^{124}Sn(^{7}Li,p4nγ) 2017He09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	H. Iimura, J. Katakura, S. Ohya	NDS 180, 1 (2022)	1-Oct-2021

2017He09: ^{124}Sn(^{7}Li,p4nγ) E=48 MeV; enriched target (97.5%), 4.6 mg/cm^2 thick; multi-detector array. Measured Eγ, Iγ, $\gamma\gamma$, DCO=Iγ(at 40°)/Iγ(at 90°).

^{126}Te Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0[@]	0$^+$	2496.4[a] 4	7$^-$	3708.7[&] 6	(10$^-$)	4587.4[a] 7	(13$^-$)
666.3[@] 2	2$^+$	2765.6[@] 4	8$^+$	3765.0[a] 5	11$^-$	4634.1 7	(14$^+$)
1361.3[@] 3	4$^+$	2811.1 6	(7$^-$)	3837.7 7	(11$^+$)	4725.7 8	(13$^-$)
1420.2 6	2$^+$	2974.2[#] 5	10$^+$	4139.2 7		5095.4[#] 7	(15$^+$)
1776.0[@] 4	6$^+$	2989.1 5	(8$^+$)	4177.3 7	(12$^-$)	5537.9[#] 9	(16$^+$)
2013.2 5	4$^+$	3069.8[&] 6	(8$^-$)	4432.5[&] 8	(12$^-$)		
2218.1 5	5$^-$	3193.3[a] 5	9$^-$	4451.6 7			
2396.2 5	6$^+$	3687.7[#] 5	12$^+$	4538.0[#] 7	(14$^+$)		

[†] From a least-squares fit to E(γ's) by evaluators, assuming γ's uncertainty of 0.2 keV if Iγ>10 and 0.5 keV for the rest.
[‡] Proposed by 2017He09 based on measured DCO ratios and band structures.
[#] Seq.(C): γ sequence based on 10$^+$.
[@] Band(A): γ sequence, yrast structure.
[&] Band(b): γ sequence based on (8$^-$).
[a] Band(B): γ sequence based on 7$^-$.

γ(^{126}Te)

DCO(D) and DCO(Q) ratios are gated by dipole transitions and quadrupole transitions, respectively; DCO(Q)≈1.0 for stretched E2 transitions and <0.7 for stretched dipole transition;DCO(D) close to 1.6 and 1.0 for E2 and dipole transitions, respectively.

E$_\gamma$[‡]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α[#]	Comments
208.6	17.1 2	2974.2	10$^+$	2765.6	8$^+$	E2	0.1297	DCO(Q)=1.26 7.
223.5	0.6 1	2989.1	(8$^+$)	2765.6	8$^+$			
278.3	0.7 1	2496.4	7$^-$	2218.1	5$^-$	(E2)	0.0493	DCO(D)=1.4 5.
410.1	1.2 1	4587.4	(13$^-$)	4177.3	(12$^-$)	D		DCO(Q)=0.52 19.
412.3	4.2 2	4177.3	(12$^-$)	3765.0	11$^-$	D		DCO(Q)=0.60 12.
414.7	74.2 8	1776.0	6$^+$	1361.3	4$^+$	E2	0.01405	DCO(D)=1.81 7, DCO(Q)=1.07 2.
414.9	3.2 2	2811.1	(7$^-$)	2396.2	6$^+$			
442.5	0.8 1	5537.9	(16$^+$)	5095.4	(15$^+$)	D		DCO(D)=1.1 5, DCO(Q)=0.48 17.
451.5	1.7 5	4139.2		3687.7	12$^+$			
461.3	0.8 1	5095.4	(15$^+$)	4634.1	(14$^+$)	D		DCO(Q)=0.63 22.
515.4	0.6 1	3708.7	(10$^-$)	3193.3	9$^-$	D		DCO(Q)=0.47 23.
548.4	1.7 3	4725.7	(13$^-$)	4177.3	(12$^-$)	D		DCO(Q)=0.49 10.
557.4	0.9 4	5095.4	(15$^+$)	4538.0	(14$^+$)	D		DCO(Q)=0.47 12.
571.7	17.3 9	3765.0	11$^-$	3193.3	9$^-$	E2	0.00564	DCO(Q)=1.05 9.
573.4	1.9 3	3069.8	(8$^-$)	2496.4	7$^-$	D		DCO(Q)=0.48 17.
593.0	1.7 1	2811.1	(7$^-$)	2218.1	5$^-$	E2	0.00511	DCO(D)=1.61 20.
620.2	1.3 1	2396.2	6$^+$	1776.0	6$^+$	E2	0.00454	DCO(Q)=1.5 6.
638.9	1.1 5	3708.7	(10$^-$)	3069.8	(8$^-$)	E2	0.0421	DCO(D)=2.2 8.
651.9	1.1 1	2013.2	4$^+$	1361.3	4$^+$	E2	0.00399	DCO(Q)=1.8 6.

