^{171}Er β^- decay 1972Gr09

History

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

Parent: ^{171}Er: E=0.0; J$^\pi$=5/2$^-$; $T_{1/2}$=7.516 h *2*; Q(β^-)=1491.3 *13*; %β^- decay=100.0

The decay scheme and all data are from 1972Gr09, except where noted.

1972Gr09: sources from neutron bombardment of Er oxide (targets enriched to 96% in ^{170}Er); measured Eγ, Iγ (Ge(Li)), E(ce), Ice (iron-free mag spect), prompt and delayed $\beta\gamma$ and $\gamma\gamma$ coin.

1961Ar15: measured Eβ, Iβ with double-focusing magnetic spectrometer (momentum resolution=0.5%).

$\gamma\gamma(\theta)$ and/or ce$\gamma(\theta)$: 1965Ag02, 1968Ka14, 1972Ag03, 1972Be85, 1975Go06, 1976Pa16, 1978Ba03.

Nuclear orientation: 1972Kr18 (looked for forward-backward asymmetries in strongly hindered 296γ and 308γ from polarized ^{171}Er; saw no definitive evidence for parity mixing).

γ polarization: 1974Ku16 (determined absence of substantial γ polarization in measurement of average polarization of 295.9γ+308.3γ).

Others: 1948De05, 1948Ke11, 1951Ke44, 1956Ko21, 1957Ha19, 1957Jo12, 1958Cr84, 1961Ar15, 1961Bl13, 1963Or01, 1963Sc18, 1964Su02, 1965Bo34, 1966Be51, 1966El01, 1968Me02, 1968Ra09, 1970El10, 1970Kn04, 1972TuZV, 1973El13, 1973FoZX, 1976Kr21.

α: Additional information 1.

^{171}Tm Levels

E(level)†	J$^\pi$‡	$T_{1/2}$	Comments
0.0#	1/2$^+$	1.92 y *1*	
5.028# *5*	3/2$^+$	4.77 ns *8*	$T_{1/2}$: cece(t) (1972TuZV). Other values: 3.76 ns *14* (1961Bl13), 2.88 ns *17* (1966Be51).
116.653# *5*	5/2$^+$	55 ps *13*	$T_{1/2}$: cece(t) (1964Su05).
129.044# *6*	7/2$^+$	415 ps *20*	$T_{1/2}$: $\gamma\gamma$(t) (1973FoZX). Other value: 362 ps *15* (1964Su05).
326.88# *10*	9/2$^+$		
424.948@ *12*	7/2$^-$	2.60 μs *2*	$T_{1/2}$: $\beta\gamma$(t) (1972Gr09). Other values: 2.59 μs *3* (1958Cr84), 2.63 μs *5* (1966Be51). Others: 1948De05, 1963Or01, 1970Kn04.
635.57 *3*	7/2$^+$	1.26 ns *6*	$T_{1/2}$: $\gamma\gamma$(t) (1975Go06).
675.88& *6*	3/2$^+$		
737.40& *6*	(5/2)$^+$		
822.41& *15*	(7/2$^+$)		
913.02a *5*	5/2$^+$		
998.59a *7*	(7/2)$^+$		
1225.7 *4*	(3/2$^+$,5/2,7/2$^+$)		
1284.97 *8*	(5/2)$^+$		
1296.45 *20*			
1391.1 *4*	3/2$^{(-)}$,5/2,7/2		
1400.6 *3*	(5/2$^+$)		

† From least-squares fit to Eγ, by evaluatiors. Normalized χ^2 of 6.58 larger than the criticial value of 1.43.

‡ Adopted values.

Band(A): 1/2[411] band.

@ Band(B): 7/2[523] band.

& Band(C): 3/2[411] band.

a Band(D): 5/2[402] band.

^{171}Er β^- decay 1972Gr09 (continued)

