^{112}Sn(p,nγ) 1997Fa08

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev	NDS 124, 157 (2015)	1-Aug-2014

Facility: Debrecen 103 cm isochronous cyclotron; Beam: E(p)=8.5 to 9.3 MeV; Targets: 0.5 and 2.5 mg/cm^2 enriched to 81% in ^{112}Sn; Detectors: two HPGe, one planar HPGe, LEPS, SMLS superconducting magnetic lens spectrometer, Si(Li) detectors; Measured: γ, ce, Eγ, γ, γ-γ, γ-γ(θ), α; Also, from the same collaboration: 1997FaZY, 1993GuZX.
Others: 1976Ka19, 1976Ke07, 1977KeZY.

^{112}Sb Levels

E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡	E(level)†	Jπ‡
0#	3+	167.07@ 4	4+	411.07& 6	1+	780.92& 6	2+
38.34# 5	2+	236.44@ 4	3+	502.10@ 6	5+	788.21 6	3+
60.99# 16	(1+)	296.17@ 4	2+	510.51 5	2,3+	804.31 10	3,4
103.83# 5	4+	366.3# 5	6	672.82 7	3+	808.19 4	4+
129.6# 4	5	395.88a 5	3+	714.76 6	1+		

† From a least-squares fit to Eγ.
‡ From 1997Fa08.
# Probable member of the $\pi d_{5/2}\otimes\nu g_{7/2}$ split multiplet.
@ Probable member of the $\pi d_{5/2}\otimes\nu d_{5/2}$ split multiplet.
& Probable member of the $\pi d_{5/2}\otimes\nu d_{3/2}$ split multiplet.
a Probable member of the $\pi d_{5/2}\otimes\nu s_{1/2}$ split multiplet.

γ(^{112}Sb)

Eγ†	Iγ†	Ei(level)	J_i^π	E_f	J_f^π	Mult.†	δ†	Comments
(22.7)		60.99	(1+)	38.34	2+			
(25.8)		129.6	5	103.83	4+			
37.5 4	28 15	167.07	4+	129.6	5			
38.3 4	113 60	38.34	2+	0	3+			
59.7 1	51 9	296.17	2+	236.44	3+			
69.39 4	77 15	236.44	3+	167.07	4+	M1(+E2)	+0.02 8	Mult.: A_2=−0.145 103 and A_4=−0.132 89 (1997Fa08).
99.9 3	7 2	395.88	3+	296.17	2+			
103.8 1	1000 70	103.83	4+	0	3+	M1(+E2)	−0.01 4	Mult.: A_2=−0.264 86 and A_4=−0.042 73 (1997Fa08).
114.9 5	42 9	510.51	2,3+	395.88	3+	M1(+E2)	+0.07 15	Mult.: A_2=−0.147 135 and A_4=−0.077 116 (1997Fa08).
x122.1 1	24 4							
132.59 4	351 20	236.44	3+	103.83	4+	M1+E2	−0.07 6	Mult.: α(K)exp=0.225 44, A_2=−0.011 107 and A_4=0.064 93 (1997Fa08).
159.3 4	42 4	395.88	3+	236.44	3+	M1+E2		Mult.: α(K)exp=0.158 50 (1997Fa08).
167.10 4	409 21	167.07	4+	0	3+	M1(+E2)	+0.01 4	Mult.: α(K)exp=0.102 30,A_2=−0.254 95 and A_4=−0.044 81 (1997Fa08).
198.08 4	110 11	236.44	3+	38.34	2+	M1(+E2)	−0.04 6	Mult.: α(K)exp=0.075 14, A_2=−0.243 139 and A_4=−0.133 121 (1997Fa08).
214.4 1	28 4	510.51	2,3+	296.17	2+	M1		Mult.: α(K)exp=0.055 8 (1997Fa08).
228.8 2	99 5	395.88	3+	167.07	4+	(M1)		Mult.: α(K)exp=0.050 5 (1997Fa08).
236.6 3	60 27	236.44	3+	0	3+	(M1+E2)		Mult.: α(K)exp=0.067 18 (1997Fa08); doublet.
236.7 3	39 18	366.3	6	129.6	5	(M1+E2)		Mult.: α(K)exp=0.067 18 (1997Fa08); doublet.

