^{171}Hf ε decay 1970Gi03,1974Gn02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin, E. A. Mccutchan	NDS 151, 334 (2018)	30-Jun-2018

Parent: ^{171}Hf: E=0.0; $J^\pi=7/2^{(+)}$; $T_{1/2}$=12.1 h *4*; Q(ε)=2397 *29*; %ε+%$β^+$ decay=100.0

1970Gi03: sources from ^{175}Lu(p,5n); measured Eγ, Iγ (germanium, Ge(Li)), E(ce), Ice (mag spect, silicon detectors), γγ coin.

1974Gn02: sources from ^{171}Yb(^{3}He,3n); measured Eγ, Iγ (Ge(Li), FWHM=2.2-2.5 keV at 662 keV), γγ coin.

Others: 1955Ne03, 1961Br29, 1961Br39, 1962Va17, 1963Ra14, 1965Ba10, 1966Ha23, 1967Gi08, 1969Gi06, 1969Gi07, 1970Ch17, 1971Na28, 1978Gu18, 2000La11.

The tentative decay scheme is from 1974Gn02. Photon data are from 1974Gn02, and ce data are from 1970Gi03, except where noted. Incomplete transition data, a large number of unplaced γ′s (≈11% of total Iγ), and unknown allowed (ΔJ=0, 7/2[633] to 7/2[404]) feeding to g.s. prevent construction of a complete normalized decay scheme. For this scheme, the most strongly populated excited states are the $(7/2)^-$ 662, $(11/2)^+$ 1321 and $7/2^+$,$9/2^+$ 1193 levels; the 662 and 1321 levels are not expected to be strongly fed. If Σ (I(γ+ce) to g.s.)=100% (i.e., if there were no ε+$β^+$ feeding of the g.s.), the Iγ normalization factor would be 0.055. However, the measured I(K x ray, Lu) suggests that the g.s. branch is substantial.

^{171}Lu Levels

E(level)†	J^π‡	$T_{1/2}$#	Comments
0.0@	$7/2^+$	8.247 d *23*	
71.16& *15*	$1/2^-$	79 s *2*	
72.82& *13*	$5/2^-$		
121.99@ *5*	$9/2^+$		
159.22& *17*	$9/2^-$		
206.29& *17*	$(3/2)^-$		
208.19a *16*	$(1/2)^+$	29.7 ns *11*	$T_{1/2}$: γγ(t), ceγ(t), Xγ(t) (1972Lo22); see ^{171}Lu Adopted Levels for other $T_{1/2}$ data.
220.75a *13*	$(3/2)^+$		
269.11@ *6*	$11/2^+$		
295.58b *6*	$5/2^+$		
333.82a *13*	$(5/2)^+$		
336.49& *22*	$13/2^-$		
364.97a *15*	$(7/2)^+$		
379.36& *14*	$7/2^-$		
394.70b *7*	$7/2^+$		
440.14@ *10*	$13/2^+$		
469.19c *6*	$9/2^-$		
519.30b *10*	$9/2^+$		
558.89a *21*	$(9/2)^+$		
593.86c *15*	$11/2^-$		
612.37a *18*	$(11/2)^+$		
619.96& *21*	$11/2^-$		
662.23d *7*	$(7/2)^-$		
670.83b *19*	$11/2^+$		
743.2? *4*	$13/2^-$		
788.49d *8*	$(9/2)^-$		
909.97 *19*	$(5/2)^+$		
942.59 *15*	$(7/2)^+$		
1162.27 *7*	$9/2^+$		
1193.79 *6*	$7/2^+$,$9/2^+$		
1204.45 *22*	$(11/2^+)$		
1321.82 *9*	$(11/2)^+$		

Continued on next page (footnotes at end of table)

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

^{171}Lu Levels (continued)

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
1382.11 *11*	$(5/2,7/2)^+$	1600.35 *17*	$(5/2^+,7/2,9/2^+)$	1841.39 *16*	$(9/2^+,11/2^+)$
1505.53 *16*	$(7/2^+,9/2,11/2^+)$	1620.88 *16*	$(7/2,9/2)^+$	2018.32 *13*	$(9/2,11/2^+)$
1534.15 *14*	$(7/2)^+$	1762.5 *3*	$(7/2^-,9/2,11/2^+)$	2022.61 *22*	$(7/2^+,9/2,11/2^+)$
1558.11 *17*		1770.85 *17*	$(9/2,11/2,13/2^-)$		

† From a least-squares fit to Eγ, by evaluators.
‡ From the Adopted Levels.
# From the Adopted Levels, except where noted.
@ Band(A): 7/2[404] band.
& Band(B): 1/2[541] band.
a Band(C): 1/2[411] band.
b Band(D): 5/2[402] band.
c Band(E): 9/2[514] band.
d Band(F): 7/2[523] band.

$\gamma(^{171}Lu)$

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [f]	$I_{(\gamma+ce)}$	Comments
(1.66 *20*)		72.82	$5/2^-$	71.16	$1/2^-$				2.7×10^2 *10*	E_γ: deduced from energy difference between 72.8 and 71.2 levels. $I_{(\gamma+ce)}$: intensity required to achieve intensity balance at the 71 level ($\varepsilon+\beta^+$ feeding of 71 level not expected; ΔJ=3).
12.5[&]		220.75	$(3/2)^+$	208.19	$(1/2)^+$				139 *21*	$I_{(\gamma+ce)}$: intensity required to achieve intensity balance at the 221 level ($\varepsilon+\beta^+$ feeding of 71 level not expected; ΔJ=2, Δπ=no).
31.2[a] *2*		364.97	$(7/2)^+$	333.82	$(5/2)^+$	M1(+E2)[d]	0.02 *2*	18.8 *9*		α(L)=14.6 *7*; α(M)=3.29 *17*; α(N+..)=0.90 *5* α(N)=0.78 *4*; α(O)=0.114 *5*; α(P)=0.00696 *17* L1:L2:L3=100 *50*:5:≈0 (1970Gi03).
31.6[a] *2*		1193.79	$7/2^+$,$9/2^+$	1162.27	$9/2^+$	M1+E2[d]	0.16 *5*	33 *11*		α(L)=25 *8*; α(M)=6.0 *20*; α(N+..)=1.6 *5* α(N)=1.4 *5*; α(O)=0.19 *6*; α(P)=0.00657 *18* L1/L2=2.2 *+20−10* (1970Gi03).
71.1[a] *2*	0.92[a] *18*	71.16	$1/2^-$	0.0	$7/2^+$	E3		475 *11*		α(K)=1.58 *4*; α(L)=354 *8*; α(M)=95.4 *21*; α(N+..)=24.8 *6* α(N)=22.2 *5*; α(O)=2.59 *6*; α(P)=0.00247 *5* Mult.: see ^{171}Lu IT decay (79 s).
74.9[a] *2*	3.4[a] *7*	295.58	$5/2^+$	220.75	$(3/2)^+$	M1		8.45 *14*		α(K)=7.04 *12*; α(L)=1.097 *18*; α(M)=0.247 *4*; α(N+..)=0.0674 *11* α(N)=0.0583 *10*; α(O)=0.00863 *14*; α(P)=0.000532 *9* α(K)exp=6.9, K/L1=4.1 (1970Gi03).
86.30 *20*	16 *4*	159.22	$9/2^-$	72.82	$5/2^-$	E2		6.01 *11*		α(K)=1.288 *19*; α(L)=3.60 *7*; α(M)=0.895 *16*; α(N+..)=0.230 *4* α(N)=0.205 *4*; α(O)=0.0247 *5*; α(P)=7.34×10^{-5} *11* α(K)exp=1.1, L2/L3=1.05 *15*, M2/M3=0.95 *10* (1970Gi03).
99.1 *1*	29 *4*	394.70	$7/2^+$	295.58	$5/2^+$	M1+E2[b]	+0.163 *14*	3.76		α(K)=3.07 *6*; α(L)=0.54 *3*; α(M)=0.122 *8*; α(N+..)=0.0331 *19* α(N)=0.0287 *17*; α(O)=0.00415 *19*; α(P)=0.000230 *5* α(K)exp=2.6, L1:L2:L3=13.3:2.8:1.·K/L3=108 *15* (1970Gi03). δ: adopted value; deduced using K/L3 from 1970Gi03 and +0.12 *5* from $\gamma(\theta)$ in (α,2nγ) (analysis by 1976KR21).