β^- radiations

E(decay)	E(level)	Iβ^- [†‡]	Log *ft*	Comments
(90.7 *13*)	1400.6	0.0063 *9*	7.05 *7*	av Eβ=23.58 *37*
(100.2 *14*)	1391.1	0.0264 *12*	6.56 *3*	av Eβ=26.16 *38*
(194.9 *13*)	1296.45	0.020 *5*	7.58 *11*	av Eβ=52.91 *39*
(206.3 *13*)	1284.97	0.332 *16*	6.441 *23*	av Eβ=56.28 *39*
(265.6 *14*)	1225.7	0.0107 *5*	8.281 *22*	av Eβ=74.08 *42*
(492.7 *13*)	998.59	0.50 *3*	7.49 *3*	av Eβ=147.92 *45*
(578.3 *13*)	913.02	2.19 *8*	7.081 *17*	av Eβ=177.73 *46* E(decay): other: 575 (1961Ar15).
(668.9 *13*)	822.41	0.029 *5*	9.18 *8*	av Eβ=210.30 *48*
(753.9 *13*)	737.40	0.055 *17*	9.08 *14*	av Eβ=241.66 *49*
(815.4 *13*)	675.88	0.190 *17*	8.66 *4*	av Eβ=264.82 *50*
(855.7 *13*)	635.57	≈0.02	≈9.7	av Eβ=280.18 *50*
(1066.4 *13*)	424.948	94 *4*	6.382 *19*	av Eβ=362.59 *52* Ice(K)(308.3γ)/Iβ(1065β)=0.0106 *4* (1961Ar15). E(decay): other: 1065 *2* (1961Ar15).
(1164.4 *13*)	326.88	0.020 *10*	10.83[1u] *22*	av Eβ=404.78 *51*
(1491.3 *13*)	0.0	2.3 *2*	9.36[1u] *4*	av Eβ=533.80 *53* E(decay): other: 1492 *7* from analysis of β^- spectrum (1961Ar15); Iβ is for 0.0+5.0 levels combined. Iβ^-: from 1961Ar15 for 0.0+5.0 levels combined.

† β^- feedings are from intensity imbalance at each level assuming Iβ=2.3% *2* (1961Ar15) for decay to 0.0+5.0 levels combined.
‡ Absolute intensity per 100 decays.

γ(^{171}Tm)

Iγ normalization: from Σ [(I(γ+ce) to 0.0+5.0 levels) minus (Ti(5.0γ))]=97.7%; based on combined β^- feeding to (0.0+5.0) levels of 2.3% 2 (1961Ar15).

E_γ [†]	I_γ [b]	E_i(level)	J_i^π	E_f	J_f^π	Mult. [‡]	δ [#a]	α	$I_{(\gamma+ce)}$ [b]	Comments
5.025[@] 6		5.028	3/2$^+$	0.0	1/2$^+$	M1+E2[&]	0.021 1	1.29×10^3 6	900 30	α(M)=1.03×10^3 5; α(N)=236 10; α(O)=30.9 12; α(P)=1.103 16 $I_{(\gamma+ce)}$: from Σ I(γ+ce) to 5.0 level, corresponding to 0% β^- feeding of level; I(γ+ce) could range up to I(γ+ce)=933, corresponding to 2.3% β^- feeding of level. M1:M2:M3=100:38 3:42 5.
12.385[@] 8	0.313 18	129.044	7/2$^+$	116.653	5/2$^+$	M1+E2[&]	0.021 4	255 5	82 4	α(L)=198 4; α(M)=44.9 8; α(N)=10.46 18; α(O)=1.475 23; α(P)=0.0748 11 $I_{(\gamma+ce)}$: from Σ (I(γ+ce)) to 129.0 level less Ti(124.0γ) (1961Ar15 determined absence of measurable β^- feeding to either the 116.7 or 129.0 levels). I_γ: deduced from I(γ+ce) and α. M1:M2:M3=100:17 2:8.3 16; M:N:O=100:25 3:4 1 (1965Bo34). δ: deduced from subshell ratios using BrIccMixing program.
85.6[@] 1	0.60 4	998.59	(7/2)$^+$	913.02	5/2$^+$	M1+E2[&]	0.22 4	4.89 8		α(K)=3.93 8; α(L)=0.75 5; α(M)=0.170 12; α(N)=0.039 3; α(O)=0.0054 3; α(P)=0.000240 5 α(L)exp=0.15 5 (Ice(L) from 1961Ar15); L1:L2:L3=100:18 6:19 6 (1972Gr09). δ: deduced from ce and subshell ratios using BrIccMixing program.
111.621 4	205 8	116.653	5/2$^+$	5.028	3/2$^+$	M1+E2[&]	−0.160 3	2.26		α(K)=1.87 3; α(L)=0.303 5; α(M)=0.0680 10; α(N)=0.01588 23; α(O)=0.00225 4 α(P)=0.0001142 16 α(K)exp=1.72 10 (Ice(K) from 1961Ar15); K/L=6.2 7 (1961Ar15); L1:L2:L3=100:13.1 2:5.2 2 (1972Gr09); K/L=5.9 2 (1965Bo34). δ: from L subshell ratios; sign from nuclear orientation (1972Kr18). Other values: −0.16 3 ($\gamma\gamma(\theta)$, 1972Ag03); −0.19 3 (nuclear orientation, 1972Kr18); 1965Ag02.
116.656 6	23.0 6	116.653	5/2$^+$	0.0	1/2$^+$	E2[&]		1.723		α(K)=0.724 11; α(L)=0.764 11; α(M)=0.187 3; α(N)=0.0425 6; α(O)=0.00497 7 α(P)=3.05×10^{-5} 5

