^{166}Dy β^- decay 1979Ba40,1967Mo05

History

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

Parent: ^{166}Dy: E=0.0; $J^\pi=0^+$; $T_{1/2}$=81.6 h *1*; Q(β^-)=486.8 *10*; %β^- decay=100.0

The values of the angular correlation coefficients for the 28.23γ-54.239γ cascade are A_2=−0.242 *15*, A_4=+0.031 *34*; these are in agreement with a 1(D)2(Q)0 spin sequence for the cascade (1979Ba40).

^{166}Ho Levels

E(level)[†]	J^π[‡]	$T_{1/2}$	Comments
0.0	0^-	26.824 h *12*	$T_{1/2}$: from Adopted Levels.
54.2391 *10*	2^-	3.44 ns *12*	g=0.034 *5* (1979Ba40) $T_{1/2}$: from B(ce 54.24γ)(t) (1961Ge14 scin s ce). Other: 1950Mc22.
82.4695 *19*	1^-	≤0.3 ns	$T_{1/2}$: from B(ce 82.47γ)(t) (1961Ge14 scin s ce).
373.13 *10*	$(1)^-$		
425.987 *18*	1^+		

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

β^- radiations

Eβ measured by 1949Ke22, 1950Bu30, 1960He09, 1960Ge12, 1962Gu03.

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(60.8 *10*)	425.987	1.17 *18*	5.25 *7*	av Eβ=15.60 *27*
(113.7 *10*)	373.13	0.016 *5*	7.94 *14*	av Eβ=29.87 *28*
399 *5*	82.4695	97 *6*	5.91 *3*	av Eβ=118.43 *33* Eβ is weighted average from 400 *8* (1960Ge12 s); 402 *5* (1960He09 s); 385 *10* (1962Gu03 scin $\beta^-\gamma$). Iβ from 1960Ge12 (Iβ=99 *6* from intensity balance).
(432.6 *10*)	54.2391	5 *5*	7.2[1u] *5*	av Eβ=141.26 *34* Iβ^-: from intensity balance. Iβ<0.3 if log $f^{1u}t$>8.5.
481 *10*	0.0	<4	>7.6	av Eβ=146.22 *35* Eβ,Iβ from 1960He09 (Iβ≤2 from intensity balance).

† From intensity balance, unless otherwise noted.
‡ Absolute intensity per 100 decays.

γ(^{166}Ho)

Iγ normalization: The intensity normalization (0.138 *7*) is based on I(82.47γ)=13.8% 7 (1981Se09). Iγ normalization=0.131 *6* if Σ (I(γ+ce) to g.s.)=100%.

β^- γ coin, γ-γ coin: 1960Ge04, 1960He09, 1960Ru05, 1962Gu03.

E_γ[†]	I_γ[‡#]	E_i(level)	J^π_i	E_f	J^π_f	Mult.	α[@]	Comments
28.227 *5*	8.2 *6*	82.4695	1^-	54.2391	2^-	M1	17.02	α(L)=13.29 *19*; α(M)=2.94 *5*; α(N+..)=0.786 *11* α(N)=0.682 *10*; α(O)=0.0989 *14*; α(P)=0.00551 *8* Mult.: from L1:L2:L3=100:9.3:1.6 (1960Ge04); 100 *3*:9.5

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^{166}Dy β^- decay 1979Ba40,1967Mo05 (continued)

γ(^{166}Ho) (continued)

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[@]	Comments
								(1960Ru05); 100 *24*:7.6 *24*:<4 (1964Br10). E_γ: from 1964Br10.
54.239 *1*	5.9 *9*	54.2391	2^-	0.0	0^-	E2	31.3	α(L)=24.0 *4*; α(M)=5.81 *9*; α(N+..)=1.457 *21* α(N)=1.305 *19*; α(O)=0.1519 *22*; α(P)=0.0001670 *24* Mult.: from L1:L2:L3:M2:M3:M4=3.4 *20*:89 *5*:100 *5*:19 *2*:20 *2*:1.1 *2* (1964Br10). Others: 1960Ge04, 1960Ru05.
82.470 *2*	100	82.4695	1^-	0.0	0^-	M1	4.55	α(K)=3.82 *6*; α(L)=0.569 *8*; α(M)=0.1257 *18*; α(N+..)=0.0337 *5* α(N)=0.0292 *4*; α(O)=0.00424 *6*; α(P)=0.000237 *4* Mult.: from K:L1:L2:L3:M1=100:13.7:1.2:0.19:3.4 (1960Ge04); 100 *8*:11.6 *7*:0.99 *11*:0.13 *4* (1964Br10).
290.66 *10*	0.10 *3*	373.13	$(1)^-$	82.4695	1^-	M1	0.1336	α(K)=0.1126 *16*; α(L)=0.01639 *23*; α(M)=0.00361 *5*; α(N+..)=0.000968 *14* α(N)=0.000839 *12*; α(O)=0.0001222 *18*; α(P)=6.91×10^{-6} *10* Mult.: from Adopted Gammas.
343.51 *3*	0.4 *1*	425.987	1^+	82.4695	1^-	(E1)	0.01281	α(K)=0.01085 *16*; α(L)=0.001538 *22*; α(M)=0.000337 *5*; α(N+..)=8.93×10^{-5} *13* α(N)=7.77×10^{-5} *11*; α(O)=1.104×10^{-5} *16*; α(P)=5.72×10^{-7} *8* Mult.: from α(K)exp<0.038 (1964Br10).
371.75 *3*	3.8 *8*	425.987	1^+	54.2391	2^-	E1	0.01060	α(K)=0.00898 *13*; α(L)=0.001267 *18*; α(M)=0.000278 *4*; α(N+..)=7.36×10^{-5} *11* α(N)=6.40×10^{-5} *9*; α(O)=9.12×10^{-6} *13*; α(P)=4.77×10^{-7} *7* Mult.: from α(K)exp=0.0088 *25* (1964Br10).
425.99 *3*	4.2 *9*	425.987	1^+	0.0	0^-	E1	0.00770	α(K)=0.00653 *10*; α(L)=0.000914 *13*; α(M)=0.000200 *3*; α(N+..)=5.32×10^{-5} *8* α(N)=4.62×10^{-5} *7*; α(O)=6.61×10^{-6} *10*; α(P)=3.50×10^{-7} *5* Mult.: from α(K)exp=0.0065 *18* (1964Br10).

† From 1967Mo05, unless otherwise noted.

‡ From 1979Ba40 for Eγ<100. Other Iγ are from 1964Br10 normalized to Iγ(82γ)=100 with authors′ ΔIγ(82γ)=20% added in quadrature to the uncertainties for Eγ>100. Measured Iγ are I(28.23γ):I(54.24γ):I(82.47γ)=8.2 *6*:5.9 *9*:100 (1979Ba40); I(82.47γ):I(290.66γ):I(343.51γ):I(371.75γ):I(425.99γ)=100 *20*:0.12<: 0.4 *1*:3.8 *3*:4.2 *3* (1964Br10); I(290.66γ):I(343.51γ):I(371.75γ): I(425.99γ)=0.097 *16*:0.43 *9*:3.4 *5*:(4.2 *6*) (1967Mo05).

For absolute intensity per 100 decays, multiply by 0.138 *7*.

@ 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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