^{149}Er ε decay (9.6 s) 1989Fi01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 185, 2 (2022)	23-Aug-2022

Parent: ^{149}Er: E=741.69 *23*; J$^{\pi}$=(11/2$^-$); T$_{1/2}$=9.6 s *6*; Q(ε)=7900 *30*; %ε+%β^+ decay=96.5 *7*

^{149}Er-E,J$^{\pi}$,T$_{1/2}$: From ^{149}Er Adopted Levels.

^{149}Er-Q(ε): From 2021Wa16.

^{149}Er-%ε+%β^+ decay: %IT=3.5 *7* (1989Fi01).

1989Fi01: ^{149}Er ions were produced by the ^{94}Mo(^{58}Ni,2pn) reaction with 242 MeV (center of target) ^{58}Ni beam from the Lawrence Berkeley Laboratory SuperHILAC, separated with the OASIS facility online and collected on a moving tape of the counting station. γ rays were detected with a HPGe and two n-Ge detectors; charged particles were detected with a Si ΔE-E telescope on one side of the tape and a plastic scintillator on the other side. Measured Eγ, Iγ, E(x-ray), I(x-ray), $\gamma\gamma$-coin, γ(t), Eβ, β-delayed proton spectra. Deduced levels, J^{π}, parent T$_{1/2}$, decay branching ratios, log *ft*. The 9.6-s and 4-s activities are mixed.

1985To11: same setup and reaction as 1989Fi01, but with E(^{58}Ni)=262 MeV at the center of target. Measured Eγ, Iγ, $\gamma\gamma$-coin. Deduced levels.

1984To07: ^{149m}Er ions were produced via ^{144}Sm(^{12}C,7n) with 155 MeV ^{12}C beam from the Lawrence Berkeley Laboratory 88-inch cyclotron. Measured β-delayed protons with a Si ΔE-E telescope, decay-time distribution. Deduced T$_{1/2}$. No γ decay from the isomer is reported.

1984ScZT, 1984ScZU: source produced by ^{93}Nb(^{58}Ni,xnyp) E=5 MeV/nucleon. Measured γ, delayed protons.

Other: 1984ScZU (also 1984ScZT, 1985ZuZW). Three γ rays reported at 171.0, 343.7 and 436.6.

Total decay energy deposit of 7246 keV *197* calculated by RADLIST code is somewhat lower than the expected value of 8339 keV *67*, which indicates the incompleteness of the decay scheme.

^{149}Ho Levels

E(level)[†]	J$^{\pi}$[#]	T$_{1/2}$[c]	Comments
0.0	(11/2$^-$)[a]	21.0 s *2*	
48.82 *22*	(1/2$^+$)[a]	56 s *3*	%ε+%β^+=100
220.32 *19*	(3/2$^+$)[a]		
564.25 *19*	(5/2$^+$)[ab]		
1000.99 *17*	(7/2$^+$)[a]		
1171.08 *7*	[@]		
1183.71 *20*	[@]		
1277.11 *10*	(9/2$^-$)[&]		
1380.10 *10*	(15/2$^+$)[a]		
1415.0 *3*	(7/2$^+$)[a]		
1530.94 *8*	[@]		
1552.10 *8*	[@]		
1560.11 *10*	(15/2$^-$)[ab]		
1601.9 *5*	[@]		
1648.91 *10*	[@]		
1706.92 *20*	[@]		
1735.31 *20*	[@]		
1765.80 *10*	[@]		
1828.9 *3*	[@]		
1997.46 *18*	[@]		
2071.92 *20*	[@]		
2135.0 *5*	[@]		
2148.72 *20*	[@]		
2177.52 *10*	[@]		

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

^{149}Ho Levels (continued)

E(level)[†]	Jπ[#]	E(level)[†]	Jπ[#]	E(level)[†]	Jπ[#]	E(level)[†]	Jπ[#]
2209.1 *3*	(9/2⁻)[&]	2633.3 *4*	[@]	3125.0 *11*	(9/2⁻)[&]	4441.4 *3*	[@]
2221.92 *10*	[@]	2677.1 *5*	(9/2⁻)[&]	3174.9?[‡] *5*	[‡]	4552.5?[‡] *8*	[‡]
2226.86 *17*	(9/2⁻)[&]	2714.8 *3*	[@]	3226.2?[‡] *4*	[‡]	4616.8?[‡] *5*	[‡]
2267.28 *10*	(9/2⁻)[&]	2804.5?[‡] *5*	[‡]	3263.1?[‡] *3*	[‡]	4622.4?[‡] *3*	[‡]
2297.3 *5*	(9/2⁻)[&]	2825.0 *11*	(9/2⁻)[&]	3305.8?[‡] *3*	[‡]	4645.6?[‡] *4*	[‡]
2317.62 *20*	[@]	2851.2?[‡] *11*	[‡]	3325.2?[‡] *4*	[‡]	4652.1 *4*	[@]
2321.72 *10*	(9/2⁻)[&]	2901.7?[‡] *4*	[‡]	3338.4?[‡] *3*	[‡]	4661.68 *20*	[@]
2326.82 *20*	[@]	2914.0 *11*	(9/2⁻)[&]	3536.3?[‡] *8*	[‡]	4676.7?[‡] *4*	[‡]
2368.0 *11*	[@]	2935.7 *6*	[@]	3795.1?[‡] *6*	[‡]	4699.68 *20*	[@]
2381.32 *20*	[@]	2939.3?[‡] *9*	[‡]	3828.3?[‡] *12*	[‡]	4706.1 *10*	[@]
2449.8 *6*	(9/2⁻)[&]	2965.5 *3*	[@]	3885.6?[‡] *5*	[‡]	4750.0?[‡] *8*	[‡]
2469.38 *19*	(9/2⁻)[&]	2977.8 *3*	[@]	4003.2?[‡] *4*	[‡]	4822.9?[‡] *6*	[‡]
2493.3 *6*	(9/2⁻)[&]	2992.3 *3*	(9/2⁻)[&]	4037.3?[‡] *13*	[‡]	4851.1?[‡] *9*	[‡]
2499.4?[‡] *5*	[‡]	2996.66 *25*	[@]	4086.4?[‡] *5*	[‡]	5079.2 *10*	[@]
2512.52 *20*	[@]	3001.0 *11*	(9/2⁻)[&]	4236.0?[‡] *10*	[‡]	5098.7 *10*	[@]
2580.42 *20*	[@]	3005.0 *3*	(9/2⁻)[&]	4386.0?[‡] *7*	[‡]		
2591.4 *4*	[@]	3049.0 *3*	[@]	4413.5 *3*	[@]		
2607.41 *10*	(9/2⁻)[&]	3061.0?[‡] *9*	[‡]	4433.9?[‡] *4*	[‡]		

[†] From a least-squares fit to γ-ray energies.
[‡] Weakly populated uncertain level in ^{149}Er ε decay (9.6 s). Possible allowed or first-forbidden ε+β^+ feeding from (11/2⁻) parent and γ to (11/2⁻) g.s. suggests 9/2, 11/2, 13/2.
[#] As proposed in 1989Fi01, unless otherwise noted. All values are consistent with those in the Adopted Levels.
[@] Probable allowed or first-forbidden ε+β^+ feeding from (11/2⁻) parent suggests 9/2, 11/2, 13/2.
[&] Probable allowed or first-forbidden ε+β^+ feeding from (11/2⁻) parent and γ to 7/2⁺ suggest 9/2, 11/2⁺. J^π=(9/2⁻) is supported by expected dominance of $h_{11/2}$ proton to $h_{9/2}$ neutron component in the β transitions (1989Fi01).
[a] From the Adopted Levels.
[b] This J^π is inconsistent with log *ft*=6.2-6.4 from (11/2⁻). Low log *ft* value may be due to unobserved γ transitions from higher levels.
[c] From the Adopted Levels.