$^{171}_{69}$Tm$_{102}$-3

γ(^{171}Tm) (continued)

E_γ[†]	I_γ[b]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[#a]	α	Comments
									α(K)exp=0.68 *9* (Ice(K) from 1961Ar15); L1:L2:L3=10:41 *5*:39 *5* (the L2 and L3 values were inverted in 1972Gr09, but subsequently corrected in a private communication from authors); K:L:M=1.6 *2*:1.7 *2*:0.44 *5* (1961Ar15).
124.017 *4*	91 *3*	129.044	7/2$^+$	5.028	3/2$^+$	E2[&]		1.376	α(K)=0.619 *9*; α(L)=0.580 *9*; α(M)=0.1414 *20*; α(N)=0.0322 *5*; α(O)=0.00378 *6* α(P)=2.62$\times10^{-5}$ *4* α(K)exp=0.55 *6* (Ice(K) from 1961Ar15); L1:L2:L3=10:45 *4*:37 *3* (the L2 and L3 values were inverted in 1972Gr09, but subsequently corrected in a private communication from authors); K:L:M=5.1 *5*:5.0 *5*:1.7 *2* (1961Ar15).
^{x}166.4 *3*									
175.63 *4*	0.89 *9*	913.02	5/2$^+$	737.40	(5/2)$^+$	[M1]		0.628	α(K)=0.527 *8*; α(L)=0.0791 *11*; α(M)=0.01763 *25*; α(N)=0.00413 *6*; α(O)=0.000593 *9* α(P)=3.22$\times10^{-5}$ *5* I_γ: 1968Ra09 report Iγ=0.084.
197.7[@] *2*	0.27 *5*	326.88	9/2$^+$	129.044	7/2$^+$	[M1]		0.452	α(K)=0.379 *6*; α(L)=0.0568 *9*; α(M)=0.01266 *18*; α(N)=0.00296 *5*; α(O)=0.000426 *6* α(P)=2.31$\times10^{-5}$ *4*
210.1[@] *2*	≈0.07	326.88	9/2$^+$	116.653	5/2$^+$	[E2]		0.221	α(K)=0.1420 *21*; α(L)=0.0605 *9*; α(M)=0.01450 *21*; α(N)=0.00332 *5*; α(O)=0.000406 *6* α(P)=6.74$\times10^{-6}$ *10* I_γ: from coincidence data.
210.60 *3*	6.42 *19*	635.57	7/2$^+$	424.948	7/2$^-$	E1		0.0470	α(K)=0.0394 *6*; α(L)=0.00589 *9*; α(M)=0.001308 *19*; α(N)=0.000303 *5*; α(O)=4.17$\times10^{-5}$ *6* α(P)=1.94$\times10^{-6}$ *3* α(K)exp=0.040 *2*.
237.14 *4*	3.02 *10*	913.02	5/2$^+$	675.88	3/2$^+$	M1+E2	+0.13 *5*	0.272 *5*	α(K)=0.228 *4*; α(L)=0.0344 *5*; α(M)=0.00767 *11*; α(N)=0.00179 *3*; α(O)=0.000257 *4* α(P)=1.386$\times10^{-5}$ *24* α(K)exp=0.246 *16*.
261.4[@] *2*	<0.2	998.59	(7/2)$^+$	737.40	(5/2)$^+$				Observed only in coincidence spectra.
277.43 *5*	5.8 *2*	913.02	5/2$^+$	635.57	7/2$^+$	(M1+E2)	−0.305 *18*	0.171 *3*	α(K)=0.1429 *22*; α(L)=0.0222 *4*; α(M)=0.00496 *7*; α(N)=0.001159 *17*; α(O)=0.0001652 *24* α(P)=8.63$\times10^{-6}$ *14* α(K)exp=0.168 *9*; K/L>6 (1961Ar15). Mult.: α(K)exp more consistent with M1 than M1+E2, but $\gamma\gamma(\theta)$ data imply an E2 admixture. δ: from A_2=+0.102 *13*, A_4=+0.029 *34* for 277γ-210$\gamma(\theta)$ (1978Ba03). Other data: δ=−0.37 *7* (nuclear orientation, 1972Kr18); A_2=+0.124 *5*, δ=−0.336 *+7−2* if δ(D,Q)<0.025 for 210γ (277γ-210$\gamma(\theta)$, 1975Go06); A_2=+0.140 *11* if attenuation is 0.85 *5*, δ=−0.360 *17* (γ-210$\gamma(\theta)$, 1976Pa16).

