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A LITERATURE SURVEY OF NONELASTIC
REACTIONS FOR NUCLEONS AND PIONS
INCIDENT ON COMPLEX NUCLEI AT
ENERGIES BETWEEN 20 MeV AND 33 GeV

H. W. Bertini

OAK RIDGE NATIONAL LABORATORY

operated by

UNION CARBIDE CORPORATION

for the

U.S. ATOMIC ENERGY COMMISSION

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ABSTRACT

A literature survey has been made of experimental data on non-elastic reactions of protons, neutrons, π^+ , and π^- with complex nuclei for incident energies of 20 MeV to 33 GeV. Only those reactions in which nucleons and π -mesons are emitted were considered. The survey was in general confined to publications for which abstracts appear in the journal Physics Abstracts. For pions the period covered is January 1955 to November 1962 and for nucleons it is for January 1957 to November 1962.

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GENERAL

This report contains the result of a literature search for experimental data on the nonelastic reactions of protons, neutrons, π^+ , and π^- at energies between 20 MeV and 33 GeV incident on complex nuclei. The search was restricted to those reactions which lead to the emission of nucleons and π mesons.

The journal Physics Abstracts (Section A of Science Abstracts) was used as a reference for most of the articles listed, with issues from January 1955 through November 1962 reviewed for the incident-pion data and issues from January 1957 through November 1962 reviewed for the incident-nucleon data.

The data are presented in tabular form, with the material grouped according to the incident particles protons, neutrons, π^+ , and π^- in that order. The target nuclei for each type of incident particle are arranged according to increasing mass numbers and for each mass number the particle energies are listed in the order of increasing energy. When the energies at which the experiment was conducted were too numerous to be listed individually, only the range of values is given, with the numerical sequence being determined by the mean energy of the range. Space limitations made it necessary to list only representative quantities for articles that included a great many quantities measured. The experimental error listed in the tabulation represents either the cited author's estimate or, when the amount of data included in the article was large, represents the error limits between which the bulk of the data lie. When the data were presented in graphical form in the article, the errors listed were estimated (by the literature searcher) from the error bars. In no case was an effort made to distinguish between statistical and systematic errors for the values given in the tabulation. The detector, the installation, and the accelerator are given for general information when they were cited in the articles.

A bibliography is presented following the main listing. The numbers in parentheses listed under each entry represent the numerical order in which the reference appears in the tabulation.

NOTATION

The notation used is intended to correspond in general with that suggested by the National Cross Section Advisory Group.¹ The incident and emitted particles are indicated by appropriate subscripts to the letter σ separated by a comma. A capital letter follows the letter designating the incident particle to indicate reactions of a general class. A symbol E for the incident particle energy is included in the definitions to make them more general. As a rule the symbol for the incident particle energy is unprimed and has no subscript, while that for the emitted particles has either a prime or a subscript. In the present survey the symbol for the incident particle energy is not used, because the incident energy is listed separately.

In the examples which follow it is assumed that the incident particle is a proton, but the same notation with different subscripts applies to other incident particles.

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1. John R. Stehn, Compilation of Requests for Nuclear Cross Section Measurements, WASH-1040 EANDC (Sept. 1962).

Total Reaction Cross Sections as a Function of Incident Proton Energy

$\sigma_{pT}(E) \equiv$ Total cross section.

$\sigma_{p,p}(E) \equiv$ Elastic cross section.

$\sigma_{pX}(E) \equiv$ Cross section for all nonelastic processes.

$\sigma_{p,p'}(E) \equiv$ Cross section for the inelastic scattering of the incident proton.

$\sigma_{pD}(E) \equiv$ Cross section for the disappearance of the proton.*

$\sigma_{p,xpy}(E) \equiv$ Cross section for proton production, i.e., the cross section for producing at least one proton. The reactions may be such that other particles -- neutrons, pions, etc. -- may be emitted as well.

$\sigma_{p,xp}(E) \equiv$ Cross section for proton production only (i.e., any number of protons but no other type of particle).

$\sigma_{p,lp}(E) \equiv$ Cross section for producing one proton only by nonelastic processes (includes $\sigma_{p,p'}$).

$\sigma_{p,lp2n}(E) \equiv$ Cross section for producing one proton and two neutrons only.**

$\sigma_{p,fr}(E) \equiv$ Cross section for fragment production.

$\sigma_{p,fr}(E; Z \geq 4) \equiv$ Cross section for fragment production with charge greater than or equal to four.

$\sigma_{p,2Pr}(E) \equiv$ Cross section for producing two prongs.

*The example is poor. The notation is more meaningful if the incident particle is a pion, for then $\sigma_{\pi D}$ represents the pion absorption cross section.

** $\sigma_{\pi^+, lp\pi^0}$ is used at low energies to signify the π^+ charge-exchange cross section.

Differential Cross Sections as a Function of the Incident Proton Energy and the Other Variables Indicated

All variables are measured in the laboratory system.

$\sigma_{p,xpy}(E;E_p,\psi_p) \equiv$ Cross section for producing a proton with energy E_p at angle ψ_p by any nonelastic process (mb/MeV·sr).

$\sigma_{p,xp}(E;E_p,\psi_p) \equiv$ Cross section for producing a proton with energy E_p at angle θ_p by those nonelastic processes in which protons only are emitted (mb/MeV·sr).

$$\sigma_{p,xpy}(E;E_p) = \int \sigma_{p,xpy}(E;E_p,\psi_p) d\Omega \text{ (mb/MeV)}.$$

$$\sigma_{p,xpy}(E;\psi_p) = \int \sigma_{p,xpy}(E;E_p,\psi_p) dE_p \text{ (mb/sr)}.$$

$$\begin{aligned} \text{Note : } \int \sigma_{p,xpy}(E;\psi_p) d\Omega &= \int \sigma_{p,xpy}(E;E_p) dE_p \\ &= \nu_p \sigma_{p,xpy}(E), \end{aligned}$$

where ν_p is the average number of protons emitted per inelastic collision.

$\sigma_{p,2p}(E;E_{p1},\psi_{p1},E_{p2},\psi_{p2}) \equiv$ Cross section for producing two protons only, one with energy E_{p1} at an angle ψ_{p1} and the other with energy E_{p2} at an angle ψ_{p2} [mb/(MeV)² (sr)²].

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The author would like to acknowledge the hard work and conscientious efforts of Mrs. Elsie Pickell, Miss Barbara Bishop, Mrs. Jackie Gillen, and Mrs. Evelyn Ingram while assisting in all phases of this task.

TABULATION OF REACTIONS FOR VARIOUS INCIDENT PARTICLES

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
1	p	0.143	D	Neutron spectra at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
2	p	0.340	D	Proton spectra at 30° and 40°	E < 10	35-Channel Magnetic Particle Spectrometer	Berkeley, Synchrocyclotron	J.B. Cladis, W.N. Hess, and B.J. Moyer, Phys. Rev. <u>87</u> , 425 (1952)	
3	p	0.660	D	$\sigma_{p,x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p,x\pi^-y}(E_{\pi^-}, \psi_{\pi^-})$	25	Telescope	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>5</u> , 1085 (1957)	
4	p	0.910	D	σ_{pT}	3	Telescope	Birmingham, Synchrotron	M.E. Law, G. W. Hutchinson, and D.H. White, Nuclear Phys. <u>2</u> , 600 (1959)	
5	p	0.970	Ee	σ_{pT} ; σ_{pX} ; $\sigma_{p,x\pi^+y}$; $\sigma_{p,x\pi^-y}$	15	Cloud Chamber	Birmingham	L. Riddiford and A. Williams, Proc. Roy. Soc. (London) <u>A257</u> , 316 (1960)	
6	p	0.096	Li	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
7	p	0.143	Li	Neutron spectra at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
8	p	0.155	Li ⁶	(p,2p) reactions. Total energy spectra and angular correlation of emitted protons	5-25	Telescope	Orsay, Synchrocyclotron	J.P. Garron et al., Nuclear Phys. <u>37</u> , 126 (1962)	

