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π^+p , π^+n , AND π^+d INTERACTIONS— A COMPILATION: PARTS I AND II

Particle Data Group

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$\pi^+\text{p}$ Kinematics

P(LAB)----T(LAB)----INV MASS----P(CMS)-----4P(LAB)ARSO--				P(LAB)----T(LAB)----INV MASS----P(CMS)-----4P(LAB)ARSO--				P(LAB)----T(LAB)----INV MASS----P(CMS)-----4P(LAB)ARSO--				P(LAB)----T(LAB)----INV MASS----P(CMS)-----4P(LAB)ARSO--			
(MEV/C)	(MEV)	(MEV)	(MB)	(MEV/C)	(MEV)	(MEV)	(MB)	(MEV/C)	(MEV)	(MEV)	(MB)	(MEV/C)	(MEV)	(MEV)	(MB)
0	1078	0	16180.19	1500	1367	1930	729	9.21	3.0	2.86	2.36	1.10	4.04		
20	1075	17	4072.38	1520	1387	1940	735	9.06	3.2	3.06	2.53	1.14	3.75		
40	1082	35	1829.45	1540	1407	1950	741	8.91	3.4	3.26	2.77	1.18	3.50		
60	1085	52	1033.66	1560	1427	1955	747	8.77	3.6	3.46	2.77	1.22	3.29		
80	1096	68	679.23	1580	1447	1965	753	8.63	3.8	3.66	2.63	1.26	3.09		
100	1105	85	480.65	1600	1467	1978	759	8.50	4.0	3.86	2.50	1.29	2.92		
120	1116	101	360.38	1620	1486	1988	765	8.37	4.2	4.06	2.36	1.33	2.77		
140	1127	117	281.69	1640	1506	1997	770	8.24	4.4	4.26	2.36	1.36	2.65		
160	1132	132	237.69	1660	1526	2006	776	8.12	4.6	4.46	3.03	1.40	2.50		
180	1145	147	186.63	1680	1546	2016	782	8.00	4.8	4.66	3.11	1.43	2.39		
200	1155	161	159.48	1700	1566	2025	788	7.89	5.0	4.86	3.11	1.46	2.29		
220	1168	175	137.11	1720	1586	2034	793	7.77	5.2	5.06	3.12	1.49	2.19		
240	1182	189	109.52	1740	1606	2043	799	7.67	5.4	5.26	3.12	1.53	2.10		
260	1206	202	84.40	1760	1626	2052	805	7.56	5.6	5.46	3.18	1.56	2.02		
280	1215	215	69.67	1780	1646	2062	810	7.46	5.8	5.66	3.43	1.59	1.95		
300	1233	228	54.52	1800	1666	2071	816	7.36	6.0	5.86	3.43	1.61	1.88		
320	1247	241	44.34	1820	1686	2080	821	7.26	6.2	6.06	3.54	1.64	1.81		
340	1261	253	36.43	1840	1706	2085	827	7.16	6.4	6.26	3.54	1.67	1.75		
360	1274	265	29.88	1860	1726	2098	832	7.07	6.6	6.46	3.65	1.70	1.70		
380	1288	277	24.34	1880	1746	2107	837	6.98	6.8	6.66	3.70	1.73	1.64		
400	1302	288	19.70	1900	1766	2115	843	6.89	7.0	6.86	3.75	1.75	1.59		
420	1315	300	15.70	1920	1785	2124	848	6.80	7.2	7.06	3.80	1.78	1.55		
440	1325	311	12.47	1940	1805	2132	853	6.72	7.4	7.26	3.85	1.81	1.50		
460	1342	322	9.73	1960	1825	2142	859	6.64	7.6	7.46	3.85	1.83	1.46		
480	1356	332	7.44	1980	1845	2150	864	6.56	7.8	7.66	3.85	1.86	1.42		
500	1365	343	5.86	2000	1865	2155	869	6.48	8.0	7.86	3.95	1.88	1.38		
520	1382	353	4.56	2020	1885	2168	874	6.40	8.2	8.06	4.04	1.91	1.35		
540	1395	363	3.71	2040	1905	2176	879	6.33	8.4	8.26	4.08	1.93	1.31		
560	1408	373	3.14	2060	1925	2185	885	6.25	8.6	8.46	4.13	1.95	1.28		
580	1421	383	2.66	2080	1945	2194	890	6.18	8.8	8.66	4.17	1.98	1.25		
600	1434	393	2.22	2100	1965	2202	895	6.11	9.0	8.86	4.22	2.00	1.22		
620	1447	402	20.26	2120	1985	2211	900	6.04	9.2	9.06	4.26	2.03	1.19		
640	1455	412	17.63	2140	2005	2219	905	5.98	9.4	9.26	4.31	2.05	1.17		
660	1472	421	15.47	2160	2025	2227	910	5.91	9.6	9.46	4.35	2.07	1.14		
680	1484	430	13.47	2180	2045	2234	915	5.85	9.8	9.66	4.35	2.09	1.12		
700	1496	439	11.64	2200	2065	2244	920	5.78	10.0	9.86	4.43	2.12	1.09		
720	1505	448	10.04	2220	2085	2253	925	5.72	10.5	10.36	4.54	2.17	1.04		
740	1521	457	8.73	2240	2105	2261	930	5.66	11.0	10.86	4.64	2.22	0.99		
760	1533	465	7.61	2260	2125	2269	934	5.60	11.5	11.36	4.74	2.28	0.94		
780	1545	474	6.61	2280	2145	2277	939	5.55	12.0	11.86	4.84	2.33	0.90		
800	1557	482	5.73	2300	2165	2286	944	5.49	12.5	12.36	4.94	2.38	0.87		
820	1565	490	5.00	2320	2185	2294	949	5.43	13.0	12.86	5.02	2.43	0.83		
840	1580	499	4.44	2340	2205	2302	954	5.38	13.5	13.36	5.12	2.47	0.80		
860	1592	507	3.95	2360	2225	2310	959	5.33	14.0	13.86	5.21	2.52	0.77		
880	1604	515	3.54	2380	2245	2318	963	5.27	14.5	14.36	5.29	2.57	0.74		
900	1615	523	3.21	2400	2264	2326	968	5.22	15.0	14.86	5.39	2.61	0.71		
920	1627	531	2.93	2420	2284	2334	973	5.17	15.5	15.36	5.48	2.67	0.67		
940	1638	538	2.68	2440	2304	2342	977	5.12	16.0	15.86	5.56	2.70	0.63		
960	1649	546	2.46	2460	2324	2350	982	5.07	16.5	16.36	5.63	2.78	0.59		
980	1661	554	2.26	2480	2344	2358	987	5.03	17.0	16.86	5.69	2.87	0.55		
1000	1672	561	2.08	2500	2364	2366	991	4.98	17.5	17.36	5.75	2.95	0.52		
1020	1683	569	1.92	2520	2384	2374	996	4.93	18.0	17.86	5.82	3.03	0.48		
1040	1694	576	1.77	2540	2404	2382	1001	4.89	18.5	18.36	5.88	3.13	0.44		
1060	1705	583	1.63	2560	2424	2390	1005	4.84	19.0	18.86	5.94	3.22	0.41		
1080	1716	591	1.50	2580	2444	2398	1010	4.80	19.5	19.36	6.00	3.32	0.38		
1100	1726	598	1.38	2600	2464	2406	1014	4.76	20.0	19.86	6.06	3.41	0.35		
1120	1737	605	1.27	2620	2484	2413	1019	4.72	20.5	20.36	6.12	3.50	0.33		
1140	1748	612	1.16	2640	2504	2421	1023	4.67	21.0	20.86	6.18	3.59	0.31		
1160	1758	619	1.07	2660	2524	2428	1028	4.63	21.5	21.36	6.24	3.67	0.29		
1180	1765	626	0.99	2680	2544	2436	1032	4.59	22.0	21.86	6.30	3.75	0.27		
1200	1780	633	0.92	2700	2564	2444	1037	4.55	22.5	22.36	6.36	3.83	0.25		
1220	1790	639	0.85	2720	2584	2452	1041	4.52	23.0	22.86	6.42	3.91	0.23		
1240	1800	646	0.78	2740	2604	2459	1045	4.48	23.5	23.36	6.48	4.00	0.21		
1260	1811	653	0.72	2760	2624	2467	1050	4.44	24.0	23.86	6.54	4.08	0.19		
1280	1821	660	0.66	2780	2644	2474	1054	4.40	24.5	24.36	6.60	4.17	0.17		
1300	1831	666	0.61	2800	2664	2482	1058	4.37	25.0	24.86	6.66	4.26	0.15		
1320	1841	673	0.56	2820	2684	2490	1063	4.33	25.5	25.36	6.72	4.35	0.13		
1340	1851	679	0.51	2840	2704	2497	1067	4.30	26.0	25.86	6.78	4.44	0.11		
1360	1862	685	0.47	2860	2724	2505	1071	4.26	26.5	26.36	6.84	4.53	0.09		
1380	1872	692	0.43	2880	2744	2512	1076	4.23	27.0	26.86	6.90	4.62	0.07		
1400	1881	698	0.39	2900	2764	2519	1080	4.20	27.5	27.36	6.96	4.71	0.05		
1420	1891	704	0.36	2920	2784	2527	1084	4.16	28.0	27.86	7.02	4.80	0.03		
1440	1901	711	0.33	2940	2804	2534	1088	4.13	28.5	28.36	7.08	4.89	0.01		
1460	1911	717	0.30	2960	2824	2542	1093	4.10	29.0	28.86	7.14	4.98	0.00		
1480	1921	723	0.27	2980	2844	2549	1097	4.07	29.5	29.36	7.20	5.07	0.00		

0 0 0 0 0 0 0 0 7 1 9

π^+p , π^+n , AND π^+d INTERACTIONS—
A COMPILATION: PART I

Particle Data Group

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PART II

Data Listings by Article

This part is on the microfiche in the pocket on the inside back cover. A printed version has been sent to libraries on our mailing list. A limited number of printed versions are available for users who do not have ready access to a fiche reader.

Section A.

INTRODUCTION

Scope of This Compilation

This compilation presents channel cross sections, fits to $\sigma \propto s^{-n}$, differential cross sections, slope fits to forward differential cross sections, and polarization data contained in 297 papers dealing with π^+p , π^+n and π^+d reactions. We have included all papers published between January 1968 and October 1972; a few articles published earlier are also included. The journals examined in our literature search are listed in Appendix 1 to this section.

A few papers from conferences are also included, but only when it has been made clear by the authors that the data were not to be published elsewhere (or had not been before October 1972).

Organization and Treatment of the Data

The organization of the data as presented in Section B of this compilation is indicated in the table of contents. The presentation of the data is divided into three parts: cross sections, differential cross sections, and polarization. A further division is made according to the initial state: π^+p , π^+n , or π^+d . At the beginning of these groups a list of reactions and associated numbers may be found. The reactions are listed by the number of particles in the final state; for this purpose resonances are counted as particles, so that, for example, $\pi^+p \rightarrow \rho^+\pi^0$ would be found among the 3-body final states.

We have not, in general, included data on total cross sections or elastic (and charge exchange) scattering reactions. Such data have appeared in a separate PDG compilation (C. Lovelace et al., LBL-63).

The data contained in this compilation have, to a certain extent, been edited as well as compiled by us. Thus when an experimental group reported different results (generally due to improved statistics or more elaborate corrections) from the same experiment in two or more publications without specifying which part of the data presented was being superseded, we chose to present those results that

seemed to us more final. Furthermore, we have excluded data that we thought to be unreliable or not presented in a precise manner.

Plots of the cross-section data are presented versus s for reactions with, usually, at least four data points. In addition a fit to the energy dependence

$$\sigma \propto s^{-n}$$

is shown and n is stated.

Following the cross-section data, we give the differential cross sections for all 2-body (and quasi-2-body) final states, Section B.2.a. The data are presented in tabular form versus $\cos \theta_{c.m.}$, t or t' , depending on the variable the authors used. When distributions were originally given versus $\cos \theta_{c.m.}$, they have been transformed to distributions in t , tabulated, and presented in plots with t and t' data. Since the mass of a resonance is not constant, such transformations cannot be done exactly from the published distributions (they must be done on an event-by-event basis); the distortion to the distribution will be, of course, most severe for broad resonances (ρ , Δ^{++} , etc.).

In many cases we have had to convert an angular distribution given in numbers of events to a normalized $[\mu b/(\text{GeV}/c)^2 \text{ or } mb/(\text{GeV}/c)^2]$ one. Consider, for example, the reaction

$$\pi^+p \rightarrow 1 + 2 + 3$$

with cross section σ_{123} for N_{123} events.

Suppose N_{1r} of these events proceed through a resonance

$$\pi^+p \rightarrow 1 + r \rightarrow 2 + 3$$

with cross section σ_{1r} . Usually the angular distribution is found by binning in t all those events in some mass "cut" interval centered about the resonance "peak." It is clear that dN/dt so constructed has contributions from background events and excludes events from the resonance "tail." With this procedure in mind, such distributions are consequently normalized according to

$$\frac{d\sigma}{dt} = N(\Delta t) \frac{\sigma_{123}}{(\Delta t)N_{123}},$$

where $N(\Delta t)$ is the number of events in the Δt bin. The conversion factor, $\frac{\sigma_{123}}{(\Delta t)N_{123}}$, is given in the listing of the article (see Part II) together with the unnormalized distribution.

Curves fitted by us to various differential cross sections using

$$\frac{d\sigma}{dt} = A \exp(Bt)$$

or

$$\frac{d\sigma}{dt'} = A \exp(Bt')$$

are presented on the plots in Section B.2.b; the fits are for an interval of t (or t') consistent with such simple behavior. The results of such fits [which include $\left(\frac{d\sigma}{dt}\right)_{t=0}$ and the slope B] are presented in Section B.2.c, together with the t interval, the number of data points used, and the χ^2 per degree of freedom obtained from the fit. Section B.2.c also contains the results of authors' own fits, using the equations

$$\frac{d\sigma}{dt} = A \exp(Bt)$$

or

$$\frac{d\sigma}{dt} = A_1 \exp(B_1 t) + A_2 \exp(B_2 t),$$

and similar equations replacing t by t' .

Finally, in Section B.3, we present the available polarization data (P or αP) for the reactions $\pi^+ p \rightarrow K^+ \Sigma^+$, $\pi^+ n \rightarrow K^+ \Lambda$, and $\pi^+ n \rightarrow K^*(890)^+ \Lambda$. The polarization of the hyperon is measured along the direction of the normal to the production plane,

$$\hat{n} = \frac{\vec{p}_{\pi^+} \times \vec{p}_{K^+}}{|\vec{p}_{\pi^+} \times \vec{p}_{K^+}|}.$$

Data are presented as a function of t .

To facilitate the use of this compilation, we include in Section C three indices: references by beam momentum, articles in alphabetical order by the first author and increasing date of the publication, and references by title.

In Part II we present a listing of the 297

articles from which those data in Part I, Section B, were abstracted. These listings contain additional information on each of these articles: authors, title, abstract, closely related references, beam, momentum of experiment, target, etc. We also give tables of the data as they appeared in the original articles. Systematic comments are made specifying how the final data were obtained; for example, mass cuts for resonance production cross sections, spectator momentum cuts, corrections for systematic biases, etc. This information, extracted from the papers, is given to aid the reader in his evaluation of the results and in any comparison with other experiments.

As an attempt to reduce our production costs, Part II has been put onto microfiche; it is contained in the pocket on the inside back cover of this report. Printed versions have been sent to libraries on our mailing list and a limited number is available to users who do not have ready access to fiche readers.

We request that authors who detect any errors in their displayed results, in either Part I or II of this compilation, report them to the Particle Data Group. Also, we would appreciate receiving any updated data that authors wish to send us.

Acknowledgments

We wish to express our thanks to Arthur H. Rosenfeld and all our colleagues of the Particle Data Group for their constant moral and technical support. In particular, we are very grateful to Betty Armstrong, without whose competent layout work this compilation could never have been completed; to Marge Hutchinson for her patient assistance in modifying our plotting and fitting programs; and to Alan Rittenberg for his overall guidance and coordination of our efforts. Finally we acknowledge the aid at an earlier stage of O. Benary, J. Kingston, H. Lubatti, L. Price, and S. Protopopescu.

APPENDIX i: List of Reference Sources

APP	ACTA PHYSICA POLONICA
DESY	DEUTSCHES ELEKTRONEN SYNCH. REPORT
ILL	UNIV. OF ILLINOIS REPCRT
JINR	JINR (DUBNA) REPORT
JINRP	JINR (DUBNA) PREPRINT
KIEV	KIEV CONFERENCE REPCRT
NAUK	AKAD. NAUK SSR BULL. PHYSICAL SCIENCES
NC	NUOVO CIMENTO
NCL	NUOVO CIMENTO LETTERS
NP	NUCLEAR PHYSICS
PL	PHYSICS LETTERS
PR	PHYSICAL REVIEW
PRL	PHYSICAL REVIEW LETTERS
RMP	REVIEWS OF MODERN PHYSICS
SIENA CONF	SIENNA CONFERENCE REPCRT
SJNP	SOVIET JOURNAL OF NUCLEAR PHYSICS
SLAC	STANFORD LINEAR ACCEL. CENTER REPORT
UCRL	LAWRENCE RADIATION LAB (BERKELEY) REPORT

APPENDIX ii: List of Laboratories

AACH	PHYS. INST. DER TECH. HOCHSCHULE, AACHEN, W. GERMANY	LLL	LAWRENCE LIVERMORE LAB., LIVERMORE, CALIF., USA
AMMC	ACADEMY OF MINING AND METALLURGY, CRACOW, POLAND	LOIC	IMPERIAL COL. OF SCI. AND TECH., LONDON, ENGLAND
ANL	ARGONNE NAT. LAB., ARGONNE, ILL., USA	LOUC	UNIVERSITY COLLEGE, LONDON, ENGLAND
ANNA	UNIV. OF MICHIGAN, ANN ARBOR, MICH., USA	LRL	U.C. LAWRENCE RAD. LAB., BERKELEY, CALIF., USA
ARIZ	UNIV. OF ARIZONA, TUCSON, ARIZ., USA	MICH	MICHIGAN STATE UNIV., EAST LANSING, MICH., USA
BARI	UNIV. DEGLI STUDI DI BARI, BARI, ITALY	MILA	UNIV. DI MILANO, MILANO, ITALY
BELG	INST. INTERUNIV. DES SCI. NUC., BRUXELLES, BELGIUM	MINN	UNIV. OF MINNESOTA, MINNEAPOLIS, MINN., USA
BERG	FYSISK INSTITUTT, BERGEN, NORWAY	MIT	MASSACHUSETTS INST. OF TECH., CAMBRIDGE, MASS., USA
BERK	UNIV. OF CALIFORNIA, BERKELEY, CALIF., USA	MPIM	MAX-PLANCK-INST. FUR PHYS.-ASTROPHYS., MUNICH, GERM.
BERL	INST. HOCHENERGIEPHYS. DAW, ZEUTHEN/BERLIN, DDR	NAL	NATIONAL ACCELERATOR LAB., BATAVIA, ILLINOIS
BGNA	UNIV. DI BOLOGNA, BOLOGNA, ITALY	NDAM	UNIV. OF NOTRE DAME, NOTRE DAME, INDIANA, USA
BIRM	BIRMINGHAM UNIV., BIRMINGHAM, ENGLAND	NEVI	NEVIS LAB., IRVINGTON-ON-HUDSON, NEW YORK, USA
BNL	BROOKHAVEN NAT. LAB., UPTON, L.I., N. Y., USA	NIJN	R. K. UNIV. NIJMEGEN, NIJMEGEN, NETHERLANDS
BONN	UNIV. BONN, BONN, GERMANY	NWES	NORTHWESTERN UNIV., EVANSTON, ILL., USA
BRAN	BRANDEIS UNIV., WALTHAM, MASS., USA	ORNL	ORNL RIDGE NATIONAL LAB., OAK RIDGE, TENN., USA
BROW	BROWN UNIV., PROVIDENCE, R. I., USA	ORSA	UNIV. DE PARIS--FAC. DES SCI., ORSAY, FRANCE
BUCH	BUCHAREST STATE UNIV., BUCHAREST, ROMANIA	ORUC	UNION CARBIDE NUCL. DIV., OAK RIDGE, TENN., USA
CAVE	CAVENDISH LAB., CAMB. UNIV., CAMBRIDGE, ENGLAND	OXF	OXFORD UNIV., OXFORD, ENGLAND
CCNY	CITY COLLEGE OF NEW YORK, NEW YORK, N. Y., USA	PENN	UNIV. OF PENNSYLVANIA, PHILADELPHIA, PA., USA
CDEF	COLLEGE DE FRANCE, PARIS, FRANCE	PITH	PHYSIK. INST. DER TECH. HOCHSCHULE, AACHEN, GERMANY
CERN	CERN, GENEVA, SWITZERLAND	PPL	PALMER PHYS. LAB., PRINCETON UNIV., PRINCETON, N.J.
CHIC	UNIV. OF CHICAGO, CHICAGO, ILL., USA	PPPA	PRINCETON-PENNA. PROTON ACCEL., PRINCETON, N.J., USA
COLU	COLUMBIA UNIV., NEW YORK, N. Y., USA	PSEH	STAATSINST. FUR EXPERIMENTALPHYSIK, HAMBURG, GERMANY
CORN	CORNELL UNIV., ITHACA, N. Y., USA	PURD	PURDUE UNIV., LAFAYETTE, IND., USA
DESY	DEUTSCHES ELEKTRONEN-SYNCH., HAMBURG, GERMANY	QUNS	QUEENS COLLEGE OF C.U.N.Y., FLUSHING, N.Y., USA
DUKE	DUKE UNIVERSITY, DURHAM, N.C., USA	REHO	WEIZMANN INST. OF SCI., REHOVOTH, ISRAEL
DURF	UNIV. OF DURHAM, DURHAM, ENGLAND	RHEL	RUTHERFORD HIGH EN. LAB., CHILTON, DID. BERK. ENGLAND
EFIN	ENRICO FERMI INST. FOR NUC. STU., CHICAGO, ILL., USA	RIVS	UNIV. OF CALIFORNIA, RIVERSIDE, CALIF., USA
EPOL	ECOLE POLYTECHNIQUE, PARIS, FRANCE	ROCH	UNIV. OF ROCHESTER, ROCHESTER, N. Y., USA
FIRZ	UNIV. DI FIRENZE, FIRENZE, ITALY	ROMA	UNIV. DEGLI STUDI DI ROMA, ROME, ITALY
FLAS	FLORIDA STATE UNIV., TALLAHASSEE, FLA., USA	RUTG	RUTGERS UNIV., NEW BRUNSWICK, N. J., USA
GENO	UNIV. DI GENOVA, GENOVA, ITALY	SACL	CNTR. D'ETUDES NUC. SACLAY, Gif-sur-Yvette, FRANCE
HAMB	UNIV. HAMBURG, HAMBURG, GERMANY	SERP	INST. OF HIGH EN. PHYS., SERPUKOV, USSR
HEID	UNIV. HEIDELBERG, HEIDELBERG, GERMANY	SLAC	STANFORD LINEAR ACCEL. CNTR., STANFORD, CALIF., USA
ILL	UNIV. OF ILLINOIS, URBANA, ILL., USA	STON	STATE U. OF N.Y., STONY BROOK, L.I., NEW YORK, USA
IND	UNIV. OF INDIANA, BLOOMINGTON, IND., USA	STRB	CENTRE DES RES. NUCLEAIRES, STRASBOURG, FRANCE
INRC	INST. FOR NUCLEAR RESEARCH, CRACOW, POLAND	SUSS	SUSSEX UNIV., SUSSEX, ENGLAND
INRW	INST. FOR NUCLEAR RESEARCH, WARSAW, POLAND	TENN	UNIV. OF TENNESSEE, KNOXVILLE, TENN., USA
INTC	INSTITUTION INTC	TNTC	UNIV. OF TORONTO, TORONTO, CANADA
IPN	INST. DE PHYS. NUCLEAIRE, ORSAY, FRANCE	TORI	UNIV. DI TORINO, TORINO, ITALY
IPNP	INSTITUT DE PHYSIQUE NUCLEAIRE, PARIS, FRANCE	UCND	UNION CARBIDE NUCL. DIV., OAK RIDGE, TENN.
IRAD	INSTITUTE DU RADIUM, PARIS, FRANCE	UCR	UNIVERSITY OF CALIFORNIA (RIVERSIDE)
ITEP	INST. FOR THEOR. AND EXP. PHYS., MOSCOW, USSR	UCSD	UNIV. OF CALIF. AT SAN DIEGO, LA JOLLA, CALIF., USA
ITUP	INDIANA UNIV.-PURDUE UNIV., INDIANAPOLIS, IND., USA	VIEI	INST. FOR HIGH EN. PHYS.-A.A.S., VIENNA, AUSTRIA
JHOP	JOHNS HOPKINS UNIV., BALTIMORE, MD., USA	WARS	UNIV. OF WARSAW, WARSAW, POLAND
JINR	JOINT INST. FOR NUCL. RESEARCH, DUBNA, USSR	WEST	WESTFIELD COLLEGE UNIV. OF LONDON, U.K.
LBL	LAWRENCE BERKELEY LAB., BERKELEY, CALIF., USA	WISC	UNIV. OF WISCONSIN, MADISON, WISC., USA
LJCP	LABORATOIRE JCLIC-CURIE, PARIS, FRANCE	WOOD	RES. INST. FOR NAT. SCI., WOODSTOCK COLL., WOODSTOCK, MD
		YALE	YALE UNIV., NEW HAVEN, CONN., USA