γ(^{171}Tm) (continued)

E_γ[†]	I_γ[b]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	δ[#a]	α	Comments
286.5[@] *2*	≈0.08	1284.97	(5/2)$^+$	998.59	(7/2)$^+$	[M1]		0.1640	α(K)=0.1377 *20*; α(L)=0.0205 *3*; α(M)=0.00456 *7*; α(N)=0.001066 *15*; α(O)=0.0001535 *22* α(P)=8.37×10^{-6} *12* I_γ: from coincidence data.
295.901 *14*	289 *8*	424.948	7/2$^-$	129.044	7/2$^+$	E1[&]		0.0199	α(K)=0.01675 *24*; α(L)=0.00244 *4*; α(M)=0.000542 *8*; α(N)=0.0001257 *18* α(O)=1.752×10^{-5} *25*; α(P)=8.56×10^{-7} *12* See comment with 308.3γ. α(K)exp=0.0186 *8*; L1:L2:L3=100:9.3 *7*:9.8 *6*; K:L:M=0.56 *2*:0.071 *5*:0.019 *2* (1961Ar15). Mult.,δ: 1972Kr18 report δ(E1,M2)=0.00 *3* (nuclear orientation). Other data: A_2=+0.177 *5*, A_4=+0.036 *14*, δ(D,Q)=+0.07 *3* for 296γ-124γ(θ) (1978Ba03); 1965Ag02 (γ′s only partially resolved).
308.291 *18*	644 *16*	424.948	7/2$^-$	116.653	5/2$^+$	E1[&]		0.0180	α(K)=0.01515 *22*; α(L)=0.00221 *3*; α(M)=0.000489 *7*; α(N)=0.0001134 *16* α(O)=1.583×10^{-5} *23*; α(P)=7.77×10^{-7} *11* α(K)=0.0161 (E1 value from theory used for normalizing the ce and γ intensity scales; 1972Gr09 increased α(K) from 0.0152 (Hager-Seltzer) to 0.0161 to correct for penetration contribution evidenced by abnormal L subshell ratios for 295.9γ and 308.3γ). L1:L2:L3=100:10.3 *3*:11.1 *9*; K:L:M=1.06 *4*:0.144 *7*:0.033 *7* (1961Ar15). Mult.: 1972Kr18 report δ(E1,M2)=−0.17 *11* (nuclear orientation).
362.91 *14*	0.197 *11*	998.59	(7/2)$^+$	635.57	7/2$^+$	[M1]		0.0873	α(K)=0.0734 *11*; α(L)=0.01083 *16*; α(M)=0.00241 *4*; α(N)=0.000563 *8*; α(O)=8.12×10^{-5} *12* α(P)=4.44×10^{-6} *7*
371.96 *9*	2.57 *10*	1284.97	(5/2)$^+$	913.02	5/2$^+$	M1+E2	−0.28 *2*	0.0786 *12*	α(K)=0.0659 *10*; α(L)=0.00992 *15*; α(M)=0.00221 *4*; α(N)=0.000517 *8*; α(O)=7.41×10^{-5} *11* α(P)=3.97×10^{-6} *7* α(K)exp=0.068 *7*; K/L≈2 (1961Ar15; value not consistent with assigned multipolarity (K/L≈7 for M1,≈4 for E2)). δ: from nuclear orientation (1972Kr18). Other data: δ=+0.18 *5* (γγ(θ), 1972Be85); A_2=+0.018 *12*, δ=+0.33 *4* (γ-277γ(θ) if δ(277γ)=−0.34 *2*, 1975Go06).
419.9 *3*	0.83 *4*	424.948	7/2$^-$	5.028	3/2$^+$	M2		0.203	α(K)=0.1651 *24*; α(L)=0.0295 *5*; α(M)=0.00673 *10*; α(N)=0.001578 *23*; α(O)=0.000225 *4* α(P)=1.166×10^{-5} *17* α(K)exp=0.161 *11*. δ: 1972Kr18 report −0.3≤δ(E3,M2)≤+0.3 (nuclear orientation).
424.9 *5*	0.224 *23*	424.948	7/2$^-$	0.0	1/2$^+$	E3		0.0856	α(K)=0.0544 *8*; α(L)=0.0239 *4*; α(M)=0.00579 *9*; α(N)=0.001334 *20*; α(O)=0.0001673 *25*

From ENSDF

$^{171}_{69}$Tm$_{102}$-5

γ(^{171}Tm) (continued)

