^{45}Sc(d,p) 1992Ro12,1966Ra18

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	S. -c. Wu	NDS 91, 1 (2000)	15-Jul-2000

E=12 MeV (1992Ro12); multi-gap magnetic spectrograph, emulsions; DWBA analysis of angular distributions 11.25° to 116.25°.
E=6.5, 7 MeV (1966Ra18); multi-gap magnetic spectrograph, emulsions; DWBA analysis of angular distributions.
$J^{\pi}(^{45}Sc)=7/2^{-}$.
Other: 1996Ba72.

^{46}Sc Levels

E(level)[†]	J^{π}[@]	L[&]	S′[&b]	Comments
0	4^+	3	0.353	S′=0.58 (1966Ra18).
49 *3*	6^+	3	0.863	S′=1.33 (1966Ra18).
143 *3*				
227 *3*	3^+	3	0.358	S′=0.62 (1966Ra18).
280 *3*		1+3	0.055	S′=0.055 for L=1 and 0.536 for L=3 (1992Ro12). S′=0.10 for L=(1) (1966Ra18).
446 *3*	2^+	3	0.200	S′=0.31 (1966Ra18).
583 *3*				
629 *3*				
773 *3*	5^+	3	0.348	S′=0.61 (1966Ra18).
835 *3*	4^+	3	0.210	S′=0.32 (1966Ra18).
978 *3*	7^+	3	0.424	
1006[‡] *6*		3	0.134	
1092 *4*		1	0.016	S′=0.03 (1966Ra18).
1131 *4*		0	0.0034	S′=0.001 (1966Ra18).
1142 *4*		0	0.0045	S′=0.03 for L=(3) (1966Ra18).
1273 *4*				
1325 *4*		3	0.049	S′=0.04 for L=(1) (1966Ra18).
1397 *4*		1	0.0056	S′=0.06 (1966Ra18).
1438 *4*		0	0.0089	S′=0.001 for L=(1) (1966Ra18).
1527 *4*				
1648 *4*		0	0.0021	S′=0.005 (1966Ra18).
1676 *4*		1	0.020	S′=0.03 (1966Ra18).
1692[#] *6*		0	0.002	L and S′ from 1966Ra18.
1716[‡] *6*				
1753 *4*		(3)	0.074	S′=0.03 (1966Ra18).
1770 *4*		1	0.0064	S′=0.005 (1966Ra18).
1804 *4*		1	0.040	S′=0.05 (1966Ra18).
1825 *4*				
1852 *4*		1	0.0020	
1885 *4*		3	0.146	S′=0.014 for L=1 (1966Ra18).
1923 *4*				Non-stripping (1992Ro12); L=1 and S′=0.017 (1966Ra18).
2059 *4*		(0)	0.016	L and S′ from 1966Ra18.
2073 *4*		1	0.105	
2117 *4*		1	0.138	S′=0.17 (1966Ra18).
2176 *4*				
2210 *4*		3	0.019	
2225 *4*		1	0.029	S′=0.05 (1966Ra18).
2296 *4*				
2307 *4*		1	0.029	S′=0.06 (1966Ra18).
2332 *4*		1	0.618	S′=0.80 (1966Ra18).
2371 *4*		(1)	0.0108	S′=0.007 for L=1 (1966Ra18).
2415 *4*		1	0.050	
2455 *4*		1	0.125	S′=0.18 (1966Ra18).
2534 *4*		1	0.081	S′=0.11 (1966Ra18).

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^{45}Sc(d,p) 1992Ro12,1966Ra18 (continued)

^{46}Sc Levels (continued)