CROSS SECTIONS

NUMERICAL LIST OF ALL π^+p REACTIONS

Reaction	Miscellaneous Final States
[1]	$\pi^+p \rightarrow 2 \text{ prongs}$
[2]	$\pi^+p \rightarrow 4 \text{ prongs}$
[3]	$\pi^+p \rightarrow 4 \text{ prongs and more}$
[4]	$\pi^+p \rightarrow 6 \text{ prongs}$
[5]	$\pi^+p \rightarrow 8 \text{ prongs}$
[6]	$\pi^+p \rightarrow 10 \text{ prongs}$
[7]	$\pi^+p \rightarrow 3\pi \text{ or more} + \text{Nucleon}$
[8]	$\pi^+p \rightarrow \text{Strange Particle}$
[9]	$\pi^+p \rightarrow K^+\bar{K}^0 \text{ Anything} + K^-\bar{K}^0 \text{ Anything}$
[10]	$\pi^+p \rightarrow K^0\bar{K}^0 \text{ Anything}$
[11]	$\pi^+p \rightarrow \Lambda K^+ \text{ Anything} + \Sigma^0 K^+ \text{ Anything}$
[12]	$\pi^+p \rightarrow \Lambda K^0 \text{ Anything} + \Sigma^0 K^0 \text{ Anything}$
[13]	$\pi^+p \rightarrow V^+ \text{ Anything}$
[14]	$\pi^+p \rightarrow 4 \text{ prongs} + K^0$
[15]	$\pi^+p \rightarrow 4 \text{ prongs} + \Lambda$
[16]	$\pi^+p \rightarrow 4 \text{ prongs} + \Sigma^-$
[17]	$\pi^+p \rightarrow 6 \text{ prongs} + \Lambda$

2 Body and Quasi-two Body Reactions

[18]	$\pi^+p \rightarrow \rho^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^0$
[19]	$\pi^+p \rightarrow A_1 \text{ and } A_2 \text{ Mass region } p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$
[20]	$\pi^+p \rightarrow A_1 \text{ and } A_2 \text{ Mass region } p$ $\quad \quad \quad \rightarrow \rho^0\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-$
[21]	$\pi^+p \rightarrow A_1^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$
[22]	$\pi^+p \rightarrow A_1^+p$ $\quad \quad \quad \rightarrow \rho^0\pi^+$
[23]	$\pi^+p \rightarrow A_1^+p$ $\quad \quad \quad \rightarrow K^+\bar{K}^0$
[24]	$\pi^+p \rightarrow A_1^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^- + \text{<other mode>}$
[25]	$\pi^+p \rightarrow A_{1.5}p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$
[26]	$\pi^+p \rightarrow B^+p$ $\quad \quad \quad \rightarrow \omega\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$

[27]	$\pi^+p \rightarrow B^+p$ $\quad \quad \quad \rightarrow \omega\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
[28]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$
[29]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^0\pi^0$
[30]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \rho^0\pi^+$
[31]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow K^+\bar{K}^0$
[32]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow K^+K_S^0$
[33]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \eta\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
[34]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \eta\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
[35]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \eta'\pi^+$ $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$ $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{neutrals}$
[36]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \eta'\pi^+$ $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$ $\quad \quad \quad \rightarrow \text{neutrals} + \text{<other mode>}$
[37]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \eta'\pi^+$ $\quad \quad \quad \rightarrow \pi^+\pi^-\text{MM}(>\pi^0)$
[38]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \text{total}$
[39]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^- + \text{<other mode>}$
[40]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \rho^0\pi^+ + \text{<other mode>}$
[41]	$\pi^+p \rightarrow A_2^+p$ $\quad \quad \quad \rightarrow \rho^0\pi^+ + \rho^+\pi^0 + \text{<other mode>}$
[42]	$\pi^+p \rightarrow A_3^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$
[43]	$\pi^+p \rightarrow A_3^+p$ $\quad \quad \quad \rightarrow \pi^+\pi^0\pi^0$

Numerical List of All π^+p Reactions

Reaction

- [44] $\pi^+p \rightarrow A_3^+p$
 $\quad \quad \quad \rightarrow \rho^0\pi^+$
- [45] $\pi^+p \rightarrow A_3^+p$
 $\quad \quad \quad \rightarrow f\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [46] $\pi^+p \rightarrow A_3^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^- + \text{<other mode>}$
- [47] $\pi^+p \rightarrow g^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^0$
- [48] $\pi^+p \rightarrow g^+p$
 $\quad \quad \quad \rightarrow \pi^+MM(>\pi^0)$
- [49] $\pi^+p \rightarrow g^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-\pi^0$
- [50] $\pi^+p \rightarrow g^+p$
 $\quad \quad \quad \rightarrow \rho\pi + \omega\pi$
 $\quad \quad \quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [51] $\pi^+p \rightarrow g^+p$
 $\quad \quad \quad \rightarrow \pi\pi + \pi\pi\pi\pi + K\bar{K} + K\bar{K}\pi$
- [52] $\pi^+p \rightarrow S^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^0$
- [53] $\pi^+p \rightarrow T^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^0$
- [54] $\pi^+p \rightarrow T^+p$
 $\quad \quad \quad \rightarrow \pi^+MM(>\pi^0)$
- [55] $\pi^+p \rightarrow X(2620)^+p$
 $\quad \quad \quad \rightarrow \pi^+MM(>\pi^0)$
- [56] $\pi^+p \rightarrow X(2800)p$
 $\quad \quad \quad \rightarrow K^+K^0\pi^+\pi^- + K^-K^0\pi^+\pi^+$
- [57] $\pi^+p \rightarrow \Delta(2850)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+\pi^+\pi^-$
- [58] $\pi^+p \rightarrow \Delta(2850)^{++}$
 $\quad \quad \quad \rightarrow \Delta(1238)^{++}\rho^0$
- [59] $\pi^+p \rightarrow \pi^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
- [60] $\pi^+p \rightarrow \Delta(1238)^{++}MM(>\pi^0)$
 $\quad \quad \quad \rightarrow p\pi^+$
- [61] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [62] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \text{neutrals}$
- [63] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$

Reaction

- [64] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \text{total}$
- [65] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \text{neutrals} + \text{<other mode>}$
- [66] $\pi^+p \rightarrow \rho^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [68] $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [67] $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [68] $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [69] $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \text{total}$
- [70] $\pi^+p \rightarrow \phi\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K_S^0K_L^0$
- [71] $\pi^+p \rightarrow \phi\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^+K^-$
- [72] $\pi^+p \rightarrow \phi\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^+K^- + K_S^0K_L^0$
- [73] $\pi^+p \rightarrow \eta'\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
- [74] $\pi^+p \rightarrow \eta'\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\quad \quad \quad \rightarrow \text{total}$
- [75] $\pi^+p \rightarrow \eta'\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-\pi^0 + \text{<other mode>}$
- [76] $\pi^+p \rightarrow \eta'\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\quad \quad \quad \rightarrow \text{neutrals}$
- [77] $\pi^+p \rightarrow H^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [78] $\pi^+p \rightarrow f\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [79] $\pi^+p \rightarrow f\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^- + \text{<other mode>}$
- [80] $\pi^+p \rightarrow f\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^+K^-$

Numerical List of All π^+p Reactions

Reaction

- [81] $\pi^+p \rightarrow f\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K_S^0 K_S^0$
- [82] $\pi^+p \rightarrow f\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^- + \pi^0\pi^0$
- [83] $\pi^+p \rightarrow D(1285)\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [84] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [85] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \rho^+/-\pi^-/+$
- [86] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^+K^-$
- [87] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K_S^0 K_S^0$
- [88] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^0 \bar{K}^0$
- [89] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \eta\pi^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [90] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [91] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \rho^+/-\pi^-/+ + \text{<other mode>}$
- [92] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow K^+K^- + \text{<other mode>}$
- [93] $\pi^+p \rightarrow g^0\Delta(1238)^{++}$
 $\quad \quad \quad \rightarrow p\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [94] $\pi^+p \rightarrow \pi^+\Delta(1238)^+$
 $\quad \quad \quad \rightarrow p\pi^0$
- [95] $\pi^+p \rightarrow \pi^+\Delta(1238)^+$
 $\quad \quad \quad \rightarrow n\pi^+$
- [96] $\pi^+p \rightarrow \pi^+\Delta(1238)^+$
 $\quad \quad \quad \rightarrow p\pi^0 + n\pi^+$
- [97] $\pi^+p \rightarrow \pi^+N(1400)^+$
 $\quad \quad \quad \rightarrow n\pi^+ + p\pi^0$
- [98] $\pi^+p \rightarrow \pi^+N(1400)^+$
 $\quad \quad \quad \rightarrow p\pi^+\pi^-$

Reaction

- [99] $\pi^+p \rightarrow \pi^+N(1400)^+$
 $\quad \quad \quad \rightarrow \Delta(1238)^{++}\pi^-$
 $\quad \quad \quad \rightarrow p\pi^+$
- [100] $\pi^+p \rightarrow \pi^+N(1512)^+$
 $\quad \quad \quad \rightarrow n\pi^+$
- [101] $\pi^+p \rightarrow \pi^+N(1512)^+$
 $\quad \quad \quad \rightarrow p\pi^0$
- [102] $\pi^+p \rightarrow \pi^+N(1700)^+$
 $\quad \quad \quad \rightarrow p\pi^0$
- [103] $\pi^+p \rightarrow \pi^+N(1700)^+$
 $\quad \quad \quad \rightarrow n\pi^+$
- [104] $\pi^+p \rightarrow \pi^+N(1700)^+$
 $\quad \quad \quad \rightarrow p\pi^+\pi^-$
- [105] $\pi^+p \rightarrow \pi^+N(1700)^+$
 $\quad \quad \quad \rightarrow \Delta(1238)^{++}\pi^-$
 $\quad \quad \quad \rightarrow p\pi^+$
- [106] $\pi^+p \rightarrow \pi^+N(1700)^+$
 $\quad \quad \quad \rightarrow \Lambda K^+$
- [107] $\pi^+p \rightarrow \pi^+N(3690)^+$
 $\quad \quad \quad \rightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$
- [108] $\pi^+p \rightarrow \pi^+N(3690)^+$
 $\quad \quad \quad \rightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$
- [109] $\pi^+p \rightarrow \pi^+N(3690)^+$
 $\quad \quad \quad \rightarrow n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$
- [110] $\pi^+p \rightarrow \pi^-N^{*++}$
 $\quad \quad \quad \rightarrow p\pi^+\pi^+$
- [111] $\pi^+p \rightarrow \pi^+\text{Diffraction Dissociation}$
 $\quad \quad \quad \rightarrow p\pi^0$
- [112] $\pi^+p \rightarrow \pi^+\text{Diffraction Dissociation}$
 $\quad \quad \quad \rightarrow n\pi^+$
- [113] $\pi^+p \rightarrow K^+\Sigma^+$
- [114] $\pi^+p \rightarrow K^+\Sigma^+$
 $\quad \quad \quad \rightarrow n\pi^+$
- [115] $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^+\pi^0 + K^0\pi^+$
- [116] $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^0\pi^+ + \text{<other mode>}$
- [117] $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^+\pi^0$
- [118] $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^0\pi^+$
- [119] $\pi^+p \rightarrow K^+Y^*(1385)^+$
 $\quad \quad \quad \rightarrow \Lambda\pi^+$
- [120] $\pi^+p \rightarrow K^+Y^*(1385)^+$
 $\quad \quad \quad \rightarrow \Lambda\pi^+ + \Sigma^0\pi^+$
- [121] $\pi^+p \rightarrow K^+Y^*(1385)^+$
 $\quad \quad \quad \rightarrow \Lambda\pi^+ + \text{<other mode>}$

Numerical List of All π^+p Reactions

Reaction

- [122] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+ + \Sigma^+\pi^0 + \Sigma^0\pi^+$
- [123] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$
- [124] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^0\pi^+ + K^+\pi^0$
- [125] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^0\pi^+ \rightarrow \Lambda\pi^+$
- [126] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^+\pi^0 \rightarrow \Lambda\pi^+$
- [127] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$
- [128] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow p\bar{K}^0$
- [129] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow \Lambda\pi^+$
- [130] $\pi^+p \rightarrow K^+Y^*(1690)^+ \rightarrow \Lambda\pi^+$

3 Body Reactions

- [131] $\pi^+p \rightarrow p\pi^+\pi^0$
- [132] $\pi^+p \rightarrow p\pi^+\pi^0$ background
- [133] $\pi^+p \rightarrow p\pi^+MM(>\pi^0)$
- [134] $\pi^+p \rightarrow n\pi^+\pi^+$
- [135] $\pi^+p \rightarrow \pi^+\pi^+MM(>N)$
- [136] $\pi^+p \rightarrow p\pi^+MM(>\pi^0) + \pi^+\pi^+MM(>N)$
- [137] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \pi^+\pi^-\pi^0$
- [138] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \text{neutrals}$
- [139] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \text{total}$
- [140] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [141] $\pi^+p \rightarrow p\rho^0\pi^+ \rightarrow \pi^+\pi^-$
- [142] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \pi^+\pi^-\pi^0$
- [143] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \text{neutrals}$
- [144] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \text{total}$
- [145] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$

Reaction

- [146] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>} \rightarrow \gamma\gamma$
- [147] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \eta\pi^+\pi^- \rightarrow \pi^+\pi^-\pi^0$
- [148] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \pi^+\pi^+\pi^-\pi^0$
- [149] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \eta\pi^+\pi^- + \text{<other mode>} \rightarrow \pi^+\pi^-\pi^0$
- [150] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \eta\pi^+\pi^- + \text{<other mode>} \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [151] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \pi^+\pi^+\pi^-\pi^0 + \text{<other mode>}$
- [152] $\pi^+p \rightarrow p\phi\pi^+ \rightarrow K^+K^-$
- [153] $\pi^+p \rightarrow p\phi\pi^+ \rightarrow K_S^0K_L^0$
- [154] $\pi^+p \rightarrow p\phi\pi^+ \rightarrow K^+K^- + K_S^0K_L^0$
- [155] $\pi^+p \rightarrow p\phi\pi^+ \rightarrow K^+K^- + \text{<other mode>}$
- [156] $\pi^+p \rightarrow pA_1^+\pi^0 \rightarrow \rho^0\pi^+ \rightarrow \pi^+\pi^-$
- [157] $\pi^+p \rightarrow p f\pi^+ \rightarrow \pi^+\pi^-$
- [158] $\pi^+p \rightarrow p f\pi^+ \rightarrow K^+K^-$
- [159] $\pi^+p \rightarrow pD(1285)\pi^+ \rightarrow \eta\pi^+\pi^- \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [160] $\pi^+p \rightarrow pD(1285)\pi^+ \rightarrow \rho^0\pi^+\pi^- \rightarrow \pi^+\pi^-$
- [161] $\pi^+p \rightarrow pD(1285)\pi^+ \rightarrow \delta(970)^+\pi^- + \delta(970)^-\pi^+ \rightarrow \eta\pi^+ \rightarrow \pi^+\pi^-\pi^0 \rightarrow \eta\pi^- \rightarrow \pi^+\pi^-\pi^0$

Numerical List of All π^+p Reactions

Reaction

- [162] $\pi^+p \rightarrow pD(1285)\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \quad \quad \downarrow \rightarrow \pi^+\pi^-\pi^0$
- [163] $\pi^+p \rightarrow pA_2^0\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \pi^+\pi^-\pi^0$
- [164] $\pi^+p \rightarrow pA_2^0\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \rho^+\pi^- + \rho^-\pi^+$
- [165] $\pi^+p \rightarrow pA_2^+\pi^0$
 $\quad \quad \quad \downarrow \rightarrow \rho^0\pi^+$
 $\quad \quad \quad \quad \quad \downarrow \rightarrow \pi^+\pi^-$
- [166] $\pi^+p \rightarrow pf^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow K_S^0K_S^0$
- [167] $\pi^+p \rightarrow p\rho^+\rho^0$
 $\quad \quad \quad \downarrow \rightarrow \pi^+\pi^-$
 $\quad \quad \quad \quad \quad \downarrow \rightarrow \pi^+\pi^0\pi^-$
- [168] $\pi^+p \rightarrow pX(3025)^+\pi^0 + pX(3025)^0\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$
- [169] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^-$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [170] $\pi^+p \rightarrow \Delta(1238)^{++}\rho^0\rho^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+ \quad \downarrow \rightarrow \pi^+\pi^-$
- [171] $\pi^+p \rightarrow \Delta(1238)^{++}\rho\pi$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+ \quad \downarrow \rightarrow \pi\pi$
- [172] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\rho^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+ \quad \downarrow \rightarrow \pi^+\pi^-\pi^0$
- [173] $\pi^+p \rightarrow \Delta(1238)^{++}p\bar{p}$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [174] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow p\pi^-$
- [175] $\pi^+p \rightarrow N(1700)^+\pi^+\pi^0 + N(1700)^0\pi^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \Lambda K^+ \quad \downarrow \rightarrow \Lambda K^0$
- [176] $\pi^+p \rightarrow pK^+K_S^0$
- [177] $\pi^+p \rightarrow pK^+\bar{K}^0$
- [178] $\pi^+p \rightarrow pK^*(890)^+\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow K^0\pi^+ + \text{<other mode>}$
- [179] $\pi^+p \rightarrow pK^*(890)^+\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow K^0\pi^+$
- [180] $\pi^+p \rightarrow pK^*(890)^+\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow K^+\pi^0$
- [181] $\pi^+p \rightarrow pK^*(890)^0K^+$
 $\quad \quad \quad \downarrow \rightarrow K^-\pi^+$
- [182] $\pi^+p \rightarrow pK^*(890)^0K^+$
 $\quad \quad \quad \downarrow \rightarrow K^-\pi^+ + \text{<other mode>}$

