

$^{40}\text{Ca}(\mu^-, \nu\alpha 2n\gamma)$ 2006Me08

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Ninel Nica, Balraj Singh		NDS 113, 1563 (2012)	28-May-2012

2006Me08: μ^- beam obtained from decay of π^- beam at 90 MeV/c. Measured I_γ , $\gamma\gamma$, γ -p using two HPGe detectors at TRIUMF facility. Measured muonic Lyman and Balmer series:

Muonic Lyman series for natural Calcium

μ x ray	Energy	Intensity in percent
2p-1s	783.659 25	83.8 10
3p-1s	940.63 10	6.2 2
4p-1s	995.48 10	2.0 1
5p-1s	1020.81 10	2.0 1
6p-1s	1034.62 10	1.8 1
7p-1s	1042.71 20	1.4 1
(8- ∞)p-1s	1046-1063	2.8 4

Muonic Balmer series for natural Calcium

μ x ray	Energy	Intensity in percent
3d-2p	157.35 13	64.5 9
4d-2p	212.03 10	8.85 20
5d-2p	237.31 10	4.34 20
6d-2p	251.06 10	3.29 20
7d-2p	259.45 10	1.37 20
(8- ∞)d-2p	261-277	1.4 3

 ^{34}Cl Levels

<u>E(level)[†]</u>	<u>J^{π}</u>
0	0 ⁺
146.36 3	3 ⁺
461.00 4	1 ⁺
665.55 5	1 ⁺
1230.28 5	2 ⁺

[†] 2006Me08 list values from 1990En08 for ^{34}Cl .

 $\gamma(^{34}\text{Cl})$

<u>E_{γ}[†]</u>	<u>Percent γ-ray yield</u>	<u>E_i(level)</u>	<u>J_i^{π}</u>	<u>E_f</u>	<u>J_f^{π}</u>	<u>Comments</u>
461.00	0.10 5	461.00	1 ⁺	0	0 ⁺	
564.72	0.08 8	1230.28	2 ⁺	665.55	1 ⁺	
665.54	<0.1	665.55	1 ⁺	0	0 ⁺	
769.27		1230.28	2 ⁺	461.00	1 ⁺	Percent γ -ray yield: intensity not listed by 2006Me08, the peak is overlapped by other transitions.
1083.90	<0.15	1230.28	2 ⁺	146.36	3 ⁺	

[†] Calculated from differences of initial and final level (with recoil correction).

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Level Scheme

Intensities: Percent γ -ray yield per muon capture

Legend

- \blacktriangleright $I_{\gamma} < 2\% \times I_{\gamma}^{max}$
- \blacktriangleright $I_{\gamma} < 10\% \times I_{\gamma}^{max}$
- \blacktriangleright $I_{\gamma} > 10\% \times I_{\gamma}^{max}$

