^{154}Sm(pol t,α) 1978Bu18

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

1978Bu18: E=17 MeV with α measured in 5° steps from 10° to 45° in magnetic spectrometer with FWHM of 16-18 keV.
1989Th04: model calculation that give better agreement with the magnitude of the cross sections than that with the DWBA calculations.

^{153}Pm Levels

Differential cross sections listed under comments are in μb/sr at 25°. The analyzing powers, A_y values are also at 25°.

E(level)[†]	J^π[‡]	S[#]	Comments
0.0[@]	5/2$^-$	0.006	dσ/dΩ≈2.6 μb/sr, A_y=−0.82 *17* (25°).
32[&] *4*	5/2$^+$	0.03	dσ/dΩ=14 μb/sr, A_y=+0.44 *9* (25°).
66[@] *4*	7/2$^-$	0.06	dσ/dΩ=28 μb/sr, A_y=+0.53 *6* (25°).
107[&] *4*	7/2$^+$	0.63	dσ/dΩ=101 μb/sr, A_y=−0.53 *3*.
151[@] *4*	9/2$^-$	0.10	dσ/dΩ=15, A_y=−0.65 *8*.
200[&] *4*	9/2$^+$	0.05	dσ/dΩ=11, A_y=+0.08 *11*.
255[@] *4*	11/2$^-$	1.1	dσ/dΩ=200, A_y=+0.35 *2*.
312?[&]	(11/2$^+$)		dσ/dΩ≈7, A_y=−0.03 *13*.
378?[@]	(13/2$^-$)		dσ/dΩ≈7, A_y=−0.57 *12*.
453[a] *4*	3/2$^+$	0.014	dσ/dΩ=9, A_y=−0.70 *10*.
511[a] *4*	5/2$^+$	0.28	dσ/dΩ=138, A_y=+0.30 *3*.
588[a] *4*	7/2$^+$	0.05	dσ/dΩ≈9, A_y=+0.14 *12*.
682 *4*			dσ/dΩ=10, A_y=+0.16 *12*.
707[b] *4*	1/2$^+$		dσ/dΩ=82, A_y=−0.18 *4*. S: value given as (≈0.19).
773[b] *4*	5/2$^+$	0.42	dσ/dΩ=204, A_y=+0.40 *2*.
≈795[b]	3/2$^+$	0.06	dσ/dΩ=29, A_y=−0.46 *7*.
935[b] *4*	(9/2$^+$),(3/2$^-$)		dσ/dΩ=31, A_y=+0.03 *7*. J^π: Probably the 3/2[541] Nilsson state. The observed value of dσ/dΩ for this peak is larger than expected for the 3/2[541] Nilsson state, so 1978Bu18 attributed part of the intensity to the 9/2$^+$ member of the 1/2[420] band. S: 1978Bu18 give s ≤ 0.15 for the L=4 component and ≤ 0.034 for the L=1 component.
968[b] *4*	7/2$^+$	0.38	dσ/dΩ=53, A_y=−0.13 *5*.
1022[c] *4*	7/2$^-$	0.29	dσ/dΩ=120, A_y=+0.34 *3*.
1152[c] *4*	11/2$^-$	1.4	dσ/dΩ=209, A_y=+0.20 *2*.
1179 *4*	(3/2$^+$)		dσ/dΩ=35, A_y=−0.43 *6*. J^π: Angular distributions suggest L=2, and negative analyzing power indicates J=L−1/2. The J^π assignment is listed as tentative because the L-transfer is not definite.
1208[d] *4*	3/2$^+$	0.089	dσ/dΩ=36, A_y=−0.32 *6*.
1262[d] *4*	(5/2$^+$)	0.074	dσ/dΩ=33, A_y=+0.10 *6*. J^π: Although the angular distribution is consistent with L=2 and the energy agreement is good, the analyzing power is not consistent with DWBA curves for L=2, so the J^π assignment is tentative.
1311 *4*			dσ/dΩ=15, A_y=−0.06 *10*.
1345[d] *4*	7/2$^+$	0.53	dσ/dΩ=68, A_y=−0.33 *4*.
1376 *4*			dσ/dΩ=25, A_y=−0.03 *7*.
1437 *4*			dσ/dΩ=13, A_y=+0.17 *10*.
1476 *4*			dσ/dΩ=11, A_y=+0.23 *11*.

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^{154}Sm(pol t,α) 1978Bu18 (continued)

^{153}Pm Levels (continued)

E(level)[†]	Comments
1629	$d\sigma/d\Omega$=22, A_y=+0.22 *8*.
≈1702	$d\sigma/d\Omega$≈9, A_y=+0.07 *12*.
≈1737	$d\sigma/d\Omega$≈13, A_y=−0.12 *10*.
≈1763	$d\sigma/d\Omega$≈18, A_y=+0.16 *8*.
≈1794	$d\sigma/d\Omega$≈12, A_y=+0.09 *11*.
≈1829	$d\sigma/d\Omega$≈20, A_y=−0.22 *8*.
≈1869	$d\sigma/d\Omega$≈25, A_y=−0.04 *7*.
1953	$d\sigma/d\Omega$=25, A_y=+0.24 *7*.
2138	$d\sigma/d\Omega$=43, A_y=+0.01 *6*.
2221	$d\sigma/d\Omega$=48, A_y=+0.06 *5*.
2280	$d\sigma/d\Omega$≈24, A_y=+0.11 *8*.
2333	$d\sigma/d\Omega$=32, A_y=+0.16 *6*.

