

$^{48}\text{Ca}(\text{p},\alpha\gamma)$ 1980Ma13

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh		NDS 190,1 (2023)	20-Jun-2023

1980Ma13: E=18-45 MeV proton beam produced the cyclotron in Milan. Target of CaCO_3 powder (enriched to 97.2% in ^{48}Ca), sandwiched between two thin foils of polythene. A Ge(Li) coaxial (FWHM \approx 3keV at 1.33 MeV) and a Ge(Li) low energy photo-spectrometer (LEPS) (FWHM=700 eV at 122 keV) for detecting γ -rays. Measured E_γ , I_γ , $\gamma\gamma$ -coin. Deduced levels, transitions, lifetime limits.

^{44}K Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [#]
0.0	2^-	
382.74 9	(3^-)	<0.7 ns
519.99 9	(4^-)	<0.7 ns
811.57 13	(5^-)	
968.8 4		
1013.47 13		
1240.92 17		
1367.83 19		<0.7 ns

[†] From a least-squares fit to γ -ray energies.

[‡] From 1980Ma13, based on analogous states in ^{46}K , and those predicted from shell-model calculations (1980Jo09).

[#] From $\gamma\gamma(t)$ in 1980Ma13.

$\gamma(^{44}\text{K})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
382.74	(3^-)	382.70 15	100	0.0	2^-	1013.47		630.7 1	100	382.74	(3^-)
519.99	(4^-)	137.25 5	100	382.74	(3^-)	1240.92		227.40 15	100	1013.47	
		520.0 1	25	0.0	2^-			721.2 4	43	519.99	(4^-)
811.57	(5^-)	291.6 1	100	519.99	(4^-)	1367.83		126.9 1	100	1240.92	
968.8		586.1 3	100	382.74	(3^-)			556.3 3	18	811.57	(5^-)
1013.47		202.7 10	<10	811.57	(5^-)						

$^{48}\text{Ca}(p,\alpha n\gamma)$ 1980Ma13

Level Scheme

Intensities: Relative photon branching from each level