ε,β^+ radiations

E(decay)	E(level)	Iβ⁺ [‡]	Iε[‡]	Log *ft*	I(ε+β⁺)[†‡]	Comments
(3.54×10³ *3*)	5098.7	≈0.053	≈0.087	≈6.2	≈0.14	av Eβ=1139 *14*; εK=0.520 *7*; εL=0.0788 *11*; εM+=0.0233 *4*
(3.56×10³ *3*)	5079.2	≈0.054	≈0.086	≈6.2	≈0.14	av Eβ=1148 *14*; εK=0.515 *7*; εL=0.0781 *11*; εM+=0.0231 *4*
(3.79×10³[#] *3*)	4851.1?	0.03 *2*	0.04 *3*	6.6 *4*	0.07 *5*	av Eβ=1252 *14*; εK=0.463 *7*; εL=0.0700 *11*; εM+=0.0207 *3*
(3.82×10³[#] *3*)	4822.9?	0.03 *2*	0.04 *3*	6.6 *4*	0.07 *5*	av Eβ=1265 *14*; εK=0.456 *7*; εL=0.0691 *11*; εM+=0.0204 *3*
(3.89×10³[#] *3*)	4750.0?	0.06 *3*	0.06 *3*	6.4 *2*	0.12 *6*	av Eβ=1298 *14*; εK=0.440 *7*; εL=0.0666 *10*; εM+=0.0197 *3*
(3.94×10³ *3*)	4706.1	0.06 *3*	0.07 *4*	6.4 *3*	0.13 *7*	av Eβ=1318 *14*; εK=0.431 *7*; εL=0.0652 *10*;

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I(ε+β^+)†‡	Comments
						εM+=0.0192 *3*
(3.94×10^3 *3*)	4699.68	0.78 *19*	0.82 *21*	5.3 *1*	1.6 *4*	av Eβ=1321 *14*; εK=0.430 *7*; εL=0.0649 *10*; εM+=0.0192 *3*
(3.96×10^3# *3*)	4676.7?	0.10 *5*	0.11 *6*	6.2 *2*	0.21 *11*	av Eβ=1332 *14*; εK=0.425 *7*; εL=0.0642 *10*; εM+=0.0189 *3*
(3.98×10^3 *3*)	4661.68	0.21 *11*	0.22 *11*	5.9 *2*	0.43 *22*	av Eβ=1338 *14*; εK=0.422 *7*; εL=0.0637 *10*; εM+=0.0188 *3*
(3.99×10^3 *3*)	4652.1	0.10 *5*	0.11 *6*	6.2 *2*	0.21 *11*	av Eβ=1343 *14*; εK=0.420 *7*; εL=0.0634 *10*; εM+=0.0187 *3*
(4.00×10^3# *3*)	4645.6?	0.10 *6*	0.11 *6*	6.2 *2*	0.21 *11*	av Eβ=1346 *14*; εK=0.418 *7*; εL=0.0632 *10*; εM+=0.0187 *3*
(4.02×10^3# *3*)	4622.4?	0.22 *11*	0.21 *11*	5.9 *2*	0.43 *22*	av Eβ=1356 *14*; εK=0.413 *7*; εL=0.0625 *10*; εM+=0.0184 *3*
(4.02×10^3# *3*)	4616.8?	0.05 *3*	0.04 *2*	6.6 *3*	0.09 *5*	av Eβ=1359 *14*; εK=0.412 *7*; εL=0.0623 *10*; εM+=0.0184 *3*
(4.09×10^3# *3*)	4552.5?	0.03 *1*	0.02 *1*	6.9 *2*	0.05 *2*	av Eβ=1388 *14*; εK=0.399 *6*; εL=0.0603 *10*; εM+=0.0178 *3*
(4.20×10^3 *3*)	4441.4	0.18 *6*	0.14 *5*	6.1 *2*	0.32 *11*	av Eβ=1440 *14*; εK=0.377 *6*; εL=0.0569 *9*; εM+=0.0168 *3*
(4.21×10^3# *3*)	4433.9?	0.12 *6*	0.09 *5*	6.3 *2*	0.21 *11*	av Eβ=1443 *14*; εK=0.376 *6*; εL=0.0567 *9*; εM+=0.0167 *3*
(4.23×10^3 *3*)	4413.5	0.24 *12*	0.19 *10*	6.0 *2*	0.43 *22*	av Eβ=1452 *14*; εK=0.372 *6*; εL=0.0561 *9*; εM+=0.0166 *3*
(4.26×10^3# *3*)	4386.0?	0.06 *3*	0.04 *3*	6.6 *3*	0.10 *6*	av Eβ=1465 *14*; εK=0.367 *6*; εL=0.0553 *9*; εM+=0.0163 *3*
(4.41×10^3# *3*)	4236.0?	0.03 *2*	0.02 *2*	7.0 *4*	0.05 *4*	av Eβ=1534 *14*; εK=0.339 *6*; εL=0.0512 *8*; εM+=0.01509 *24*
(4.56×10^3# *3*)	4086.4?	0.13 *7*	0.08 *4*	6.5 *2*	0.21 *11*	av Eβ=1603 *14*; εK=0.314 *5*; εL=0.0473 *8*; εM+=0.01395 *23*
(4.60×10^3# *3*)	4037.3?	0.02 *1*	0.01 *1*	7.3 *3*	0.03 *2*	av Eβ=1626 *14*; εK=0.306 *5*; εL=0.0461 *8*; εM+=0.01360 *22*
(4.64×10^3# *3*)	4003.2?	0.06 *3*	0.036 *18*	6.8 *2*	0.10 *5*	av Eβ=1642 *14*; εK=0.301 *5*; εL=0.0453 *8*; εM+=0.01336 *22*
(4.76×10^3# *3*)	3885.6?	0.3 *3*	0.2 *1*	6.2 *4*	0.5 *4*	av Eβ=1696 *14*; εK=0.283 *5*; εL=0.0426 *7*; εM+=0.01256 *20*
(4.81×10^3# *3*)	3828.3?	0.07 *4*	0.036 *20*	6.8 *3*	0.11 *6*	av Eβ=1723 *14*; εK=0.275 *5*; εL=0.0413 *7*; εM+=0.01219 *20*
(4.85×10^3# *3*)	3795.1?	0.14 *7*	0.07 *4*	6.6 *2*	0.21 *11*	av Eβ=1738 *14*; εK=0.270 *5*; εL=0.0406 *7*; εM+=0.01198 *19*
(5.11×10^3# *3*)	3536.3?	0.15 *8*	0.06 *3*	6.7 *2*	0.21 *11*	av Eβ=1859 *14*; εK=0.236 *4*; εL=0.0355 *6*; εM+=0.01047 *17*
(5.30×10^3# *3*)	3338.4?	0.24 *8*	0.08 *3*	6.6 *2*	0.32 *11*	av Eβ=1951 *14*; εK=0.214 *4*; εL=0.0321 *5*; εM+=0.00946 *15*
(5.32×10^3# *3*)	3325.2?	0.08 *4*	0.028 *15*	7.0 *3*	0.11 *6*	av Eβ=1958 *14*; εK=0.212 *4*; εL=0.0319 *5*; εM+=0.00940 *15*
(5.34×10^3# *3*)	3305.8?	0.12 *6*	0.040 *20*	6.9 *2*	0.16 *8*	av Eβ=1967 *14*; εK=0.210 *4*; εL=0.0316 *5*; εM+=0.00931 *15*
(5.38×10^3# *3*)	3263.1?	0.24 *8*	0.08 *3*	6.6 *2*	0.32 *11*	av Eβ=1987 *14*; εK=0.206 *4*; εL=0.0309 *5*; εM+=0.00911 *14*
(5.42×10^3# *3*)	3226.2?	0.16 *8*	0.05 *3*	6.8 *2*	0.21 *11*	av Eβ=2004 *14*; εK=0.202 *3*; εL=0.0303 *5*; εM+=0.00894 *14*