Reaction

- [183] $\pi^+p \rightarrow pK^*(890)^0K^+$
 $\quad \quad \quad \downarrow \rightarrow \bar{K}^0\pi^0$
- [184] $\pi^+p \rightarrow \Delta(1238)^{++}K^+K^-$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [185] $\pi^+p \rightarrow \Delta(1238)^{++}K_S^0K_S^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [186] $\pi^+p \rightarrow \Delta(1238)^{++}K_S^0K_L^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [187] $\pi^+p \rightarrow \Delta(1238)^{++}K^0\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [188] $\pi^+p \rightarrow \Delta(1238)^+K^+\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^0$
- [189] $\pi^+p \rightarrow N(1700)^+ + K^0\bar{K}^0$
 $\quad \quad \quad \downarrow \rightarrow p\pi^+$
- [190] $\pi^+p \rightarrow \Lambda K^+\pi^+$
- [191] $\pi^+p \rightarrow \Sigma^0 K^+\pi^+$
- [192] $\pi^+p \rightarrow \Lambda K^+\pi^+ + \Sigma^0 K^+\pi^+$
- [193] $\pi^+p \rightarrow \Sigma^+ K^+\pi^0$
- [194] $\pi^+p \rightarrow \Sigma^+ K^+\pi^0$
 $\quad \quad \quad \downarrow \rightarrow n\pi^+ + \text{<other mode>}$
- [195] $\pi^+p \rightarrow \Sigma^+ K^+ MM(>\pi^0)$
- [196] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+$
- [197] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+$
 $\quad \quad \quad \downarrow \rightarrow n\pi^+ + \text{<other mode>}$
- [198] $\pi^+p \rightarrow \Lambda K^*(890)^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow K^0\pi^+ + K^+\pi^0$
- [199] $\pi^+p \rightarrow \Lambda K^*(890)^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow K^0\pi^+$
- [200] $\pi^+p \rightarrow \Lambda K^*(890)^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow K^+\pi^0$
- [201] $\pi^+p \rightarrow Y^*(1385)^0 K^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \Lambda\pi^0$
- [202] $\pi^+p \rightarrow Y^*(1385)^+ K^+\pi^0$
 $\quad \quad \quad \downarrow \rightarrow \Lambda\pi^+$
- [203] $\pi^+p \rightarrow Y^*(1385)^+ K^0\pi^+$
 $\quad \quad \quad \downarrow \rightarrow \Lambda\pi^+$
- [204] $\pi^+p \rightarrow Y^*(1385)^+\pi^+ MM(>K^0) + Y^*(1385)^+ K^+ MM(>\pi^0)$
 $\quad \quad \quad \downarrow \rightarrow \Lambda\pi^+$
- [205] $\pi^+p \rightarrow Y^*(1520) K^+\pi^+$
 $\quad \quad \quad \downarrow \rightarrow pK^- + \text{<other mode>}$
- [206] $\pi^+p \rightarrow \text{Hyperon } K^*(890)\pi$
 $\quad \quad \quad \downarrow \rightarrow K\pi$

Numerical List of All π^+p Reactions

Reaction

4 Body Reactions

- [207] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-$
 [208] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-$ background
 [209] $\pi^+p \rightarrow p\pi^+\pi^0\pi^0$
 [210] $\pi^+p \rightarrow p\rho^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^0$
 [211] $\pi^+p \rightarrow p\rho^0\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-$
 [212] $\pi^+p \rightarrow p\rho^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^-\pi^0$
 [213] $\pi^+p \rightarrow p\rho\pi\pi$
 $\quad \quad \quad \searrow \rightarrow \pi\pi$
 [214] $\pi^+p \rightarrow p\rho^0\rho^0\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-$
 [215] $\pi^+p \rightarrow p\omega\rho^0\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^0$
 [216] $\pi^+p \rightarrow pA_1^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^+\pi^-$
 [217] $\pi^+p \rightarrow pA_1^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^-$
 [218] $\pi^+p \rightarrow pA_1^+\pi^+\pi^- + pA_1^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \rho^0\pi^+ \quad \quad \quad \searrow \rightarrow \rho^0\pi^-$
 [219] $\pi^+p \rightarrow pB^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^+\pi^-\pi^0$
 [220] $\pi^+p \rightarrow pB^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^-\pi^0$
 [221] $\pi^+p \rightarrow pB^+\pi^+\pi^- + pB^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \omega\pi^+ \quad \quad \quad \searrow \rightarrow \omega\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^0$
 [222] $\pi^+p \rightarrow pA_2^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^+\pi^-$
 [223] $\pi^+p \rightarrow pA_2^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^-$
 [224] $\pi^+p \rightarrow pA_2^+\pi^+\pi^- + pA_2^-\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \rho^0\pi^+ \quad \quad \quad \searrow \rightarrow \rho^0\pi^-$
 [225] $\pi^+p \rightarrow ppp\bar{p}\pi^+$
 [226] $\pi^+p \rightarrow p\Lambda\bar{\Lambda}\pi^+$
 [227] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^-\pi^0$
 $\quad \quad \quad \searrow \rightarrow p\pi^+$
 [228] $\pi^+p \rightarrow \Delta(1238)^{++}\rho^0\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^+ \quad \quad \quad \searrow \rightarrow \pi^+\pi^-$
 [229] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^+ \quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^0$
 [230] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^+ \quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$

Reaction

- [231] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
 [232] $\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^0$
 [233] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^0$
 $\quad \quad \quad \searrow \rightarrow p\pi^-$
 [234] $\pi^+p \rightarrow \Delta(1238)^-\pi^+\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow n\pi^-$
 [235] $\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^+\pi^-$
 [236] $\pi^+p \rightarrow N(1700)^+\pi^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow p\pi^+\pi^-$
 [237] $\pi^+p \rightarrow pK^+K^-\pi^+$
 [238] $\pi^+p \rightarrow pK^+\bar{K}^0\pi^0$
 [239] $\pi^+p \rightarrow pK^+\bar{K}^0MM(>\pi^0)$
 [240] $\pi^+p \rightarrow pK_S^0K_S^0\pi^+$
 [241] $\pi^+p \rightarrow pK_S^0K_L^0\pi^+$
 [242] $\pi^+p \rightarrow pK^0\bar{K}^0\pi^+$
 [243] $\pi^+p \rightarrow nK^+\bar{K}^0\pi^+$
 [244] $\pi^+p \rightarrow K^+\bar{K}^0\pi^+MM(>N)$
 [245] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^0$
 [246] $\pi^+p \rightarrow \Lambda K^+\pi^+MM(>\pi^0)$
 [247] $\pi^+p \rightarrow \Lambda K_S^0\pi^+\pi^+$
 [248] $\pi^+p \rightarrow \Lambda K_L^0\pi^+\pi^+$
 [249] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+$
 [250] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+ + \Lambda K^+\pi^+\pi^0$
 [251] $\pi^+p \rightarrow \Lambda\pi^+\pi^+MM(>K^0) + \Lambda K^+\pi^+MM(>\pi^0)$
 [252] $\pi^+p \rightarrow \Sigma^0 K^0\pi^+\pi^+$
 [253] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+ + \Sigma^0 K^0\pi^+\pi^+$
 [254] $\pi^+p \rightarrow \Lambda K^+\rho^0\pi^+$
 $\quad \quad \quad \searrow \rightarrow \pi^+\pi^-$
 [255] $\pi^+p \rightarrow \Lambda K^+(890)^+\pi^+\pi^0$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$
 [256] $\pi^+p \rightarrow \Lambda K^+(890)^0\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow K^+\pi^-$
 [257] $\pi^+p \rightarrow \Sigma^+K^+\pi^+\pi^-$
 [258] $\pi^+p \rightarrow \Sigma^+K^0\pi^+\pi^0$
 [259] $\pi^+p \rightarrow \Sigma^+K^0\pi^+MM(>\pi^0)$
 [260] $\pi^+p \rightarrow \Sigma^-K^+\pi^+\pi^+$
 [261] $\pi^+p \rightarrow Y^*(1385)^+K^+\pi^+\pi^-$
 $\quad \quad \quad \searrow \rightarrow \Lambda\pi^+$
 [262] $\pi^+p \rightarrow Y^*(1385)^+K^0\pi^+\pi^0$
 $\quad \quad \quad \searrow \rightarrow \Lambda\pi^+$
 [263] $\pi^+p \rightarrow Y^*(1385)^-K^+\pi^+\pi^+$
 $\quad \quad \quad \searrow \rightarrow \Lambda\pi^-$

Numerical List of All π^+p Reactions

Reaction

5 Body Reactions

- [264] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$
 [265] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ background
 [266] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ MM($>\pi^0$)
 [267] $\pi^+p \rightarrow p\pi^+\pi^0\pi^0\pi^0$
 [268] $\pi^+p \rightarrow n\pi^+\pi^+\pi^-\pi^-$
 [269] $\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^-\pi^0$ MM($>N$)
 [270] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ MM($>\pi^0$) + $\pi^+\pi^+\pi^+\pi^-\pi^0$ MM($>N$)
 [271] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$
 [272] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ + <other mode>
 [273] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ neutrals
 [274] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$
 [275] $\pi^+p \rightarrow p\rho^0\pi^+\pi^-\pi^0$
 [276] $\pi^+p \rightarrow p\omega\pi^+\pi^-\pi^0$ + <other mode>
 [277] $\pi^+p \rightarrow p\omega\pi^+\pi^-\pi^0$
 [278] $\pi^+p \rightarrow pA_1^0\pi^+\pi^-\pi^0$
 [279] $\pi^+p \rightarrow pA_1^+\pi^+\pi^-\pi^0$
 [280] $\pi^+p \rightarrow pA_1^-\pi^+\pi^-\pi^0$
 [281] $\pi^+p \rightarrow pA_1^+\pi^+\pi^-\pi^0$ + $pA_1^-\pi^+\pi^-\pi^0$
 [282] $\pi^+p \rightarrow p\rho^0\pi^+\pi^-\pi^0$
 [283] $\pi^+p \rightarrow pA_2^0\pi^+\pi^-\pi^0$
 [284] $\pi^+p \rightarrow pA_2^+\pi^+\pi^-\pi^0$
 [285] $\pi^+p \rightarrow pA_2^-\pi^+\pi^-\pi^0$
 [286] $\pi^+p \rightarrow pA_2^+\pi^+\pi^-\pi^0$ + $pA_2^-\pi^+\pi^-\pi^0$
 [287] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^-$

Reaction

- [288] $\pi^+p \rightarrow \Delta(1238)^{++}\rho^0\pi^+\pi^-\pi^0$
 [289] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^-\pi^-$
 [290] $\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-\pi^0$
 [291] $\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-\pi^0$ MM($>\pi^0$)
 [292] $\pi^+p \rightarrow N(1512)^0\pi^+\pi^+\pi^-\pi^-$ + $p\pi^-\pi^0$ + $n\pi^+\pi^-$
 [293] $\pi^+p \rightarrow N(1688)^+\pi^+\pi^+\pi^-\pi^0$
 [294] $\pi^+p \rightarrow N(1688)^+\pi^+\pi^+\pi^-\pi^0$ MM($>\pi^0$)
 [295] $\pi^+p \rightarrow N(1688)^0\pi^+\pi^+\pi^-\pi^-$ + $p\pi^-\pi^0$ + $n\pi^+\pi^-$
 [296] $\pi^+p \rightarrow pK^+K^-\pi^+\pi^0$
 [297] $\pi^+p \rightarrow pK^+\bar{K}^0\pi^+\pi^-$
 [298] $\pi^+p \rightarrow pK^+K_S^0\pi^+\pi^-$
 [299] $\pi^+p \rightarrow pK_S^0K_S^0\pi^+\pi^0$
 [300] $\pi^+p \rightarrow pK^0\bar{K}^0\pi^+\pi^0$
 [301] $\pi^+p \rightarrow pK^0\bar{K}^0\pi^+\pi^0$ MM($>\pi^0$)
 [302] $\pi^+p \rightarrow pK^+K_S^0\pi^+\pi^+$
 [303] $\pi^+p \rightarrow pK^+K^0\pi^+\pi^+$
 [304] $\pi^+p \rightarrow pK^+\bar{K}^0\pi^+\pi^-$ + $pK^+K^0\pi^+\pi^+$
 [305] $\pi^+p \rightarrow nK^+K^-\pi^+\pi^+$
 [306] $\pi^+p \rightarrow nK_S^0K_S^0\pi^+\pi^+$
 [307] $\pi^+p \rightarrow nK^0\bar{K}^0\pi^+\pi^+$
 [308] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^-$
 [309] $\pi^+p \rightarrow \Sigma^0 K^+\pi^+\pi^-\pi^-$
 [310] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^-$ + $\Sigma^0 K^+\pi^+\pi^-\pi^-$
 [311] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^0$
 [312] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^0$ MM($>\pi^0$)
 [313] $\pi^+p \rightarrow \Sigma^+ K^+\pi^+\pi^-\pi^0$
 [314] $\pi^+p \rightarrow \Sigma^+ K^+\pi^+\pi^-\pi^0$ MM($>\pi^0$)
 [315] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+\pi^+\pi^-$
 [316] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+\pi^+\pi^0$
 [317] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+\pi^+\pi^0$

Numerical List of All π^+p Reactions

Reaction

6 Body Reactions

- [318] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^-$
 [319] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$
 [320] $\pi^+p \rightarrow p\rho^+\pi^+\pi^-\pi^- \rightarrow \pi^+\pi^0$
 [321] $\pi^+p \rightarrow p\rho^0\pi^+\pi^-\pi^0 \rightarrow \pi^+\pi^-$
 [322] $\pi^+p \rightarrow p\rho^-\pi^+\pi^+\pi^- \rightarrow \pi^-\pi^0$
 [323] $\pi^+p \rightarrow p f\pi^+\pi^+\pi^-\pi^0 \rightarrow \pi^+\pi^-$
 [324] $\pi^+p \rightarrow n\rho^0\pi^+\pi^+\pi^- \rightarrow \pi^+\pi^-$
 [325] $\pi^+p \rightarrow n f\pi^+\pi^+\pi^- \rightarrow \pi^+\pi^-$
 [326] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^- \rightarrow p\pi^+$
 [327] $\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-\pi^- \rightarrow p\pi^0$
 [328] $\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-\pi^- \rightarrow n\pi^+$
 [329] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^-\pi^0 \rightarrow p\pi^-$
 [330] $\pi^+p \rightarrow \Delta(1238)^-\pi^+\pi^+\pi^+\pi^- \rightarrow n\pi^-$
 [331] $\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-\pi^- \rightarrow p\pi^0 + n\pi^+$
 [332] $\pi^+p \rightarrow N(1512)^0\pi^+\pi^+\pi^-\pi^0 \rightarrow p\pi^-$
 [333] $\pi^+p \rightarrow N(1512)^0\pi^+\pi^+\pi^-\pi^-\pi^0 \rightarrow p\pi^-$
 [334] $\pi^+p \rightarrow N(1700)^+\pi^+\pi^+\pi^-\pi^- \rightarrow p\pi^0 + n\pi^+$
 [335] $\pi^+p \rightarrow N(1700)^0\pi^+\pi^+\pi^-\pi^0 \rightarrow p\pi^-$
 [336] $\pi^+p \rightarrow N(1700)^0\pi^+\pi^+\pi^-\pi^-\pi^0 \rightarrow p\pi^-$
 [337] $\pi^+p \rightarrow pK^0\bar{K}^0\pi^+\pi^-$
 [338] $\pi^+p \rightarrow pK^0\bar{K}^0\pi^+\pi^-$
 [339] $\pi^+p \rightarrow pK^-\bar{K}^0\pi^+\pi^0$
 [340] $\pi^+p \rightarrow nK^+\bar{K}^0\pi^+\pi^-$
 [341] $\pi^+p \rightarrow nK^-\bar{K}^0\pi^+\pi^+$
 [342] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^0$
 [343] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^-\pi^0$

Reaction

- [344] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^-$
 [345] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^- + \Sigma^0 K^0\pi^+\pi^+\pi^-$
 [346] $\pi^+p \rightarrow \Sigma^+ K^0\pi^+\pi^-\pi^-\pi^0$
 [347] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$
 [348] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0\pi^0$
 [349] $\pi^+p \rightarrow p\eta\pi^+\pi^+\pi^-\pi^- \rightarrow \pi^+\pi^-\pi^0$
 [350] $\pi^+p \rightarrow p\omega\pi^+\pi^+\pi^-\pi^- \rightarrow \pi^+\pi^-\pi^0$
 [351] $\pi^+p \rightarrow p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-$

7 Body Reactions

- [352] $\pi^+p \rightarrow n\pi^+\pi^+\pi^+\pi^-\pi^-$
 [353] $\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0 \rightarrow N$
 [354] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^- \rightarrow p\pi^+$
 [355] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^+\pi^-\pi^-$
 [356] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^-\pi^0$

8 Body Reactions

- [357] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$
 [358] $\pi^+p \rightarrow p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$
 [359] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0 \rightarrow p\pi^+$
 [360] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^+\pi^-\pi^-\pi^0$
 [361] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+\pi^+\pi^-\pi^-$

9-12 Body Reactions

- [362] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$
 [363] $\pi^+p \rightarrow n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$
 [364] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0 \rightarrow N$
 [365] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$
 [366] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$
 [367] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^0$
 [368] $\pi^+p \rightarrow n\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$
 [369] $\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^0 \rightarrow N$
 [370] $\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^0 \rightarrow N$
 [370] $\pi^+p \rightarrow p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^-\pi^0 \rightarrow N$

NUMERICAL LIST OF ALL π^+n REACTIONS

Reaction

2 Body and Quasi-two Body Reactions

- [371] $\pi^+n \rightarrow \pi^0p$
- [372] $\pi^+n \rightarrow pMM(>\pi^0)$
- [373] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [374] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \text{neutrals}$
- [375] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \text{total}$
- [376] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [377] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma + \text{<other mode>}$
- [378] $\pi^+n \rightarrow \eta p$
 $\quad \quad \quad \rightarrow \text{neutrals} + \text{<other mode>}$
- [379] $\pi^+n \rightarrow \rho^0p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [380] $\pi^+n \rightarrow \omega p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [381] $\pi^+n \rightarrow \omega p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$
- [382] $\pi^+n \rightarrow \omega p$
 $\quad \quad \quad \rightarrow \text{total}$
- [383] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-\pi^-\pi^0$
- [384] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \gamma\gamma$
- [385] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [386] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \eta\pi^0\pi^0$
 $\quad \quad \quad \rightarrow \pi^0\pi^0\pi^0$
- [387] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \text{neutrals}$
- [388] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \text{total}$
- [389] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma$
- [390] $\pi^+n \rightarrow \eta'p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\quad \quad \quad \rightarrow \text{neutrals} + \text{<other mode>}$
- [391] $\pi^+n \rightarrow Hp$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$

Reaction

- [392] $\pi^+n \rightarrow S^*p$
 $\quad \quad \quad \rightarrow K^+K^-$
- [393] $\pi^+n \rightarrow S^*p$
 $\quad \quad \quad \rightarrow K^0\bar{K}^0$
- [394] $\pi^+n \rightarrow \phi p$
 $\quad \quad \quad \rightarrow K^+K^-$
- [395] $\pi^+n \rightarrow \phi p$
 $\quad \quad \quad \rightarrow \text{total}$
- [396] $\pi^+n \rightarrow \phi p$
 $\quad \quad \quad \rightarrow K_S^0K_L^0 + K^+K^-$
- [397] $\pi^+n \rightarrow A_1^0p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [398] $\pi^+n \rightarrow fp$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
- [399] $\pi^+n \rightarrow fp$
 $\quad \quad \quad \rightarrow \text{neutrals}$
- [400] $\pi^+n \rightarrow fp$
 $\quad \quad \quad \rightarrow K^0\bar{K}^0$
- [401] $\pi^+n \rightarrow fp$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-\pi^-$
- [402] $\pi^+n \rightarrow D(1285)p$
 $\quad \quad \quad \rightarrow \delta(970)^+\pi^- + \delta(970)^-\pi^+$
 $\quad \quad \quad \quad \quad \downarrow \quad \quad \quad \downarrow$
 $\quad \quad \quad \quad \quad \eta\pi^- \quad \quad \eta\pi^+$
 $\quad \quad \quad \quad \quad \pi^+\pi^-\pi^0 + \text{All other mode>}$
- [403] $\pi^+n \rightarrow D(1285)p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [404] $\pi^+n \rightarrow D(1285)p$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
 $\quad \quad \quad \rightarrow \text{All } K$
- [405] $\pi^+n \rightarrow A_2^0p$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [406] $\pi^+n \rightarrow A_2^0p$
 $\quad \quad \quad \rightarrow \rho^+/-\pi^-/+$
- [407] $\pi^+n \rightarrow A_2^0p$
 $\quad \quad \quad \rightarrow K^0\bar{K}^0$
- [408] $\pi^+n \rightarrow fp + A_2^0p$
 $\quad \quad \quad \rightarrow K^+K^-$
- [409] $\pi^+n \rightarrow Ep$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
- [410] $\pi^+n \rightarrow Ep$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
 $\quad \quad \quad \rightarrow \text{total}$

