$^{124}\text{Sn}(^{24}\text{Mg},6n\gamma)$:SD   **1998Ha06**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	T. D. Johnson, D. Symochko(a), M. Fadil(b), and J. K. Tuli	NDS 112, 1949 (2011)	1-Jun-2010

1998Ha06 (see also earlier publications of SD bands: 1995Ha29,1993Ha03,1993Ra08): $^{124}\text{Sn}(^{24}\text{Mg},6n\gamma)$ E=145 MeV. Measured $\gamma\gamma\gamma$, $\gamma\gamma(\theta)$(DCO), lifetimes by Doppler attenuation using Gammasphere array consisting of 91 Compton-suppressed Ge-detectors. Theory/calculations: 1998La12, 1998Ka41, 1996Ha18, 1993Pi13.

^{142}Sm Levels

E(level)	$J^{\pi\dagger}$	Comments
x[‡]	J1	Additional information 1.
		J^{π}: $\approx$(25) relative spin predicted according to the method given by 1993Ra07 and priv comm from I. Ragnarsson to G. Hackman (August 1993).
679.70+x[‡] *20*	J1+2	
1419.10+x[‡] *23*	J1+4	
2218.81+x[‡] *25*	J1+6	
3078.8+x[‡] *3*	J1+8	
3999.2+x[‡] *3*	J1+10	
4979.8+x[‡] *3*	J1+12	
6021.1+x[‡] *4*	J1+14	
7122.9+x[‡] *4*	J1+16	
8285.8+x[‡] *4*	J1+18	
9510.2+x[‡] *4*	J1+20	
10796.4+x[‡] *4*	J1+22	
12144.6+x[‡] *4*	J1+24	
13555.6+x[‡] *4*	J1+26	
15030.1+x[‡] *5*	J1+28	
16568.4+x[‡] *5*	J1+30	
18171.2+x[‡] *5*	J1+32	
19838.8+x[‡] *5*	J1+34	
21571.6+x[‡] *5*	J1+36	
23369.9+x[‡] *7*	J1+38	
y[#]	J2	Additional information 2.
726.2+y[#] *3*	J2+2	
1512.6+y[#] *4*	J2+4	
2357.0+y[#] *5*	J2+6	
3258.3+y[#] *5*	J2+8	
4216.2+y[#] *5*	J2+10	
5228.8+y[#] *6*	J2+12	
6302.5+y[#] *6*	J2+14	
7431.5+y[#] *6*	J2+16	
8617.6+y[#] *7*	J2+18	
9861.1+y[#] *7*	J2+20	
11163.0+y[#] *8*	J2+22	
12523.4+y[#] *8*	J2+24	
13942.0+y[#] *9*	J2+26	
15419.8+y[#] *10*	J2+28	

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$^{124}\text{Sn}(^{24}\text{Mg},6n\gamma)\text{:SD}$ **1998Ha06** (continued)

^{142}Sm Levels (continued)

E(level)	$J^{\pi\dagger}$
16955.2+y[#] *11*	J2+30
18544.8+y[#] *12*	J2+32
20180.1+y[#] *13*	J2+34

[†] From band assignments.

[‡] Band(A): SD-1 band (1998Ha06,1995Ha29,1993Ha03). Proposed intruder configuration=$\pi6^1\nu7^0$. Q(intrinsic)=11.7 *1* (1998Ha06). The quoted uncertainty is statistical. Additional systematic uncertainty due to stopping powers=10-15%. Percent population=0.5 *1* (1993Ha03).

[#] Band(B): SD-2 band (1998Ha06,1993Ha03). Proposed intruder configuration=$\pi6^2\nu7^1$. Q(intrinsic)=13.2 +*8*−*7* (1998Ha06). The quoted uncertainty is statistical. Additional systematic uncertainty due to stopping powers=10-15%. Percent population=0.09 *2* (1995Ha29) of ^{142}Sm channel or 17% *3* of the SD-1 population.