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

ϵ,β^+ radiations (continued)

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*	I(ε+β^+)†‡	Comments
(5.47×10^3# *3*)	3174.9?	0.16 *8*	0.05 *3*	6.8 *2*	0.21 *11*	av Eβ=2028 *14*; εK=0.197 *3*; εL=0.0296 *5*; εM+=0.00871 *14*
(5.52×10^3 *3*)	3125.0	0.31 *8*	0.092 *25*	6.6 *1*	0.40 *11*	av Eβ=2051 *14*; εK=0.192 *3*; εL=0.0288 *5*; εM+=0.00850 *13*
(5.58×10^3# *3*)	3061.0?	0.08 *5*	0.022 *13*	7.2 *3*	0.10 *6*	av Eβ=2081 *14*; εK=0.186 *3*; εL=0.0279 *5*; εM+=0.00823 *13*
(5.59×10^3 *3*)	3049.0	0.42 *17*	0.12 *5*	6.5 *2*	0.54 *22*	av Eβ=2087 *14*; εK=0.185 *3*; εL=0.0278 *5*; εM+=0.00818 *13*
(5.64×10^3 *3*)	3005.0	0.59 *9*	0.16 *2*	6.3 *1*	0.75 *11*	av Eβ=2107 *14*; εK=0.181 *3*; εL=0.0272 *4*; εM+=0.00801 *12*
(5.64×10^3 *3*)	3001.0	0.42 *9*	0.12 *2*	6.5 *1*	0.54 *11*	av Eβ=2109 *14*; εK=0.181 *3*; εL=0.0271 *4*; εM+=0.00799 *12*
(5.65×10^3 *3*)	2996.66	0.9 *3*	0.26 *9*	6.1 *2*	1.2 *4*	av Eβ=2111 *14*; εK=0.180 *3*; εL=0.0270 *4*; εM+=0.00797 *12*
(5.65×10^3 *3*)	2992.3	0.86 *16*	0.24 *4*	6.2 *1*	1.1 *2*	av Eβ=2113 *14*; εK=0.180 *3*; εL=0.0270 *4*; εM+=0.00796 *12*
(5.66×10^3 *3*)	2977.8	0.25 *9*	0.068 *23*	6.7 *2*	0.32 *11*	av Eβ=2120 *14*; εK=0.179 *3*; εL=0.0268 *4*; εM+=0.00790 *12*
(5.68×10^3 *3*)	2965.5	0.17 *9*	0.045 *23*	6.9 *2*	0.21 *11*	av Eβ=2126 *14*; εK=0.177 *3*; εL=0.0266 *4*; εM+=0.00785 *12*
(5.70×10^3# *3*)	2939.3?	0.11 *5*	0.029 *13*	7.1 *2*	0.14 *6*	av Eβ=2138 *15*; εK=0.175 *3*; εL=0.0263 *4*; εM+=0.00775 *12*
(5.71×10^3 *3*)	2935.7	0.17 *9*	0.044 *23*	6.9 *2*	0.21 *11*	av Eβ=2140 *14*; εK=0.175 *3*; εL=0.0262 *4*; εM+=0.00774 *12*
(5.73×10^3 *3*)	2914.0	0.33 *9*	0.085 *23*	6.6 *1*	0.41 *11*	av Eβ=2150 *15*; εK=0.173 *3*; εL=0.0260 *4*; εM+=0.00766 *12*
(5.74×10^3# *3*)	2901.7?	0.17 *9*	0.043 *23*	6.9 *2*	0.21 *11*	av Eβ=2156 *15*; εK=0.172 *3*; εL=0.0258 *4*; εM+=0.00761 *12*
(5.79×10^3# *3*)	2851.2?	0.26 *9*	0.064 *22*	6.8 *2*	0.32 *11*	av Eβ=2180 *15*; εK=0.1678 *25*; εL=0.0252 *4*; εM+=0.00742 *11*
(5.82×10^3 *3*)	2825.0	0.64 *18*	0.16 *4*	6.4 *1*	0.80 *22*	av Eβ=2192 *15*; εK=0.1657 *25*; εL=0.0249 *4*; εM+=0.00733 *11*
(5.84×10^3# *3*)	2804.5?	0.09 *5*	0.022 *12*	7.2 *3*	0.11 *6*	av Eβ=2202 *15*; εK=0.1641 *24*; εL=0.0246 *4*; εM+=0.00726 *11*
(5.93×10^3 *3*)	2714.8	0.35 *18*	0.08 *4*	6.7 *2*	0.43 *22*	av Eβ=2244 *15*; εK=0.1572 *23*; εL=0.0236 *4*; εM+=0.00695 *11*
(5.96×10^3 *3*)	2677.1	0.5 *3*	0.1 *1*	6.5 *3*	0.6 *4*	av Eβ=2262 *15*; εK=0.1544 *23*; εL=0.0232 *4*; εM+=0.00683 *10*
(6.01×10^3 *3*)	2633.3	0.17 *9*	0.038 *20*	7.0 *2*	0.21 *11*	av Eβ=2282 *15*; εK=0.1512 *22*; εL=0.0227 *4*; εM+=0.00668 *10*
(6.03×10^3 *3*)	2607.41	1.5 *3*	0.32 *7*	6.1 *1*	1.8 *4*	av Eβ=2295 *15*; εK=0.1494 *22*; εL=0.0224 *4*; εM+=0.00660 *10*
(6.05×10^3 *3*)	2591.4	0.44 *18*	0.10 *4*	6.6 *2*	0.54 *22*	av Eβ=2302 *15*; εK=0.1483 *22*; εL=0.0222 *4*; εM+=0.00655 *10*
(6.06×10^3 *3*)	2580.42	0.53 *18*	0.11 *4*	6.5 *2*	0.64 *22*	av Eβ=2307 *15*; εK=0.1475 *21*; εL=0.0221 *4*; εM+=0.00652 *10*
(6.13×10^3 *3*)	2512.52	0.71 *18*	0.15 *4*	6.4 *1*	0.86 *22*	av Eβ=2339 *15*; εK=0.1429 *21*; εL=0.0214 *3*; εM+=0.00631 *9*
(6.14×10^3# *3*)	2499.4?	0.27 *9*	0.054 *19*	6.9 *2*	0.32 *11*	av Eβ=2345 *15*; εK=0.1420 *20*; εL=0.0213 *3*; εM+=0.00627 *9*
(6.15×10^3 *3*)	2493.3	0.9 *3*	0.19 *7*	6.3 *2*	1.1 *4*	av Eβ=2348 *15*; εK=0.1416 *20*; εL=0.0212 *3*; εM+=0.00626 *9*
(6.17×10^3 *3*)	2469.38	2.2 *7*	0.45 *15*	6.0 *2*	2.7 *9*	av Eβ=2360 *15*; εK=0.1400 *20*; εL=0.0210 *3*; εM+=0.00619 *9*

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

ε,β$^+$ radiations (continued)

