^{25}Mg(d,^{3}He),(^{11}B,^{12}C) 1998Ve01,1971Kr04,2006De32

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty	NDS 186, 2 (2022)	31-Mar-2022

$J^{\pi}(^{25}Mg)=5/2^{+}$.

1998Ve01: ^{25}Mg(d,^{3}He) E_d=29 MeV. ^{25}Mg target (with 96% enrichment) with carbon backing having thickness about 5 μg/cm^2 was used. The ^{3}He particles were momentum analyzed with an Enge split-pole magnetic spectrograph. Measured σ(E(^{3}He),θ) and compared with DWBA calculations.

1971Kr04: ^{25}Mg(d,^{3}He) E=52 MeV. Measured σ(E(^{3}He),θ), E-ΔE telescope.

2006De32: The reaction ^{25}Mg(^{11}B,^{12}C) at E=35 MeV was used. The beam was delivered by the 8 MV Sao Paulo Pelletron Tandem accelerator. An enriched (97% enrichment) ^{25}Mg target on carbon backing was used. A very thin layer of ^{209}Bi was evaporated on carbon backing for the sake of normalization purpose. The detection system comprised of three telescopes formed by gas proportional counters as the ΔE detectors and the silicon surface barrier detectors for the energy measurements. Measured angular distributions of the out-going particles and compared with DWBA calculations. The DWBA calculations were carried out using two different optical potentials, the Sao Paulo Optical Potential (PSP) and the Wood-Saxon potential (POT2).

^{24}Na Levels

E(level)[†]	L[†]	C^{2}S[†]	Comments
0	2	0.88	C^{2}S: 1.07 (following PSP), 0.601 (following POT2) (from 2006De32); 1.37 (from 1971Kr04).
475 *5*	2	0.13	C^{2}S: 0.118(following both PSP and POT2)(from 2006De32).
568 *5*	2	0.42	C^{2}S: 0.45 (following PSP), 0.268 (following POT2) (from 2006De32); 0.41 (from 1971Kr04).
1348[‡] *5*	2	0.48	C^{2}S: 2006De32 provides separately the spectroscopic factors for the triplet of states 1341, 1345, and 1347 keV. The quoted values are: 0.0 (following both PSP and POT2) for the 1341-keV state, 0.877 (following PSP), 0.461 (following POT2) for the 1345-keV state, 0.0 (following both PSP and POT2) for the 1347-keV state; 0.58 (from 1971Kr04).
1514 *5*	2	0.34	C^{2}S: 0.60 (following PSP), 0.322 (following POT2) (from 2006De32); 0.53 (from 1971Kr04).
1845 *5*	2	<0.013	
1883 *5*	2	0.14	
2511 *5*	2	0.13	
2560 *5*	2	0.14	
2905 *5*	0	<0.27	L: From 1971Kr04 – from a comparison with typical angular distributions from the ^{24}Mg(d,^{3}He)^{23}Na reaction. Other: 2 (1998Ve01 – from two measured data points).
2978 *5*	2	<0.06	
3214 *5*	2	0.054	
3371 *5*	1	0.08	
3413 *5*	2	0.010	
3630 *5*	2	<0.037	
3657 *5*	2	<0.043	
3745 *5*	1	0.06	
3884 *5*			
3934 *5*	1	0.70	
3974 *5*			
4140 *5*			
4194 *5*			
4438 *5*			
4524 *5*	1	0.59	
4619 *5*			
4692 *5*			
4751 *5*			
4888 *5*			
4907 *5*			
4936 *5*	2		L: from 1971Kr04 – from a comparison with typical angular distributions from the ^{24}Mg(d,^{3}He)^{23}Na reaction.
4973 *5*			
5028 *5*			

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^{25}Mg(d,^{3}He),(^{11}B,^{12}C) 1998Ve01,1971Kr04,2006De32 (continued)

^{24}Na Levels (continued)

E(level)†	L†	C^{2}S†	E(level)†	L†	C^{2}S†	E(level)†	L†	C^{2}S†	E(level)†	L†	C^{2}S†
5055 *5*			5452 *5*	1	0.08	5846 *5*	1	0.02	6846 *5*		
5115 *5*			5476 *5*			5863 *5*	1	0.008	6905 *5*	1	0.09
5189 *5*	1	0.05	5627 *5*			6223 *5*			7084 *5*	1	0.22
5243 *5*	1	0.21	5674 *5*			6248 *5*			7144 *5*		
5335 *5*			5733 *5*			6715 *5*			7246 *5*	1	0.04
5402 *5*			5770 *5*			6787 *5*			7313 *5*		

† From 1998Ve01 unless otherwise stated.
‡ Multiplet.