^{170}Er(^{7}Li,2n$\alpha\gamma$) E=27-34 MeV 1988Dr04

History

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

1988Dr04: E(^{7}Li)=27-34 MeV, θ=55°, 90°; metallic erbium targets enriched to 96.9% in ^{170}Er; measured Eγ, Iγ (intrinsic planar germanium detector, FWHM=620 eV at 122 keV; coaxial intrinsic Ge detector, FWHM=2.1 keV at 1332 keV), $\alpha\gamma$ coin, $\gamma\gamma$ coin, four-parameter energy-time coin, excitation functions; used Nilsson model to interpret level structure.

The level scheme and all data are from 1988Dr04.

^{171}Tm Levels

E(level)[†]	J$^{\pi}$[‡]	Comments
0.0[#]	1/2^{+}	
5.027[#] 6	3/2^{+}	
116.647[#] 11	5/2^{+}	
129.033[#] 12	7/2^{+}	
326.779[#] 21	9/2^{+}	
347.94[#] 3	11/2^{+}	
424.973[@] 23	7/2^{-}	
520.322[@] 25	9/2^{-}	
627.00[#] 5	13/2^{+}	
635.60[&] 4	7/2^{+}	
637.14[@] 5	11/2^{-}	
658.75[#] 5	15/2^{+}	
675.86[a] 12	3/2^{+}	
737.47[a] 9	5/2^{+}	
743.83?[&] 4	9/2^{+}	E(level): level not adopted; deexciting γ unconfirmed in a subsequent (^{7}Li,α2nγ) E=42 MeV study.
750.1[b] 3	5/2^{-}	
775.88[@] 5	13/2^{-}	
822.32[a] 22	7/2^{+}	
823.80[b] 10	9/2^{-}	
872.86?[&] 15	11/2^{+}	E(level): level not adopted; deexciting γ's unconfirmed in a subsequent (^{7}Li,α2nγ) E=42 MeV study.
884.5[b] 3	3/2^{-}	
912.85[c] 8	5/2^{+}	
935.56[@] 8	15/2^{-}	
984.44[b] 21	13/2^{-}	
998.51[c] 9	7/2^{+}	
1013.12[#] 7	17/2^{+}	
1036.24[b] 24	7/2^{-}	
1057.40[#] 9	19/2^{+}	
1116.76[@] 12	17/2^{-}	
1232.15[b] 11	17/2^{-}	
1306.97[d] 17	(11/2^{-})	
1316.54[@] 12	19/2^{-}	

[†] From least-squares fit to Eγ, omitting lines with uncertain placement.
[‡] Authors' values from relative excitation functions, rotational structure, and use of previously known J$^{\pi}$ for lower levels.
[#] 1/2[411] band.

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^{170}Er(^{7}Li,2n$\alpha\gamma$) E=27-34 MeV 1988Dr04 (continued)

^{171}Tm Levels (continued)

@ 7/2[523] band.
& 7/2[404] band.
a 3/2[411] band.
b 1/2[541] band.
c 5/2[402] band.
d 9/2[514] band.

