^{130}I β^- decay (12.36 h) 1973Ho25

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

Parent: ^{130}I: E=0.0; $J^\pi=5^+$; $T_{1/2}$=12.36 h *1*; Q(β^-)=2949 *3*; %β^- decay=100.0

1973Ho25: measured Eγ, Iγ, $\gamma\gamma$, $T_{1/2}$.

1999SaZW: measured Eγ, Iγ using GAMS (curved-crystal) spectrometer.

1972Ba51: measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$, Eβ, Iβ, $\beta\gamma$ coin, $T_{1/2}$.

βce(t): 1974Bu13.

$\gamma\gamma(\theta)$: 1968Ho26, 1959Sm03.

ce: 1965Da01, 1974Bu13.

β, $\beta\gamma$: 1965Da01, 1970Qa03.

B(circ pol)$\gamma(\theta)$: 1965Da01, 1961Da02.

Others: 1996Na23, 1995Mu20, 1983Sh07, 1970Qa02, 1968Re04, 1968Fe06, 1968Ho26, 1968Le25, 1965An05, 1965Da01, 1957Aa04, 1954Ca18, 1943Ro01, 1940Wu05, 1938Li05.

^{130}Xe Levels

E(level)†	J^π‡	$T_{1/2}$#	E(level)†	J^π‡	$T_{1/2}$#	E(level)†	J^π‡
0.0	0^+		2059.59 *6*	$(5)^-$		2629.386 *24*	
536.067 *6*	2^+	8.3 ps *21*	2081.96 *4*	(4^+)		2692.55 *12*	$(4^+,5^+)$
1122.112 *9*	2^+		2171.633 *13*	$(4^+,5^+)$		2704.92 *8*	
1204.612 *10*	4^+		2362.072 *12*	5^+	9.4 ps *14*	2752.42 *3*	
1632.580 *12*	3^+		2427.17 *4*	(4^+)		2811.92 *10*	(4^+)
1808.164 *11*	(4^+)		2608.422 *19*				
1944.137 *12*	6^+		2622.31 *9*				

† From least-squares fit to Eγ's.
‡ From Adopted Levels.
# From βce(t) (1974Bu13).

β^- radiations

E(decay)†	E(level)	Iβ^-‡	Log *ft*	Comments
(137 *3*)	2811.92	0.093 *7*	6.3 *1*	av Eβ=36.5 *9*
(197 *3*)	2752.42	0.316 *18*	6.3 *1*	av Eβ=53.8 *9*
(244 *3*)	2704.92	0.077 *13*	7.2 *1*	av Eβ=68.2 *10*
(256 *3*)	2692.55	0.029 *6*	7.7 *1*	av Eβ=72.0 *10*
(320 *3*)	2629.386	0.328 *17*	6.9 *1*	av Eβ=92.0 *10*
(327 *3*)	2622.31	0.037 *6*	7.9 *1*	av Eβ=94.3 *10*
(341 *3*)	2608.422	0.49 *2*	6.9 *1*	av Eβ=98.8 *10*
(522 *3*)	2427.17	0.184 *8*	7.9 *1*	av Eβ=160.9 *11*
618 *10*	2362.072	46.7 *11*	5.7 *1*	av Eβ=184.5 *11*
(777 *3*)	2171.633	2.14 *6*	7.5 *1*	av Eβ=256.4 *12*
(867 *3*)	2081.96	0.173 *17*	8.7 *1*	av Eβ=291.6 *12*
(889 *3*)	2059.59	0.022 *7*	9.7 *2*	av Eβ=300.5 *12*
1042 *10*	1944.137	48 *3*	6.5 *1*	av Eβ=347.1 *13*
(1141 *3*)	1808.164	1.43 *7*	8.2 *1*	av Eβ=403.2 *13*
(1744 *3*)	1204.612	0.4 *2*	9.5 *2*	av Eβ=664.0 *14*
				Iβ^-: from 1965Da01.

† From 1965Da01. Others: 1970Qa03, 1972Ba51.
‡ Absolute intensity per 100 decays.

$\gamma(^{130}Xe)$

Iγ normalization: Ti(γ's to g.s.)=100.

