^{156}Ho ε decay (7.6 min)

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Parent: ^{156}Ho: E≈52.4+x; $J^\pi=9^+$; $T_{1/2}$=7.6 min *3*; Q(ε)=5.05×10^3 *6*; %ε+%β^+ decay=75.0

^{156}Ho-E: Additional information 1.

^{156}Ho-J^π,$T_{1/2}$: Additional information 2.

^{156}Ho-Q(ε): Additional information 3.

Additional information 4.

The level scheme is that proposed by 1999KaZV.

2003KaZP: Many of the same authors as 1999KaZV. Experimental conditions similar to those of 1999KaZV. Provide data on the the γ's deexciting the 8^+ level at 2787 keV, as well as for the 366, 445 and 508 γ's. These are the data used in this data set.

1999KaZV: Source produced by high-energy proton-induced spallation on W targets using the on-line isotope-separator facility YASNAPP-2. Measured γ radiation, α and $\gamma\gamma$ coincidences. Data are presented in the form of a level scheme only.

1976IwZZ: Source produced in the ^{160}Dy(p,5n) reaction, E(p)=52 MeV. Source material contained both the isomer and the ^{156}Ho g.s. γ's studied using a 40 cm^3 GeLI detector. For the isomer, report $T_{1/2}$ and two γ's deexciting the 2787 level in ^{156}Dy.

^{156}Dy Levels

E(level)[†]	J^π[‡]
0[#]	0^+
137.8[#]	2^+
404.0[#]	4^+
770.3[#]	6^+
1215.6[#]	8^+
1724.3[#]	10^+
2787.6[@]	8^+

[†] Calculated from a least-squares fit to the listed Eγ values.
[‡] From the adopted values.
[#] Band(A): Member of the g.s. band.
[@] Band(B): Bandhead of a $K^\pi=8^+$ band. Conf=ν5/2[523]+ν11/2[505].

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ [†]	Iε[†]	Log *ft*	I($\varepsilon+\beta^+$)[†]
(2.31×10^3 *6*)	2787.6	10.3	89.7	4.52	100

[†] For absolute intensity per 100 decays, multiply by 0.75.

γ(^{156}Dy)

Iγ normalization, I(γ+ce) normalization: Calculated to give 75% for the I(γ+ce) value of the γ deexciting the 404, 4^+ level (and hence of the γ feeding the ^{156}Dy g.s.). %ε+%β^+=75% is from 1999KaZV.

Continued on next page (footnotes at end of table)

^{156}Ho ε decay (7.6 min) (continued)

γ(^{156}Dy) (continued)

E_γ	I_γ[†][‡][@]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[&]	Comments
137.8	21[#]	137.8	2^+	0	0^+	[E2]	0.849	α(K)=0.473 *7*; α(L)=0.290 *4*; α(M)=0.0689 *10*; α(N+..)=0.01741 *25* α(N)=0.01549 *22*; α(O)=0.00190 *3*; α(P)=2.06×10^{-5} *3* I_γ: Value chosen to yield 100% of the decays through the ε decay branch.
266.2	36[#]	404.0	4^+	137.8	2^+	[E2]	0.0935	α(K)=0.0683 *10*; α(L)=0.0195 *3*; α(M)=0.00452 *7*; α(N+..)=0.001162 *17* α(N)=0.001026 *15*; α(O)=0.0001333 *19*; α(P)=3.47×10^{-6} *5*
366.25 *5*	38	770.3	6^+	404.0	4^+	[E2]	0.0356	α(K)=0.0276 *4*; α(L)=0.00622 *9*; α(M)=0.001419 *20*; α(N+..)=0.000368 *6* α(N)=0.000323 *5*; α(O)=4.34×10^{-5} *6*; α(P)=1.489×10^{-6} *21* I_γ: Value chosen to yield 100% of the decays through the ε decay branch. 2003KaZP report Iγ=100.
445.32 *5*	30	1215.6	8^+	770.3	6^+	[E2]	0.0206	α(K)=0.01639 *23*; α(L)=0.00328 *5*; α(M)=0.000742 *11*; α(N+..)=0.000194 *3* α(N)=0.0001696 *24*; α(O)=2.32×10^{-5} *4*; α(P)=9.06×10^{-7} *13* I_γ: From intensity balance at this level. 2003KaZP report Iγ=57 *3*. (Note: no ε feeding of this level is expected.).
508.67 *10*	≈3.3	1724.3	10^+	1215.6	8^+	[E2]	0.01449	α(K)=0.01169 *17*; α(L)=0.00218 *3*; α(M)=0.000491 *7*; α(N+..)=0.0001287 *18* α(N)=0.0001125 *16*; α(O)=1.554×10^{-5} *22*; α(P)=6.55×10^{-7} *10*
1063.38 *10*	3.3 *9*	2787.6	8^+	1724.3	10^+			
1572.05 *5*	27.0 *15*	2787.6	8^+	1215.6	8^+			
2017.4 *1*	9.0 *10*	2787.6	8^+	770.3	6^+			

† Unless noted otherwise, the values are those reported by 2003KaZP.

‡ Note that the γ branching of the 2787 level reported by 2003KaZP is significantly different from that reported by 1999KaZV. This leads to significant intensity imbalances at the 1215, 8^+, and 770, 6^+, levels.

Deduced by the evaluator from intensity-balance considerations in the level scheme. 2003KaZP do not report Iγ values for these γ's.

