^{154}Sm(d,t),(pol d,t) 1997GoZN,1972Ka07,1971Be41

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 170, 1 (2020)	16-Aug-2020

1971Be41: (d,t) E(d)=12 MeV, t measured in magnetic spectrograph with FWHM ≈ 14 keV; report 25 levels up to 800 keV.
1972Ka07: (d,t) E(d)=12 MeV, t measured in magnetic spectrograph at 60°, 90°, and 125°; report 47 levels up to 1600 keV, 21 levels with J^π and band assignments. Cross section data reported at 60°, 90° and 125°. Values at 60° are listed below.
1975Ja18, 1975Ja19, 1979Ja23: (d,t) E(d)=12 MeV, report 20 levels, 16 with J^π and band assignments. Level energies are from 1972Ka07.
1997GoZN: (pol d,t) E(d)=25 MeV, measured d in 3° steps from 7° to 38°; report 124 levels up to 2150 keV. Conference papers by the same group: 1998Bl16, 1996Go17.

^{153}Sm Levels

Differential cross sections (μb/sr) at 60° (1972Ka07)

Level	dσ/dΩ	Level	dσ/dΩ
0	215	745	≈16
34	44	764	≈21
64	152	776	≈43
94	111	786	≈71
126	126	797	≈14
171	35	880	≈3 (125°)
180	99	903	6
194	58	920	4 (90°)
262	174	962	12
320	795	982	11
360	65	1075	15
402	604	1164	7
412	950	1175	4
446	15	1297	8
480	53	1310	7
492	13	1358	11
506	10	1375	11
523	156	1420	12
548	6	1484	7 (90°)
602	2 (90°)	1506	12
646	2	1532	161
698	30	1558	26
732	190	1592	10
		1602	20 (90°)

Cross sections are also listed in 1972Ka07 at 90° and 125°; and by 1971Be41 at 75° and 90° for 25 levels up to 800 keV

E(level)†	J^π‡	L@	S&	Comments
0[a]	3/2$^+$#	2	0.135	J^π: 1972Ka07 and 1971Be41 estimated the ground state to consist of 3/2[651] (≈ 84%) and 3/2[402] (≈ 15%), with small contributions from 1/2[660], 3/2[402] and 1/2[400].
7[a]	5/2$^+$		0.014	
35[b]	3/2$^-$#	1	0.013	
53[a]	7/2$^+$#		0.038	
65[a]	9/2$^+$#	4	0.70	
90[b]	5/2$^-$		0.066	
98[c]	11/2$^-$#	5	0.80	

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^{154}Sm(d,t),(pol d,t) 1997GoZN,1972Ka07,1971Be41 (continued)

^{153}Sm Levels (continued)

E(level)[†]	Jπ[‡]	L[@]	S[&]	Comments
127[d]	3/2−[#]	1	0.040	
174[b]	7/2−	(3)	0.053	
184[d]	5/2−[#]	(3)	0.175	
196[a]	13/2+[#]	6	0.849	
262[d]	7/2−[#]	3	0.149	
267[b]	9/2−[#]		0.579	
277	(5/2+)		0.010	
321[e]	3/2+	2	0.747	
362[e]	5/2+	2	0.045	
369	(7/2+)		0.091	Jπ: Assigned 9/2−, 11/2− from L=5 and to 3/2[532] band in the related (p,d) study (1997Bl11).
405[f]	1/2−			
405[f]	3/2−[#]	1	0.231	
415[g]	1/2+[#]	0	0.440	Jπ: 1972Ka07 estimated that the 1/2[660] component constitutes ≈ 20% of this state.
447	9/2−		0.200	
450	5/2−		0.020	E(level): 2005Bu21 assigned a dominant configuration of 5/2[523] from results of their (t,p) study. The same assignment is given in 'Adopted Levels'. The earlier assignment (1998He06) as member of the 1/2[530] band is rejected.
481[g]	3/2+		0.050	
495[d]	11/2−		0.172	
508	7/2−		0.020	
524	7/2−	3	0.197	
548	9/2+		0.024	
602				E(level): Not reported in 1997GoZN.
630	3/2−		0.001	
646				E(level): Not reported in 1997GoZN.
695[h]	1/2−[#]	1	0.012	
734[i]	1/2+	0	0.112	
750[h]	3/2−		0.005	
766	5/2+[#]		0.020	
778	5/2+		0.030	
788	3/2+[#]		0.070	
796[h]	5/2−		0.002	
885	(5/2+)		0.002	
903	5/2−		0.001	
916	3/2+		0.003	
920[h]	(7/2−)			E(level): Not reported in 1997GoZN.
962	5/2+		0.004	
981	3/2−		0.010	
1063	5/2−		0.003	
1074	7/2−		0.023	
1097	(3/2−)		0.002	
1109	(3/2+)		0.001	
1138	5/2−		0.004	
1144	(5/2−)		0.003	
1162	(3/2+)		0.007	
1175				E(level): Not reported in 1997GoZN.
1196	7/2−		0.002	
1210	(1/2+)		0.001	
1223	3/2+		0.001	
1235	7/2+		0.001	
1250	5/2−		0.006	