E(decay)	E(level)	Iβ$^+$ ‡	Iε‡	Log *ft*	I(ε+β$^+$)†‡	Comments
(6.19×10^3 *3*)	2449.8	0.8 *4*	0.1 *1*	6.4 *3*	0.9 *5*	av Eβ=2369 *15*; εK=0.1387 *20*; εL=0.0208 *3*; εM+=0.00613 *9*
(6.26×10^3 *3*)	2381.32	0.5 *3*	0.10 *6*	6.6 *3*	0.6 *4*	av Eβ=2401 *15*; εK=0.1344 *19*; εL=0.0201 *3*; εM+=0.00594 *9*
(6.27×10^3 *3*)	2368.0	1.2 *2*	0.22 *3*	6.3 *1*	1.4 *2*	av Eβ=2408 *15*; εK=0.1336 *19*; εL=0.0200 *3*; εM+=0.00590 *9*
(6.31×10^3 *3*)	2326.82	1.0 *4*	0.19 *8*	6.4 *2*	1.2 *5*	av Eβ=2427 *15*; εK=0.1311 *19*; εL=0.0196 *3*; εM+=0.00579 *8*
(6.32×10^3 *3*)	2321.72	2.7 *5*	0.50 *9*	5.9 *1*	3.2 *6*	av Eβ=2429 *15*; εK=0.1308 *19*; εL=0.0196 *3*; εM+=0.00578 *8*
(6.32×10^3 *3*)	2317.62	1.4 *3*	0.26 *6*	6.2 *1*	1.7 *4*	av Eβ=2431 *15*; εK=0.1305 *18*; εL=0.0196 *3*; εM+=0.00577 *8*
(6.34×10^3 *3*)	2297.3	0.54 *20*	0.10 *4*	6.6 *2*	0.64 *24*	av Eβ=2441 *15*; εK=0.1293 *18*; εL=0.0194 *3*; εM+=0.00571 *8*
(6.37×10^3 *3*)	2267.28	1.0 *3*	0.18 *5*	6.4 *1*	1.2 *3*	av Eβ=2455 *15*; εK=0.1276 *18*; εL=0.0191 *3*; εM+=0.00563 *8*
(6.41×10^3 *3*)	2226.86	1.9 *3*	0.33 *6*	6.1 *1*	2.2 *4*	av Eβ=2474 *15*; εK=0.1253 *18*; εL=0.0188 *3*; εM+=0.00553 *8*
(6.42×10^3 *3*)	2221.92	1.28 *20*	0.22 *3*	6.3 *1*	1.50 *23*	av Eβ=2477 *15*; εK=0.1250 *18*; εL=0.0187 *3*; εM+=0.00552 *8*
(6.43×10^3 *3*)	2209.1	0.73 *21*	0.13 *4*	6.5 *1*	0.86 *25*	av Eβ=2483 *15*; εK=0.1243 *17*; εL=0.0186 *3*; εM+=0.00549 *8*
(6.46×10^3 *3*)	2177.52	1.7 *3*	0.29 *6*	6.2 *1*	2.0 *4*	av Eβ=2498 *15*; εK=0.1225 *17*; εL=0.0183 *3*; εM+=0.00541 *8*
(6.49×10^3 *3*)	2148.72	0.55 *19*	0.09 *3*	6.7 *2*	0.64 *22*	av Eβ=2511 *15*; εK=0.1209 *17*; εL=0.01811 *25*; εM+=0.00534 *8*
(6.51×10^3 *3*)	2135.0	0.37 *19*	0.06 *3*	6.9 *2*	0.43 *22*	av Eβ=2518 *15*; εK=0.1202 *17*; εL=0.01800 *25*; εM+=0.00530 *8*
(6.57×10^3 *3*)	2071.92	0.28 *9*	0.045 *15*	7.0 *2*	0.32 *11*	av Eβ=2548 *15*; εK=0.1168 *16*; εL=0.01750 *24*; εM+=0.00516 *7*
(6.64×10^3 *3*)	1997.46	1.4 *3*	0.22 *4*	6.3 *1*	1.6 *3*	av Eβ=2583 *15*; εK=0.1130 *16*; εL=0.01693 *23*; εM+=0.00499 *7*
(6.81×10^3 *3*)	1828.9	0.66 *19*	0.09 *3*	6.7 *1*	0.75 *22*	av Eβ=2663 *15*; εK=0.1050 *14*; εL=0.01572 *21*; εM+=0.00463 *7*
(6.88×10^3 *3*)	1765.80	4.0 *4*	0.55 *6*	6.0 *1*	4.5 *5*	av Eβ=2693 *15*; εK=0.1022 *14*; εL=0.01529 *20*; εM+=0.00451 *6*
(6.91×10^3 *3*)	1735.31	3.8 *4*	0.52 *6*	6.0 *1*	4.3 *5*	av Eβ=2707 *15*; εK=0.1009 *13*; εL=0.01509 *20*; εM+=0.00445 *6*
(6.93×10^3 *3*)	1706.92	3.6 *4*	0.49 *6*	6.0 *1*	4.1 *5*	av Eβ=2721 *15*; εK=0.0996 *13*; εL=0.01491 *20*; εM+=0.00439 *6*
(6.99×10^3 *3*)	1648.91	4.1 *5*	0.53 *7*	6.0 *1*	4.6 *6*	av Eβ=2748 *15*; εK=0.0972 *13*; εL=0.01454 *19*; εM+=0.00429 *6*
(7.04×10^3 *3*)	1601.9	1.6 *4*	0.20 *6*	6.4 *1*	1.8 *5*	av Eβ=2771 *15*; εK=0.0953 *13*; εL=0.01426 *19*; εM+=0.00420 *6*
(7.08×10^3 *3*)	1560.11	3.0 *4*	0.38 *5*	6.2 *1*	3.4 *4*	av Eβ=2791 *15*; εK=0.0936 *12*; εL=0.01401 *18*; εM+=0.00413 *6* Log *ft*: too low for ΔJ=(2), Δπ=no. Apparent ε feeding is probably due to missing γ transitions to this level.
(7.09×10^3 *3*)	1552.10	2.8 *4*	0.35 *4*	6.2 *1*	3.1 *4*	av Eβ=2795 *15*; εK=0.0933 *12*; εL=0.01396 *18*; εM+=0.00411 *6*
(7.11×10^3 *3*)	1530.94	5.2 *6*	0.65 *8*	5.9 *1*	5.9 *7*	av Eβ=2805 *15*; εK=0.0925 *12*; εL=0.01384 *18*; εM+=0.00408 *6*
(7.23×10^3# *3*)	1415.0	0.3 *3*	0.08 *8*	9.1^{1u} *5*	0.4 *4*	av Eβ=2802 *14*; εK=0.1750 *21*; εL=0.0265 *4*; εM+=0.00783 *10*

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

ε,$β^+$ radiations (continued)

E(decay)	E(level)	I$β^+$ ‡	Iε‡	Log *ft*	I(ε+$β^+$)†‡	Comments
(7.26×10^3 *3*)	1380.10	1.9 *3*	0.50 *8*	8.4^{1u} *1*	2.4 *4*	av Eβ=2818 *14*; εK=0.1727 *21*; εL=0.0262 *3*; εM+=0.00773 *10*
(7.36×10^3 *3*)	1277.11	2.2 *5*	0.24 *5*	6.4 *1*	2.4 *5*	av Eβ=2926 *15*; εK=0.0833 *11*; εL=0.01246 *16*; εM+=0.00367 *5*
(7.46×10^3 *3*)	1183.71	0.58 *20*	0.061 *21*	7.0 *2*	0.64 *22*	av Eβ=2970 *15*; εK=0.0802 *10*; εL=0.01199 *15*; εM+=0.00353 *5*
(7.47×10^3 *3*)	1171.08	7.2 *11*	0.76 *11*	5.9 *1*	8.0 *12*	av Eβ=2976 *15*; εK=0.0798 *10*; εL=0.01193 *15*; εM+=0.00352 *5*
(7.64×10^3# *3*)	1000.99	<1.3	<0.29	>8.7^{1u}	<1.6	av Eβ=2994 *14*; εK=0.1494 *17*; εL=0.0226 *3*; εM+=0.00667 *8* I(ε+$β^+$): −0.3 *19* from intensity balance.
(8.08×10^3# *3*)	564.25	3.1 *12*	0.26 *10*	6.5	3.4 *13*	av Eβ=3267 *15*; εK=0.0631 *8*; εL=0.00942 *11*; εM+=0.00278 *4* Log *ft*: too low for Δ$J^π$=3. Apparent ε feeding is probably due to missing γ transitions to this level.
(8.64×10^3# *3*)	0.0	<4	<0.2	>6.5	<4	av Eβ=3538 *15*; εK=0.0514 *6*; εL=0.00767 *9*; εM+=0.002259 *25* I(ε+$β^+$): from log *ft*≥6.5 (based on measured TAGS spectrum in 1985Al08) for a similar (11/2$^-$ isomer in ^{147}Dy to 11/2$^-$, 50.6 level in ^{147}Tb) ε transition, as also assumed by 1989Fi01. For other N=81 isotones, 11/2$^-$ isomer decay to 11/2$^-$ daughter state, following are the log *ft* values, as given in the ENSDF database: 6.2 for ^{145}Gd isomer to ^{145}Eu decay, 6.5 for ^{143}Sm isomer to ^{143}Pm decay, and >6.9 for ^{141}Nd isomer to ^{141}Pr decay.

