Coulomb excitation 1973To07

History

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

1973To07: ^{44}Ca(^{32}S,^{32}S′γ) E(^{32}S)=55 MeV beam produced from the University of Rochester MP tandem Van de Graaff accelerator. Enriched target (98.6% ^{44}Ca). Four particle detectors and four NaI(Tl) detectors. Measured Eγ, particle-γ-coin,

2003Sc21: C(^{44}Ca,^{44}Ca′γ) E(^{44}Ca)=95 MeV 4.5 enA beam produced from the Cologne tandem accelerator. Target of 0.45 mg/cm^2 natural carbon deposited in Gd evaporated on tantalum and copper backings. Four 12.7 cm by 12.7 cm NaI(Tl) scintillators a 40% efficient Ge for detecting γ-rays. Measured Eγ, Iγ, (particle)γ-coin. Deduced levels, g-factors, B(E2); $T_{1/2}$ using Doppler Shift Attenuation Method (DSAM) for the level of 1157 keV.

2003Ta05: C,Cu,Gd(^{44}Ca,^{44}Ca′γ) E(^{44}Ca)=85,90,95 MeV 0.3 pnA beam produced from the Wright Nuclear Structure Laboratory (WNSL) at Yale. Target of carbon, gadolinium and copper. Four 12.7 cm by 12.7 cm NaI(Tl) scintillators a 70% efficient Ge for detecting γ-rays. Measured Eγ, Iγ, (particle)γ-coin. Deduced g-factors for the level of 1157 keV.

Others:

1972Bi17: (α,$\alpha'\gamma$) E(α)=4.5, 4.75, 5 MeV. Measured B(E2).

1973Fi15: (^{35}Cl,^{35}Cl′γ) E=55-68 MeV. Measured DSA.

1961An07: (^{14}N,^{14}N′γ) E=16.8, 21.5 MeV; (^{20}Ne,^{20}Ne′γ) E=26 MeV.

^{44}Ca Levels

E(level)	J$^\pi$ †	$T_{1/2}$	Comments
0	0$^+$		
1157	2$^+$	3.0 ps *3*	B(E2)↑=0.0473 *20* (1973To07) Q=−0.14 *7* (1973To07) $T_{1/2}$: from 2003Sc21 by DSA. B(E2)=0.049 *5* (1972Bi17), 0.035 (1961An07). B(E2)(W.u.)=9.7 *9* (2003Sc21). g(2^+_1)=+0.17 *3* (2003Sc21), +0.12 *5* (2003Ta05).
2283	4$^+$		

† From Adopted Levels.

γ(^{44}Ca)

E$_\gamma$ †	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
1126.1	2283	4$^+$	1157	2$^+$
1157.0	1157	2$^+$	0	0$^+$

† From 2003Sc21.

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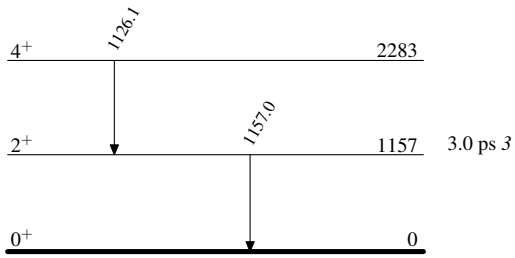
Level Scheme



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