

$^{40}\text{Ar}(e,e'),(e,e)$ 1977Fi09,1975GrYY,1956He83

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

1977Fi09, 1976Fi12 (also thesis by 1976FiZW): (e,e') E=65-115 MeV electron beam was produced from the high-resolution electron scattering facilities of the National Bureau of Standards (NBS). Target was natural argon gas (99.6% ^{40}Ar). Scattered electrons were momentum analyzed with a magnetic-angle spectrometer and detected by an array of 48 lithium-drifted silicon detectors. Measured $\sigma(E,\theta)$. Deduced levels, J, π , form factors, transition strengths, lifetimes, partial γ -decay widths and rms radius from DWBA analysis using the Tassie model. Comparisons with available data.

1975GrYY: (e,e'). Measured σ . Deduced level, form factor.

1956He83: (e,e') E=187 MeV. Measured $\sigma(E,\theta)$. Deduced levels, J, π , transition strengths, lifetimes.

Others:

1982Ot01: (e,e) E=116, 249 MeV. Measured $\sigma(\theta)$. Deduced rms radius.

1975Ch41: (e,e') E=150-165 MeV. Measured $\sigma(E)$. Deduced giant resonance structure.

1974We02: (e,e) E=248 MeV. Measured $\sigma(\theta)$. Deduced rms radius.

1971Sc09: (e,e) E=40-57 MeV. Measured $\sigma(\theta)$. Deduced rms radius.

1971Gr27: (e,e) E=78-120 MeV. Measured $\sigma(\theta)$. Deduced rms radius, form factors.

1963Go04: (e,e) E=41.5 MeV. Measured σ .

1963Ba19: (e,e') E=41.5 MeV. Measured σ .

 ^{40}Ar Levels

Transition strengths are those extracted by 1977Fi09 from comparisons of measured differential cross sections with DWBA calculations using the Tassie model. 1977Fi09 also given values from the PWBA analysis using the Helm model.

E(level) [†]	J π [#]	T _{1/2} [@]	Comments
0	0 ⁺		$\langle r^2 \rangle^{1/2} = 3.393$ fm 15(stat) (1976Fi12), 3.41 fm 4 (1971Sc09), 3.47 fm 5 (1971Gr27,1975GrYY), 3.48 fm 4 (1974We02). Others from Muonic x-ray data: 3.423 6 (1971Bb11,1974Da05), 3.415 fm 5 (1976Pf01).
1460	2 ⁺	1.11 ps 4	B(E2) $\uparrow$ =0.0382 13 (1977Fi09) Additional information 1.
2520	2 ⁺	194 fs 35	B(E2) $\uparrow$ =0.0063 12 (1977Fi09) T _{1/2} : other: 0.23 ps 4 from β_2 in 1956He83. β_2 =0.025 5 (1956He83). Additional information 2.
3210	2 ⁺	35 fs 7	B(E2) $\uparrow$ =0.0029 4 (1977Fi09) J π : 2 ⁺ is supported by $\sigma(\theta)$ data of 1977Fi09. Additional information 3.
3510 [‡]			
3680	3 ⁻		B(E3) $\uparrow$ =0.0088 10 (1977Fi09) Additional information 4.
3920 [‡]			

[†] From 1977Fi09, unless otherwise noted.

[‡] From 1975GrYY only.

[#] From Adopted Levels.

[@] Deduced by the evaluator from B(EL) $\uparrow$ from 1977Fi09 and adopted branching ratios.