^{44}Ca(π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$) 1987Mo25,1984Bo02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 190,1 (2023)	20-Jun-2023

1987Mo25: (π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$) E=180 MeV pion beam produced at the Los Alamos Clinton P. Anderson Meson Physics Facility (LAMPF). Target was enriched metallic calcium (95.35% ^{44}Ca). Scattered particles were detected with the Energetic Pion Channel and Spectrometer (EPICS) (FWHM=150 keV). Measured σ(E,θ). Deduced levels, J, π, L-transfers, neutron and proton matrix elements. Distorted-Wave Impulse-Approximation (DWIA) calculations.

1984Bo02: (π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$) E=116, 118, 292.5 MeV pions from LAMPF. Measured σ(E,θ). Deduced levels, neutron rms. DWIA and optical-potential calculations.

1981Bo26: (π^+,$\pi^{+\prime}$),(π^-,$\pi^{-\prime}$) E=180 MeV at LAMPF. Measured σ(E,θ). Deduced neutron, proton matrix elements. DWIA analysis.

^{44}Ca Levels

E(level)[†]	J^π[†]	L[†]	B(EL)↑[#]	Comments
0	0^+			J^π: from the Adopted Levels.
1160	2^+	2	0.043 *8*	B(E2)↑=0.081 *14* from M_n, 0.061 *8* from M_0 (1987Mo25).
1880				
2280	4^+	4	0.00039 *7*	B(E4)↑=0.00045 *8* from M_n, 0.00042 *6* from M_0 (1987Mo25).
2660	2^+	2	0.0055 *11*	B(E2)↑=0.0026 *5* from M_n, 0.0039 *4* from M_0 (1987Mo25).
3310	3^-	3	0.0098 *20*	B(E3)↑=0.0111 *22* from M_n, 0.0104 *15* from M_0 (1987Mo25).
4400[‡]	3^-[‡]	3[‡]		
5030[‡]	3^-[‡]	3[‡]		

† From 1987Mo25, unless otherwise noted.
‡ From 1984Bo02 only.
# From M_p matrix element of 1987Mo25. Values deduced from neutron matrix elements and isoscalar matrix elements are given under comments. M_p=[B(EL)↑]$^{1/2}$, where L the L-transfer and J the level spin.