† Deduced from gamma-intensity balance at each level. There is a gap of about 3 MeV between Q value and last known level at 5098.7, which allows the possibility that there may be additional levels and associated γ transitions populated by ^{149}Er decay. For this reason, the decay scheme is considered incomplete; weak feedings (<0.5% or so) should be treated as upper limits and associated log *ft* values as lower limits.

‡ Absolute intensity per 100 decays.

Existence of this branch is questionable.

γ(^{149}Ho)

Iγ normalization: Σ(I(γ+ce) of γ rays to g.s.+49)=97.8 *20*; assuming %(ε+$β^+$) (to g.s.)<4% and %εp=0.18 *2* (1989Fi01).

Observed Ho X-ray intensities (relative to 100 for 1171γ): I(K$α_1$ x-ray)=137 *4*, I(K$α_2$ x-ray)=242 *5*, I(K$β_2$ x-ray)=70 *15*, I(K$β_1$ x-ray)=21 *2* (1989Fi01). A systematic uncertainty of 15% should be added to the statistical uncertainty given here, as stated by 1989Fi01.

I(ε)=510 *40*, I($β^+$)=550 *140* (1989Fi01) relative to 100 for 1171γ. Total ε is from K x-ray intensity and $β^+$ is from $γ^±$ intensity.

I(delayed protons from 8.9 s and 4 s isomers)=5.2 *6* (1989Fi01) relative to 100 for 1171γ. 1989Fi01 estimate that 63% *7* of the protons are from the decay of the 4-s isomer and 37% *7* proton intensity is associated with 8.9-s isomer.

From singles and delayed proton intensities, ε/$β^+$=0.83 *4* (1989Fi01) for delayed proton decay.

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

γ(^{149}Ho) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[d]	α[f]	Comments
106.0 *10*	≈3[b]	1277.11	(9/2⁻)	1171.08				%Iγ≈0.32
163.1 *10*	≈4[b]	1765.80		1601.9				%Iγ≈0.43
171.5 *1*	69 *9*	220.32	(3/2⁺)	48.82	(1/2⁺)	M1	0.566 *8*	%Iγ=7.4 *10* α(N)=0.00360 *5*; α(O)=0.000524 *7*; α(P)=2.94×10^{-5} *4* α(K)=0.476 *7*; α(L)=0.0702 *10*; α(M)=0.01549 *22* I_γ: total intensity from 9.6-s and 4-s isomers=76 *9* (1989Fi01) out of which 7 *3* is assigned to 4-s isomer. Mult.: α(K)exp=0.57 *7*, from summed x-ray and γ-ray intensity.
172.4 *10*	≈3[b]	1552.10		1380.10	(15/2⁺)			%Iγ≈0.32
222.0 *10*	≈6[b]	1601.9		1380.10	(15/2⁺)			%Iγ≈0.64
323.8 *10*	3[b] *1*	1601.9		1277.11	(9/2⁻)			%Iγ=0.32 *11*
327.1 *10*	≈3[b]	1706.92		1380.10	(15/2⁺)			%Iγ≈0.32
343.9 *1*	67 *8*	564.25	(5/2⁺)	220.32	(3/2⁺)	(M1)	0.0853 *12*	%Iγ=7.2 *9* α(K)=0.0720 *10*; α(L)=0.01043 *15*; α(M)=0.002297 *32* α(N)=0.000534 *7*; α(O)=7.78×10^{-5} *11*; α(P)=4.41×10^{-6} *6* I_γ: total intensity from 8.9-s and 4-s isomers=69 *8* (1989Fi01) out of which 2 *1* is assigned to 4-s isomer. Mult.: α(K)exp(344γ+437γ)=0.14 *3* consistent with M1 for both transitions. α(K)exp is deduced from summed x-ray and γ-intensity.
359.9 *1*	8 *2*	1530.94		1171.08				%Iγ=0.86 *22*
380.9 *1*	7 *2*	1552.10		1171.08				%Iγ=0.75 *22*
413.0 *10*	2 *1*	1415.0	(7/2⁺)	1000.99	(7/2⁺)			%Iγ=0.21 *11*
436.7 *1*	42 *7*	1000.99	(7/2⁺)	564.25	(5/2⁺)	(M1)	0.0456 *6*	%Iγ=4.5 *8* α(K)=0.0385 *5*; α(L)=0.00554 *8*; α(M)=0.001219 *17* α(N)=0.000283 *4*; α(O)=4.13×10^{-5} *6*; α(P)=2.349×10^{-6} *33* Mult.: see comment for 343.9γ.
515.4[‡g]	<12	564.25	(5/2⁺)	48.82	(1/2⁺)			%Iγ<1.3
780.7[#] *1*	29 *12*	1000.99	(7/2⁺)	220.32	(3/2⁺)			%Iγ=3.1 *13*
826.4 *2*	7 *2*	1997.46		1171.08				%Iγ=0.75 *22*
851.0 *5*	3 *1*	1415.0	(7/2⁺)	564.25	(5/2⁺)			%Iγ=0.32 *11*
1045.6 *10*	4[b] *2*	2321.72	(9/2⁻)	1277.11	(9/2⁻)			%Iγ=0.43 *21*
1171.0 *1*	100 *10*	1171.08		0.0	(11/2⁻)			%Iγ=10.7 *11*
1183.7 *2*	6 *2*	1183.71		0.0	(11/2⁻)			%Iγ=0.64 *22*
1194.5[#] *5*	6 *2*	1415.0	(7/2⁺)	220.32	(3/2⁺)			%Iγ=0.64 *22*
1208.5 *5*	3 *1*	2209.1	(9/2⁻)	1000.99	(7/2⁺)			%Iγ=0.32 *11*
1225.8 *2*	9 *3*	2226.86	(9/2⁻)	1000.99	(7/2⁺)			%Iγ=0.96 *32*
1267.9 *5*	4 *2*	2267.28	(9/2⁻)	1000.99	(7/2⁺)			%Iγ=0.43 *21*
1277.1 *1*	26 *3*	1277.11	(9/2⁻)	0.0	(11/2⁻)			%Iγ=2.78 *34*
1295.0 *10*	2 *1*	2297.3	(9/2⁻)	1000.99	(7/2⁺)			%Iγ=0.21 *11*
1320.4 *5*	6[@] *3*	2321.72	(9/2⁻)	1000.99	(7/2⁺)			%Iγ=0.64 *32*
1367.0 *10*	≈0.8	2368.0		1000.99	(7/2⁺)			%Iγ≈0.086
1380.1 *1*	34 *3*	1380.10	(15/2⁺)	0.0	(11/2⁻)			%Iγ=3.64 *35*

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

γ(^{149}Ho) (continued)

