^{147}Dy ε decay (55.2 s) 1983AlZN,1984ScZU

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	N. Nica and B. Singh	NDS 181, 1 (2022)	9-Mar-2022

Parent: ^{147}Dy: E=750.5 *4*; J^{π}=(11/2$^-$); $T_{1/2}$=55.2 s *5*; Q(ε)=6547 *12*; %ε+%β^+ decay=68.9 *23*

^{147}Dy-E,J^{π},$T_{1/2}$: from ^{147}Dy Adopted Levels.

^{147}Dy-Q(ε): From 2021Wa16.

According to 1984ScZU and 1982To01 some indeterminate $\varepsilon+\beta^+$ feeding from the ^{147}Dy^m decay (55.2 s) is shown with the $\varepsilon+\beta^+$ decay of ^{147}Dy$^{g.s.}$ branch (67 s).

References for this dataset are common to ^{147}Dy ε decay (67 s) dataset (see it for description).

^{147}Tb Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$[‡]	Comments
0.0	(1/2$^+$)	1.64 h *3*	%ε+%β^+=100 %ε+%β^+: Adopted value.
50.6	(11/2$^-$)	1.83 min *6*	%ε+%β^+=100 Additional information 1. %ε+%β^+: Adopted value.
253.4	(3/2$^+$)		
354.5	(5/2$^+$)		
719.3	(7/2$^+$)		
1316.4	(15/2$^+$)		
1438.6	(9/2$^+$,11/2$^+$,15/2$^+$)		
1487.4	(9/2$^+$)		
1601.4	(13/2$^+$)		
1715.7			
1775.9	($^-$)		
1987.3	(15/2$^-$)		
2020.3			
2045.3	(7/2$^-$,9/2,11/2$^+$)		
2089	(17/2$^+$)		
2157.2			
2235.2			
2320.3			
2400.8			
2485.8			
2636			
2672			
2703.9			
2814.6			
3142			
4108			
4641			
4669.5			
4702.6			
4741.2			
4754.5			
4769.8			
4815.6			
4827.5			
4841.6			
5080.6			

[†] No uncertainties are available for the E_γ input. The E(level) values are from a least-squares fit to the E_γ data with the assumption that the uncertainties are the same for all the E_γ's.

[‡] Adopted values.

^{147}Dy ε decay (55.2 s) 1983AlZN,1984ScZU (continued)

ε,β+ radiations

In comments: relative intensity from γ intensity balance (Fig. 3, "The ^{147}Tb levels populated in β-decay of ^{147}Dy", 1984ScZU), except for 50.6 isomer.
I(ε+β+)(levels>4.7 MeV levels group)=46% (1983ByZZ) (in units of per 100 parent decay).

E(decay)	E(level)	Comments
(2217 *12*)	5080.6	I(ε+β+): 0.3.
(2456 *12*)	4841.6	I(ε+β+): 0.4.
(2470 *12*)	4827.5	I(ε+β+): 4.0.
(2482 *12*)	4815.6	I(ε+β+): 0.7.
(2528 *12*)	4769.8	I(ε+β+): 0.8.
(2543 *12*)	4754.5	I(ε+β+): 0.8.
(2556 *12*)	4741.2	I(ε+β+): 0.8.
(2595 *12*)	4702.6	I(ε+β+): 1.0.
(2628 *12*)	4669.5	I(ε+β+): 1.4.
(2657 *12*)	4641	I(ε+β+): 0.4.
(3190 *12*)	4108	I(ε+β+): 0.4.
(4156 *12*)	3142	I(ε+β+): 0.6.
(4483 *12*)	2814.6	I(ε+β+): 3.8.
(4594 *12*)	2703.9	I(ε+β+): 2.2.
(4626 *12*)	2672	I(ε+β+): 0.9.
(4662 *12*)	2636	I(ε+β+): 1.4.
(4812 *12*)	2485.8	I(ε+β+): 3.0.
(4897 *12*)	2400.8	I(ε+β+): 4.4.
(4977 *12*)	2320.3	I(ε+β+): 4.9.
(5062 *12*)	2235.2	I(ε+β+): 4.4.
(5140 *12*)	2157.2	I(ε+β+): 9.3.
(5209 *12*)	2089	I(ε+β+): 0.3.
(5252 *12*)	2045.3	I(ε+β+): 2.2.
(5277 *12*)	2020.3	I(ε+β+): 5.5.
(5310 *12*)	1987.3	I(ε+β+): 2.7.
(5522 *12*)	1775.9	I(ε+β+): 11.
(5582 *12*)	1715.7	I(ε+β+): 2.3.
(5696 *12*)	1601.4	I(ε+β+): 9.0.
(5810 *12*)	1487.4	I(ε+β+): 7.3.
(5859 *12*)	1438.6	I(ε+β+): 14.
(5981 *12*)	1316.4	I(ε+β+): 9.6.
(7247 *12*)	50.6	I(ε+β+): feeding from (11/2−) of ^{147}Dy parent (per 100 parent decays): 33 *6* (1997Co21), <5% and log *ft*>6.8 (1983ByZZ).

