^{36}Ar(d,p) 1974Se07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica	NDS 113, 365 (2012)	15-Jan-2012

1974Se07: E=10.02 MeV, measured $\sigma(\theta)$ and vector analyzing power (VAP) – IT11(θ); did DWBA analysis and deduced L, J^π, and S values for 19 states.
1981Se12: E=11 MeV, same As 1974Se07 for one state.
1971Se04: E=9.162 MeV, observed 53 states In ^{37}Ar, measured $\sigma(\theta)$, did DWBA analysis and deduced L and S values for 29 states (many of which were updated by 1974Se07).
1971Me12: E=18 MeV, measured $\sigma(\theta)$, did DWBA analysis and deduced L and S values for 22 states.
1971ChZI: E=2.800, 2.975, 3.100 MeV, measured proton angular distributions and DWBA analysis (also γ spectra measurements, see ^{36}Ar(d,pγ) dataset).
1966Ho03: E=11 MeV, used magnetic analysis and nuclear emulsions and measured 76 proton groups.
1965Ro08: E=15 MeV, observed 19 states In ^{37}Ar, measured $\sigma(\theta)$, did DWBA analysis and deduced L and S values for 9 states.
Others: 1974Os02: recalculated S values with data from 1971Me12.

^{37}Ar Levels

E(level)†	J^π‡	L#	S@	Comments
0 *10*	$3/2^+$	2	0.56 *4*	S: 0.52 (1971Me12); 0.43 (1965Ro08).
1414 *9*	$1/2^+$	0	0.22 *7*	E(level): 1402 *20* (1971Se04); 1417 *10* (1966Ho03). S: 0.10 (1971Me12); 0.14 (1965Ro08).
1616 *9*	$7/2^-$	3	0.76 *6*	E(level): 1606 *20* (1971Se04); 1618 *10* (1966Ho03). S: 0.77 (1971Me12); 0.82 (1965Ro08).
2211 *20*	$7/2^+$	4	0.04 *1*	E(level): 2211 *20* (1971Se04). J^π,L,S: from DWBA analysis and VAP (1981Se12).
2497 *9*	$3/2^-$	1	0.44 *2*	E(level): 2481 *20* (1971Se04); 2501 *10* (1966Ho03). S: 0.42 (1971Me12); 0.45 (1965Ro08).
2803 *9*	$5/2^+$	2	0.040 *8*	E(level): 2788 *20* (1971Se04); 2807 *10* (1966Ho03). S: 0.040 (1971Me12).
3170 *20*				E(level): 3168 *20* (1971Se04). S: 1971ChZI suggest L=1 for 3171, unresolved from 3186 for which they suggest L=2.
3268 *20*				E(level): 3262 *20* (1971Se04). S: 1971ChZI suggest L=1,2.
3525 *9*	$3/2^-$	1	0.35 *2*	E(level): 3511 *20* (1971Se04); 3528 *10* (1966Ho03). S: 0.33 (1971Me12); 0.45 (1971ChZI); 0.36 (1965Ro08).
3526.1 *21*		3	≤0.018	E(level),L,S: from 1971ChZI.
3602 *20*	$(3/2)^-$	1	0.01	E(level): 3595 *20* (1971Se04). J^π,L,S: from 1971Se04.
3712 *10*				E(level): 3693 *20* (1971Se04); 3717 *10* (1966Ho03).
3982 *24*				E(level): 3934 *20* (1971Se04); 3994 *10* (1966Ho03).
4041 *12*				E(level): 4016 *20* (1971Se04); 4047 *10* (1966Ho03).
4209 *9*				E(level): 4192 *20* (1971Se04); 4213 *10* (1966Ho03).
4284 *9*				E(level): 4282 *20* (1971Se04); 4284 *10* (1966Ho03).
4415 *12*	$(7/2)^-$	3	0.03	E(level): 4391 *20* (1971Se04); 4421 *10* (1966Ho03). J^π,L,S: from 1971Se04.
4461 *10*	$1/2^-$	1	0.14 *1*	E(level): 4441 *20* (1971Se04); 4466 *10* (1966Ho03). S: 0.14 (1971Me12); 0.16 (1965Ro08).
4563 *20*				E(level): 4563 *20* (1971Se04).
4650 *14*	$3/2^-$	1	0.012 *3*	E(level): 4623 *20* (1971Se04); 4657 *10* (1966Ho03). S: 0.016 (1971Me12).
4758 *12*	$3/2^-$	1	0.010 *3*	E(level): 4735 *20* (1971Se04); 4764 *10* (1966Ho03). S: 0.012 (1971Me12).
4902 *14*				E(level): 4874 *20* (1971Se04); 4909 *10* (1966Ho03).
5005 *10*				E(level): 4986 *20* (1971Se04); 5010 *10* (1966Ho03).
5070 *10*				E(level): 5070 *10* (1966Ho03).