[†] Authors estimate uncertainty in level energies are ≤ 4 keV below 1500 keV and somewhat larger for higher excitations.
[‡] Assignments of 1978Bu18 based on comparison of measured angular distributions of cross sections and analyzing powers with DWBA predictions.
[#] Values are spectroscopic factors defined by S = $d\sigma/d\Omega$(exp) / [2N * $d\sigma/d\Omega$(DWBA)] with a normalization factor of N=23.
[@] Band(A): 5/2[532] band.
[&] Band(B): 5/2[413] band.
[a] Band(C): 3/2[411] band.
[b] Band(D): 1/2[420] band.
[c] Band(E): 3/2[541] band.
[d] Band(F): 3/2[422] band.

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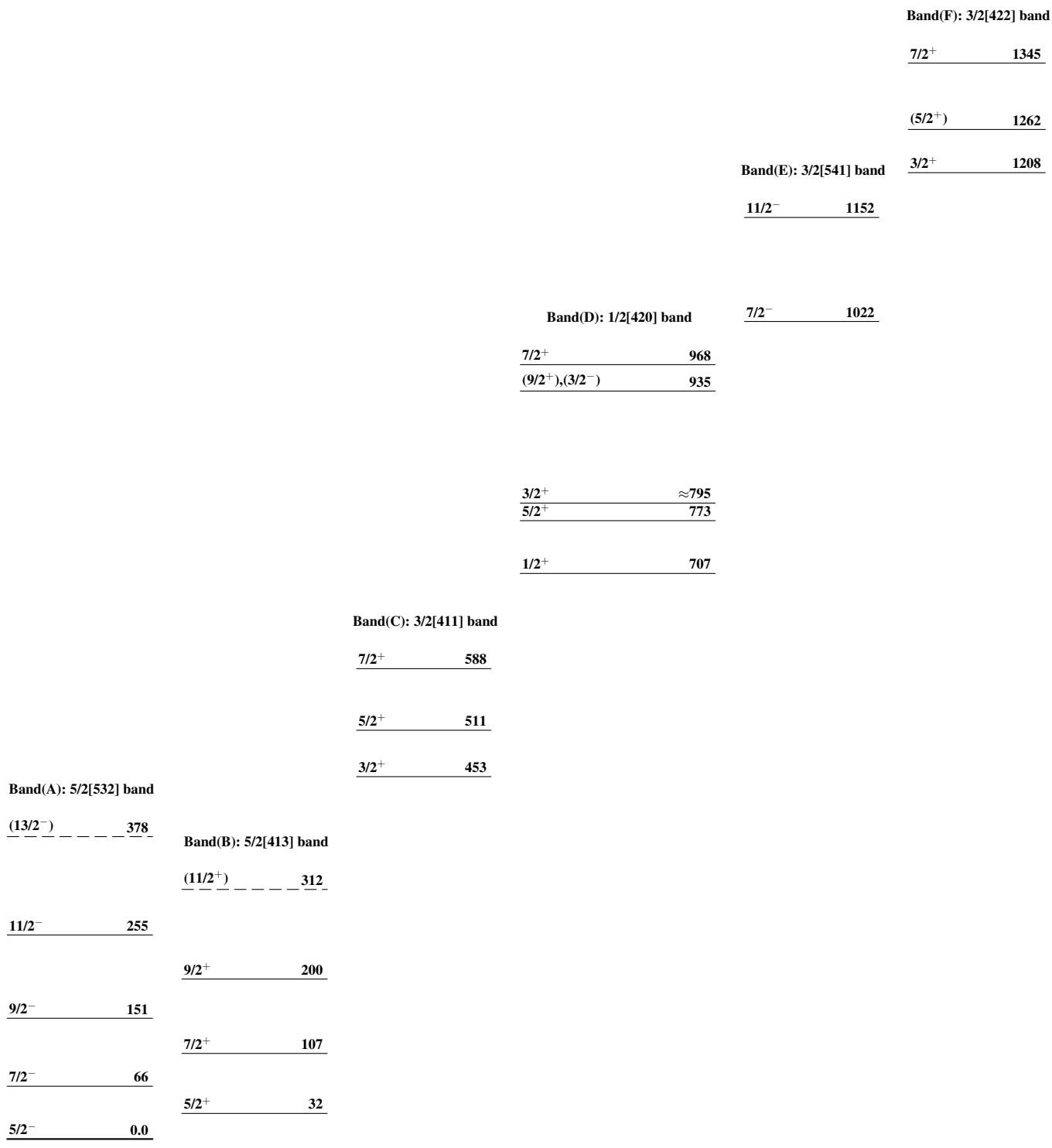

$^{153}_{61}Pm_{92}$