Incident No.	Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
9	p	0.155	Li ⁷	(p,p) reactions. Total energy spectra and angular correlation of emitted protons	5-25	Telescope	Orsay, Synchrocyclotron	J. P. Garron et al., Nuclear Phys. <u>37</u> , 126 (1962)	
10	p	0.180	Li	σ_{pX}	3	Range Separator	Uppsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
11	p	0.185	Li	$\sigma_{p,XPY}(E_p, \psi_p)$ with $\psi_p = 5^\circ, 10^\circ, 18^\circ, 34^\circ$	15-40	-	Uppsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 82 (1958)	
12	p	0.240	Li	$\sigma_{p,X\pi^+Y}(E_{\pi^+}, 90^\circ)$ $\sigma_{p,X\pi^-Y}(E_{\pi^-}, 90^\circ)$	10-30	Scintillation Crystal Telescope	Rochester, Synchrocyclotron	E.K. Gotchell, Phys. Rev. <u>105</u> , 713 (1957)	
13	p	0.660	Li	$\sigma_{p,X\pi^+Y}(E_{\pi^+}, 45^\circ)$	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>4</u> , 842 (1957)	
14	p	0.660	Li	$\sigma_{p,X\pi^-Y}(E_{\pi^-}, 45^\circ)$	20	-	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii, Ia. Ia. Shalamov, and V.A. Shebanov, Soviet Phys.-JETP <u>6</u> , 463 (1958)	
15	p	0.096	Be	$\sigma_{p,XPY}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
16	p	0.142	Be	$\sigma_{pT}; \sigma_{p,p}$	2-10	Counter Telescope	Harwell, Synchrocyclotron	A.E. Taylor and E. Wood, Nuclear Phys. <u>25</u> , 642 (1961)	Good geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
17	p	0.143	Be	Neutron spectra at zero degrees	3-10	Neutron Time of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
18	p	0.180	Be	σ_{pX}	3	Range Separator	Uppsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
19	p	0.185	Be	$\sigma_{p, \pi^0 \pi^0} (E_p, \psi_p)$ with $\psi_p = 4^\circ, 22^\circ, 30^\circ, 60^\circ$	15-40	-	Uppsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 82 (1958)	
20	p	0.222	Be	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
21	p	0.279	Be	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
22	p	0.314	Be	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
23	p	0.362	Be	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
24	p	0.450	Be	$\sigma_{p, \pi^+ \pi^-} (E_p, \psi_{\pi^+}, \psi_{\pi^-})$ $\sigma_{p, \pi^+ \pi^-} (E_p, \psi_{\pi^+}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
25	p	0.185-0.870	Be	σ_{pX}	10	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
26	p	0.650	Be	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskaev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
27	p	0.660	Be	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p \geq 60$ Mev $\psi_p = 70, 120, 180, 240, 300$	5	Magnetic Analyzer	Joint Institute for Nuclear Research, Dubna, Synchrocyclotron	L.S. Azhgirei et al., Nuclear Phys. <u>13</u> , 258 (1959)	
28	p	0.660	Be	Energy spectra of π^+ and π^- emitted at 24°	2-10	Magnetic Spectrometer and Telescope	Institute for Nuclear Problems	M.G. Meshcheriakov et al., Soviet Phys.-JETP <u>4</u> , 79 (1957)	
29	p	0.660	Be	$\sigma_{p, x\pi^+y}(E_{\pi^+}, 45^\circ)$	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	N.M. Kocharian et al., Soviet Phys. Doklady <u>1</u> , 209 (1956)	
30	p	0.660	Be	$\sigma_{p, x\pi^-y}(E_{\pi^-}, 45^\circ)$	20	-	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii, Ia. Ia. Shalamov, and V.A. Shebanov, Soviet Phys.-JETP <u>6</u> , 463 (1958)	
31	p	0.680	Be	Energy spectra of neutrons emitted at 0° and 18°	20	Telescope for Proton Recoils	Joint Institute for Nuclear Research, Synchrocyclotron	V.S. Kiselev and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 786 (1957)	
32	p	2.2	Be	Energy spectra of charged pions at $12^\circ, 18^\circ, 36^\circ$	25	Nuclear Emulsion	Harvard, Brookhaven Cosmotron	F.L. Neiman et al., Phys. Rev. <u>108</u> , 1331 (1957)	
33	p	3 Gev/c	Be	$\sigma_{p,p}$ σ_{pX}	5-10	Scintillation Counters	Berkeley, Bevatron	M.J. Longo and B.J. Moyer, Phys. Rev. <u>125</u> , 701 (1962)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
34	p	5.7	Be	σ_p, lpln and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
35	p	10	Be	Momentum spectra of protons, π^+ , π^- at various angles from 4.75° to 20° . Production ratios of K^+/π^+ , K^-/π^- , $\bar{p}/\pi^-$ at 4.75° and 9° .	5-40	Magnetic Deflectors and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>7</u> , 101 (1961)	
36	p	20	Be	Momentum spectra of protons, π^+ , π^- at various angles from 4.75° to 20° . Production ratios of K^+/π^+ , K^-/π^- , $\bar{p}/\pi^-$ at 4.75° and 9° .	5-40	Magnetic Deflectors and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>7</u> , 101 (1961)	
37	p	25	Be	Momentum spectra of protons, π^+ , π^- at various angles from 4.75° to 20° . Production ratios of K^+/π^+ , K^-/π^- , $\bar{p}/\pi^-$ at 4.75° and 9° .	5-40	Magnetic Deflectors and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>7</u> , 101 (1961)	
38	p	29.5	Be	Momentum spectra of protons, π^+ , π^- at various angles from 4.75° to 20° . Production ratios of K^+/π^+ , K^-/π^- , $\bar{p}/\pi^-$ at 4.75° and 9° .	5-40	Magnetic Deflectors and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>7</u> , 101 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
39	p	30	Be	Momentum spectra of $\pi^\pm$, deuterons, tritons, He^3 , protons, anti-protons, $K^\pm$ at 13° , 45° , and 90°	-	Momentum Deflection and Time-of-Flight	Brookhaven, Synchrotron	V. Fitch, S. Meyer, and P. Piroué, Phys. Rev. <u>126</u> , 1849 (1962)	
40	p	33	Be	Momentum spectra of $\pi^\pm$, deuterons, tritons, He^3 , protons, anti-protons, $K^\pm$ at 13° , 45° , and 90°	-	Momentum Deflection and Time-of-Flight	Brookhaven, Synchrotron	V. Fitch, S. Meyer, and P. Piroué, Phys. Rev. <u>126</u> , 1849 (1962)	
41	p	0.096	B	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
42	p	0.155	B^{10}	(p,2p) reactions. Total energy spectra and angular correlation of emitted protons	5-25	Telescope	Orsay, Synchrocyclotron	J.P. Garron et al., Nuclear Phys. <u>37</u> , 126 (1962)	
43	p	0.155	B^{11}	(p,2p) reactions. Total energy spectra and angular correlation of emitted protons	5-25	Telescope	Orsay, Synchrocyclotron	J.P. Garron et al., Nuclear Phys. <u>37</u> , 126 (1962)	
44	p	0.185	B	$\sigma_{p,xpy}(E_p, \psi_p)$ for $\psi_p = 5^\circ, 14^\circ, 18^\circ, 23^\circ$	15-40	-	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>5</u> , 82 (1958)	
45	p	0.061	C	σ_{pT} σ_{pX}	6	Plastic Scintillators	Minnesota	V. Meyer, R.M. Eisberg, and R.F. Carlson, Phys. Rev. <u>117</u> , 1334 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
46	p	0.077	C	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
47	p	0.095	C	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
48	p	0.096	C	$\sigma_{p, xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
49	p	0.113	C	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
50	p	0.133	C	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
51	p	0.142	C	σ_{pT} $\sigma_{p,P}$	2-10	Counter Telescope	Harwell, Synchrocyclotron	A.E. Taylor and E. Wood, Nuclear Phys. <u>25</u> , 642 (1961)	Good geometry
52	p	0.143	C	Neutron spectra at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen <u>et al.</u> , Nuclear Phys. <u>30</u> , 475 (1962)	
53	p	0.150	C	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
54	p	0.150	C	$\sigma_{p,lpln}$	5	-	Institute for Nuclear Problems	Yu. D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
55	p	0.153	C ¹²	Cross sections for producing excited states in (p,2p) and (p,np) reactions	20-50	Coincidence Counters and NaI Crystals	Harwell, Cyclotron	S. Austin <u>et al.</u> , Rutherford Jubilee Conf. Manchester, 1961, Paper C/1, p. 139	Poor geometry
56	p	0.153	C	$\sigma_{p,lpln}$; $\sigma_{p,2p}$ for various excited final states	20-30	Counter Telescope and NaI Crystal	Oxford Atomic Energy Research Establishment, Cyclotron	S.M. Austin <u>et al.</u> , Proc. Phys. Soc.(London) <u>80</u> , 383 (1962)	
57	p	0.153	C	Differential cross sections for the emission of 2 protons at various angles	20	Total Energy Scintillators	Harwell, Synchrocyclotron	T.J. Gooding and H.G. Pugh, Nuclear Phys. <u>18</u> , 46 (1950)	
58	p	0.155	C ¹²	(p,2p) reactions. Total energy spectra and angular correlation of emitted protons	5-25	Telescopes	Orsay, Synchrocyclotron	J.P. Garron <u>et al.</u> , Nuclear Phys. <u>27</u> , 126 (1962)	
59	p	0.180	C	σ_{pX}	3	Range Separator	Upsala	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
60	p	0.185	C	Nuclear shell structure from $\sigma_{p,2p}(E_{p1}, E_{p2}, \psi_{p1}, \psi_{p2})$	10	Double Telescope Range Method for Energy	Upsala	H. Tyrén, P. Hillman, and Th.A.J. Maris, Nuclear Phys. <u>7</u> , 10 (1958)	
61	p	0.225	C	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
62	p	0.240	C	$\sigma_{p,xpy}(E_p, 90^\circ)$	10	Emulsions	Rochester, Synchrocyclotron	G.M. Temmer, Phys. Rev. <u>83</u> , 1067 (1951)	
63	p	0.260	C	$\sigma_{p,lpln}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
64	p	0.202 to 0.342	C	$\sigma_{p,3p3n}$ relative to σ of $C^{12}(p,pn)C^{11}$	2-10	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 638 (1960)	
65	p	0.288	C	$\sigma_{p,lpln}$	3	Gamma-Ray Counter	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 628 (1960)	
66	p	0.300	C	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
67	p	0.100 - 0.500	C	Distribution of fast prongs. Angular distribution between 2 secondaries	5-40	Cloud Chamber	Milan (Cosmic Rays)	E. Fiorini and S. Ratti, Nuovo cimento <u>14</u> , 901 (1959)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
68	p	0.313	C	$\sigma_{p,lpln}$	3	Gamma-Ray Counter	Liverpool, Syncrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 628 (1960)	
69	p	0.339	C	$\sigma_{p,lpln}$	3	Gamma-Ray Counter	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 628 (1960)	
70	p	0.340	C	Proton spectra at 30° and 40°	< 10	35-Channel Magnetic Particle Spectrometer	Berkeley, Synchrocyclotron	J.B. Cladis, W.N. Hess, and B.J. Moyer, Phys. Rev. <u>87</u> , 425 (1952)	
71	p	0.350	C	$\sigma_{p,lpln}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
72	p	0.362	C	$\sigma_{p,lpln}$	3	Gamma-Ray Counter	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 628 (1960)	
73	p	0.383	C	$\sigma_{p,lpln}$	3	Gamma-Ray Counter	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 628 (1960)	
74	p	0.400	C	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
75	p	0.420	C	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
76	p	0.450	C	$\sigma_{p, \pi^+\gamma}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p, \pi^-\gamma}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^+} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
77	p	0.450	C	$\sigma_{p, lpln}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
78	p	0.470	C	Energy spectra and angular distribution of π^0	-	Pair Gamma Spectrometer	Joint Institute for Nuclear Research, Synchrocyclotron	Iu.D. Baiukov, M.S. Kozodaev, and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 552 (1957)	
79	p	0.522	C	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
80	p	0.185-0.870	C	σ_{pX}	10	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
81	p	0.560	C	$\sigma_{p, lpln}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
82	p	0.591	C	$\sigma_{p, lpln}$	5	Radio-Chemical Methods	CERN, Scychrocyclotron	K. Goebel, et al., Nuclear Phys. <u>24</u> , 28 (1961)	
83	p	0.648	C	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
84	p	0.650	C	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Dcklady <u>1</u> , 607 (1956)	Good and poor geometry
85	p	0.660	C	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p > 60$ Mev with $\psi_p = 7^\circ, 12^\circ, 18^\circ, 24^\circ, 30^\circ$	5	Magnetic Analyzer	Joint Institute for Nuclear Research, Dubna, Synchrocyclotron	L.S. Azhgirei et al., Nuclear Phys. <u>13</u> , 258 (1959)	
86	p	0.660	C	Energy spectra of π^+ and π^- emitted at 24°	2-10	Magnetic Spectrometer and Telescope	Institute for Nuclear Problems	M.G. Meshcheriakov et al. Soviet Phys.-JETP <u>4</u> , 79 (1957)	
87	p	0.660	C	$\sigma_{p, x\pi^+y}(E_{\pi^+}, 45^\circ)$	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>4</u> , 842 (1957)	
88	p	0.660	C	$\sigma_{p, x\pi^-y}(E_{\pi^-}, 40^\circ)$	25	Telescope	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>5</u> , 1085 (1957)	
89	p	0.660	C	$\sigma_{p, x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\psi_{\pi^+} = 20^\circ, 29^\circ, 38^\circ, 56^\circ, 65^\circ$ $\sigma_{p, x\pi^+y}(\psi_{\pi^+})$	10	-	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii, Ia. Ia. Shalamov, and V.A. Shebanov, Soviet Phys.-JETP <u>7</u> , 987 (1958)	
90	p	0.660	C	Black track number distribution. Proton and alpha energy distribution and angular distribution	~ 10-25	Sandwich Emulsions	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	N.A. Perfilov and Yu.I. Serebrennikov, Soviet Phys.-JETP <u>13</u> , 274 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
91	p	0.660	C	$\sigma_{p,lpln}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
92	p	0.660	C	Cross section for various reactions. Energy and angular distribution of alphas and protons	10-50	Emulsion	Joint Institute for Nuclear Research, Synchrotron	A.P. Zhdanov and P.I. Fedotov, Soviet Phys.-JETP <u>10</u> , 280 (1960)	
93	p	0.670	C	$\sigma_{p,x\pi^+y}(E_{\pi^+}, 56^\circ)$ $\sigma_{p,x\pi^+y}$ $\sigma_{p,x\pi^-y}(E_{\pi^-}, 56^\circ)$ σ_{p,x^-y}	10	Analyzing Magnet Telescope	Joint Institute for Nuclear Research, Synchrocyclotron	L.S. Azhgirei et al., Soviet Phys.-JETP <u>7</u> , 939 (1958)	
94	p	0.670	C	Energy spectra and angular distribution of π^0	-	Pair Gamma Spectrometer	Joint Institute for Nuclear Research, Synchrocyclotron	I.U.D. Baiukov, M.S. Kozodaev, and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 552 (1957)	
95	p	0.730	C	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
96	p	0.835	C	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
97	p	0.900	C	σ_{pT} σ_{pX}	5-10	Telescope	Birmingham, Synchrotron	N.E. Booth et al., Proc. Phys. Soc. A(London) <u>70</u> , 209 (1957)	Good and poor geometry
98	p	0.910	C	σ_{pT}	3	Telescope	Birmingham, Synchrotron	N.E. Law, G.W. Hutchinson, and D.H. White, Nuclear Phys. <u>2</u> , 600 (1959)	
99	p	0.930	C	$\sigma_{p,x\pi^0\gamma}(\psi_{\pi^0})$ $\sigma_{p,x\pi^0\gamma}$	20-40	Telescope and Total Absorption Cerenkov Counter,	Birmingham	A.M. Segar and R. Rubinstein, Nuclear Phys. <u>14</u> , 222 (1959)	
100	p	0.980	C	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
101	p	1.0	C	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
102	p	1.8	C	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
103	p	2	C	$\sigma_{p,lpln}$	4	Telescope for p Flux. Scintillators for C ¹¹	Brookhaven, Cosmotron	J.B. Cumming, G. Friedlander, and C.E. Svartz, Phys. Rev. <u>111</u> , 1386 (1958)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
104	p	2.2	C	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
105	p	2.8	C	σ_{pX}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>2</u> , 908 (1958)	
106	p	3.0	C	$\sigma_{p,lpln}$	6	Plastic Scintillators	Berkeley, Bevatron	N. Horwitz and J.J. Murray, Phys. Rev. <u>117</u> , 1361 (1960)	
107	p	3 Gev/c	C	$\sigma_{p,p}$ σ_{pX}	5-10	Scintillation Counters	Berkeley, Bevatron	M.J. Longo and B.J. Moyer, Phys. Rev. <u>125</u> , 701 (1962)	Good and poor geometry
108	p	3.0	C	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
109	p	3	C	$\sigma_{p,lpln}$	4	Telescope for p Flux. Scintillators for C ¹¹	Brookhaven, Cosmotron	J.B. Cumming, G. Friedlander, and C.E. Swartz, Phys. Rev. <u>111</u> , 1386 (1958)	
110	p	0.25-6.2	C ¹²	Recoil ranges for C ¹¹ . Energy of struck neutrons inside C ¹² .	5	Plastic Target, Be Catcher Foils	Berkeley, Cyclotron and Bevatron	Sarjant Singh and John M. Alexander, Phys. Rev. <u>128</u> , 711 (1962)	
111	p	4.5	C	$\sigma_{p,lpln}$	6	Plastic Scintillators	Berkeley, Bevatron	N. Horwitz and J.J. Murray, Phys. Rev. <u>117</u> , 1361 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
112	p	5.7	C	$\sigma_{p,lpln}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
113	p	6.0	C	$\sigma_{p,lpln}$	6	Plastic Scintillators	Berkeley, Bevatron	N. Horwitz and J.J. Murray, Phys. Rev. <u>117</u> , 1361 (1960)	
114	p	Energy > 7	C	σ_{pX}	15	Hodoscopic Counters	Moscow University, Stratosphere	K.I. Alekseeva and N.L. Grigorov, Soviet Phys.-JETP <u>2</u> , 336 (1957)	
115	p	Energy > 7	C	σ_{pX} ; average number of charged particles	15	Telescope	Moscow, Stratosphere	K.I. Alekseeva and N.L. Grigorov, Soviet Phys.-JETP <u>8</u> , 416 (1959)	
116	p	0.4-17	C ¹²	Ratio of Al ²⁷ (p, β pn) Na ²⁴ /C ¹² (p, pn) C ¹¹ cross sections	5	Scintillation and Proportional Counters	Brookhaven, Synchrotron	J.B. Cumming et al., Phys. Rev. <u>128</u> , 2392 (1962)	
117	p	~ 12	C	σ_{pX}	15	Telescope Hodoscopic Counters	Moscow University, Stratosphere	K.I. Alekseeva and N.L. Grigorov, Soviet Phys. Doklady <u>2</u> , 317 (1957)	
118	p	15.9 Gev/c	C	Proton momentum spectrum at ~ 60 mrad	50	-	CERN, Synchrotron	G. Cocconi et al., Phys. Rev. <u>126</u> , 277 (1962)	
119	p	18.3 Gev/c	C	Proton momentum spectrum at ~ 60 mrad	50	-	CERN, Synchrotron	G. Cocconi et al., Phys. Rev. <u>126</u> , 277 (1962)	

