^{179}Yb β^- decay 1982Ki04,1993Bo14

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 110, 265 (2009)	15-Nov-2008

Parent: ^{179}Yb: E=0.0; J^π=(1/2$^-$); $T_{1/2}$=8.0 min *4*; Q(β^-)=2.65×10^3 *SY*; %β^- decay=100.0

1982Ki04: activity produced by ^{136}Xe bombardment of tungsten/tantalum targets. Measured Eγ, Iγ, $\beta\gamma$ coin, $\gamma\gamma$ coin. Detectors:Ge(Li), scin.

1993Bo14: activity from ^{136}Xe bombardment of Re target. Measured Eγ, Iγ, $\gamma\gamma$ coin, α(K)exp(592γ).

The decay scheme is taken from 1993Bo14.

^{179}Lu Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	7/2$^+$	4.59 h *6*	$T_{1/2}$: from Adopted Levels.
592.4 *4*	1/2$^+$	3.1 ms *9*	$T_{1/2}$: from 1993Bo14.
653.4 *4*	(5/2$^+$)		
916.7 *4*	(1/2,3/2,5/2$^+$)		
1064.1 *4*	(1/2$^+$,3/2)		
1204.8 *4*	(1/2$^-$,3/2$^-$)		
1556.5 *5*	(1/2$^-$,3/2$^-$)		
1586.2 *4*	(1/2$^-$,3/2$^-$)		

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

β^- radiations

E(decay)	E(level)	Iβ^-[‡]	Log *ft*[†]	Comments
(1063 *SY*)	1586.2	15.2 *15*	5.5 *6*	av Eβ=3.6×10^2 *13*
(1093 *SY*)	1556.5	6.1 *16*	5.9 *6*	av Eβ=3.7×10^2 *13*
(1445 *SY*)	1204.8	25 *4*	5.7 *4*	av Eβ=5.2×10^2 *13*
(1585[#] *SY*)	1064.1	5 *4*	6.6 *5*	av Eβ=5.7×10^2 *13*
(1733[#] *SY*)	916.7	≤3.7	≥6.9	av Eβ=6.4×10^2 *13*
(1996 *SY*)	653.4	3.2 *11*	8.2[1u] *5*	av Eβ=7.4×10^2 *13*
(2057 *SY*)	592.4	43 *6*	6.1 *3*	av Eβ=7.8×10^2 *14*

[†] Calculated assuming 300-keV uncertainty In systematic value for Q(β^-) (2003Au03).
[‡] Absolute intensity per 100 decays.
[#] Existence of this branch is questionable.

γ(^{179}Lu)

E$_\gamma$[†]	I$_\gamma$[†#]	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	α[@]	Comments
140.6 *2*	10 *1*	1204.8	(1/2$^-$,3/2$^-$)	1064.1	(1/2$^+$,3/2)	[D,E2]	0.8 *7*	
147.5 *2*	9 *1*	1064.1	(1/2$^+$,3/2)	916.7	(1/2,3/2,5/2$^+$)	[D,E2]	0.7 *6*	
324.5 *2*	18 *2*	916.7	(1/2,3/2,5/2$^+$)	592.4	1/2$^+$	[D,E2]	0.08 *6*	
351.7 *2*	16 *4*	1556.5	(1/2$^-$,3/2$^-$)	1204.8	(1/2$^-$,3/2$^-$)	[M1,E2]	0.08 *4*	α(K)=0.06 *3*; α(L)=0.0120 *22*; α(M)=0.0028 *5*; α(N+..)=0.00074 *13* α(N)=0.00065 *11*; α(O)=9.2×10^{-5} *20*; α(P)=4.6×10^{-6} *24* Iγ=43 *5* in 1982Ki04.

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^{179}Yb β^- decay 1982Ki04,1993Bo14 (continued)

$\gamma(^{179}Lu)$ (continued)

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α [@]	Comments
381.4 *2*	27 *2*	1586.2	(1/2$^-$,3/2$^-$)	1204.8	(1/2$^-$,3/2$^-$)	[M1,E2]	0.06 *3*	α(K)=0.052 *24*; α(L)=0.0094 *20*; α(M)=0.0022 *4*; α(N+..)=0.00058 *12* α(N)=0.00051 *10*; α(O)=7.2×10^{-5} *18*; α(P)=3.7×10^{-6} *19*
410.8 *3*	17 *2*	1064.1	(1/2$^+$,3/2)	653.4	(5/2$^+$)			
[x]426.6 *5*	2 *1*							
[x]431.2 *3*	7 *1*							
471.3 *3*	7 *2*	1064.1	(1/2$^+$,3/2)	592.4	1/2$^+$			
[x]500.0 *3*	17 *2*							
522.5 *4*	6 *2*	1586.2	(1/2$^-$,3/2$^-$)	1064.1	(1/2$^+$,3/2)			
592.1[‡] *4*	212[‡] *11*	592.4	1/2$^+$	0.0	7/2$^+$	M3	0.206	α(K)=0.1613 *23*; α(L)=0.0342 *5*; α(M)=0.00804 *12*; α(N+..)=0.00220 *4* α(N)=0.00190 *3*; α(O)=0.000276 *4*; α(P)=1.526×10^{-5} *22* %Iγ=75.3 *8* assuming adopted normalization. Mult.: from α(K)exp=0.17 *5* and α(L)exp/α(K)exp=0.23 *2* (1993Bo14).
612.3 *4*	100 *6*	1204.8	(1/2$^-$,3/2$^-$)	592.4	1/2$^+$			
[x]643.2 *4*	15 *1*							
653.7 *4*	26 *2*	653.4	(5/2$^+$)	0.0	7/2$^+$			
993.9 *7*	8 *2*	1586.2	(1/2$^-$,3/2$^-$)	592.4	1/2$^+$			
[x]1024.4[&] *13*	≤1							E_γ: from 1982Ki04. I_γ: 7 *3* in 1982Ki04; γ not observed by 1993Bo14.

[†] From 1993Bo14. The less precise data of 1982Ki04 are, typically, consistent with these. Iγ=15% remains unplaced.

[‡] 1992Bu12 report that, according to a private communication to them from one of the authors of 1982Ki04, a 592γ decaying with appropriate half-life was observed in a singles γ spectrum from that study but it was not mentioned in 1982Ki04.

[#] For absolute intensity per 100 decays, multiply by 0.355 *17*.

[@] 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.

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

[x] γ ray not placed in level scheme.

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Decay Scheme

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