Numerical List of All π^+n Reactions

Reaction

- [411] $\pi^+n \rightarrow f\bar{p} \rightarrow K^*(890)\bar{K} + K\bar{K}^*(890)$
- [412] $\pi^+n \rightarrow f\bar{p} \rightarrow \eta\pi^+\pi^-$
- [413] $\pi^+n \rightarrow f\bar{p} \rightarrow \pi^+\pi^-\pi^0$
- [414] $\pi^+n \rightarrow g^0p \rightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
- [415] $\pi^+n \rightarrow g^0p \rightarrow \text{total}$
- [416] $\pi^+n \rightarrow g^0p \rightarrow \pi^+\pi^-$
- [417] $\pi^+n \rightarrow g^0p \rightarrow K_S^0K_L^0 + K^+K^-$
- [418] $\pi^+n \rightarrow g^0p \rightarrow K^*(890)\bar{K} + K\bar{K}^*(890)$
- [419] $\pi^+n \rightarrow g^0p \rightarrow \rho^0\pi^+\pi^-$
- [420] $\pi^+n \rightarrow g^0p \rightarrow A_2^+\pi^- + A_2^-\pi^+$
- [421] $\pi^+n \rightarrow g^0p \rightarrow \pi^+\pi^+\pi^-\pi^-$
- [422] $\pi^+n \rightarrow \Phi(1675)p \rightarrow \rho^0\pi^0$
- [423] $\pi^+n \rightarrow \Phi(1675)p \rightarrow \pi^+\pi^-\pi^0$
- [424] $\pi^+n \rightarrow A_2^+n \rightarrow K^+\bar{K}^0$
- [425] $\pi^+n \rightarrow g^+n \rightarrow K^+K_S^0$
- [426] $\pi^+n \rightarrow \pi^-\Delta(1238)^{++} \rightarrow p\pi^+$
- [427] $\pi^+n \rightarrow \rho^0\Delta(1238)^+ \rightarrow p\pi^0$
- [428] $\pi^+n \rightarrow g^0\Delta(1238)^+ \rightarrow p\pi^0$
- [429] $\pi^+n \rightarrow \pi^+\Delta(1238)^0 \rightarrow p\pi^-$
- [430] $\pi^+n \rightarrow \rho^+\Delta(1238)^0 \rightarrow \pi^+\pi^0$
- [431] $\pi^+n \rightarrow A_2^+\Delta(1238)^0 \rightarrow p\pi^-\pi^-$

Reaction

- [430] $\pi^+n \rightarrow K^+\Lambda$
- [431] $\pi^+n \rightarrow K^+\Sigma^0$
- [432] $\pi^+n \rightarrow K^+\Lambda + K^+\Sigma^0$
- [433] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^0\pi^+$
- [434] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^0\pi^+ + K^+\pi^0$
- [435] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^+\pi^0$
- [436] $\pi^+n \rightarrow K^*(890)^+\Sigma^0 \rightarrow K^0\pi^+$
- [437] $\pi^+n \rightarrow K^+Y^*(1385)^0 \rightarrow \Lambda\pi^0$
- [438] $\pi^+n \rightarrow K^+Y^*(1385)^0 \rightarrow \Lambda\pi^0$
- [439] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$
- [440] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^+\pi^-$
- [441] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^-\pi^+$
- [442] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow pK^-$
- [443] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \text{TOTAL}$
- [444] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow pK^- + \text{<other mode>}$
- [445] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$
- [446] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^-\pi^+$
- [447] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^+\pi^-$
- [448] $\pi^+n \rightarrow K^+Y^*(1520) \rightarrow nK^0$
- [449] $\pi^+n \rightarrow K^0\Sigma^+$
- [450] $\pi^+n \rightarrow K^0Y^*(1385)^+ \rightarrow \Lambda\pi^+$
- [451] $\pi^+n \rightarrow K^*(890)^0\Sigma^+ \rightarrow K^+\pi^-$

Numerical List of All π^+n Reactions

Reaction

3 Body Reactions

- [452] $\pi^+n \rightarrow p\pi^+\pi^-$
 [453] $\pi^+n \rightarrow p\pi^0\pi^0$
 [454] $\pi^+n \rightarrow p\rho^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^0$
 [455] $\pi^+n \rightarrow p\rho^0\pi^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
 [456] $\pi^+n \rightarrow p\rho^-\pi^+$
 $\quad \quad \quad \rightarrow \pi^-\pi^0$
 [457] $\pi^+n \rightarrow p\delta(970)^+\pi^- + p\delta(970)^-\pi^+$
 $\quad \quad \quad \rightarrow \eta\pi^+ \quad \quad \quad \rightarrow \eta\pi^-$
 $\quad \quad \quad \rightarrow \text{total} \quad \quad \quad \rightarrow \text{total}$
 [458] $\pi^+n \rightarrow p\Lambda_2^-\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^-$
 [459] $\pi^+n \rightarrow n\rho^0\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
 [460] $\pi^+n \rightarrow \Delta(1238)^{++}\pi^-\pi^0$
 $\quad \quad \quad \rightarrow p\pi^+$
 [461] $\pi^+n \rightarrow \Delta(1238)^+\pi^+\pi^-$
 $\quad \quad \quad \rightarrow p\pi^0$
 [462] $\pi^+n \rightarrow \Delta(1238)^0\pi^+\pi^0$
 $\quad \quad \quad \rightarrow p\pi^-$
 [463] $\pi^+n \rightarrow \Delta(1238)^-\pi^+\pi^+$
 $\quad \quad \quad \rightarrow n\pi^-$
 [464] $\pi^+n \rightarrow pK^+K^-$
 [465] $\pi^+n \rightarrow pK_S^0K_S^0$
 [466] $\pi^+n \rightarrow pK_S^0K_L^0$
 [467] $\pi^+n \rightarrow pK^0\bar{K}^0$
 [468] $\pi^+n \rightarrow nK^+K_S^0$
 [469] $\pi^+n \rightarrow nK^+\bar{K}^0$
 [470] $\pi^+n \rightarrow \Lambda K^+\pi^0$
 [471] $\pi^+n \rightarrow \Lambda K^0\pi^+$
 [472] $\pi^+n \rightarrow \Sigma^0 K^0\pi^+$
 [473] $\pi^+n \rightarrow \Sigma^+ K^+\pi^-$
 [474] $\pi^+n \rightarrow \Sigma^+ K^0\pi^0$
 [475] $\pi^+n \rightarrow \Sigma^- K^+\pi^+$
 [476] $\pi^+n \rightarrow Y^*(1385)^+ K^+\pi^-$
 $\quad \quad \quad \rightarrow \Lambda\pi^+$
 [477] $\pi^+n \rightarrow Y^*(1385)^- K^+\pi^+$
 $\quad \quad \quad \rightarrow \Lambda\pi^-$

Reaction

4 Body Reactions

- [478] $\pi^+n \rightarrow p\pi^+\pi^-\pi^0$
 [479] $\pi^+n \rightarrow p\pi^+\pi^-\text{MM}(>\pi^0)$
 [480] $\pi^+n \rightarrow p\eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \text{total}$
 [481] $\pi^+n \rightarrow p\rho^0\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
 [482] $\pi^+n \rightarrow p\omega\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$
 [483] $\pi^+n \rightarrow n\pi^+\pi^+\pi^-$
 [484] $\pi^+n \rightarrow \Delta(1238)^{++}\pi^+\pi^-\pi^-$
 $\quad \quad \quad \rightarrow p\pi^+$
 [485] $\pi^+n \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^-$
 $\quad \quad \quad \rightarrow p\pi^-$
 [486] $\pi^+n \rightarrow pK^+K_S^0\pi^-$
 [487] $\pi^+n \rightarrow pK_S^0K_S^0\pi^0$
 [488] $\pi^+n \rightarrow pK^-K_S^0\pi^+$
 [489] $\pi^+n \rightarrow \Lambda K^+\pi^+\pi^-$
 [490] $\pi^+n \rightarrow \Lambda K^+\pi^+\pi^- + \Sigma^0 K^+\pi^+\pi^-$
 [491] $\pi^+n \rightarrow \Lambda K^0\pi^+\pi^0$
 [492] $\pi^+n \rightarrow \Sigma^+ K^+\pi^-\pi^0$
 [493] $\pi^+n \rightarrow \Sigma^+ K^0\pi^+\pi^-$
 [494] $\pi^+n \rightarrow \Sigma^- K^+\pi^+\pi^0$
 [495] $\pi^+n \rightarrow \Sigma^- K^0\pi^+\pi^+$

5 Body Reactions

- [496] $\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-$
 [497] $\pi^+n \rightarrow pK^+K_S^0\pi^-\pi^0$
 [498] $\pi^+n \rightarrow pK^0K_S^0\pi^+\pi^-$
 [499] $\pi^+n \rightarrow pK_S^0K_S^0\pi^+\pi^-$
 [500] $\pi^+n \rightarrow pK^-K_S^0\pi^+\pi^0$
 [501] $\pi^+n \rightarrow nK^+K_S^0\pi^+\pi^-$
 [502] $\pi^+n \rightarrow nK^-K_S^0\pi^+\pi^+$
 [503] $\pi^+n \rightarrow \Lambda K^+\pi^+\pi^-\pi^0$
 [504] $\pi^+n \rightarrow \Lambda K^0\pi^+\pi^+\pi^-$
 [505] $\pi^+n \rightarrow \Sigma^+ K^0\pi^+\pi^-\pi^0$
 [506] $\pi^+n \rightarrow \Sigma^- K^0\pi^+\pi^+\pi^0$

6 Body Reactions

- [507] $\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0$
 [508] $\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0 + p\pi^+\pi^+\pi^-\pi^-\gamma$
 [509] $\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\text{MM}(>\pi^0)$
 [510] $\pi^+n \rightarrow pK_S^0K_S^0\pi^+\pi^-\pi^0$
 [511] $\pi^+n \rightarrow \Lambda K^0\pi^+\pi^+\pi^-\pi^0$

Miscellaneous Final States

- [512] $\pi^+n \rightarrow \text{Strange particles}$
 [513] $\pi^+n \rightarrow K\bar{K} + \text{Anything}$
 [514] $\pi^+n \rightarrow \text{Hyperon } K + \text{Anything}$

NUMERICAL LIST OF ALL π^+d REACTIONS

Reaction

Miscellaneous Final States[515] $\pi^+d \rightarrow 1 \text{ prong} + 2 \text{ prongs}$

2 Body and Quasi-two Body Reactions

[516] $\pi^+d \rightarrow pp$ [517] $\pi^+d \rightarrow A_1^+d$
 $\quad \quad \quad \rightarrow \rho^0\pi^+$ [518] $\pi^+d \rightarrow A_2^+d$
 $\quad \quad \quad \rightarrow \rho^0\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ 3 Body Reactions[519] $\pi^+d \rightarrow d\rho^0\pi^+$ [520] $\pi^+d \rightarrow (p_s)p\pi^0$ [521] $\pi^+d \rightarrow (n_s)pA_{1.5}$ [522] $\pi^+d \rightarrow (n_s)pA_2^+$
 $\quad \quad \quad \rightarrow \rho^0\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$
 $\quad \quad \quad \rightarrow \rho^0\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [523] $\pi^+d \rightarrow (n_s)pA_3^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$ [524] $\pi^+d \rightarrow (n_s)pA_3^+$
 $\quad \quad \quad \rightarrow \pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [525] $\pi^+d \rightarrow pp\pi^0$ [526] $\pi^+d \rightarrow (p_s)pMM(>\pi^0)$ [527] $\pi^+d \rightarrow ppMM(>\pi^0)$ [528] $\pi^+d \rightarrow pp\eta$ [529] $\pi^+d \rightarrow pp\epsilon$
 $\quad \quad \quad \rightarrow \pi^0\pi^0$ [530] $\pi^+d \rightarrow pp\rho^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [531] $\pi^+d \rightarrow (p_s)p\eta'$
 $\quad \quad \quad \rightarrow \eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$ [532] $\pi^+d \rightarrow pp\pi^0$
 $\quad \quad \quad \rightarrow \pi^0\pi^0$ [533] $\pi^+d \rightarrow pp\pi^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [534] $\pi^+d \rightarrow (p_s)p\pi^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [535] $\pi^+d \rightarrow pp\pi^0$
 $\quad \quad \quad \rightarrow \pi^+\pi^-$ [536] $\pi^+d \rightarrow pp\pi^0(1675)$
 $\quad \quad \quad \rightarrow \rho^0\pi^0 + \rho^+\pi^- + \rho^-\pi^+$ [537] $\pi^+d \rightarrow p\Lambda K^+$ [538] $\pi^+d \rightarrow p\Sigma^0 K^+$ [539] $\pi^+d \rightarrow p\Sigma^+ K^0$

Reaction

4 Body Reactions[540] $\pi^+d \rightarrow d\pi^+\pi^+\pi^-$ [541] $\pi^+d \rightarrow (p_s)p\pi^+\pi^-$ [542] $\pi^+d \rightarrow pp\pi^+\pi^-$ [543] $\pi^+d \rightarrow ppK_S^0K_L^0$ [544] $\pi^+d \rightarrow ppK_S^0K_S^0$ [545] $\pi^+d \rightarrow pnK^+\bar{K}^0$ [546] $\pi^+d \rightarrow p\Lambda K^+\pi^0$ [547] $\pi^+d \rightarrow p\Lambda K^0\pi^+$ [548] $\pi^+d \rightarrow p\Sigma^0 K^0\pi^+$ [549] $\pi^+d \rightarrow n\Lambda K^+\pi^+$ [550] $\pi^+d \rightarrow n\Sigma^+ K^0\pi^+$ 5 Body Reactions[551] $\pi^+d \rightarrow (p_s)n\pi^+\pi^+\pi^-$ [552] $\pi^+d \rightarrow pn\pi^+\pi^+\pi^-$ [553] $\pi^+d \rightarrow (p_s)p\pi^+\pi^-\pi^0$ [554] $\pi^+d \rightarrow (p_s)p\pi^+\pi^-\pi^0 MM(>\pi^0)$ [555] $\pi^+d \rightarrow (p_s)p\eta\pi^+\pi^-$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$ [556] $\pi^+d \rightarrow (p_s)nK_S^0K_S^0\pi^+ + (n_s)pK_S^0K_S^0\pi^+$ [557] $\pi^+d \rightarrow p\Lambda K^+\pi^+\pi^-$ [558] $\pi^+d \rightarrow p\Lambda K^0\pi^+\pi^0$ 6 Body Reactions[559] $\pi^+d \rightarrow (p_s)p\pi^+\pi^+\pi^-\pi^-$ [560] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-$ [561] $\pi^+d \rightarrow (p_s)\Delta(1238)^{++}\pi^+\pi^-\pi^-\pi^0$
 $\quad \quad \quad \rightarrow p\pi^+$ 7 Body Reactions[562] $\pi^+d \rightarrow (p_s)p\pi^+\pi^+\pi^-\pi^-\pi^0$ [563] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-\pi^0 MM(>\pi^0)$ [564] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-\pi^0 + pp\pi^+\pi^+\pi^-\pi^-\gamma$ [565] $\pi^+d \rightarrow (p_s)n\pi^+\pi^+\pi^-\pi^-\pi^-$ [566] $\pi^+d \rightarrow pn\pi^+\pi^+\pi^-\pi^-\pi^-$ [567] $\pi^+d \rightarrow (p_s)\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- MM(>N)$ [568] $\pi^+d \rightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- MM(>N)$ [569] $\pi^+d \rightarrow (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^-\pi^- + (n_s)p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$ [570] $\pi^+d \rightarrow (p_s)nK_S^0K_S^0\pi^+\pi^+\pi^-\pi^- + (n_s)pK_S^0K_S^0\pi^+\pi^+\pi^-\pi^-$

π^+p CROSS SECTIONS

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [1] $\pi^+p \rightarrow 2$ prongs			
5.000	3.207	13.650 +- 0.140 +	SCHOTANUS 70 NP 822 45
13.100	5.048	9.550	KRAMER 71
16.000	5.561	7.600	BALLAM 71 PR D3 2606

Reaction [2] $\pi^+p \rightarrow 4$ prongs			
2.300	2.286	7.600 +- 0.500	KO 71
2.670	2.432	8.900	KO 71
5.000	3.207	10.060	POLS 70 NP 825 109
11.700 +- 0.060	4.781	8.930	CHAUMET 70
16.000	5.561	8.600	BALLAM 71 PR D3 2606

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [7] $\pi^+p \rightarrow 3\pi$ or more + Nucleon			
0.949 +- 0.030	1.643	1.100 +- 0.500	BARLOUTAUD 63 NC 27 238
1.030	1.688	1.000	BARLOUTAUD 63 NC 27 238
1.040	1.694	1.300	STONEHILL 61 PRL 6 624
1.181	1.770	2.600	BARLOUTAUD 63 NC 27 238
1.222	1.791	3.900	STONEHILL 61 PRL 6 624
1.393	1.878	6.900	STONEHILL 61 PRL 6 624

Reaction [8] $\pi^+p \rightarrow$ Strange Particle			
1.950	2.137	0.700 +- 0.080 +	DAGAN 67 PR 161 1384
2.080	2.194	0.720	JAMES 66 PR 142 896
4.000	2.900	1.500	BARTSCH 66 NC 43A 1010

Reaction [9] $\pi^+p \rightarrow K^+ \bar{K}^0$ Anything + $K^- \bar{K}^0$ Anything			
8.500	4.105	0.680 +- 0.180 +	KREBS 70

Reaction [10] $\pi^+p \rightarrow K^0 \bar{K}^0$ Anything			
8.500	4.105	0.250 +- 0.075 +	KREBS 70

Reaction [11] $\pi^+p \rightarrow \Lambda K^+ \text{ Anything} + \Sigma^0 K^+ \text{ Anything}$			
8.500	4.105	0.420 +- 0.090 +	KREBS 70

Reaction [12] $\pi^+p \rightarrow \Lambda K^0 \text{ Anything} + \Sigma^0 K^0 \text{ Anything}$			
8.500	4.105	0.170 +- 0.035 +	KREBS 70

Reaction [3] $\pi^+p \rightarrow 4$ prongs and more			
0.725 +- 0.013	1.512	0.200	NEWCOMB 63 PR 132 1283

Reaction [4] $\pi^+p \rightarrow 6$ prongs			
16.000	5.561	4.500 +- 0.500 +	BALLAM 71 PR D4 1946

Reaction [5] $\pi^+p \rightarrow 8$ prongs			
16.000	5.561	1.100 +- 0.300 +	BALLAM 71 PR D4 1946

Reaction [6] $\pi^+p \rightarrow 10$ prongs			
16.000	5.561	0.100 +- 0.050 +	BALLAM 71 PR D4 1946

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 ‡ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 § CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [13]		$\pi^+p \rightarrow V^0 + \text{Anything}$	
16.000	5.561	2.100 $\pm$ 0.300 $\dagger$	BALLAM 71 PR D4 1946

Reaction [14]		$\pi^+p \rightarrow 4 \text{ prongs} + K^0$	
4.000	2.900	0.004 $\pm$ 0.004	BARTSCH 66 NC 43A 1010

Reaction [15]		$\pi^+p \rightarrow 4 \text{ prongs} + \Lambda$	
8.000	3.989	0.075 $\pm$ 0.011	ADERHOLZ 69 NP B11 259

Reaction [16]		$\pi^+p \rightarrow 4 \text{ prongs} + \Sigma^-$	
4.000	2.900	0.005 $\pm$ 0.003	BARTSCH 66 NC 43A 1010

Reaction [17]		$\pi^+p \rightarrow 6 \text{ prongs} + \Lambda$	
8.000	3.989	0.006 $\pm$ 0.004	ADERHOLZ 69 NP B11 259

Reaction [18]		$\pi^+p \rightarrow \rho^+p$ $\searrow \pi^+\pi^0$	
1.020	1.683	0.390 $\pm$ 0.360 $\dagger$	METZGER 67 PR 164 1680
1.280	1.821	3.500 $\pm$ 0.290 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.340	1.851	3.250 $\pm$ 0.250 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.420	1.891	3.220 $\pm$ 0.230 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.550	1.955	3.130 $\pm$ 0.220 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.585 $\pm$ 0.015	1.971	2.000 $\pm$ 0.080	DARONIAN 66 NC 41 503
1.670	2.011	2.750 $\pm$ 0.190 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.770	2.057	2.740 $\pm$ 0.190 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.840	2.089	2.450 $\pm$ 0.170 $\dagger$	WILLIAMSON 72 PRL 29 1353

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
2.080	2.194	2.070	0.150 $\dagger$ JAMES 66 PR 142 896
2.340	2.302	1.200	0.200 $\dagger$ GRAMENITSK 66 NAUK 31 1519
2.350	2.306	1.500	0.300 $\dagger$ ALFF-STEIN 66 PR 145 1072
2.670	2.432	1.400	0.080 $\dagger$ MICHAEL 72 PRL 28 1475
2.750	2.463	0.890	0.100 $\dagger$ ARMENISE 65 NC 37 361
2.900	2.520	1.100	0.200 $\dagger$ ALFF-STEIN 66 PR 145 1072
3.900	2.868	0.860	0.060 $\dagger$ BASTIEN 71 PR D3 2047
4.000	2.900	0.520	0.104 $\dagger$ ADERHOLZ 65 PR 138 8897
5.000	3.207	0.430	0.020 $\dagger$ SCHOTANUS 70 NP B22 45
6.000	3.487	0.260	0.030 $\dagger$ CRENNELL 71 PRL 27 1674
8.040	3.999	0.141	0.010 $\dagger$ ADERHOLZ 68 NP B8 45
13.100	5.048	0.054	0.010 $\dagger$ KRAMER 70 PRL 25 396
15.000	5.390	0.050	0.009 $\dagger$ PRATT 72 SLAC PUB-1071