Incident No.	Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
120	p	24	C	Transverse momentum spectrum of π^0	8	Emulsion Stack	Bombay; Exposure Made at CERN Synchrotron	Y. Pal and T. Rengarajan, Phys. Rev. <u>124</u> , 1575 (1961)	
121	p	24	C	Average energy; most probable and average transverse momentum of π^0	5-20	Emulsion Stack	Tata Institute, India; Exposure Made at CERN Synchrotron	Y. Pal and T. Rengarajan, J. Phys. Soc. Japan <u>17</u> , sup. A-III, 387 (1962)	
122	p	26.0 Gev/c	C	Proton momentum spectrum at ~ 60 mrad	50	-	CERN, Synchrotron	G. Cocconi et al., Phys. Rev. <u>126</u> , 277 (1962)	
123	p	28	C ¹²	$\sigma_{p,lpln}$	5	Plastic Scintillators	Brookhaven, Synchrotron	J.B. Cumming, G. Friedlander, and S. Katcoff, Phys. Rev. <u>125</u> , 2078 (1962)	
124	p	0.096	N	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
125	p	0.142	N	σ_{pT} $\sigma_{p,p}$	2-10	Counter Telescope	Harwell, Synchrocyclotron	A.E. Taylor and E. Wood, Nuclear Phys. <u>25</u> , 642 (1961)	Good geometry
126	p	0.185	N	$\sigma_{p,xpy}(E_p, \psi_p)$ with $\psi_p = 5^\circ, 7^\circ, 10^\circ, 18^\circ$	15-40	-	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 82 (1958)	
127	p	0.4	N ¹⁴	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
128	p	0.420	N	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
129	p	0.522	N	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
130	p	0.648	N	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
131	p	0.660	N	Black track number distribution. Proton and alpha energy distribution and angular distribution	~ 10-25	Sandwich Emulsion	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	N.A. Perfilov and Yu.I. Serebrennikov, Soviet Phys.-JETP <u>13</u> , 274 (1961)	
132	p	0.835	N	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
133	p	0.980	N	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
134	p	3	N ¹⁴	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
135	p	5.7	N	$\sigma_{p,lpn}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
136	p	0.096	O	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
137	p	0.142	O	σ_{pT} $\sigma_{p,p}$	2-10	Counter Telescope	Harwell, Synchrocyclotron	A.E. Taylor and E. Wood, Nuclear Phys. <u>25</u> , 642 (1961)	Good geometry
138	p	0.155	O	Li^6 and Be^7 production cross sections	30	Isotope Dilution Method	Orsay, Synchrocyclotron	E. Gradsztajn, J. phys. radium <u>21</u> , 761 (1960)	
139	p	0.195	O	Nuclear shell structure from $\sigma_{p,2p}(E_{p1}, E_{p2}, \psi_{p1}, \psi_{p2})$	10	Double Telescope Range Method for Energy	Upsala	H. Tyrén, P. Hillman, and Th.A.J. Maris, Nuclear Phys. <u>7</u> , 10 (1958)	
140	p	0.222	O	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
141	p	0.279	O	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
142	p	0.100-0.500	O	Distribution of fast prongs. Angular distribution between 2 secondaries	5-40	Cloud Chamber	Milan (Cosmic Rays)	E. Fiorini and S. Ratti, Nuovo cimento <u>14</u> , 901 (1959)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
143	p	0.314	0	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
144	p	0.362	0	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
145	p	0.420	0	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
146	p	0.522	0	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
147	p	0.648	0	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
148	p	0.650	0	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskal'ev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
149	p	0.660	0	Black track number distribution. Proton and alpha energy distribution and angular distribution	~ 10-25	Sandwich Emulsions	Fadum Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	N.A. Perfilov and Yu.I. Serebrennikov, Soviet Phys. JETP <u>13</u> , 274 (1961)	
150	p	0.835	0	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
151	p	0.910	O	σ_{pT}	3	Telescope	Birmingham, Synchrotron	M.E. Law, G.W. Hutchinson, and D.H. White, Nuclear Phys. <u>2</u> , 600 (1959)	
152	p	0.980	O	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
153	p	5.7	O	$\sigma_{p,lpln}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
154	p	0.020-0.150	F	$\sigma_{p,lpln}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow, Ann. phys. (Paris) <u>7</u> , 67 (1962)	
155	p	0.020-0.155	F	$\sigma_{p,lpln}$	~ 30	Radio-Chemical Technique	Orsay, Synchrocyclotron	M. Gusakow et al., J. phys. radium <u>22</u> , 636 (1961)	
156	p	0.096	F	$\sigma_{p,xy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
157	p	0.185	F	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyren and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
158	p	0.222	F	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
159	p	0.082-0.426	F ¹⁹	$\sigma_{p,lpln}$	2-10	Radio-Chemical Techniques	Chicago, Synchrocyclotron	H.P. Yule and A. Turkevich, Phys. Rev. <u>118</u> , 1591 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
160	p	0.279	F	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
161	p	0.314	F	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
162	p	0.362	F	Radio-chemical cross sections	3-40	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 646 (1960)	
163	p	0.4	F ¹⁸	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
164	p	0.420	F	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
165	p	0.522	F	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
166	p	0.648	F	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
167	p	0.835	F	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
168	p	0.980	F	Radio-chemical cross sections	7-30	-	Birmingham, Synchrotron	J.L. Symonds, J. Warren, and J.D. Young, Proc. Phys. Soc. A(London) <u>70</u> , 824 (1957)	
169	p	0.28-2.2	F^{19}	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
170	p	3	F^{19}	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
171	p	5.7	F	$\sigma_{p,lpln}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
172	p	0.020-0.150	Na	$\sigma_{p,lpln}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow, Ann. phys. (Paris) <u>7</u> , 67 (1962)	
173	p	0.020-0.155	Na	$\sigma_{p,lpln}$	~ 30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow et al. J. phys. radium <u>22</u> , 636 (1961)	
174	p	0.096	Na	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
175	p	0.185	Na	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	

