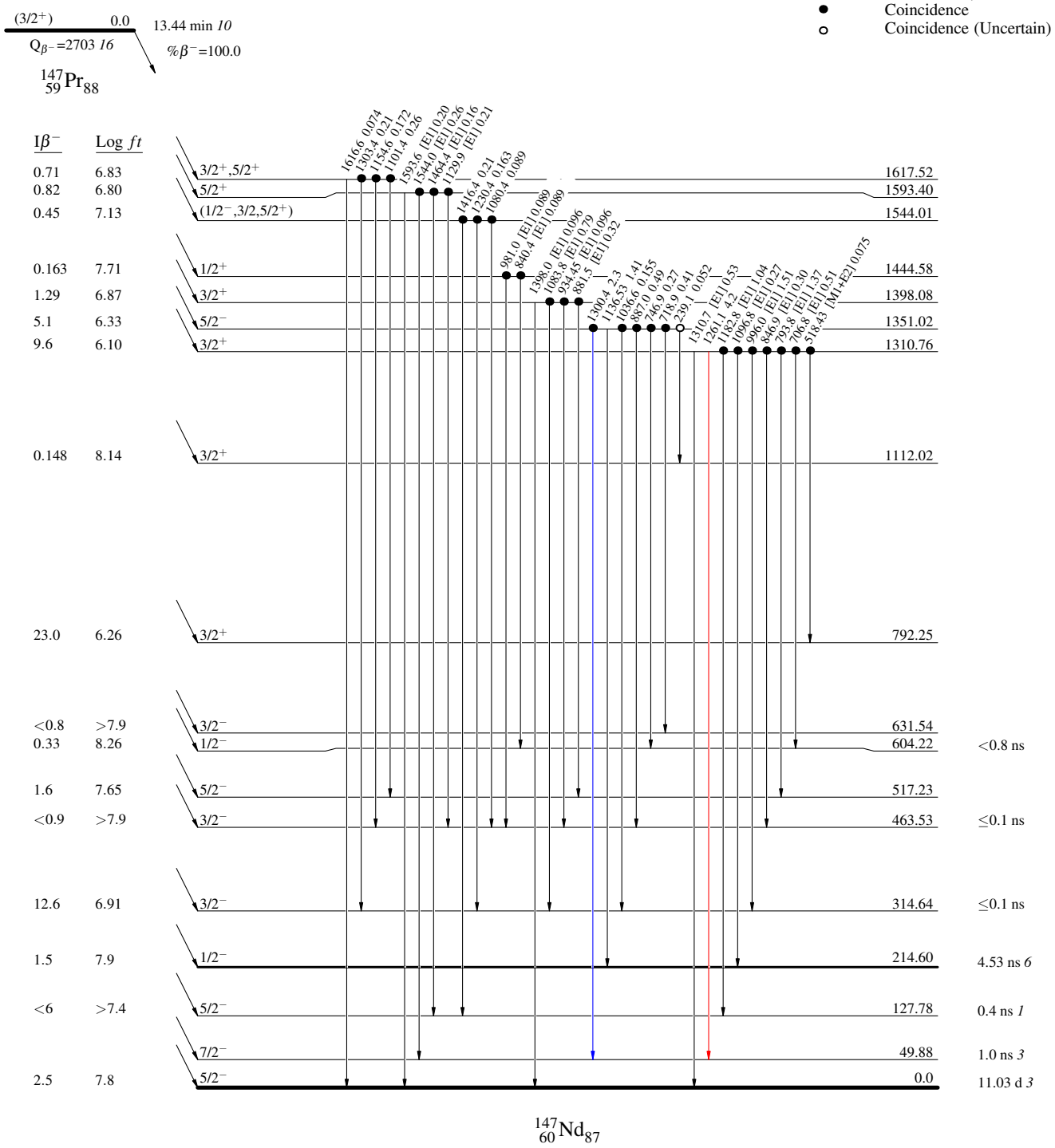
$^{147}_{60}Nd_{87}$

^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09

Decay Scheme (continued)