E_γ[†]	I_γ[#&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	δ	α[a]	Comments
[x]158.80 *18*	0.020 *7*								
190.46 *12*	<0.0005	2362.072	5^+	2171.633	$(4^+,5^+)$				
227.55 *16*	0.012 *5*	2171.633	$(4^+,5^+)$	1944.137	6^+				
246.306[‡] *22*	0.047 *5*	2608.422		2362.072	5^+				I_γ: 0.057 *12* (1999SaZW).
280.09 *11*	0.024 *7*	2362.072	5^+	2081.96	(4^+)				
[x]293.48 *20*	<0.005								
302.49 *6*	0.013 *5*	2362.072	5^+	2059.59	$(5)^-$				
363.467[‡] *15*	0.09 *2*	2171.633	$(4^+,5^+)$	1808.164	(4^+)				I_γ: 0.159 *14* (1999SaZW).
417.932[‡] *4*	34.5 *10*	2362.072	5^+	1944.137	6^+	M1+E2	−0.42 *3*	0.01716 *5*	α(K)=0.01475 *5*; α(L)=0.00193; α(M)=0.00039 α(K)exp=0.0151 *15* I_γ: 26.5 *9* (1999SaZW), 33 *3* (1995Mu20). δ: from γγ(θ).
427.94[@] *4*	0.084[@] *11*	1632.580	3^+	1204.612	4^+				Eγ=427.93 *4*, Iγ=0.110 *18* (1999SaZW).
[x]429.12[@]	0.034[@] *11*								
457.758[‡] *21*	0.239 *15*	2629.386		2171.633	$(4^+,5^+)$				I_γ: 0.157 *22* (1999SaZW).
510.472[‡] *9*	0.86 *3*	1632.580	3^+	1122.112	2^+				I_γ: 0.85 *5* (1999SaZW).
536.066[‡] *6*	100	536.067	2^+	0.0	0^+	E2		0.00748	α(K)=0.00629; α(L)=0.00090 α(K)exp=0.0062 *5*
539.053[‡] *8*	1.41 *4*	2171.633	$(4^+,5^+)$	1632.580	3^+				I_γ: 1.19 *6* (1999SaZW).
553.916[‡] *10*	0.67 *3*	2362.072	5^+	1808.164	(4^+)				I_γ: 0.53 *5* (1999SaZW).
586.049[‡] *8*	1.71 *6*	1122.112	2^+	536.067	2^+				I_γ: 2.32 *14* (1999SaZW) probably for combined (12.36 h + 9.0 min) activities.
603.548[‡] *14*	0.62 *3*	1808.164	(4^+)	1204.612	4^+				I_γ: 0.57 *4* (1999SaZW).
623.0 *3*	0.017 *11*	2704.92		2081.96	(4^+)				
668.536[‡] *9*	97 *3*	1204.612	4^+	536.067	2^+	E2		0.00419	α(K)=0.00355; α(L)=0.00048 α(exp)=0.0041 *4* I_γ: 90 *7* (1999SaZW), 91 *8* (1995Mu20).
686.060[‡] *14*	1.08 *4*	1808.164	(4^+)	1122.112	2^+				I_γ: 0.94 *6* (1999SaZW).
729.54 *22*	0.011 *8*	2362.072	5^+	1632.580	3^+				
739.512[‡] *10*	83 *3*	1944.137	6^+	1204.612	4^+	E2		0.00327	α(K)=0.00277; α(L)=0.00037 α(exp)=0.0031 *3* I_γ: 79 *4* (1999SaZW), 78 *6* (1995Mu20).
[x]749.02 *14*	0.012 *5*								
[x]771.0 *5*	0.004 *3*								
800.23 *4*	0.102 *5*	2608.422		1808.164	(4^+)				
808.29 *3*	0.238 *10*	2752.42		1944.137	6^+				

From ENSDF

^{130}I β^- decay (12.36 h) 1973Ho25 (continued)

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

E_γ [†]	I_γ [#&]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
814.15 *11*	0.025 *5*	2622.31		1808.164	(4^+)		
821.15 *8*	0.043 *5*	2629.386		1808.164	(4^+)		
854.99 *10*	0.035 *5*	2059.59	$(5)^-$	1204.612	4^+		
867.75 *22*	0.043 *6*	2811.92	(4^+)	1944.137	6^+		
877.35 *4*	0.193 *10*	2081.96	(4^+)	1204.612	4^+		
897.04 *16*	0.021 *5*	2704.92		1808.164	(4^+)		
944.21 *8*	0.063 *14*	2752.42		1808.164	(4^+)		
967.02 *3*	0.89 *3*	2171.633	$(4^+,5^+)$	1204.612	4^+		Eγ=967.03 *6*, Iγ=0.79 *5* (1999SaZW).
996.80 *16*	0.028 *5*	2629.386		1632.580	3^+		
1060.07 *17*	0.017 *5*	2692.55	$(4^+,5^+)$	1632.580	3^+		
[x]1094.29 *20*	0.028 *8*						
1096.48 *4*	0.558 *20*	1632.580	3^+	536.067	2^+		
1122.15 *4*	0.256 *11*	1122.112	2^+	0.0	0^+		
1157.43[‡] *3*	11.4 *4*	2362.072	5^+	1204.612	4^+	M1+E2	α(exp)=0.0012 *2* I_γ: 8.2 *6* (1999SaZW), 9.2 *8* (1995Mu20). δ: +0.28 *3* or +2.7 *4* from γγ(θ).
1222.56 *3*	0.181 *8*	2427.17	(4^+)	1204.612	4^+		
1272.12 *3*	0.756 *25*	1808.164	(4^+)	536.067	2^+		
1304.7 *3*	0.0049 *2*	2427.17	(4^+)	1122.112	2^+		
1403.90 *3*	0.348 *16*	2608.422		1204.612	4^+		E_γ: level-energy difference=1403.80.
1417.69 *13*	0.012 *2*	2622.31		1204.612	4^+		
1424.73 *15*	0.021 *2*	2629.386		1204.612	4^+		
1487.85 *15*	0.012 *2*	2692.55	$(4^+,5^+)$	1204.612	4^+		
1500.20 *9*	0.040 *2*	2704.92		1204.612	4^+		
1545.78 *23*	0.023 *4*	2081.96	(4^+)	536.067	2^+		
1547.75 *23*	0.018 *4*	2752.42		1204.612	4^+		
1607.29 *12*	0.045 *3*	2811.92	(4^+)	1204.612	4^+		
1689.86 *25*	0.0055 *10*	2811.92	(4^+)	1122.112	2^+		