From ENSDF

$^{171}_{71}Lu_{100}$-3

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
113.10 *10*	20 *5*	333.82	(5/2)$^+$	220.75	(3/2)$^+$	M1+E2	−0.22 *+13−19*	2.56 *6*	α(K)=2.09 *14*; α(L)=0.36 *7*; α(M)=0.083 *18*; α(N+..)=0.023 *5* α(N)=0.020 *4*; α(O)=0.0028 *5*; α(P)=0.000156 *13* α(K)exp=2.0, K/L1=9.6 (1970Gi03).
117.5 *3*	20 *8*	1321.82	(11/2)$^+$	1204.45	(11/2$^+$)	(E2)		1.82	α(K)=0.687 *11*; α(L)=0.863 *16*; α(M)=0.214 *4*; α(N+..)=0.0552 *10* α(N)=0.0492 *9*; α(O)=0.00599 *11*; α(P)=3.61×10^{-5} *6* α(K)exp=0.80, K/L1=5.0 (1970Gi03).
122.0 *1*	230 *30*	121.99	9/2$^+$	0.0	7/2$^+$	M1+E2	+0.479 *11*	1.99	α(K)=1.53 *3*; α(L)=0.356 *9*; α(M)=0.0831 *22*; α(N+..)=0.0222 *6* α(N)=0.0194 *5*; α(O)=0.00267 *6*; α(P)=0.0001116 *22* I_γ: from Iγ/Iγ(469γ)=2.3 *3* in 1970Gi03; Iγ=320 *100* in 1974Gn02. α(K)exp=1.3, K/L3=24.9 *10*, L1:L2:L3=100:43:28 (1970Gi03). δ: adopted value; deduced using K/L3 from 1970Gi03 and +0.45 *3* from γ(θ) in (α,2nγ) (analysis by 1976KR21).
124.4[a]	23[c]	519.30	9/2$^+$	394.70	7/2$^+$	E2		1.472	α(K)=0.598 *9*; α(L)=0.667 *10*; α(M)=0.1649 *23*; α(N+..)=0.0426 *6* α(N)=0.0379 *6*; α(O)=0.00463 *7*; α(P)=3.15×10^{-5} *5* α(K)exp=0.53 (1970Gi03).
124.6[a] *2*	16[c]	593.86	11/2$^-$	469.19	9/2$^-$	M1		1.96	α(K)=1.637 *25*; α(L)=0.252 *4*; α(M)=0.0567 *9*; α(N+..)=0.01550 *23* α(N)=0.01339 *20*; α(O)=0.00199 *3*; α(P)=0.0001226 *18* α(K)exp=1.6 (1970Gi03).
125.49[b] *17*	2[c]	333.82	(5/2)$^+$	208.19	(1/2)$^+$				
126.4[a] *2*	6[c]	788.49	(9/2)$^-$	662.23	(7/2)$^-$	M1		1.88	α(K)=1.571 *24*; α(L)=0.242 *4*; α(M)=0.0544 *8*; α(N+..)=0.01488 *22* α(N)=0.01286 *19*; α(O)=0.00191 *3*; α(P)=0.0001177 *18* α(K)exp=1.5 (1970Gi03).
133.4[a] *2*	9.2[a] *18*	206.29	(3/2)$^-$	72.82	5/2$^-$	M1(+E2)	−0.1 *+4−3*	1.61 *7*	α(K)=1.34 *11*; α(L)=0.21 *4*; α(M)=0.047 *10*; α(N+..)=0.0129 *24* α(N)=0.0112 *22*; α(O)=0.00165 *23*; α(P)=0.000100 *10* α(K)exp=1.6 (1970Gi03).
135.2[a] *2*	≈2.3[a]	206.29	(3/2)$^-$	71.16	1/2$^-$				
137.0 *1*	135 *26*	208.19	(1/2)$^+$	71.16	1/2$^-$	E1		0.1533	α(K)=0.1272 *18*; α(L)=0.0203 *3*; α(M)=0.00456 *7*; α(N+..)=0.001214 *18* α(N)=0.001060 *15*; α(O)=0.0001475 *21*; α(P)=7.16×10^{-6} *11* α(K)exp=0.10 (1970Gi03). K:L1:L2:L3=880:100:42:34 (1966Ha23).
144.29 *20*	20 *4*	364.97	(7/2)$^+$	220.75	(3/2)$^+$	E2		0.859	α(K)=0.408 *6*; α(L)=0.344 *6*; α(M)=0.0848 *13*;

From ENSDF

$^{171}_{71}Lu_{100}$-4

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
									α(N+..)=0.0220 *4* α(N)=0.0195 *3*; α(O)=0.00241 *4*; α(P)=2.19×10^{-5} *4* α(K)exp=0.54, L1:L2:L3=39:120:100 (1970Gi03).
147.05 *10*	43 *4*	269.11	11/2$^+$	121.99	9/2$^+$	M1+E2	+0.43 *3*	1.160 *19*	α(K)=0.924 *18*; α(L)=0.182 *4*; α(M)=0.0420 *10*; α(N+..)=0.0113 *3* α(N)=0.00985 *23*; α(O)=0.00139 *3*; α(P)=6.79×10^{-5} *15* α(K)exp=0.76, L1:L2:L3=≈750:≈200:^{100,}K/L3=69 *+80−27* (1970Gi03).
148.2[ai] *2*	<2.3[a]	220.75	(3/2)$^+$	72.82	5/2$^-$	[E1]		0.1247	α(K)=0.1037 *15*; α(L)=0.01639 *24*; α(M)=0.00368 *6*; α(N+..)=0.000982 *15* α(N)=0.000856 *13*; α(O)=0.0001197 *18*; α(P)=5.90×10^{-6} *9*
149.3[gi] *3*	4.0[g] *15*	220.75	(3/2)$^+$	71.16	1/2$^-$	[E1]		0.1223 *19*	α(K)=0.1017 *16*; α(L)=0.01607 *25*; α(M)=0.00361 *6*; α(N+..)=0.000962 *15* α(N)=0.000839 *13*; α(O)=0.0001173 *18*; α(P)=5.79×10^{-6} *9*
149.3[gi] *3*	4.0[g] *15*	743.2?	13/2$^-$	593.86	11/2$^-$	M1+E2	+0.17 *2*	1.163 *18*	α(K)=0.963 *16*; α(L)=0.155 *3*; α(M)=0.0350 *6*; α(N+..)=0.00953 *16* α(N)=0.00825 *14*; α(O)=0.001211 *20*; α(P)=7.18×10^{-5} *12* Mult.,δ: from γ(θ) (1976Kr21), and applied to 742.9-level placement only. 1973Ke10 (in (α,2nγ) suggest that different γ ray depopulates 220.8 level).
151.5 *2*	4.8 *10*	670.83	11/2$^+$	519.30	9/2$^+$	M1+E2	+0.07 *5*	1.125 *17*	α(K)=0.938 *15*; α(L)=0.1452 *25*; α(M)=0.0327 *6*; α(N+..)=0.00893 *16* α(N)=0.00772 *14*; α(O)=0.001142 *19*; α(P)=7.01×10^{-5} *12* α(K)exp≈0.85, α(L1)exp=0.061 (1970Gi03); K(152γ) mixed with L1(99γ).
171.0 *4*	4.0 *15*	440.14	13/2$^+$	269.11	11/2$^+$	M1+E2	+0.51 *6*	0.734 *18*	α(K)=0.584 *19*; α(L)=0.115 *3*; α(M)=0.0267 *8*; α(N+..)=0.00717 *20* α(N)=0.00625 *18*; α(O)=0.000881 *20*; α(P)=4.26×10^{-5} *16* α(K)exp=0.51 (1970Gi03).
173.0[h] *3*	1.2[h] *8*	295.58	5/2$^+$	121.99	9/2$^+$	[E2]		0.454	α(K)=0.249 *4*; α(L)=0.1568 *25*; α(M)=0.0384 *6*; α(N+..)=0.00998 *16* α(N)=0.00886 *14*; α(O)=0.001105 *18*; α(P)=1.386×10^{-5} *21* I$_\gamma$: deduced from I(173γ)/I(296γ)=0.009 *6* (1978Gu18). Iγ(doublet)=6.0 *20*.
173.0[h] *3*	4.8[h] *22*	379.36	7/2$^-$	206.29	(3/2)$^-$	[E2]		0.454	α(K)=0.249 *4*; α(L)=0.1568 *25*; α(M)=0.0384 *6*; α(N+..)=0.00998 *16* α(N)=0.00886 *14*; α(O)=0.001105 *18*; α(P)=1.386×10^{-5} *21* α(K)exp=0.18 (1970Gi03). I$_\gamma$: deduced from total Iγ=6.0 *20* for both placements and Iγ=1.2 *8* for 295.6-level placement.
177.1 *2*	5.2 *15*	336.49	13/2$^-$	159.22	9/2$^-$	E2[b]		0.419	α(K)=0.233 *4*; α(L)=0.1420 *21*; α(M)=0.0347 *6*; α(N+..)=0.00903 *14* α(N)=0.00802 *12*; α(O)=0.001001 *15*; α(P)=1.306×10^{-5} *19*

