^{92}Nb ε decay (10.15 d) 1985He18,1962Bu16,1959We30

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

Parent: ^{92}Nb: E=135.5 *4*; $J^{\pi}=(2)^+$; $T_{1/2}$=10.15 d *2*; Q(ε)=2005.9 *18*; %ε+%$β^+$ decay=100.0
Others: 1993Be08, 1983He12, 1978Co01, 1972Ei01, 1969Be07, 1967Bl03, 1953St42.

^{92}Zr Levels

E(level)[†]	J^{π}[‡]
0.0	0^+
934.48 *10*	2^+
1383?	0^+
1495?	4^+
1847.22 *18*	2^+
2066.66 *17*	2^+

[†] From least-squares fit to Eγ.
[‡] From Adopted Levels.

ε,$β^+$ radiations

E(decay)	E(level)	Iβ+ [@]	Iε[@]	Log *ft*	I(ε+β+)[@]	Comments
(74.7 *19*)	2066.66		5.2×10^{-3}	7.8	5.2×10^{-3}	εK=0.8089 *23*; εL=0.1544 *18*; εM+=0.0366 *5*
(294.2 *19*)	1847.22		2.64 *11*	6.475 *19*	2.64 *11*	εK=0.86107 *9*; εL=0.11320 *7*; εM+=0.02573 *2* 1993Be08 measured K-capture probability =0.856 *24*.
(646.4[&] *19*)	1495?		$<4.5\times10^{-3}$	>10.0	$<4.5\times10^{-3}$	εK=0.8683; εL=0.10746 *2*; εM+=0.024232 *4*
(758.4[&] *19*)	1383?		$<3.3\times10^{-3}$	>10.2	$<3.3\times10^{-3}$	εK=0.8692; εL=0.1068; εM+=0.024056 *3*
(1206.9 *19*)	934.48	0.059[†] *3*	97.30 *11*	6.1710 *17*	97.36 *11*	av Eβ=87.53 *81*; εK=0.8704; εL=0.1053; εM+=0.02367 1993Be08 measured K-capture probability =0.88 *3*.
(2141.4[&] *19*)	0.0	≤0.012[‡]	≤0.022[#]	≥10.3	≤0.034	av Eβ=492.24 *82*; εK=0.5625 *11*; εL=0.06729 *13*; εM+=0.01510 *3*

[†] Weighted average of 0.056% 6 (1959We30) and 0.060% 6 (1962Bu16) gives 0.058% 4 (from I($γ^±$) and I($γ^±$)-I(934γ) coin).
[‡] From comparison of $G^±$ and ($G^±$)(934γ) coin data, 1959We30 deduce that <20% of positrons feed g.s.
[#] From Iβ and theoretical ε/$β^+$. Other: 1959We30 estimate Iε(g.s.)=0% 5 from (K x ray)−934γ coin (assuming ωK=0.70 and εL1/εK=0.11).
[@] Absolute intensity per 100 decays.
[&] Existence of this branch is questionable.

γ(^{92}Zr)

Iγ normalization: from decay scheme, if Σ(I(γ+ce) to g.s.)=100%.
1962Bu16 searched for, but failed to find, a 352γ deexciting the 1848 level; they report I(352γ)/I(934γ)<0.004.

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γ(^{92}Zr) (continued)

E_γ[‡]	I_γ[#f]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[@]	δ[@]	α[†]	Comments
(449)	<0.0033	1383?	0^+	934.48	2^+	E2		0.00581 *9*	α=0.00581 *9*; α(K)=0.00509 *8*; α(L)=0.000600 *9*; α(M)=0.0001042 *15*; α(N+..)=1.554×10^{-5} *22* α(N)=1.459×10^{-5} *21*; α(O)=9.48×10^{-7} *14*
(561)	<0.0045	1495?	4^+	934.48	2^+	E2		0.00299 *5*	α=0.00299 *5*; α(K)=0.00262 *4*; α(L)=0.000303 *5*; α(M)=5.26×10^{-5} *8*; α(N+..)=7.89×10^{-6} *11* α(N)=7.39×10^{-6} *11*; α(O)=4.93×10^{-7} *7*
912.6 *2*	1.8[b] *1*	1847.22	2^+	934.48	2^+	(M1(+E2))	−0.002[a] *25*	0.000819 *12*	α=0.000819 *12*; α(K)=0.000724 *11*; α(L)=7.94×10^{-5} *12*; α(M)=1.377×10^{-5} *20*; α(N+..)=2.10×10^{-6} α(N)=1.96×10^{-6} *3*; α(O)=1.400×10^{-7} *20*
934.44[&] *10*	100	934.48	2^+	0.0	0^+	E2		0.000786 *11*	α=0.000786 *11*; α(K)=0.000693 *10*; α(L)=7.73×10^{-5} *11*; α(M)=1.341×10^{-5} *19*; α(N+..)=2.03×10^{-6} α(N)=1.90×10^{-6} *3*; α(O)=1.320×10^{-7} *19* Mult.: from α(exp)=0.00075 *25* (1953St42). %Iγ=99.15 *4* based on adopted Iγ normalization.
1132.17[d] *14*	0.0052[e]	2066.66	2^+	934.48	2^+	(M1+E2)	−3.2 *+5−4*	0.000510 *8*	α=0.000510 *8*; α(K)=0.000449 *7*; α(L)=4.96×10^{-5} *7*; α(M)=8.59×10^{-6} *12*; α(N+..)=2.98×10^{-6} *5* α(N)=1.219×10^{-6} *17*; α(O)=8.57×10^{-8} *12*; α(IPF)=1.67×10^{-6} *3*
1847.5 *3*	0.86[c] *4*	1847.22	2^+	0.0	0^+	E2		0.000422 *6*	α=0.000422 *6*; α(K)=0.0001665 *24*; α(L)=1.81×10^{-5} *3*; α(M)=3.13×10^{-6} *5*; α(N+..)=0.000234 *4* α(N)=4.46×10^{-7} *7*; α(O)=3.18×10^{-8} *5*; α(IPF)=0.000234 *4*

[†] Additional information 1.
[‡] From 1969Be07, unless noted otherwise.
[#] From 1983He12, except as noted.
[@] From Adopted Gammas.

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γ(^{92}Zr) (continued)

& Weighted average of 934.51 *7* (1967Bl03) and 934.3 *1* (1969Be07).

[a] From Adopted Gammas. 913γ-934γ(θ) in ε decay implies δ=+0.044 *17* from A_2=+0.217 *13*, A_4=−0.001 *19* (1962Bu16) and δ=−0.01 *3* from A_2=+0.255 *24*, A_4=−0.032 *38* (1978Co01), assuming J(1847 level)=2 (from Adopted Levels). Data allow J=2,3,4 but not 0 or 1; mult(913γ)=D+Q. Other: 1959We30.

[b] Weighted average of 1.92 *10* (1962Bu16) and 1.69 *9* (1972Ei01). Other: 1.8 (1959We30).

[c] Weighted average of 0.84 *10* (1959We30), 0.90 *5* (1962Bu16) and 0.79 *8* (1972Ei01).

[d] From 1985He18.

[e] From I(1132γ)/I(934γ) and I(1132γ)/I(912γ), after correction for self absorption and internal conversion (1985He18). Uncertainty not stated.

[f] For absolute intensity per 100 decays, multiply by 0.9915 *4*.

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