^{42}Ca(^{3}He,α) 1967Ly04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 133, 1 (2016)	30-Sep-2015

1967Ly04: E(^{3}He)= 18 MeV (also 1968Ly01 with E(^{3}He)= 14-28 MeV) from the Heidelberg Tandem. Measured $\sigma(\theta)$ using the magnetic spectrograph with dE/dx-E counter telescope. DWBA analysis using the code JULIE used to extract spectroscopic factors and anguar momentum transfer.

1971Ra35: E(^{3}He)= 13 MeV from the MIT -ONR generator. α detected with nuclear emulsion technique. Measured $\sigma(\theta)$ for g.s. and 2017 keV. DWBA analysis used to extract angular momentum transfer and spectroscopic factors.

1974La14: E(^{3}He)= 15 and 18 MeV from the Orsay Tandem. FWHM (E/ΔE) detectors =20-40 keV. Groups observed at 2010, 2670, 5840, 6850, 8540 and 9371 keV.

^{41}Ca Levels

E(level)	L	C^2S[†]	Comments
0	3	1.6[‡]	C^2S: Others: 1.3 (1971Ra35), 2.0 (1968Ly01).
1942 *15*	1	0.15[@]	
2017 *15*	2	2.0[&]	C^2S: Others: 2.7 (1971Ra35), 2.4 (1968Ly01).
2459 *15*	1	0.01[@]	
2571 *15*	(3)	(0.02)[#]	
2610 *15*	3	0.04[‡]	
2680 *15*	0	0.65[a]	
2887 *15*			
2969 *15*	3	0.14[‡]	
3210 *15*	(3)	(0.01)[#]	
3401 *15*	0	0.12[a]	
3527 *15*	3	0.11[‡]	
3620 *15*			
3749 *15*	2	0.26[&]	
3862 *15*	0	0.19[a]	
3946 *15*	1	0.03[b]	
4018 *15*	(3)	(0.01)[#]	
4108 *15*	3	0.13[‡]	
4296 *15*			
4618 *15*	1	0.01[b]	
4648 *15*			
4742 *15*	1	0.01[b]	
4832 *15*	2	0.10[&]	
4888 *15*	(3)	0.07[d]	
4986 *15*	4	0.05[g]	
5017 *15*			
5129 *15*	(3)	(0.03)[#]	
5178 *15*			
5300 *15*	2	0.05[&]	
5425 *15*	(3)	(0.02)[#]	
5505 *15*	3	0.07[‡]	
5651 *15*	3	0.04[d]	
5765 *15*			
5852 *15*	2	2.3[&]	T=3/2 E(level): Analog of ^{41}K g.s. (1967Ly04).

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^{42}Ca(^{3}He,α) 1967Ly04 (continued)

^{41}Ca Levels (continued)

E(level)	L	C^2S[†]	Comments
5997 *15*	0	0.23[a]	
6117 *15*	2	0.04[&]	
6472 *15*			
6530 *15*			
6688 *15*	(3)	(0.22)	
6851 *15*	0	0.54[a]	T=3/2 E(level): Analog of 980 level in ^{41}K (1967Ly04).
6913 *15*			
6966 *15*	2	(0.03)[f]	
7030 *15*			
7173 *15*	3	0.37[‡]	T=3/2 E(level): Analog of 1294 level in ^{41}K (1967Ly04).
7321 *15*	3	0.11	
7367 *15*	0	0.05[a]	T=3/2 E(level): Analog of 1593 level in ^{41}K (1967Ly04).
7539 *15*			
7587 *15*	3	0.06	
7639 *15*	(0)	(0.02)[c]	
7759 *15*	0	0.07[a]	
8117 *15*	2	0.06[e]	
8172 *15*			
8212 *15*			
8317 *15*	2	0.26[&]	T=3/2 E(level): Analog of 2440 level in ^{41}K (1967Ly04).
8444 *15*	(1)	(0.06)	
8543 *15*	0	0.40[a]	T=3/2 E(level): Analog of 2676 level in ^{41}K (1967Ly04).
8648 *15*			T=3/2 E(level): Possible analog of 2757 level in ^{41}K (1967Ly04).
8741 *15*			
8787 *15*			
8977 *15*			
9047 *15*	2	0.16[e]	
9140 *15*			
9216 *15*			
9371 *15*	2	0.67[&]	T=3/2 E(level): Possible analog of 3488 level in ^{41}K (1967Ly04).
9875 *15*			
10177 *15*			
10348 *15*			
10752 *15*			
10859 *15*	2	0.19[e]	
11817 *15*			

[†] Corresponding to J^π given by authors in 1967Ly04. See footnote for J^π used in the determination of C^2S.
[‡] C^2S corresponding to $J^\pi = 7/2^-$.
[#] C^2S corresponding to $J^\pi = (7/2^-)$.
[@] C^2S corresponding to $J^\pi = 3/2^-$.
[&] C^2S corresponding to $J^\pi = 3/2^+$.
[a] C^2S corresponding to $J^\pi = 1/2^+$.

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^{42}Ca(^{3}He,α) 1967Ly04 (continued)

^{41}Ca Levels (continued)

[b] C^2S corresponding to $J^\pi = 1/2^-$.
[c] C^2S corresponding to $J^\pi = (1/2^+)$.
[d] C^2S corresponding to $J^\pi = 5/2^-$.
[e] C^2S corresponding to $J^\pi = 5/2^+$.
[f] C^2S corresponding to $J^\pi = (5/2^+)$.
[g] C^2S corresponding to $J^\pi = 9/2^+$.