Incident No.	Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
176	p	5.7	Na	$\sigma_{p,lpn}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
177	p	0.096	Mg	$\sigma_{p,xy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
178	p	0.185	Mg	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
179	p	0.061	Al	σ_{pT} σ_{pX}	6	Plastic Scintillators	Minnesota	V. Meyer, R.M. Eisberg, and R.F. Carlson, Phys. Rev. <u>117</u> , 1334 (1960)	
180	p	0.077	Al	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
181	p	0.082	Al	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	
182	p	0.095	Al	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
183	p	0.096	Al	$\sigma_{p,xy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
184	p	0.113	Al	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
185	p	0.133	Al	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
186	p	0.142	Al	σ_{pT} $\sigma_{p,p}$	2-10	Counter Telescope	Harwell, Synchrocyclotron	A.E. Taylor and E. Wood, Nuclear Phys. <u>25</u> , 642 (1961)	Good geometry
187	p	0.143	Al	Neutron spectrum at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
188	p	0.150	Al	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	
189	p	0.150	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
190	p	0.150	Al	Energy distribution of neutrons emitted in backward direction	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
191	p	0.155	Al ²⁷	$\sigma_{p,3p3n}$	3	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Nguyen-Long-Den, Compt. rend. <u>253</u> , 2919 (1961)	
192	p	0.180	Al	σ_{pX}	3	Range Separator	Upsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundbert, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
193	p	0.185	Al	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
194	p	0.082-0.426	Al ²⁷	$\sigma_{p,3p1n}$	2-10	Radio-Chemical Techniques	Chicago, Synchrocyclotron	H.P. Yule and A. Turkevich, Phys. Rev. <u>118</u> , 1591 (1960)	
195	p	0.260	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
196	P	0.202 to 0.342	Al	$\sigma_{p,5p5n}$, $\sigma_{p,3p1n}$ relative to σ of $C^{12}(p,pn)C^{11}$	2-10	Counters	Liverpool, Synchrocyclotron	V. Parikh, Nuclear Phys. <u>18</u> , 638 (1960)	
197	p	0.340	Al	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
198	p	0.350	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
199	p	0.130-0.660	Al ²⁷	$\sigma_{p,1p1\pi^+}$	3-10	Radio-Chemical Techniques	Joint Institute for Nuclear Research, Synchrocyclotron	M.Ya. Kuznetsova, V.N. Pokrovskii, and V.N. Rybakov, Soviet Phys.-JETP <u>42</u> , 1451 (1962)	
200	p	0.450	Al	$\sigma_{p,\pi^+\gamma}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p,\pi^-\gamma}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
201	p	0.450	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
202	p	0.185-0.870	Al	σ_{pX}	10	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
203	p	0.560	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	
204	p	0.591	Al	$\sigma_{p,3p1n}$	5	Radio-Chemical Methods	CERN, Synchrocyclotron	K. Goebel et al., Nuclear Phys. <u>24</u> , 28 (1961)	
205	p	0.650	Al	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
206	p	0.660	Al	$\sigma_{p,x\pi^+y}(E_{\pi^+}, 45^\circ)$	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>4</u> , 842 (1957)	
207	p	0.660	Al	$\sigma_{p,x\pi^-y}(E_{\pi^-}, 45^\circ)$	20	-	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii, Ia.Ia. Shalamov, and V.A. Shebanov, Soviet Phys.-JETP <u>6</u> , 463 (1958)	
208	p	0.660	Al	$\sigma_{p,3p1n}$ $\sigma_{p,3p3n}$	5	-	Institute for Nuclear Problems	Yu.D. Prokoshkin and A.A. Tiapkin, Soviet Phys.-JETP <u>5</u> , 148 (1957)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
209	p	0.900	Al	σ_{pT} σ_{pX}	5-10	Telescope	Birmingham, Synchrotron	N.E. Booth et al., Proc. Phys. Soc. A(London) <u>70</u> , 209 (1957)	Good and poor geometry
210	p	0.930	Al	$\sigma_{p, \pi^0 \gamma}(\psi_{\pi^0})$ $\sigma_{p, \pi^0 \gamma}$	20-40	Telescope and Total Absorption Cerenkov Counter	Birmingham	A.M. Segar and R. Rubinstein, Nuclear Phys. <u>14</u> , 222 (1959)	
211	p	1.0	Al	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
212	p	1.4	Al	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
213	p	2	Al (thick)	$\sigma_{p, \text{lpln}}$	4	Telescope for p Flux. Scintillators for C^{11}	Brookhaven, Cosmotron	J.B. Cumming, G. Friedlander, and C.E. Swartz, Phys. Rev. <u>111</u> , 1386 (1958)	
214	p	2.2	Al	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
215	p	3.0	Al	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
216	p	3	Al (thick)	$\sigma_{p, \text{lpln}}$	4	Telescope for p Flux. Scintillators for C^{11}	Brookhaven, Cosmotron	J.B. Cumming, G. Friedlander, and C.E. Swartz, Phys. Rev. <u>111</u> , 1386 (1958)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
217	p	3 Gev/c	Al	$\sigma_{p,p}$ σ_{pX}	5-10	Scintillation Counters	Berkeley, Bevatron	M.J. Longo and B.J. Moyer, Phys. Rev. <u>125</u> , 701 (1962)	Good and poor geometry
218	p	5.7	Al	$\sigma_{p,lpn}$ and other radio-chemical cross sections	15	NaI Crystal	Berkeley, Bevatron	P.A. Benioff, Phys. Rev. <u>119</u> , 316 (1960)	
219	p	0.4-17	Al ²⁷	Ratio of Al ²⁷ (p,3pn) Na ²⁴ /Cl ³² (p,pn)Cl ³¹ cross sections	5	Scintillation and Proportional Counters	Brookhaven, Synchrotron	J.B. Cumming et al., Phys. Rev. <u>128</u> , 2392 (1962)	
220	p	10	Al	Momentum spectra of protons, π^+ , π^- , at various angles from 4.75° to 20°. Production ratios of K^+/π^+ , K^-/π^- , p/π^- at 4.75° and 9°.	5-40	Magnetic Deflection and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>1</u> , 101 (1961)	
221	p	20	Al	Momentum spectra of protons, π^+ , π^- , at various angles from 4.75° to 20°. Production ratios of K^+/π^+ , K^-/π^- , p/π^- at 4.75° and 9°.	5-40	Magnetic Deflection and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>1</u> , 101 (1961)	
222	p	25	Al	Momentum spectra of protons, π^+ , π^- , at various angles from 4.75° to 20°. Production ratios of K^+/π^+ , K^-/π^- , p/π^- at 4.75° and 9°.	5-40	Magnetic Deflection and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>1</u> , 101 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
223	p	28	Al ²⁷	Spallation product cross sections	5-30	Scintillation Counters	Brookhaven, Synchrotron	J.B. Cumming et al., Phys. Rev. <u>127</u> , 950 (1962)	
224	p	29.5	Al	Momentum spectra of protons, π^+ , π^- , at various angles from 4.75° to 20°. Production ratios of K^+/π^+ , K^-/π^- , $\bar{p}/\pi^-$ at 4.75° and 9°	5-40	Magnetic Deflection and Focusing Gas Cerenkov Counters	Brookhaven, Synchrotron	W.F. Baker et al., Phys. Rev. Letters <u>7</u> , 101 (1961)	
225	p	30	Al	Momentum spectra of $\pi^\pm$, deuterons, tritons, He ³ , protons, anti-protons, $K^\pm$ at 13°, 45°, and 90°	-	Momentum Deflection and Time-of-Flight	Brookhaven, Synchrotron	V. Fitch, S. Meyer, and P. Piroué, Phys. Rev. <u>126</u> , 1849 (1962)	
226	p	33	Al	Momentum spectra of $\pi^\pm$, deuterons, tritons, He ³ , protons, anti-protons; $K^\pm$ at 13°, 45°, and 90°	-	Momentum Deflection and Time-of-Flight	Brookhaven, Synchrotron	V. Fitch, S. Meyer, and P. Piroué, Phys. Rev. <u>126</u> , 1849 (1962)	
227	p	0.096	Si	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
228	p	0.185	Si	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
229	p	0.130-0.425	Si ³⁰	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	David L. Morrison and Albert A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
230	p	0.660	Si	$\sigma_{p,1\pi^+}$	-	Radio-Chemical Methods	Institute of Geo-chemistry and Analytical Chemistry, USSR	A.K. Lavrukina, Soviet Phys. Doklady <u>4</u> , 1317 (1959)	
231	p	0.096	P	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
232	p	0.185	P	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
233	p	0.130-0.425	P ³¹	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
234	p	0.096	S	$\sigma_{p,xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
235	p	0.185	S	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
236	p	0.130-0.425	S ³²	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
237	p	0.130-0.425	S	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
238	p	0.185	Cl	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
239	p	0.185	K	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
240	p	0.185	A	Nuclear level structure from proton spectrum	-	Telescope	Upsala	H. Tyrén and Th.A.J. Maris, Nuclear Phys. <u>6</u> , 446 (1958)	
241	p	0.180	Ca	σ_{pX}	3	Range Separator	Upsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
242	p	0.185	Ca	Nuclear shell structure from $\sigma_{p,2p}(E_{p1}, E_{p2}, \psi_{p1}, \psi_{p2})$	10	Double Telescope Range Method for Energy	Upsala	H. Tyrén, P. Hillman, and Th.A.J. Maris, Nuclear Phys. <u>7</u> , 10 (1958)	
243	p	0.130-0.425	V^{51}	$\sigma_{p, xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
244	p	0.020-0.150	Mn	$\sigma_{p, lpln}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow, Ann. phys. (Paris) <u>7</u> , 67 (1962)	
245	p	0.020-0.155	Mn	$\sigma_{p, lpln}$	~ 30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow et al., J. phys. radium <u>22</u> , 636 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
246	p	0.061	Fe (thin)	σ_{pT} , σ_{pX}	6	Plastic Scintillators	Minnesota	V. Meyer, R.M. Eisberg, and R.F. Carlson, Phys. Rev. <u>117</u> , 1334 (1960)	
247	p	0.150	Fe	Tritium production cross sections	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	
248	p	0.180	Fe	σ_{pX}	3	Range Separators	Upsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
249	p	0.4	Fe ⁵⁴	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
250	p	0.500	Fe	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
251	p	0.700	Fe	Radio-chemical cross sections	8	Radio-Chemical Techniques	Berkeley, Cyclotron	M. Honda and D. Lal, Phys. Rev. <u>118</u> , 1618 (1960)	
252	p	2.8	Fe	σ_{pX}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>9</u> , 908 (1958)	
253	p	3	Fe ⁵⁴	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
254	p	0.4	Ni ⁵⁸	$\sigma_{p,lpn}$	~ 20	Radio-Chemical Technique	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
255	p	3	Ni ⁵⁸	$\sigma_{p,lpn}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
256	p	0.077	Cu	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	F. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
257	p	0.040-0.150	Cu	Neutron evaporation differential cross section	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
258	p	0.095	Cu	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	F. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
259	p	0.096	Cu	$\sigma_{p,XPY}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
260	p	0.113	Cu	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
261	p	0.120	Cu	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
262	p	0.133	Cu	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
263	p	0.143	Cu	Neutron spectra at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
264	p	0.220	Cu	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
265	p	0.073-0.400	Cu^{65}	Recoil energy and fractions of recoils forward, backward, and perpendicular	-	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	E. Mertz and A. Caretto, Jr., Phys. Rev. <u>126</u> , 1173 (1962)	
266	p	0.082-0.426	Cu^{65}	$\sigma_{p,lpln}$	2-10	Radio-Chemical Techniques	Chicago, Synchrocyclotron	H.P. Yule and A. Turkevich, Phys. Rev. <u>118</u> , 1591 (1960)	
267	p	0.340	Cu	Neutron yield	10	$MnSO_4$ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
268	p	0.340	Cu	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
269	p	0.4	Cu^{63}	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Technique	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
270	p	0.4	Cu ⁶⁵	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markovitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
271	p	0.450	Cu	$\sigma_{p,x\pi^+\gamma}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p,x\pi^-\gamma}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
272	p	0.480	Cu	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
273	p	0.185-0.870	Cu	$\sigma_{p,X}$	10	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
274	p	0.650	Cu	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
275	p	0.660	Cu	$\sigma_{p,xpy}(E_p, \psi_p)$ for $E_p \geq 60$ Mev with $\psi_p = 7^\circ, 12^\circ, 18^\circ, 24^\circ, 30^\circ$	5	Magnetic Analyzer	Joint Institute for Nuclear Research, Synchrocyclotron	L.S. Azhgirei et al., Nuclear Phys. <u>13</u> , 258 (1959)	
276	p	0.660	Cu	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
277	p	0.660	Cu	$\sigma_{p,l\pi^-}$	-	Radio-Chemical Methods	Institute of Geochemistry and Analytic Chemistry, USSR	A.K. Lavrukhina, Soviet Phys. Doklady <u>4</u> , 1317 (1959)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
278	p	0.660	Cu	$\sigma_{p, x\pi^+ y}(E_{\pi^+}, 45^\circ)$	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys. JETP <u>4</u> , 842 (1957)	
279	p	0.660	Cu	$\sigma_{p, x\pi^- y}(E_{\pi^-}, 45^\circ)$	20	-	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii, Ia. Ia. Shalamov, and V.A. Shebanov, Soviet Phys. JETP <u>6</u> , 463 (1958)	
280	p	0.900	Cu	σ_{pT} σ_{pX}	5-10	Telescope	Birmingham, Synchrotron	N.E. Booth et al., Proc. Phys. Soc. A(London) <u>70</u> , 209 (1957)	Good and poor geometry
281	p	1.0	Cu	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
282	p	1.1	Cu	σ_{pX}	10-20	-	Armenia Institute	N.M. Kocharian et al., Soviet Phys. Doklady <u>1</u> , 209 (1956)	
283	p	0.28-2.2	Cu ⁶⁵	$\sigma_{p, lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
284	p	1.8	Cu	σ_{pX}	10-20	-	Armenia Institute	N.M. Kocharian et al., Soviet Phys. Doklady <u>1</u> , 209 (1956)	
285	p	2.2	Cu	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
286	p	3.0	Cu	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
287	p	3 Gev/c	Cu	$\sigma_{p,p}$ σ_{pX}	5-10	Scintillation Counters	Berkeley, Bevatron	M.J. Longo and B.J. Moyer, Phys. Rev. <u>125</u> , 701 (1962)	Good and poor geometry
288	p	3	Cu ⁶³	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
289	p	3	Cu ⁶⁵	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
290	p	3.4	Cu	σ_{pX}	10-20	-	Armenia Institute	N.M. Kocharian et al., Soviet Phys. Doklady <u>1</u> , 209 (1956)	
291	p	12	Cu	σ_{pX}	10-20	-	Armenia Institute	N.M. Kocharian et al., Soviet Phys. Doklady <u>1</u> , 209 (1958)	
292	p	24 Gev/c	Cu	σ_{pX}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
293	p	24	Cu	Cross section for spallation products	10-50	Radio-Chemical Techniques	CERN, Synchrotron	R. Rudstom, E. Bruninx, and A.C. Pappas, Phys. Rev. <u>126</u> , 1852 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
294	p	0.160	Zn	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p < 23$ Mev with $\psi_p = 60^\circ, 90^\circ, 120^\circ$	10-20	Range Telescope	Harvard, Cyclotron	R. Fox and N.F. Ramsey, Phys. Rev. <u>125</u> , 1609 (1962)	
295	p	0.130-0.425	Zn ⁶⁸	$\sigma_{p, xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
296	p	0.4	Zn ⁶⁴	$\sigma_{p, lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
297	p	3	Zn ⁶⁴	$\sigma_{p, lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
298	p	0.5	Ga ⁶⁹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	
299	p	0.5	Ga ⁷¹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	
300	p	1.5	Ga ⁶⁹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	
301	p	1.5	Ga ⁷¹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	
302	p	2.9	Ga ⁶⁹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
303	p	2.9	Ga ⁷¹	Radio-chemical cross section	10-30	Radio-Chemical Techniques	Brookhaven, Cosmotron	N.T. Porile, Phys. Rev. <u>125</u> , 1379 (1962)	
304	p	0.130-0.425	As ⁷⁵	$\sigma_{p, xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
305	p	2.9	As ⁷⁵	A = 72, isobaric cross section	~ 10	Radio-Chemical Techniques	Brookhaven, Cosmotron	S. Kaufman, Phys. Rev. <u>126</u> , 1189 (1962)	
306	p	0.020-0.150	Y	$\sigma_{p, lpln}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow, Ann. phys. (French) <u>7</u> , 67 (1962)	
307	p	0.060	Zr ⁹⁰	$\sigma_{p, 2p6n}$ $\sigma_{p, 3p5n}$	40	Radio-Chemical Techniques	Rochester, Synchrocyclotron	E. Ünseren and E.O. Wiig, Phys. Rev. <u>122</u> , 1875 (1961)	
308	p	0.100	Zr ⁹⁰	$\sigma_{p, 2p6n}$ $\sigma_{p, 3p5n}$	40	Radio-Chemical Techniques	Rochester, Synchrocyclotron	E. Ünseren and E.O. Wiig, Phys. Rev. <u>122</u> , 1875 (1961)	
309	p	0.150	Zr ⁹⁰	$\sigma_{p, 2p6n}$ $\sigma_{p, 3p5n}$	40	Radio-Chemical Techniques	Rochester, Synchrocyclotron	E. Ünseren and E.O. Wiig, Phys. Rev. <u>122</u> , 1875 (1961)	
310	p	0.240	Zr ⁹⁰	$\sigma_{p, 2p6n}$ $\sigma_{p, 3p5n}$	40	Radio-Chemical Techniques	Rochester, Synchrocyclotron	E. Ünseren and E.O. Wiig, Phys. Rev. <u>122</u> , 1875 (1961)	
311	p	0.150	Nb	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
312	p	0.4	Mo ¹⁰⁰	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
313	p	0.28-2.2	Mo ¹⁰⁰	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
314	p	3	Mo ¹⁰⁰	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
315	p	0.077	Ag	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
316	p	0.095	Ag	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
317	p	0.096	Ag	$\sigma_{p,XPY}^{(E_p, 40^\circ)}$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
318	p	0.113	Ag	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
319	p	0.133	Ag	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
320	p	0.150	Ag	Energy distribution of neutrons emitted in backward direction	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
321	p	0.660	Ag	$\sigma_{p, x\pi+y}(E_{\pi^+}, \psi_{\pi^+})$ for $E_{\pi^+} = 158$ Mev	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>4</u> , 842 (1957)	