E(level)[†]	L[&]	S′[&b]	Comments
2565 *4*	1	0.125	S′=0.16 (1966Ra18).
2592 *4*	2	0.016	S′=0.001 for L=(0) (1966Ra18).
2650 *4*	(2)	0.0084	S′=0.001 for L=(0) (1966Ra18).
2672 *6*	1	0.0031	
2714 *6*	1	0.209	
2733[#] *8*	1	0.04	L and S′ from 1966Ra18.
2760[‡] *8*	1	0.0040	
2785 *6*	0	0.015	
2815 *6*	1	0.028	
2841 *6*	(1)	0.0036	S′=0.004 for L=0 (1966Ra18).
2863 *6*	1	0.271	
2898 *6*	1	0.028	S′=0.04 (1966Ra18).
2942 *6*	0	0.0039	S′=0.001 (1966Ra18).
2980 *6*	1	0.131	S′=0.175 (1966Ra18).
3005[#] *8*			
3021[#] *8*			
3033 *6*	1	0.054	
3063 *6*	1	0.079	
3090 *6*	1	0.056	S′=0.013 (1966Ra18).
3143 *6*	(0)	0.0049	
3184 *6*	1	0.051	S′=0.08 (1966Ra18).
3243 *6*	1	0.075	S′=0.11 (1966Ra18).
3285 *6*			Non-stripping (1992Ro12); L=1 and S′=0.008 (1966Ra18).
3323 *6*	1	0.040	
3394 *6*	1	0.065	S′=0.10 (1966Ra18).
3422 *6*	1	0.065	
3450 *6*	1	0.069	
3481 *6*	1	0.030	S′=0.044 (1966Ra18).
3512 *6*	1	0.031	S′=0.042 (1966Ra18).
3538 *6*	1	0.081	
3588 *6*			Non-stripping (1992Ro12); L=1 and S′=0.008 (1966Ra18).
3615 *6*	1	0.090	S′=0.115 (1966Ra18).
3661 *6*	1	0.018	S′=0.027 (1966Ra18).
3696 *6*	1	0.026	S′=0.02 (1966Ra18).
3722 *6*	(1)	0.0048	S′=0.015 (1966Ra18).
3770 *6*	1	0.103	
3790 *6*	1	0.025	S′=0.036 (1966Ra18).
3818 *6*	1	0.028	
3837 *6*	1	0.0053	S′=0.015 (1966Ra18).
3877 *6*	1	0.036	S′=0.058 (1966Ra18).
3936 *6*	1	0.018	S′=0.038 (1966Ra18).
3961 *6*	1	0.0093	S′=0.014 (1966Ra18).
3983 *6*	1	0.013	S′=0.028 (1966Ra18).
4008 *7*	1	0.020	
4029 *7*	1	0.0044	
4068 *7*	(1)	0.0044	
4088 *7*	(1)	0.039	
4120 *7*			
4136[#] *10*			
4153[‡] *10*	2	0.065	
4186 *7*	*a*		
4200 *7*			
4229 *7*	3	0.194	
4249 *7*			
4270[#] *10*			L=(1), S′=0.066 for 4270+4290 levels.

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^{45}Sc(d,p) 1992Ro12,1966Ra18 (continued)

^{46}Sc Levels (continued)

E(level)[†]	L[&]	S′[&b]	Comments
4288 *7*	1	0.019	
4311 *7*	1	0.021	
4330 *7*	*a*		
4350 *7*	3	0.016	
4362[#] *10*	1	0.032	L and S′ from 1966Ra18.
4381 *7*	1	0.101	L=(1), S′=0.115 for 4379+4397 levels.
4399 *7*	*a*		
4414[#] *10*			
4435 *7*	*a*		
4450 *7*			Non-stripping (1992Ro12); L=1 and S′=0.092 (1966Ra18).
4470 *7*	1	0.054	S′=0.081 (1966Ra18).
4498 *7*	1	0.046	
4518[‡] *10*	1	0.034	
4539 *7*			
4560 *7*			
4575 *7*	1	0.026	
4592 *7*	*a*		
4616 *7*	1	0.038	
4649 *7*	1	0.030	
4666 *7*	1	0.033	
4689 *7*	1	0.065	
4713 *7*			
4732 *7*			L=(1), S=0.10 for 4731+4755 levels.
4755 *7*	1	0.044	
4775 *7*	1	0.0080	
4794 *7*	0	0.019	
4818 *7*			
4846 *7*	1	0.096	
4871 *7*			L=(1), S=0.119 for 4871+4894 levels.
4881[‡] *10*			
4896 *7*	1	0.081	
4927 *7*	2	0.105	
4956 *7*			
4972 *7*	1	0.031	L and S′ value from table I of 1992Ro12 mis-aligned.
5010 *7*	1	0.035	L=(1), S=0.062 for 5009+5024 levels.
5024 *8*			
5045 *8*	1	0.014	
5061 *8*	*a*		
5079 *8*	1+3	0.045	S′=0.045 for L=1 and 0.828 for L=3 (1992Ro12).
5113 *8*	1	0.040	S′=0.081 (1966Ra18).
5135 *8*			
5149 *8*	0	0.023	
5165 *8*	1	0.046	
5192 *8*			
5207 *8*	1	0.091	L and S′ value from table I of 1992Ro12 mis-aligned. S′=0.064 (1966Ra18).
5235 *8*			
5250 *8*	3	0.075	
5272 *8*			
5300 *8*	*a*		
5327 *8*			
5344 *8*	0	0.016	
5364 *8*	*a*		L=(1), S=0.093 for 5365+5376+5387+5405 levels.
5376 *8*			
5388 *8*			

