

⁴⁰Ca($\pi^+, \pi^{+'}), (\pi^-, \pi^{-'})$ 1981Mo17, 1984Bo02, 1982B109

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

1981Mo17: E(π^+), E(π^-)=180 MeV. Measured $\sigma(\theta)$, DWIA analysis, FWHM=150 keV.
 1982B109: E(π^+), E(π^-)=80 MeV. Measured $\sigma(\theta)$, $\theta=50^\circ - 120^\circ$. Deduced GQR, DWBA analysis.
 1984Bo02, 1981Bo26: E(π^+), E(π^-)=116, 180, 292.5 MeV. Measured $\sigma(\theta)$, $\theta=20^\circ - 70^\circ$.
 2002Af05: E(π^+), E(π^-)=116-292.5 MeV. Analyzed $\sigma(\theta)$ by DWBA. Deduced deformation parameters. Data of 1984Bo02 used.
 1977Mi19 (also 1978Mi05): E(π^+)=50 MeV. Measured $\sigma(\theta)$, $\theta=40^\circ, 80^\circ$.
 1978Eg03: E(π^+)=130 MeV. Measured $\sigma(\theta)$.
 1979Ar01: E(π^+)=163, 261 MeV. Deduced GQR.
 1984Ma42: E(π^+), E(π^-)=675.7 MeV. Measured $\sigma(\theta)$, DWBA analyses, deduced optical-model parameters.
 1985U101: E(π^+), E(π^-)=135 MeV. Measured $\sigma(\theta)$, deduced GQR, giant monopole and low-energy giant octupole resonances.
 (π^+, π^+), (π^-, π^-): $\sigma(\theta)$ and optical model parameters:
 1997Ka22 (672.5 MeV), 1988Wr01 (19.5,30 MeV), 1984Le01 (80 MeV), 1983Je01 (114-215 MeV), 1982Da13 and 1980DaZR (64.8 MeV), 1981Gr09 (130,180,230 MeV), 1978In04 (115 MeV), 1978DrZS (isobar resonance energy), 1977Eg02 (130 MeV).

Others:

(π^+, π^+): $\sigma(\theta)$ and optical model parameters:
 1983Ob02 (20 MeV), 1981Pr03 (30,50 MeV), 1979Bi07 (40 MeV), 1976WaZB (145,174,204 MeV).
 (π^-, π^-): $\sigma(\theta)$ and optical model parameters:
 1997Ka22 (400 MeV), 1994Bu09 (40 MeV), 1990Se04 (30,50 MeV).

Additional information 1.

⁴⁰Ca Levels

E(level) [†]	L [‡]	B _L (Π^-), B _L (Π^+) [#]	Comments
0			
3352	0		
3736	3	0.56,0.5	B _L (Π^-), B _L (Π^+): from 1982B109.
3908	2		
4492	5	0.095,0.081	
6256	3	0.085,0.074	
6583	3	0.102,0.161	
6700 [@]			
11700 [@]			
13400 ^{&}	0,2 ^{&}	0.15,0.13 ^{&}	
17500 ^{&}	2 ^{&}	0.26 ^{&}	

[†] From 1981Mo17, unless otherwise noted.

[‡] From DWIA analysis in 1981Mo17, unless otherwise noted. Values are also reported in 1984Bo02 and 1982B109.

[#] From 2002Af05 (Data of 1984Bo02 used), unless otherwise noted.

[@] From 1977Mi19.

[&] From 1982B109; from ($\pi^+, \pi^{+'}$).