$\gamma(^{171}Tm)$

E_γ	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
(5.025 6)		5.027	3/2$^+$	0.0	1/2$^+$	E_γ: from Adopted Gammas.
61.5‡ 3		737.47	5/2$^+$	675.86	3/2$^+$	
84.9 3	7.3 5	822.32	7/2$^+$	737.47	5/2$^+$	
85.64 4	4.1 4	998.51	7/2$^+$	912.85	5/2$^+$	
95.35# 1	32.0 9	520.322	9/2$^-$	424.973	7/2$^-$	
108.23 2	5.1 6	743.83?	9/2$^+$	635.60	7/2$^+$	
111.62# 1	114 4	116.647	5/2$^+$	5.027	3/2$^+$	
115.29 4	4.8 6	635.60	7/2$^+$	520.322	9/2$^-$	
116.78& 5	40& 3	116.647	5/2$^+$	0.0	1/2$^+$	
116.78& 5	40& 3	637.14	11/2$^-$	520.322	9/2$^-$	
124.00 1	346 7	129.033	7/2$^+$	5.027	3/2$^+$	
129.2‡ 2		872.86?	11/2$^+$	743.83?	9/2$^+$	
138.7 1	25.2 6	775.88	13/2$^-$	637.14	11/2$^-$	
159.8# 1	20.4 20	935.56	15/2$^-$	775.88	13/2$^-$	
175.37@ 5	3.1 4	912.85	5/2$^+$	737.47	5/2$^+$	
181.2 1	5.5 5	1116.76	17/2$^-$	935.56	15/2$^-$	
187.0a		822.32	7/2$^+$	635.60	7/2$^+$	E_γ: tentative transition shown on drawing, but not listed in γ-ray table; Eγ taken from drawing.
197.74 2	23.9 21	326.779	9/2$^+$	129.033	7/2$^+$	
199.78# 3	16.4 7	1316.54	19/2$^-$	1116.76	17/2$^-$	
210.16 5	20.3 11	326.779	9/2$^+$	116.647	5/2$^+$	
210.60 3	74.3 15	635.60	7/2$^+$	424.973	7/2$^-$	
218.91 3	100.0 12	347.94	11/2$^+$	129.033	7/2$^+$	
237.1& 2	6.2& 4	872.86?	11/2$^+$	635.60	7/2$^+$	
237.1& 2	6.2& 4	912.85	5/2$^+$	675.86	3/2$^+$	
255.58 4	7.3 7	775.88	13/2$^-$	520.322	9/2$^-$	
261.4‡ 3		998.51	7/2$^+$	737.47	5/2$^+$	
277.12# 10	10.8 6	912.85	5/2$^+$	635.60	7/2$^+$	Second placement reported in γ-ray table (838.3 level to 561.4 level), but neither initial nor final state is shown on drawing.
279.12 6	17.8 21	627.00	13/2$^+$	347.94	11/2$^+$	
295.90 3	88.4 12	424.973	7/2$^-$	129.033	7/2$^+$	
298.3# 1	9.6 4	935.56	15/2$^-$	637.14	11/2$^-$	Second placement reported in γ-ray table (779.1 level to 481.0 level), but neither initial nor final state is shown on drawing.
300.20 5	17.4 5	627.00	13/2$^+$	326.779	9/2$^+$	
308.35 3	167 7	424.973	7/2$^-$	116.647	5/2$^+$	
310.80 3	52 3	658.75	15/2$^+$	347.94	11/2$^+$	
340.8# 4	11.1 4	1116.76	17/2$^-$	775.88	13/2$^-$	
354.30 8	7.8 8	1013.12	17/2$^+$	658.75	15/2$^+$	
381.0‡ 2		1316.54	19/2$^-$	935.56	15/2$^-$	
386.20 8	8.1 4	1013.12	17/2$^+$	627.00	13/2$^+$	

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^{170}Er(^{7}Li,2n$\alpha\gamma$) E=27-34 MeV 1988Dr04 (continued)

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

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
398.65[#] *7*	22.0 *15*	1057.40	19/2$^+$	658.75	15/2$^+$	
475.8[#] *1*	6.4 *5*	823.80	9/2$^-$	347.94	11/2$^+$	
495.1		822.32	7/2$^+$	326.779	9/2$^+$	E_γ: definite transition shown on drawing, but not listed in γ-ray table; Eγ taken from drawing.
497.2[‡] *3*		823.80	9/2$^-$	326.779	9/2$^+$	
506.7[‡] *4*		635.60	7/2$^+$	129.033	7/2$^+$	
519.5 *4*	7.8 *6*	635.60	7/2$^+$	116.647	5/2$^+$	
532.0[a] *3*	3.4 *4*	1306.97	(11/2$^-$)	775.88	13/2$^-$	
559.2[‡] *5*		675.86	3/2$^+$	116.647	5/2$^+$	
573.4 *1*	6.4 *4*	1232.15	17/2$^-$	658.75	15/2$^+$	
586.2 *3*	5.2 *5*	912.85	5/2$^+$	326.779	9/2$^+$	
607.8[‡] *4*		737.47	5/2$^+$	129.033	7/2$^+$	
621.1[&#] *3*	10.8[&] *6*	737.47	5/2$^+$	116.647	5/2$^+$	
621.1[&#] *3*	10.8[&] *6*	750.1	5/2$^-$	129.033	7/2$^+$	
636.5 *2*	8.4 *5*	984.44	13/2$^-$	347.94	11/2$^+$	
669.8 *2*	3.5 *10*	1306.97	(11/2$^-$)	637.14	11/2$^-$	
670.9 *3*	7.9 *14*	675.86	3/2$^+$	5.027	3/2$^+$	
672.0[‡] *4*		998.51	7/2$^+$	326.779	9/2$^+$	
675.9 *2*	6.6 *7*	675.86	3/2$^+$	0.0	1/2$^+$	
693.2[‡] *4*		822.32	7/2$^+$	129.033	7/2$^+$	
695.1[‡] *3*		823.80	9/2$^-$	129.033	7/2$^+$	
705.8[‡] *5*		822.32	7/2$^+$	116.647	5/2$^+$	
709.4[‡] *3*		1036.24	7/2$^-$	326.779	9/2$^+$	
767.9 *3*	4.2 *10*	884.5	3/2$^-$	116.647	5/2$^+$	
786.7 *3*	6.4 *7*	1306.97	(11/2$^-$)	520.322	9/2$^-$	
796.5 *2*	14.4 *7*	912.85	5/2$^+$	116.647	5/2$^+$	
869.7[‡] *6*		998.51	7/2$^+$	129.033	7/2$^+$	
882.0[‡] *6*		998.51	7/2$^+$	116.647	5/2$^+$	
908.0 *3*	8.7 *7*	912.85	5/2$^+$	5.027	3/2$^+$	
919.7 *4*	8.5 *7*	1036.24	7/2$^-$	116.647	5/2$^+$	