322	p	1.0	Ag	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
323	p	2.2	Ag	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
324	p	3.0	Ag	Production of Be ⁷	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
325	p	0.340	Cd	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
326	p	24 Gev/c	Cd	σ_{pX}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
327	p	0.180	In	σ_{pX}	3	Range Separator	Uppsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
328	p	1	In	Radio-chemical cross sections	30	Radio-Chemical Techniques	Berkeley, Bevatron	D.R. Nethaway and L. Winsberg, Phys. Rev. <u>119</u> , 1375 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
329	p	2	In	Radio-chemical cross sections	30	Radio-Chemical Techniques	Berkeley, Bevatron	D.R. Nethaway and L. Winsberg, Phys. Rev. <u>119</u> , 1375 (1960)	
330	p	2.9	In	Radio-chemical cross sections	-	Radio-Chemical Techniques	Brookhaven, Cosmotron	N. T. Porile, Phys. Rev. <u>128</u> , 1916 (1962)	
331	p	0.25-6.2	In	Radio-chemical cross sections	25	Radio-Chemical Techniques	Berkeley, Cyclotron and Bevatron	I.M. Ladenbauer and L. Winsberg, Phys. Rev. <u>119</u> , 1368 (1960)	
332	p	4.1	In	Radio-chemical cross sections	30	Radio-Chemical Techniques	Berkeley, Bevatron	D.R. Nethaway and L. Winsberg, Phys. Rev. <u>119</u> , 1375 (1960)	
333	p	6.2	In	Radio-chemical cross sections	30	Radio-Chemical Techniques	Berkeley, Bevatron	D.R. Nethaway and L. Winsberg, Phys. Rev. <u>119</u> , 1375 (1960)	
334	p	30	In	Radio-chemical cross sections	-	Radio-Chemical Techniques	Brookhaven, Synchrotron	N. T. Porile, Phys. Rev. <u>128</u> , 1916 (1962)	
335	p	0.061	Sn	σ_{pT} σ_{pX}	6	Plastic Scintillators	Minnesota	V. Meyer, R.M. Eisberg, and R.F. Carlson, Phys. Rev. <u>117</u> , 1334 (1960)	
336	p	0.150	Sn	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
337	p	0.160	Sn	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p < 23$ Mev with $\psi_p = 60^\circ, 90^\circ, 120^\circ$	10-20	Range Telescope	Harvard, Cyclotron	R. Fox and N.F. Ramsey, Phys. Rev. <u>125</u> , 1609 (1962)	
338	p	0.450	Sn	$\sigma_{p, x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p, x\pi^-y}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
339	p	0.300-0.820	Sn	Neutrons produced	10-20	Paraffin Block and B^{10} F_3 Counters	Chalk River; Exposure Made at Echo Lake, Cal.	M. Bercovitch et al., Phys. Rev. <u>119</u> , 412 (1960)	
340	p	0.650	Sn	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
341	p	0.450	Sb	$\sigma_{p, x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p, x\pi^-y}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
342	p	0.900	Sb	σ_{pT} σ_{pX}	5-10	Telescope	Birmingham, Synchrotron	N.E. Booth et al., Proc. Phys. Soc. A(London) <u>70</u> , 209 (1957)	Good and poor geometry
343	p	0.020-0.150	Cs	$\sigma_{p, lpln}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakov, Ann. phys. (French) <u>7</u> , 67 (1962)	
344	p	0.020-0.155	Cs	$\sigma_{p, lpln}$	~ 30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakov et al., J. phys. radium <u>22</u> , 636 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
345	p	0.030-0.155	Cs	$\sigma_{p, lpxn}$	~ 25	Radio-Chemical Techniques	Orsay, Synchrocyclotron	C. Riehl, J. phys. <u>radium</u> <u>22</u> , 770 (1961)	
346	p	0.120	La	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
347	p	0.220	La	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
348	p	0.340	La	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
349	p	0.480	La	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
350	p	0.660	La	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
351	p	0.060-0.233	Ce ¹⁴²	$\sigma_{p, lpln}$ $\sigma_{p, 2p}$	5-40	Radio-Chemical Techniques	Rochester, Synchrocyclotron	W.R. Ware and E.O. Wiig, Phys. Rev. <u>122</u> , 1837 (1961)	
352	p	0.4	Ce ¹⁴²	$\sigma_{p, lpln}$ $\sigma_{p, 2p}$	3-25	Radio-Chemical Techniques	Brookhaven, Cosmotron	A.A. Caretto and G. Friedlander, Phys. Rev. <u>110</u> 1169 (1958)	
353	p	0.660	Ce	Spallation products	-	Electrolyte Deposition	Institute for Nuclear Research, Synchrocyclotron	A.K. Lavrukhina, G.M. Kolesov, and Tan Syao-en, Bull. Acad. Sci. USSR <u>24</u> , 1117 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
354	p	1.0	Ce ¹⁴²	$\sigma_{p,lpln}$ $\sigma_{p,2p}$	3-25	Radio-Chemical Techniques	Brookhaven, Cosmotron	A.A. Caretto and G. Friedlander, Phys. Rev. <u>110</u> , 1169 (1958)	
355	p	2.2	Ce ¹⁴²	$\sigma_{p,lpln}$ $\sigma_{p,2p}$	3-25	Radio-Chemical Techniques	Brookhaven, Cosmotron	A.A. Caretto and G. Friedlander, Phys. Rev. <u>110</u> , 1169 (1958)	
356	p	3.0	Ce ¹⁴²	$\sigma_{p,lpln}$ $\sigma_{p,2p}$	3-25	Radio-Chemical Techniques	Brookhaven, Cosmotron	A.A. Caretto and G. Friedlander, Phys. Rev. <u>110</u> , 1169 (1958)	
357	p	0.660	Hf	Radio-chemical cross sections	-	-	-	A.K. Labrukhin and A.A. Pozdnyakov, Atomic Energy <u>7</u> , 862 (1960)	
358	p	C.160	Ta	$\sigma_{p,xpy}(E_p, \psi_p)$ for $E_p < 23$ Mev with $\psi_p = 60^\circ, 90^\circ, 120^\circ$	10-20	Range Telescope	Harvard, Cyclotron	R. Fox and N.F. Ramsey, Phys. Rev. <u>125</u> , 1609 (1962)	
359	p	0.4	Ta ¹⁸¹	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
360	p	0.28-2.2	Ta ¹⁸¹	$\sigma_{p,lpln}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
361	p	3	Ta ¹⁸¹	$\sigma_{p,lpn}$	~ 20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Nevis Synchrocyclotron, Columbia	S.S. Markowitz, F.S. Rowland, and G. Friedlander, Phys. Rev. <u>112</u> , 1295 (1958)	
362	p	5.7	Ta	Radio-chemical cross sections for 67 nuclei	15-100	Radio-Chemical Techniques	Berkeley, Bevatron	J. Grover, Phys. Rev. <u>126</u> , 1540 (1962)	
363	p	0.040-0.150	W	Neutron evaporation differential cross section	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
364	p	0.138	W	Angular distribution of evaporation neutrons	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
365	p	0.151	W	Energy distribution of neutrons emitted in backward direction	~ 15	Recoil Protons in Emulsions	Harwell, Synchrocyclotron	D. Skyrme, Nuclear Phys. <u>35</u> , 177 (1962)	
366	p	0.130-0.425	W ¹⁸⁶	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	
367	p	0.300-0.820	W	Neutrons produced	10-20	Paraffin Block, B ¹⁰ F ₃ Counters	Chalk River; Exposure Made at Echo Lake, Cal.	M. Bercovitch et al., Phys. Rev. <u>119</u> , 412 (1960)	
368	p	0.130-0.425	Re ¹⁸⁷	$\sigma_{p,xp}$	5-40	Radio-Chemical Techniques	Carnegie Institute, Synchrocyclotron	D.L. Morrison and A.A. Caretto, Jr., Phys. Rev. <u>127</u> , 1731 (1962)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
369	p	0.018-0.086	Au ¹⁹⁷	$\sigma_{p,lp1n}$ $\sigma_{p,lp2n}$ $\sigma_{p,lp3n}$	13	Radio-Chemical Techniques	McGill, Synchrocyclotron	T.M. Kavanagh and R.E. Bell, Can. J. Phys. <u>39</u> , 1172 (1961)	
370	p	0.082	Au	Tritium production cross section	~ 10	Radio-Chemical Methods	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	
371	p	0.020-0.150	Au	$\sigma_{p,lp1n}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow, Ann. phys. (French) <u>7</u> , 67 (1962)	
372	p	0.020-0.155	Au	$\sigma_{p,lp1n}$	~ 30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Gusakow et al., J. phys. radium <u>22</u> , 636 (1961)	
373	p	0.040-0.155	Au	Cross sections for producing Hg isotopes	~ 20	Mass Separator	Orsay, Synchrocyclotron	G. Albouy, M. Gusakow, and N. Poffé, Rutherford Jubilee Conf. Manchester 1961, Paper C 1/26 191	
374	p	0.040 to 0.155	Au	$\sigma_{p,lp1n}$ $\sigma_{p,lp2n}$ $\sigma_{p,3n}$	5	Radio-Chemical Methods	Orsay, Synchrocyclotron	M. Gusakow et al., Compt. rend. <u>251</u> , 70 (1960)	
375	p	0.040-0.155	Au ¹⁹⁷	Radio-chemical cross section	~ 30	Electromagnetic Separation	Orsay, Synchrocyclotron	N. Poffé et al., J. phys. radium <u>22</u> , 639 (1961)	
376	p	0.120	Au	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
377	p	0.154	Au ¹⁹⁷	Energy spectra of protons, deuterons, and tritons emitted at 15°, 30°, and 60°	25	dE/dx - E Scintillation Telescope	Orsay	J. Génin et al., J. phys. radium <u>22</u> , 615 (1961)	
378	p	0.155	Au	$\sigma_{p,1n}$ $\sigma_{p,3n}$ $\sigma_{p,4n}$	30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	N. Poffé, M. Riou, and J. Teillac, Compt. rend. <u>248</u> , 3552 (1959)	
379	p	0.155	Au	Radio-chemical cross sections for Hg isotope	30	Electro-magnetic Separation	Orsay, Synchrocyclotron	N. Poffé et al., J. phys. radium <u>21</u> , 343 (1960)	
380	p	0.180	Au	σ_{pX}	3	Range Separator	Upsala, Cyclotron	A. Johansson, U. Svanberg, and O. Sundberg, Arkiv Fysik <u>19</u> , 527 (1961)	Poor geometry
381	p	0.220	Au	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
382	p	0.082-0.426	Au ¹⁹⁷	$\sigma_{p,lpln}$	2-10	Radio-Chemical Techniques	Chicago, Synchrocyclotron	H.P. Yule and A. Turkevich, Phys. Rev. <u>118</u> , 1591 (1960)	
383	p	0.340	Au	Cross section for production of Na ²⁴ and P ³²	-	Radio-Chemical Techniques	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
384	p	0.450	Au	$\sigma_{p,x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p,x\pi^-y}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^{\pm}} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
385	p	0.480	Au	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Techniques	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
386	p	0.660	Au	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Techniques	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
387	p	1.0	Au	Production of Be^7	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
388	p	2.2	Au	Production of Be^7	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
389	p	3.0	Au	Production of Be^7	~ 25	Radio-Chemical Techniques	Brookhaven, Cosmotron	E. Baker, G. Friedlander, and J. Hudis, Phys. Rev. <u>112</u> , 1319 (1958)	
390	p	0.061	Pb (thin)	σ_{pT} σ_{pX}	6	Plastic Scintillators	Minnesota	V. Meyer, R.M. Eisberg, and R.F. Carlson, Phys. Rev. <u>117</u> , 1334 (1960)	
391	p	0.077	Pb	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
392	p	0.095	Pb	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
393	p	0.096	Pb	$\sigma_{p, xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
394	p	0.113	Pb	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
395	p	0.133	Pb	σ_{pX}	~ 3	Range Telescope	Harvard, Cyclotron	R. Goloskie and K. Strauch, Nuclear Phys. <u>29</u> , 474 (1962)	Good geometry
396	p	0.143	Pb	Neutron spectra at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. <u>30</u> , 475 (1962)	
397	p	0.160	Pb	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p < 23$ Mev with $\psi_p = 60^\circ, 90^\circ, 120^\circ$	10-20	Range Telescope	Harvard, Cyclotron	R. Fox and N.F. Ramsey, Phys. Rev. <u>125</u> , 1609 (1962)	
398	p	0.450	Pb	$\sigma_{p, x\pi^+y}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p, x\pi^-y}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
399	p	0.185-0.870	Pt	σ_{pX}	10	-	-	G.P. Millburn et al., Phys. Rev. <u>92</u> , 1268 (1954)	A compilation
400	p	0.300-0.820	Pb	Neutrons produced	10-20	Paraffin Block, $B^{10}F_3$ Counters	Chalk River; Exposure Made at Echo Lake, Cal.	M. Bercovitch et al., Phys. Rev. <u>119</u> , 412 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
401	p	0.650	Pb	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
402	p	0.660	Pb	$\sigma_{p, \pi^+ \gamma}(E_{\pi^+}, \psi_{\pi^+})$ with $E_{\pi^+} = 158$ Mev	10	Magnetic Method Telescope	Institute for Nuclear Problems, Synchrocyclotron	A.G. Meshkovskii et al., Soviet Phys.-JETP <u>4</u> , 842 (1957)	
403	p	2.8	Pb	σ_{pX}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>2</u> , 908 (1958)	
404	p	3	Pb	Radio-chemical cross sections	20-50	Radio-Chemical Techniques	Brookhaven, Cosmotron	G. Friedlander and L. Yoffe, Phys. Rev. <u>117</u> , 578 (1959)	
405	p	24 Gev/c	Pb	σ_{pX}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
406	p	0.096	Bi	$\sigma_{p, xpy}(E_p, 40^\circ)$	5	Range Telescope	Harvard, Cyclotron	K. Strauch and F. Titus, Phys. Rev. <u>104</u> , 191 (1956)	
407	p	0.135	Bi ²⁰⁹	Radio-chemical cross sections	15-30	Electro-Chemical Analysis	Radium Institute, USSR	B.N. Belyaev, A.V. Kalyamin, and A.N. Murin, Soviet Phys. Doklady <u>6</u> , 784 (1962)	
408	p	0.380	Bi	Radio-chemical cross sections	15	Radio-Chemical Techniques	Columbia, Cyclotron	E.T. Hunter and J.M. Miller, Phys. Rev. <u>115</u> , 1053 (1959)	
409	p	0.660	Bi	$\sigma_{p, fr}$, ratio of forward fragments to backward fragments; average charge of fragments	-	Emulsion	Radium Institute, USSR; V.F. Darovskikh, N.P. Kocherov, and N.A. Perfilov, Soviet Institute for Nuclear Research Synchrocyclotron	Phys.-JETP <u>10</u> , 921 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
410	p	0.660	Bi	Radio-chemical cross sections	-	Radio-Chemical Techniques	Joint Institute for Nuclear Research, Synchrocyclotron	T.V. Malysheva and I.P. Alimarin, Soviet Phys.-JETP <u>8</u> , 772 (1959)	
411	p	0.120	Th	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Techniques	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
412	p	0.150	Th	Tritium production cross section	~ 10	Radio-Chemical Techniques	Orsay, Synchrocyclotron	C. Brun, M. Lefort, and X. Tarrago, J. phys. radium <u>23</u> , 167 (1962)	
413	p	0.150	Th^{232}	Production of alpha particles	5-30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	M. Lefort, G. Simonoff, and X. Tarrago, J. phys. radium <u>21</u> , 338 (1960)	
414	p	0.155	Th^{232}	$\sigma_{p,6n}$	15	Radio-Chemical Techniques	-	G. Bouissieres et al., Compt. rend. <u>251</u> , 2155 (1960)	
415	p	0.155	Th	$\sigma_{p,\alpha xn}$	10-30	Radio-Chemical Techniques	Orsay, Synchrocyclotron	X. Tarrago, J. phys. radium <u>23</u> , 1-6 (1962)	
416	p	0.220	Th	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy <u>3</u> , 1087 (1957)	
417	p	0.340	Th	Neutron yield	10	MnSO_4 Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
418	p	0.340	Th	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy 3, 1087 (1957)	
419	p	0.480	Th	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy 3, 1087 (1957)	
420	p	0.660	Th	Cross section for production of Na^{24} and P^{32}	-	Radio-Chemical Methods	Institute for Nuclear Problems, Synchrocyclotron	A.K. Lavrukhina et al., Atomic Energy 3, 1087 (1957)	
421	p	0.68	Th	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. 123, 647 (1961)	
422	p	1.80	Th	Radio-Chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. 123, 647 (1961)	
423	p	0.030 to 0.150	U^{238}	$\sigma_{p,3n}$	15-25	Radio-Chemical Methods	Orsay, Synchrocyclotron	M. Lefort, Compt. rend. 253, 2221 (1961)	
424	p	0.143	U	Neutron spectrum at zero degrees	3-10	Neutron Time-of-Flight Spectrometer	Harwell, Synchrocyclotron	P.H. Bowen et al., Nuclear Phys. 30, 475 (1962)	
425	p	0.340	U	Neutron yield	10	MnSO_4 Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. 29, 698 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
426	p	0.450	U	$\sigma_{p, \pi^+ \gamma}(E_{\pi^+}, \psi_{\pi^+})$ $\sigma_{p, \pi^- \gamma}(E_{\pi^-}, \psi_{\pi^-})$ with $\psi_{\pi^\pm} = 21.5^\circ, 60^\circ$	2-40	Counter Telescope	Chicago, Synchrocyclotron	E. Lillethun, Phys. Rev. <u>125</u> , 665 (1962)	Good geometry
427	p	0.185-0.870	U	σ_{pX}	10	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
428	p	0.300-0.820	U	Neutrons produced	10-20	Paraffin Block, $B^{10}F_3$ Counters	Chalk River; Exposure Made at Echo Lake, Cal.	M. Bercovitch et al., Phys. Rev. <u>119</u> , 412 (1960)	
429	p	0.650	U	σ_{pT} σ_{pX}	5	Telescope	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Garilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
430	p	0.660	U	$\sigma_{p, xpy}(E_p, \psi_p)$ for $E_p > 60$ Mev with $\psi_p = 7^\circ, 12^\circ, 18^\circ, 24^\circ, 30^\circ$	5	Magnetic Analyzer	Joint Institute for Nuclear Research, Dubna, Synchrocyclotron	L.S. Azhgirei et al., Nuclear Phys. <u>13</u> , 258 (1959)	
431	p	0.68	U^{235}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	
432	p	0.68	U^{238}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
433	p	1.00	U^{238}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	
434	p	1.80	U^{235}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	
435	p	1.80	U^{235}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	
436	p	3	U	Radio-chemical cross sections	20-50	Radio-Chemical Techniques	Brookhaven, Cosmotron	G. Friedlander and L. Yoffe, Phys. Rev. <u>117</u> 578 (1959)	
437	p	6.20	U^{238}	Radio-chemical cross sections	20	Radio-Chemical Techniques	Brookhaven, Cosmotron; Berkeley, Bevatron and Synchrocyclotron	B.D. Pate and A.M. Poskanzer, Phys. Rev. <u>123</u> , 647 (1961)	
438	p	0.100	Light Emulsion Nuclei	$\sigma_{p,f}(z > 2)$ Energy and angular distribution of fragments in light and heavy emulsion nuclei	40	-	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	U.R. Arifkhanov et al., Soviet Phys.-JETP <u>11</u> 806 (1960)	
439	p	0.300	Light Emulsion Nuclei	$\sigma_{p,fr}(z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
440	p	0.350	Light Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
441	p	0.450	Light Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
442	p	0.560	Light Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
443	p	0.660	Light Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
444	p	0.930	Light Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$; angle and energy distribution of Li; angular distribution of fragments	10-40	-	Radium Institute, USSR; Exposure Made at Birmingham Synchrotron	O.V. Lozhkin et al., Soviet Phys.-JETP <u>11</u> , 1001 (1960)	
445	p	0.950	Light Emulsion Nuclei	Number distribution of protons emitted in light and heavy emulsion nuclei	-	-	Plates Exposed at Birmingham	G. Philbert, Compt. rend. <u>243</u> , 141 (1956)	