@ For absolute intensity per 100 decays, multiply by 1.91.

& 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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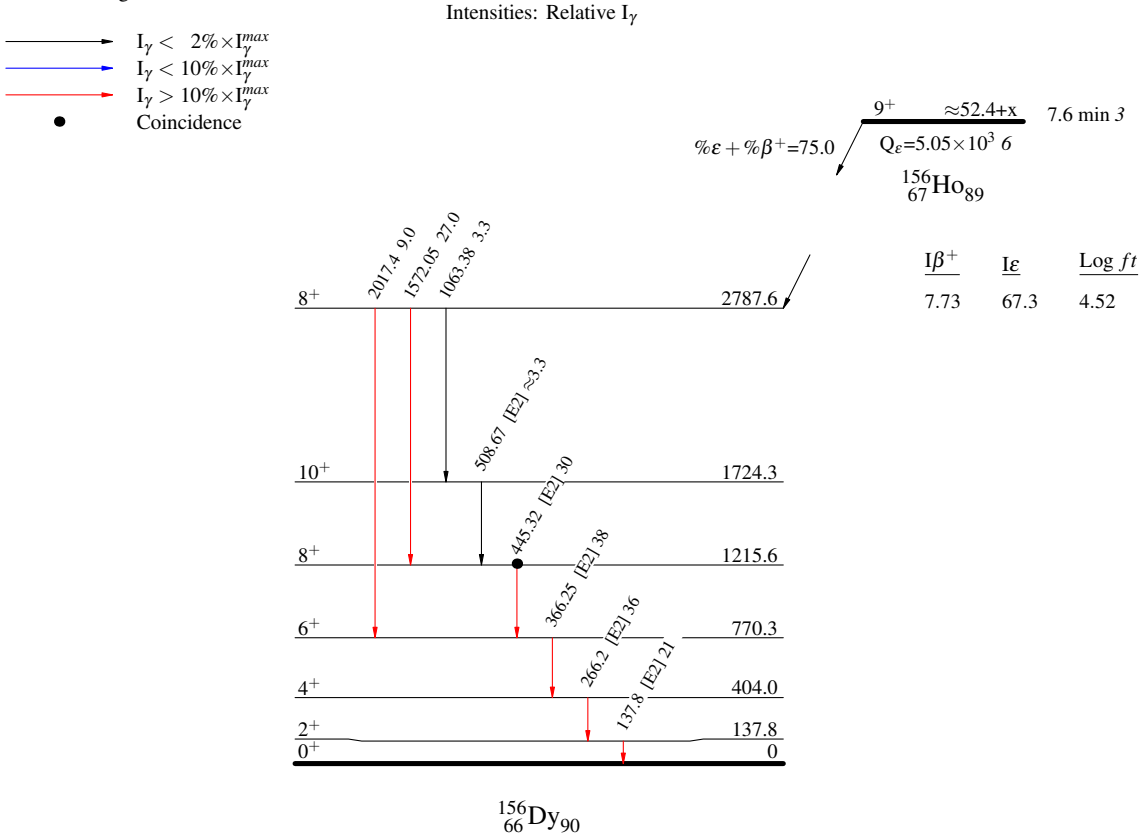
Decay Scheme

Intensities: Relative I_γ



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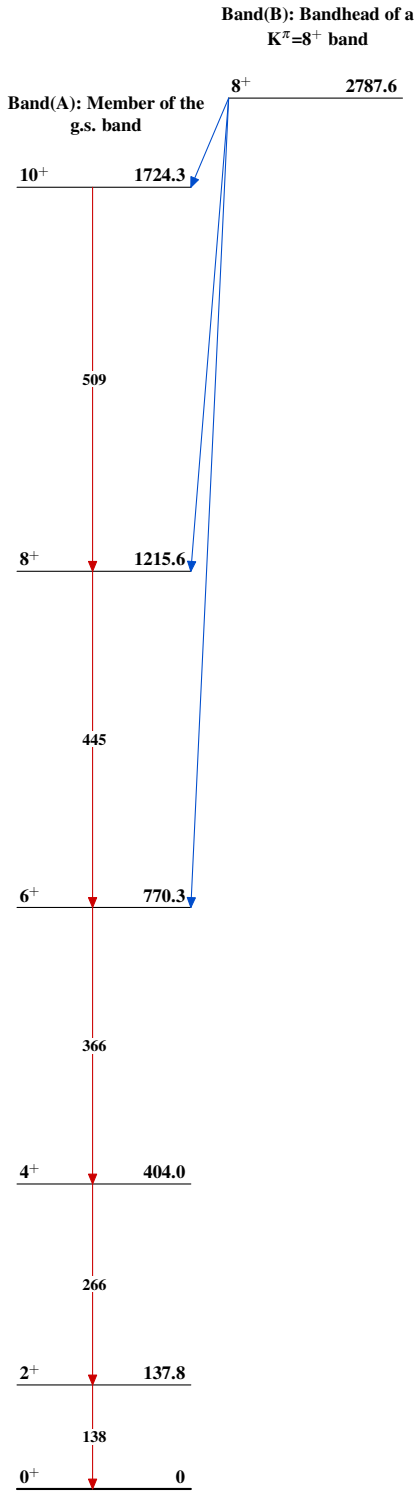

$^{156}_{66}Dy_{90}$