^{36}Ar(^{6}Li,d) 1979Fo04,1994Ya04,1998Ya21

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

1979Fo04, 1977Be65, 1975Fo04: E=17 MeV ^{6}Li beam was produced from the University of Pennsylvania tandem accelerator. Target was 99.8% enriched ^{36}Ar in a gas cell. Reaction products were momentum analyzed with a multi-angle spectrograph (FWHM≈30 keV) and detected in nuclear emulsion plates. Measured $\sigma(\theta)$. Deduced levels, J, π, L, α spectroscopic factors from DWBA analysis.

1994Ya04, 1998Ya21, 1993Ya07: E=50 MeV ^{6}Li beam was produced from the isochronous cyclotron at RCNP of Osaka University. Target was 99.8% enriched ^{36}Ar gas. Reaction products were momentum analyzed with the spectrograph RAIDEN (FWHM=50-70 keV) and detected in a focal plane counter system of a position-sensitive proportional counter, two ΔE gas proportional counters and an E plastic scintillator. Measured $\sigma(\theta)$. Deduced levels, α clusters, J, π, L, spectroscopic factors from DWBA analysis.

1975An13: E=28 MeV. Measured σ and spectroscopic factor for g.s.

^{40}Ca Levels

E(level)†	L‡	S‡	Comments
0	0	0.30	
3350.5 *18*	0	0.21	
3736 *3*	3	0.06	
3909 *3*	2	0.26	
4494.4 *9*	5	0.016	
5206 *6*	0+2	0.18,0.18	E(level): doublet 5210+5250.
5283 *4*	4	0.19	
5625.9 *10*	2	0.05	E(level): doublet 5614+5628.
5908 *3*	1	0.025	
6034 *5*			E(level): doublet 6025+6029.
6285.1 *12*	3	0.026	
6501 *4*	4#	0.030#	
6534 *4*	4#	0.036#	
6577 *3*	3	0.087	
6756.8 *17*			
6900	2	0.12	E(level): from 1994Ya04.
6936 *6*	6	0.25	
7300	0		E(level): unresolved multiplet with L=0 from $\sigma(\theta)$ distribution and cross section below 3% of that to g.s. (1975Fo04).
7460	(2)	(0.04)	
7560	4	0.04	
7700	0	0.18	
7870	3	0.066	
8050	2	0.15	
8150	1	0.21	
8270	4	0.055	
8280	0		E(level),L: from 1975Fo04.
8380	4	0.043	
8420	0		E(level),L: from 1975Fo04.
8550	3	0.076	
8600	2	0.11	
8780	2	0.11	
8930	2	0.14	
9140	(0,1)	0.50,0.15	
9240	6	0.11	
9360	3	0.10	
9500	2	0.10	
9700	3	0.20	

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^{36}Ar(^{6}Li,d) 1979Fo04,1994Ya04,1998Ya21 (continued)

^{40}Ca Levels (continued)

E(level)†	L‡	S‡	Comments
9870	2	0.14	
9950	1+5	0.034,0.01	
10080	2	0.20	
10150	5	0.06	
10340	8	0.25	L: from 1993Ya07.
10450			
10590	3	0.10	
10690	7		
10700	1	0.28	
10800	5	0.14	
10900	3	0.11	
11100	0	0.60	
11210	0	0.62	
11300	4	0.40	
11370	5	0.12	
11470	5	0.12	
11690	7	0.10	
11800	5	0.08	
12020	2	0.15	
12100	2	0.19	
12170	2	0.13	
12340	5	0.10	
12450	4	0.061	
12520			
12650	7	0.11	
12720	3	0.20	
12900	4	0.07	
13050	4	0.06	
13200	4	0.05	
13300	4	0.045	
13400			
13470	4	0.28	
13620	6	0.016	
13720	6	0.023	
13830	7	0.18	
14000	4	0.06	
14190	4	0.07	
14380	6	0.03	
14500	6	0.03	
14680			
14750	4	0.078	
14850	(9)	(0.33)	
15060			
15140			
15250			
15330			
15600			
15700			

† From 1979Fo04 below 7000, from 1998Ya21 above 7400 (read from Fig.4), unless otherwise noted.

‡ From 1994Ya04, extracted from DWBA fits to measured differential cross sections. 1979Fo04 give L and S values for levels below 7000; 1975Fo04 give L=0 for four levels above 7000. α spectroscopic factor is defined as $S=1/N\times(d\sigma/d\Omega)_{exp}/(d\sigma/d\omega)_{DWBA}$ where N is the normalization factor.

Doublet 6500+6530 not resolved by 1994Ya04; relative S values from 1979Fo04 using summed value of 0.066 from 1994Ya04.