^{130}Sb β^- decay (39.5 min) 1972Ke28

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 93, 33 (2001)	11-May-2001

Parent: ^{130}Sb: E=0.0; $J^\pi=(8^-)$; $T_{1/2}$=39.5 min *8*; Q(β^-)=4959 *25*; %β^- decay=100.0

1972Ke28 (also 1973Ke21): measured Eγ, Iγ, $\gamma\gamma$, ce, Eβ, $\beta\gamma$, $\gamma\gamma$(t).

1979Bo26: measured four Eγ's with a curved-crystal spectrometer.

γ, $\gamma\gamma$: 1974Kr20, 1974Er07, 1971Ki22. Others: 1969Dz04, 1966To02, 1964BeZZ, 1963La15, 1962Ha16, 1962Dr01.

β, $\beta\gamma$: 1990St13.

$T_{1/2}$(^{130}Sb), production, etc.: 1974Gr29, 1974Fo06, 1967Ha27, 1965Br34, 1963Br18.

^{130}Te Levels

E(level)[†]	J^π[‡]	$T_{1/2}$[#]	E(level)[†]	J^π[‡]	E(level)[†]	J^π[‡]
0.0	0^+		2781.88 *23*	(7^-)	3564.98 *23*	$(7,8^+)$
839.52 *6*	2^+		2878.17 *15*	$(7,8,9)^-$	3707.90 *23*	
1632.91 *12*	4^+		3081.11 *19*	$(7,8,9)^-$	3908.8 *4*	
1815.24 *12*	$(6)^+$	9.8 ns *5*	3287.5 *3*	$(7,8^+)$	4073.2 *5*	
2100.93 *15*	5^-		3384.9 *3*		4170.4 *3*	$(7^-,8^-,9^-)$
2146.15 *12*	$(7)^-$	115 ns *8*	3404.5 *4*		4303.4 *4*	$(7^-,8^-,9^-)$
2404.20 *19*	$(6)^-$		3470.0 *5*	(7^-)	4460.1 *4*	$(7^-,8^-,9^-)$
2431.61 *14*	$(7)^-$		3536.46 *24*	$(7,8,9)^-$		
2770.2 *3*			3545.0 *4*			

[†] From least-squares adjustment to Eγ's.

[‡] From Adopted Levels.

[#] From $\beta\gamma$(t) and $\gamma\gamma$(t) (1972Ke28).

β^- radiations

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
$(5.0\times10^2$ *3*)	4460.1	4.1 *6*	5.19 *10*	av Eβ=153 *9*
$(6.6\times10^2$ *3*)	4303.4	2.7 *4*	5.78 *9*	av Eβ=211 *10*
$(7.9\times10^2$ *3*)	4170.4	8.6 *7*	5.56 *7*	av Eβ=262 *10*
$(8.9\times10^2$ *3*)	4073.2	1.9 *4*	6.39 *11*	av Eβ=300 *10*
$(1.05\times10^3$ *3*)	3908.8	4.0 *5*	6.34 *7*	av Eβ=367 *11*
$(1.25\times10^3$ *3*)	3707.90	3.8 *7*	6.65 *9*	av Eβ=451 *11*
$(1.39\times10^3$ *3*)	3564.98	7.3 *6*	6.55 *5*	av Eβ=513 *11*
$(1.41\times10^3$ *3*)	3545.0			E(decay): 1300 *200* from (1444γ)β coin (1990St13).
$(1.42\times10^3$ *3*)	3536.46	6.5 *7*	6.63 *6*	av Eβ=525 *11*
				E(decay): 1540 *90* from (455γ)β coin (1990St13).
$(1.49\times10^3$ *3*)	3470.0	1.9 *3*	7.24 *8*	av Eβ=554 *11*
$(1.55\times10^3$ *3*)	3404.5	3.3 *6*	7.07 *9*	av Eβ=582 *11*
$(1.57\times10^3$ *3*)	3384.9	3.4 *6*	7.08 *9*	av Eβ=591 *11*
$(1.67\times10^3$ *3*)	3287.5	5.4 *7*	6.98 *7*	av Eβ=634 *11*
$(1.88\times10^3$ *3*)	3081.11	3.6 *14*	7.36 *17*	av Eβ=726 *12*
				E(decay): 1820 *220* from (935γ)β coin (1990St13).
$(2.08\times10^3$ *3*)	2878.17	6.2 *15*	7.30 *11*	av Eβ=818 *12*
$(2.18\times10^3$ *3*)	2781.88	6.9 *9*	7.34 *6*	av Eβ=861 *12*
$(2.19\times10^3$ *3*)	2770.2	<0.5	>8.5	av Eβ=867 *12*
$(2.53\times10^3$ *3*)	2431.61	1.6 *6*	8.24 *17*	av Eβ=1022 *12*
$(2.55\times10^3$[‡] *3*)	2404.20	6.4 *10*	7.65 *7*	av Eβ=1035 *12*
				E(decay): 2470 *400* from (303γ)β coin (1990St13).