Continued on next page (footnotes at end of table)

^{124}Sn(^{7}Li,p4nγ) 2017He09 (continued)

$\gamma(^{126}Te)$ (continued)

E_γ[‡]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[#]	Comments
666.3	100.0	666.3	2^+	0.0	0^+	E2	0.00378	DCO(D)=1.69 *15*, DCO(Q)=1.05 *4*.
695.0	95.4 *7*	1361.3	4^+	666.3	2^+	E2	0.00340	DCO(Q)=1.04 *3*.
696.9	17.9 *9*	3193.3	9^-	2496.4	7^-	E2	0.00337	DCO(Q)=1.51 *24*.
713.5	12.8 *2*	3687.7	12^+	2974.2	10^+	E2	0.00318	DCO(Q)=1.09 *5*.
720.4	19.6 *2*	2496.4	7^-	1776.0	6^+	D		DCO(Q)=0.48 *4*.
723.8	0.7 *2*	4432.5	(12^-)	3708.7	(10^-)	(E2)	0.00307	DCO(Q)=0.9 *5*.
753.9	3.3 *1*	1420.2	2^+	666.3	2^+	E2	0.00276	DCO(Q)=1.8 *4*.
763.9	1.5 *1*	4451.6		3687.7	12^+			
822.4	2.9 *1*	4587.4	(13^-)	3765.0	11^-	E2	0.00226	DCO(Q)=0.98 *14*.
850.3	4.2 *1*	4538.0	(14^+)	3687.7	12^+	E2	0.00209	DCO(Q)=0.99 *12*.
856.8	9.4 *2*	2218.1	5^-	1361.3	4^+	D		DCO(Q)=0.53 *4*.
863.5	2.5 *1*	3837.7	(11^+)	2974.2	10^+	D		DCO(Q)=0.67 *9*.
946.4	2.5 *1*	4634.1	(14^+)	3687.7	12^+	(E2)		DCO(Q)=0.84 *15*.
989.6	29.2 *3*	2765.6	8^+	1776.0	6^+	E2		DCO(Q)=0.88 *18*.
1034.9	1.6 *1*	2396.2	6^+	1361.3	4^+	E2		DCO(Q)=1.2 *22*, possible typo in uncertainty (evaluators′ note).
1213.1	1.1 *1*	2989.1	(8^+)	1776.0	6^+	(E2)		DCO(Q)=1.0 *5*.
1346.9	0.3 *5*	2013.2	4^+	666.3	2^+	(E2)		DCO(Q)=0.9 *4*.

[†] Relative intesities to I(666.3γ)=100.

[‡] Uncertainties are between 0.2 and 0.5 depending on the intensity.