$\gamma(^{142}\text{Sm})$

$E_\gamma{}^\dagger$	$I_\gamma{}^\ddagger$	E_i(level)	J_i^π	E_f	J_f^π
679.7 *2*	0.30 *17*	679.70+x	J1+2	x	J1
726.2 *3*	0.08 *3*	726.2+y	J2+2	y	J2
739.4 *1*	0.84 *19*	1419.10+x	J1+4	679.70+x	J1+2
786.4 *2*	0.18 *3*	1512.6+y	J2+4	726.2+y	J2+2
799.7 *1*	0.85 *5*	2218.81+x	J1+6	1419.10+x	J1+4
844.4 *2*	0.19 *3*	2357.0+y	J2+6	1512.6+y	J2+4
860.0 *1*	1.09 *6*	3078.8+x	J1+8	2218.81+x	J1+6
901.3 *2*	0.16 *3*	3258.3+y	J2+8	2357.0+y	J2+6
920.4 *1*	1.02 *9*	3999.2+x	J1+10	3078.8+x	J1+8
957.9 *2*	0.17 *3*	4216.2+y	J2+10	3258.3+y	J2+8
980.6 *1*	0.95 *5*	4979.8+x	J1+12	3999.2+x	J1+10
1012.6 *2*	0.16 *3*	5228.8+y	J2+12	4216.2+y	J2+10
1041.3 *1*	1.11 *6*	6021.1+x	J1+14	4979.8+x	J1+12
1073.7 *2*	0.18 *3*	6302.5+y	J2+14	5228.8+y	J2+12
1101.8 *1*	0.93 *5*	7122.9+x	J1+16	6021.1+x	J1+14
1129.0 *2*	0.25 *6*	7431.5+y	J2+16	6302.5+y	J2+14
1162.9 *1*	0.94 *5*	8285.8+x	J1+18	7122.9+x	J1+16
1186.1 *2*	0.16 *3*	8617.6+y	J2+18	7431.5+y	J2+16
1224.4 *1*	1.06 *6*	9510.2+x	J1+20	8285.8+x	J1+18
1243.5 *2*	0.13 *3*	9861.1+y	J2+20	8617.6+y	J2+18
1286.2 *1*	0.82 *5*	10796.4+x	J1+22	9510.2+x	J1+20
1301.9 *3*	0.12 *3*	11163.0+y	J2+22	9861.1+y	J2+20
1348.2 *1*	0.66 *4*	12144.6+x	J1+24	10796.4+x	J1+22
1360.3 *3*	0.08 *3*	12523.4+y	J2+24	11163.0+y	J2+22
1410.9 *1*	0.58 *4*	13555.6+x	J1+26	12144.6+x	J1+24
1418.6 *3*	0.07 *5*	13942.0+y	J2+26	12523.4+y	J2+24
1474.5 *1*	0.52 *4*	15030.1+x	J1+28	13555.6+x	J1+26
1477.8 *4*	0.08 *2*	15419.8+y	J2+28	13942.0+y	J2+26
1535.4 *4*	0.06 *2*	16955.2+y	J2+30	15419.8+y	J2+28
1538.3 *1*	0.31 *3*	16568.4+x	J1+30	15030.1+x	J1+28
1589.6 *6*	0.04 *2*	18544.8+y	J2+32	16955.2+y	J2+30
1602.8 *1*	0.21 *3*	18171.2+x	J1+32	16568.4+x	J1+30
1635.3 *5*	0.04 *2*	20180.1+y	J2+34	18544.8+y	J2+32
1667.6 *1*	0.12 *2*	19838.8+x	J1+34	18171.2+x	J1+32
1732.8 *2*	0.06 *2*	21571.6+x	J1+36	19838.8+x	J1+34
1798.3[#] *4*		23369.9+x	J1+38	21571.6+x	J1+36

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<u>^{124}**Sn(^{24}Mg,6nγ):SD**   **1998Ha06 (continued)**</u>