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^{154}Sm(d,t),(pol d,t) 1997GoZN,1972Ka07,1971Be41 (continued)

^{153}Sm Levels (continued)

E(level)†	Jπ‡	S&	E(level)†	Jπ‡	S&	E(level)†	Jπ‡	S&
1261	(11/2⁻)	0.028	1569	5/2⁺	0.001	1838	5/2⁺	0.010
1263	(3/2⁺)	0.001	1592	5/2⁺	0.016	1853	(3/2⁺)	0.004
1279	(3/2⁺)	0.001	1603	5/2⁺	0.019	1872	(1/2⁺)	0.006
1289	(7/2⁺)	0.014	1614	(5/2⁺)	0.004	1886	(5/2⁺)	0.007
1298	11/2⁻	0.101	1622	(1/2⁺)	0.001	1892	(3/2⁺)	0.009
1310	1/2⁺	0.005	1632	5/2⁺	0.009	1905	1/2⁺	0.001
1322			1642	(5/2⁺)	0.007	1916	(3/2⁺)	
1342	3/2⁺	0.009	1662	3/2⁺	0.007	1932	5/2⁺	0.004
1353	(11/2⁻)	0.100	1674	3/2⁻	0.006	1945	(7/2⁻)	
1362	3/2⁺	0.009	1683	3/2⁺	0.006	1963		
1375	11/2⁻	0.085	1697	3/2⁺	0.003	1975	1/2⁺	0.001
1397			1707	(5/2⁺)	0.002	1988	(5/2⁺)	0.005
1420	5/2⁺	0.016	1716	5/2⁻	0.002	1995		
1434			1723			2015	(1/2⁺)	
1442	1/2⁺	0.003	1734			2023		
1448	(3/2⁻)	0.001	1745			2041	(5/2⁻)	0.007
1456	5/2⁻	0.006	1751			2051	(5/2⁻)	0.007
1463	7/2⁻	0.002	1760	5/2⁺	0.002	2069	(3/2⁺)	0.003
1484	3/2⁺	0.003	1773	3/2⁻	0.001	2082	(3/2⁻)	0.003
1494	9/2⁻	0.063	1785	(3/2⁺)	0.003	2093	3/2⁺	0.002
1510	3/2⁺	0.011	1793	5/2⁺	0.009	2107	3/2⁺	0.004
1533	5/2⁺	0.170	1807	5/2⁺	0.011	2122	(5/2⁺)	0.003
1544	5/2⁺	0.022	1818	(1/2⁺)	0.001	2131	(5/2⁻)	0.014
1556	3/2⁻	0.010	1826	5/2⁺	0.009	2152	(3/2⁺)	0.004

† From 1997GoZN; others: 1972Ka07 and 1971Be41. Levels are from 1997GoZN unless otherwise noted.
‡ J^{π} and band assignments are from 1997GoZN; this reference also includes results of (^{3}He,α), (p,d) and average- resonance n capture, so these assignments may be influenced by these other data. Other: 1972Ka07.
# From analyzing power measurement as shown in figures 6.7 to 6.10 in 1997GoZN.
@ From 1975Ja18 and 1979Ja23.
& From 1997GoZN, where it is labeled as C_0, absolute spectroscopic factor defined by $[(d\sigma/d\Omega)_{exp}]/[N(d\sigma/d\Omega)_{DWBA}]$; N=normalization factor.
a Band(A): 3/2[651]+3/2[402] band.
b Band(B): 3/2[521] band.
c Band(C): 11/2[505] band.
d Band(D): 3/2[532] band.
e Band(E): 3/2[402]+3/2[651] band.
f Band(F): 1/2[530] band.
g Band(G): 1/2[400]+1/2[660] band.
h Band(H): 1/2[521] band.
i Band(I): 1/2[660]+1/2[400] band.