E_γ[†]	I_γ[†e]	E_i(level)	J^π_i	E_f	J^π_f	Comments
1448.8 *5*	8 *4*	2449.8	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ=0.9 *4*
1468.1 *5*	14 *7*	2469.38	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ=1.5 *8*
1492.3 *5*	4 *2*	2493.3	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ=0.43 *21*
1530.9 *1*	47 *5*	1530.94		0.0	(11/2$^-$)	%Iγ=5.0 *6*
1552.2 *1*	19 *3*	1552.10		0.0	(11/2$^-$)	%Iγ=2.04 *33*
1560.1 *1*	32 *3*	1560.11	(15/2$^-$)	0.0	(11/2$^-$)	%Iγ=3.43 *35*
1581.6 *2*	7 *3*	2996.66		1415.0	(7/2$^+$)	%Iγ=0.75 *32*
1602.0[&] *10*	12 *4*	1601.9		0.0	(11/2$^-$)	%Iγ=1.3 *4*
1605.0 *10*	≈2	2607.41	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.21
1648.9 *1*	43 *5*	1648.91		0.0	(11/2$^-$)	%Iγ=4.6 *6*
1676.1 *4*	6 *3*	2677.1	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ=0.64 *32*
1706.9 *2*	35 *4*	1706.92		0.0	(11/2$^-$)	%Iγ=3.7 *5*
1735.3 *2*	40 *4*	1735.31		0.0	(11/2$^-$)	%Iγ=4.3 *5*
1765.8 *1*	38 *4*	1765.80		0.0	(11/2$^-$)	%Iγ=4.1 *5*
1824.0 *10*	≈0.5	2825.0	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.054
1828.9 *3*	7 *2*	1828.9		0.0	(11/2$^-$)	%Iγ=0.75 *22*
1913.0 *10*	≈0.8	2914.0	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.086
1991.0 *10*	≈6	2992.3	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.64
1997.4 *3*	8 *2*	1997.46		0.0	(11/2$^-$)	%Iγ=0.86 *22*
2000.0 *10*	≈3	3001.0	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.321
						%Iγ≈0.28
2004.0 *10*	≈4	3005.0	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.43
2071.9 *2*	3 *1*	2071.92		0.0	(11/2$^-$)	%Iγ=0.32 *11*
2124.0 *10*	≈0.7	3125.0	(9/2$^-$)	1000.99	(7/2$^+$)	%Iγ≈0.075
2135.0[a] *5*	4 *2*	2135.0		0.0	(11/2$^-$)	%Iγ=0.43 *21*
2148.7 *2*	6 *2*	2148.72		0.0	(11/2$^-$)	%Iγ=0.64 *22*
2177.5 *1*	19 *3*	2177.52		0.0	(11/2$^-$)	%Iγ=2.04 *33*
2209.0 *3*	5 *2*	2209.1	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.54 *22*
2221.9 *1*	14 *2*	2221.92		0.0	(11/2$^-$)	%Iγ=1.50 *22*
2226.9 *2*	12 *2*	2226.86	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=1.29 *22*
2267.2 *1*	7 *2*	2267.28	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.75 *22*
2297.6 *5*	4 *2*	2297.3	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.43 *21*
2317.6 *2*	16 *3*	2317.62		0.0	(11/2$^-$)	%Iγ=1.71 *33*
2321.7 *1*	20 *3*	2321.72	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=2.14 *33*
2326.8 *2*	11 *4*	2326.82		0.0	(11/2$^-$)	%Iγ=1.2 *4*
2368.3[g] *2*	12 *2*	2368.0		0.0	(11/2$^-$)	%Iγ=1.29 *22*
2381.3 *2*	6 *3*	2381.32		0.0	(11/2$^-$)	%Iγ=0.64 *32*
2469.4 *2*	11 *3*	2469.38	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=1.18 *32*
2491.9[g] *5*	6 *3*	2493.3	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.64 *32*
2499.4[g] *5*	3 *1*	2499.4?		0.0	(11/2$^-$)	%Iγ=0.32 *11*
2512.5 *2*	8 *2*	2512.52		0.0	(11/2$^-$)	%Iγ=0.86 *22*
2580.4 *2*	6 *2*	2580.42		0.0	(11/2$^-$)	%Iγ=0.64 *22*
2591.4 *4*	5 *2*	2591.4		0.0	(11/2$^-$)	%Iγ=0.54 *22*
2607.4 *1*	15 *3*	2607.41	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=1.61 *33*
2633.3 *4*	2 *1*	2633.3		0.0	(11/2$^-$)	%Iγ=0.21 *11*
2714.8 *3*	4 *2*	2714.8		0.0	(11/2$^-$)	%Iγ=0.43 *21*
2804.5[g] *5*	1.0 *5*	2804.5?		0.0	(11/2$^-$)	%Iγ=0.11 *5*
2824.9[g] *4*	7 *2*	2825.0	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.75 *22*
2851.2[g] *11*	3 *1*	2851.2?		0.0	(11/2$^-$)	%Iγ=0.32 *11*
2901.7[g] *4*	2 *1*	2901.7?		0.0	(11/2$^-$)	%Iγ=0.21 *11*
2913.5[g] *3*	3 *1*	2914.0	(9/2$^-$)	0.0	(11/2$^-$)	%Iγ=0.32 *11*
2935.7 *6*	2 *1*	2935.7		0.0	(11/2$^-$)	%Iγ=0.21 *11*
2939.3[g] *9*	1.3 *5*	2939.3?		0.0	(11/2$^-$)	%Iγ=0.14 *5*
2965.5 *3*	2 *1*	2965.5		0.0	(11/2$^-$)	%Iγ=0.21 *11*

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^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

γ(^{149}Ho) (continued)