<u>γ(^{142}Sm) (continued)</u>

[†] From 1998Ha06. Values for SD-1 are also available from 1993Ha03 and for both bands from 1995Ha29.
[‡] For SD bands, values (from 1995Ha29) are relative intensities. For absolute intensities (% of ^{142}Sm channel) multiply by $\approx$0.5.
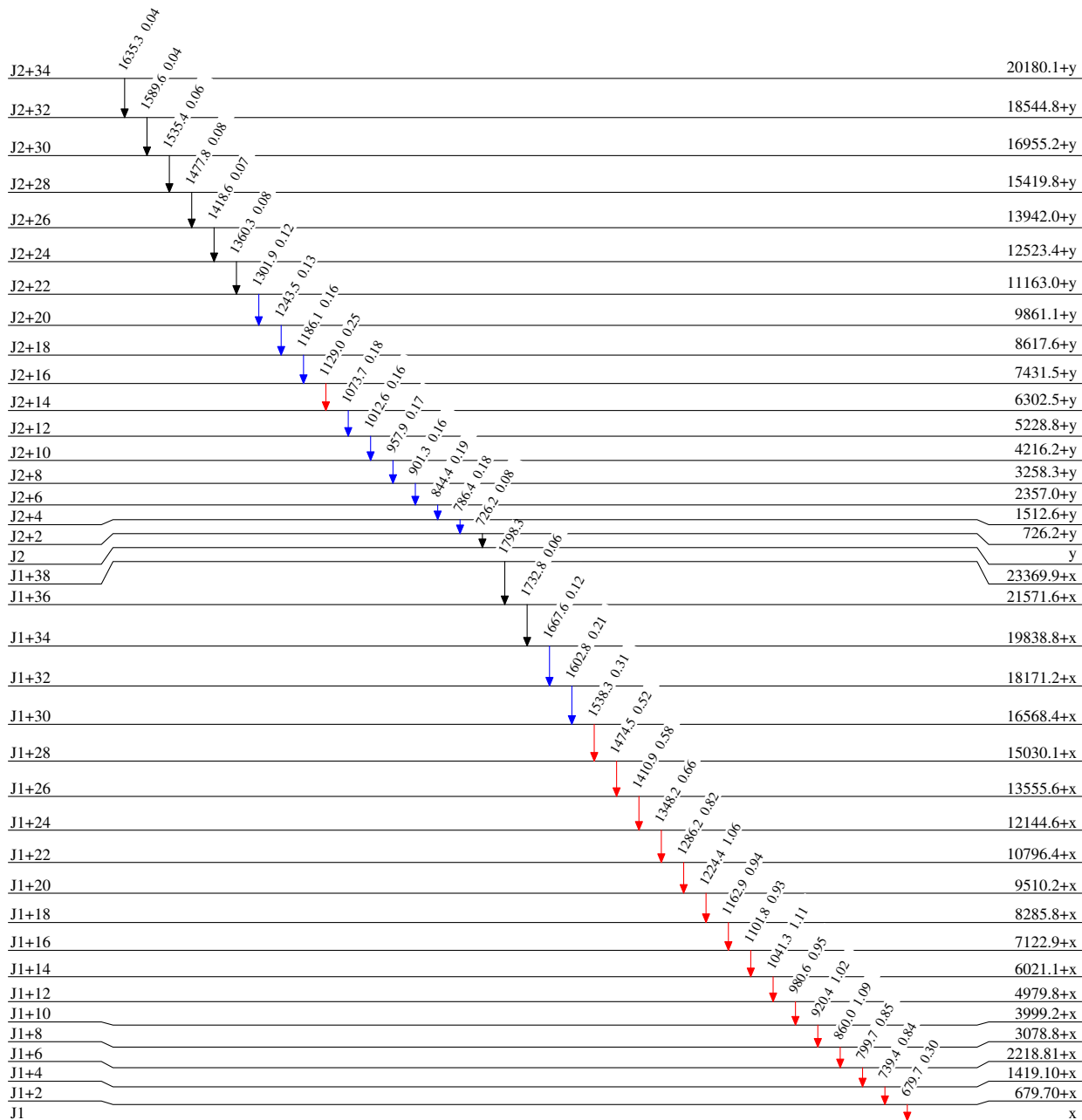For SD-1 band, values are also available from 1993Ha03.
[#] No evidence for 1782.9γ as reported in 1993Ha03.