E_γ [†]	I_γ [b]	E_i(level)	J^π_i	E_f	J^π_f	Mult. [‡]	δ [#a]	α	Comments
									α(P)=3.37×10^{-6} *5* α(K)exp=0.065 *11*. Mult.: α(K)exp consistent with M1 or E3, but decay scheme rules out M1.
[x]455.6 [@] *2*	0.06 *2*								
487.9 [@] *2*	0.05 *2*	913.02	5/2$^+$	424.948	7/2$^-$				
495.4 [@] *2*	0.02 *1*	822.41	(7/2$^+$)	326.88	9/2$^+$				
506.9 *6*	0.227 *20*	635.57	7/2$^+$	129.044	7/2$^+$	[M1]		0.0365	α(K)=0.0307 *5*; α(L)=0.00449 *7*; α(M)=0.000997 *15*; α(N)=0.000233 *4*; α(O)=3.36×10^{-5} *5* α(P)=1.85×10^{-6} *3*
519.2 *6*	0.177 *16*	635.57	7/2$^+$	116.653	5/2$^+$	[M1]		0.0343	α(K)=0.0289 *5*; α(L)=0.00422 *6*; α(M)=0.000936 *14*; α(N)=0.000219 *4*; α(O)=3.16×10^{-5} *5* α(P)=1.737×10^{-6} *25*
547.8 *5*	0.17 *4*	1284.97	(5/2)$^+$	737.40	(5/2)$^+$				α(K)exp≈0.041.
559.5 *4*	0.466 *19*	675.88	3/2$^+$	116.653	5/2$^+$	M1		0.0283	α(K)=0.0239 *4*; α(L)=0.00347 *5*; α(M)=0.000771 *11*; α(N)=0.000181 *3*; α(O)=2.60×10^{-5} *4* α(P)=1.433×10^{-6} *21* α(K)exp=0.022 *10*.
573.5 [@] *2*	0.098 *15*	998.59	(7/2)$^+$	424.948	7/2$^-$				
586.0 [@] *2*	0.04 *2*	913.02	5/2$^+$	326.88	9/2$^+$				
608.6 [@] *2*	≈0.37	737.40	(5/2)$^+$	129.044	7/2$^+$				α(K)exp(608.6γ+609.0γ)=0.027 *5*. I_γ: from coincidence data; Iγ(exp)=0.470 *26* for 608.6γ and 609.0γ combined.
609.0 [@] *2*	≈0.2	1284.97	(5/2)$^+$	675.88	3/2$^+$				α(K)exp(608.6γ+609.0γ)=0.027 *5*. I_γ: see comment with 608.6γ.
621.03 *23*	0.89 *3*	737.40	(5/2)$^+$	116.653	5/2$^+$	M1		0.0217	α(K)=0.0183 *3*; α(L)=0.00266 *4*; α(M)=0.000590 *9*; α(N)=0.0001380 *20*; α(O)=1.99×10^{-5} *3* α(P)=1.097×10^{-6} *16* α(K)exp=0.026 *10*.
630.7 [@] *2*	0.05 *1*	635.57	7/2$^+$	5.028	3/2$^+$	[E2]		0.00969	α(K)=0.00785 *11*; α(L)=0.001426 *20*; α(M)=0.000324 *5*; α(N)=7.52×10^{-5} *11* α(O)=1.029×10^{-5} *15*; α(P)=4.39×10^{-7} *7*
670.7 [@] *2*	2.52 *5*	675.88	3/2$^+$	5.028	3/2$^+$	M1+E2	−0.05 *10*	0.0178 *4*	α(K)=0.0150 *3*; α(L)=0.00217 *4*; α(M)=0.000482 *8*; α(N)=0.0001127 *19*; α(O)=1.63×10^{-5} *3* α(P)=8.97×10^{-7} *17* α(K)exp=0.019 *2*. δ: deduced from α(exp) and δ of 1972Kr18 using BrIccMixing program. Sign from 1972Kr18. Other: −0.06 *10* (1972Kr18).
671.7 [@] *2*	0.22 *5*	998.59	(7/2)$^+$	326.88	9/2$^+$				I_γ: from coincidence data.
676.1 *3*	2.85 *6*	675.88	3/2$^+$	0.0	1/2$^+$	M1+E2	+0.12 *7*	0.0174 *4*	α(K)=0.0147 *3*; α(L)=0.00213 *4*; α(M)=0.000471 *8*;

γ(^{171}Tm) (continued)