[†] A calibration uncertainty of 25 eV is added in quadrature.
[‡] From curved-crystal measurements (1999SaZW).
[#] A 3% uncertainty is added in quadrature to account for the uncertainty in the efficiency calibration.
[@] Doublet, total Iγ=0.118 *3*.
[&] For absolute intensity per 100 decays, multiply by 0.99.
[a] 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.

From ENSDF

$^{130}_{54}Xe_{76}$-3

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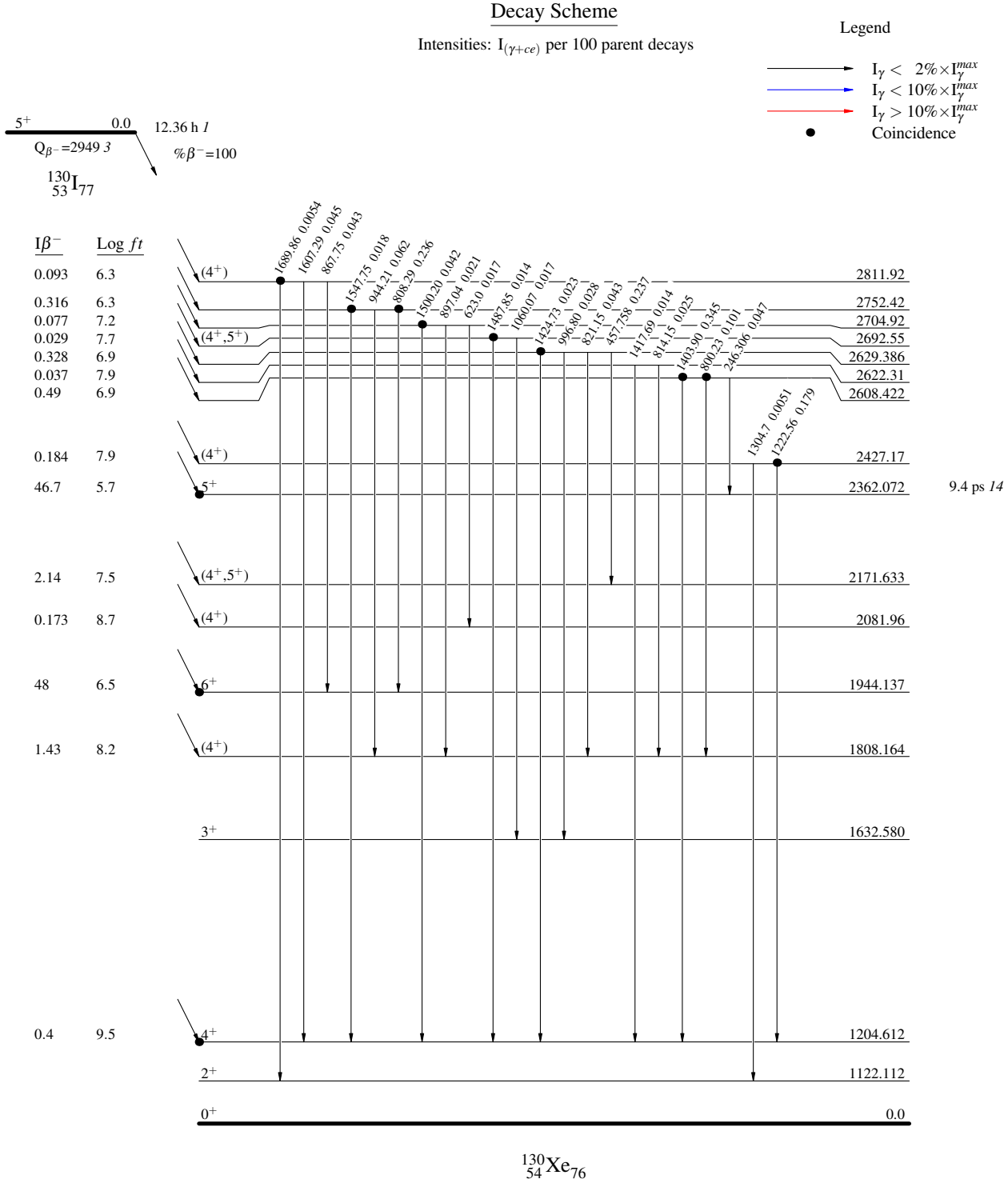
Decay Scheme

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



^{130}I β^- decay (12.36 h) 1973Ho25

Decay Scheme (continued)

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