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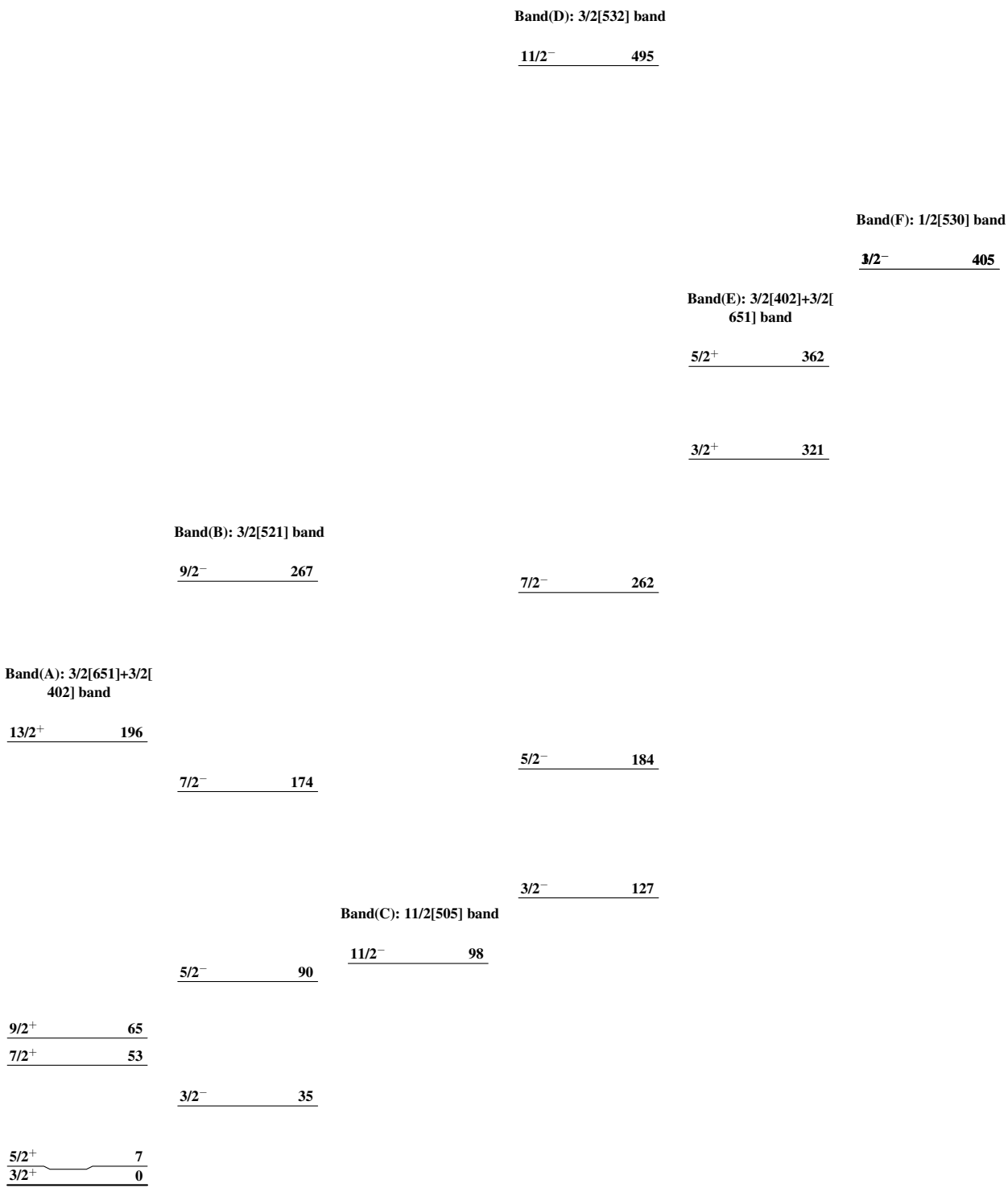

$^{153}_{62}Sm_{91}$

^{154}Sm(d,t),(pol d,t) 1997GoZN,1972Ka07,1971Be41 (continued)

Band(H): 1/2[521] band

$(7/2^-)$ 920

$5/2^-$ 796

$3/2^-$ 750

Band(I): 1/2[660]+1/2[400] band

$1/2^+$ 734

$1/2^-$ 695

Band(G): 1/2[400]+1/2[660] band

$3/2^+$ 481

$1/2^+$ 415

$^{153}_{62}Sm_{91}$