$E_γ$[†]	$I_γ$[†e]	E_i(level)	$J^π_i$	E_f	$J^π_f$	Comments
2977.8 *3*	3 *1*	2977.8		0.0	(11/2⁻)	%Iγ=0.32 *11*
2992.3 *3*	4 *2*	2992.3	(9/2⁻)	0.0	(11/2⁻)	%Iγ=0.43 *21*
2996.7 *3*	4 *2*	2996.66		0.0	(11/2⁻)	%Iγ=0.43 *21*
3001.1[g] *4*	2 *1*	3001.0	(9/2⁻)	0.0	(11/2⁻)	%Iγ=0.21 *11*
3005.0 *3*	3 *1*	3005.0	(9/2⁻)	0.0	(11/2⁻)	%Iγ=0.32 *11*
3049.0 *3*	5 *2*	3049.0		0.0	(11/2⁻)	%Iγ=0.54 *22*
3061.0[g] *9*	0.9 *5*	3061.0?		0.0	(11/2⁻)	%Iγ=0.10 *5*
3125.3[g] *3*	3 *1*	3125.0	(9/2⁻)	0.0	(11/2⁻)	%Iγ=0.32 *11*
3174.9[g] *5*	2 *1*	3174.9?		0.0	(11/2⁻)	%Iγ=0.21 *11*
3226.2[g] *4*	2 *1*	3226.2?		0.0	(11/2⁻)	%Iγ=0.21 *11*
3263.1[g] *3*	3 *1*	3263.1?		0.0	(11/2⁻)	%Iγ=0.32 *11*
3305.8[g] *3*	1.5 *7*	3305.8?		0.0	(11/2⁻)	%Iγ=0.16 *8*
3325.2[g] *4*	1.0 *5*	3325.2?		0.0	(11/2⁻)	%Iγ=0.11 *5*
3338.4[g] *3*	3 *1*	3338.4?		0.0	(11/2⁻)	%Iγ=0.32 *11*
3536.3[g] *8*	2 *1*	3536.3?		0.0	(11/2⁻)	%Iγ=0.21 *11*
3795.0[g] *6*	2 *1*	3795.1?		0.0	(11/2⁻)	%Iγ=0.21 *11*
3828.2[g] *12*	1.0 *5*	3828.3?		0.0	(11/2⁻)	%Iγ=0.11 *5*
3885.5[g] *5*	5 *3*	3885.6?		0.0	(11/2⁻)	%Iγ=0.54 *32*
4003.1[g] *4*	0.9 *4*	4003.2?		0.0	(11/2⁻)	%Iγ=0.10 *4*
4037.2[g] *13*	0.3 *2*	4037.3?		0.0	(11/2⁻)	%Iγ=0.032 *21*
4086.3[g] *5*	2 *1*	4086.4?		0.0	(11/2⁻)	%Iγ=0.21 *11*
4235.9[g] *10*	0.5 *3*	4236.0?		0.0	(11/2⁻)	%Iγ=0.054 *32*
4385.9[g] *7*	0.9 *5*	4386.0?		0.0	(11/2⁻)	%Iγ=0.10 *5*
4413.4 *3*	4 *2*	4413.5		0.0	(11/2⁻)	%Iγ=0.43 *21*
4433.8[g] *4*	2 *1*	4433.9?		0.0	(11/2⁻)	%Iγ=0.21 *11*
4441.3 *3*	3 *1*	4441.4		0.0	(11/2⁻)	%Iγ=0.32 *11*
4552.4[g] *8*	0.5 *2*	4552.5?		0.0	(11/2⁻)	%Iγ=0.054 *22*
4616.7[g] *5*	0.8 *4*	4616.8?		0.0	(11/2⁻)	%Iγ=0.09 *4*
4622.3[g] *3*	4 *2*	4622.4?		0.0	(11/2⁻)	%Iγ=0.43 *21*
4645.5[g] *4*	2 *1*	4645.6?		0.0	(11/2⁻)	%Iγ=0.21 *11*
4652.0 *4*	2 *1*	4652.1		0.0	(11/2⁻)	%Iγ=0.21 *11*
4661.6 *2*	4 *2*	4661.68		0.0	(11/2⁻)	%Iγ=0.43 *21*
4676.6[g] *4*	2 *1*	4676.7?		0.0	(11/2⁻)	%Iγ=0.21 *11*
4699.6 *2*	15 *3*	4699.68		0.0	(11/2⁻)	%Iγ=1.61 *33*
4706.0 *10*	1.2[c] *6*	4706.1		0.0	(11/2⁻)	%Iγ=0.13 *6*
4749.9[g] *8*	1.1 *5*	4750.0?		0.0	(11/2⁻)	%Iγ=0.12 *5*
4822.8[g] *6*	0.7 *4*	4822.9?		0.0	(11/2⁻)	%Iγ=0.07 *4*
4851.0[g] *9*	0.7 *4*	4851.1?		0.0	(11/2⁻)	%Iγ=0.07 *4*
5079.1 *10*	≈1.3[c]	5079.2		0.0	(11/2⁻)	%Iγ≈0.14
5098.6 *10*	≈1.3[c]	5098.7		0.0	(11/2⁻)	%Iγ≈0.14

[†] From 1989Fi01.
[‡] Transition uncertain since a possible 514 line is masked by intense $γ^{\pm}$ line. Intensity quoted here is an upper limit (1989Fi01).
[#] Coin with 344γ is inconsistent with this placement.
[@] Contribution from ^{149}Ho ε decay subtracted by 1989Fi01.
[&] Coin with 171γ, 344γ, 437γ is inconsistent with this placement.
[a] Possible coin with 172γ is inconsistent with this placement.
[b] From γγ-coin.
[c] From (x-ray)γ-coin.

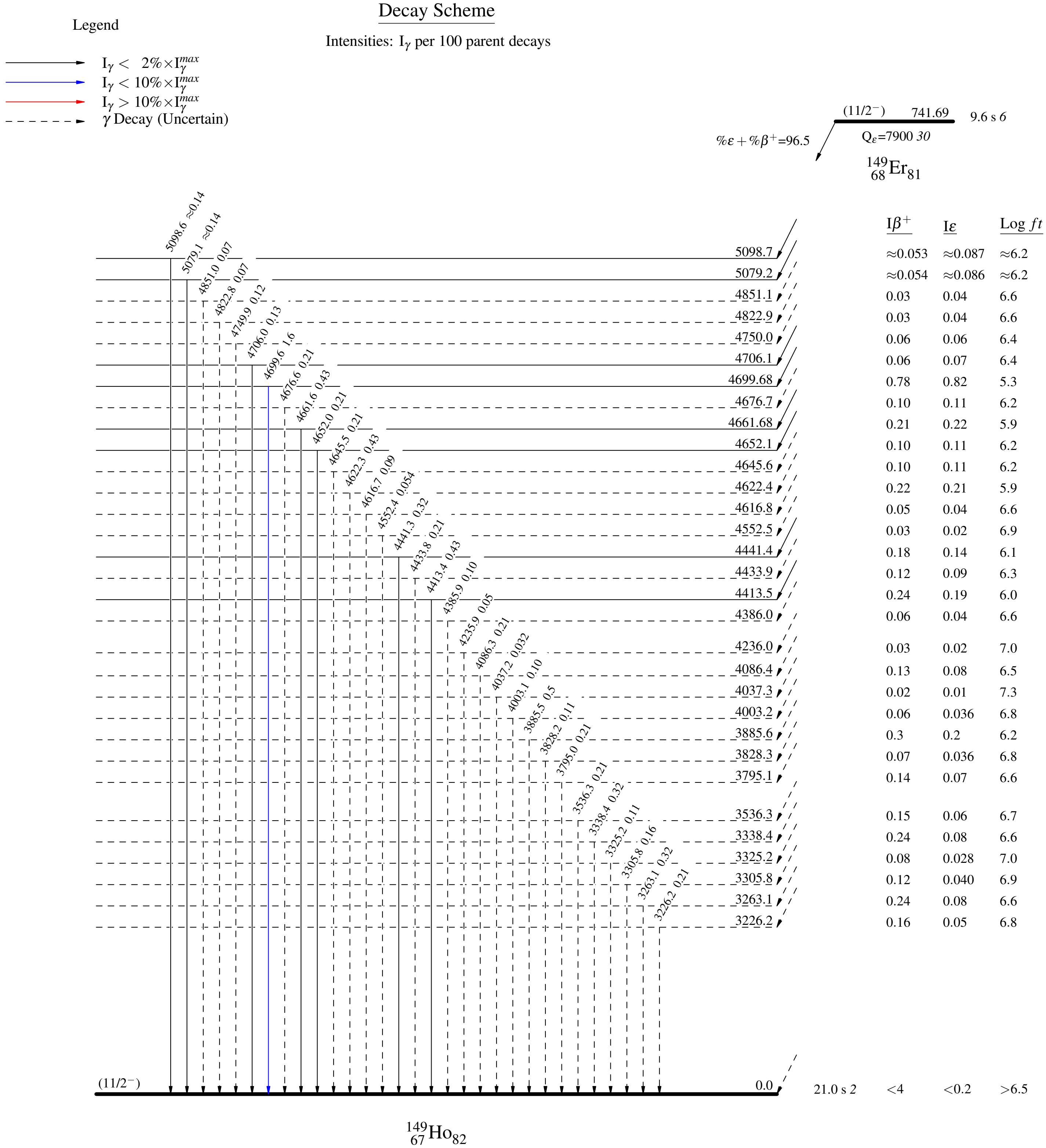
Continued on next page (footnotes at end of table)

^{149}Er ε decay (9.6 s) 1989Fi01 (continued)

γ(^{149}Ho) (continued)

[d] From the Adopted Gammas. Supporting evidence from this study is given under comments, where available.
[e] For absolute intensity per 100 decays, multiply by 0.107 *4*.
[f] 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.
[g] Placement of transition in the level scheme is uncertain.

