^{41}K(α,pγ),(α,p) 1973Mc16

History

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

1973Mc16: (α,pγ) E=9 MeV alpha beam produced from a model CN Van de Graaff. Targets of KI. A Ge(Li) detector for detecting γ-rays, FWHM=3 keV at 1.33 MeV. Measured Eγ, pγ-coin. Deduced level, $T_{1/2}$ using Doppler Shift Attenuation Method (DSAM).

1974Br04: (α,pγ) E=14 MeV alpha beam produced from the Stony Brook tandem Van Graaff accelerator. Target of ^{41}K evaporated onto Au backing. A 45-cm^3 Ge(Li) detector, FWHM=2.5 keV at 1332 keV. Measured Eγ. Deduced $T_{1/2}$ using Recoil Distance Method (RDM) for the level of 3285 keV.

1955Sc82: (α,p) E=8.22 MeV alpha beam produced from the Yale cyclotron. Target of KI evaporated on Au or Ta backing. Proton detected in argon filled proportional counters. Measured σ(E$_p$). Deduced levels.

1991Sc07: (α,p) E=4.5-9 MeV. Measured proton yields. Deduced σ(E).

All data from 1973Mc16, unless otherwise noted.

^{44}Ca Levels

E(level)	J$^\pi$[†]	$T_{1/2}$[‡]
0	0$^+$	
1157	2$^+$	3.5 ps *7*
1883	0$^+$	14 ps *4*
2283	4$^+$	1.9 ps *7*
2657	2$^+$	<21 fs
3044	4$^+$	4.6 ps *11*
3285	6$^+$	13.4[#] ps *10*
3303	2$^+$	35 fs *18*
3359	4$^+$	<28 fs

[†] From Adopted Levels.
[‡] By DSAM.
[#] From 1974Br04. $T_{1/2}$=12 ps *3* (1973Mc16).

γ(^{44}Ca)

E$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
726	1883	0$^+$	1157	2$^+$	B(E2)↓=2.0×10^{-2} *6*
764	3044	4$^+$	2283	4$^+$	B(M1)↓=1.0×10^{-6} *+5−2*; B(E2)↓=1.5×10^{-3} *+60−10*
1002	3285	6$^+$	2283	4$^+$	B(E2)↓=5.0×10^{-3} *12* B(E2)=4.12×10^{-3} *36* from 1974Br04.
1074	3359	4$^+$	2283	4$^+$	Iγ(1074)/Iγ(2201)=88/12 (1973Mc16).
1127	2283	4$^+$	1157	2$^+$	B(E2)↓=1.6×10^{-2} *6*
1157	1157	2$^+$	0	0$^+$	B(E2)↓=7.5×10^{-3} *15*
1501	2657	2$^+$	1157	2$^+$	B(M1)↓≥5.5×10^{-5}; B(E2)↓≥6×10^{-3}
1890	3044	4$^+$	1157	2$^+$	B(E2)↓=2.5×10^{-4} *6*
2144	3303	2$^+$	1157	2$^+$	B(E2)↓=8.5×10^{-4} *+85−30*
2201	3359	4$^+$	1157	2$^+$	
2656	2657	2$^+$	0	0$^+$	B(E2)↓≥2.4×10^{-3}
3303	3303	2$^+$	0	0$^+$	B(E2)↓=1.5×10^{-3} *+15−5*

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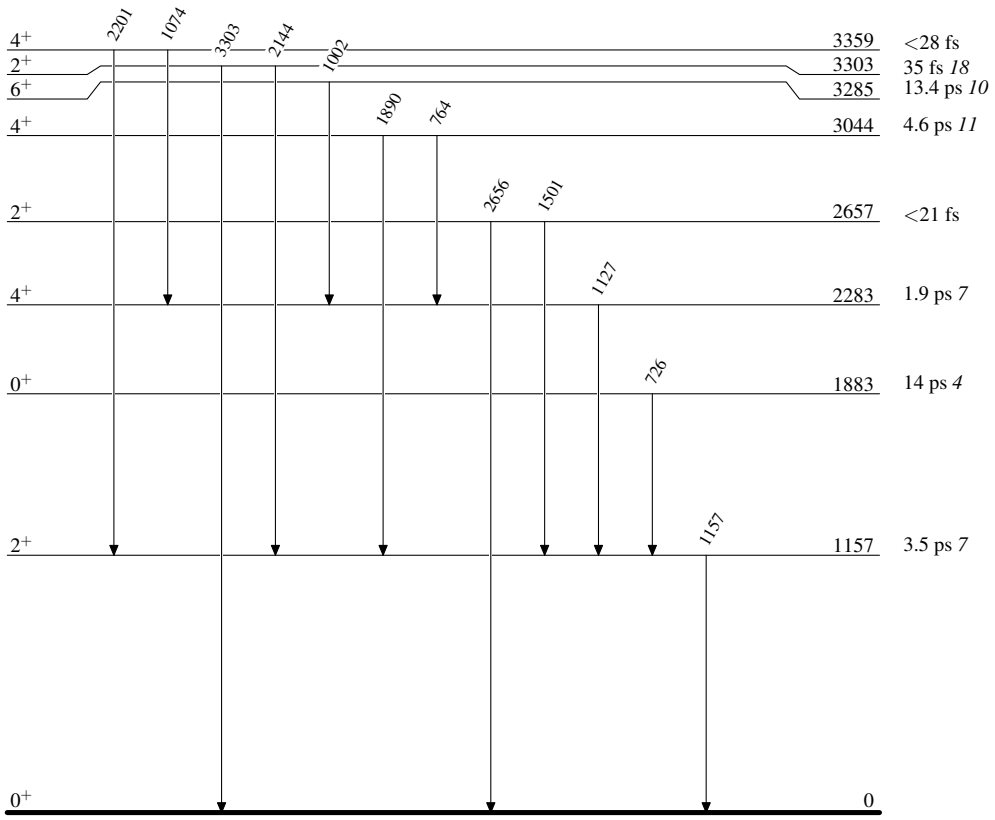
Level Scheme



$^{44}_{20}Ca_{24}$