E_γ†	I_γ b	E_i(level)	J^π_i	E_f	J^π_f	Mult.‡	δ#a	α	Comments
									α(N)=0.0001103 19; α(O)=1.59×10^{-5} 3 α(P)=8.77×10^{-7} 17 α(K)exp=0.018 2. Other δ: +0.14 8 (1972Kr18).
693.9 5	0.150 16	822.41	(7/2$^+$)	129.044	7/2$^+$				
705.8@ 2	0.12 4	822.41	(7/2$^+$)	116.653	5/2$^+$				
732.5 3	0.976 24	737.40	(5/2)$^+$	5.028	3/2$^+$	M1		0.01435	α(K)=0.01211 17; α(L)=0.001745 25; α(M)=0.000387 6; α(N)=9.06×10^{-5} 13 α(O)=1.308×10^{-5} 19; α(P)=7.23×10^{-7} 11 α(K)exp=0.016 2.
^{x}745.0 5	0.066 8								
^{x}767.8@ 2	0.045 5								
784.09 17	2.40 5	913.02	5/2$^+$	129.044	7/2$^+$	M1+E2	+0.34 10	0.0115 4	α(K)=0.0097 4; α(L)=0.00140 5; α(M)=0.000311 10; α(N)=7.28×10^{-5} 23; α(O)=1.05×10^{-5} 4 α(P)=5.75×10^{-7} 22 α(K)exp=0.0088 17.
796.55 13	6.40 13	913.02	5/2$^+$	116.653	5/2$^+$	M1+E2	+0.56 +20−16	0.0102 8	α(K)=0.0086 7; α(L)=0.00126 9; α(M)=0.000280 18; α(N)=6.6×10^{-5} 5; α(O)=9.4×10^{-6} 7 α(P)=5.1×10^{-7} 5 α(K)exp=0.0095 7. δ: from nuclear orientation (1972Kr18). Other value: +0.06 4 ($\gamma\gamma(\theta)$ (1972Be85)).
860.0@ 2	0.0150 24	1284.97	(5/2)$^+$	424.948	7/2$^-$	[E1]		0.00190	α(K)=0.001619 23; α(L)=0.000222 4; α(M)=4.89×10^{-5} 7; α(N)=1.139×10^{-5} 16 α(O)=1.629×10^{-6} 23; α(P)=8.77×10^{-8} 13
869.7 3	0.55 5	998.59	(7/2)$^+$	129.044	7/2$^+$	(M1+E2)	−0.24 8	0.00911 22	α(K)=0.00770 19; α(L)=0.001106 25; α(M)=0.000245 6; α(N)=5.74×10^{-5} 13 α(O)=8.28×10^{-6} 19; α(P)=4.57×10^{-7} 12 α(K)exp(869.7γ+871.5γ)=0.0076 23. Mult.: uncertain because of interference from 871.5γ. δ: from nuclear orientation (1972Kr18); value subject to undetermined correction due to interference from 871.5γ.
871.5@ 2	0.20 5	1296.45		424.948	7/2$^-$				α(K)exp(869.7γ+871.5γ)=0.0076 23. I_γ: from coincidence data.
882.0 4	0.385 19	998.59	(7/2)$^+$	116.653	5/2$^+$	M1+E2	+0.11 3	0.00899	α(K)=0.00760 11; α(L)=0.001089 16; α(M)=0.000241 4; α(N)=5.65×10^{-5} 9; α(O)=8.16×10^{-6} 12 α(P)=4.52×10^{-7} 7
907.7 4	6.35 13	913.02	5/2$^+$	5.028	3/2$^+$	M1+E2	+0.33 3	0.00803 14	α(K)=0.00678 12; α(L)=0.000975 16; α(M)=0.000216 4; α(N)=5.06×10^{-5} 8; α(O)=7.30×10^{-6} 12 α(P)=4.02×10^{-7} 7 α(K)exp=0.0070 4.

From ENSDF

$\gamma(^{171}$Tm) (continued)

E_γ †	I_γ b	E_i(level)	J_i^π	E_f	J_f^π	Comments
912.6 *5*	0.77 *5*	913.02	5/2$^+$	0.0	1/2$^+$	α(K)exp=0.0056 *17*.
966.1 *4*	0.264 *8*	1391.1	3/2$^{(-)}$,5/2,7/2	424.948	7/2$^-$	
976.2@ *5*	0.007 *3*	1400.6	(5/2$^+$)	424.948	7/2$^-$	
994.0@ *5*	0.006 *3*	998.59	(7/2)$^+$	5.028	3/2$^+$	
x1051.0@ *5*	0.004 *2*					
1096.9 *8*	0.0106 *19*	1225.7	(3/2$^+$,5/2,7/2$^+$)	129.044	7/2$^+$	
1109.0 *5*	0.0679 *21*	1225.7	(3/2$^+$,5/2,7/2$^+$)	116.653	5/2$^+$	
1156.0@ *5*	0.0060 *15*	1284.97	(5/2)$^+$	129.044	7/2$^+$	
1168.4@ *5*	0.0184 *15*	1284.97	(5/2)$^+$	116.653	5/2$^+$	
x1172.9@ *5*	0.008 *3*					
x1182.0@ *5*	0.003 *2*					
1220.5@ *8*	0.028 *2*	1225.7	(3/2$^+$,5/2,7/2$^+$)	5.028	3/2$^+$	
1271.2@ *5*	0.0034 *15*	1400.6	(5/2$^+$)	129.044	7/2$^+$	
1279.9@ *5*	0.025 *2*	1284.97	(5/2)$^+$	5.028	3/2$^+$	
1284.4@ *5*	0.024 *2*	1284.97	(5/2)$^+$	0.0	1/2$^+$	
1395.5@ *5*	0.028 *8*	1400.6	(5/2$^+$)	5.028	3/2$^+$	
1400.5@ *5*	0.025 *1*	1400.6	(5/2$^+$)	0.0	1/2$^+$	

