^{124}Sn(^{7}Li,α2nγ) 2007Ju06

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	J. Katakura	NDS 112, 495 (2011)	1-Jan-2010

2007Ju06,2005Ju12: E=37 MeV beam provided by 14UD Pelletron accelerator at the Australian National University. Measured α_K and half-lives using the Super-E electron spectrometer and a Ge detector. Measured Eγ, ce, Iγ, $\gamma\gamma$ coin, half-lives by pulsed beam timing. Comparisons with shell-model calculations. Data in 2007Ju06 supersede those reported in2005Ju12.

The 332.1, 5/2$^+$; 1419.9, 9/2$^+$ and 1889.9, (11/2$^-$) levels known from β decay studies were too weak to be measured in the work by 2007Ju06.

XUNDL data set compiled by S. Geraedts and B. Singh (McMaster), November 12, 2007, is consulted.

^{125}Sb Levels

E(level)‡	J$^\pi$#	$T_{1/2}$†
0.0	7/2$^+$	
1067.8 *3*	9/2$^+$	
1090.0 *3*	11/2$^+$	
1971.8 *3*	15/2$^-$	4.1 μs *2*
1994.4 *4*	(15/2)$^+$	
2112.8 *4*	(19/2$^-$)	28.0 μs *7*
2194.1 *4*	15/2$^+$	
2217.9 *4*	(17/2)$^-$	
2325.9 *4*	(19/2)$^+$	31 ns *2*
2472.2 *5*	(23/2)$^+$	272 ns *16*

† From pulsed-beam timing (2007Ju06).
‡ From least-squares fit to Eγ's (by compilers).
# From Adopted Levels.

γ(^{125}Sb)

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.†	α‡	Comments
105.1 *3*	2.4 *2*	2217.9	(17/2)$^-$	2112.8	(19/2$^-$)			
107.9 *3*	9.4 *5*	2325.9	(19/2)$^+$	2217.9	(17/2)$^-$			
131.8 *3*	9.5 *6*	2325.9	(19/2)$^+$	2194.1	15/2$^+$	E2	0.620 *10*	α(exp)=0.58 *4* α(K)=0.474 *8*; α(L)=0.1177 *20*; α(M)=0.0241 *4*; α(N+..)=0.00478 *8* α(N)=0.00443 *8*; α(O)=0.000348 *6* α(exp) value is from intensity balance.
140.9 *3*	52.9 *15*	2112.8	(19/2$^-$)	1971.8	15/2$^-$	E2	0.490 *8*	α(K)exp=0.51 *6* α(K)=0.379 *6*; α(L)=0.0892 *15*; α(M)=0.0182 *3*; α(N+..)=0.00363 *6* α(N)=0.00336 *6*; α(O)=0.000267 *5*
146.3 *3*	30.8 *4*	2472.2	(23/2)$^+$	2325.9	(19/2)$^+$	E2	0.429 *7*	α(K)exp=0.34 *2* α(K)=0.334 *6*; α(L)=0.0764 *13*; α(M)=0.0156 *3*; α(N+..)=0.00311 *5* α(N)=0.00288 *5*; α(O)=0.000230 *4*
246.1 *3*	8.3 *3*	2217.9	(17/2)$^-$	1971.8	15/2$^-$	M1	0.0524	α(K)exp=0.048 *13* α(K)=0.0453 *7*; α(L)=0.00570 *9*; α(M)=0.001128 *17*; α(N+..)=0.000239 *4* α(N)=0.000218 *4*; α(O)=2.16×10^{-5} *3*
331.5 *3*	17.2 *8*	2325.9	(19/2)$^+$	1994.4	(15/2)$^+$	(E2)	0.0268	α(K)exp=0.022 *5* α(K)=0.0226 *4*; α(L)=0.00344 *5*;

Continued on next page (footnotes at end of table)

^{124}Sn(^{7}Li,α2nγ) 2007Ju06 (continued)

γ(^{125}Sb) (continued)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ	α[‡]	Comments
									α(M)=0.000689 *10*; α(N+..)=0.0001420 *21* α(N)=0.0001303 *19*; α(O)=1.176×10^{-5} *17*
881.8 *3*	75.9 *10*	1971.8	15/2$^-$	1090.0	11/2$^+$	E3(+M2)	≥0.75	0.0045 *6*	Mult.: α(K)exp gives M1 or E2; ΔJ^π gives E2. α(K)exp=0.0035 *9* α=0.0045 *6*; α(K)=0.0039 *6*; α(L)=0.00053 *5*; α(M)=0.000104 *10*; α(N+..)=2.20×10^{-5} *22* α(N)=2.01×10^{-5} *20*; α(O)=1.94×10^{-6} *22* δ: $\delta^2 \geq 0.56$ (2007Ju06).
904.0 *3*	119 *3*	1971.8	15/2$^-$	1067.8	9/2$^+$	E3		0.00372 *6*	α(K)exp=0.0034 *4* α=0.00372 *6*; α(K)=0.00317 *5*; α(L)=0.000442 *7*; α(M)=8.80×10^{-5} *13*; α(N+..)=1.84×10^{-5} *3* α(N)=1.684×10^{-5} *24*; α(O)=1.601×10^{-6} *23*
904.4 *3*	21.8 *5*	1994.4	(15/2)$^+$	1090.0	11/2$^+$	E2		0.001711 *24*	α(K)exp=0.0015 *1* α=0.001711 *24*; α(K)=0.001481 *21*; α(L)=0.000186 *3*; α(M)=3.67×10^{-5} *6*; α(N+..)=7.74×10^{-6} *11* α(N)=7.05×10^{-6} *10*; α(O)=6.89×10^{-7} *10*
1067.8 *3*	118.6 *14*	1067.8	9/2$^+$	0.0	7/2$^+$	M1+E2	−0.86 *18*	0.00136 *10*	α(K)exp=0.0013 *2* α=0.00136 *10*; α(K)=0.00118 *9*; α(L)=0.000143 *10*; α(M)=2.82×10^{-5} *19*; α(N+..)=6.0×10^{-6} *4* α(N)=5.5×10^{-6} *4*; α(O)=5.4×10^{-7} *4* δ: From Adopted Levels. α(K)exp gives $\delta \leq 1.5$ (2007Ju06).
1090.0 *3*	100.0 *13*	1090.0	11/2$^+$	0.0	7/2$^+$	E2		0.001131 *16*	α(K)exp=0.0012 *3* α=0.001131 *16*; α(K)=0.000981 *14*; α(L)=0.0001208 *17*; α(M)=2.38×10^{-5} *4*; α(N+..)=5.04×10^{-6} α(N)=4.59×10^{-6} *7*; α(O)=4.51×10^{-7} *7*
1104.2 *3*	15.0 *4*	2194.1	15/2$^+$	1090.0	11/2$^+$				