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^{130}Sb β^- decay (39.5 min) 1972Ke28 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†]	Log *ft*	Comments
				log *ft*=7.65 is too low for ΔJ=(2), Δπ=(No) transition.
(2.81×10^3 *3*)	2146.15	18 *5*	7.38 *13*	av Eβ=1154 *12* E(decay): 2700 *170* from (331γ)β coin (1990St13), 2900 *100* (1971Ki15), 3800 *300* (1972Ke28).

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

γ(^{130}Te)

Iγ normalization: Iγ(793.4)=Iγ(839.4)=100.

Eγ	Iγ[†@]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.[‡]	δ[‡]	α[&]	Comments
182.330[#] *9*	65 *4*	1815.24	(6)$^+$	1632.91	4$^+$	E2		0.2073	α(K)= 0.1649; α(L)= 0.0339; α(M)=0.00692; α(N+..)=0.00158 α(K)exp=0.17 *2*; α(L)exp=0.035 *4*
258.0 *2*	3.9 *4*	2404.20	(6)$^-$	2146.15	(7)$^-$	M1+E2	+0.21 *6*	0.052	α(K)exp=0.038 *7*
285.48[#] *7*	3.5 *4*	2431.61	(7)$^-$	2146.15	(7)$^-$	M1+E2		0.043	α(K)exp=0.040 *8*
303.3 *2*	5.8 *6*	2404.20	(6)$^-$	2100.93	5$^-$	M1(+E2)	+0.02 *2*	0.033	α(K)exp=0.028 *6*
330.914[#] *9*	78 *4*	2146.15	(7)$^-$	1815.24	(6)$^+$	E1+M2	+0.070 *6*		α(K)exp=0.0070 *10*; α(L)exp=0.0010 *2*
455.4 *2*	4.8 *5*	3536.46	(7,8,9)$^-$	3081.11	(7,8,9)$^-$	M1,E2			α(K)exp=0.011 *2*
462.5 *4*	0.8 *2*	4170.4	(7$^-$,8$^-$,9$^-$)	3707.90					
468.0 *1*	18 *1*	2100.93	5$^-$	1632.91	4$^+$	E1(+M2)	+0.03 *2*		α(K)exp=0.0031 *6*
483.6 *3*	2.2 *3*	3564.98	(7,8$^+$)	3081.11	(7,8,9)$^-$				
506.7 *3*	2.0 *4*	3384.9		2878.17	(7,8,9)$^-$				
595.5 *3*	1.0 *2*	4303.4	(7$^-$,8$^-$,9$^-$)	3707.90					
626.7 *3*	2.8 *3*	3707.90		3081.11	(7,8,9)$^-$				
635.7 *3*	1.6 *3*	2781.88	(7$^-$)	2146.15	(7)$^-$				
[x]654.7 *3*	2.0 *2*								
658.2 *3*	1.7 *4*	3536.46	(7,8,9)$^-$	2878.17	(7,8,9)$^-$				
669.2 *3*	1.1 *2*	2770.2		2100.93	5$^-$				
680.9 *3*	6.5 *7*	2781.88	(7$^-$)	2100.93	5$^-$				
686.6 *3*	3.2 *4*	3564.98	(7,8$^+$)	2878.17	(7,8,9)$^-$				
732.0 *1*	22 *1*	2878.17	(7,8,9)$^-$	2146.15	(7)$^-$	M1,E2			α(K)exp=0.0024 *5*
793.4 *1*	100 *5*	1632.91	4$^+$	839.52	2$^+$	E2			α(K)exp=0.0021 *3*
829.8 *3*	1.8 *4*	3707.90		2878.17	(7,8,9)$^-$				
839.52[#] *6*	100 *5*	839.52	2$^+$	0.0	0$^+$	E2			α(K)exp=0.0018 *3*
855.7 *4*	1.6 *3*	3287.5	(7,8$^+$)	2431.61	(7)$^-$				
883.3 *4*	1.2 *3*	3287.5	(7,8$^+$)	2404.20	(6)$^-$				
914.9 *4*	1.8 *4*	4460.1	(7$^-$,8$^-$,9$^-$)	3545.0					
926.0 *5*	0.4 *2*	3707.90		2781.88	(7$^-$)				
934.9 *2*	19 *1*	3081.11	(7,8,9)$^-$	2146.15	(7)$^-$	M1,E2			α(K)exp=0.0020 *6*
992.1 *4*	1.9 *4*	4073.2		3081.11	(7,8,9)$^-$				
1000.2 *4*	2.3 *5*	3404.5		2404.20	(6)$^-$				
1030.7 *4*	1.5 *3*	3908.8		2878.17	(7,8,9)$^-$				
1075.5 *5*	0.4 *2*	4460.1	(7$^-$,8$^-$,9$^-$)	3384.9					
1089.5 *4*	3.7 *4*	4170.4	(7$^-$,8$^-$,9$^-$)	3081.11	(7,8,9)$^-$				