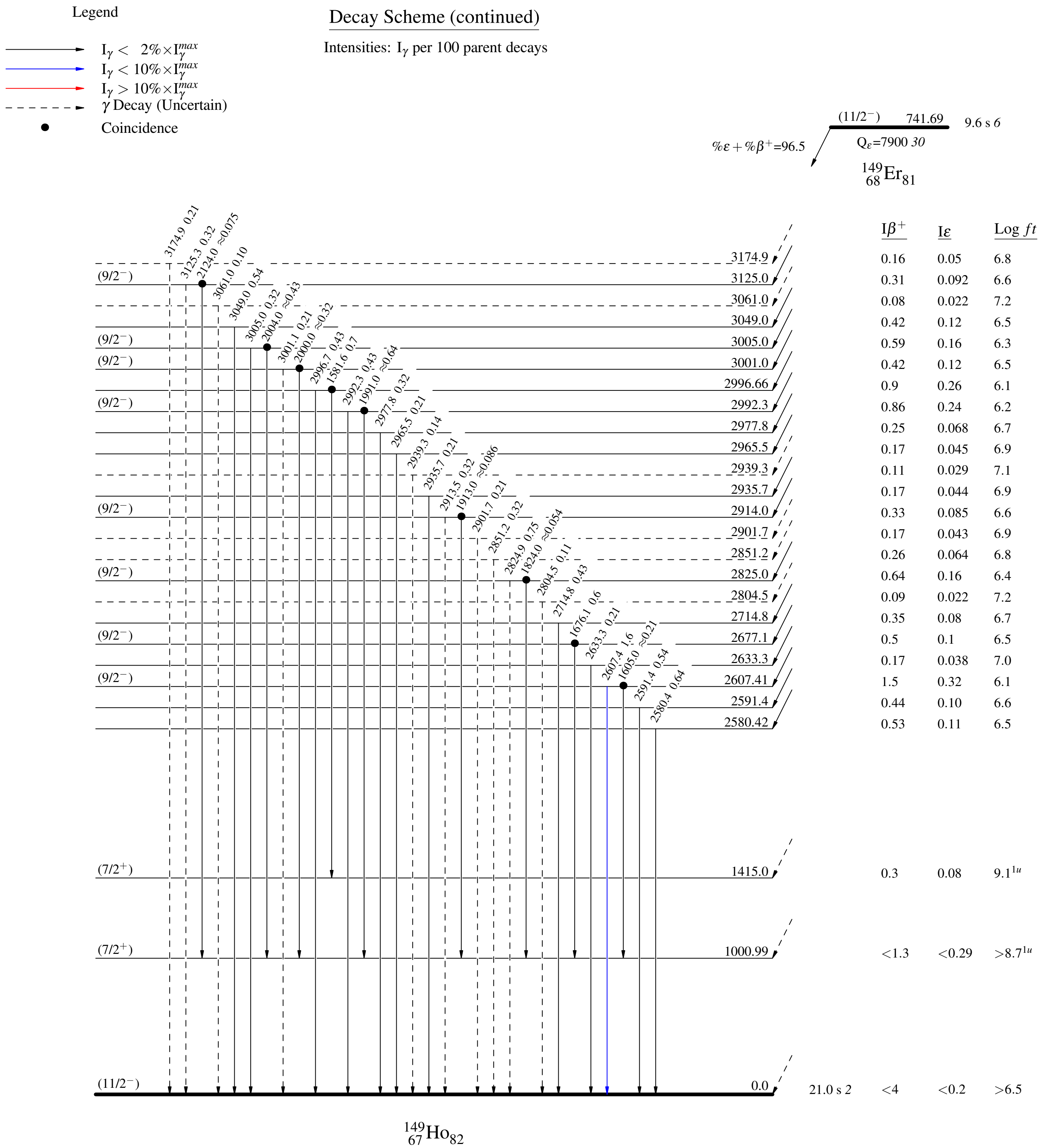
^{149}Er ε decay (9.6 s) 1989Fi01



^{149}Er ε decay (9.6 s) 1989Fi01

Decay Scheme (continued)

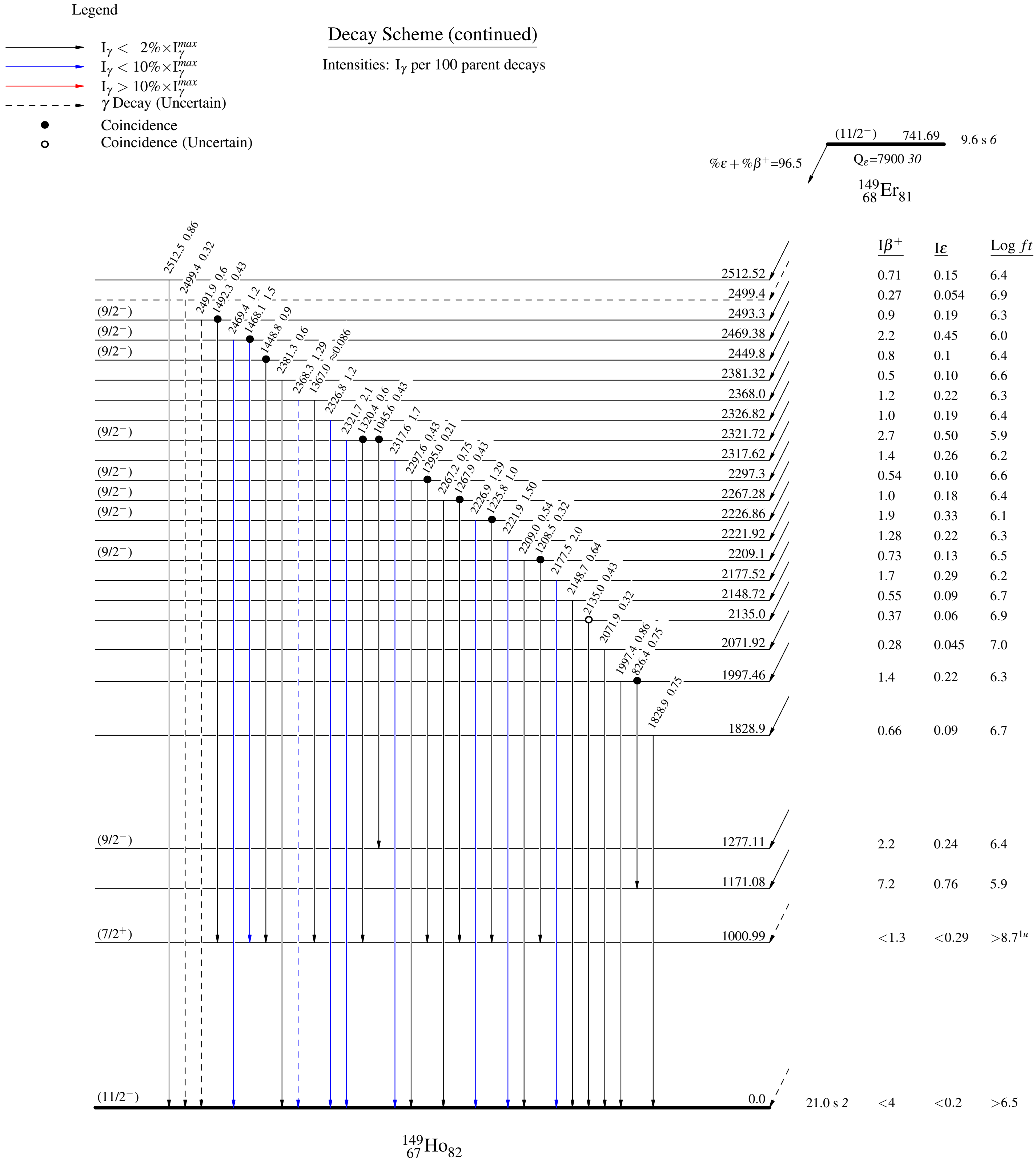
Intensities: I_γ per 100 parent decays



^{149}Er ε decay (9.6 s) 1989Fi01

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays



^{149}Er ε decay (9.6 s) 1989Fi01

Decay Scheme (continued)

Intensities: I_γ per 100 parent decays