[†] Relative intensities normalized to Iγ(219γ)=100 for E(^{7}Li)=30.8 MeV, θ=55°.
[‡] Observed only in coincidence spectra.
[#] Peak structure complex.
[@] Level-scheme and γ-ray table values differ; evaluator assumes value in table to be correct.
[&] Multiply placed with undivided intensity.
[a] Placement of transition in the level scheme is uncertain.

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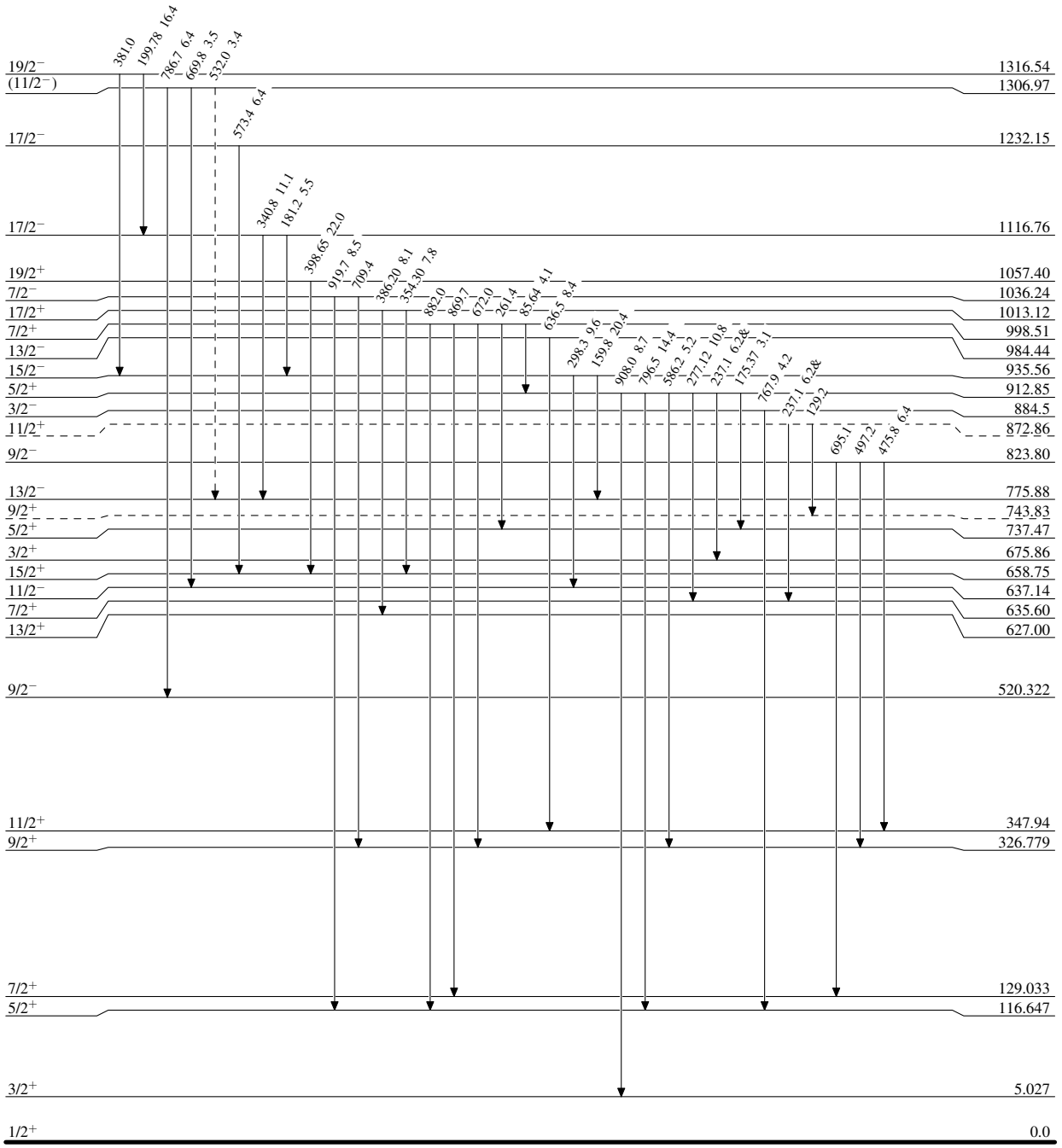
Level Scheme

