

⁴⁴Ca(α,α') 1974De42

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh and John A. Cameron		NDS 112, 2357 (2011)	31-Jul-2011

1974De42: (α,α') E=25.5, 28.5, 31.0 MeV alpha beam produced from the University of Rochester MP tandem Van de Graaff accelerator. Targets of enriched calcium evaporated onto carbon backings. Scattered alpha particles momentum analyzed with an Enge split-pole magnetic spectrograph and detected in the focal plane using either a 30 cm long position sensitive proportional detector or 5 cm long position sensitive silicon detectors or K-1, 5 μ photographic emulsions. Measured $\sigma(E_\alpha,\theta)$. Deduced levels, J^π , L from DWBA analysis.

Others:

- 1980Gi02: (α,α) E=104 MeV.
- 1979Ni04: (α,α') E=13.10 MeV. Measured g factor.
- 1979Ba14, 1977Al07: (α,α') E=1.37 GeV.
- 1979Lo11: (α,α) E=100 MeV.
- 1978Lo04: (α,α) E=36.2, 42.6, 49.5, 61.0 MeV.
- 1978De25: (α,α) E=40-58 MeV.
- 1976Be31: (α,α) E=166 MeV.
- 1976Eb03: (α,α) E=20-26 MeV.
- 1975Tr01: (α,α') E=24-29 MeV.
- 1975Ei04: (α,α) E=100 MeV.
- 1973Bi12: (α,α) E=166 MeV.
- 1972St28: (α,α) E=40.7-72.3 MeV.
- 1972Oe01: (α,α') E=24, 29 MeV.
- 1972Br30: (α,α') E=166 MeV.
- 1970Fe02: (α,α) E=42 MeV.
- 1969Ga22: (α,α) E=18, 22, 24, 29 MeV.
- 1969BeYW: (α,α').

Additional information 1.

- 1966Gr09: (α,α) E=27-40 MeV.
- 1966Pe16: (α,α') E=42 MeV.

Target ⁴⁴Ca $J^\pi=0^+$.

⁴⁴Ca Levels

E(level) [†]	J^π [‡]	L [‡] #	B(EL)(\uparrow) [@]	Comments
0	0 ⁺			J^π : from Adopted Levels.
1161 5	2 ⁺	2	0.0508	B(E2)=0.051 10 (quoted by 1989It02 from 1969BeYW). g factor=-0.28 11 (1979Ni04).
1890? 5				
2285 5	4 ⁺	4	0.00033	
2657 5	2 ⁺	2	0.0069	
3045 5	4 ⁺	4	0.00017	
3305 5	3 ⁻	3	0.00826	B(E3)=0.0065 9 (quoted by 1989It02 from 1969BeYW).
3355 5				
3661 5				
3914 5	5 ⁻	5	0.00017	B(E5)=0.000101 16 (quoted by 1989It02 from 1969BeYW).
4091 5				
4169? 5	(2 ⁺)	(2)	0.0023	
4358 5	3 ⁻	3	0.001730	
4398 5	3 ⁻	3	0.001710	B(E3)=0.0029 3 (quoted by 1989It02 from 1969BeYW) for 4358+4398.
4480 5	2 ⁺	2	0.0018	
4565 5	(5 ⁻)	(5)	0.00010	B(E5)=0.000048 7 (quoted by 1989It02 from 1969BeYW).
4585? 5				
4651 5	2 ⁺	2	0.0061	

Continued on next page (footnotes at end of table)

$^{44}\text{Ca}(\alpha, \alpha')$ **1974De42 (continued)** ^{44}Ca Levels (continued)

<u>E(level)[†]</u>	<u>J^π[‡]</u>	<u>L[‡][#]</u>	<u>B(EL)(↑)[@]</u>	<u>E(level)[†]</u>	<u>E(level)[†]</u>
4905 5	3 ⁻	3	0.001550	5519 5	5940?
5007 5	4 ⁺	4	0.00063	5654 5	5970
5222 5	(3 ⁻)	(3)	0.001640	5730	6020
5341 5	(2 ⁺)	(2)	0.0020	5830	
5407 5				5880	

[†] From **1974De42**, unless otherwise noted.

[‡] From **1974De42**, unless otherwise noted.

[#] Extracted from the comparison of $\sigma(\theta)$ distributions with the DWBA predictions.

[@] Statistical errors are $\approx 15\%$.