[#] 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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Level Scheme

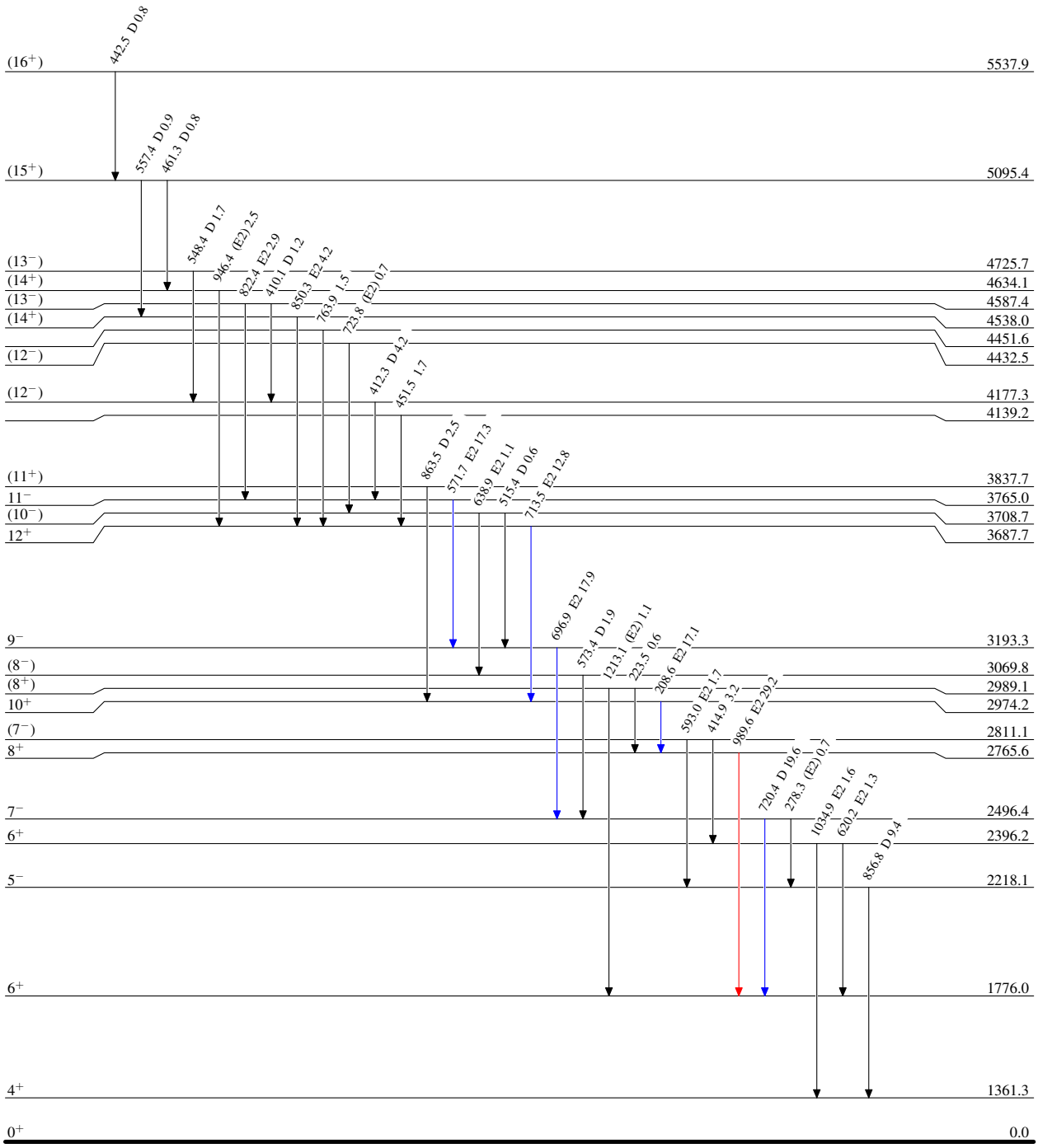
Intensities: Relative I_γ

Legend

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

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

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



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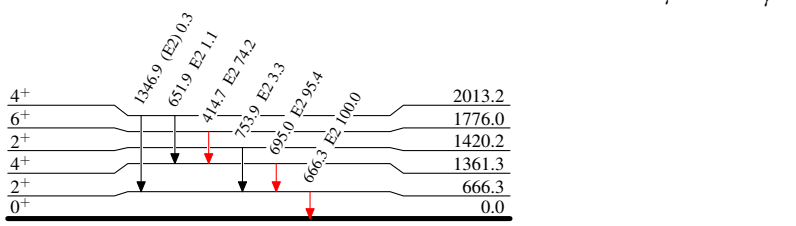
Level Scheme (continued)