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

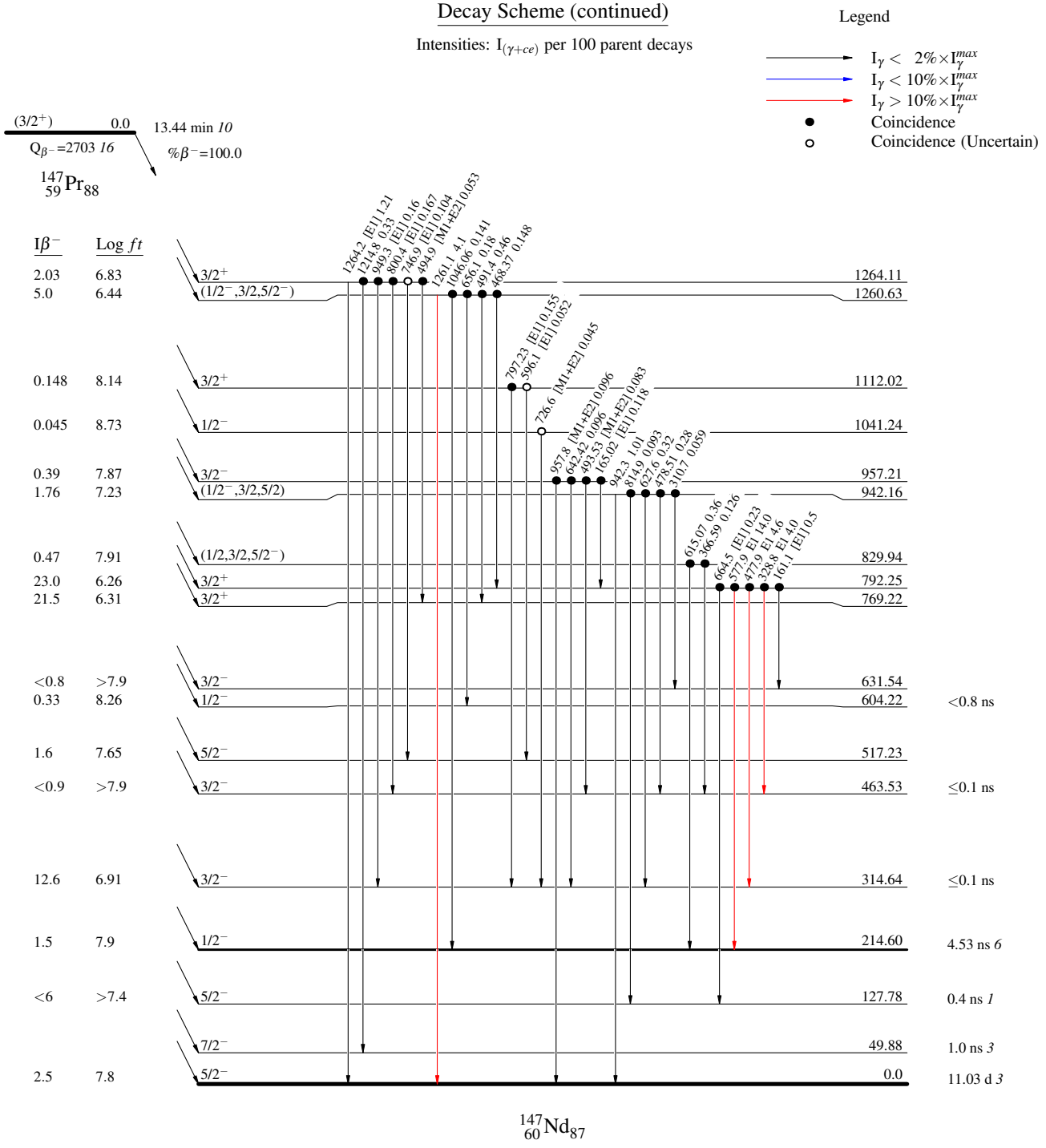
Legend
- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$
- Coincidence
- Coincidence (Uncertain)



^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09

Decay Scheme (continued)

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



^{147}Pr β^- decay (13.44 min) 1993Sh33,2015Ru09

Decay Scheme (continued)

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