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^{112}Sn(p,nγ) 1997Fa08 (continued)

$\gamma(^{112}Sb)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	Comments
257.8 *1*	34 *4*	296.17	2^+	38.34	2^+	M1		Mult.: α(K)exp=0.039 *5* (1997Fa08).
274.05 *4*	88 *4*	510.51	$2,3^+$	236.44	3^+	M1+E2		Mult.: α(K)exp=0.038 *4*, A_2=−0.276 *166* and A_4=−0.176 *146* (1997Fa08).
[x]279.8 *1*	30 *9*					M1+E2		Mult.: α(K)exp=0.051 *2* (1997Fa08). E_γ: in coincidence with 419 γ (1997Fa08).
292.1 *1*	46 *5*	395.88	3^+	103.83	4^+	M1(+E2)	+0.07 *9*	Mult.: α(K)exp=0.048 *2*, A_2=−0.154 and A_4=0.017 *111* (1997Fa08).
296.18 *4*	615 *23*	296.17	2^+	0	3^+	M1+E2		Mult.: α(K)exp=0.032 *3*, A_2=−0.006 *31* and A_4=−0.036 *26* (1997Fa08).
335.1 *1*	45 *9*	502.10	5^+	167.07	4^+	M1+E2	−0.14 *8*	Mult.: α(K)exp=0.029 *9*, A_2=−0.229 *371* and A_4=−0.058 *311* (1997Fa08).
350.0 *4*	123 *18*	411.07	1^+	60.99	(1^+)			
357.54 *4*	231 *11*	395.88	3^+	38.34	2^+	M1(+E2)	+0.01 *5*	Mult.: α(K)exp=0.017 *2*, A_2=−0.234 *105* and A_4=−0.024 *89* (1997Fa08).
369.8 *1*	38 *4*	780.92	2^+	411.07	1^+	(M1+E2)	−0.02 *14*	Mult.: α(K)exp=0.016 *2*, A_2=−0.304 *219* and A_4=−0.104 *183* (1997Fa08).
[x]370.2 *5*	8 *2*							
372.72 *4*	313 *8*	411.07	1^+	38.34	2^+	M1+E2	−0.07 *4*	Mult.: α(K)exp=0.017 *2*, A_2=−0.002 *81* and A_4=−0.001 *71* (1997Fa08).
[x]377.1 *5*	7 *4*							
[x]395.9 *4*	3 *11*					M1+E2		Mult.: α(K)exp=0.012 *1* (1997Fa08).
398.25 *4*	75 *11*	502.10	5^+	103.83	4^+	M1+E2	−0.14 *8*	Mult.: α(K)exp=0.014 *2*, A_2=−0.508 *218* and A_4=−0.010 *169* (1997Fa08).
418.59 *5*	259 *18*	714.76	1^+	296.17	2^+	M1(+E2)	+0.28 *56*	Mult.: α(K)exp=0.012 *2*, A_2=−0.057 *100* and A_4=−0.004 *87* (1997Fa08).
436.8 *4*	29 *2*	672.82	3^+	236.44	3^+	M1+E2		Mult.: α(K)exp=0.012 *2* (1997Fa08).
[x]448.2 *1*	35 *5*							
[x]450.1 *1*	19 *7*					M1+E2		Mult.: α(K)exp=0.010 *1* (1997Fa08).
[x]458.0 *3*	12 *2*							
[x]471.8 *1*	33 *11*					M1+E2		Mult.: α(K)exp=0.010 *2* (1997Fa08).
491.8 *4*	50 *11*	788.21	3^+	296.17	2^+	(M1+E2)		Mult.: α(K)exp=0.0082 *18* (1997Fa08).
[x]491.9 *2*	21 *7*							Mult.: α(K)exp=0.0082 *18* (1997Fa08).
505.7 *5*	131 *35*	672.82	3^+	167.07	4^+	M1+E2		Mult.: α(K)exp=0.0075 *9* (1997Fa08).
510.7 *3*	174 *35*	510.51	$2,3^+$	0	3^+			
[x]531.8 *2*	13 *3*							
[x]534.56 *9*	35 *7*							
[x]539.1 *2*	52 *4*					M1(+E2)		Mult.: α(K)exp=0.0065 *8* (1997Fa08).
551.6 *5*	19 *4*	788.21	3^+	236.44	3^+			
[x]553.9 *1*	47 *5*							
569.05 *9*	35 *2*	672.82	3^+	103.83	4^+	M1		Mult.: α(K)exp=0.0062 *7* (1997Fa08).
[x]584.0 *4*	57 *6*					M1		Mult.: α(K)exp=0.0057 *7* (1997Fa08).
[x]598.3 *3*	31 *3*							
[x]609.5 *1*	32 *14*					E2		Mult.: α(K)exp=0.0034 *9* (1997Fa08).
637.2 *1*	61 *4*	804.31	3,4	167.07	4^+			
641.2 *2*	5 *2*	808.19	4^+	167.07	4^+			
653.8 *2*	14 *3*	714.76	1^+	60.99	(1^+)			
[x]661.2 *4*	21 *4*							
672.7 *1*	33 *4*	672.82	3^+	0	3^+			
684.6 *3*	14 *2*	788.21	3^+	103.83	4^+			
[x]696.4 *1*	17 *4*					M1+E2		Mult.: α(K)exp=0.0031 *3* (1997Fa08).
[x]703.8 *3*	16 *5*							
704.3 *2*	53 *6*	808.19	4^+	103.83	4^+	(E2)		Mult.: α(K)exp=0.0031 *3* (1997Fa08).
719.9 *3*	14 *2*	780.92	2^+	60.99	(1^+)			
[x]731.0 *5*	15 *2*							
742.58 *4*	158 *12*	780.92	2^+	38.34	2^+	M1		Mult.: α(K)exp=0.0040 *10* (1997Fa08).
749.89 *5*	69 *4*	788.21	3^+	38.34	2^+	M1		Mult.: α(K)exp=0.0032 *6* (1997Fa08).