Reaction [19] $\pi^+p \rightarrow A_1$ and A_2 Mass region p
 $\searrow \pi^+\pi^+\pi^-$

16.000	5.561	0.350 $\pm$ 0.045 $\dagger$	BALLAM 71 PR D4 1946
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Reaction [20]		$\pi^+p \rightarrow A_1$ and A_2 Mass region p $\searrow \rho^0\pi^+$ $\searrow \pi^+\pi^-$	
16.000	5.561	0.255 $\pm$ 0.035 $\dagger$	BALLAM 71 PR D4 1946

Reaction [21]		$\pi^+p \rightarrow A_1^+p$ $\searrow \pi^+\pi^+\pi^-$	
7.000	3.747	0.019 $\pm$ 0.019 $\dagger$	SLATTERY 67

Reaction [22]		$\pi^+p \rightarrow A_1^+p$ $\searrow \rho^0\pi^+$	
3.500	2.734	0.270 $\pm$ 0.080 $\dagger$	RONAT 72 NP B38 20
4.000 $\pm$ 0.040	2.900	0.100 $\pm$ 0.020 $\dagger$	ADERHOLZ 65 PR 138 8897
5.720	3.411	0.154 $\pm$ 0.054 $\dagger$	SHENG 70

Reaction [23]		$\pi^+p \rightarrow A_1^+p$ $\searrow K^+\bar{K}^0$	
8.000	3.989	0.001 $\dagger$	ADERHOLZ 69 NP B11 259

Reaction [24]		$\pi^+p \rightarrow A_1^+p$ $\searrow \pi^+\pi^+\pi^- + \text{<other mode>}$	
8.040 $\pm$ 0.040	3.999	0.270 $\pm$ 0.027 $\dagger$	ADERHOLZ 68 NP B8 45

Reaction [25]		$\pi^+p \rightarrow A_{1.5}p$ $\searrow \pi^+\pi^+\pi^-$	
8.040 $\pm$ 0.040	3.999	0.014 $\pm$ 0.008 $\dagger$	BOESEBECK 68 NP B4 501

* DATA READ FROM GRAPH
 $\dagger$ SEE DATA LISTING FOR ADDITIONAL COMMENTS
 $\S$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 [] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [26]	$\pi^+p \rightarrow B^+p$		
	$\rightarrow \omega\pi^+$		
	$\rightarrow \pi^+\pi^-\pi^0$		
4.000 $\pm$ 0.040	2.900	0.100 $\pm$ 0.020 $\dagger$	ADERHOLZ 65 PR 138 8897
5.720	3.411	0.060 $\dagger$	DAO 70
7.000	3.747	0.078 $\dagger$	SLATTERY 67
16.000	5.561	0.030 $\dagger$	BALLAM 71 PR D3 2606
18.500	5.968	0.018 $\dagger$	HONES 70 PR D2 827

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Reaction [27] $\pi^+p \rightarrow B^+p$

	$\rightarrow \omega\pi^+$		
	$\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$		
5.000	3.207	0.092 $\pm$ 0.016 $\dagger$	POLS 70 NP B25 109
8.040 $\pm$ 0.040	3.999	0.032 $\dagger$	ADERHOLZ 68 NP B8 45

Reaction [28] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow \pi^+\pi^+\pi^-$

5.100	3.236	0.118 $\pm$ 0.026 $\dagger$	ARMENISE 70 NC 65A 637
7.000	3.747	0.070 $\dagger$	SLATTERY 67

Reaction [29] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow \pi^+\pi^0\pi^0$

13.100	5.048	0.107 $\pm$ 0.038 $\dagger$	KRAMER 71
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Reaction [30] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow \rho^0\pi^+$

3.500	2.734	0.180 $\pm$ 0.110 $\dagger$	RONAT 72 NP B38 20
4.000 $\pm$ 0.040	2.900	0.160 $\dagger$	ADERHOLZ 65 PR 138 8897
5.720	3.411	0.140 $\pm$ 0.063 $\dagger$	SHENG 70

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [31]	$\pi^+p \rightarrow A_2^+p$		
	$\rightarrow K^+\bar{K}^0$		
3.700	2.801	0.013 $\pm$ 0.006 $\dagger$	BUTLER 70 UCRL 19845
5.100	3.236	0.020 $\dagger$	METTEL 70
5.500	3.350	0.007 $\dagger$	COOPER 70 NP B23 605
8.040 $\pm$ 0.040	3.999	0.005 $\dagger$	BOESEBECK 68 NP B4 501
8.500	4.105	0.026 $\dagger$	KREBS 70 NP B4 501

*****
Reaction [32] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow K^+K_S^0$

5.000	3.207	0.011 $\pm$ 0.006 $\dagger$	BOECKMANN 70 NP B16 221
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Reaction [33] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow \eta\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0$

5.000	3.207	0.048 $\pm$ 0.017 $\dagger$	BOECKMANN 70 NP B16 221
8.040 $\pm$ 0.040	3.999	0.019 $\dagger$	BOESEBECK 68 NP B4 501

Reaction [34]

	$\pi^+p \rightarrow A_2^+p$		
	$\rightarrow \eta\pi^+$		
	$\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$		
3.700	2.801	0.032 $\pm$ 0.007 $\dagger$	BARNHAM 71 PRL 26 1494

Reaction [35] $\pi^+p \rightarrow A_2^+p$
 $\rightarrow \eta'\pi^+$
 $\rightarrow \eta\pi^+\pi^-$
 $\rightarrow \pi^+\pi^-\pi^0 + \text{neutrals}$

5.000	3.207	0.005 $\pm$ 0.003 $\dagger$	BOECKMANN 70 NP B16 221
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Reaction [36]

	$\pi^+p \rightarrow A_2^+p$		
	$\rightarrow \eta'\pi^+$		
	$\rightarrow \eta\pi^+\pi^- + \text{<other mode>}$		
	$\rightarrow \text{neutrals} + \text{<other mode>}$		
3.700	2.801	<0.004 $\dagger$	BARNHAM 71 PRL 26 1494

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [37]	$\pi^+p \rightarrow A_2^+p$		
	$\downarrow \eta' \pi^+$		
	$\downarrow \pi^+ \pi^- MM(>\pi^0)$		
8.040 $\pm$ 0.040	3.999	0.001 $\pm$ 0.001 $\dagger$	BOESEBECK 68 NP 84 501

Reaction [38]	$\pi^+p \rightarrow A_2^+p$		
	$\downarrow \text{total}$		
3.700	2.801	0.212 $\pm$ 0.029	BARNHAM 71 PRL 26 1494

Reaction [39]	$\pi^+p \rightarrow A_2^+p$		
	$\downarrow \pi^+ \pi^+ \pi^- + \text{<other mode>}$		
8.040 $\pm$ 0.040	3.999	0.237 $\pm$ 0.021 $\dagger$	ADERHOLZ 68 NP 88 45

Reaction [40]	$\pi^+p \rightarrow A_2^+p$		
	$\downarrow \rho^0 \pi^+ + \text{<other mode>}$		
3.700	2.801	0.166 $\pm$ 0.027	BARNHAM 71 PRL 26 1494
5.450	3.336	0.150 $\pm$ 0.040 $\dagger$	BLOODWORTH 72 NP 837 203
5.000	3.207	0.310 $\pm$ 0.060 $\dagger$	POLS 70 NP 825 109

Reaction [41]	$\pi^+p \rightarrow A_2^+p$		
	$\downarrow \rho^0 \pi^+ + \rho^+ \pi^0 + \text{<other mode>}$		
5.000	3.207	0.228 $\pm$ 0.057 $\dagger$	BOECKMANN 70 NP 816 221

Reaction [42]	$\pi^+p \rightarrow A_3^+p$		
	$\downarrow \pi^+ \pi^+ \pi^-$		
3.500	2.734	0.100 $\pm$ 0.070 $\dagger$	RONAT 72 NP 838 20
7.000	3.747	0.043 $\pm$ 0.023 $\dagger$	SLATTERY 67
8.490 $\pm$ 0.060	4.103	0.051 $\pm$ 0.019 $\dagger$	KUNG 69
11.700	4.781	0.050 $\pm$ 0.020 $\dagger$	CASO 72 NP 836 349
		- 0.015

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [43]	$\pi^+p \rightarrow A_3^+p$		
	$\downarrow \pi^+ \pi^0 \pi^0$		
8.040 $\pm$ 0.040	3.999	0.031 $\pm$ 0.011 $\dagger$	BARTSCH 68 NP 87 345

Reaction [44]	$\pi^+p \rightarrow A_3^+p$		
	$\downarrow \rho^0 \pi^+$		
8.040 $\pm$ 0.040	3.999	0.014 $\pm$ 0.004 $\dagger$	BARTSCH 68 NP 87 345

Reaction [45]	$\pi^+p \rightarrow A_3^+p$		
	$\downarrow \pi^+$		
	$\downarrow \pi^+ \pi^-$		
8.040 $\pm$ 0.040	3.999	0.042 $\pm$ 0.015 $\dagger$	BARTSCH 68 NP 87 345

Reaction [46]	$\pi^+p \rightarrow A_3^+p$		
	$\downarrow \pi^+ \pi^+ \pi^- + \text{<other mode>}$		
8.040 $\pm$ 0.040	3.999	0.077 $\pm$ 0.018 $\dagger$	ADERHOLZ 68 NP 88 45

Reaction [47]	$\pi^+p \rightarrow g^+p$		
	$\downarrow \pi^+ \pi^0$		
8.040 $\pm$ 0.040	3.999	0.042 $\pm$ 0.006 $\dagger$	ADERHOLZ 68 NP 88 45
13.100	5.048	0.009 $\pm$ 0.002 $\dagger$	KRAMER 70 PRL 25 396

Reaction [48]	$\pi^+p \rightarrow g^+p$		
	$\downarrow \pi^+ MM(>\pi^0)$		
13.100	5.048	0.040 $\pm$ 0.009 $\dagger$	KRAMER 71

Reaction [49]	$\pi^+p \rightarrow g^+p$		
	$\downarrow \pi^+ \pi^+ \pi^- \pi^0$		
8.490 $\pm$ 0.060	4.103	0.034 $\pm$ 0.028 $\dagger$	KUNG 69
		- 0.010	

Reaction [50]	$\pi^+p \rightarrow g^+p$		
	$\downarrow \rho \pi + \omega \pi^+$		
	$\downarrow \pi^+ \pi^- \pi^0$		
16.000	5.561	0.025 $\pm$ 0.010 $\dagger$	BALLAM 71 PR D3 2606

Reaction [51]	$\pi^+p \rightarrow g^+p$		
	$\downarrow \pi \pi + \pi \pi \pi \pi + K \bar{K} + K \bar{K} \pi$		
8.040 $\pm$ 0.040	3.999	0.100	BARTSCH 70 NP 822 109

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π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [52] $\pi^+p \rightarrow S^+p$ $\rightarrow \pi^+\pi^0$			
8.040 $\pm$ 0.040	3.999	0.026 $\pm$ 0.008 $\dagger$	ADERHOLZ 68 NP B8 45
13.100	5.048	0.007 $\pm$ 0.002 $\dagger$	KRAMER 70 PRL 25 396

Reaction [53] $\pi^+p \rightarrow T^+p$ $\rightarrow \pi^+\pi^0$			
13.100	5.048	0.011 $\pm$ 0.003 $\dagger$	KRAMER 70 PRL 25 396

Reaction [54] $\pi^+p \rightarrow T^+p$ $\rightarrow \pi^+MM(>\pi^0)$			
13.100	5.048	0.019 $\pm$ 0.005 $\dagger$	KRAMER 71

Reaction [55] $\pi^+p \rightarrow X(2620)^+p$ $\rightarrow \pi^+MM(>\pi^0)$			
13.100	5.048	0.011 $\pm$ 0.003 $\dagger$	KRAMER 71

Reaction [56] $\pi^+p \rightarrow X(2800)p$ $\rightarrow K^+K^0\pi^+\pi^- + K^-K^0\pi^+\pi^+$			
8.040 $\pm$ 0.060	3.999	0.025 $\pm$ 0.010 $\dagger$	SABAU 71 NCL 1 514

Reaction [57] $\pi^+p \rightarrow \Delta(2850)^{++}$ $\rightarrow p\pi^+\pi^+\pi^-$			
3.740	2.815	0.650 $\dagger$	BROWN 68 UCRL 18254

Reaction [58] $\pi^+p \rightarrow \Delta(2850)^{++}$ $\rightarrow \Delta(1238)^{++}\rho^0$			
3.740	2.815	0.250 $\pm$ 0.100 $\dagger$	BROWN 68 UCRL 18254

Reaction [59] $\pi^+p \rightarrow \pi^0\Delta(1238)^{++}$ $\rightarrow p\pi^+$			
1.020	1.683	5.570 $\pm$ 0.250 $\dagger$	METZGER 67 PR 164 1680
1.280	1.821	5.560 $\pm$ 0.260 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.340	1.851	5.850 $\pm$ 0.450 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.420	1.891	5.150 $\pm$ 0.280 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.550	1.955	3.740 $\pm$ 0.260 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.585 $\pm$ 0.015	1.971	1.250 $\pm$ 0.060 $\dagger$	DARONIAN 66 NC 41 503
1.670	2.011	2.150 $\pm$ 0.150 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.770	2.057	1.150 $\pm$ 0.080 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.840	2.089	0.970 $\pm$ 0.070 $\dagger$	WILLIAMSON 72 PRL 29 1353
2.080	2.194	0.550 $\pm$ 0.080 $\dagger$	JAMES 66 PR 142 896
2.340	2.302	0.400 $\pm$ 0.060 $\dagger$	GRAMENITSK 66 NAUK 31 1515
2.750	2.463	0.300 $\pm$ 0.030 $\dagger$	ARMENISE 65 NC 37 361
3.540	2.747	0.200 $\pm$ 0.040 $\dagger$	ABOLINS 64 PR 136 8195
3.900	2.868	0.380 $\pm$ 0.030 $\dagger$	BASTIEN 71 PR D3 2047
4.000	2.900	0.350 $\pm$ 0.070 $\dagger$	ADERHOLZ 65 PR 138 8897
5.000	3.207	0.220 $\pm$ 0.010 $\dagger$	SCHOTANUS 70 NP B22 45
8.040	3.999	0.110 $\pm$ 0.008 $\dagger$	ADERHOLZ 68 NP B8 45
13.100	5.048	0.045 $\pm$ 0.007 $\dagger$	KRAMER 71 NP B8 45

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π^+p cross sections

P_{beam} $E_{\text{c.m.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [62] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \text{neutrals}$

1.585 $\pm$ 0.015 1.971 0.340 $\pm$ 0.030 $\dagger$ DARONIAN 66 NC 41 503

 Reaction [63] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$

1.280	1.821	0.272	$\pm$	0.069	$\dagger$	GREYER	71	PRL	26	792
1.390	1.877	0.599		0.091	$\dagger$	GREYER	71	PRL	26	792
1.550	1.955	0.750		0.138	$\dagger$	GREYER	71	PRL	26	792
1.620	1.988	0.669		0.102	$\dagger$	GREYER	71	PRL	26	792
1.750	2.048	0.669		0.080	$\dagger$	GREYER	71	PRL	26	792
1.850	2.093	0.518		0.079	$\dagger$	GREYER	71	PRL	26	792
2.300	2.286	0.329		0.061	$\dagger$	GREYER	71	PRL	26	792
2.670	2.432	0.247		0.046	$\dagger$	GREYER	71	PRL	26	792
3.650	2.785	0.140		0.040	$\dagger$	SHEN	65	UCRL	16170	
5.450	3.336	0.076		0.013	$\dagger$	BLOODWORTH	72	NP	B39	529
8.040	3.999	0.052		0.009	$\dagger$	ADERHOLZ	68	NP	B8	45
18.500	5.968	0.020		0.008	$\dagger$	BISWAS	70	PR	D2	2529

 Reaction [64] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \text{total}$

2.080 2.194 0.640 $\pm$ 0.200 $\dagger$ JAMES 66 PR 142 896

 Reaction [65] $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \text{neutrals} + \text{<other mode>}$

5.000 3.207 0.090 $\pm$ 0.015 $\dagger$ SCHOTANUS 70 NP B22 45
 13.100 5.048 0.023 0.000 $\dagger$ KRANER 71

 Reaction [66] $\pi^+p \rightarrow \rho^0\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-$

1.950	2.137	1.400	$\pm$	0.200	$\dagger$	CHAPMAN	71	PR	D 3	38
2.080	2.194	1.000		0.300	$\dagger$	JAMES	66	PR	142	896
2.340	2.302	1.970		0.100	$\dagger$	ANGELOV	69	JINRP	P1-46	
2.770	2.471	0.893		0.048	$\dagger$	YAMAMOTO	65	PR	140	8730
2.950	2.538	1.270		0.120	$\dagger$	BROWN	68	UCRL	18254	

P_{beam} $E_{\text{c.m.}}$ σ (mb) References
(GeV/c) (GeV)

3.190	2.625	1.130		0.090	$\dagger$	BROWN	68	UCRL	18254	
3.430	2.710	1.0950		0.180	$\dagger$	ABOLINS	63	PRL	11	381
3.500	2.734	1.240		0.080	$\dagger$	RONAT	72	NP	B38	20
3.530	2.744	1.340		0.100	$\dagger$	BROWN	68	UCRL	18254	
3.540	2.747	1.0990		0.140	$\dagger$	ABOLINS	63	PRL	11	381
3.650	2.785	1.170		0.120	$\dagger$	GOLDHABER	64	PRL	12	336
3.700	2.801	0.900		0.100	$\dagger$	ABRAMS	70	PRL	25	617
3.740	2.815	1.390		0.120	$\dagger$	BROWN	68	UCRL	18254	
4.000	2.900	1.000		0.300	$\dagger$	ADERHOLZ	65	PR	138	8897
4.080	2.926	1.120		0.090	$\dagger$	BROWN	68	UCRL	18254	
5.000	3.207	0.870		0.080	$\dagger$	POLS	70	NP	B25	109
5.100	3.236	0.632		0.060	$\dagger$	ARMENISE	70	NC	65A	637
5.450	3.336	0.714		0.042	$\dagger$	BLOODWORTH	71	NP	B35	79
5.720	3.411	0.776		0.136	$\dagger$	SHENG	70	PR	D2	2529
5.720	3.411	0.832		0.142	$\dagger$	SHENG	70			
5.720	3.411	0.902		0.166	$\dagger$	SHENG	70			
7.000	3.747	0.462		0.126	$\dagger$	SLATTERY	67			
8.040	3.999	0.311		0.035	$\dagger$	ADERHOLZ	68	NP	B8	45
8.490	4.103	0.570		0.136	$\dagger$	KUNG	69	NP	B8	45
				0.088						
11.700	4.781	0.320	$\pm$	0.040	$\dagger$	MADDOCK	71	NC	5A	433
13.100	5.048	0.170		0.020	$\dagger$	GAIDOS	70	PR	D1	3190
16.000	5.561	0.124		0.020	$\dagger$	BALLAM	71	PR	D4	1946
18.500	5.968	0.087		0.022	$\dagger$	BISWAS	70	PR	D2	2529

P_{beam} (GeV/c)

ABOLINS	63	ARMENISE	70
GOLDHABER	64	BISWAS	70
ADERHOLZ	65	GAIDOS	70
YAMAMOTO	65	POLS	70
JAMES	66	SHENG	70
SLATTERY	67	BALLAM	71
ADERHOLZ	68	BALLAM	71
BROWN	68	BLOODWORTH	71
ANGELOV	69	CHAPMAN	71
KUNG	69	MADDOCK	71
ABRAMS	70	RONAT	72

 Reaction [67] $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0$

1.950	2.137	1.410	$\pm$	0.140	$\dagger$	CHAPMAN	71	PR	D 3	38
2.300	2.286	0.809		0.050	$\dagger$	KO	71			
2.340	2.302	1.540		0.090	$\dagger$	ANGELOV	69	JINRP	P1-4611	
2.670	2.432	0.871		0.050	$\dagger$	KO	71			
2.750	2.463	0.650		0.020	$\dagger$	ARMENISE	65	NC	40A	273
2.770	2.471	1.161		0.063	$\dagger$	YAMAMOTO	65	PR	140	8730
2.950	2.538	0.994		0.136	$\dagger$	BROWN	68	UCRL	18254	
3.190	2.625	0.778		0.114	$\dagger$	BROWN	68	UCRL	18254	
3.500	2.734	1.0480		0.120	$\dagger$	XUONG	63	PRL	11	227
3.500	2.734	0.610		0.050	$\dagger$	RONAT	72	NP	B38	20
3.530	2.744	0.739		0.125	$\dagger$	BROWN	68	UCRL	18254	
3.740	2.815	0.778		0.125	$\dagger$	BROWN	68	UCRL	18254	
3.920	2.874	0.450		0.050	$\dagger$	WINKELMANN	68			
4.000	2.900	0.500		0.150	$\dagger$	ADERHOLZ	65	PR	138	8897
4.080	2.926	0.898		0.097	$\dagger$	BROWN	68	UCRL	18254	
5.450	3.336	0.293		0.017	$\dagger$	BLOODWORTH	71	NP	B35	79
5.720	3.411	0.150		0.050	$\dagger$	DAO	70			
5.720	3.411	0.180		0.040	$\dagger$	DAO	70			
7.000	3.747	0.142		0.038	$\dagger$	SLATTERY	67			
8.490	4.103	0.083		0.055	$\dagger$	KUNG	69			
				0.017						
18.500	5.968	0.013	$\pm$	0.003	$\dagger$	HONES	70	PR	D2	827

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See plot on the following page.