From ENSDF

$^{171}_{71}Lu_{100}$-5

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Mult.#	δ@	α[f]	Comments
188.4 *1*	20.3 *25*	1382.11	(5/2,7/2)$^+$	1193.79	7/2$^+$,9/2$^+$	M1+E2	1.2[e]	0.451	α(K)=0.325 *5*; α(L)=0.0966 *14*; α(M)=0.0230 *4*; α(N+..)=0.00607 *9* α(N)=0.00534 *8*; α(O)=0.000709 *10*; α(P)=2.22×10^{-5} *4* α(K)exp=0.35, K/L1=4.4 (1970Gi03).
193.0 *3*	≈20	662.23	(7/2)$^-$	469.19	9/2$^-$	E2		0.313	α(K)=0.184 *3*; α(L)=0.0989 *16*; α(M)=0.0241 *4*; α(N+..)=0.00628 *10* α(N)=0.00557 *9*; α(O)=0.000701 *11*; α(P)=1.048×10^{-5} *16* α(K)exp≈0.21 (1970Gi03) for 193γ. I_γ: from coincidence data; Iγ=34 *4* for 194.3γ+193.0γ (1974Gn02).
194.3 *3*	≈14	558.89	(9/2)$^+$	364.97	(7/2)$^+$	(E2)		0.306	α(K)=0.180 *3*; α(L)=0.0962 *15*; α(M)=0.0235 *4*; α(N+..)=0.00611 *10* α(N)=0.00542 *9*; α(O)=0.000682 *11*; α(P)=1.030×10^{-5} *15* I_γ: from coincidence data; Iγ=34 *4* for 194.3γ+193.0γ (1974Gn02). α(K)exp≈0.25 (1970Gi03) for 194γ.
195.1[&]		788.49	(9/2)$^-$	593.86	11/2$^-$				
200.0 *1*	20.0 *20*	469.19	9/2$^-$	269.11	11/2$^+$	E1		0.0572	α(K)=0.0478 *7*; α(L)=0.00734 *11*; α(M)=0.001645 *24*; α(N+..)=0.000441 *7* α(N)=0.000384 *6*; α(O)=5.44×10^{-5} *8*; α(P)=2.83×10^{-6} *4* α(K)exp≈0.09 (1970Gi03) (K(200γ) mixed with L2(147γ)).
212.3 *3*	3.0 *15*	1534.15	(7/2)$^+$	1321.82	(11/2)$^+$	(E2)		0.228	α(K)=0.1406 *21*; α(L)=0.0668 *11*; α(M)=0.01623 *25*; α(N+..)=0.00424 *7* α(N)=0.00375 *6*; α(O)=0.000476 *8*; α(P)=8.20×10^{-6} *12* α(K)exp=0.10 (1970Gi03).
220.1 *2*	18.0 *20*	379.36	7/2$^-$	159.22	9/2$^-$	M1+E2	+0.18 *5*	0.391 *7*	α(K)=0.326 *6*; α(L)=0.0509 *8*; α(M)=0.01148 *17*; α(N+..)=0.00313 *5* α(N)=0.00271 *4*; α(O)=0.000400 *6*; α(P)=2.42×10^{-5} *5* α(K)exp=0.26, K/L1=3.6 (1970Gi03).
224.0 *4*	≈2.5	519.30	9/2$^+$	295.58	5/2$^+$	(E2)		0.191	α(K)=0.1209 *18*; α(L)=0.0538 *9*; α(M)=0.01304 *21*; α(N+..)=0.00341 *6* α(N)=0.00302 *5*; α(O)=0.000384 *6*; α(P)=7.14×10^{-6} *11* I_γ: from coincidence data; Iγ=10.8 *20* for 224.0γ+225.5γ (1974Gn02). α(K)exp≈0.18 (Ice(K) from 1966Ha23).
225.5 *3*	≈8.5	558.89	(9/2)$^+$	333.82	(5/2)$^+$	E2		0.187	α(K)=0.1187 *18*; α(L)=0.0523 *8*; α(M)=0.01269 *19*; α(N+..)=0.00332 *5* α(N)=0.00294 *5*; α(O)=0.000374 *6*; α(P)=7.02×10^{-6} *11* I_γ: from coincidence data; Iγ=10.8 *20* for 224.0γ+225.5γ (1974Gn02). α(K)exp≈0.09 for doublet (Ice(K) from 1966Ha23).
240.7 *2*	5.0 *20*	619.96	11/2$^-$	379.36	7/2$^-$	E2[b]		0.1516	α(K)=0.0989 *14*; α(L)=0.0404 *6*; α(M)=0.00976 *14*;

From ENSDF

$^{171}_{71}Lu_{100}$-6

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
									α(N+..)=0.00256 *4*
247.4 *1*	6.8 *20*	612.37	(11/2)$^+$	364.97	(7/2)$^+$	E2		0.1389	α(N)=0.00226 *4*; α(O)=0.000290 *5*; α(P)=5.94×10^{-6} *9* α(K)=0.0916 *13*; α(L)=0.0363 *6*; α(M)=0.00875 *13*; α(N+..)=0.00229 *4* α(N)=0.00203 *3*; α(O)=0.000261 *4*; α(P)=5.53×10^{-6} *8* α(K)exp=0.09 (1970Gi03). L1:L2:L3=100:107:86 (1966Ha23).
269.11 *10*	40 *4*	269.11	11/2$^+$	0.0	7/2$^+$	E2[d]		0.1067	α(K)=0.0725 *11*; α(L)=0.0262 *4*; α(M)=0.00630 *9*; α(N+..)=0.001654 *24* α(N)=0.001460 *21*; α(O)=0.000189 *3*; α(P)=4.46×10^{-6} *7* K/L2=5.0 (1970Gi03). K:L2:L3:M=200:52:23:^{24}; K/L2=3.8 (1966Ha23).
[x]272.7[&]	<1.5								
283.3 *2*	3.6 *15*	619.96	11/2$^-$	336.49	13/2$^-$	M1+E2	+0.21 *5*	0.195 *4*	α(K)=0.163 *4*; α(L)=0.0252 *4*; α(M)=0.00567 *8*; α(N+..)=0.001547 *23* α(N)=0.001338 *20*; α(O)=0.000198 *3*; α(P)=1.203×10^{-5} *25* Mult.,δ: adopted values; α(K)exp=0.32 (1970Gi03) exceeds α(K)(M1)=0.172 and disagrees with α(K)exp=0.09 *1* measured in ^{169}Tm(α,2nγ).
292.2 *3*	14 *7*	364.97	(7/2)$^+$	72.82	5/2$^-$	(E1)[b]		0.0220	α(K)=0.0185 *3*; α(L)=0.00276 *4*; α(M)=0.000617 *9*; α(N+..)=0.0001662 *24* α(N)=0.0001443 *21*; α(O)=2.07×10^{-5} *3*; α(P)=1.140×10^{-6} *17*
295.59 *6*	137 *30*	295.58	5/2$^+$	0.0	7/2$^+$	M1+E2	−0.23 *2*	0.173 *3*	α(K)=0.1443 *22*; α(L)=0.0224 *4*; α(M)=0.00503 *7*; α(N+..)=0.001374 *20* α(N)=0.001188 *17*; α(O)=0.0001755 *25*; α(P)=1.067×10^{-5} *17* α(K)exp=0.11 (1970Gi03). Eγ: from 1978Gu18; Eγ=295.6 *1* in 1974Gn02.
306.5 *1*	22 *3*	379.36	7/2$^-$	72.82	5/2$^-$	M1+E2	−4.0 +*8*−*12*	0.077 *3*	α(K)=0.056 *3*; α(L)=0.0164 *3*; α(M)=0.00389 *6*; α(N+..)=0.001028 *17* α(N)=0.000904 *14*; α(O)=0.0001198 *22*; α(P)=3.60×10^{-6} *22* α(K)exp=0.066 (1970Gi03).
318.2 *1*	7.3 *15*	440.14	13/2$^+$	121.99	9/2$^+$	E2[b]		0.0642	α(K)=0.0459 *7*; α(L)=0.01406 *20*; α(M)=0.00335 *5*; α(N+..)=0.000884 *13* α(N)=0.000778 *11*; α(O)=0.0001026 *15*; α(P)=2.91×10^{-6} *4* α(K)exp=0.08 (1970Gi03); value is somewhat high for E2.
340.2 *2*	4.0 *15*	1534.15	(7/2)$^+$	1193.79	7/2$^+$,9/2$^+$	M1		0.1221	α(K)=0.1022 *15*; α(L)=0.01543 *22*; α(M)=0.00346 *5*; α(N+..)=0.000947 *14* α(N)=0.000818 *12*; α(O)=0.0001214 *18*; α(P)=7.56×10^{-6} *11* α(K)exp=0.18 (1970Gi03).
347.18 *10*	150 *20*	469.19	9/2$^-$	121.99	9/2$^+$	E1		0.01452	α(K)=0.01220 *18*; α(L)=0.00180 *3*; α(M)=0.000402 *6*; α(N+..)=0.0001086 *16*