† From 1968Ra09, except where noted; (Ge(Li), cryst).

‡ From α(K)exp and presence of prompt coincidences, except where noted; see comment with 308.3γ for normalization of the photon and ce intensity scales.

From 1976Kr21, except where noted (these values are based on angular correlation, nuclear orientation, and ce data).

@ From 1972Gr09; uncertainties are from subsequent private communication from authors.

& From ce subshell ratios.

a If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

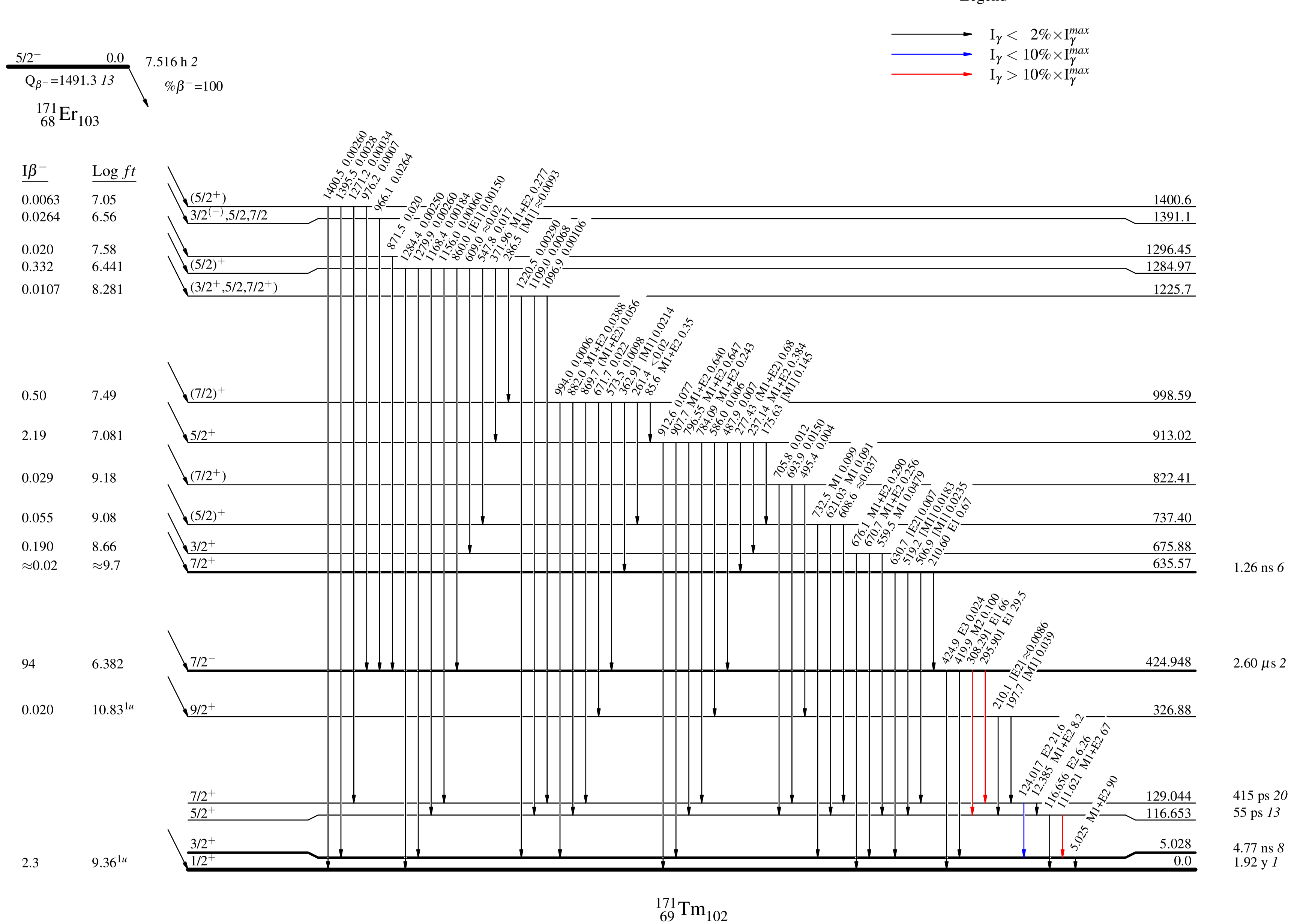
b For absolute intensity per 100 decays, multiply by 0.100 *3*.

x γ ray not placed in level scheme.