446	p	1	Light Emulsion Nuclei	Charged particle distribution for light and heavy nuclei	-	-	College of France, Paris; Plates Exposed at Birmingham	G. Philbert, J. phys. radium <u>18</u> , 656 (1957)	
447	p	1	Light Emulsion Nuclei	Prong distribution	-	-	Orsay; Plates Exposed at Birmingham	G. Philberg and L. Vigneron, Compt. rend. <u>247</u> , 290 (1958)	
448	p	1	Light Emulsion Nuclei	Angular and energy distribution of fast protons	-	-	Orsay; Plates Exposed at Birmingham	G. Philbert and L. Vigneron, Compt. rend. <u>247</u> , 1335 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
449	p	9	Light Emulsion Nuclei	N_s vs. N_h	10	-	Institute of Atom. Phys.; Exposure Made at Bucharest; JINR Synchrotron	E. Friedländer, M. Marcu, and M. Spîrchez, Rev. de Phys. <u>6</u> , 457 (1961)	
450	p	0.100	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z > 2)$. Energy and angular distribution of fragments in light and heavy emulsion nuclei	40	-	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	U.R. Arifkhanov et al., Soviet Phys.-JETP <u>11</u> , 805 (1960)	
451	p	0.130	Heavy Emulsion Nuclei	Prong distribution for cascade alphas and protons. Excitation energy distribution	-	-	Radium Institute; Exposure Made at Institute for Nuclear Problems Synchrocyclotron	V.I. Ostroumov, Soviet Phys.-JETP <u>5</u> , 12 (1957)	
452	p	0.300	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
453	p	0.350	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
454	p	0.350-0.400	Heavy Emulsion Nuclei	Black, sparse black, and gray prong number distribution and angular distribution	15	-	Columbia, Cyclotron	G. Bernardini, E.T. Booth, and S.J. Lindenbaum, Phys. Rev. <u>85</u> , 826 (1952)	
455	p	0.450	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
456	p	0.460	Heavy Emulsion Nuclei	Prong distribution for cascade alphas and protons. Excitation energy distribution	-	-	Radium Institute, Institute for Nuclear Problems, Synchrocyclotron	V.I. Ostroumov, Soviet Phys.-JETP <u>5</u> , 12' (1957)	
457	p	0.560	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
458	p	0.660	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$	20-50	-	Radium Institute, USSR	O.V. Lozhkin, Soviet Phys.-JETP <u>6</u> , 273 (1958)	
459	p	0.660	Heavy Emulsion Nuclei	Prong distribution for cascade alphas and protons. Excitation energy distribution	-	-	Radium Institute, Institute for Nuclear Problems, Synchrocyclotron	V.I. Ostroumov, Soviet Phys.-JETP <u>5</u> , 12 (1957)	
460	p	0.930	Heavy Emulsion Nuclei	$\sigma_{p,fr}(Z \geq 4)$. Angle and energy distribution of Li; angular distribution of fragments	10-40	-	Radium Institute, USSR; Exposure Made at Birmingham Synchrotron	O.V. Lozhkin et al., Soviet Phys.-JETP <u>11</u> , 1001 (1960)	
461	p	0.950	Heavy Emulsion Nuclei	Number distribution of protons emitted in light and heavy weight emulsion nuclei	-	-	Plates Exposed at Birmingham, Synchrotron	G. Philbert, Compt. rend. <u>243</u> , 141 (1956)	
462	p	1	Heavy Emulsion Nuclei	Energy and angular distribution of alpha particles	-	-	Brookhaven Cosmotron	E.W. Baker, S. Katcoff, and C.P. Baker, Phys. Rev. <u>117</u> , 1352 (1960)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
463	p	1	Heavy Emulsion Nuclei	Number and angular distribution of alphas and light fragments	25	-	Brookhaven, Cosmotron	E.W. Baker and S. Katcoff, Phys. Rev. <u>123</u> , 641 (1961)	
464	p	1	Heavy Emulsion Nuclei	Charged particle distribution for light and heavy nuclei	-	-	College of France, Paris; Plates Exposed at Birmingham	G. Philbert, J. phys. radium <u>18</u> , 656 (1957)	
465	p	2	Heavy Emulsion Nuclei	Energy and angular distribution of alpha particles	-	-	Brookhaven, Cosmotron	E.W. Baker, S. Katcoff, and C.P. Baker, Phys. Rev. <u>117</u> , 1352 (1960)	
466	p	2	Heavy Emulsion Nuclei	Number and angular distribution of alphas and light fragments	25	-	Brookhaven, Cosmotron	E.W. Baker and S. Katcoff, Phys. Rev. <u>123</u> , 641 (1961)	
467	p	3	Heavy Emulsion Nuclei	Energy and angular distribution of alpha particles	-	-	Brookhaven, Cosmotron	E.W. Baker, S. Katcoff, and C.P. Baker, Phys. Rev. <u>117</u> , 1352 (1960)	
468	p	3	Heavy Emulsion Nuclei	Number and angular distribution of alphas and light fragments	25	-	Brookhaven, Cosmotron	E.W. Baker and S. Katcoff, Phys. Rev. <u>123</u> , 641 (1961)	
469	p	9.0	Heavy Emulsion Nuclei	Energy spectra of fast charged π^+ . Angular distribution of fast charged π 's and protons. Energy vs. angle of fast π 's	10-20	-	Joint Institute for Nuclear Research, Synchrotron	N.P. Bogachev et al., Soviet Phys.-JETP <u>11</u> , 317 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
470	p	9	Heavy Emulsion Nuclei	Frequency of emission of Li^8 , Li^9 , and Be^8 fragments for $N_h \geq 8$. Emission frequency of Li^8 for diff. intervals of N_h . Spectra of alphas from Li decay	10-100	-	University of Warsaw; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	W. Gajewski et al., Nuclear Phys. <u>37</u> , 226 (1962)	
471	p	9	Heavy Emulsion Nuclei	Charged distribution of fragments ($4 \leq Z \leq 8$)	-	-	Radium Institute, USSR	P.A. Gorichev, O.V. Lozhkin, and N.A. Perfilov, Soviet Phys. JETP <u>41</u> , 27 (1962)	
472	p	9.0	Heavy Emulsion Nuclei	σ_p , fr charge, angle and energy distribution of fragments	10-20	-	Joint Institute for Nuclear Research, Synchrotron	N.A. Perfilov et al., Soviet Phys. JETP <u>11</u> , 250 (1960)	
473	p	25	Heavy Emulsion Nuclei	Angular and energy distributions of Li^8 and Li^9 fragments	-	-	CERN, Synchrotron	G. Baumann, H. Braun, and P. Cürer, Compt. rend. <u>254</u> , 1966 (1962)	
474	p	25	Heavy Emulsion Nuclei	Energy spectra and angular distribution of Be^8 fragments	-	-	-	G. Baumann, H. Braun, and P. Cürer, Compt. rend. <u>254</u> , 2549 (1962)	
475	p	0.350	Emulsion Nuclei	Stars with fragments vs. E_p . No. of fragments vs. charge. Angular distribution of fragments. Energy distribution of fragments.	20	-	Radium Institute; Exposure Made at Institute for Nuclear Problems Synchrocyclotron	O.V. Lozhkin and N.A. Perfilov, Soviet Phys. JETP <u>4</u> , 790 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
476	p	0.460	Emulsion Nuclei	Stars with fragments vs. E_p . No. of fragments vs. charge. Angular distribution of fragments. Energy distribution of fragments	20	-	Radium Institute; Exposure Made at Institute for Nuclear Problems Synchrocyclotron	O.V. Lozhkin and N.A. Perfilov, Soviet Phys.-JETP <u>4</u> , 790 (1957)	
477	p	0.560	Emulsion Nuclei	Stars with fragments vs. E_p . No. of fragments vs. charge. Angular distribution of fragments. Energy distribution of fragments	20	-	Radium Institute; Exposure Made at Institute for Nuclear Problems Synchrocyclotron	O.V. Lozhkin and N.A. Perfilov, Soviet Phys.-JETP <u>4</u> , 790 (1957)	
478	p	0.660	Emulsion Nuclei	Stars with fragments vs. E_p . No. of fragments vs. charge. Angular distribution of fragments. Energy distribution of fragments	20	-	Radium Institute; Exposure Made at Institute for Nuclear Problems Synchrocyclotron	O.V. Lozhkin and N.A. Perfilov, Soviet Phys.-JETP <u>4</u> , 790 (1957)	
479	p	0.660	Emulsion Nuclei	Prong distribution. Angular distribution of gray prongs, slow protons, alphas. Energy spectra of slow protons and alphas. Yield of charged π 's.	-	-	Institute for Nuclear Problems	L.P. Solov'eva, Soviet Phys.-JETP <u>4</u> , 801 (1957)	
480	p	0.925	Emulsion Nuclei	Momentum distribution of bound nucleons	-	-	Birmingham, Synchrocyclotron	J.G. McEwen, W.M. Gibson, and P.J. Duke, Phil. Mag. <u>2</u> , 231 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
481	p	5.7	Emulsion Nuclei	Mean number of pions produced. Average transverse momentum. Shower and heavy track distribution. Angular distribution of shower tracks	15	-	Bristol; Exposure Made at Berkeley Bevatron	V.Y. Rajopadhye, Phil. Mag. <u>5</u> , 537 (1960)	
482	p	6	Emulsion Nuclei	Angular distribution of secondary charged π mesons	-	-	Bristol; Exposure Made at Berkeley Bevatron	H.H. Aly and C.M. Fisher, Nuovo cimento <u>17</u> , 98 (1960)	
483	p	6	Emulsion Nuclei	Laboratory and C-M system angular distribution of shower tracks	-	-	Poona, India; Exposure Made at Berkeley Bevatron	V.Y. Rajopadhye, Proc. Nat. Inst. Sci. India A <u>28</u> , 238 (1962)	
484	p	6.2	Emulsion Nuclei	$\sigma_{p,\pi\pi\gamma}$	30	-	Phys. Inst., Bern; Exposure Made at Berkeley Bevatron	H. Winzeler et al., Nuovo cimento <u>17</u> , 8 (1960)	
485	p	8.7	Emulsion Nuclei	Angular distribution of fast charged particles from secondary stars. Dis. of fast particles from secondary stars formed by fast neutrons	-	-	Joint Institute for Nuclear Research, Synchrotron	G.B. Zhdanov et al., Soviet Phys. JETP <u>10</u> , 433 (1960)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
486	p	8.7	Emulsion Nuclei	Distribution for various types of fast particles emitted. Integral angular dis. of various types of emitted particles, etc.	25	-	Joint Institute for Nuclear Research, Synchrotron	G.B. Zhdanov et al., Soviet Phys.-JETP <u>10</u> , 442 (1960)	
487	p	9	Emulsion Nuclei	Mean energy of π^0 's produced	25	-	Joint Institute for Nuclear Research, Synchrocyclotron	G.L. Bayatyan et al., Soviet Phys.-JETP <u>9</u> , 483 (1959)	
488	p	9	Emulsion Nuclei	Distribution of fast, and gray plus black tracks. Angular distribution of fast particles	-	-	Joint Institute for Nuclear Research, Synchrocyclotron	N.P. Bogachev et al., J. Nuclear Energy <u>9</u> , 178 (1959)	
489	p	9	Emulsion Nuclei	Energy spectrum of π^- mesons. Transverse momentum spectrum of π mesons	10	-	Kazakh State University, USSR	Yu.T. Lukin, Zh.S. Takibaev, and E.V. Shalagina, Soviet Phys.-JETP <u>11</u> , 776 (1960)	
490	p	9	Emulsion Nuclei	Energy and angular distribution of high-energy alpha particle	~ 30	-	Kazakh State University; Exposure Made at Joint Institute for Nuclear Research Synchrotron	Zh. Takibaev, E. Shalagina, and G. Tsadikova, Soviet Phys. Doklady <u>6</u> , 1094. (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
491	p	10	Emulsion Nuclei	Average star characteristics with pion, proton, deuteron, or triton secondaries and average kinematic properties of secondaries	10	-	Joint Institute for Nuclear Research, Synchrotron	E. Balea <i>et al.</i> , Nuovo cimento <u>25</u> , 214 (1962)	
492	p	14	Emulsion Nuclei	Number and angular distribution of shower particles	~ 5	-	Brussels ; Plates Exposed at CERN Synchrotron	C. Bricman <i>et al.</i> , Nuovo cimento <u>20</u> , 1017 (1961)	
493	p	28 Gev/c	Emulsion Nuclei	Mean free path, number and angular distribution of shower particles	-	-	University of Buffalo; Plates Exposed at Brookhaven Synchrotron	P.L. Jain <i>et al.</i> , Nuovo cimento <u>21</u> , 859 (1961)	
494	n	0.095	D	σ_{nT}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
495	n	0.352	D	σ_{nT}	1.	Telescope for Proton Recoils	Liverpool	A. Ashmore <i>et al.</i> , Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
496	n	0.590	D	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detectors	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	
497	n	0.765	D	σ_{nT}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor Geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
498	n	0.765	Li	σ_{nT}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
499	n	0.095	Be	σ_{nT}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
500	n	0.590	Be	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescopes and Cerenkov Detectors	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	
501	n	0.650	Be	σ_{nT} σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
502	n	0.860	Be	σ_{nT} σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>92</u> , 857 (1955)	Good and poor geometry
503	n	1.4	Be	σ_{nT} σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
504	n	0.090	C	$\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ with $\psi_{p,H^2} = 0^\circ, 12^\circ, 25^\circ, 45^\circ$ $\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ with $E_{p,H^2} > 20, 30$ Mev	15	H ρ and Specific Ionization Telescope	Berkeley, Synchrocyclotron	J. Hadley and H. York, Phys. Rev. <u>80</u> , 345 (1950)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
505	n	0.095	C	σ_{nT} σ_{nX}	$\lesssim 5$	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
506	n	~ 0.130	C	$\sigma_{n,lnp}$ for various excited final states	20-30	Counter Telescope and NaI Crystal	Oxford, Atomic Energy Research Establishment, Cyclotron	S.M. Austin et al., Proc. Phys. Soc. <u>80</u> , 383 (1962)	
507	n	0.140	C ¹²	Excited state cross sections in (n,np) reactions	20-50	Coincidence Counters and NaI Crystals	Harwell, Cyclotron	S. Austin et al., Rutherford Jubilee Conf. Manchester 1961 Paper C/1 139	Poor geometry
508	n	0.034-0.300	C	σ_{nX}	3-15	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
509	n	0.352	C	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
510	n	0.590	C	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Counters	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	
511	n	0.650	C	σ_{nT} σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
512	n	0.765	C	σ_{nT}, σ_{nX}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
513	n	0.860	C	σ_{nT}, σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>99</u> , 857 (1955)	Good and poor geometry
514	n	1.4	C	σ_{nT}, σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
515	n	4.5	C	σ_{nT}, σ_{nX}	~ 5	Counter Telescope	Berkeley, Bevatron	J.H. Atkinson et al., Phys. Rev. Letters <u>2</u> , 168 (1959)	Good and poor geometry
516	n	0.095	N	σ_{nT}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
517	n	0.095	O	σ_{nT}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
518	n	0.352	O	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
519	n	0.590	O	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
520	n	0.650	0	σ_{nT} , σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
521	n	0.765	0	σ_{nT}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
522	n	0.090	Al	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
523	n	0.095	Al	σ_{nT} , σ_{nX}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
524	n	0.084-0.300	Al	σ_{nX}	3-15	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
525	n	0.352	Al	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
526	n	0.590	Al	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.P. Fliagin, Soviet Phys.-JETP <u>2</u> , 560 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
527	n	0.650	Al	σ_{nT} , σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
528	n	0.765	Al	σ_{nT} , σ_{nX}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
529	n	0.860	Al	σ_{nT} , σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>99</u> , 857 (1955)	Good and poor geometry
530	n	1.4	Al	σ_{nT} , σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> 1369 (1955)	Good and poor geometry
531	n	3.6	Al	σ_{nX}	~ 15	Star Density in Nuclear Emulsions	University of Cal., Santa Barbara, Bevatron	P.H. Barrett, Phys. Rev. <u>114</u> , 1374 (1959)	Poor geometry
532	n	0.095	Cl	σ_{nT}	≈ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
533	n	0.090	Cu	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
534	n	0.090	Cu	$\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ with $\psi_{p,H^2} = 0^\circ, 12^\circ, 25^\circ, 45^\circ$ $\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ with $E_{p,H^2} > 20, 30$ Mev	15	Ho and Specific Ionization Telescope	Berkeley, Synchrocyclotron	J. Hadley and H. York, Phys. Rev. <u>80</u> , 345 (1950)	
535	n	0.095	Cu	σ_{nT}, σ_{nX}	≤ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
536	n	0.084-0.300	Cu	σ_{nX}	3-15	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> , 1268 (1954)	A compilation
537	n	0.352	Cu	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
538	n	0.590	Cu	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP- <u>5</u> , 560 (1957)	
539	n	0.650	Cu	σ_{nT}, σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
540	n	0.765	Cu	σ_{nT}, σ_{nX}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
541	n	0.860	Cu	σ_{nT} , σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>99</u> , 857 (1955)	Good and poor Geometry
542	n	1.4	Cu	σ_{nT} , σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
543	n	3.6	Cu	σ_{nX}	~ 15	Star Density in Nuclear Emulsions	University of Cal. Santa Barbara, Bevatron	P.H. Barrett, Phys. Rev. <u>114</u> , 1374 (1959)	Poor Geometry
544	n	4.5	Cu	σ_{nT} , σ_{nX}	~ 5	Counter Telescope	Berkely, Bavatron	J.H. Atkinson et al., Phys. Rev. Letters <u>2</u> , 168 (1959)	Good and poor geometry
545	n	0.090	Cd	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
546	n	0.095	Sn	σ_{nT}	~ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
547	n	0.352	Sn	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> 745 (1957)	Good geometry
548	n	0.590	Sn	Attempt to show π^0 production cc A ^{2/3}	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Ganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
549	n	0.650	Sn	σ_{nT}, σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
550	n	0.860	Sn	σ_{nT}, σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>99</u> , 857 (1955)	Good and poor geometry
551	n	1.4	Sn	σ_{nT}, σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
552	n	0.765	Sb	σ_{nT}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
553	n	0.590	W	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	
554	n	0.090	Pb	$\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ with $\psi_p, H^2 = 0^\circ, 12^\circ, 25^\circ, 45^\circ$ $\sigma_{n,xpy}(E_p, \psi_p)$ $\sigma_{n,xH^2y}(E_H^2, \psi_H^2)$ for $E_p, H^2 > 20, 30$ Mev	15	H ₀ and Specific Ionization Telescope	Berkeley, Synchrocyclotron	J. Hadley and H. York, Phys. Rev. <u>80</u> , 345 (1950)	
555	n	0.095	Pb	σ_{nT}, σ_{nX}	$\lesssim 5$	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry

Incident No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
556	n	0.084-0.300	Pb	σ_{nX}	3-15	-	-	G.P. Millburn et al., Phys. Rev. <u>95</u> 1268 (1954)	A compilation
557	n	0.352	Pb	σ_{nT}	1	Telescope for Proton Recoils	Liverpool	A. Ashmore et al., Proc. Phys. Soc. A(London) <u>70</u> , 745 (1957)	Good geometry
558	n	0.590	Pb	Attempt to show π^0 production $\propto A^{2/3}$	-	Scintillation Counter Telescope and Cerenkov Detector	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov, K.O. Oganesian, and V.B. Fliagin, Soviet Phys.-JETP <u>5</u> , 560 (1957)	
559	n	0.650	Pb	σ_{nT} , σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry
560	n	0.765	Pb	σ_{nT} , σ_{nX}	5	Perspex Cerenkov Detector	Birmingham, Synchrotron	N.E. Booth, G.W. Hutchinson, and B. Ledley, Proc. Phys. Soc. (London) <u>71</u> , 293 (1958)	Good and poor geometry
561	n	0.860	Pb	σ_{nT} , σ_{nX}	5-10	Counter Telescope	Brookhaven, Cosmotron	F.F. Chen, C.P. Leavitt, and A.M. Shapiro, Phys. Rev. <u>99</u> , 857 (1955)	Good and Poor geometry
562	n	1.4	Pb	σ_{nT} , σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
563	n	3.6	Pb	σ_{nX}	~ 15	Star Density in Nuclear Emulsions	University of Cal., Santa Barbara, Bevatron	P.H. Barrett, Phys. Rev. <u>114</u> , 1374 (1959)	Poor Geometry
564	n	4.5	Pb	σ_{nT} , σ_{nX}	~ 5	Counter Telescope	Berkeley, Bevatron	J.H. Atkinson <u>et al.</u> , Phys. Rev. Letters <u>2</u> , 168 (1959)	Good and poor geometry
565	n	1.4	Bi	σ_{nT} , σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor <u>et al.</u> , Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
566	n	0.090	Th	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
567	n	0.090	U	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
568	n	0.095	U	σ_{nT}	~ 5	Bi Fission Chamber	Berkeley, Cyclotron	J. DeJuren and N. Knable, Phys. Rev. <u>77</u> , 606 (1950)	Good and poor geometry
569	n	0.160	U	Neutron yield	10	MnSO ₄ Solution	Berkeley and Chicago Cyclotrons	W.E. Crandall and G.P. Millburn, J. Appl. Phys. <u>29</u> , 698 (1958)	
570	n	0.650	U	σ_{nT} , σ_{nX}	5	Telescope, Liquid Scintillator	Institute for Nuclear Problems, Synchrocyclotron	V.I. Moskalev and B.V. Gavrilovskii, Soviet Phys. Doklady <u>1</u> , 607 (1956)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
571	n	1.4	U	σ_{nT} , σ_{nX}	3-5	Al Radiator and Scintillation Counter Telescope	Brookhaven, Cosmotron	T. Coor et al., Phys. Rev. <u>98</u> , 1369 (1955)	Good and poor geometry
572	n	0.300	Heavy Emulsion Nuclei	Black, sparse black, and gray prong number distribution and angular distribution	15	-	Columbia, Cyclotron	G. Bernardini, E.T. Booth, and S.J. Lindenbaum, Phys. Rev. <u>85</u> , 826 (1952)	
573	n	0.900	Heavy Emulsion Nuclei	Prong distribution. Average number of black, gray, and shower tracks and angular distribution of same.	-	-	Birmingham, Synchrotron	W.T. Morton and B.A. Munir, Phil. Mag. <u>4</u> , 933 (1959)	Black track E (proton) < 30 Mev. Gray track 30 Mev < E (proton) < 450 Mev. Shower track 450 Mev < E (proton)
574	π^+	0.273	He	$\sigma_{\pi^+, \pi^+}(\psi_{\pi^+})$ σ_{π^+X}	10-20	Diffusion (Cloud) Chamber	Joint Institute for Nuclear Research, Synchrocyclotron	M.S. Kozokdaev et al., Soviet Phys.-JETP <u>11</u> 300 (1960)	
575	π^+	0.020	Be	σ_{π^+, π^+} , σ_{π^+D} and prong distribution	25	Cloud Chamber	Rochester, Cyclotron	F.H. Tenney and J. Tinlot, Phys. Rev. <u>92</u> , 974 (1953)	
576	π^+	0.030	Be	σ_{π^+, π^+} , σ_{π^+D} and prong distribution	25	Cloud Chamber	Rochester, Cyclotron	F.H. Tenney and J. Tinlot, Phys. Rev. <u>92</u> , 974 (1953)	
577	π^+	0.040	Be	σ_{π^+, π^+} , σ_{π^+D} and prong distribution	25	Cloud Chamber	Rochester, Cyclotron	F.H. Tenney and J. Tinlot, Phys. Rev. <u>92</u> , 974 (1953)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
578	π^+	0.050	C	σ_{π^+p} , prong distribution. Angular distribution of prongs. Angular distribution of 2-prong stars	-	Propane Bubble Chamber	Joint Institute for Nuclear Research, Synchrotron	J.V. Laberrigue-Frolova, M.P. Balandin, and S.Z. Otvinovskii, Soviet Phys.-JETP <u>10</u> , 452 (1960)	
579	π^+	0.087	C ¹²	$\sigma_{\pi^+, \pi^+}(\psi_{\pi^+})$	10-50	Total Absorption Scintillation Spectrometer	Utrecht, Neth.; Exposure Made at CERN Synchrocyclotron	F.P.G. Valckx, E.S. Gelsema, and M. Kruiskamp, Nuovo cimento <u>23</u> , 1005 (1962)	
580	π^+	0.060 to 0.125	C	Alpha spectra from $\pi + C \rightarrow 3\alpha$. Relative $\sigma_{\pi^+, \pi^+}(\psi_{\pi^+})$	-	Emulsion	Arcetri, Italy	M. Della Corte, T.F. Fazzini, and A.M. Song, Nuovo cimento <u>2</u> , 1345 (1955)	
581	π^+	0.442	C	σ_{π^+X}	~ 10	Cerenkov Counters and Plastic Scintillators	Berkeley, Synchrocyclotron	J. Caris et al., Phys. Rev. <u>126</u> , 295 (1962)	Good and poor geometry
582	π^+	3.7 Gev/c	C	σ_{π^+X}	4-20	Ring Counter	Joint Institute for Nuclear Research	M.F. Likhachev et al., Soviet Phys.-JETP <u>14</u> , 29 (1962)	
583	π^+	0.087	O ¹⁶	$\sigma_{\pi^+, \pi^+}(\psi_{\pi^+})$	10-50	Total Absorption Scintillation Spectrometer	Utrecht, Neth.; Exposure Made at CERN Synchrocyclotron	F.P.G. Valckx, E.S. Gelsema, and M. Kruiskamp, Nuovo cimento <u>23</u> , 1005 (1962)	
584	π^+	0.442	Al	σ_{π^+X}	~ 10	Cerenkov Counters and Plastic Scintillators	Berkeley, Synchrocyclotron	J. Caris et al., Phys. Rev. <u>126</u> , 295 (1962)	Good and poor geometry