From ENSDF

$^{171}_{71}Lu_{100}$-7

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [f]	Comments
									α(N)=9.42×10^{-5} *14*; α(O)=1.361×10^{-5} *19*; α(P)=7.65×10^{-7} *11* α(K)exp=0.016 (1970Gi03).
[x]372.1 *2*	5 *1*					(M1)		0.0962	α(K)=0.0806 *12*; α(L)=0.01213 *17*; α(M)=0.00272 *4*; α(N+..)=0.000744 *11* α(N)=0.000643 *9*; α(O)=9.55×10^{-5} *14*; α(P)=5.95×10^{-6} *9* α(K)exp=0.12 (1970Gi03).
394.7 *1*	11 *3*	394.70	7/2$^+$	0.0	7/2$^+$	M1		0.0823	α(K)=0.0690 *10*; α(L)=0.01037 *15*; α(M)=0.00233 *4*; α(N+..)=0.000636 *9* α(N)=0.000549 *8*; α(O)=8.16×10^{-5} *12*; α(P)=5.09×10^{-6} *8* α(K)exp=0.080 (1970Gi03). K/L1=5.3 (1966Ha23).
397.2[g] *3*	4.5[g] *15*	519.30	9/2$^+$	121.99	9/2$^+$				
397.2[g] *3*	4.5[g] *15*	2018.32	(9/2,11/2$^+$)	1620.88	(7/2,9/2)$^+$				
439.7[g] *3*	2.7[g] *9*	1382.11	(5/2,7/2)$^+$	942.59	(7/2)$^+$	[M1]		0.0620	α(K)=0.0520 *8*; α(L)=0.00778 *11*; α(M)=0.001746 *25*; α(N+..)=0.000477 *7* α(N)=0.000412 *6*; α(O)=6.13×10^{-5} *9*; α(P)=3.83×10^{-6} *6* α(K)exp=0.065 (1970Gi03) for doubly-placed γ exceeds α(K)(M1).
439.7[g] *3*	2.7[g] *9*	1762.5	(7/2$^-$,9/2,11/2$^+$)	1321.82	(11/2)$^+$	[M1]		0.0620	α(K)=0.0520 *8*; α(L)=0.00778 *11*; α(M)=0.001746 *25*; α(N+..)=0.000477 *7* α(N)=0.000412 *6*; α(O)=6.13×10^{-5} *9*; α(P)=3.83×10^{-6} *6* α(K)exp=0.065 (1970Gi03) for doubly-placed γ; exceeds α(K)(M1).
449.0 *3*	2.9 *10*	1770.85	(9/2,11/2,13/2$^-$)	1321.82	(11/2)$^+$				
460.9 *5*	≈6	619.96	11/2$^-$	159.22	9/2$^-$	M1+E2	−1.6 *6*	0.032 *7*	α(K)=0.026 *7*; α(L)=0.0048 *7*; α(M)=0.00111 *14*; α(N+..)=0.00030 *4* α(N)=0.00026 *4*; α(O)=3.7×10^{-5} *6*; α(P)=1.8×10^{-6} *5* I$_\gamma$: from coincidence data; Iγ=16 *6* for 460.9γ+462.2γ (1974Gn02). α(K)exp≈0.06 (1970Gi03).
462.2[i] *5*	≈10[c]	1204.45	(11/2$^+$)	743.2?	13/2$^-$				I$_\gamma$: from coincidence data; Iγ=16 *6* for 460.9γ+462.2γ (1974Gn02).
469.3 *1*	100 *10*	469.19	9/2$^-$	0.0	7/2$^+$	E1		0.00726 *11*	α=0.00726 *11*; α(K)=0.00612 *9*; α(L)=0.000885 *13*; α(M)=0.000197 *3*; α(N+..)=5.34×10^{-5} *8* α(N)=4.63×10^{-5} *7*; α(O)=6.74×10^{-6} *10*; α(P)=3.92×10^{-7} *6* α(K)exp=0.009 (1970Gi03). K/L1=6.2 (1966Ha23).
471.9[h] *3*	1.6[h] *16*	593.86	11/2$^-$	121.99	9/2$^+$				I$_\gamma$: see comment on 472γ from 1382 level.
471.9[h] *3*	3.9[h] *26*	1382.11	(5/2,7/2)$^+$	909.97	(5/2)$^+$				I$_\gamma$: 4.5 *20* for doubly-placed line (1974Gn02). From

From ENSDF

$^{171}_{71}Lu_{100}$-8

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	δ [@]	α [f]	Comments
									γγ coin, the stronger component belongs with this placement. Thus, 1.25≤Iγ≤6.5 from this level and Iγ≤3.25 from the 593 level; the evaluator assigns Iγ=3.9 *26* and Iγ=1.6 *16*, respectively.
519.4 [h] *1*	4 [h] *4*	519.30	9/2$^+$	0.0	7/2$^+$				I_γ: see comment on 519γ from 788 level.
519.4 [h] *1*	11 [h] *5*	788.49	(9/2)$^-$	269.11	11/2$^+$				I_γ: Iγ=14.4 *20*, α(K)exp=0.020 for doubly-placed line (1974Gn02). From γγ coin, the stronger component belongs with this placement. Thus, 6.2≤Iγ≤16.4 from this level and Iγ≤8.2 from the 519 level; the evaluator assigns Iγ=11 *5* and Iγ=4 *4*, respectively.
[x]526.5 *3*	4.0 *15*								α(K)exp=0.051 (1970Gi03).
530.5 *5*	2.0 *8*	909.97	(5/2)$^+$	379.36	7/2$^-$				
[x]533.0 *5*	2.0 *10*								
540.3 *1*	35 *4*	662.23	(7/2)$^-$	121.99	9/2$^+$	E1		0.00533 *8*	α=0.00533 *8*; α(K)=0.00451 *7*; α(L)=0.000645 *9*; α(M)=0.0001438 *21*; α(N+..)=3.90×10^{-5} *6* α(N)=3.38×10^{-5} *5*; α(O)=4.93×10^{-6} *7*; α(P)=2.91×10^{-7} *4* α(K)exp=0.0034 (1970Gi03).
[x]547.0 *3*	2.7 *10*								
[x]557.6 *5*	2								
568.5 *3*	5.3 *15*	1162.27	9/2$^+$	593.86	11/2$^-$				
575.5 *10*	3.0 *15*	909.97	(5/2)$^+$	333.82	(5/2)$^+$				
591.6 *1*	14.8 *20*	1534.15	(7/2)$^+$	942.59	(7/2)$^+$	M1		0.0288	α(K)=0.0242 *4*; α(L)=0.00359 *5*; α(M)=0.000803 *12*; α(N+..)=0.000220 *3* α(N)=0.000190 *3*; α(O)=2.82×10^{-5} *4*; α(P)=1.770×10^{-6} *25* α(K)exp=0.026 (1970Gi03).
610.5 *3*	7.5 *15*	1204.45	(11/2$^+$)	593.86	11/2$^-$				
624.2 *2*	9 *3*	1534.15	(7/2)$^+$	909.97	(5/2)$^+$	M1		0.0251	α(K)=0.0211 *3*; α(L)=0.00312 *5*; α(M)=0.000699 *10*; α(N+..)=0.000191 *3* α(N)=0.0001652 *24*; α(O)=2.46×10^{-5} *4*; α(P)=1.543×10^{-6} *22* α(K)exp=0.022 (1970Gi03).
650.9 *3*	4.7 *15*	1321.82	(11/2)$^+$	670.83	11/2$^+$	M1+E2	1.4 [e]	0.01414	α(K)=0.01165 *17*; α(L)=0.00193 *3*; α(M)=0.000438 *7*; α(N+..)=0.0001187 *17* α(N)=0.0001029 *15*; α(O)=1.491×10^{-5} *21*; α(P)=8.27×10^{-7} *12* α(K)exp=0.012 (1970Gi03).
662.2 *1*	266 *30*	662.23	(7/2)$^-$	0.0	7/2$^+$	E1		0.00348 *5*	α=0.00348 *5*; α(K)=0.00295 *5*; α(L)=0.000417 *6*; α(M)=9.28×10^{-5} *13*; α(N+..)=2.52×10^{-5} *4* α(N)=2.18×10^{-5} *3*; α(O)=3.20×10^{-6} *5*; α(P)=1.92×10^{-7} *3* α(K)exp=0.0027 (1970Gi03).
666.3 *2*	50 *15*	788.49	(9/2)$^-$	121.99	9/2$^+$	E1		0.00344 *5*	α=0.00344 *5*; α(K)=0.00291 *4*; α(L)=0.000412 *6*; α(M)=9.16×10^{-5} *13*; α(N+..)=2.49×10^{-5} *4* α(N)=2.15×10^{-5} *3*; α(O)=3.16×10^{-6} *5*; α(P)=1.90×10^{-7} *3* α(K)exp=0.0018 (1970Gi03).
674.5 *1*	12.7 *20*	1193.79	7/2$^+$,9/2$^+$	519.30	9/2$^+$	M1		0.0206	α(K)=0.01734 *25*; α(L)=0.00256 *4*; α(M)=0.000573 *8*; α(N+..)=0.0001567 *22*

