

$^{32}\text{S}(\pi^+, \pi^{+\prime}), (\pi^-, \pi^{-\prime})$ **1997Cl01**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 201,1 (2025)	31-Oct-2024

1997Cl01: E=162 MeV pions were produced at LAMPF Los Alamos. Targets were 99.1% enriched ^{32}S with a thickness of 100 mg/cm². Scattered particles were detected with the Energetic Pion Channel and Spectrometer (EPICS), FWHM=170 keV. Measured energy spectrum, $\sigma(\theta)$. Deduced levels, J, π . DWIA analysis.

1991Kr06: E=50 MeV at PSI. Measured $\sigma(\theta)$ of 2230 level. Deduced a ratio of neutron to proton matrix elements. DWIA analysis.

1984So13: E=50 MeV at TRIUMF. Measured $\sigma(\theta)$ of 2230 level. Deduced neutron and proton matrix elements.

----- Cross section data in $\mu\text{b/sr}$ (1997Cl01)			
Level	$d\sigma/d\Omega$ (π^+) 105.6°	$d\sigma/d\Omega$ (π^-) 75.6°	
9650	3.6 13	2.9 13	
9810	17.3 16	6.9 15	
10310	13.5 12	5.6 8	
10740	10.5 12	5.1 6	
10880	3.7 15	7.2 7	
10980	3.6 9 (75.6°)	2.1 4	
11940	4.3 6 (75.6°)	3.9 10	
12190	5.2 10	9.1 12	
12630	3.0 12	2.8 11	
12740	2.5 11	10.2 14	
12980	6.1 9	1.9 8	
13260	<2	<2	
13540	3.3 8	1.9 11	
14290	2.8 5 (75.6°)	3.1 11	
16310	2.1 9	2.9 9	
16650	1.8 9	4.8 10	
17120	2.4 12	4.1 10	

Cross sections are also listed by **1997Cl01** at
30.3°, 40.4°, 55.5°, 75.6°, 90.6° for π^+ ;
90.6° for π^-

 ^{32}S Levels

E(level) [†]	J π [#]	Comments
2230		E(level): from 1991Kr06 and 1984So13 .
9650 [‡] 30	6 ⁻	
9810		
10310		
10740		
10880 [‡] 40	6 ⁻	
10980	6 ⁻	
11940	6 ⁻	
12190		
12630 [‡] 30	6 ⁻	
12740	6 ⁻	
12980		
13260	6 ⁻	
13540 50	6 ⁻	
14290	6 ⁻	

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 $^{32}\text{S}(\pi^+, \pi^{+'}), (\pi^-, \pi^{-'})$ **1997CI01 (continued)**

 ^{32}S Levels (continued)

<u>E(level)[†]</u>	<u>J^π[#]</u>
16310 70	6 ⁻
16650 [‡] 70	6 ⁻
17120 70	6 ⁻

[†] From **1997CI01**, unless otherwise noted.

[‡] Tentative new isoscalar state (**1997CI01**).

[#] From DWIA analysis of measured $\sigma(\theta)$ (**1997CI01**).