^{40}Ca(p,2p),(pol p,2p) 2010Ya05

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 149, 1 (2018)	1-Jan-2018

Reaction is (p,2p), unless otherwise noted.

2010Ya05: (pol p,2p) E=392 MeV polarized proton beam was produced from the AVF cyclotron and ring cyclotron at the RCNP facility. Targets were two sheets of natural calcium foil (96.9% in ^{40}Ca) of 53 and 24 mg/cm^2, respectively. Scattered protons were detected with the dual- spectrometer system, consisting of the Grand Raiden (GR) and the large- acceptance spectrometer (LAS). Measured recoil momentum dependence of cross section and analyzing power, strength distributions of separation energies. Deduced levels, widths, spectroscopic factors from DWIA analysis, L from multipole decomposition analysis (MDA).

Others:

2004An01: E=1 GeV. Measured proton spectra, induced polarization.

2001Sc25, 2001Ca23, 2001Vo09: E=100 MeV. Measured $\sigma(\theta)$, DWBA and DWIA analyses.

2000No03, 1998No04, 1997Ha15: (pol p,2p) E=392 MeV. Measured Ay, spin transfer coefficients, DWBA and PWIA analyses.

1998Co13: E=392 MeV. Measured $\sigma(\theta)$, DWIA analysis.

1990Vo13: E=1 GeV. Measured $\sigma(\theta)$, deduced deformation parameters.

1986Sa24: E=76.1, 101.3. Measured $\sigma(\theta)$, DWIA analysis.

1984ReZW: (pol p,2p) E=150 MeV. Measured analyzing powers.

1983Fr10: E=150 MeV. Measured pp coin.

1983Ch07: E=150 MeV. Measured $\sigma(\theta)$, DWIA analysis.

1981An19: (pol p,2p)E=200 MeV. Measured Ay, $\sigma(\theta)$.

1978Ro09: E=148.2 MeV. Measured σ, DWIA analysis.

1973Br10, 1971Br20: E=45 MeV. Measured $\sigma(\theta)$.

1971La16: E=600 MeV. Measured separation energy spectra.

1971Ho03: E=156 MeV. Measured σ, deduced optical-model parameters.

1969Ja12: E=385 MeV. Measured $\sigma(\theta)$.

1967Ru03, 1964Ru05: E=156, 150 MeV. Measured $\sigma(\theta)$.

1966Ty01: E=460 MeV. Measured $\sigma(\theta)$.

1966Ne03: E=150 MeV. Measured $\sigma(\theta)$.

All data are from 2010Ya05, unless otherwise noted.

^{39}K Levels

E(level)[†]	Γ	L	S[@]	Comments
0			3.1 *5*	E(level): separation energy=8.3×10^3. 1d$_{3/2}$ orbital. Relative to IPSM: S=0.78 *13* (without subtraction of background). S: statistical uncertainty of 0.06 is included.
2600[‡]		0	1.01 *17*	E(level): separation energy=10.9×10^3. 2s$_{1/2}$ orbital. S: statistical uncertainty of 0.03 is included. Relative to IPSM: S=0.60 *10* (background subtracted).
2600[‡]			0.78 *14*	E(level): separation energy=10.9×10^3. 1f$_{7/2}$ orbital. S: statistical uncertainty of 0.04 is included. Relative to IPSM: S=0.097 *17* (without subtraction of background).
>3.7×10^3[#]				E(level): separation energy>12×10^3. 1d$_{5/2}$ orbital. Relative to IPSM: S=0.94 *17* (without subtraction of background).
21.7×10^3[#] *4*	10.3 MeV *11*			E(level): separation energy=30.0×10^3 *4*, statistical uncertainty of 0.3 MeV is included; 29.8×10^3 *1* for 1p$_{1/2}$ orbital with Γ=8.5 MeV *11* and 34.7×10^3 *3* for 1p$_{3/2}$ orbital with Γ=9.4 MeV *12* from 1990Vo13. 1p orbital. Γ: statistical uncertainty of 0.9 is included.

Continued on next page (footnotes at end of table)

^{40}Ca(p,2p),(pol p,2p) 2010Ya05 (continued)

^{39}K Levels (continued)

E(level)[†]	Γ	Comments
		Relative to IPSM: S=0.49 *10* (background subtracted).
41.3×10^{3}[#] *6*	21.3 MeV *9*	E(level): separation energy=49.6×10^{3} *6*, statistical uncertainty of 0.6 MeV is included; 53.6×10^{3} *3* with Γ=18.8 MeV *14* from 1990Vo13. $1s_{1/2}$ orbital. Γ: statistical uncertainty of 0.9 is included. Relative to IPSM: S=0.78 *14* (background subtracted).

[†] Deduced from separation energy difference by evaluator, with separation energy=8.3×10^{3} corresponding to the ground state. S(p)(^{40}Ca)=8328.16 *2* (2017Wa10).
[‡] Unresolved group.
[#] Not adopted in Adopted Levels due to large uncertainty.
[@] Spectroscopic factors relative to those predicted by the independent-particle shell model (IPSM) are also listed by the authors, with and without subtraction.