From ENSDF

$^{171}_{71}Lu_{100}$-9

γ(^{171}Lu) (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [#]	α [f]	Comments
								α(N)=0.0001353 *19*; α(O)=2.01×10^{-5} *3*; α(P)=1.266×10^{-6} *18* α(K)exp=0.016 (1970Gi03).
693.1 *1*	11.5 *20*	1162.27	9/2$^+$	469.19	9/2$^-$			
703.7 *3*	10.7 *20*	909.97	(5/2)$^+$	206.29	(3/2)$^-$			
[x]706.1 *3*	5.6 *20*							
722.5[a] *2*	≈8.3[a]	1162.27	9/2$^+$	440.14	13/2$^+$			
724.7 *2*	14.0 *20*	1193.79	7/2$^+$,9/2$^+$	469.19	9/2$^-$			
735.9 *5*	4.5 *15*	1204.45	(11/2$^+$)	469.19	9/2$^-$			
783.6 *3*	10 *3*	942.59	(7/2)$^+$	159.22	9/2$^-$			
788.5 *1*	27 *3*	788.49	(9/2)$^-$	0.0	7/2$^+$			
799.2 *2*	18.1 *20*	1193.79	7/2$^+$,9/2$^+$	394.70	7/2$^+$	M1	0.01346	α(K)=0.01133 *16*; α(L)=0.001662 *24*; α(M)=0.000372 *6*; α(N+..)=0.0001017 *15* α(N)=8.78×10^{-5} *13*; α(O)=1.307×10^{-5} *19*; α(P)=8.24×10^{-7} *12* α(K)exp=0.010 (1970Gi03).
802.0 *5*	3.0 *15*	1321.82	(11/2)$^+$	519.30	9/2$^+$			
837.5 *5*	3.0 *15*	909.97	(5/2)$^+$	72.82	5/2$^-$			
[x]842.4 *3*	7 *3*							Evaluator assumes Eγ=824.4 (out of energy sequence) was intended to be Eγ=842.4; consistent with presence of an 841.5γ and absence of an 824γ in 1970Gi03.
852.6 *1*	77 *10*	1321.82	(11/2)$^+$	469.19	9/2$^-$	E1	0.00211 *3*	α=0.00211 *3*; α(K)=0.00179 *3*; α(L)=0.000250 *4*; α(M)=5.55×10^{-5} *8*; α(N+..)=1.510×10^{-5} *22* α(N)=1.306×10^{-5} *19*; α(O)=1.93×10^{-6} *3*; α(P)=1.177×10^{-7} *17* α(K)exp=0.0019 (1970Gi03).
[x]858.5 *5*	8 *2*							
[x]861.5 *6*	4.0 *15*							
869.8[a] *2*	16[a] *3*	942.59	(7/2)$^+$	72.82	5/2$^-$			
881.0 *5*	10 *3*	1321.82	(11/2)$^+$	440.14	13/2$^+$	(M1)	0.01056	α(K)=0.00889 *13*; α(L)=0.001300 *19*; α(M)=0.000291 *4*; α(N+..)=7.95×10^{-5} *12* α(N)=6.87×10^{-5} *10*; α(O)=1.023×10^{-5} *15*; α(P)=6.46×10^{-7} *9* α(K)exp=0.012 (Ice(K) from 1966Ha23).
[x]884.0 *7*	4.9 *15*							
893.0 *2*	12.0 *25*	1162.27	9/2$^+$	269.11	11/2$^+$	M1	0.01021	α(K)=0.00860 *12*; α(L)=0.001257 *18*; α(M)=0.000281 *4*; α(N+..)=7.69×10^{-5} *11* α(N)=6.64×10^{-5} *10*; α(O)=9.88×10^{-6} *14*; α(P)=6.24×10^{-7} *9* α(K)exp=0.0097 (Ice(K) from 1966Ha23).
[x]896.0 *3*	9 *3*					(M1)	0.01013	α(K)=0.00853 *12*; α(L)=0.001246 *18*; α(M)=0.000279 *4*; α(N+..)=7.62×10^{-5} *11* α(N)=6.58×10^{-5} *10*; α(O)=9.80×10^{-6} *14*; α(P)=6.19×10^{-7} *9* α(K)exp=0.013 (Ice(K) from 1966Ha23).
925.2 *3*	7.3 *20*	1193.79	7/2$^+$,9/2$^+$	269.11	11/2$^+$			
958.0 *6*	2.0 *8*	1620.88	(7/2,9/2)$^+$	662.23	(7/2)$^-$			
[x]966.4 *3*	4.0 *15*							
[x]976.5 *5*	3.2 *15*							

From ENSDF

$^{171}_{71}Lu_{100}$-10

γ(^{171}Lu) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[@]	α[f]	Comments
[x]999.9 *3*	7 *3*								
1002.2 *3*	7.0 *20*	1382.11	(5/2,7/2)$^+$	379.36	7/2$^-$				
1017.1 *3*	5.0 *12*	1382.11	(5/2,7/2)$^+$	364.97	(7/2)$^+$	(E2)		0.00376 *6*	α=0.00376 *6*; α(K)=0.00312 *5*; α(L)=0.000498 *7*; α(M)=0.0001124 *16*; α(N+..)=3.05×10^{-5} *5* α(N)=2.64×10^{-5} *4*; α(O)=3.84×10^{-6} *6*; α(P)=2.15×10^{-7} *3* α(K)exp=0.0058 (1970Gi03).
[x]1026.5 *4*	3.2 *16*								
[x]1036.7	5.0 *12*								α(K)exp=0.018 (1970Gi03).
1040.3 *2*	11 *3*	1162.27	9/2$^+$	121.99	9/2$^+$	E0+M1		0.067	α: based on α(K)exp. α(K)exp=0.050 (1970Gi03). Based on γγ coin, 1974Gn02 suggest that γ is a doublet with only half of its Iγ belonging to this placement. No alternative placement is indicated, however.
1062.8 *3*	12 *3*	1620.88	(7/2,9/2)$^+$	558.89	(9/2)$^+$	M1		0.00665 *10*	α=0.00665 *10*; α(K)=0.00560 *8*; α(L)=0.000814 *12*; α(M)=0.000182 *3*; α(N+..)=4.98×10^{-5} *7* α(N)=4.30×10^{-5} *6*; α(O)=6.40×10^{-6} *9*; α(P)=4.05×10^{-7} *6* α(K)exp=0.0051 (1970Gi03).
1071.8 *1*	148 *15*	1193.79	7/2$^+$,9/2$^+$	121.99	9/2$^+$	M1+E2	1.9[e]	0.00406 *6*	α=0.00406 *6*; α(K)=0.00340 *5*; α(L)=0.000520 *8*; α(M)=0.0001168 *17*; α(N+..)=3.18×10^{-5} *5* α(N)=2.75×10^{-5} *4*; α(O)=4.04×10^{-6} *6*; α(P)=2.38×10^{-7} *4* α(K)exp=0.0034 (1970Gi03).
[x]1076.5 *5*	10 *4*								
1081.0 *3*	14 *6*	1600.35	(5/2$^+$,7/2,9/2$^+$)	519.30	9/2$^+$				
[x]1084.5 *10*	3.9 *15*								
[x]1150.4 *3*	7.5 *20*								
[x]1154.7 *5*	8 *2*								
1162.2 *1*	33 *4*	1162.27	9/2$^+$	0.0	7/2$^+$	E2		0.00289 *4*	α=0.00289 *4*; α(K)=0.00241 *4*; α(L)=0.000371 *6*; α(M)=8.36×10^{-5} *12*; α(N+..)=2.47×10^{-5} *4* α(N)=1.97×10^{-5} *3*; α(O)=2.87×10^{-6} *4*; α(P)=1.660×10^{-7} *24*; α(IPF)=1.97×10^{-6} *3* α(K)exp=0.0022 (1970Gi03).
1168.0 *8*	2.5 *10*	1762.5	(7/2$^-$,9/2,11/2$^+$)	593.86	11/2$^-$				
1176.9 *4*	3.0 *10*	1770.85	(9/2,11/2,13/2$^-$)	593.86	11/2$^-$				
1193.7 *1*	13.1 *15*	1193.79	7/2$^+$,9/2$^+$	0.0	7/2$^+$	(M1)		0.00501 *7*	α=0.00501 *7*; α(K)=0.00422 *6*; α(L)=0.000611 *9*; α(M)=0.0001364 *19*; α(N+..)=4.29×10^{-5} *6* α(N)=3.22×10^{-5} *5*; α(O)=4.80×10^{-6} *7*; α(P)=3.05×10^{-7} *5*; α(IPF)=5.53×10^{-6} *8* α(K)exp=0.0056 (1970Gi03).
1199.9 *2*	12.0 *15*	1321.82	(11/2)$^+$	121.99	9/2$^+$				
1205.6 *3*	10 *5*	1600.35	(5/2$^+$,7/2,9/2$^+$)	394.70	7/2$^+$				
[x]1219.3 *3*	8 *2*								
1226.0 *10*	4.0 *15*	1620.88	(7/2,9/2)$^+$	394.70	7/2$^+$				
1229.8 *2*	13 *3*	2018.32	(9/2,11/2$^+$)	788.49	(9/2)$^-$				