^{147}Dy ε decay (55.2 s) 1983AlZN,1984ScZU (continued)

$\gamma(^{147}Tb)$

γ decay in general shown only for levels where at least one transition has Iγ>2 (1984ScZU).

E_γ[†]	I_γ[†‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	α[a]	Comments
101.1[&]	≈15[&]	354.5	(5/2$^+$)	253.4	(3/2$^+$)	M1	2.13	α(K)=1.79 *3*; α(L)=0.262 *4*; α(M)=0.0572 *8* α(N)=0.01321 *19*; α(O)=0.00203 *3*; α(P)=0.0001337 *19*
253.4[&]	≈20[&]	253.4	(3/2$^+$)	0.0	(1/2$^+$)	M1	0.1635	α(K)=0.1382 *20*; α(L)=0.0198 *3*; α(M)=0.00432 *6* α(N)=0.000999 *14*; α(O)=0.0001541 *22*; α(P)=1.022×10^{-5} *15*
364.8	25 *2*	719.3	(7/2$^+$)	354.5	(5/2$^+$)	M1	0.0620	α(K)=0.0525 *8*; α(L)=0.00744 *11*; α(M)=0.001620 *23* α(N)=0.000375 *6*; α(O)=5.78×10^{-5} *8*; α(P)=3.86×10^{-6} *6* Iγ: from 1983AlZN (and ΔIγ) and 1984ScZU.
x1213.0[@]	≈2[@]							
x1217.8[@]	≈3[@]							
x1261.7[@]	10[@] *3*							
1265.8[&]	11[&]	1316.4	(15/2$^+$)	50.6	(11/2$^-$)	M2+E3	0.0051 *16*	α(K)=0.0043 *14*; α(L)=6.4×10^{-4} *17*; α(M)=1.41×10^{-4} *36* α(N)=3.26×10^{-5} *83*; α(O)=5.0×10^{-6} *14*; α(P)=3.2×10^{-7} *11*; α(IPF)=4.20×10^{-6} *10*
1388.0	15	1438.6	(9/2$^+$,11/2$^+$,15/2$^+$)	50.6	(11/2$^-$)	(E1)	7.86×10^{-4}	α(K)=0.000567 *8*; α(L)=7.37×10^{-5} *11*; α(M)=1.589×10^{-5} *23* α(N)=3.67×10^{-6} *6*; α(O)=5.66×10^{-7} *8*; α(P)=3.81×10^{-8} *6*; α(IPF)=0.0001244 *18*
1436.8	7.6	1487.4	(9/2$^+$)	50.6	(11/2$^-$)	(E1)	7.81×10^{-4}	α(K)=0.000535 *8*; α(L)=6.94×10^{-5} *10*; α(M)=1.496×10^{-5} *21* α(N)=3.45×10^{-6} *5*; α(O)=5.33×10^{-7} *8*; α(P)=3.59×10^{-8} *5*; α(IPF)=0.0001578 *22*
x1503.0[@]	≈2[@]							
1550.8	9.0	1601.4	(13/2$^+$)	50.6	(11/2$^-$)	(E1)	7.87×10^{-4}	α(K)=0.000470 *7*; α(L)=6.09×10^{-5} *9*; α(M)=1.311×10^{-5} *19* α(N)=3.03×10^{-6} *5*; α(O)=4.67×10^{-7} *7*; α(P)=3.16×10^{-8} *5*; α(IPF)=0.000240 *4*
x1563.6[@]	≈3[@]							
x1609.6[@]	≈5[@]							
1665.1[&]	2.3[&]	1715.7		50.6	(11/2$^-$)			
1724.7[&]	13[&]	1775.9	(−)	50.6	(11/2$^-$)	(M1,E2)	0.00136 *21*	α(K)=0.00101 *17*; α(L)=0.000136 *22*; α(M)=3.0×10^{-5} *5* α(N)=6.8×10^{-6} *11*; α(O)=1.05×10^{-6} *17*; α(P)=7.1×10^{-8} *13*; α(IPF)=0.000173 *13*
1936.7	2.7	1987.3	(15/2$^-$)	50.6	(11/2$^-$)			
1969.7	5.5	2020.3		50.6	(11/2$^-$)			
x1983.4[@]	≈2[@]							

From ENSDF

$^{147}_{65}Tb_{82}$-3

^{147}Dy ε decay (55.2 s) 1983AlZN,1984ScZU (continued)

$\gamma(^{147}Tb)$ (continued)

E_γ †	I_γ †‡	E_i(level)	J_i^π	E_f	J_f^π
1994.7	2.7	2045.3	(7/2⁻,9/2,11/2⁺)	50.6	(11/2⁻)
2106.6&	9.3&	2157.2		50.6	(11/2⁻)
2184.6&	4.4&	2235.2		50.6	(11/2⁻)
2269.7&	4.9&	2320.3		50.6	(11/2⁻)
x2331.3@	5@ *2*				
2350.2	4.4	2400.8		50.6	(11/2⁻)
2435.2	2.5	2485.8		50.6	(11/2⁻)
x2484.0@	5@ *1*				
x2494.0@	4@ *1*				
2653.3	2.2	2703.9		50.6	(11/2⁻)
2764.0	3.8	2814.6		50.6	(11/2⁻)
x2875.0@	2@ *1*				
x2932.1@	5@ *2*				
x2954.0@	2@ *1*				
3051.1	1.3	4827.5		1775.9	(⁻)
4618.8	1.4	4669.5		50.6	(11/2⁻)
4651.9	1.0	4702.6		50.6	(11/2⁻)
4690.5	0.8	4741.2		50.6	(11/2⁻)
4703.8	0.8	4754.5		50.6	(11/2⁻)
4719.1	0.8	4769.8		50.6	(11/2⁻)
4777.4	2.7	4827.5		50.6	(11/2⁻)