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^{112}Sn(p,nγ) 1997Fa08 (continued)

$\gamma(^{112}Sb)$ (continued)

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	δ[†]	Comments
[x]768.5 *2*	64 *7*					M1+E2		Mult.: α(K)exp=0.0025 *3* (1997Fa08).
[x]770.14 *8*	39 *8*							
788.1 *1*	31 *4*	788.21	3^+	0	3^+			
[x]793.7 *4*	68 *2*					M1		Mult.: α(K)exp=0.0032 *7* (1997Fa08).
[x]797.16 *4*	125 *18*					M1		Mult.: α(K)exp=0.0031 *8* (1997Fa08).
804.6 *3*	52 *7*	804.31	3,4	0	3^+			
808.17 *4*	67 *15*	808.19	4^+	0	3^+	M1+E2	+0.25 *11*	Mult.: α(K)exp=0.0027 *4*, A_2=0.022 *396* and A_4=−0.179 *342* (1997Fa08).
[x]820.98 *4*	133 *14*					E2		Mult.: α(K)exp=0.0019 *2* (1997Fa08).
[x]841.1 *2*	29 *9*							
[x]842.4 *5*	56 *6*							
[x]846.4 *5*	49 *4*							
[x]864.2 *3*	21 *3*							
[x]870.8 *5*	10 *2*							
[x]874.4 *2*	21 *7*							
[x]880.6 *5*	17 *2*							
[x]897.7 *1*	35 *2*							
[x]904.5 *3*	32 *3*							
[x]924.5 *5*	53 *7*							
[x]933.6 *3*	100 *10*							
[x]968.1 *1*	46 *5*							
[x]970.7 *1*	41 *4*							

[†] From 1997Fa08.
[x] γ ray not placed in level scheme.