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^{36}Ar(d,p) 1974Se07 (continued)

^{37}Ar Levels (continued)

E(level)†	Jπ‡	L#	S@	Comments
5104 *11*	1/2⁻	1	0.60 *5*	E(level): 5082 *20* (1971Se04); 5110 *10* (1966Ho03). S: 0.51 (1971Me12); 0.59 (1965Ro08).
5158 *10*				E(level): 5158 *10* (1966Ho03).
5235 *13*	(3/2)⁻	1	0.02	E(level): 5209 *20* (1971Se04); 5241 *10* (1966Ho03). Jπ,L,S: from 1971Se04. S: 0.030 (1971Me12).
5267 *20*				E(level): 5264 *20* (1971Se04).
5369 *15*	3/2⁻	1	0.042 *4*	E(level): 5339 *20* (1971Se04); 5376 *10* (1966Ho03). S: 0.038 (1971Me12).
5437 *9*	3/2⁻	1	0.011 *3*	E(level): 5429 *20* (1971Se04); 5439 *10* (1966Ho03).
5462 *10*				E(level): 5441 *20* (1971Se04; 5541 In table I is probably a typographic error since it is compared with 5460 and 5467 from other refs); 5467 *10* (1966Ho03).
5572 *13*	3/2⁻	1	0.010 *2*	E(level): 5598 *20* (1971Se04); 5565 *10* (1966Ho03).
5692 *10*				E(level): 5672 *20* (1971Se04); 5701 *10* (1966Ho03).
5796 *13*				E(level): 5770 *20* (1971Se04); 5802 *10* (1966Ho03).
5872 *9*	(1/2⁻)	(1)	0.008 *3*	E(level): 5880 *20* (1971Se04); 5870 *10* (1966Ho03).
5975 *9*	(7/2⁻)	(3)	0.016 *6*	E(level): 5961 *20* (1971Se04); 5979 *10* (1966Ho03). L: 1 (1971Se04).
6100 *10*				E(level): 6100 *10* (1966Ho03).
6158 *12*	1/2⁻	1	0.035 *9*	E(level): 6135 *20* (1971Se04); 6164 *10* (1966Ho03). S: 0.029 (1971Me12).
6227 *12*	1/2⁻	1	0.055 *15*	E(level): 6204 *20* (1971Se04); 6233 *10* (1966Ho03).
6309 *10*	5/2⁻	3	0.14 *3*	E(level): 6289 *20* (1971Se04); 6314 *10* (1966Ho03). S: 0.11 (1971Me12).
6416 *10*				E(level): 6416 *10* (1966Ho03).
6452& *10*		&	&	E(level): 6452 *10* (1966Ho03).
6472& *10*		&	&	E(level): 6472 *10* (1966Ho03).
6540 *10*				E(level): 6540 *10* (1966Ho03).
6588[a] *10*		*a*	*a*	E(level): 6588 *10* (1966Ho03).
6604[a] *10*		*a*	*a*	E(level): 6604 *10* (1966Ho03).
6680 *10*				E(level): 6680 *10* (1966Ho03).
6752 *10*				E(level): 6752 *10* (1966Ho03).
6824 *10*				E(level): 6824 *10* (1966Ho03).
6852 *10*				E(level): 6852 *10* (1966Ho03).
6875 *10*				E(level): 6875 *10* (1966Ho03).
6946 *12*	(1/2,3/2)⁻	1		E(level): 6921 *20* (1971Se04); 6952 *10* (1966Ho03). S: 0.065 if Jπ=1/2⁻ or 0.033 if Jπ=3/2⁻ (1971Me12).
7018 *12*				E(level): 7003 *20* (1971Se04); 7026 *15* (1966Ho03).
7079 *12*				E(level): 7068 *20* (1971Se04); 7085 *15* (1966Ho03).
7107 *15*				E(level): 7107 *15* (1966Ho03).
7151 *15*	(7/2⁻)	(3)	0.090 *30*	E(level): 7131 *20* (1971Se04); 7162 *15* (1966Ho03). L: 1 (1971Se04); 3 (1971Me12). S: 0.035 if Jπ=5/2⁻ or 0.018 if Jπ=7/2⁻ (1971Me12).
7252[b] *12*	(1/2⁻)	(1)[b]	0.063[b] *15*	E(level): 7246 *20* (1971Se04); 7255 *15* (1966Ho03).
7263[b] *15*		*b*	*b*	E(level): 7263 *15* (1966Ho03).
7285[b] *12*	(7/2⁻)	(3)[b]	0.070[b] *17*	E(level): 7282 *20* (1971Se04); 7286 *15* (1966Ho03).
7329 *17*				E(level): 7351 *20* (1971Se04); 7316 *15* (1966Ho03).
7440 *15*				E(level): 7440 *15* (1966Ho03).
7478 *15*				E(level): 7478 *15* (1966Ho03).
7571 *12*	1/2⁻	1	0.096 *20*	E(level): 7571 *20* (1971Se04); 7571 *15* (1966Ho03). S: 0.095 if Jπ=1/2⁻ or 0.050 if Jπ=3/2⁻ (1971Me12).
7612 *15*				E(level): 7612 *15* (1966Ho03).
7804 *12*				E(level): 7789 *20* (1971Se04); 7813 *15* (1966Ho03).
7902 *12*	1/2⁻	1	0.15 *2*	E(level): 7895 *20* (1971Se04); 7906 *15* (1966Ho03). S: 0.20 if Jπ=1/2⁻ or 0.10 if Jπ=3/2⁻ (1971Me12).