From ENSDF

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
1236.2 *4*	7.4 *20*	1505.53	(7/2$^+$,9/2,11/2$^+$)	269.11	11/2$^+$	
1241.4 *4*	7.2 *20*	1620.88	(7/2,9/2)$^+$	379.36	7/2$^-$	
x1248.9 *6*	4.0 *15*					
x1256.0 *10*	2.0 *8*					
1266.2 *3*	3.0 *10*	1600.35	(5/2$^+$,7/2,9/2$^+$)	333.82	(5/2)$^+$	
x1276.0 *5*	7 *2*					
x1278.4 *5*	6 *2*					
1286.9 *3*	7.0 *20*	1620.88	(7/2,9/2)$^+$	333.82	(5/2)$^+$	
1293.4 *3*	15 *3*	1762.5	(7/2$^-$,9/2,11/2$^+$)	469.19	9/2$^-$	
1301.7 *2*	22 *3*	1770.85	(9/2,11/2,13/2$^-$)	469.19	9/2$^-$	
1305.5 *4*	6 *3*	1600.35	(5/2$^+$,7/2,9/2$^+$)	295.58	5/2$^+$	
1309.2 *2*	15 *5*	1382.11	(5/2,7/2)$^+$	72.82	5/2$^-$	
x1314.0 *5*	2.5 *12*					
1322.2 *3*	7.5 *15*	1321.82	(11/2)$^+$	0.0	7/2$^+$	
1325.0 *10*	3.0 *10*	1620.88	(7/2,9/2)$^+$	295.58	5/2$^+$	
x1333.2 *3*	4.4 *10*					
x1340.6 *2*	26 *5*					
1357.0 *8*	3.0 *15*	2018.32	(9/2,11/2$^+$)	662.23	(7/2)$^-$	
x1361.5 *3*	10 *3*					
1372.2 *2*	15.8 *20*	1841.39	(9/2$^+$,11/2$^+$)	469.19	9/2$^-$	
1383.7 *3*	5.4 *10*	1505.53	(7/2$^+$,9/2,11/2$^+$)	121.99	9/2$^+$	
x1388.0 *10*	1.7 *10*					
1397.0 *10*	4.5 *20*	2018.32	(9/2,11/2$^+$)	619.96	11/2$^-$	
1401.0 *5*	4.0 *20*	1841.39	(9/2$^+$,11/2$^+$)	440.14	13/2$^+$	
x1410.0 *10*	2.0 *10*					E_γ: uncertain because of possible typographical error (listed in energy sequence between Eγ=1436.1 and Eγ=1460.2).
1436.1 *3*	7.0 *20*	1558.11		121.99	9/2$^+$	
x1460.2 *4*	6.0 *20*					
x1470.5 *4*	4.4 *15*					
x1478.5 *4*	3.6 *12*					
x1484.4 *4*	3.0 *10*					
x1489.0 *10*	2.0 *6*					
1498.6 *3*	4.0 *15*	1620.88	(7/2,9/2)$^+$	121.99	9/2$^+$	
1505.5 *2*	20.2 *25*	1505.53	(7/2$^+$,9/2,11/2$^+$)	0.0	7/2$^+$	
x1528.7 *5*	3.0 *10*					
1534.4 *7*	2.0 *7*	1534.15	(7/2)$^+$	0.0	7/2$^+$	
x1538.5 *5*	4.0 *15*					
1549.1 *3*	7.0 *25*	2018.32	(9/2,11/2$^+$)	469.19	9/2$^-$	
1558.1 *2*	24 *3*	1558.11		0.0	7/2$^+$	
1571.6 *8*	2.0 *10*	1841.39	(9/2$^+$,11/2$^+$)	269.11	11/2$^+$	
x1582.9 *3*	5.2 *10*					
1620.7 *4*	4.1 *10*	1620.88	(7/2,9/2)$^+$	0.0	7/2$^+$	
x1640.0 *10*	2.5 *8*					
x1657.0 *4*	5.5 *10*					

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)

γ(^{171}Lu) (continued)

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π
x1706.4 5	3.0 10				
x1712.6 3	8.4 15				
1719.0 10	1.2 6	1841.39	(9/2+,11/2+)	121.99	9/2+
1749.3 2	29 3	2018.32	(9/2,11/2+)	269.11	11/2+
1753.6 3	10 3	2022.61	(7/2+,9/2,11/2+)	269.11	11/2+
1763.0 10	2.0 8	1762.5	(7/2−,9/2,11/2+)	0.0	7/2+
x1785.2 5	2.0 10				
x1804.4 4	5.5 10				
x1813.7 5	2.0 10				
x1836.0 3	20 3				
1841.6 3	10 3	1841.39	(9/2+,11/2+)	0.0	7/2+
x1859.5 3	13.0 20				
x1863.9 10	3.2 10				
x1867.5 15	2.2 10				
1896.1 4	14.6 20	2018.32	(9/2,11/2+)	121.99	9/2+
x1911.5 6	6.2 15				
x1932.5 25	0.9 4				
x1962.0 10	1.5 7				
x1967.0 10	2.0 10				
x1971.0 10	1.5 7				
x1981.0 10	1.5 5				
x1986.5 10	1.7 6				
x2011.5 20	2.0 8				
2018.3 10	2.6 9	2018.32	(9/2,11/2+)	0.0	7/2+
2022.5 3	32 4	2022.61	(7/2+,9/2,11/2+)	0.0	7/2+
x2134.7 15	1.1 4				
x2141.5 15	1.2 4				
x2177.8 10	2.0 9				

† From 1974Gn02, except where noted.
‡ From 1974Gn02, except where noted. Values are given relative to Iγ=100 for 469.3γ. 1974Gn02 report I(K xray, Lu)=13×10^4 on this scale.
# From α(K)exp, except where noted. α(K)exp values are based on adopted Iγ and on I(ce(K)) from 1970Gi03, with photon and ce intensity scales normalized through α(K)(269.1γ)=0.0725 (E2 theory). Typical uncertainties in I(ce(K)) are 10-20%, but many values are quoted only to one significant figure, so uncertainties are not shown for α(K)exp. The evaluator assumes that ce data from 1970Gi03 supersede those in 1969Gi06.
@ From Adopted Gammas, except where noted (analysis by 1976Kr21 of combined α(K)exp and γ(θ) data).
& From 1966Ha23.
a From 1970Gi03. ΔE=0.2 keV, except for very weak lines. ΔIγ=10% for strong, well-resolved lines and≤20% for all others; the evaluator assigns ΔIγ=20%, except when a line is only partially resolved.
b From Adopted Gammas.
c From coincidence data.
d From ce subshell ratios.
e From α(K)exp.
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 Multiply placed with undivided intensity.
h Multiply placed with intensity suitably divided.
i Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

