^{43}Ca(α,α') 1974De42

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 126, 1 (2015)	31-Mar-2015

1974De42: E=24.0, 28.5, 31.0 MeV of 250-400 nA α beam was produced from the University of Rochester MP tandem Van de Graaff accelerator. Target of a isotopically separated metallic calcium evaporated onto a 20 μg/cm^2 carbon backing. Scattered α particles were analyzed with an Enge split-pole magnetic spectrograph and detected in the focal plane by a 30 cm long position sensitive proportional detector or 5cm silicon detectors or K-1, 50 μm photographic emulsions. Measured σ(E$_\alpha$,θ). Deduced levels, J, π, L, transition probabilities from analysis with DWBA and coupled-channel calculations.

^{43}Ca Levels

E(level)	J$^\pi$[†]	L	BE(L)↑ (isoscalar)[‡]	Comments
0	7/2$^-$			
373 *5*	5/2$^-$	2+4	0.0055	B(E4)↑=0.00011 L: 76%(L=2), 24%(L=4).
593 *5*	3/2$^-$	2+4	0.0027	B(E4)↑=0.000068 L: 73%(L=2), 27%(L=4).
1676 *5*	11/2$^-$	2+4	0.0068	B(E4)↑=0.000053 L: 80%(L=2), 20%(L=4).
1930 *5*	5/2$^-$	2+4	0.0020	B(E4)↑=0.000015 L: 86%(L=2), 14%(L=4).
2045 *5*	3/2$^-$	2+4	0.0015	B(E4)↑=0.000051 L: 62%(L=2), 38%(L=4).
2066 *5*	7/2$^-$	2+4	0.00073	B(E4)↑=0.000032 L: 58%(L=2), 42%(L=4).
2094 *5*	9/2$^-$	2+4	0.0026	B(E4)↑=0.000060 L: 70%(L=2), 30%(L=4).
2248 *5*	9/2$^-$	2+4	0.0068	B(E4)↑=0.000057 L: 83%(L=2), 17%(L=4).
2668 *5*		2+4	0.0011	B(E4)↑=0.000014 L: 75%(L=2), 25%(L=4).
2694 *5*		2+4	0.00075	B(E4)↑=0.000021 L: 65%(L=2), 35%(L=4).
2756 *5*		(4+6)		B(E4)↑=0.000073 B(E6)↑=0.0000032 L: 57%(L=4), 43%(L=6).
2850 *5*		3+5	0.00019	B(E5)↑=0.0000056 L: 73%(L=3), 27%(L=5).
2948 *5*	11/2$^+$	3+5	0.00063	B(E5)↑=0.0000097 L: 80%(L=3), 20%(L=5).
3025 *5*				
3048 *5*	11/2$^-$	2+4	0.0048	B(E4)↑=0.000038 L: 83%(L=2), 17%(L=4).
3091 *5*		3+5	0.00068	B(E5)↑=0.000013 L: 77%(L=3), 23%(L=5).
3194 *5*	7/2$^+$,9/2$^+$	3+5	0.000615	B(E5)↑=0.000011 L: 78%(L=3), 22%(L=5).
3277 *10*	(11/2 to 17/2)$^+$	3+5	0.00177	B(E5)↑=0.000040 L: 74%(L=3), 26%(L=5) for 3277+3297.
3297 *10*		3+5	0.00177	B(E5)↑=0.000040 L,BE(L)↑ (isoscalar): for 3277+3297.
3377 *5*	13/2$^+$	3+5	0.00116	B(E5)↑=0.000026 L: 72%(L=3), 28%(L=5).
3469 *5*				
3502 *5*	13/2$^+$	3+5	0.00129	B(E5)↑=0.000019 L: 79%(L=3), 21%(L=5).

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^{43}Ca(α,α') 1974De42 (continued)

^{43}Ca Levels (continued)

E(level)	J^{π}[†]	L	BE(L)↑ (isoscalar)[‡]	Comments
3660 *5*	13/2$^-$	(2+4)	0.00092	B(E4)↑=0.00017 L: 31%(L=2), 69%(L=4).
3836 *10*				
3929 *10*		3+5	0.00191	B(E5)↑=0.00011 L: 68%(L=3), 32%(L=5) for 3929+3942. L,BE(L)↑ (isoscalar): for 3929+3942.
3942 *10*	15/2$^+$	3+5	0.00191	B(E5)↑=0.00011 L,BE(L)↑ (isoscalar): for 3929+3942.
4140 *15*	7/2$^+$,9/2$^+$	3+5	0.00062	B(E5)↑=0.000029 L: 61%(L=3), 39%(L=5).

[†] From Adopted Levels.

[‡] BE(L)↑ (isoscalar) for L=2 in case of L=2+4, and for L=3 for L=3+5 transitions. BE(L)↑ for L=4 and L=5 are given under comments. Statistical uncertainties are ≈15%.