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^{130}Sb β^- decay (39.5 min) 1972Ke28 (continued)

$\gamma(^{130}Te)$ (continued)

E_γ	I_γ †@	E_i(level)	J_i^π	E_f	J_f^π
x1096.5 5	0.8 2				
1134.2 5	0.4 2	3564.98	(7,8$^+$)	2431.61	(7)$^-$
1137.6 5	0.3 2	2770.2		1632.91	4$^+$
1141.4 4	2.0 4	3287.5	(7,8$^+$)	2146.15	(7)$^-$
x1146.2 5	0.6 2				
1239.0 5	1.8 3	3384.9		2146.15	(7)$^-$
1258.5 5	1.0 2	3404.5		2146.15	(7)$^-$
1292.3 4	3.7 4	4170.4	(7$^-$,8$^-$,9$^-$)	2878.17	(7,8,9)$^-$
1368.7 5	1.1 2	3470.0	(7$^-$)	2100.93	5$^-$
1419.3 5	1.2 2	3564.98	(7,8$^+$)	2146.15	(7)$^-$
1443.7 5	2.5 3	3545.0		2100.93	5$^-$
1473.1 8	0.6 2	3287.5	(7,8$^+$)	1815.24	(6)$^+$
x1488.4 8	0.6 2				
x1499.6 8	0.4 2				
1521.1 8	0.8 2	4303.4	(7$^-$,8$^-$,9$^-$)	2781.88	(7$^-$)
1533.7 8	0.9 2	4303.4	(7$^-$,8$^-$,9$^-$)	2770.2	
1561.6 8	0.6 2	3707.90		2146.15	(7)$^-$
1581.9 8	1.9 4	4460.1	(7$^-$,8$^-$,9$^-$)	2878.17	(7,8,9)$^-$
x1617.0 8	0.9 2				
x1626.6 8	0.6 2				
1655.6 8	0.8 2	3470.0	(7$^-$)	1815.24	(6)$^+$
1749.8 8	0.3 2	3564.98	(7,8$^+$)	1815.24	(6)$^+$
1762.6 5	2.5 3	3908.8		2146.15	(7)$^-$
x1884.4 8	0.7 2				
x1948.0 8	1.2 2				
x1997.4 5	2.1 2				
2023.3 8	0.4 2	4170.4	(7$^-$,8$^-$,9$^-$)	2146.15	(7)$^-$

† $\Delta(I\gamma)$ are based on a general comment by 1972Ke28 that these are: 5% for Iγ>15, 10% for Iγ=2-15, 20% or 0.2 for I$\gamma\leq$2.
‡ From adopted gammas, consistent with α(K)exp′s in this dataset.
# From curved-crystal measurement (1979Bo26).
@ Absolute intensity per 100 decays.
& 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.
x γ ray not placed in level scheme.