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
585	π^+	3.7 Gev/c	Al	σ_{π^+X}	4-20	Ring Counter	Joint Institute for Nuclear Research	M.F. Likhachev et al., Soviet Phys. JETP <u>14</u> , 29 (1962)	
586	π^+	0.442	Cu	σ_{π^+X}	~ 10	Cerenkov Counters and Plastic Scintillators	Berkeley, Synchrocyclotron	J. Caris et al., Phys. Rev. <u>126</u> , 295 (1962)	Good and poor geometry
587	π^+	3.7 Gev/c	Cu	σ_{π^+X}	4-20	Ring Counter	Joint Institute for Nuclear Research	M.F. Likhachev et al., Soviet Phys. JETP <u>14</u> , 29 (1962)	
588	π^+	0.442	Cd	σ_{π^+X}	~ 10	Cerenkov Counters and Plastic Scintillators	Berkeley, Synchrocyclotron	J. Caris et al., Phys. Rev. <u>126</u> , 295 (1962)	Good and poor geometry
589	π^+	3.7 Gev/c	Sn	σ_{π^+X}	4-20	Ring Counter	Joint Institute for Nuclear Research	M.F. Likhachev et al., Soviet Phys. JETP <u>14</u> , 29 (1962)	
590	π^+	0.050	Pb	σ_{π^+X} , $\sigma_{\pi^+,1\pi^0}$ $\sigma_{\pi^+,1pr}$, $\sigma_{\pi^+,2pr}$	10-70	Cloud Chamber	Berkeley, Synchrocyclotron	G. Saphir, Phys. Rev. <u>104</u> , 535 (1956)	
591	π^+	0.5 to 5.0	Pb	Fraction of primary energy removed by π^0	25	Cloud Chamber	Padova, Lab. della Marmolada	M. Cresti et al., Nuovo cimento <u>4</u> , 747 (1956)	
592	π^+	3.7 Gev/c	Pb	σ_{π^+X}	4-20	Ring Counter	Joint Institute for Nuclear Research	M.F. Likhachev et al., Soviet Phys. JETP <u>14</u> , 29 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
593	π^+	0.280	Light Emulsion Nuclei	Charge distribution of fragments. Energy distribution of fragments. Angular distribution of fragments	10-30	-	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	N.S. Ivanova, V.I. Ostroumov, and Yu.V. Pavlov, Soviet Phys.-JETP <u>10</u> , 1137 (1960)	
594	π^+	0.280	Heavy Emulsion Nuclei	Charge distribution of fragments. Energy distribution of fragments. Angular distribution of fragments	10-30	-	Radium Institute; Exposure Made at Joint Institute for Nuclear Research Synchrocyclotron	N.S. Ivanova, V.I. Ostroumov, and Yu.V. Pavlov, Soviet Phys.-JETP <u>10</u> , 1137 (1960)	
595	π^+	0.080	Emulsion Nuclei	σ_{π^+fr} , charge distribution, energy distribution, and angular distribution of fragments ($Z \geq 4$) from heavy nuclei	50	-	Radium Institute; Plates Exposed at Joint Institute for Nuclear Research Synchrocyclotron	A.S. Assovskaia and N.S. Ivanova, Soviet Phys.-JETP <u>12</u> , 1051 (1961)	
596	π^+	0.078	Propane	σ_{π^+D} on C. Prongs emitted forward and backward for π^+ absorption	20-40	Bubble Chamber	Joint Institute for Nuclear Research, Synchrocyclotron	R.G. Sulukvadze and D. Neagu, Soviet Phys.-JETP <u>14</u> , 59 (1962)	
597	π^+	0.080 to 0.300	Mixture of C,F,Cl	σ_{π^+X}	10	Freon Bubble Chamber	Joint Institute for Nuclear Research, Synchrocyclotron	A.G. Meshkovskii and Ia. Ia. Shalamov, Soviet Phys.-JETP <u>10</u> , 697 (1960)	
598	π^-	0.330	He	$\sigma_{\pi^-, \pi^-}(\psi_{\pi^-})$ σ_{π^-X}	10-20	Diffusion (Cloud) Chamber	Joint Institute for Nuclear Research, Synchrocyclotron	M.S. Kozodaev et al., Soviet Phys.-JETP <u>11</u> , 300 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
599	π^-	0.140	Be	$\sigma_{\pi-T}, \sigma_{\pi-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
600	π^-	0.216	Be	$\sigma_{\pi-T}, \sigma_{\pi-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
601	π^-	0.256	Be	$\sigma_{\pi-T}, \sigma_{\pi-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
602	π^-	0.290	Be	$\sigma_{\pi-T}, \sigma_{\pi-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
603	π^-	0.350	Be	$\sigma_{\pi-T}, \sigma_{\pi-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
604	π^-	0.960 Gev/c	Be	$\sigma_{\pi^-, \pi^+ y}(\psi_{\pi^-})$ with $0^\circ \leq \psi_{\pi^-} \leq 16^\circ$	10	Plastic Scintillator Telescope	College of France, Proton Synchrotron	M. Crozon and J. Tocqueville, Compt. rend. <u>254</u> 1963 (1962)	
605	π^-	0.970	Be	$\sigma_{\pi-X}$	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
606	π^-	0.360 to 0.125	C	Alpha spectrum from $\pi + C \rightarrow 3\alpha$. Angular distribution of inelastic scattering π^-	-	Emulsion	Arcetri, Italy	M. Della Corte, T.F. Fazzini, and A.M. Song, Nuovo cimento <u>2</u> , 1345 (1955)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
607	π^-	0.125	C	$\sigma_{\pi^-, \pi^-}(E_{\pi^-}, \psi_{\pi^-})$ for $E_{\pi^-} < 85$ Mev; $\sigma_{\pi^-T}; \sigma_{\pi^-, 1\pi^0};$ $\sigma_{\pi^-D} + \sigma_{\pi^-, 1\pi^0}$	20	Cloud Chamber	Columbia, Cyclotron	J.O. Kessler and L.M. Lederman, Phys. Rev. <u>94</u> , 689 (1954)	
608	π^-	0.230 to 0.250	C	σ_{π^-X} $\sigma_{\pi^-, \pi^-}(\psi_{\pi^-})$	10	Cloud Chamber	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov et al., Soviet Phys.-JETP <u>4</u> , 864 (1957)	
609	π^-	0.6	C	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
610	π^-	0.8	C	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
611	π^-	0.915	C	$\sigma_{\pi^-T}; \sigma_{\pi^-, \pi^-}$; prong distribution, π^- momentum spectrum and angular distribution for events with various prongs	5-10	Propane Bubble Chamber	Bari, Italy; Exposure Made at Brookhaven Cosmotron	N. Abbattista et al., Nuovo cimento <u>23</u> , 1 (1962)	
612	π^-	0.960 Gev/c	C	$\sigma_{\pi^-, \pi^-}(\psi_{\pi^-})$ with $0^\circ \leq \psi_{\pi^-} \leq 16^\circ$	10	Plastic Scintillator Telescope	College of France, Proton Synchrotron	M. Crozon and J. Tocqueville, Compt. rend. <u>254</u> , 1963 (1962)	
613	π^-	0.97	C	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
614	π^-	1.20	C	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
615	π^-	1.5	C	σ_{π^-X}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>9</u> , 908 (1958)	
616	π^-	1.3	N	Momenta, angular and charge dist. of various fragments	-	Cloud Chamber	Brookhaven, Cosmotron	G.D. Gordon et al., Phys. Rev. <u>108</u> , 1315 (1957)	
617	π^-	0.140	O	σ_{π^-T} , σ_{π^-X}	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
618	π^-	0.216	O	σ_{π^-T} , σ_{π^-X}	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
619	π^-	0.256	O	σ_{π^-T} , σ_{π^-X}	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
620	π^-	0.290	O	σ_{π^-T} , σ_{π^-X}	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
621	π^-	0.350	O	σ_{π^-T} , σ_{π^-X}	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
622	π^-	0.970	Al	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
623	π^-	0.970	Ca	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
624	π^-	1.5	Fe	σ_{π^-X}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>9</u> , 908 (1958)	
625	π^-	0.140	Cu	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
626	π^-	0.216	Cu	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
627	π^-	0.256	Cu	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
628	π^-	0.290	Cu	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
629	π^-	0.350	Cu	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
630	π^-	0.960 Gev/c	Cu	$\sigma_{\pi^-, X\pi^+}(\psi_{\pi^-})$ with $0^\circ \leq \psi_{\pi^-} \leq 16^\circ$	10	Plastic Scintillator Telescope	College of France, Proton Synchrotron	M. Crozon and J. Tocqueville, Compt. rend. <u>254</u> , 1963 (1962)	
631	π^-	0.970	Cu	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	
632	π^-	6.0 Gev/c	Cu	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; Exposure Made at CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
633	π^-	11.3 Gev/c	Cu	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	F.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
634	π^-	16.0 Gev/c	Cu	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	F.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
635	π^-	17.6 Gev/c	Cu	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
636	π^-	0.122 initially	Ag (thick)	Radio-chemical cross sections	~ 15	Radio-Chemical Techniques	Chicago, Synchrocyclotron	W. Goishi and W.F. Tibby, Phys. Rev. <u>104</u> , 1717 (1956)	
637	π^-	6.0 Gev/c	Cd	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
638	π^-	11.3 Gev/c	Cd	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
639	π^-	16.0 Gev/c	Cd	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
640	π^-	17.6 Gev/c	Cd	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock <i>et al.</i> , Nuovo cimento <u>22</u> , 1290 (1961)	
641	π^-	0.970	Sn	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
642	π^-	0.125	Pb	$\sigma_{\pi^-, \pi^-} (E_{\pi^-}, \psi_{\pi^-})$ for $E_{\pi^-} < 85$ Mev; $\sigma_{\pi^-T}; \sigma_{\pi^-, 1\pi^0};$ $\sigma_{\pi^-D} + \sigma_{\pi^-, 1\pi^0}$	20	Cloud Chamber	Columbia, Cyclotron	J.O. Kessler and L.M. Lederman, Phys. Rev. <u>94</u> , 689 (1954)	
643	π^-	0.140	Pb	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
644	π^-	0.216	Pb	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
645	π^-	0.230 to 0.250	Pb	$\sigma_{\pi^-X}, \sigma_{\pi^-, \pi^-} (\psi_{\pi^-})$	10	Cloud Chamber	Institute for Nuclear Problems, Synchrocyclotron	V.P. Dzhelepov et al., Soviet Phys.-JETP <u>4</u> , 864 (1957)	
646	π^-	0.256	Pb	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
647	π^-	0.290	Pb	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
648	π^-	0.350	Pb	$\sigma_{\pi^-T}, \sigma_{\pi^-X}$	5-10	-	-	A.E. Ignatenko et al., Soviet Phys.-JETP <u>4</u> , 35 (1957)	
649	π^-	0.970	Pb	σ_{π^-X}	5	Toluene-Terphenyl Scintillator	Brookhaven, Cosmotron	J.W. Cronin, R. Cool, and A. Abashian, Phys. Rev. <u>107</u> , 1121 (1957)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
650	π^-	1.5	Pb	σ_{π^-X}	5	Cloud Chamber	Brookhaven, Cosmotron	T. Bowen et al., Nuovo cimento <u>2</u> , 908 (1958)	
651	π^-	0.5-5.0	Pb	Fraction of primary energy removed by π^0	25	Cloud Chamber	Padova, Lab della Marmolada	M. Cresti et al., Nuovo cimento <u>4</u> , 747 (1956)	
652	π^-	6.0 Gev/c	Pb	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
653	π^-	11.3 Gev/c	Pb	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
654	π^-	16.0 Gev/c	Pb	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
655	π^-	17.6 Gev/c	Pb	σ_{π^-X}	3	Freon Bubble Chamber	Un. of Fribourg, Switz.; CERN Synchrotron	R.N. Peacock et al., Nuovo cimento <u>22</u> , 1290 (1961)	
656	π^-	0.160	Heavy Emulsion Nuclei	Spectrum of π^- scattered from 90° - 180°	-	-	Institute for Nuclear Problems, Synchrocyclotron	L.P. Kudrin and B.A. Nikolskii, Soviet Phys. Doklady <u>1</u> , 708 (1956)	
657	π^-	4.3	Heavy Emulsion Nuclei	Emission of Li^8 , Li^8 , B^8 fragments. Energy and angular dist. of above	-	-	Yamanashi University, Japan; Plates exposed at Berkeley Bevatron	K. Imaeda, M. Kazuno, and N. Ito, J. Phys. Soc. Japan <u>15</u> , 1753 (1960)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
658	π^-	4.3	Heavy Emulsion Nuclei	Angular and energy dist. of Li^8 fragments	-	-	Osaka City University; Plates Exposed at Berkeley Bevatron	M.T. Ohta, J. Phys. Soc. Japan <u>15</u> , 2187 (1960)	
659	π^-	17 Gev/c	Heavy Emulsion Nuclei	Angular and energy dist. of Li^8 and Li^9 fragments	-	-	Strasbourg-Cronin-bourg, France; CERN Synchrocyclotron	G. Baumann, H. Braun, and P. Cür, J. Phys. Radium <u>23</u> , 335 (1962)	
660	π^-	0.560	Emulsion Nuclei	Heavy particle dist., 5-40 proton energy spectrum, star dist., pion ang. distribution	-	-	Upsala	A. Frisk et al., Arkiv Fysik <u>19</u> , 69 (1961)	
661	π^-	0.750	Emulsion Nuclei	Mean free path	10	-	Durham; Plates Exposed at Brookhaven Cosmotron	J.E. Allen et al., Phil. Mag. <u>6</u> , 833 (1961)	
662	π^-	0.750	Emulsion Nuclei	Angular dist. of π^- fragment analysis	-	-	Brookhaven, Cosmotron	M. Blau and O.R. Oliver, Phys. Rev. <u>102</u> , 489 (1956)	
663	π^-	1.5	Emulsion Nuclei	Charged pion spectrum, pions per star, angular dist. of pions	-	-	Brookhaven, Cosmotron	J.E. Crew and R.D. Hill, Phys. Rev. <u>110</u> , 177 (1958)	
664	π^-	1.5	Emulsion Nuclei	Stars vs. Prongs; ang. dist. of prongs	-	-	Brookhaven, Cosmotron	R.D. Hill et al., Phys. Rev. <u>101</u> , 1127 (1956)	
665	π^-	2	Emulsion Nuclei	Percent of stars with charged pions vs E_π , energy spectrum and ang. dist. if charged pions	10	-	University of Stockholm; Exposure Made at Berkeley Bevatron	B. Ronne and O. Danielsson, Arkiv Fysik <u>22</u> , 175 (1962)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
666	π^-	4.2	Emulsion Nuclei	Mean pion and proton multiplicity. Angular distribution and energy spectra for π 's and protons	-	-	Weizmann Institute; Plates Supplied by Rochester	P. Abrahamson, J. Ben-Arieh, and G. Yekutielli, Nuovo cimento <u>12</u> , 27 (1959)	
667	π^-	4.5	Emulsion Nuclei	Transverse momentum of secondary pions. Shower particle multiplicity and angular distribution	5-10	-	Bristol; Exposure Made at Berkeley Bevatron	H.H. Aly, J.G.M. Duthie, and C.M. Fisher, Phil. Mag. <u>4</u> , 993 (1959)	
668	π^-	4.5	Emulsion Nuclei	Angular distribution of secondary charged π mesons	-	-	Bristol; Exposure Made at Berkeley Bevatron	H.H. Aly and C.M. Fisher, Nuovo cimento <u>17</u> , 98 (1960)	
669	π^-	4.5	Emulsion Nuclei	Shower tracks per star	-	-	Rajshahi University; Exposure Made at Dacca University	A. Husain and M.H. Siddique, Nuovo cimento <u>11</u> , 438 (1959)	
670	π^-	7.3 Gev/c	Emulsion Nuclei	Average star characteristics with pion, proton, deuteron or triton secondaries and average kinematic properties of latter	10	-	Joint Institute for Nuclear Research, Synchrotron	E. Balea et al., Nuovo cimento <u>25</u> , 214 (1962)	
671	π^-	17 Gev/c	Emulsion Nuclei	Hyper fragment production	-	-	Exposed at CERN Synchrotron	G. Baumann, H. Braun, and P. Cürer, Compt. rend. <u>254</u> , 3839 (1962)	
672	π^+ or π^-	0.048	C	$\sigma_{\pi, \pi'}$	30	Cloud Chamber	Cornell, Synchrotron	A.M. Shapiro, Phys. Rev. <u>84</u> , 1063 (1951)	

No.	Incident Particle	Incident Particle Energy (Gev)	Target	Measured Quantity	Estimate of Experimental Error (%)	Detector	Installation and Accelerator	References	Comments
673	π^+ or π^-	0.062	C	$\sigma_{\pi\pi'}$ $\sigma_{\pi X}$	15	Cloud Chamber	Columbia, Cyclotron	H. Byfield, J. Kessler, and L.M. Lederman, Phys. Rev. <u>86</u> , 17 (1952)	
674	Cosmic-Ray Particles	20 to 150	C	Average charge multiplicity, momentum spectra of pions, average energy of pions, angular dist. of particles, average transverse momentum, etc.	5-20	Multiplate Cloud Chamber	Tata Institute, Bombay	S. Lal, Y. Pal, and R. Raghavan, Nuclear Phys. <u>31</u> , 415 (1962)	

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