Intensities: Relative Iγ for E(^{7}Li)=30.8 MeV, θ=55°
& Multiply placed: undivided intensity given

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



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

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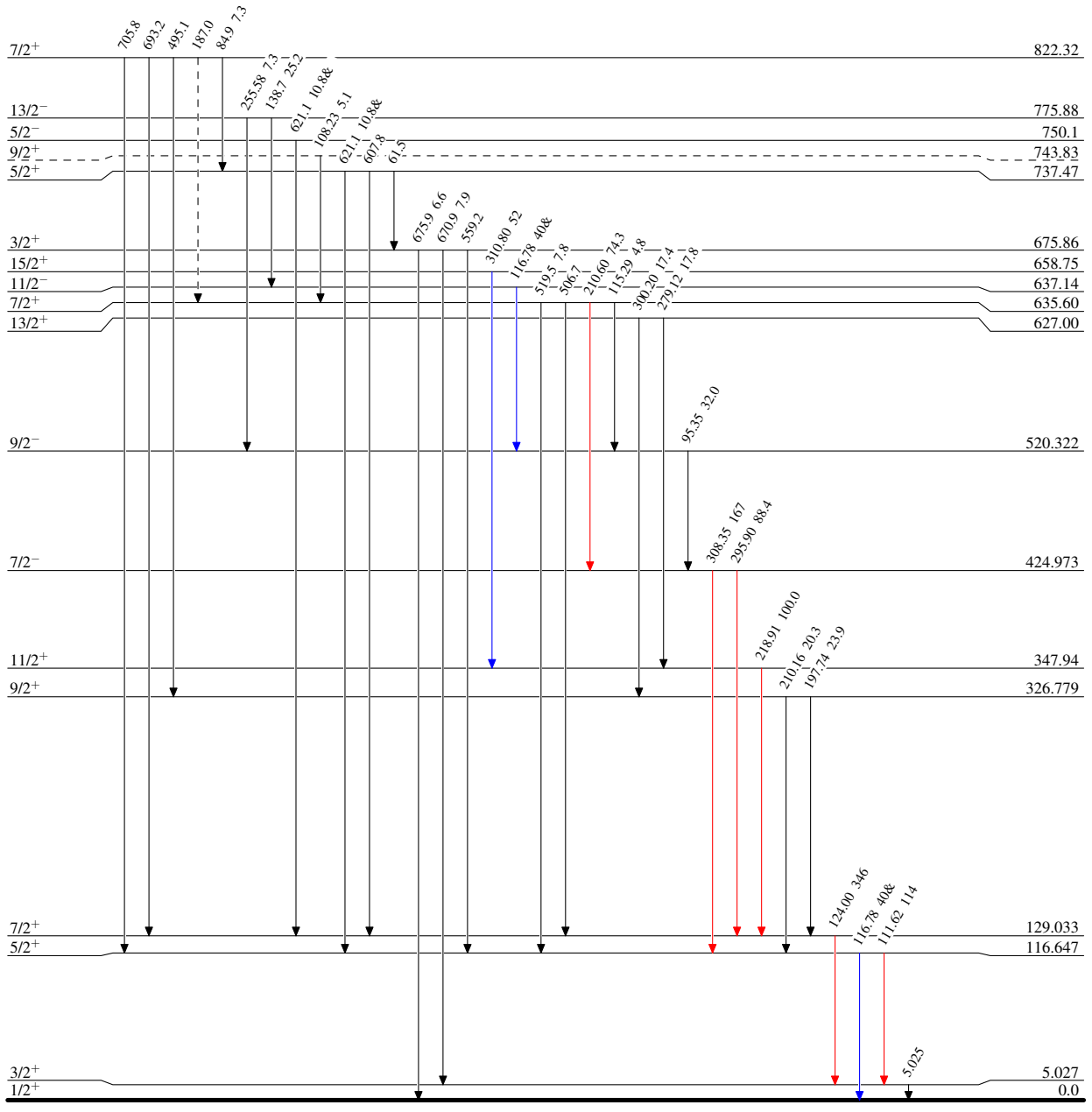
Level Scheme (continued)

Intensities: Relative Iγ for E(^{7}Li)=30.8 MeV, θ=55°
& Multiply placed: undivided intensity given

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



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