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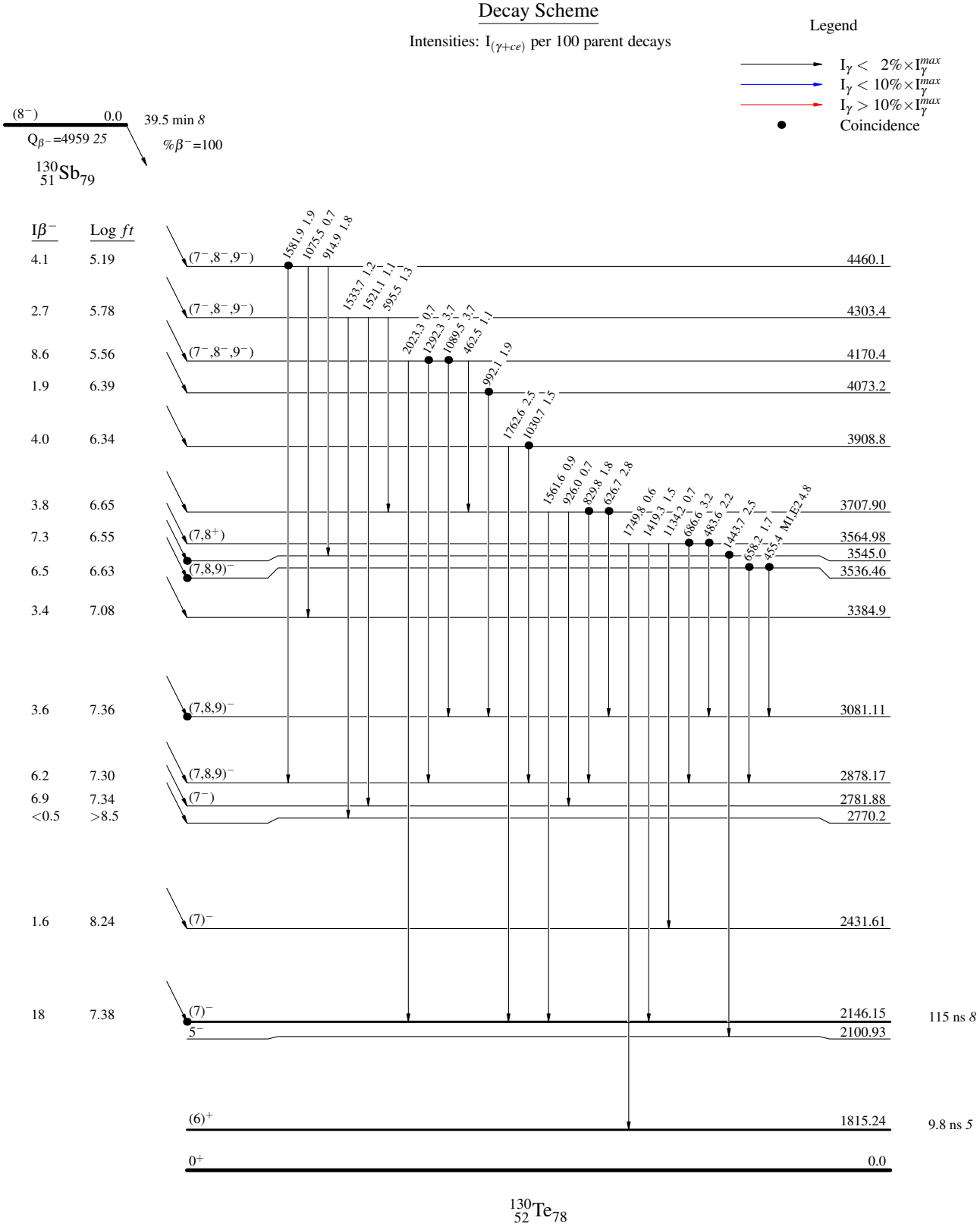
Decay Scheme

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



^{130}Sb β^- decay (39.5 min) 1972Ke28

Decay Scheme (continued)

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