^{166}Lu ε decay (2.12 min) 1974De09

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 109, 1103 (2008)	1-Mar-2008

Parent: ^{166}Lu: E=43.0 *4*; $J^{\pi}=0^{-}$; $T_{1/2}$=2.12 min *10*; Q(ε)=5570 *30*; %ε+%$β^{+}$ decay=90 *10*
^{166}Lu-%ε+%$β^{+}$ decay: >0.80 from 1974De09; normalization of decay scheme assumes, therefore, a value of 0.90 *10*.

^{166}Yb Levels

E(level)†	Jπ‡
0.0	0^{+}
102.37 *3*	2^{+}
330.49 *5*	4^{+}
1358.93 *7*	1^{-}
1529.67 *9*	1^{-}
1579.87 *25*	(2^{+})
1922.8 *6*	$(1,2^{+})$
2098.61 *12*	1^{-}
2426.42 *17*	1^{-}

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

ε,$β^{+}$ radiations

E(decay)	E(level)	Iβ+ †	Iε†	Log *ft*	I(ε+β+)†	Comments
(3.19×10^{3} *3*)	2426.42	3.2 *12*	11 *4*	5.22 *16*	14 *5*	av Eβ=978 *14*; εK=0.639 *7*; εL=0.1005 *11*; εM+=0.0302 *3*
(3.51×10^{3} *3*)	2098.61	5.7 *22*	12 *5*	5.25 *17*	18 *7*	av Eβ=1126 *14*; εK=0.569 *7*; εL=0.0892 *11*; εM+=0.0268 *4*
(3.69×10^{3}‡ *3*)	1922.8	1.1 *4*	1.9 *7*	6.10 *17*	3.0 *11*	av Eβ=1206 *14*; εK=0.531 *7*; εL=0.0831 *11*; εM+=0.0250 *4*
(4.08×10^{3} *3*)	1529.67	14 *5*	16 *6*	5.26 *17*	30 *11*	av Eβ=1385 *14*; εK=0.449 *6*; εL=0.0700 *10*; εM+=0.0211 *3*
(4.25×10^{3} *3*)	1358.93	10 *4*	10 *4*	5.51 *18*	20 *8*	av Eβ=1463 *14*; εK=0.416 *6*; εL=0.0648 *9*; εM+=0.0195 *3*
(5.61×10^{3} *3*)	0.0	<18	<6.3	>5.9	<24	av Eβ=2093 *14*; εK=0.220 *3*; εL=0.0341 *5*; εM+=0.01024 *15*

† Absolute intensity per 100 decays.
‡ Existence of this branch is questionable.

γ(^{166}Yb)

Iγ normalization: The normalization is based on the assumption that the ε+$β^{+}$ feeding to the ground state of ^{166}Yb is first-forbidden; log *ft*>5.9 then implies a g.s. branch of <24%, so Σ (I(γ+ce) to g.s.)=88 *12*.

Eγ†	Iγ†#	Ei(level)	J_i^{π}	E_f	J_f^{π}	Mult.‡	α@	Comments
102.38 *3*	73 *35*	102.37	2^{+}	0.0	0^{+}	E2	2.93	α(K)=0.968 *14*; α(L)=1.501 *22*; α(M)=0.370 *6*; α(N+..)=0.0941 *14*

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γ(^{166}Yb) (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[@]	Comments
								α(N)=0.0844 *12*; α(O)=0.00970 *14*; α(P)=4.10×10^{-5} *6*
228.12 *3*	28 *28*	330.49	4$^+$	102.37	2$^+$	E2	0.1743	%Iγ=10 *4* assuming recommended normalization. α(K)=0.1136 *16*; α(L)=0.0466 *7*; α(M)=0.01121 *16*; α(N+..)=0.00290 *4* α(N)=0.00258 *4*; α(O)=0.000314 *5*; α(P)=5.47×10^{-6} *8*
518.0 *8*	7 *3*	2098.61	1$^-$	1579.87	(2$^+$)			
1067.32 *20*	37 *6*	2426.42	1$^-$	1358.93	1$^-$			
1249.4 *8*	10 *4*	1579.87	(2$^+$)	330.49	4$^+$			
1256.64 *10*	100 *10*	1358.93	1$^-$	102.37	2$^+$			
1358.79 *10*	88 *11*	1358.93	1$^-$	0.0	0$^+$			
1427.18 *14*	151 *15*	1529.67	1$^-$	102.37	2$^+$			
1477.5 *3*	18 *3*	1579.87	(2$^+$)	102.37	2$^+$			
1529.73 *11*	73 *5*	1529.67	1$^-$	0.0	0$^+$			
1579.4 *6*	7 *3*	1579.87	(2$^+$)	0.0	0$^+$			
1820.4 *6*	6 *3*	1922.8	(1,2$^+$)	102.37	2$^+$			
1923.2 *4*	16 *2*	1922.8	(1,2$^+$)	0.0	0$^+$			
1996.25 *15*	22 *6*	2098.61	1$^-$	102.37	2$^+$			
2098.60 *20*	106 *13*	2098.61	1$^-$	0.0	0$^+$			
2324.6 *3*	62 *5*	2426.42	1$^-$	102.37	2$^+$			
2425.9 *6*	4 *2*	2426.42	1$^-$	0.0	0$^+$			

[†] From 1974De09.
[‡] From Adopted Gammas.
[#] For absolute intensity per 100 decays, multiply by 0.135 *45*.
[@] 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.

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Decay Scheme

Intensities: I_γ per 100 parent decays