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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6	XUONG	63			
7	ADERHOLZ	65	8	KUNG	69
8	ARMENISE	65	9	DAO	70
9	YAMAMOTO	65		HONES	70
0	SLATTERY	67	0	BLOODWORTH	71
1	BROWN	68	1	CHAPMAN	71
2	WINKELMANN	68	2	KO	71
3	ANGELOV	69	3	RONAT	72

Reaction [68]		$\pi^+p \rightarrow \omega \Delta(1238)^{++}$			
		$\begin{array}{c} \searrow \rightarrow p \pi^+ \\ \searrow \rightarrow \pi^+ \pi^- \pi^0 \end{array}$		$+ \text{ <other mode>}$	
3.430	2.710	[0.580	$\pm$	ABOLINS	63 PRL 11 381
3.500	2.734	0.680	0.650	RONAT	72 NP B38 20
3.540	2.747	0.510	0.080	ABOLINS	63 PRL 11 381
3.650	2.785	0.700	0.000	SHEN	65 UCRL 16170
3.700	2.801	0.660	0.080	ABRAMS	70 PRL 25 617
5.000	3.207	0.280	0.010	POLS	70 NP B25 109
8.040 $\pm$ 0.040	3.999	0.107	0.010	ADERHOLZ	68 NP B8 45
11.700	4.781	0.061	0.012	EVANS	72 DESY 72/37
18.500	5.968	0.012	0.003	BISWAS	70 PR D2 2529

Reaction [69] $\pi^+p \rightarrow \omega \Delta(1238)^{++}$
 $\downarrow$
 $\downarrow$ $p\pi^+$
 $\downarrow$ total

2.080 2.194 1.550 +- 0.200 † JAMES 66 PR 142 896

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [70] $\pi^+ p \rightarrow \phi \Delta(1238)^{++}$

$\begin{array}{c} \text{L} \rightarrow p \pi^+ \\ \text{K}_S^0 \text{K}_L^0 \end{array}$

8.000 3.989 0.001 † ADERHOLZ 69 NP 811 259

Reaction [71] $\pi^+p \rightarrow \phi \Delta(1238)^{++}$
 $\phi \rightarrow \begin{cases} p\pi^+ \\ K^+K^- \end{cases}$
 3.700 2.801 0. +- 0.002 † BUTLER 70 UCRL 19845

Reaction [72] $\pi^+p \rightarrow \phi \Delta(1238)^{++}$
 $\searrow \rightarrow p \pi^+$
 $\searrow \rightarrow K^+ K^- + K_S^0 K_L^0$

3.650 2.785 <.010 † TRILLING 65 PL 19 427

Reaction [73] $\pi^+ p \rightarrow \eta' \Delta(1238)^{++}$
 $\downarrow$
 $\downarrow$
 $\downarrow$
 $p\pi^+$
 $\eta\pi^+\pi^- + \text{<other mode>}$

8.040 ± 0.060	3.999	0.030 ± 0.013	BARDADIN-O 71	PR D4 2711
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Reaction [74] $\pi^+p \rightarrow \eta^+\Delta(1238)^{++}$

$\begin{array}{l} \rightarrow p\eta^+ \\ \rightarrow \eta^+\pi^+\pi^- \\ \downarrow \text{total} \end{array} + \text{<other mode>}$

5.450 3.336 0.017 +- 0.006 † BL00DOWORTH 72 NP 839 525

Reaction [75]
 $\pi^+p \rightarrow \eta' \Delta(1238)^{++}$
 $\quad \quad \quad \searrow \rightarrow \pi^+ \pi^+ \pi^- \pi^- \pi^0 + \text{<other mode>}$
4.000 2.900 0.071 +- 0.032 † BONDAR 66 NC 44A 530

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*****
Reaction [ 76]   pi+p->eta Delta(1238)++
                  |
                  +----->p p+
                  |
                  +----->eta pi+ pi- + <other mode>
                  |
                  +----->neutrals
3.650           2.785      0.047    + 0.020  † TRILLING     65 PL 19 427
                   - 0.014
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Reaction [77] $\pi^+p \rightarrow H^0 \Delta(1238)^{++}$

$\Delta(1238)^{++} \rightarrow \begin{cases} p \pi^+ \\ \pi^+ \pi^+ \pi^0 \end{cases}$

4.000 +- 0.040 2.900 0.150 +- 0.045 + ADERHOLZ 65 PR 138 8897

π^+p cross sections

P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [78] $\pi^+p \rightarrow f\Delta(1238)^{++}$

2.950	2.538	0.040	+-	0.130	+	BROWN	68	UCRL 18254
3.190	2.625	0.040		0.120	+	BROWN	68	UCRL 18254
3.530	2.744	0.110		0.080	+	BROWN	68	UCRL 18254
3.650	2.785	0.130		0.050	+	GOLDHABER	64	PRL 12 336
3.740	2.815	0.150		0.060	+	BROWN	68	UCRL 18254
4.000	2.900	0.100	+- 0.040	0.030	+	ADERHOLZ	65	PR 138 8897
4.080	2.926	0.170		0.060	+	BROWN	68	UCRL 18254
5.100	3.236	0.180		0.012	+	ARMENISE	70	NC 65A 637
5.720	3.411	0.203		0.042	+	SHENG	70	PR D2 2529
5.720	3.411	0.273		0.065	+	SHENG	70	
5.720	3.411	0.237		0.043	+	SHENG	70	
7.000	3.747	0.126		0.059	+	SLATTERY	67	
8.490	4.103	0.175		0.055	+	KUNG	69	
				0.035				
14.000	5.561	0.066		0.013	+	BALLAM	71	PR D4 1946
18.500	5.968	0.041		0.010	+	BISWAS	70	PR D2 2529

Reaction [79] $\pi^+p \rightarrow f\Delta(1238)^{++}$

5.000	3.207	0.340	+-	0.070	+	POLS	70	NP B25 109
8.040	3.999	0.215	+- 0.040	0.015	+	ADERHOLZ	68	NP B8 45

Reaction [80] $\pi^+p \rightarrow f\Delta(1238)^{++}$

8.000	3.989	0.005	+-	0.002	+	ADERHOLZ	69	NP B11 259
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Reaction [81] $\pi^+p \rightarrow f\Delta(1238)^{++}$

8.000	3.989	0.005			+	ADERHOLZ	69	NP B11 259
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* DATA READ FROM GRAPH
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P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [82] $\pi^+p \rightarrow f\Delta(1238)^{++}$

13.100	5.048	0.115	+-	0.007	+	GAUDOS	71	NP 826 225
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Reaction [83] $\pi^+p \rightarrow D(1285)\Delta(1238)^{++}$

8.000	3.989	0.006	+-	0.002	+	OTWINOWSKI	69	PL 298 529
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Reaction [84] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

3.500	2.734	0.180	+-	0.060	+	RONAT	72	NP B38 20
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Reaction [85] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

5.000	3.207	0.146	+-	0.022	+	BOECKMANN	70	NP B16 221
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Reaction [86] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

8.000	3.989	0.002			+	ADERHOLZ	69	NP B11 259
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Reaction [87] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

8.000	3.989	0.002			+	ADERHOLZ	69	NP B11 259
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Reaction [88] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

5.500	3.350	<.002				COOPER	70	NP B23 605
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Reaction [89] $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

5.000	3.207	0.050	+-	0.029	+	BOECKMANN	70	NP B16 221
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Reaction [90]

$\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$

8.040	3.999	0.068	+-	0.013	+	ADERHOLZ	68	NP B8 45
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π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [91] $\pi^+p \rightarrow A_2^0 \Delta(1238)^{++}$			
$\begin{array}{l} \downarrow p\pi^+ \\ \downarrow p^+/-\pi^-/+ + \text{<other mode>} \end{array}$			
5.000	3.207	0.220 $\pm$ 0.030 $\dagger$	POLS 70 NP B25 109

Reaction [92] $\pi^+p \rightarrow A_2^0 \Delta(1238)^{++}$			
$\begin{array}{l} \downarrow p\pi^+ \\ \downarrow K^+K^- + \text{<other mode>} \end{array}$			
5.000	3.207	0.021 $\pm$ 0.007 $\dagger$	BOECKMANN 70 NP B16 221

Reaction [93] $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$			
$\begin{array}{l} \downarrow p\pi^+ \\ \downarrow \pi^+\pi^- \end{array}$			
18.500	5.968	0.034 $\pm$ 0.008 $\dagger$	BISWAS 70 PR D2 2529

Reaction [94] $\pi^+p \rightarrow \pi^+ \Delta(1238)^+$			
$\downarrow p\pi^0$			
1.020	1.683	2.460 $\pm$ 0.230 $\dagger$	METZGER 67 PR 164 1680
1.280	1.821	2.540 $\pm$ 0.210 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.340	1.851	2.730 $\pm$ 0.210 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.420	1.891	2.480 $\pm$ 0.180 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.550	1.955	1.410 $\pm$ 0.100 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.585 $\pm$ 0.015	1.971	0.600 $\pm$ 0.040 $\dagger$	DARONIAN 66 NC 41 503
1.670	2.011	1.200 $\pm$ 0.080 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.770	2.057	0.860 $\pm$ 0.060 $\dagger$	WILLIAMSON 72 PRL 29 1353
1.840	2.089	0.570 $\pm$ 0.040 $\dagger$	WILLIAMSON 72 PRL 29 1353
3.900	2.868	0.140 $\pm$ 0.050	BASTIEN 71 PR D3 2047
5.000	3.207	0.100 $\pm$ 0.010 $\dagger$	SCHOTANUS 70 NP B22 45

Reaction [95] $\pi^+p \rightarrow \pi^+ \Delta(1238)^+$			
$\downarrow n\pi^+$			
1.020	1.683	1.050 $\pm$ 0.270 $\dagger$	METZGER 67 PR 164 1680
1.585 $\pm$ 0.015	1.971	0.320 $\pm$ 0.190	DARONIAN 66 NC 41 503
3.900	2.868	0.080 $\pm$ 0.010	BASTIEN 71 PR D3 2047

Reaction [96] $\pi^+p \rightarrow \pi^+ \Delta(1238)^+$			
$\downarrow p\pi^0 + n\pi^+$			
4.000 $\pm$ 0.040	2.900	0.200 $\pm$ 0.040 $\dagger$	ADERHOLZ 65 PR 138 B897

Reaction [97] $\pi^+p \rightarrow \pi^+ N(1400)^+$			
$\downarrow n\pi^+ + p\pi^0$			
6.000	3.487	0.034 $\dagger$	BELL 68 PRL 20 164

Reaction [98] $\pi^+p \rightarrow \pi^+ N(1400)^+$			
$\downarrow p\pi^+\pi^-$			
4.000	2.900	0.040 $\pm$ 0.025 $\dagger$	BOESEBECK 71 NP B33 445
8.000	3.989	0.020 $\pm$ 0.010 $\dagger$	BOESEBECK 71 NP B33 445

Reaction [99] $\pi^+p \rightarrow \pi^+ N(1400)^+$			
$\begin{array}{l} \downarrow \Delta(1238)^{++}\pi^- \\ \downarrow p\pi^+ \end{array}$			
3.500	2.734	0.270 $\pm$ 0.070 $\dagger$	RONAT 72 NP B38 20

Reaction [100] $\pi^+p \rightarrow \pi^+ N(1512)^+$			
$\downarrow n\pi^+$			
1.585 $\pm$ 0.015	1.971	0.360 $\pm$ 0.040 $\dagger$	DARONIAN 66 NC 41 503

Reaction [101] $\pi^+p \rightarrow \pi^+ N(1512)^+$			
$\downarrow p\pi^0$			
1.020	1.683	0. $\pm$ 0.090 $\dagger$	METZGER 67 PR 164 1680

Reaction [102] $\pi^+p \rightarrow \pi^+ N(1700)^+$			
$\downarrow p\pi^0$			
3.900	2.868	0.090 $\pm$ 0.020	BASTIEN 71 PR D3 2047

Reaction [103] $\pi^+p \rightarrow \pi^+ N(1700)^+$			
$\downarrow n\pi^+$			
1.585 $\pm$ 0.015	1.971	0.470 $\pm$ 0.050 $\dagger$	DARONIAN 66 NC 41 503
2.080	2.194	0.770 $\pm$ 0.140 $\dagger$	JAMES 66 PR 142 896
3.900	2.868	0.180 $\pm$ 0.030	BASTIEN 71 PR D3 2047

Reaction [104] $\pi^+p \rightarrow \pi^+ N(1700)^+$			
$\downarrow p\pi^+\pi^-$			
4.000	2.900	0.055 $\pm$ 0.025 $\dagger$	BOESEBECK 71 NP B33 445
5.000	3.207	0.084 $\pm$ 0.021 $\dagger$	CIRBA 70 NP B23 533
8.000	3.989	0.030 $\pm$ 0.010 $\dagger$	BOESEBECK 71 NP B33 445

* DATA READ FROM GRAPH
 $\dagger$ SEE DATA LISTING FOR ADDITIONAL COMMENTS
 $\S$ SEE DATA LISTING FOR PCSSIELE SYSTEMATIC ERRORS
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π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [105]		$\pi^+p \rightarrow \pi^+N(1700)^+$	
		$\searrow \Delta(1236)^{++}\pi^-$	
		$\searrow p\pi^+$	
3.500	2.734	0.400 $\pm$ 0.080 $\dagger$	RONA, 72 NP B38 20

Reaction [106]		$\pi^+p \rightarrow \pi^+N(1700)^+$	
		$\searrow \Lambda K^+$	
1.950	2.137	0.030 $\pm$ 0.010 $\dagger$	DAGAN 67 PR 161 1384
8.000	3.989	0.006 $\pm$ 0.003 $\dagger$	ADERHOLZ 69 NP B11 259

Reaction [107]		$\pi^+p \rightarrow \pi^+N(3690)^+$	
		$\searrow p\pi^+\pi^+\pi^-\pi^-\pi^-$	
8.040	3.999	[0.009 $\pm$ 0.007] $\dagger$	BARTKE 67 PL 248 118

Reaction [108]		$\pi^+p \rightarrow \pi^+N(3690)^+$	
		$\searrow p\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$	
8.040	3.999	[0.037 $\pm$ 0.011] $\dagger$	BARTKE 67 PL 248 118

Reaction [109]		$\pi^+p \rightarrow \pi^+N(3690)^+$	
		$\searrow n\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$	
8.040	3.999	[0.019 $\pm$ 0.006] $\dagger$	BARTKE 67 PL 248 118

Reaction [110]		$\pi^+p \rightarrow \pi^-N^{*++}$	
		$\searrow p\pi^+\pi^+$	
1.900	2.115	<0.040 $\dagger$	BANNER 70 NP B15 205

Reaction [111]		$\pi^+p \rightarrow \pi^+$ Diffraction Dissociation	
		$\searrow p\pi^0$	
3.900	2.868	0.560 $\pm$ 0.080	BASTIEN 71 PR D3 2047

Reaction [112]		$\pi^+p \rightarrow \pi^+$ Diffraction Dissociation	
		$\searrow n\pi^+$	
3.900	2.868	1.130 $\pm$ 0.050	BASTIEN 71 PR D3 2047

Reaction [113]		$\pi^+p \rightarrow K^+\Sigma^+$	
0.990 $\pm$ 0.030	1.666	0.190 $\pm$ 0.090	KOPP 61 PR 123 301
		- 0.070	
1.040	1.694	0.034 $\pm$ 0.018	STONEHILL 61 PRL 6 624
		- 0.012	
1.051	0.014	1.700	GRARD 62 PR 127 607
1.111	1.732	0.144	CARAYANNOP 65 PR 138 B433
1.155	0.025	1.756	0.214
1.170	1.764	0.205	0.035
1.181	1.770	0.033	0.014
		- 0.018	BARTHELOT 61 NC 21 693
		- 0.012	CRAWFORD 62 PR 128 368
			BALTAY 61 RMP 33 374

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.181	0.030	1.770	0.100 $\pm$ 0.050
1.206		1.783	0.214
1.222		1.791	0.250
1.252		1.806	0.088
1.265		1.813	0.278
1.280		1.821	0.340
1.340		1.851	0.400
1.362		1.863	0.250
1.393		1.878	0.420
1.410		1.886	0.490
1.430		1.896	0.510
1.533		1.946	0.420
1.550		1.955	0.530
1.585	0.015	1.971	0.530
1.630		1.992	0.470
1.680		2.016	0.505
1.700		2.025	0.470
1.770		2.057	0.415
1.840		2.089	0.405
1.950		2.137	0.310
2.770	0.040	2.471	0.105
3.230		2.639	0.168
3.700		2.801	0.111
4.000		2.900	0.059
5.400		3.322	0.030

$\diamond$ BALTAY	61	$\square$ CARAYANNOP	65
$\square$ BALTAY	61	$\square$ BARTSCH	66
$\triangle$ BERTHELOT	61	$\square$ DARONIAN	66
$\triangle$ KOPP	61	$\square$ DAGAN	67
$\backslash$ STONEHILL	61	$\square$ KOFLER	67
$\backslash$ CRAWFORD	62	$\square$ COOPER	68
$\times$ GRARD	62	$\square$ BUTLER	70
$\times$ BARLOUTAUD	63	$\square$ KALMUS	70
$\square$ YAMAMOTO	64	$\square$ PAN	70

Reaction [114]		$\pi^+p \rightarrow K^+\Sigma^+$	
		$\searrow n\pi^+$	
2.350 $\pm$ 2.620	2.306	0.136 $\pm$ 0.021	BERLEY 65 PR 139B1097
- 2.900			

Reaction [115]		$\pi^+p \rightarrow K^*(890)^+\Sigma^+$	
		$\searrow K^+\pi^0 + K^0\pi^+$	
4.000	2.900	0.023 $\pm$ 0.007 $\dagger$	BARTSCH 66 NC 43A 1010
5.400	3.322	0.043 $\pm$ 0.006 $\dagger$	COOPER 68 PRL 20 472

Reaction [116]		$\pi^+p \rightarrow K^*(890)^+\Sigma^+$	
		$\searrow K^0\pi^+ + \text{<other mode>}$	
3.700	2.801	0.098 $\pm$ 0.020 $\dagger$	BUTLER 70 UCRL 19845

π^+p cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References	P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [117] $\pi^+p \rightarrow K^*(890)^+\Sigma^+ \rightarrow K^+\pi^0$				Reaction [121] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+ + \text{<other mode>}$			
1.950	2.137	0.140 $\pm$ 0.030	DAGAN 67 PR 161 1384	3.700	2.801	0.028 $\pm$ 0.005	BUTLER 70 UCRL 19845
				4.000	2.900	0.027	YING 69 PL 308 289
				5.050	3.222	0.013	YING 69 PL 308 289
*****				*****			
Reaction [118] $\pi^+p \rightarrow K^*(890)^+\Sigma^+ \rightarrow K^0\pi^+$				Reaction [122] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+ + \Sigma^+\pi^0 + \Sigma^0\pi^+$			
2.072 $\pm$ 0.413	2.190	0.083 $\pm$ 0.025	DAVIES 70 PR D 2 506	1.950	2.137	0.140 $\pm$ 0.030	DAGAN 67 PR 161 1384
8.500 $\pm$ 0.382	4.105	0.004	KREBS 70				
*****				*****			
Reaction [119] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$				Reaction [123] $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$			
1.410	1.886	0.025 $\pm$ 0.006	HANSON 71 PR D 4 1296	1.700	2.025	0.014 $\pm$ 0.004	PAN 70 PR D 2 449
1.430	1.896	0.042	HANSON 71 PR D 4 1296				
1.458 $\pm$ 0.146	1.910	0.064	DAVIES 70 PR D 2 506				
1.550 $\pm$ 0.141	1.955	0.095	HANSON 71 PR D 4 1296				
1.630	1.992	0.130	HANSON 71 PR D 4 1296				
1.680	2.016	0.100	HANSON 71 PR D 4 1296				
1.689 $\pm$ 0.087	2.020	0.086	DAVIES 70 PR D 2 506				
1.700	2.025	0.110	PAN 70 PR D 2 449				
1.770	2.057	0.125	HANSON 71 PR D 4 1296				
1.840	2.089	0.140	HANSON 71 PR D 4 1296				
1.888 $\pm$ 0.114	2.110	0.093	DAVIES 70 PR D 2 506				
2.042	2.177	0.060	MOORE 70				
2.150 $\pm$ 0.250	2.223	0.090	ABOLINS 69 PRL 22 427				
2.178	2.235	0.042	MOORE 70				
2.184	2.238	0.042	MOORE 70				
2.238 $\pm$ 0.247	2.260	0.031	DAVIES 70 PR D 2 506				
2.330	2.298	0.038	MOORE 70				
3.000 $\pm$ 0.200	2.556	0.031	ABOLINS 69 PRL 22 427				
4.000	2.900	0.028	ABOLINS 69 PRL 22 427				
5.500	3.350	0.016	COOPER 70 NP 823 605				
8.000	3.989	0.008	ADERHOLZ 69 NP 811 259				
8.500	4.105	0.005	KREBS 70				
*****				*****			
Reaction [124] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^0\pi^+ + K^+\pi^0$				Reaction [125] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^0\pi^+ \rightarrow \Lambda\pi^+$			
8.000	3.989	0.010 $\pm$ 0.005	ADERHOLZ 69 NP 811 259	5.500	3.350	0.006 $\pm$ 0.003	COOPER 70 NP 823 605
*****				*****			
Reaction [126] $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+ \rightarrow K^+\pi^0 \rightarrow \Lambda\pi^+$				Reaction [127] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$			
5.500	3.350	0.013 $\pm$ 0.002	COOPER 70 NP 823 605	1.700	2.025	0.009 $\pm$ 0.004	PAN 70 PR D 2 449
*****				*****			
Reaction [128] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow pK^0$				Reaction [129] $\pi^+p \rightarrow K^+Y^*(1475)^+ \rightarrow \Lambda\pi^+$			
1.700	2.025	0.004 $\pm$ 0.002	PAN 70 PR D 2 449	1.700	2.025	0.011 $\pm$ 0.005	PAN 70 PR D 2 449
*****				*****			
Reaction [130] $\pi^+p \rightarrow K^+Y^*(1690)^+ \rightarrow \Lambda\pi^+$				*****			
5.500	3.350	0.006 $\pm$ 0.003	COOPER 70 NP 823 605				
8.000	3.989	0.005	ADERHOLZ 69 NP 811 259				
8.500	4.105	0.003	KREBS 70				
*****				*****

