

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

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	John Cameron, Jun Chen and Balraj Singh, Ninel Nica		NDS 113, 365 (2012)	15-Jan-2012

The μ^{-} beam obtained from decay of π^{-} beam at 90 MeV/c. Measured I_{γ} , $\gamma\gamma$, $\gamma\text{-p}$ using two HPGe detectors at TRIUMF facility.

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

 ^{37}Ar Levels

<u>E(level)[†]</u>	<u>J^{π}[†]</u>
0	3/2 ⁺
1409.84	1/2 ⁺
1611.28	7/2 ⁻
2217.0	7/2 ⁺
2490.2	3/2 ⁻
2796.1	5/2 ⁺

[†] From Adopted Levels.

 $\gamma(^{37}\text{Ar})$

<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>
1409.79	0.25 12	1409.84	1/2 ⁺	0	3/2 ⁺
1611.24	0.64 20	1611.28	7/2 ⁻	0	3/2 ⁺
2217.1	0.12 12	2217.0	7/2 ⁺	0	3/2 ⁺
2490.2	0.14 7	2490.2	3/2 ⁻	0	3/2 ⁺
2796.0	0.1 1	2796.1	5/2 ⁺	0	3/2 ⁺

[†] From Adopted Gammas.

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Level Scheme

Intensities: Percent γ -ray yield per muon capture

Legend

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

