^{44}Ca(μ^-,νnγ) 2006Me08

History

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

2006Me08: the μ^- beam obtained from decay of π^- beam at 90 MeV/c from the M9B beam line at TRIUMF, including a 6-m, 1.2-T superconducting solenoid, beam rate 2×10^5 s^{-1}. Target of pure natural calcium with some oxide on the surface was contained in plastic containers with polyethylene walls. Three plastic scintillation counters were used to define the muon beam; two HPGe detectors for detecting γ-rays, FWHM=3 keV at 1.2 MeV. Measured Eγ, Iγ, $\gamma\gamma$, γ-p. Deduced levels.

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*

^{43}K Levels

E(level)[†]	J$^\pi$[†]
0	$3/2^+$
561.2	$1/2^+$
738.3	$7/2^-$
975.3	$3/2^-$
1109.9	$3/2^+$

[†] From Adopted Levels,Gammas.

$\gamma(^{43}K)$

E$_\gamma$[†]	Percent γ-ray yield	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
548.6	<0.1	1109.9	$3/2^+$	561.2	$1/2^+$
561.1	0.3 *1*	561.2	$1/2^+$	0	$3/2^+$
738.2	0.45 *12*	738.3	$7/2^-$	0	$3/2^+$
975.3	0.2 *1*	975.3	$3/2^-$	0	$3/2^+$
1110.1	<0.2	1109.9	$3/2^+$	0	$3/2^+$

[†] From Adopted Levels,Gammas.

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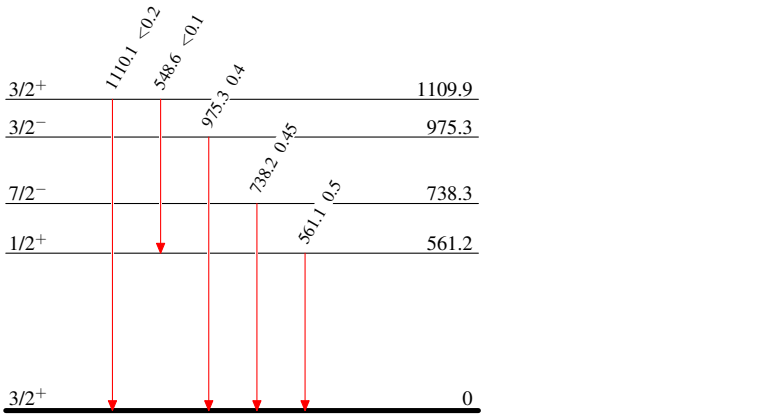
Level Scheme

Intensities: Percent γ-ray yield per muon capture



$^{43}_{19}K_{24}$