^{43}Ca(d,t)   1973Ja17

History

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

J^{π}(^{43}Ca g.s.=7/2^{-}).

1973Ja17 (also 1973JaYN): E=20 MeV deuteron beam. A target of CaCO$_3$ evaporated on a carbon foil, 81% enriched to ^{43}Ca, 60 μg/cm^2 thick. Reaction products were momentum analyzed with an Enge broad-range spectrograph and detected in nuclear emulsions, FWHM=10-14 keV. Measured $\sigma(E_t,\theta)$. Deduced levels, J^{π}, L, spectroscopic factors from DWBA analysis.

1969Yn01: E=22.6 MeV. FWHM=70 keV. Measured $\sigma(\theta)$, DWBA analysis. A total of 20 groups observed. All groups were assigned pure L transfers.

1964Bj02: E=8.522 MeV. FWHM≈15 keV. Measured $\sigma(\theta)$, DWBA analysis. Five groups reported at 0, 1532, 2435, 2764 and 3195.

The following groups reported by 1969Yn01 cannot be reconciled with those from 1973Ja17: 3580 (L=0), 3780 (L=1), 3920 (L=2), 4230 (L=2), 4310 (L=2), 4560 (L=(3)), 5670 (L=0), 5870 (L=(0)).

^{42}Ca Levels

E(level)[†]	L[†]	C^{2}S[†]	Comments
0	3	0.46 *1*	C^{2}S: 0.50 (1969Yn01), 0.75 (1964Bj02).
1523 *5*	3	0.19 *1*	C^{2}S: 0.16 (1969Yn01), 0.21 (1964Bj02).
1836 *5*	3	0.04	C^{2}S: 0.05 (1969Yn01).
2425 *5*	3(+1)	0.16 *1*	C^{2}S: for L=3. C^{2}S=0.004 for L=1.
			C^{2}S: 0.11 (1969Yn01) for L=3, 0.21 (1964Bj02).
2750 *5*	3(+1)	0.59 *2*	C^{2}S: for L=3. C^{2}S=0.01 for L=1.
			C^{2}S: 0.47 (1969Yn01) for L=3, 0.75 (1964Bj02).
3188 *5*	3	0.87 *3*	C^{2}S: 20% of the observed strength due to ^{43}Ca g.s. from ^{44}Ca(d,t) has been subtracted.
			C^{2}S: 1.0 (1969Yn01), 1.08 (1964Bj02).
3253 *5*	3(+1)	0.08 *1*	C^{2}S: for L=3. C^{2}S=0.001 for L=1.
3297?			Very weakly excited.
3393 *5*	1(+3)	0.003	C^{2}S: for L=1. C^{2}S=0.01 *1* for L=3.
3446 *5*	0+2	0.09 *1*	C^{2}S: for L=0. C^{2}S=0.14 *2* for L=2.
			C^{2}S: 0.09 (1969Yn01) for L=0.
3656 *5*	3	0.06 *1*	
3890 *5*	2(+0)	0.02,0.002	
3956 *5*	0(+2)	0.002,0.01	
4043 *5*	0+2	0.01,0.01	
4099 *5*	2	0.30 *1*	C^{2}S: 0.25 (1969Yn01) for L=2, 4020 group.
4355 *5*	2	0.29 *2*	
4421 *5*	2	0.09 *1*	C^{2}S: 0.23 (1969Yn01) for L=2, 4430 group.
4447 *5*	1+3	0.02	C^{2}S: for L=1. C^{2}S=0.04 *1* for L=3.
4690 *5*	0+2	0.04	C^{2}S: for L=0. C^{2}S=0.06 *1* for L=2.
			C^{2}S: 0.04 (1969Yn01) for L=0, 4720 group.
4895 *5*	2(+0)	0.16 *3*	C^{2}S: for L=2. C^{2}S=0.02 *1* for L=0.
4966 *5*	(2)	0.18 *1*	E(level): observed only at backward angles.
			C^{2}S: 0.29 (1969Yn01) for L=2, 4970 group.
5012 *5*	(1+3)	0.08 *2*	C^{2}S: for L=3. C^{2}S=0.003 for L=1.
5189 *5*	3	0.13 *1*	
5204 *5*	1+3	0.08 *2*	C^{2}S: for L=3. C^{2}S=0.01 for L=1.
5321 *5*	0+2	0.12 *2*	C^{2}S: for L=2. C^{2}S=0.02 for L=0.
5377 *5*	2	0.05 *1*	C^{2}S: 0.17 (1969Yn01) for L=2, 5370 group.
5403 *5*	2(+0)	0.05 *1*	C^{2}S: for L=2. C^{2}S=0.004 for L=0.
5436 *5*	0(+2)	0.01	C^{2}S: for L=0. C^{2}S=0.02 *1* for L=2.
5467 *5*	1+3	0.01,0.04	
5488 *5*	3(+1)	0.03,0.001	

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$^{43}Ca(d,t)$ **1973Ja17 (continued)**

^{42}Ca Levels (continued)

E(level)†	L†	C^{2}S†	Comments
5590 5	0+2	0.08 1	C^{2}S: for L=0. C^{2}S=0.08 1 for L=2.
5767 5	2	0.17 2	
5790 5	3	0.16 2	
5923 5	2	0.06 1	
5985 5	0(+2)	0.02	C^{2}S: for L=0. C^{2}S=0.03 1 for L=2.
5997 5	0(+2)	0.03	C^{2}S: for L=0. C^{2}S=0.02 1 for L=2.
6034 5	2(+0)	0.04 1	C^{2}S: for L=2. C^{2}S=0.004 for L=0.
6098 5	2	0.06 1	
6162 5	(0+2)	0.02 1	C^{2}S: for L=2. C^{2}S=0.01 for L=0.
6207 5	0(+2)	0.05	C^{2}S: for L=0. C^{2}S=0.04 1 for L=2.
6235 5	0+2	0.05 1	C^{2}S: for L=2. C^{2}S=0.002 for L=0.

† From 1973Ja17, unless otherwise noted.

$^{43}Ca(d,t)$ **1973Ja17 (continued)**