^{48}Ca(π^-,$\pi^{-\prime}$),(π^+,$\pi^{+\prime}$) 1984De19,1984Bo02,1981Bo26

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 179, 1 (2022)	30-Nov-2021

The three experiments (1984De19,1984Bo02,1981Bo26) all used the same facility with the EPICS system at LAMPF, consisting of a high-resolution spectrometer with position-sensitive drift chambers.

1981Bo26: E=180 MeV. Measured $\sigma(\theta$=21° to 76°). DWIA analysis. Deduced neutron and proton multipole matrix elements.

1984Bo02: E=116-292.5 MeV. Measured $\sigma(\theta_{c.m.}$=20° to 70°). FWHM=300 keV. Optical model analysis. DWIA. Deduced neutron rms radii.

1984De19: E(π^-)=116-180 MeV, E(π+)=116 MeV. Measured excitation functions at constant momentum transfer of q=73 MeV/c. FWHM=220 keV. DWIA analysis.

1991Ra22: systematic study and re-analysis of available data using the strong absorption model.

Others: 1990Se04, 1985RoZW, 1981Gr09, 1980Bu07, 1980HaZT, 1979MoZV, 1978Eg03, 1978MiZY. See 2002Af05 for a study of these data using the zero-order Born approximation method and the corresponding deduced deformation parameters.

^{48}Ca Levels

E(level)	J^π[†]	Comments
0.0[‡]	0^+	
3832[‡]	2^+	See 1991Ra22 for systematic study for β_2 deduced using the strong absorption model.
4507[‡]	3^-	
5729[#]	5^-	
7.66×10^3[#]	3^-	
10.2×10^3	1^+	E(level),J^π: from 1984De19. (π^+,π^+) peak heavily contaminated by ^{16}O 9.85-MeV state. Excitation function shows similar anomalous behavior to that for the ^{12}C 15.1-MeV, 1^+, $T_>$ state.

[†] From Adopted Levels, except as noted.
[‡] From 1981Bo26.
[#] From 1984Bo02.