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π^+p cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [131]		$\pi^+p \rightarrow \pi^+\pi^0$	
0.490	1.362	0.290	DETOEUF 64 PR 134 8228
0.550	1.402	0.020	DETOEUF 64 PR 134 8228
0.591	1.428	0.800	BOWLER 70 NP 817 331
0.645	1.462	1.320	BOWLER 70 NP 817 331
0.660	1.472	1.300	DETOEUF 64 PR 134 8228
0.698	1.495	2.050	BOWLER 70 NP 817 331
0.725	1.512	3.800	NEWCOMB 63 PR 132 1283
0.730	1.515	3.560	CHAVANON 68 PL 288 296
0.750	1.527	3.620	DETOEUF 64 PR 134 8228
0.752	1.528	3.610	BOWLER 70 NP 817 331
0.809	1.562	5.490	BOWLER 70 NP 817 331
0.810	1.563	5.510	DETOEUF 64 PR 134 8228
0.830	1.575	6.540	CHAVANON 68 PL 288 296
0.850	1.586	9.000	DEBAISIEUX 68 NP 85 147
0.870	1.598	7.920	DETOEUF 64 PR 134 8228
0.910	1.621	9.600	TILGER 66 PR 142 972
0.920	1.627	9.810	DETOEUF 64 PR 134 8228
0.930	1.632	8.600	CHAVANON 68 PL 288 296
0.940	1.638	9.700	DE BEER 69 NP 812 617
0.949	1.643	9.300	BARLOUTAUD 63 NC 27 238
0.980	1.661	10.150	DETOEUF 64 PR 134 8228
0.980	1.661	8.700	CHAVANON 68 PL 288 296
1.020	1.683	10.230	DETOEUF 64 PR 134 8228
1.020	1.683	8.880	METZGER 67 PR 164 1680
1.030	1.688	8.800	BARLOUTAUD 63 NC 27 238
1.040	1.694	10.400	STONEHILL 61 PRL 6 624
1.070	1.710	9.190	DETOEUF 64 PR 134 8228
1.080	1.716	8.100	CHAVANON 68 PL 288 296
1.120	1.737	8.750	DETOEUF 64 PR 134 8228
1.181	1.770	8.900	BARLOUTAUD 63 NC 27 238
1.222	1.791	10.800	STONEHILL 61 PRL 6 624
1.230	1.795	10.120	DETOEUF 64 PR 134 8228
1.230	1.795	8.800	CHAVANON 68 PL 288 296
1.280	1.821	12.100	WILLIAMSON 72 PRL 29 1353
1.320	1.841	10.020	DETOEUF 64 PR 134 8228
1.330	1.846	12.000	CHAVANON 68 PL 288 296
1.340	1.851	13.000	WILLIAMSON 72 PRL 29 1353
1.393	1.878	11.900	STONEHILL 61 PRL 6 624
1.420	1.891	12.400	WILLIAMSON 72 PRL 29 1353
1.430	1.896	10.700	DETOEUF 64 PR 134 8228
1.450	1.906	11.400	CHAVANON 68 PL 288 296
1.520	1.940	9.740	DETOEUF 64 PR 134 8228
1.550	1.955	10.100	WILLIAMSON 72 PRL 29 1353
1.585	1.971	9.200	DARONIAN 66 NC 41 503
1.670	2.011	8.600	WILLIAMSON 72 PRL 29 1353
1.770	2.057	7.200	WILLIAMSON 72 PRL 29 1353
1.840	2.089	5.700	WILLIAMSON 72 PRL 29 1353
2.080	2.194	5.290	JAMES 66 PR 142 896
2.350	2.306	4.700	ALFF-STEIN 66 PR 145 1072
2.750	2.463	2.790	ARMENISE 65 NC 37 361
2.770	2.471	4.880	YAMAMOTO 68 PR 173 1302
2.900	2.520	3.600	ALFF-STEIN 66 PR 145 1072
3.540	2.747	2.050	ABOLINS 64 PR 136 8195
3.560	2.754	2.510	MACNAUGHTO 71 UCRL 20178
3.670	2.791	2.360	MACNAUGHTO 71 UCRL 20178
3.900	2.868	2.300	BASTIEN 71 PR D3 2047
4.000	2.900	2.310	ADERHOLZ 65 PR 138 8897
5.000	3.207	1.300	SCHOTANUS 70 NP 822 45
6.000	3.487	0.883	BELL 68 PRL 20 164
8.040	3.999	0.740	ADERHOLZ 68 NP 88 45
13.100	5.048	0.366	KRAMER 71 NP 88 45
16.000	5.561	0.410	BOESEBECK 71 NP 828 381

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 [] CALCULATED BY US FROM DATA IN THIS ARTICLE

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [132]		$\pi^+p \rightarrow \pi^+\pi^0$ background	
1.020	1.683	0.460 + 0.600 +	METZGER 67 PR 164 1680
1.280	1.821	0.500 + 0.460 +	WILLIAMSON 72 PRL 29 1353
1.340	1.851	1.170 + 0.090 +	WILLIAMSON 72 PRL 29 1353
1.420	1.891	1.550 + 0.110 +	WILLIAMSON 72 PRL 29 1353
1.550	1.955	1.820 + 0.120 +	WILLIAMSON 72 PRL 29 1353
1.670	2.011	2.500 + 0.200 +	WILLIAMSON 72 PRL 29 1353
1.770	2.057	2.450 + 0.190 +	WILLIAMSON 72 PRL 29 1353
1.840	2.089	1.710 + 0.120 +	WILLIAMSON 72 PRL 29 1353
4.000	2.900	1.550 + 0.310 +	ADERHOLZ 65 PR 138 8897

Reaction [133]	$\pi^+p \rightarrow \pi^+MM(>\pi^0)$	References
0.850	0.020	1.586 0.170 + 0.030 DEBAISIEUX 68 NP 85 147
1.585	0.015	1.971 4.000 0.100 DARONIAN 66 NC 41 503
2.080		2.194 3.320 0.110 JAMES 66 PR 142 896
2.750	0.030	2.463 4.330 0.900 ARMENISE 65 NC 37 361
2.770		2.471 4.060 0.160 YAMAMOTO 68 PR 173 1302
3.560		2.754 3.680 0.650 MACNAUGHTO 71 UCRL 20178
3.670		2.791 3.760 0.700 MACNAUGHTO 71 UCRL 20178
4.000	0.040	2.900 3.320 0.100 ADERHOLZ 65 PR 138 8897
5.000		3.207 3.570 0.400 SCHOTANUS 70 NP 822 45
8.040	0.040	3.999 2.400 0.100 ADERHOLZ 68 NP 88 45
13.100		5.048 2.170 0.530 KRAMER 71 NP 88 45

Reaction [134]	$\pi^+p \rightarrow n\pi^+\pi^+$	References
0.477	0.005	1.353 0.120 + 0.010 + KIRZ 62 PR 126 763
0.591	0.013	1.428 0.180 0.020 + BOWLER 70 NP 817 331
0.645	0.013	1.462 0.420 0.080 + BOWLER 70 NP 817 331
0.698	0.014	1.495 0.490 0.050 + BOWLER 70 NP 817 331
0.725	0.013	1.512 0.700 0.100 NEWCOMB 63 PR 132 1283
0.752	0.015	1.528 0.680 0.070 + BOWLER 70 NP 817 331
0.809	0.020	1.562 1.120 0.100 + BOWLER 70 NP 817 331
0.850	0.020	1.586 1.310 0.100 DEBAISIEUX 68 NP 85 147
0.910	0.016	1.621 2.100 0.170 + TILGER 66 PR 142 972
0.940	0.009	1.638 1.900 0.100 DE BEER 69 NP 812 617
0.949	0.030	1.643 1.900 0.300 BARLOUTAUD 63 NC 27 238
1.020		1.683 1.870 0.120 METZGER 67 PR 164 1680
1.030	0.030	1.688 2.400 0.400 BARLOUTAUD 63 NC 27 238
1.040		1.694 2.600 0.400 STONEHILL 61 PRL 6 624
1.181	0.030	1.770 2.300 0.500 BARLOUTAUD 63 NC 27 238
1.222		1.791 2.500 0.500 STONEHILL 61 PRL 6 624
1.393		1.878 4.600 0.700 STONEHILL 61 PRL 6 624
1.585	0.015	1.971 3.700 0.100 DARONIAN 66 NC 41 503
2.080		2.194 2.250 0.090 ALFF-STEIN 66 PR 142 896
2.350	0.015	2.306 2.380 0.140 + ALFF-STEIN 66 PR 145 1072
2.750	0.030	2.463 2.410 0.150 ARMENISE 65 NC 37 361
2.770		2.471 2.590 0.150 YAMAMOTO 68 PR 173 1302
2.900	0.015	2.520 2.420 0.140 + ALFF-STEIN 66 PR 145 1072
3.540		2.747 1.480 0.150 ABOLINS 64 PR 136 8195
3.560		2.754 1.500 0.200 MACNAUGHTO 71 UCRL 20178
3.670		2.791 1.680 0.300 MACNAUGHTO 71 UCRL 20178
3.900		2.868 1.450 0.050 BASTIEN 71 PR D3 2047
4.000	0.040	2.900 1.440 0.050 ADERHOLZ 65 PR 138 8897
5.000		3.207 0.710 0.040 SCHOTANUS 70 NP 822 45
6.000		3.487 0.797 0.023 + BELL 68 PRL 20 164
8.040	0.040	3.999 0.610 0.060 ADERHOLZ 68 NP 88 45
13.100		5.048 0.310 0.060 KRAMER 71 NP 88 45
16.000		5.561 0.310 0.030 BOESEBECK 71 NP 828 381

See plot on the following page.

π^+p cross sections

P_{beam} $E_{\text{c.m.}}$ σ (mb) References
(GeV/c) (GeV)

o	KIRZ	62	■	ADERHOLZ	68
o	BARLOUTAUD	63	■	BELL	68
o	ABOLINS	64	■	DEBAISIEUX	68
o	ADERHOLZ	66	■	DE BEER	69
o	ARMENISE	66	■	BOWLER	70
o	ALFF-STEIN	66	■	BASTIEN	71
o	DARONIAN	66	■	BOESEBECK	71
o	JAMES	66	■	KRAMER	71
o	MEITZER	67	■	MACNAUGHTO	71

Reaction [135] $\pi^+p \rightarrow \pi^+\pi^+MM(>N)$

0.850 ± 0.020	1.586	0.020 ± 0.010	DEBAISIEUX	68	NP 85 147
1.585 ± 0.015	1.971	0.100	DARONIAN	66	NC 41 503
2.080	2.194	0.070	JAMES	66	PR 142 896
2.750	2.463	0.600	ARMENISE	65	NC 37 361
2.770	2.471	0.100	YAMAMOTO	68	PR 173 1302
3.560	2.754	1.200	MACNAUGHTO	71	UCRL 20178
3.670	2.791	1.300	MACNAUGHTO	71	UCRL 20178
4.000	2.900	0.400	ADERHOLZ	65	PR 138 8897
5.000	3.207	0.100	SCHOTANUS	70	NP 822 45
8.040	3.999	2.500	ADERHOLZ	68	NP 86 45
13.100	5.048	1.890	KRAMER	71	NP 88 45

o	ADERHOLZ	66
o	ARMENISE	66
o	DARONIAN	66
o	JAMES	66
o	ADERHOLZ	68
o	DEBAISIEUX	68
o	KRAMER	71
o	MACNAUGHTO	71

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P_{beam} $E_{\text{c.m.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [136] $\pi^+p \rightarrow p\pi^+MM(>\pi^0) + \pi^+\pi^+MM(>N)$
0.910 ± 0.016 1.621 1.120 ± 0.170 † TILGER 66 PR 142 972
0.940 0.009 1.638 0.400 ± 0.040 DE BEER 69 NP 812 617

Reaction [137] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \pi^+\pi^-\pi^0$

1.040	1.694	<0.004		†	FOELSCH	64	PR 13481138
1.050	1.699	0.010	←	0.002	†	GROSSMAN	69 PR 178 2109
1.170	1.764	0.053		0.005	†	GROSSMAN	69 PR 178 2109
1.222	1.791	0.069		0.010	†	FOELSCH	64 PR 13481138
1.393	1.878	0.130		0.045	†	FOELSCH	64 PR 13481138
1.585 ← 0.015	1.971	0.120		0.020	†	DARONIAN	66 NC 41 503
1.950	2.137	0.040		0.020	†	CHAPMAN	71 PR D 3 38
2.080	2.194	0.150		0.030	†	JAMES	66 PR 142 896
2.350	2.306	0.230		0.050	†	ALFF-STEIN	66 PR 145 1072
2.620	2.413	0.180		0.090	†	ALFF-STEIN	66 PR 145 1072
2.900	2.520	0.150		0.050	†	ALFF-STEIN	66 PR 145 1072
2.950	2.538	0.030		0.180	†	BROWN	68 UCRL 18254
3.190	2.625	0.020		0.200	†	BROWN	68 UCRL 18254
3.500	2.734	0.160		0.040	†	RONAT	72 NP B38 20
3.530	2.744	0.030		0.030	†	BROWN	68 UCRL 18254
3.740	2.815	0.030		0.190	†	BROWN	68 UCRL 18254
3.920	2.874	0.150		0.020	†	WINKELMANN	68
4.000	2.900	0.040		0.008	†	ADERHOLZ	65 PR 138 8897
4.080	2.926	0.020		0.050	†	BROWN	68 UCRL 18254
5.720	3.411	0.050		0.020	†	DAO	70
7.000	3.747	0.054		0.014	†	SLATTERY	67
8.490	4.103	0.047	+	0.043	†	KUNG	69
			+	0.015			
18.500	5.968	0.008	←	0.002	†	HONES	70 PR D2 827

o	FOELSCH	64	x	GROSSMAN	69
o	ADERHOLZ	66	x	KUNG	69
o	ALFF-STEIN	66	■	DAO	70
o	DARONIAN	66	■	HONES	70
o	JAMES	66	■	CHAPMAN	71
o	BROWN	68			

Reaction [138] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \text{neutrals}$

1.585 ± 0.015	1.971	0.430 ± 0.040 †	DARONIAN	66	NC 41 503
2.080	2.194	0.690	JAMES	66	PR 142 896
2.350 ± 0.015	2.306	0.550	ALFF-STEIN	66	PR 145 1072
2.770	2.471	0.190	YAMAMOTO	68	PR 173 1302
2.900 ± 0.015	2.520	0.550	ALFF-STEIN	66	PR 145 1072
13.100	5.048	0.045	KRAMER	71	

Reaction [139] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \text{total}$

2.080	2.194	0.840 ± 0.130	†	JAMES	66	PR 142 896
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π^+p cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [140] $\pi^+p \rightarrow p\eta\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$			
3.430	2.710	0.300 $\pm$ 0.130	ABOLINS 63 PRL 11 381
3.540	2.747	0.230 $\pm$ 0.060	ABOLINS 63 PRL 11 381
3.650	2.785	0.210 $\pm$ 0.070	SHEN 65 UCRL 16170

Reaction [141] $\pi^+p \rightarrow p\rho^0\pi^+ \rightarrow \pi^+\pi^-$			
2.080	2.194	1.200 $\pm$ 0.300	JAMES 66 PR 142 896
2.340	2.302	0.150 $\pm$ 0.060	ANGELOV 69 JINRP P1-461
2.350	2.306	1.760 $\pm$ 0.150	ALFF-STEIN 66 PR 145 1072
2.620	2.413	1.860 $\pm$ 0.240	ALFF-STEIN 66 PR 145 1072
2.900	2.520	1.110 $\pm$ 0.120	ALFF-STEIN 66 PR 145 1072
2.950	2.538	1.960 $\pm$ 0.160	BROWN 68 UCRL 18254
3.190	2.625	1.660 $\pm$ 0.170	BROWN 68 UCRL 18254
3.430	2.710	1.060 $\pm$ 0.200	ABOLINS 63 PRL 11 381
3.530	2.744	1.040 $\pm$ 0.170	BROWN 68 UCRL 18254
3.540	2.747	1.100 $\pm$ 0.150	ABOLINS 63 PRL 11 381
3.650	2.785	0.860 $\pm$ 0.090	GOLDHABER 64 PRL 12 336
3.740	2.815	1.210 $\pm$ 0.140	BROWN 68 UCRL 18254
4.000	2.900	0.300 $\pm$ 0.060	ADERHOLZ 65 PR 138 8897
4.080	2.926	1.860 $\pm$ 0.140	BROWN 68 UCRL 18254
5.100	3.236	1.353 $\pm$ 0.026	MURRO 71 NC 3A 721
5.720	3.411	0.482 $\pm$ 0.172	SHENG 70 NC 3A 721
7.000	3.747	1.145 $\pm$ 0.129	SLATTERY 67 NC 3A 721
8.490	4.103	1.346 $\pm$ 0.204	KUNG 69 NC 3A 721
		- 0.131

Reaction [142] $\pi^+p \rightarrow p\rho\pi^+ \rightarrow \pi^+\pi^-\pi^0$			
1.585 $\pm$ 0.015	1.971	0.100 $\pm$ 0.020	DARONIAN 66 NC 41 503
2.080	2.194	1.660 $\pm$ 0.130	JAMES 66 PR 142 896
2.300	2.286	1.360 $\pm$ 0.090	KO 71
2.340	2.302	0.150 $\pm$ 0.090	ANGELOV 69 JINRP P1-461
2.350	2.306	2.100 $\pm$ 0.190	ALFF-STEIN 66 PR 145 1072
2.620	2.413	2.610 $\pm$ 0.310	ALFF-STEIN 66 PR 145 1072
2.670	2.432	1.630 $\pm$ 0.090	KO 71
2.750	2.463	1.660 $\pm$ 0.050	ARMENISE 65 NC 40A 273
2.900	2.520	1.970 $\pm$ 0.170	ALFF-STEIN 66 PR 145 1072
2.950	2.538	1.060 $\pm$ 0.130	BROWN 68 UCRL 18254
3.190	2.625	1.520 $\pm$ 0.100	BROWN 68 UCRL 18254
3.500	2.734	1.050 $\pm$ 0.100	XUONG 63 PRL 11 227
3.500	2.734	0.470 $\pm$ 0.060	RONAT 72 NP B38 20
3.530	2.744	1.600 $\pm$ 0.090	BROWN 68 UCRL 18254
3.740	2.815	1.490 $\pm$ 0.110	BROWN 68 UCRL 18254
3.920	2.874	0.870 $\pm$ 0.080	WINKELMANN 68
4.000	2.900	0.400 $\pm$ 0.080	ADERHOLZ 65 PR 138 8897
4.080	2.926	1.570 $\pm$ 0.090	BROWN 68 UCRL 18254
5.720	3.411	0.320 $\pm$ 0.080	DAO 70
7.000	3.747	0.448 $\pm$ 0.083	SLATTERY 67
8.490	4.103	0.184 $\pm$ 0.134	KUNG 69
16.500	5.968	0.091 $\pm$ 0.013	HONES 70 PR D2 827

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P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References

Reaction [143] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \text{neutrals}$			
2.080	2.194	0.100 $\pm$ 0.030	JAMES 66 PR 142 896
2.350 $\pm$ 0.015	2.306	0.300 $\pm$ 0.120	ALFF-STEIN 66 PR 145 1072
2.900	2.520	0.100 $\pm$ 0.060	ALFF-STEIN 66 PR 145 1072

Reaction [144] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \text{total}$			
2.080	2.194	1.760 $\pm$ 0.160	JAMES 66 PR 142 896

Reaction [145] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$			
3.430	2.710	1.200 $\pm$ 0.200	ABOLINS 63 PRL 11 381
3.540	2.747	1.060 $\pm$ 0.100	ABOLINS 63 PRL 11 381
3.650	2.785	0.880 $\pm$ 0.100	SHEN 65 UCRL 16170

Reaction [146] $\pi^+p \rightarrow p\omega\pi^+ \rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$			
2.900	2.520	0.160 $\pm$ 0.035	BALDIN 71 SJNP 13 431

Reaction [147] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \eta\pi^+\pi^- \rightarrow \pi^+\pi^-\pi^0$			
8.040 $\pm$ 0.060	3.999	0.008 $\pm$ 0.003	BARDADIN-O 71 PR D4 2711

Reaction [148] $\pi^+p \rightarrow p\eta'\pi^+ \rightarrow \pi^+\pi^+\pi^-\pi^0$			
5.000 $\pm$ 0.025	3.207	0.006 $\pm$ 0.002	DREVERMANN 67 PR 161 1356