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^{45}Sc(d,p) 1992Ro12,1966Ra18 (continued)

^{46}Sc Levels (continued)

E(level)†	L&	S′&b	Comments
5404 *8*	1	0.086	
5427‡ *12*	1	0.038	
5445 *8*	1	0.014	
5465 *8*	*a*		
5491‡ *12*	(3)	0.065	
5514 *8*	1	0.038	
5528 *8*			
5563 *8*	0	0.015	
5595 *8*	1	0.028	
5620 *8*	1	0.039	
5644# *12*			
5659 *8*	1	0.045	
5694 *8*			L=(1), S=0.047 for 5696+5729 levels.
5727 *8*	*a*		
5753 *8*	3	0.123	
5772 *8*	1	0.016	
5796 *8*			
5814 *8*	1	0.031	
5837 *8*	1	0.033	
5878 *8*	1	0.023	
5908 *8*	*a*		
5928 *8*	1	0.020	
5955 *8*	*a*		
5979 *8*	(1)	0.013	
6004‡ *12*	1	0.033	
6037‡ *14*	1+3	0.016	S′=0.016 for L=1 and 0.218 for L=3 (1992Ro12).
6061‡ *14*	1	0.021	
6083‡ *14*	1	0.016	
6110‡ *14*	1	0.014	
6134‡ *14*			
6145‡ *14*	1	0.025	
6159‡ *14*	1	0.026	
6191‡ *14*	3	0.323	
6253‡ *14*	*a*		
6276‡ *14*	1	0.025	
6295‡ *14*	3	0.149	
6327‡ *14*	*a*		
6362‡ *14*	1	0.014	
6380‡ *14*	1	0.0079	
6405‡ *14*	3	0.180	
6429‡ *14*	1	0.015	
6454‡ *14*	1	0.0091	
6469‡ *14*	1	0.018	
6482‡ *14*	*a*		
6497‡ *14*	1	0.0080	
6525‡ *14*	1	0.0106	
6549‡ *14*	1	0.0111	
6568‡ *14*	*a*		
6593‡ *14*	*a*		

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^{45}Sc(d,p) 1992Ro12,1966Ra18 (continued)

^{46}Sc Levels (continued)

E(level)†	L&	S′&b	E(level)†	L&	E(level)†
6612‡ *14*	1	0.018	6698‡ *14*	*a*	6810‡ *14*
6650‡ *14*	1	0.018	6728‡ *14*	*a*	6853‡ *14*
6682‡ *14*			6762‡ *14*	*a*	6874‡ *14*

† Weighted average of 1992Ro12 and 1966Ra18, except as noted. Evaluator assumes similar ΔE from 1992Ro12 and 1966Ra18 due to similar FWHM of the detected protons. Some data in 1992Ro12 are corrected based on private communication (1999SeZX).

‡ Observed in 1992Ro12 only.

Observed in 1966Ra18 only.

@ Proposed by 1973Cl11 from sum rule analysis.

& From 1992Ro12, except as noted.

a Non-stripping reaction (1992Ro12).

b S′=σ(expt)/(1.55 σ(DWBA)/(2J+1)), see 1992Ro12.