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^{36}Ar(d,p) 1974Se07 (continued)

^{37}Ar Levels (continued)

E(level)†	Jπ‡	L#	S@	Comments
7976 *20*				E(level): 7950 *20* (1971Se04); 7991 *15* (1966Ho03).
8045 *10*				E(level): 8045 *15* (1966Ho03).
8114 *16*	(7/2$^-$)	(3)	0.035 *9*	E(level): 8093 *20* (1971Se04); 8126 *15* (1966Ho03). L: 1 (1971Se04).
8247 *15*				E(level): 8247 *15* (1966Ho03).
8310 *12*	7/2$^-$	3	0.018 *5*	E(level): 8295 *20* (1971Se04); 8319 *15* (1966Ho03).
8421 *16*	(7/2$^-$)	(3)	0.035 *8*	E(level): 8399 *20* (1971Se04); 8433 *15* (1966Ho03). L: 1 (1971Se04).
8598 *15*				E(level): 8598 *15* (1966Ho03).
8721 *15*				E(level): 8721 *15* (1966Ho03).
8776 *12*	(1/2)$^-$	1	0.04	E(level): 8768 *20* (1971Se04); 8781 *15* (1966Ho03). Jπ,L,S: from 1971Se04.
8865 *15*				E(level): 8865 *15* (1966Ho03).
8897 *12*	(1/2$^-$)	(1)	0.07	E(level): 8891 *20* (1971Se04); 8903 *15* (1966Ho03). Jπ,L,S: from 1971Se04.
9024 *12*	(1/2$^-$)	(1)	0.05	E(level): 9012 *20* (1971Se04); 9031 *15* (1966Ho03). Jπ,L,S: from 1971Se04.

† Weighted average of the values listed In comments.

‡ From 1974Se07 based on their measured L values and VAP, except when noted otherwise (J values from 1971Se04 are based on their measured L values and shell model ordering and listed tentatively when No VAP are available).

From 1974Se07 based on $\sigma(\theta)$ and DWBA analysis, unless noted otherwise.

@ From 1974Se07, unless noted otherwise (not multiplied by the (2J+1) factor; other measured values are shown In comments).

& For 6452 and 6472 doublet L=3, S=0.060 if Jπ=5/2$^-$, and S=0.031 if Jπ=7/2$^-$ (1971Me12).

a For 6588 and 6604 doublet L=3, S=0.18 if Jπ=5/2$^-$, and S=0.088 if Jπ=7/2$^-$ (1971Me12).

b Unresolved triplet for which 1971Me12 previously had measured L=3, S=0.17 if Jπ=5/2$^-$, and S=0.088 if Jπ=7/2$^-$.