$^{45}Sc(p,p'),(d,d')$

	Type	Author	History Citation	Literature Cutoff Date
	Full Evaluation	T. W. Burrows	NDS 109, 171 (2008)	30-Oct-2007

1968Ha31: ED=7.5 MeV. Measured $\sigma(\theta=22.5°-157.5°$, 7.5° steps); multi-angle spect. Absolute $\sigma(\theta)$ determined from the measured target thickness and exposure ratios.

1968Pe10: E(p)=17.5 MeV. Measured $\sigma(\theta)$; Si. FWHM=25 keV. DWBA.

1970Br03: E(p)=3.8 to 6.4 MeV. $\theta=90°$. Browne-Buechner spect. Also measured $E\gamma$ In (p,p'γ).

1971Ma57: E(p)=49.75 MeV 10. Measured $\sigma(\theta)$; mag spect, acoustic-spark chamber along the focal plane. $\Delta E=20-30$ keV. DWBA.

1974Ru02: E(p)=5.200 to 5.478 MeV, 7-keV steps. Measured $\sigma(\theta=90°,110°,130°,150°)$; Si. Comparison to Hauser-Feshbach calculations to eliminate spin uncertainties. See also (p,p'γ).

1975Da16: E(p)=2, 2.5, 3, 3.5 MeV. Measured E(p) and IP (Si).

1980Bu08: E(p)=5.148 to 5.425 MeV, 7.5-keV steps. Measured $\sigma(\theta)$; Si. Comparison to Hauser-Feshbach calculations to eliminate spin uncertainties. See also (p,p'γ) and Coulomb excitation.

Others: see 1983Bu21.

^{45}Sc Levels

L(I),S(J) L(d,d')=2 from similarity of shape to L=2 transfers In even-even nuclei. $\beta R(1236)=0.25$ and $\beta R(1660)=0.16$.

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L(M),S(N) TV   Unresolved multiplet in 1971Ma57.
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Ex	L	βR	Ex	L	βR
2128 30	3	0.20	3069 30	3	0.19
2318 20	2	0.27	3184 30	2	0.16
2607 30	2+4	0.19	4109 30	3	0.31

E(level)[†]	J$^{\pi}$[‡]	L[#]	βR[#]	E(level)[†]	L[#]	βR[#]
0.0				2506[a] 30	(4,5)	[g]
14[@] 20				2562 7		[g]
376[&] 4	3/2$^-$	2	0.46	2596 7		
570[a] 30	5/2$^+$	(2)	[b]	2634 7		
720[&] 4		2	0.37	2700 7		[h]
940?[ac] 30		3	0.09	2764 7	2	0.15
1066[&] 4	3/2$^-$	2	0.25	2790 7		
1236[&] 4	11/2$^-$	2	0.61	2943 7	3	0.35
1303 7	3/2$^+$			2990 7		
1407[&] 4	7/2$^-$		[b]	3021 7		
1425[d] 6	7/2,9/2$^+$		[b]	3059 7		
1551[d] 8	1/2$^-$	(4)[@]		3111 7	2[@]	0.19[@]
1660[&] 4	7/2$^-$,9/2$^-$	2	0.36	3156 7		
1716?[ac] 30		2+6,7,8	0.03	3206 7		
1805 7	5/2$^+$			3224 7		
2033 7	11/2$^+$	(3,4)		3281 7	(1)[@]	0.26[@h]
2094.9[e] 10	3/2$^-$,5/2$^+$			3329 7	3[@]	0.41[@h]
2107 7	15/2			3349 7	(1)[@]	0.39[@]
2152.1[ef]	(1/2$^-$),1/2$^+$			3392 7		
2227 7				3443[j] 7	3[j]	0.28[j]
2299[f] 7	7/2$^-$,9/2,11/2			3498 7		
2340.8[e] 6	7/2,9/2,11/2$^-$			3606 7	3	0.32
2350.4[e] 10	3/2			3715[@i] 20	(2)[@]	0.23[@]
2385 7				3763?[aci] 30	3	0.24

^{45}Sc(p,p′),(d,d′) (continued)

^{45}Sc Levels (continued)

E(level)[†]	L[#]	βR[#]	E(level)[†]	L[#]	βR[#]	E(level)[†]	E(level)[†]	L[#]	βR[#]
3890[ai] 30	3	0.27[h]	3975 7	3	0.30	4072 7	4299[aj] 30	2[j]	0.22[j]
3914 7			4031 7	3[@]	0.54[@]	4129 7	4427?[ac] 30	2	0.23

[†] From 1970Br03, except As noted.

[‡] From Hauser-Feshbach analysis (1974Ru02, E(level)≤2033; 1980Bu08, E(level)≥2095), except As noted. 1980Bu08 assumed J^π of 1662-keV, 1801-keV, and 2032-keV states to Be $9/2^-$, $5/2^+$, and $11/2^+$, respectively, to normalize theoretical cross sections.

[#] From 1971Ma57, except As noted. βR from 1968Pe10 and 1971Ma57 are In very good agreement, except As noted.

[@] From 1968Pe10.

[&] From 1968Ha31.

[a] From 1971Ma57.

[b] $\sigma(\theta)$ was weak and flat (1968Pe10).

[c] Reported by 1971Ma57 only.

[d] From 1975Da16.

[e] From (p,p′γ) data of 1980Bu08.

[f] See discussion In the Adopted Levels.

[g] $\sigma(\theta)$ was flat (1968Pe10).

[h] $\sigma(\theta)$ was forward peaked (1968Pe10).

[i] 1970Br03 noted that there is a group of states between 3724 keV and 3881 keV.

[j] E=3431 20, L=3, βR=0.57 and E=4245 20, L=3, βR=0.76 (1968Pe10).