[†] From α(K)exp values(2007Ju06), unless otherwise noted. The authors do not give their α(K)exp normalization.

[‡] 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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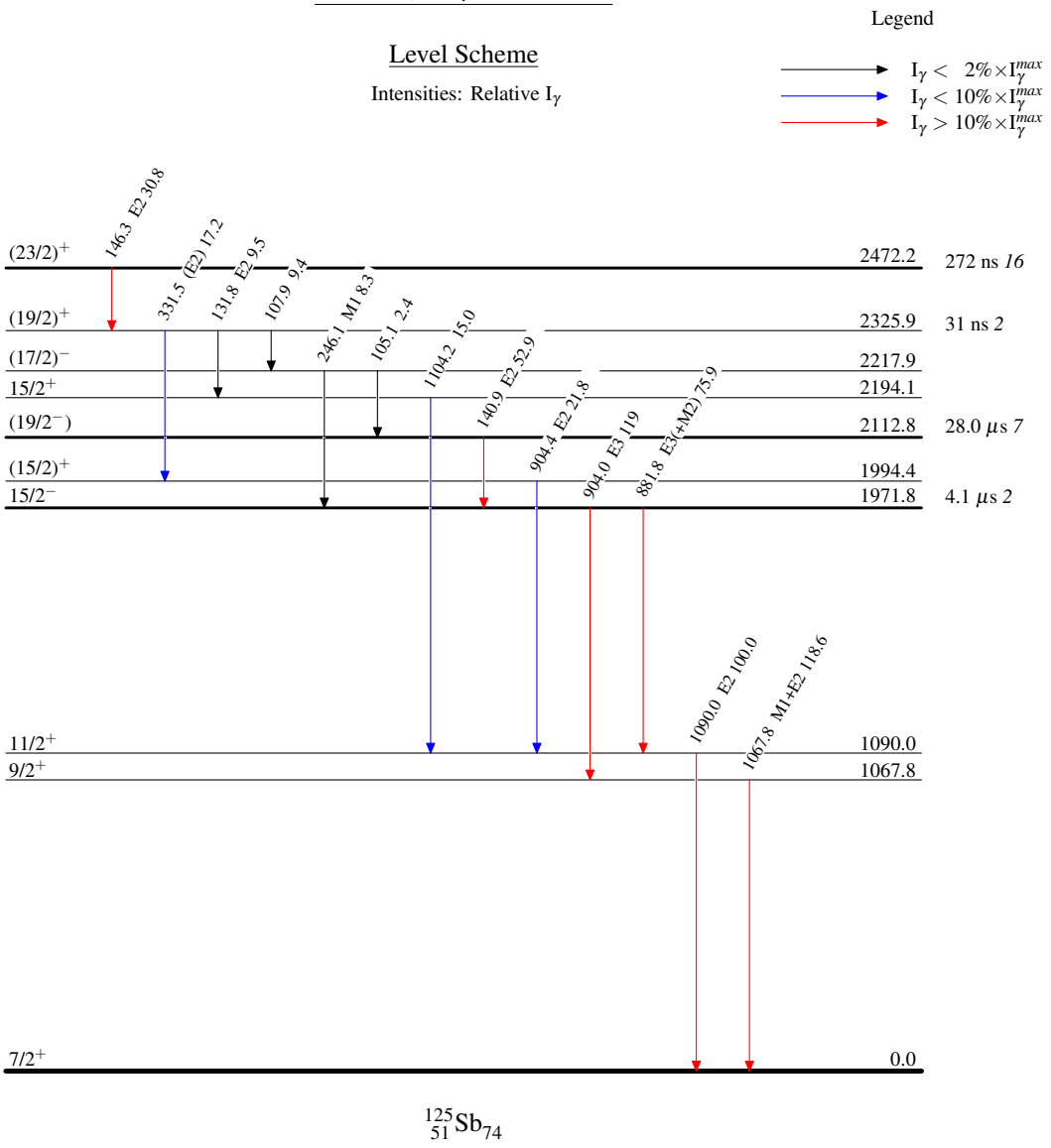
Level Scheme

Intensities: Relative I_γ



$^{125}_{51}Sb_{74}$