$^{124}Sn(^{24}Mg,6n\gamma):SD$　　1998Ha06

Level Scheme

Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

J2+34　　　20180.1+y
1635.3 0.04
J2+32　　　18544.8+y
1589.6 0.04
J2+30　　　16955.2+y
1535.4 0.06
J2+28　　　15419.8+y
1477.8 0.08
J2+26　　　13942.0+y
1418.6 0.07
J2+24　　　12523.4+y
1360.3 0.08
J2+22　　　11163.0+y
1301.9 0.12
J2+20　　　9861.1+y
1243.5 0.13
J2+18　　　8617.6+y
1186.1 0.16
J2+16　　　7431.5+y
1129.0 0.25
J2+14　　　6302.5+y
1073.7 0.18
J2+12　　　5228.8+y
1012.6 0.16
J2+10　　　4216.2+y
957.9 0.17
J2+8　　　3258.3+y
901.3 0.16
J2+6　　　2357.0+y
844.4 0.19
J2+4　　　1512.6+y
786.4 0.18
J2+2　　　726.2+y
726.2 0.08
J2　　　y
1798.3
J1+38　　　23369.9+x
J1+36　　　21571.6+x
1732.8 0.06
J1+34　　　19838.8+x
1667.6 0.12
J1+32　　　18171.2+x
1602.8 0.21
J1+30　　　16568.4+x
1538.3 0.31
J1+28　　　15030.1+x
1474.5 0.52
J1+26　　　13555.6+x
1410.9 0.58
J1+24　　　12144.6+x
1348.2 0.66
J1+22　　　10796.4+x
1286.2 0.82
J1+20　　　9510.2+x
1224.4 1.06
J1+18　　　8285.8+x
1162.9 0.94
J1+16　　　7122.9+x
1101.8 0.93
J1+14　　　6021.1+x
1041.3 1.11
J1+12　　　4979.8+x
980.6 0.95
J1+10　　　3999.2+x
920.4 1.02
J1+8　　　3078.8+x
860.0 1.09
J1+6　　　2218.81+x
799.7 0.85
J1+4　　　1419.10+x
759.4 0.84
J1+2　　　679.70+x
679.7 0.30
J1　　　x

$^{142}_{62}Sm_{80}$

^{124}Sn(^{24}Mg,6nγ):SD 1998Ha06

Band(B): SD-2 band
(1998Ha06,1993Ha03)

J2+34		20180.1+y
J2+32	1635	18544.8+y
J2+30	1590	16955.2+y
J2+28	1535	15419.8+y
J2+26	1478	13942.0+y
J2+24	1419	12523.4+y
J2+22	1360	11163.0+y
J2+20	1302	9861.1+y
J2+18	1244	8617.6+y
J2+16	1186	7431.5+y
J2+14	1129	6302.5+y
J2+12	1074	5228.8+y
J2+10	1013	4216.2+y
J2+8	958	3258.3+y
J2+6	901	2357.0+y
J2+4	844	1512.6+y
J2+2	786	726.2+y
J2	726	y

Band(A): SD-1 band
(1998Ha06,1995Ha29,
1993Ha03)

J1+38		23369.9+x
J1+36	1798	21571.6+x
J1+34	1733	19838.8+x
J1+32	1668	18171.2+x
J1+30	1603	16568.4+x
J1+28	1538	15030.1+x
J1+26	1474	13555.6+x
J1+24	1411	12144.6+x
J1+22	1348	10796.4+x
J1+20	1286	9510.2+x
J1+18	1224	8285.8+x
J1+16	1163	7122.9+x
J1+14	1102	6021.1+x
J1+12	1041	4979.8+x
J1+10	981	3999.2+x
J1+8	920	3078.8+x
J1+6	860	2218.81+x
J1+4	800	1419.10+x
J1+2	739	679.70+x
J1	680	x

$^{142}_{62}$Sm$_{80}$