Intensities: Relative I_γ



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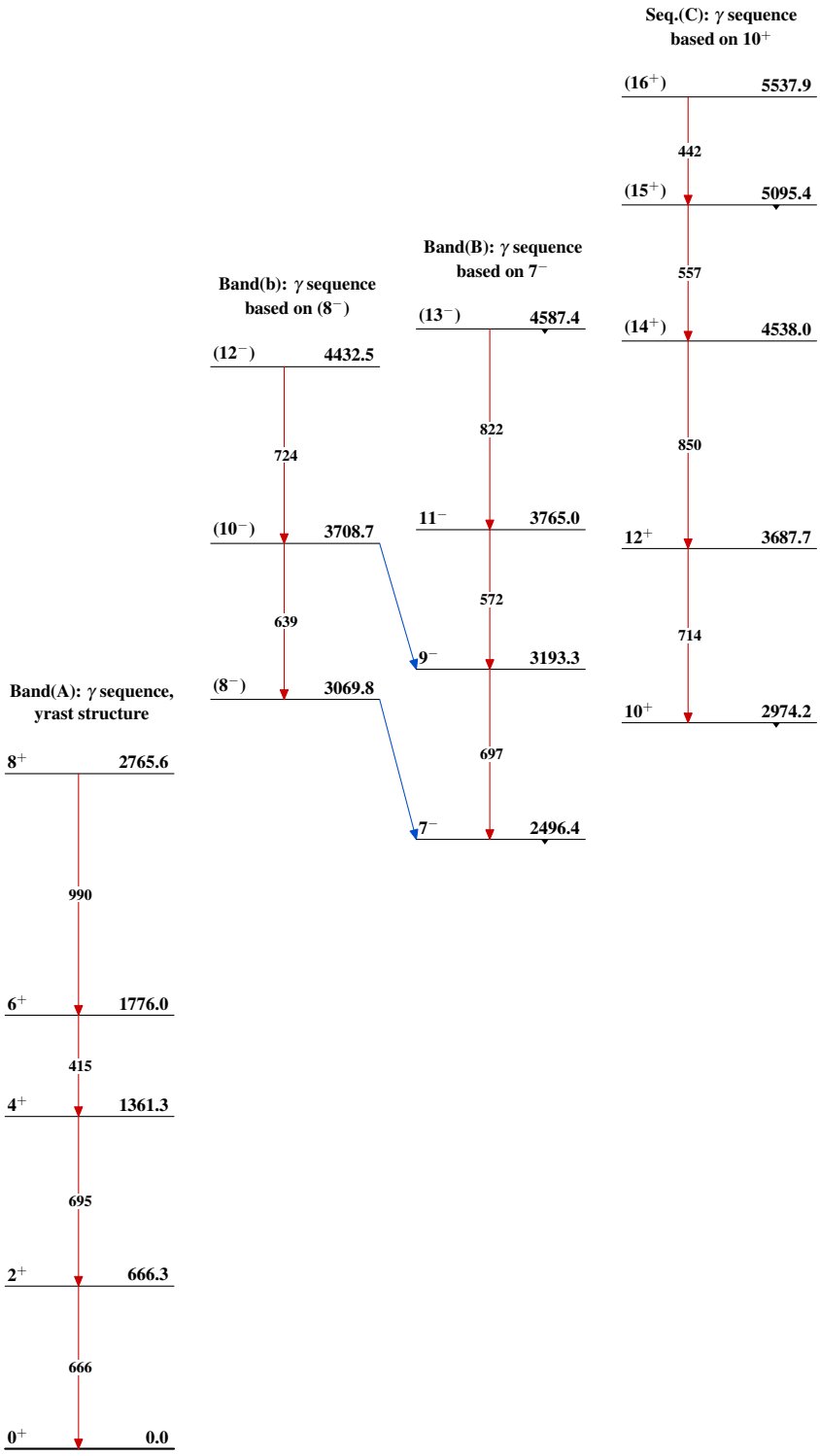

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