^{112}Sn(p,nγ) 1997Fa08

Level Scheme

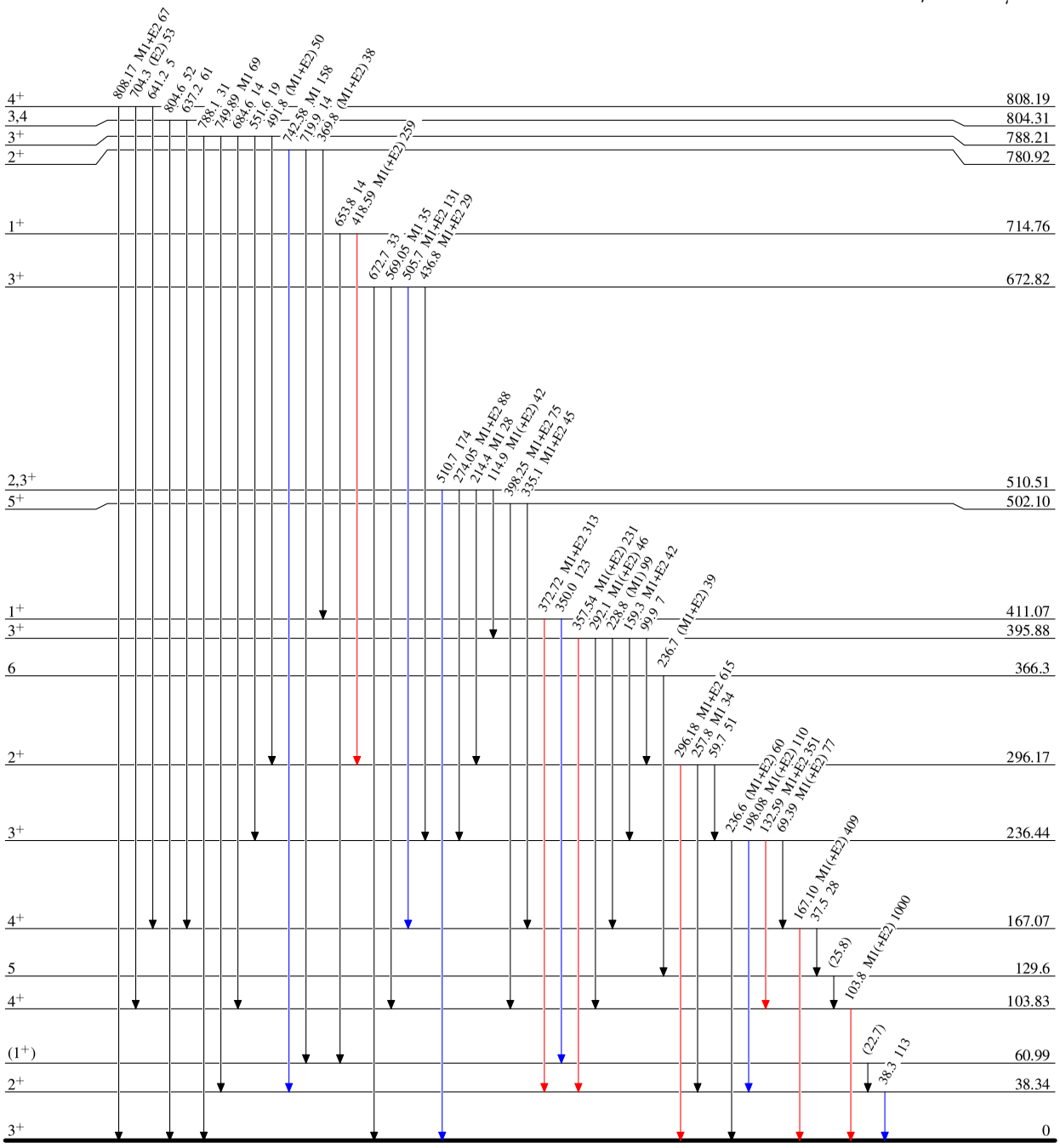
Intensities: Type not specified

Legend

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

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

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



$^{112}_{51}Sb_{61}$