† Observed only in 1984ScZU, unless noted otherwise.
‡ Relative to 253γ from ^{147}Dy ε decay (67 s).
# From the Adopted Gammas.
@ Observed only in 1983AlZN.
& Observed in 1984ScZU (adopted here) and 1983AlZN.
a Additional information 2.
x γ ray not placed in level scheme.

From ENSDF

$^{147}_{65}Tb_{82}$-4

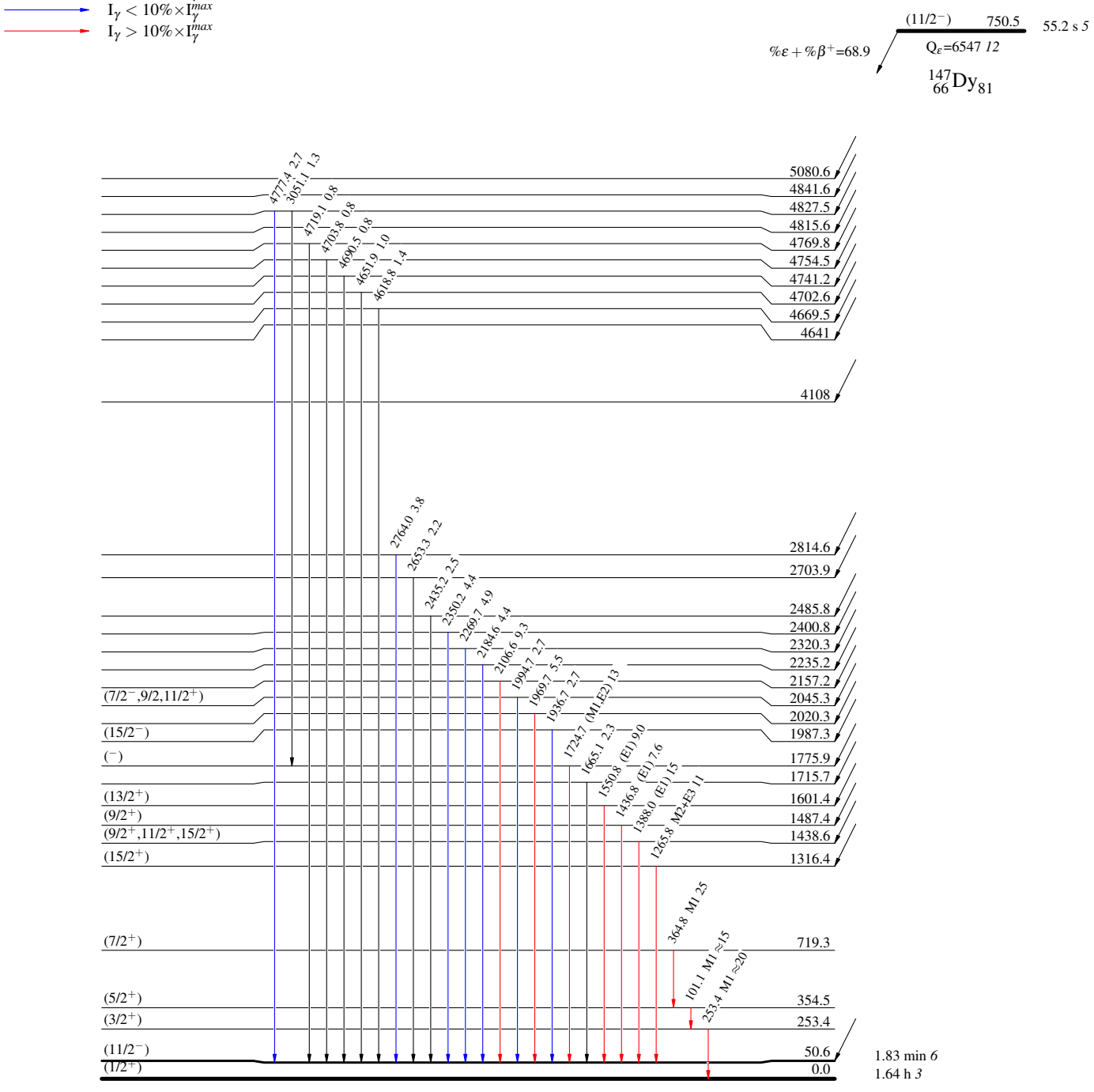
^{147}Dy ε decay (55.2 s) 1983AlZN,1984ScZU

Decay Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{147}_{65}Tb_{82}$