From ENSDF

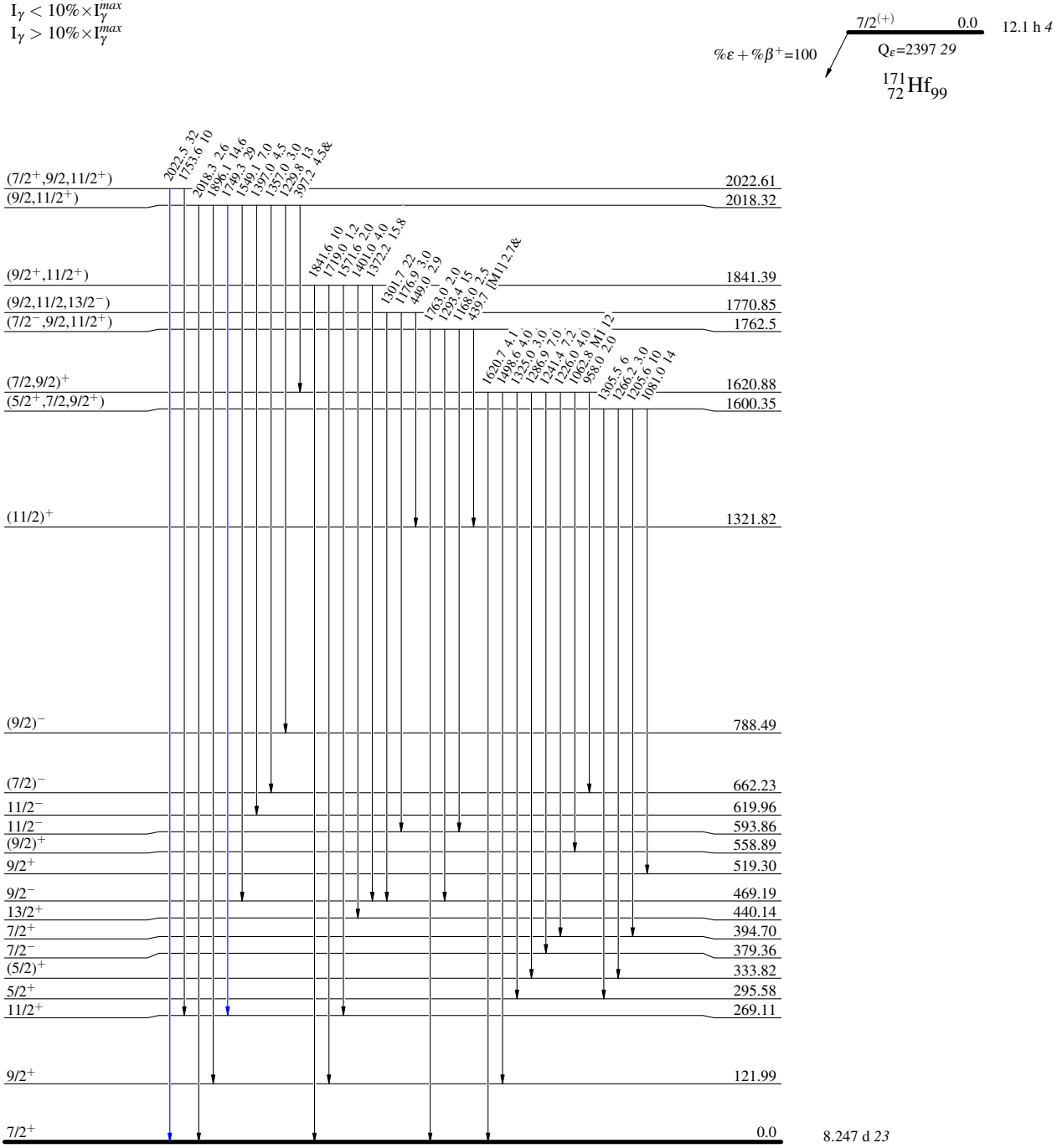
$^{171}_{71}Lu_{100}$-13

^{171}Hf ε decay 1970Gi03,1974Gn02

Decay Scheme

Intensities: Relative I_γ
& Multiply placed: undivided intensity given

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

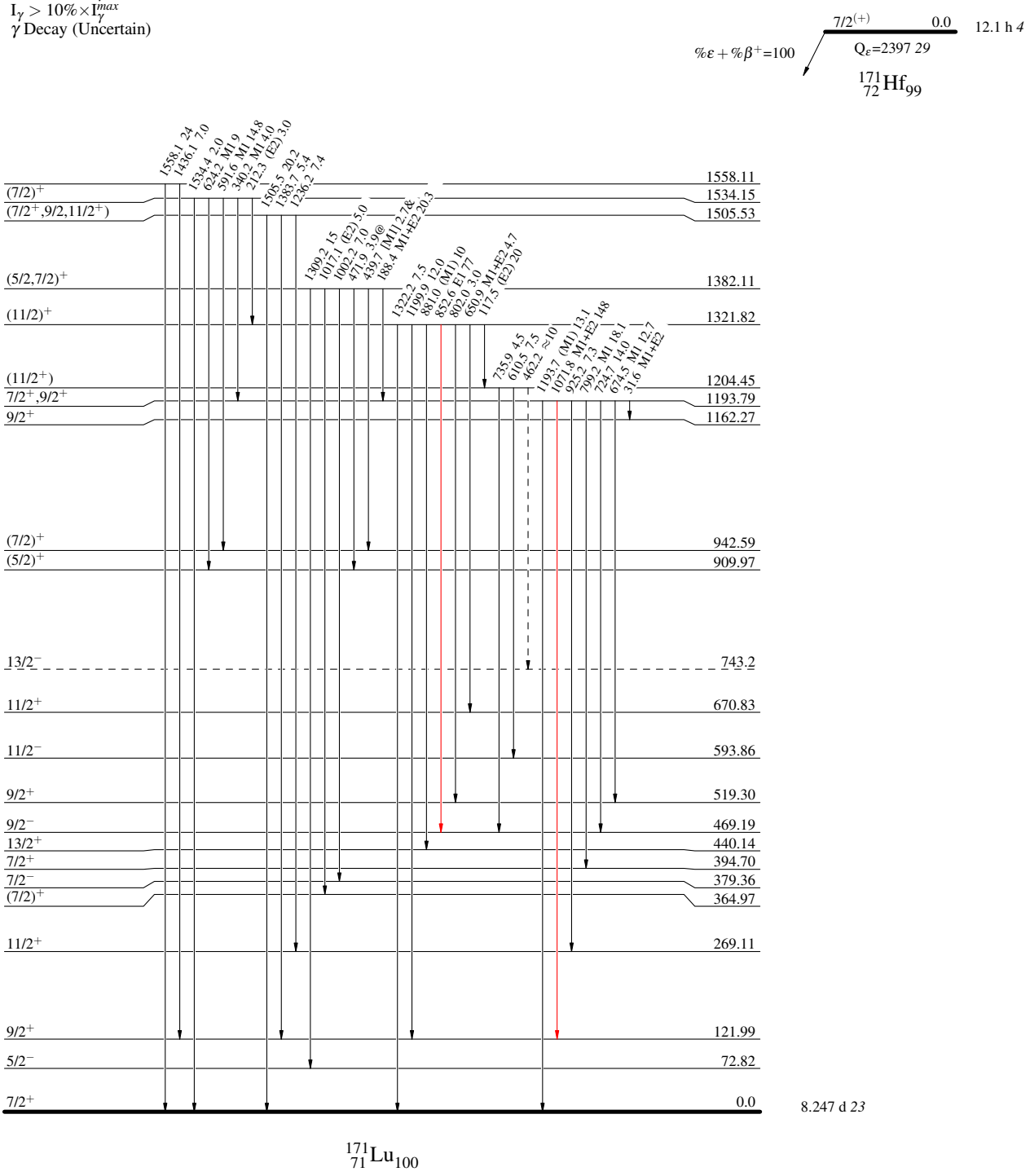


^{171}Hf ε decay 1970Gi03,1974Gn02

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

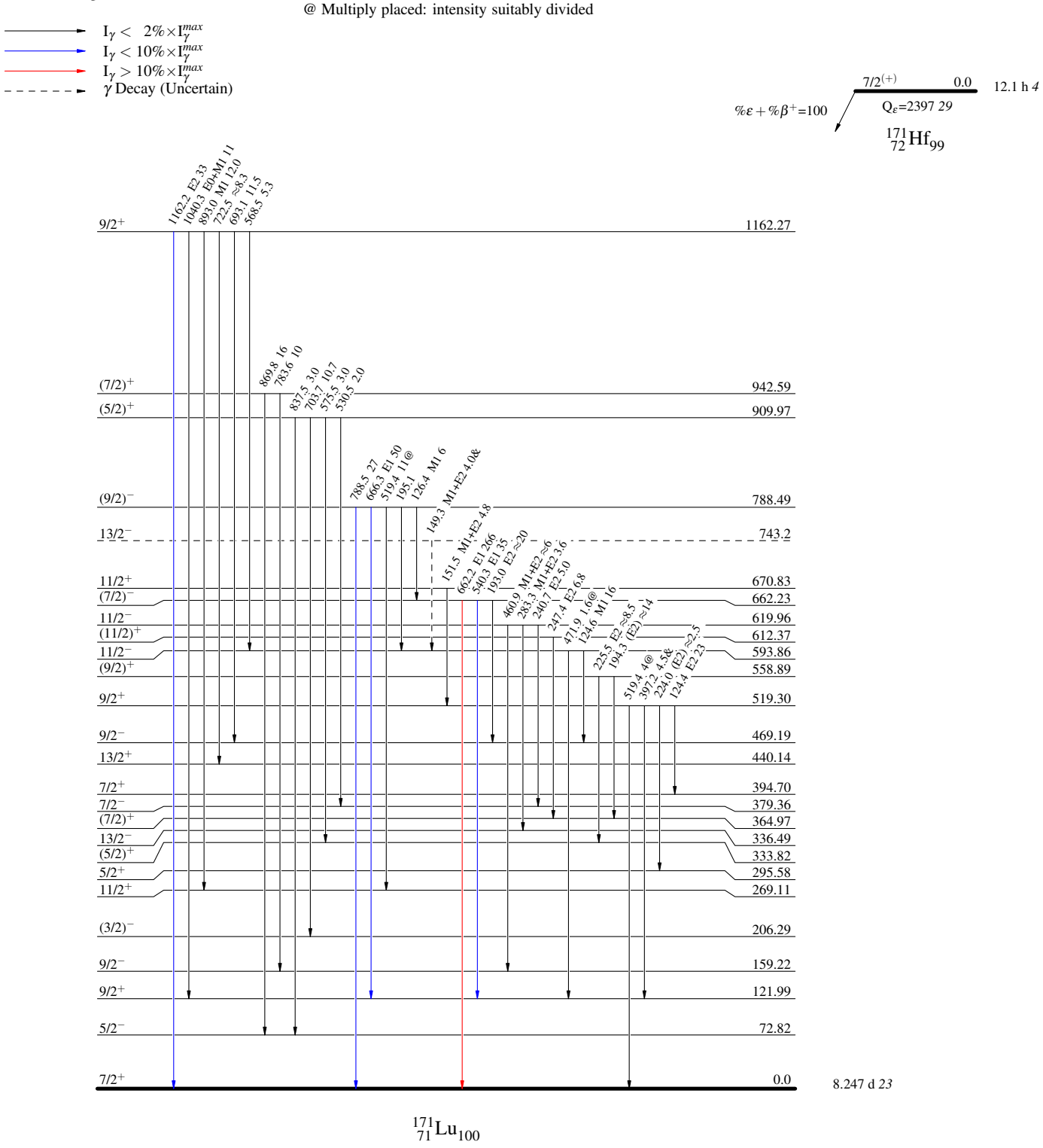
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



^{171}Hf ε decay 1970Gi03,1974Gn02

Decay Scheme (continued)

