^{194}Pt(p,p′),(d,d′),(α,α′)   1981De12

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 177,1 (2021)	3-Sep-2021

1981De12: (p,p′) E=35 MeV protons were produced from the Michigan State University isochronous cyclotron. Enriched target. Scattered protons were momentum-analyzed with the Enge split-pole spectrometer (FWHM=15 keV) and detected with a delay-line position sensitive proportional detector. Measured $\sigma(\theta)$ from 25° to 110° (c.m.). Deduced levels, J, L-transfers from analysis with DWBA and CCBA calculations. Transition strengths compared with predictions of IBA model. See also 1980DeZX from the same laboratory. 1981De12 give cross sections at 30° (c.m.).

Others:

1988Co19: measured nothing. Analyzed data from 1981De12.

1987Da18: optical parameters deduced from (p,p) data at 22 MeV.

1987SeZW: (pol p,p′) at E=135 MeV. $\sigma(\theta)$ and analyzing power measurements for g.s., first two 2^+ states, first three 4^+ states, and first 3^-, 5^- and 7^- states. Coupled-channel analysis. The detailed results of this experiment are not available.

1987HiZX: (p,p′) at 35 MeV.

1988Co16: reanalysis of (p,p′) data of 1981De12 for determination of E7 strength in such reactions. Deduced B(E3)(W.u.) for 1432 level.

1980Ha47: E=50 MeV. Magnetic spectrograph and focal plane detection system. Energy resolution=22 to 27 keV. $\sigma(\theta)$ from 15° 51° (lab) in steps of 3°. The absolute cross sections accurate to 10%. DWBA calculations. B(E2) for first 2^+ level deduced. This work reports strong population of g.s. and first 2^+ state at 328, while the second 2^+ state at 622 and first 4^+ state at 811 are barely seen.

1976Ba35: (α,α′) E=14-24 MeV. Split-pole spectrograph and position sensitive proportional counters. Excitation functions measured at 127.5° (lab). Coupled-channel analysis of data for first 2^+, second 2^+ and first 4^+ states. See also 1976Ba23.

1971Kr10: E=16 MeV. Solid-state detectors used for detection of protons. Energy resolution=40 keV. $\sigma(\theta)$ data from 50° to 165° (lab) in steps of 5°. Data for g.s. and first 2^+ state analyzed with coupled-channel calculations.

1965Mu05: (d,d′) at E=15 MeV. Magnetic spectrograph. Energy resolution from 50 to 70 keV. Cross section data for nine levels are reported at 60° (lab). Other: 1961Co07.

^{194}Pt Levels

Cross section from (p,p′) at 30°, unless otherwise stated.

E(level)	L†	Comments
0	0	dσ/dΩ (μb/sr)=5.00E5.
328$^{@\&}$ *1*	2	B(E2)↑=1.671 (1976Ba35)
		dσ/dΩ (μb/sr)=5030.
		β_2=−0.154 *2* (1981De12), −0.145 (1980Ha47), −0.157 (1971Kr10).
		β_2(Coulomb)=−0.162, β_2(nuclear)=−0.121 (1976Ba35).
		BE2=1.74 (1981De12).
		dσ/dΩ=0.92 mb/sr in (d,d′) (1965Mu05).
622$^{\#@\&}$	2	dσ/dΩ (μb/sr)=167.
		β_2(Coulomb)=−0.152, β_2(nuclear)=−0.124 (1976Ba35).
		dσ/dΩ=0.03 mb/sr in (d,d′) (1965Mu05).
811$^{\#@\&}$	4	B(E4)↑=0.0093 (1976Ba35)
		dσ/dΩ (μb/sr)=328.
		β_4=−0.0455 *10* (1981De12).
		β_4(Coulomb)=−0.050, β_4(nuclear)=−0.040 (1976Ba35).
		BE4=0.024 (1981De12).
		dσ/dΩ=0.02 mb/sr in (d,d′) (1965Mu05).
922 *2*	‡	dσ/dΩ (μb/sr)=26.6.
1229$^{\#\&}$	4	B(E4)↑=0.014 (1981De12)
		dσ/dΩ (μb/sr)=158.

