^{40}Ar(p,n)   2009Bh09

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

2009Bh09: E=120 and 160 MeV proton beams were produced from the Indiana University Cyclotron Facility (IUCF). The target was in the form of high purity ^{40}Ar gas at 300 kPa cooled with liquid Nitrogen. Neutron energies were measured using time-of-flight method with a fight path of 81-m long and detected with 12 plastic scintillator bars each of 10×15×100 cm; elastically scattered protons were detected with A fast plastic scintillator ΔE-E telescope. Deduced levels, B(GT) strengths. Comparison of B(GT) strengths with those from ^{40}Ti β decay.

Others:

1997Jo08: E=35 MeV. Measured $\sigma(\theta)$. Deduced isovector potential parameters.

1995OrZZ: E=35 MeV. Measured $\sigma(\theta)$. Deduced structure of A=40 isobar triplets.

1975Ca18: E=22.8 MeV. Measured $\sigma(E,\theta)$. Deduced IAS.

1975Ga19: E=24 MeV. Measured $\sigma(E,\theta)$. Deduced reaction mechanism.

1973BrYB: Measured $\sigma(\theta)$.

1971Be46: E=23 MeV. Measured $\sigma(E,\theta)$.

1970No05: analyzed $\sigma(\theta)$.

1968Yo05: E=35 MeV. Measured $\sigma(\theta)$.

Additional information 1.

^{40}K Levels

Relative intensities given under comments are deduced by the evaluator from individual peak areas for levels as listed in 2009Bh09 divided by the total area. Efficiency corrections are probably not built in.

E(level)[†]	B(GT)[‡]	Comments
2333 30	1.03 10	Relative intensity=20.1% 3.
		B(GT)=0.57 3 in ^{40}Ti decay.
		B(GT)(2730)/B(GT)(2290)=1.65 11 in ^{40}Ti decay is in severe disagreement with 0.911 5 from (p,n); 2730 and 2290 levels are identified with 2775 and 2333 levels, respectively.
2775 30	0.94 9	Relative intensity=18.27% 25.
		B(GT)=0.94 4 in ^{40}Ti decay.
3204 32	0.04 1	Relative intensity=0.74% 4.
		B(GT)=0.03 1 in ^{40}Ti decay.
3503 30	0.10 1	Relative intensity=2.01% 5.
3870 30	0.28 3	Relative intensity=5.32% 9.
		B(GT)=0.01 1 in ^{40}Ti decay.
4421 30	0.54 9	Relative intensity=10.4% 13.
		E(level): this peak unresolved from the nearby IAS.
4763 30	0.30 3	Relative intensity=5.80% 17.
		B(GT)=0.24 4 in ^{40}Ti decay.
5162 30	0.37 4	Relative intensity=7.11% 17.
		B(GT)=0.02 2 in ^{40}Ti decay.
5681 32	0.13 2	Relative intensity=2.47% 15.
		B(GT)=0.07 3 in ^{40}Ti decay.
6118 30	0.30 3	Relative intensity=5.66% 15.
		B(GT)=0.08 3 in ^{40}Ti decay.
6790 30	0.45 5	Relative intensity=8.44% 14.
7468 37	0.04 1	Relative intensity=0.74% 15.
7795 33	0.09 1	Relative intensity=1.74% 20.
7952 32	0.61 6	Relative intensity=11.3% 4.

[†] From fit to the E(p)=120 MeV spectrum.

Continued on next page (footnotes at end of table)

^{40}**Ar(p,n)**   **2009Bh09 (continued)**

^{40}K Levels (continued)

‡ For E(p)=120 MeV since several peaks observed with E(p)=160 are not resolved. The integrated Gamow-Teller strength is approximately 43.5% of the sum rule. Total Gamow-Teller strength=5.22 *19*, as compared to 3.53 *13* from ^{40}Ti β decay.

^{40}**Ar(p,n)**   **2009Bh09 (continued)**