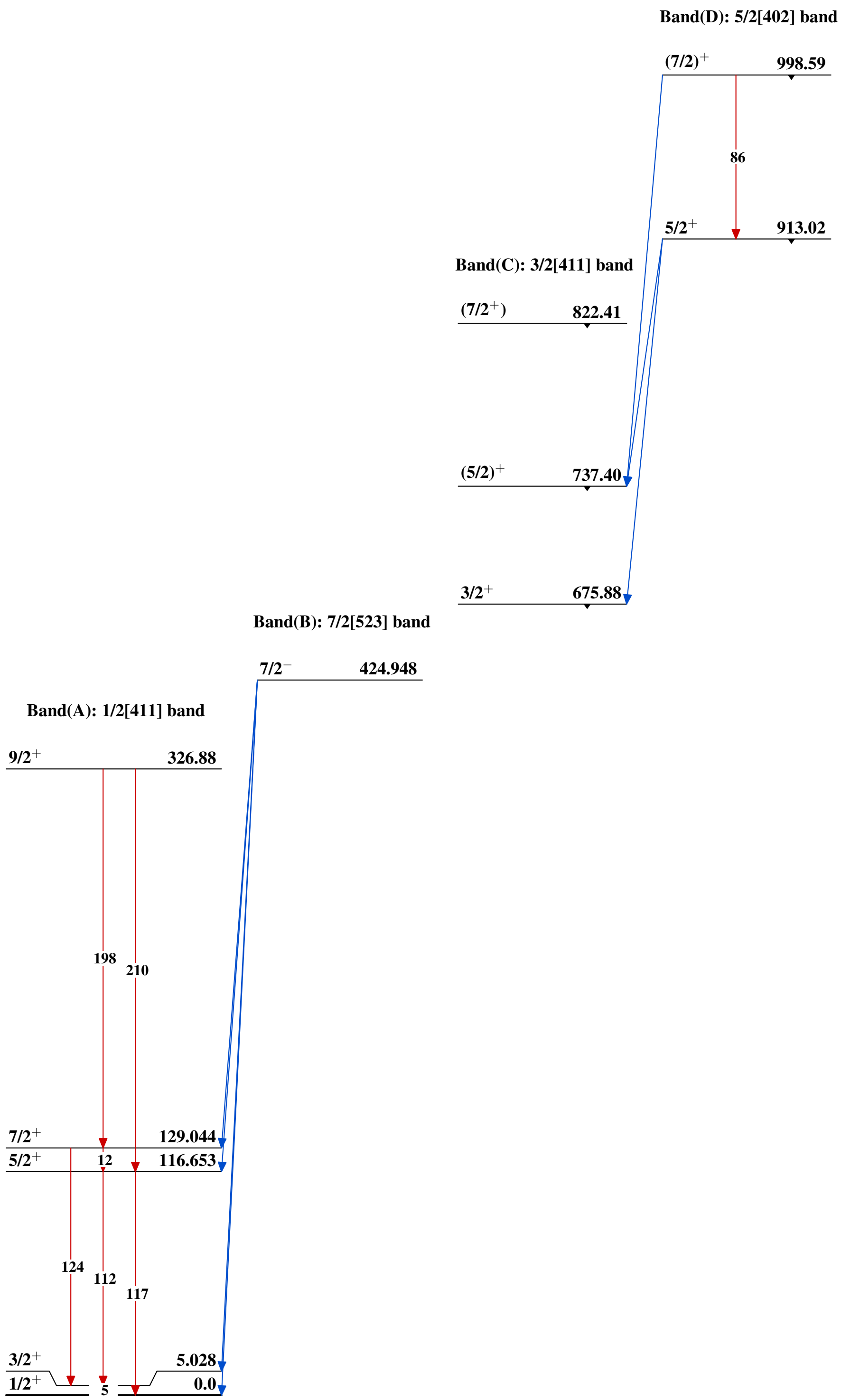
^{171}Er β^- decay 1972Gr09

Decay Scheme

Intensities:



^{171}Er β^- decay 1972Gr09



$^{171}_{69}Tm_{102}$