^{43}Ca(^{3}He,α) 1969Ly02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen[#] and Balraj Singh	NDS 135, 1 (2016)	31-May-2016

$J^{\pi}(^{43}Ca$ g.s.)=7/2^{-}.

1969Ly02 (also 1967LyZY,1968Ly02): E=18 MeV ^{3}He beam was produced at the Heidelberg tandem. Targets made by evaporating $CaCO_3$ onto a carbon backing. Reaction products were momentum analyzed with a broad-range magnetic spectrograph. Measured $\sigma(E_{\alpha},\theta)$. Deduced levels, J^{π}, L and spectroscopic factors from DWBA analysis.

Cross section data

Energy	dσ/dΩ (max) (mb/sr)
0	1.27 5
1530	1.30 5
1840	0.21 5
2430	0.57 5
2777	2.04 5
3210	4.56 5
3460	0.38 5
3650	0.15 5
4100	0.49 10
4180	0.18 5
4360	0.45 7
4440	0.29 5
4700	0.07 5
4920	0.81 5
5200	0.25 7
5340	0.52 5
5410	0.14 5
5610	0.56 5
5680	0.11 12
5790	0.48 5
6030	0.35 5
6220	0.67 5
6330	0.18 10
6420	0.17 5
6510	0.46 5
6570	0.11 7
6660	0.32 12
6790	0.17 5
7040	0.22 5
7430	0.39 5
7560	0.27 10
8170	0.14 12
8260	0.14 10
8330	0.08 10
8410	0.21 5
8520	0.21 5
8600	0.14 5
8850	0.14 15
9740	0.45 15
9850	0.66 15
10010	0.53 20
10430	1.68 5
10510	0.38 5
10610	0.29 5
10970	1.19 20
11440	1.96 5

^{42}Ca Levels

Spectroscopic factor $C^2S=(1/N)[\sigma(\theta)^{exp}/\sigma(\theta)^{DWBA}]$, where N is the normalization factor.
J^π values implied by L-transfers are: 3^-, 4^- for L=0 or L=0+2; 2^+ to 5^+ for L=1; 1^- to 6^- for L=2; 0^+ to 7^+ for L=3.

E(level)	L	C^2S	E(level)	L	E(level)	L	C^2S
0	3	0.57	5410 *20*	(0+2)	8260 *20*		
1530 *20*	3	0.17	5610 *20*	(0+2)	8330 *20*		
1840 *20*	3	0.05	5680 *20*		8410 *20*		
2430 *20*	3	0.18	5790 *20*	(0+2)	8520 *20*		
2770 *20*	3	0.59	6030 *20*		8600 *20*		
3210 *20*	3	0.94	6220 *20*	(0+2)	8850 *20*		
3460 *20*	(0+2)	0.48,0.05	6330 *20*		9740 *20*	2	0.32
3650 *20*	(1)	0.01	6420 *20*		9850 *20*	2	0.43
4100 *20*	(2)	0.43	6510 *20*		10010 *20*	2	0.50
4180 *20*	(3)	0.05	6570 *20*		10430 *20*	2	0.61
4360 *20*	(3)	0.12	6660 *20*		10510 *20*		
4440 *20*	(0+2)	0.38,0.04	6790 *20*		10610 *20*		
4700 *20*			7040 *20*		10970 *20*		
4920 *20*	(3)		7430 *20*		11440 *20*	0	0.23
5200 *20*	(3)		7560 *20*				
5340 *20*	(0+2)		8170 *20*				