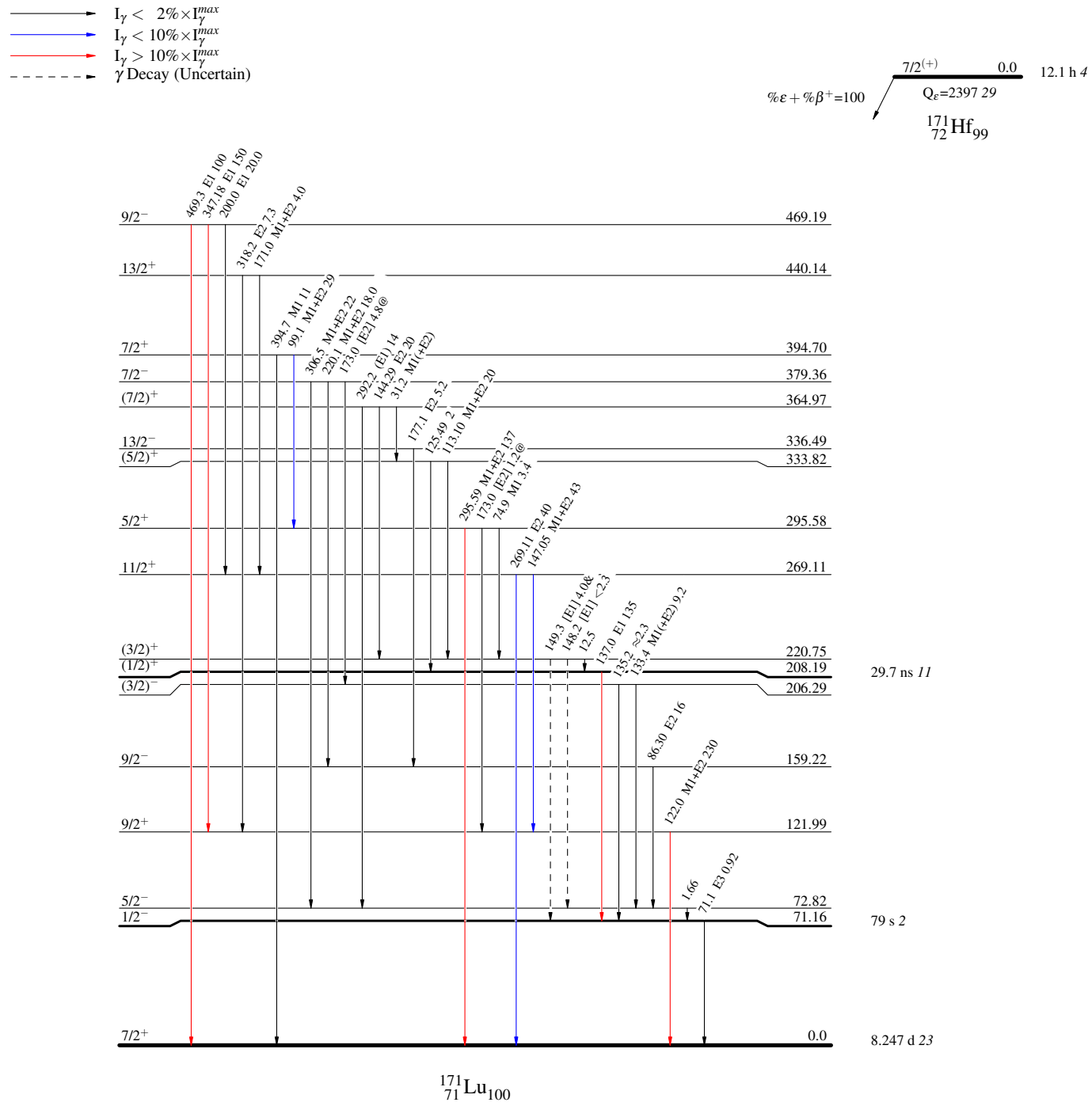
Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided



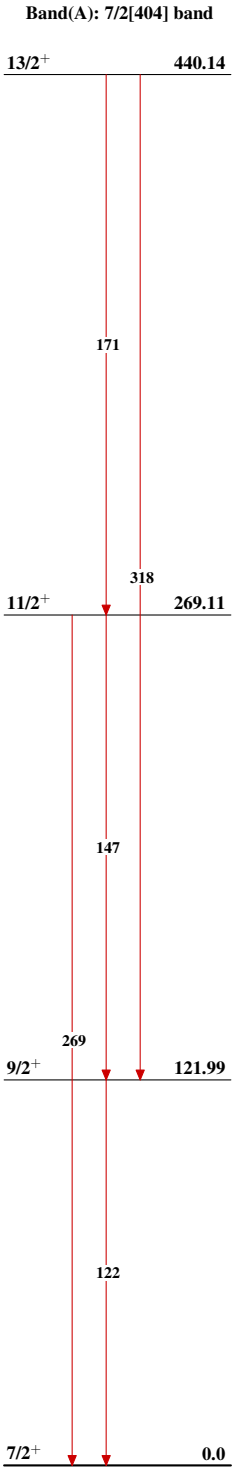
^{171}Hf ε decay 1970Gi03,1974Gn02

Decay Scheme (continued)

Intensities: Relative I_γ
& Multiply placed: undivided intensity given
@ Multiply placed: intensity suitably divided

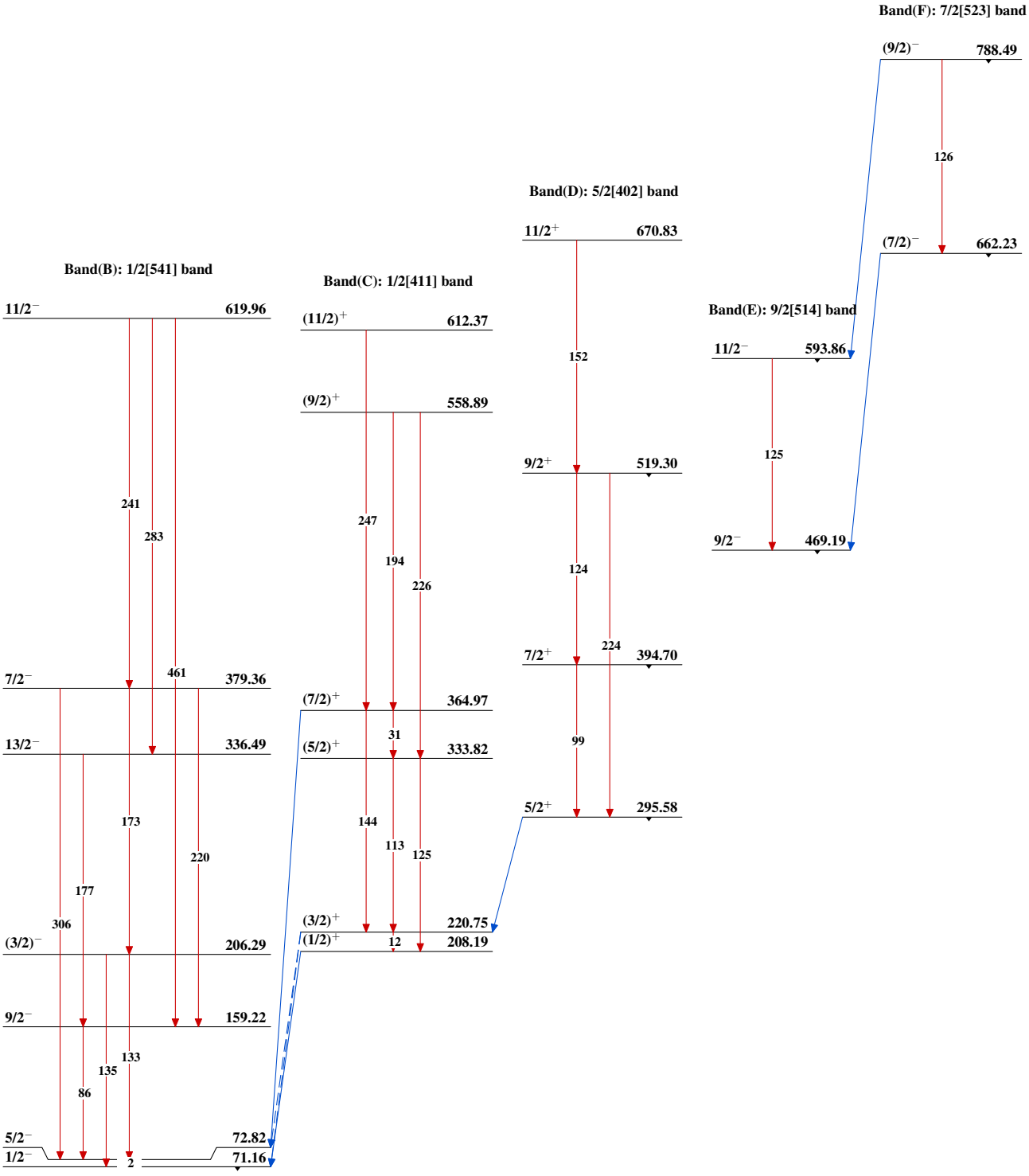


^{171}Hf ε decay 1970Gi03,1974Gn02



$^{171}_{71}Lu_{100}$

^{171}Hf ε decay 1970Gi03,1974Gn02 (continued)



$^{171}_{71}Lu_{100}$