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^{194}**Pt(p,p′),(d,d′),(α,α′)**   **1981De12 (continued)**

^{194}Pt Levels (continued)

E(level)	L†	Comments
1374$^\#$	(5)	dσ/dΩ (μb/sr)=77.5.
1412 *1*	(6)	dσ/dΩ (μb/sr)=36.1.
1432$^{\#@\&}$	3	dσ/dΩ (μb/sr)=1340.
		dσ/dΩ=0.03 mb/sr in (d,d′) (1965Mu05).
		B(E3)(W.u.)=8.7 *6* (1988Co16).
1485$^\#$	(7)	dσ/dΩ (μb/sr)=66.5.
1511 *3*		
1529 *2*		
1547 *1*		
1670 *1*	(2)	dσ/dΩ (μb/sr)=11.0.
1736 *1*		dσ/dΩ (μb/sr)=28.3.
1796 *1*		dσ/dΩ (μb/sr)=38.6.
1815 *1*		dσ/dΩ (μb/sr)=14.8.
1870 *1*		dσ/dΩ (μb/sr)=123.
1892 *1*		
1911$^{\#@}$	(4)	dσ/dΩ (μb/sr)=457.
		dσ/dΩ=0.02 mb/sr in (d,d′) (1965Mu05).
1932 *2*	(5)	dσ/dΩ (μb/sr)=141.
1948 *3*		dσ/dΩ (μb/sr)=37.6.
1974 *2*		
1981 *2*		dσ/dΩ (μb/sr)=22.1.
2030 *2*		dσ/dΩ (μb/sr)=33.5.
2072 *2*		dσ/dΩ (μb/sr)=120.
2104 *2*		dσ/dΩ (μb/sr)=37.0.
2126 *2*	(4)	dσ/dΩ (μb/sr)=105.
2154 *2*	3^b	dσ/dΩ (μb/sr)=145.
2165 *2*	(5)	dσ/dΩ (μb/sr)=90.5.
2192$^{\&a}$ *4*		dσ/dΩ (μb/sr)=16.0.
2222$^@$ *2*		dσ/dΩ (μb/sr)=41.0.
		dσ/dΩ=0.03 mb/sr in (d,d′) (1965Mu05).
2246 *2*	3^b	dσ/dΩ (μb/sr)=485.
2285 *2*		dσ/dΩ (μb/sr)=168.
2309 *2*		dσ/dΩ (μb/sr)=30.7.
2323 *4*		
2354 *2*		dσ/dΩ (μb/sr)=93.6.
2370 *4*		dσ/dΩ (μb/sr)=29.1.
2395 *2*		dσ/dΩ (μb/sr)=15.2.
2404 *2*		dσ/dΩ (μb/sr)=19.6.
2418 *4*		dσ/dΩ (μb/sr)=12.2.
2536 *3*		dσ/dΩ (μb/sr)=90.8.
2543$^@$ *3*	3^b	dσ/dΩ (μb/sr)=609.
		dσ/dΩ=0.03 mb/sr in (d,d′) (1965Mu05).
2575 *3*		dσ/dΩ (μb/sr)=154.
2586 *5*		
2677$^@$ *3*		dσ/dΩ=0.01 mb/sr in (d,d′) (1965Mu05).
2688 *5*		
2698 *3*		

† From comparison of shapes of σ(θ) distributions with those for levels with known J^π values.

‡ Unnatural parity state with J^π=3$^+$ (J^π from Adopted Levels).

$^\#$ Energy value taken from γ-ray studies and used for calibrating the spectrum.

$^@$ Observed in (d,d′) also. Above 1.5 MeV, the levels in (d,d′) are poorly resolved.

^{194}**Pt(p,p′),(d,d′),(α,α')**   **1981De12 (continued)**

<u>^{194}Pt Levels (continued)</u>

$^{\&}$ Observed in (α,α') also.
^{a} Incorrectly quoted as 2912 by 1981De12.
^{b} From comparison of experimental $\sigma(\theta)$ with calculated DWBA values (1988Co19).