63	XUONG	63	S (GeV ²)	68	WINKELMANN
65	ADERHOLZ	65		69	ANGELOV
66	ARMENISE	66		69	KUNG
66	ALFF-STEIN	66		70	DAO
66	DARONIAN	66		70	HONES
66	JAMES	66		71	KO
67	SLATTERY	67		72	RONAT
68	BROWN	68			

63	ABOLINS	63		69	KUNG
64	GOLDHABER	64		70	DAO
65	ADERHOLZ	65		70	HONES
66	ALFF-STEIN	66		71	KO
66	JAMES	66		72	RONAT
68	BROWN	68			
69	KUNG	69			

63	ABOLINS	63		69	KUNG
64	GOLDHABER	64		70	DAO
65	ADERHOLZ	65		70	HONES
66	ALFF-STEIN	66		71	KO
66	JAMES	66		72	RONAT
68	BROWN	68			
69	KUNG	69			

63	ABOLINS	63		69	KUNG
64	GOLDHABER	64		70	DAO
65	ADERHOLZ	65		70	HONES
66	ALFF-STEIN	66		71	KO
66	JAMES	66		72	RONAT
68	BROWN	68			
69	KUNG	69			

63	ABOLINS	63		69	KUNG
64	GOLDHABER	64		70	DAO
65	ADERHOLZ	65		70	HONES
66	ALFF-STEIN	66		71	KO
66	JAMES	66		72	RONAT
68	BROWN	68			
69	KUNG	69			

63	ABOLINS	63		69	KUNG
64	GOLDHABER	64		70	DAO
65	ADERHOLZ	65		70	HONES
66	ALFF-STEIN	66		71	KO
66	JAMES	66		72	RONAT
68	BROWN	68			
69	KUNG	69			

π^+p cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [149] $\pi^+p \rightarrow p\eta'\pi^+$			
		$\rightarrow \eta\pi^+\pi^- + \text{<other mode>}$	
		$\rightarrow \pi^+\pi^-\pi^0$	
5.000 $\pm$ 0.025	3.207	0.050 $\pm$ 0.020 $\dagger$	DREVERMANN 67 PR 161 1356

Reaction [150] $\pi^+p \rightarrow p\eta'\pi^+$			
		$\rightarrow \eta\pi^+\pi^- + \text{<other mode>}$	
		$\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$	
8.040 $\pm$ 0.060	3.999	0.060 $\pm$ 0.019 $\dagger$	BARDADIN-O 71 PR D4 2711

Reaction [151] $\pi^+p \rightarrow p\eta'\pi^+$			
		$\rightarrow \pi^+\pi^+\pi^-\pi^-\pi^0 + \text{<other mode>}$	
4.000	2.900	0.035 $\pm$ 0.020 $\dagger$	BONDAR 66 NC 44A 530

Reaction [152] $\pi^+p \rightarrow p\phi\pi^+$			
		$\rightarrow K^+K^-$	
3.700	2.801	0.010 $\pm$ 0.003 $\dagger$	BUTLER 70 UCRL 19845
8.040	3.999	0.002 $\pm$ 0.002 $\dagger$	ADERHOLZ 69 NP B14 255

Reaction [153] $\pi^+p \rightarrow p\phi\pi^+$			
		$\rightarrow K_S^0K_L^0$	
8.000	3.989	0.003 $\dagger$	ADERHOLZ 69 NP B11 259

Reaction [154] $\pi^+p \rightarrow p\phi\pi^+$			
		$\rightarrow K^+K^- + K_S^0K_L^0$	
3.650	2.785	<0.010 $\dagger$	TRILLING 65 PL 19 427

Reaction [155] $\pi^+p \rightarrow p\phi\pi^+$			
		$\rightarrow K^+K^- + \text{<other mode>}$	
3.430	2.710	0.020 $\pm$ 0.020	ABOLINS 63 PRL 11 381
3.540	2.747	0.020 $\pm$ 0.010	ABOLINS 63 PRL 11 381

Reaction [156] $\pi^+p \rightarrow pA_1^+\pi^0$			
		$\rightarrow \rho^0\pi^+$	
		$\rightarrow \pi^+\pi^-$	
18.500	5.968	0.057 $\pm$ 0.008 $\dagger$	HONES 70 PR D2 827

Reaction [157] $\pi^+p \rightarrow pf\pi^+$			
		$\rightarrow \pi^+\pi^-$	
3.430	2.710	<0.100	ABOLINS 63 PRL 11 381
3.540	2.747	<0.070	ABOLINS 63 PRL 11 381
7.000	3.747	0.211 $\pm$ 0.052 $\dagger$	SLATTERY 67
8.490 $\pm$ 0.060	4.103	0.195 $\pm$ 0.055 $\dagger$	KUNG 69
		- 0.041	

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [158] $\pi^+p \rightarrow pf\pi^+$			
		$\rightarrow K^+K^-$	
8.040	3.999	0.005 $\pm$ 0.002 $\dagger$	ADERHOLZ 69 NP B14 255

Reaction [159] $\pi^+p \rightarrow pD(1285)\pi^+$			
		$\rightarrow \eta\pi^+\pi^-$	
		$\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$	
8.040 $\pm$ 0.060	3.999	0.066 $\pm$ 0.017 $\dagger$	BARDADIN-O 71 PR D4 2711

Reaction [160] $\pi^+p \rightarrow pD(1285)\pi^+$			
		$\rightarrow \rho^0\pi^+\pi^-$	
		$\rightarrow \pi^+\pi^-$	
16.000 $\pm$ 0.008	5.561	0.016 $\pm$ 0.005 $\dagger$	BOESEBECK 71 PL 348 659

Reaction [161] $\pi^+p \rightarrow pD(1285)\pi^+$			
		$\rightarrow \delta(970)^+\pi^- + \delta(970)^-\pi^+$	
		$\rightarrow \eta\pi^+$	
		$\rightarrow \eta\pi^-$	
		$\pi^+\pi^-\pi^0 \leftarrow$	
		$\pi^+\pi^-\pi^0 \leftarrow$	
8.000	3.989	0.017 $\pm$ 0.005 $\dagger$	OTWINOWSKI 69 PL 298 529

Reaction [162] $\pi^+p \rightarrow pD(1285)\pi^+$			
		$\rightarrow \eta\pi^+\pi^-$	
		$\rightarrow \pi^+\pi^-\pi^0$	
8.000	3.989	0.019 $\pm$ 0.005 $\dagger$	OTWINOWSKI 69 PL 298 529

Reaction [163] $\pi^+p \rightarrow pA_2^0\pi^+$			
		$\rightarrow \pi^+\pi^-\pi^0$	
8.490 $\pm$ 0.060	4.103	0.138 $\pm$ 0.114 $\dagger$	KUNG 69
		- 0.035	

Reaction [164] $\pi^+p \rightarrow pA_2^0\pi^+$			
		$\rightarrow \rho^+\pi^- + \rho^-\pi^+$	
7.000	3.747	0.091 $\pm$ 0.052 $\dagger$	SLATTERY 67

Reaction [165] $\pi^+p \rightarrow pA_2^+\pi^0$			
		$\rightarrow \rho^0\pi^+$	
		$\rightarrow \pi^+\pi^-$	
18.500	5.968	0.047 $\pm$ 0.007 $\dagger$	HONES 70 PR D2 827

Reaction [166] $\pi^+p \rightarrow pf\pi^+$			
		$\rightarrow K_S^0K_S^0$	
8.000	3.989	0.002 $\dagger$	ADERHOLZ 69 NP B11 259

* DATA READ FROM GRAPH
 $\dagger$ SEE DATA LISTING FOR ADDITIONAL COMMENTS
 $\ddagger$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 $\{$ CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [167] $\pi^+p \rightarrow p\rho^+\rho^0$
 $\downarrow$
 $\pi^+\pi^0\pi^-$
 $\downarrow$
 $\pi^+\pi^0\pi^-$

18.500	5.968	0.076 $\pm$ 0.018	HONES 70 PR D2 827
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Reaction [168] $\pi^+p \rightarrow pX(3025)^+\pi^0 + pX(3025)^0\pi^+$
 $\downarrow$
 $\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$
 $\downarrow$
 $\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$

11.000	4.641	0.040	† YOST 71 PR D 3 642
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Reaction [169] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^-$
 $\downarrow$
 $p\pi^+$

1.585 $\pm$ 0.015	1.971	1.300 $\pm$ 0.070	DARONIAN 66 NC 41 503		
1.950	2.137	1.640	0.200 $\pm$ CHAPMAN 71 PR D 3 38		
2.080	2.194	2.300	0.200 $\pm$ JAMES 66 PR 142 896		
2.340	2.302	0.590	0.120 $\pm$ ANGELLOV 69 JINRP P1-4611		
2.350	0.015	2.306	2.000	0.190	ALFF-STEIN 66 PR 145 1072
2.620	0.015	2.413	1.910	0.250	ALFF-STEIN 66 PR 145 1072
2.900	0.015	2.520	1.470	0.130	ALFF-STEIN 66 PR 145 1072
2.950		2.538	(2.250	0.160	1 BROWN 68 UCRL 18254
3.190		2.625	2.180	0.130	BROWN 68 UCRL 18254
3.530		2.744	2.360	0.130	BROWN 68 UCRL 18254
3.650		2.785	1.160	0.120	$\pm$ GOLDBABER 64 PRL 12 336
3.740		2.815	2.280	0.100	BROWN 68 UCRL 18254
4.000	0.040	2.900	1.100	0.220	$\pm$ ADERHOLZ 65 PR 138 8897
4.080		2.926	1.770	0.100	BROWN 68 UCRL 18254
7.000		3.747	0.997	0.110	$\pm$ SLATTERY 67
8.490	0.060	4.103	1.304	0.182	$\pm$ KUNG 69
				0.119

Reaction [170] $\pi^+p \rightarrow \Delta(1238)^{++}\rho^0\rho^0$
 $\downarrow$
 $p\pi^+$
 $\downarrow$
 $\pi^+\pi^-$

8.040 $\pm$ 0.060	3.999	0.042 $\pm$ 0.022	† BARDADIN-O 71 PR D4 2711
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Reaction [171] $\pi^+p \rightarrow \Delta(1238)^{++}\rho\pi$
 $\downarrow$
 $p\pi^+$
 $\downarrow$
 $\pi\pi$

4.000 $\pm$ 0.040	2.900	0.150 $\pm$ 0.045	† ADERHOLZ 65 PR 138 8897
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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [172] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\rho^0$
 $\downarrow$
 $p\pi^+$
 $\downarrow$
 $\pi^+\pi^-\pi^0$

8.040 $\pm$ 0.060	3.999	0.066 $\pm$ 0.022	† BARDADIN-O 71 PR D4 2711
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Reaction [173] $\pi^+p \rightarrow \Delta(1238)^{++}p\bar{p}$
 $\downarrow$
 $p\pi^+$

8.040	3.999	0.010 $\pm$ 0.003	† ADERHOLZ 69 NP 814 255
13.100	5.048	0.004	† GAIDOS 71 NP 832 10

Reaction [174] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+$
 $\downarrow$
 $p\pi^-$

4.000 $\pm$ 0.040	2.900	0.250 $\pm$ 0.050	† ADERHOLZ 65 PR 138 8897
7.000	3.747	0.041	0.029 $\pm$ SLATTERY 67
8.490	0.060	4.103	0.063 $\pm$ 0.018 $\pm$ KUNG 69
			- 0.012

Reaction [175] $\pi^+p \rightarrow N(1700)^+\pi^+\pi^0 + N(1700)^0\pi^+\pi^+$
 $\downarrow$
 ΛK^+
 $\downarrow$
 ΛK^+

8.000	3.989	0.027 $\pm$ 0.006	† ADERHOLZ 69 NP 811 259
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Reaction [176] $\pi^+p \rightarrow pK^+K_S^0$

5.000	3.207	0.015 $\pm$ 0.002	BOECKMANN 70 NP 816 221
5.100	3.236	0.095	0.016 $\pm$ METTEL 70
6.000	3.487	0.010	† CRENNELL 68 PL 288 136

Reaction [177] $\pi^+p \rightarrow pK^+\bar{K}^0$

1.550	1.955	0.004 $\pm$ 0.005	† HANSON 71 PR D4 1296
1.630	1.992	0.002 $\pm$ 0.003	† HANSON 71 PR D4 1296
1.680	2.016	0.008 $\pm$ 0.005	† HANSON 71 PR D4 1296
1.700	2.025	0.014 $\pm$ 0.003	PAN 70 PR D 2 449
1.770	2.057	0.017	0.007 $\pm$ HANSON 71 PR D4 1296
1.840	2.089	0.025	0.010 $\pm$ HANSON 71 PR D4 1296
1.950	2.137	< 0.010	† DAGAN 67 PR 161 1384
2.042	2.177	0.012	0.005 MOORE 70
2.178	2.235	0.030	0.007 MOORE 70
2.330	2.298	0.054	0.012 MOORE 70
2.350 $\pm$ 2.620	2.306	0.024	0.011 BERLEY 65 PR 139B1097
- 2.900			
2.770 $\pm$ 0.040	2.471	0.059	0.013 YANAMOTO 64 PR 134 8383
3.700	2.801	0.070	0.008 $\pm$ BUTLER 70 UCRL 19845
4.000	2.900	0.043	0.011 BARTSCH 66 NC 43A 1010
5.500	3.350	0.026	0.004 $\pm$ COOPER 70 NP 823 605
8.000	3.989	0.026	0.004 ADERHOLZ 69 NP 811 259
8.500	4.105	0.031	0.007 KREBS 70

See plot on the following page.

π^+p cross sections

P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [178]

3.700 2.801 0.029 +- 0.010 + BUTLER 70 UCRL 19845

Reaction [179]

5.500 3.350 0.030 +- 0.007 COOPER 70 NP B23 605
8.500 4.105 0.013 0.008 + KREBS 70

Reaction [180]

5.500 3.350 0.012 +- 0.003 COOPER 70 NP B23 605

Reaction [181]

8.000 3.989 0.023 +- 0.004 + ADERHOLZ 69 NP B11 259
13.100 5.048 0.012 + GAIDOS 71 NP B32 10

Reaction [182]

3.700 2.801 0.023 +- 0.005 + BUTLER 70 UCRL 19845

Reaction [183]

5.500 3.350 0.009 +- 0.002 COOPER 70 NP B23 605

P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [184]

3.700 2.801 0.036 +- 0.007 + BUTLER 70 UCRL 19845
8.000 3.989 0.031 0.005 + ADERHOLZ 69 NP B11 259
13.100 5.048 0.011 + GAIDOS 71 NP B32 10

Reaction [185]

3.700 2.801 0.011 +- 0.005 + BUTLER 70 UCRL 19845
8.000 3.989 0.009 0.002 + ADERHOLZ 69 NP B11 259

Reaction [186]

8.000 3.989 0.010 +- 0.002 + ADERHOLZ 69 NP B11 259

Reaction [187]

5.500 3.350 0.038 +- 0.007 + COOPER 70 NP B23 605
8.500 4.105 0. + KREBS 70

Reaction [188]

5.500 3.350 0.008 +- 0.002 COOPER 70 NP B23 605

Reaction [189]

5.500 3.350 0.004 +- 0.002 COOPER 70 NP B23 605

Reaction [190]

1.280 1.821 0.005 + 0.003 + HANSON 71 PR D4 1296
1.340 1.851 0.002 - 0.002 + HANSON 71 PR D4 1296
1.410 1.886 0.025 +- 0.006 + HANSON 71 PR D4 1296
1.430 1.896 0.042 0.012 + HANSON 71 PR D4 1296
1.550 1.955 0.107 0.016 + HANSON 71 PR D4 1296
1.630 1.992 0.163 0.016 + HANSON 71 PR D4 1296
1.680 2.016 0.128 0.013 + HANSON 71 PR D4 1296
1.700 2.025 0.150 0.020 + PAN 70 PR D 2 449
1.770 2.057 0.170 0.017 + HANSON 71 PR D4 1296
1.840 2.089 0.162 0.018 + HANSON 71 PR D4 1296
1.950 2.137 0.140 0.030 + DAGAN 67 PR 161 1384
2.042 2.177 0.123 0.011 MOORE 70
2.178 2.235 0.108 0.011 MOORE 70
2.330 2.298 0.122 0.012 MOORE 70
2.350 + 2.620 2.306 0.065 0.015 BERLEY 65 PR 13981097
- 2.900
3.700 2.801 0.096 0.007 + BUTLER 70 UCRL 19845
5.500 3.350 0.066 0.007 + COOPER 70 NP B23 605
8.000 3.989 0.030 0.004 ADERHOLZ 69 NP B11 259
8.500 4.105 0.033 0.007 KREBS 70

See plot on the following page.

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π^+p cross sections

P_{beam} (GeV/c) $E_{\text{C.M.}}$ (GeV) σ (mb) References

Reaction [191] $\pi^+p \rightarrow \Sigma^0 K^+ \pi^+$

1.340	1.851	0.002	+	HANSON	71	PR D4 1296
1.410	1.886	0.004	+	HANSON	71	PR D4 1296
1.430	1.896	0.002	+	HANSON	71	PR D4 1296
1.550	1.955	0.010	+	HANSON	71	PR D4 1296
1.630	1.992	0.011	+	HANSON	71	PR D4 1296
1.680	2.016	0.018	+	HANSON	71	PR D4 1296
1.700	2.025	0.023	+	PAN	70	PR D 2 449
1.770	2.057	0.020	+	HANSON	71	PR D4 1296
1.840	2.089	0.030	+	HANSON	71	PR D4 1296
1.950	2.137	0.030	+	DAGAN	67	PR 161 1384
2.350	2.306	0.040	+	BERLEY	65	PR 13981097
3.700	2.801	0.043	+	BUTLER	70	UCRL 19845
8.500	4.105	0.015	+	KREBS	70

Reaction [192] $\pi^+p \rightarrow \Lambda K^+ \pi^+ + \Sigma^0 K^+ \pi^+$

2.770	2.471	0.163	+	YAMAMOTO	64	PR 134 8383
4.000	2.900	0.081	+	BARTSCH	66	NC 43A 1010

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P_{beam} (GeV/c) $E_{\text{C.M.}}$ (GeV) σ (mb) References

Reaction [193]	$\pi^+p \rightarrow \Sigma^+ K^+ \pi^0$					
1.340	1.851	0.002	+	HANSON	71	PR D4 1296
1.410	1.886	0.004	+	HANSON	71	PR D4 1296
1.430	1.896	0.006	+	HANSON	71	PR D4 1296
1.550	1.955	0.021	+	HANSON	71	PR D4 1296
1.585	1.971	0.060	+	DARONIAN	66	NC 41 503
1.630	1.992	0.025	+	HANSON	71	PR D4 1296
1.680	2.016	0.030	+	HANSON	71	PR D4 1296
1.770	2.057	0.040	+	HANSON	71	PR D4 1296
1.840	2.089	0.070	+	HANSON	71	PR D4 1296
1.950	2.137	0.070	+	DAGAN	67	PR 161 1384
2.770	2.471	0.120	+	YAMAMOTO	64	PR 134 8383
3.700	2.801	0.135	+	BUTLER	70	UCRL 19845
4.000	2.900	0.069	+	BARTSCH	66	NC 43A 1010
5.400	3.322	0.041	+	COOPER	68	PRL 20 472

Reaction [194] $\pi^+p \rightarrow \Sigma^+ K^+ \pi^0 \rightarrow n \pi^+ + \text{<other mode>}$

1.700	2.025	0.031	+	PAN	70	PR D 2 449
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Reaction [195] $\pi^+p \rightarrow \Sigma^+ K^+ \pi^0 \pi^0$

4.000	2.900	0.022	+	BARTSCH	66	NC 43A 1010
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Reaction [196] $\pi^+p \rightarrow \Sigma^+ K^0 \pi^+$

1.340	1.851	0.003	+	HANSON	71	PR D4 1296
1.410	1.886	0.004	+	HANSON	71	PR D4 1296
1.430	1.896	0.002	+	HANSON	71	PR D4 1296
1.550	1.955	0.014	+	HANSON	71	PR D4 1296
1.630	1.992	0.025	+	HANSON	71	PR D4 1296
1.680	2.016	0.024	+	HANSON	71	PR D4 1296
1.770	2.057	0.042	+	HANSON	71	PR D4 1296
1.840	2.089	0.072	+	HANSON	71	PR D4 1296
1.950	2.137	0.120	+	DAGAN	67	PR 161 1384
2.178	2.235	0.054	+	MOORE	70	
2.350	2.306	0.117	+	BERLEY	65	PR 13981097
2.770	2.471	0.090	+	YAMAMOTO	64	PR 134 8383
3.700	2.801	0.104	+	BUTLER	70	UCRL 19845
4.000	2.900	0.052	+	BARTSCH	66	NC 43A 1010
5.400	3.322	0.051	+	COOPER	68	PRL 20 472
8.500	4.105	0.010	+	KREBS	70	

See plot on the following page.

π^+p cross sections

P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [197] $\pi^+p \rightarrow \Sigma^+ K^0 \pi^+$
 $\rightarrow n \pi^+ + \text{<other mode>}$

1.700 2.025 0.019 +- 0.003 + PAN 70 PR D 2 449

Reaction [198] $\pi^+p \rightarrow \Lambda K^*(890)^+ \pi^+$
 $\rightarrow K^0 \pi^+ + K^+ \pi^0$

8.000 3.989 0.039 +- 0.005 + ADERHOLZ 69 NP B11 259

Reaction [199] $\pi^+p \rightarrow \Lambda K^*(890)^+ \pi^+$
 $\rightarrow K^0 \pi^+$

5.500 3.350 0.012 +- 0.003 COOPER 70 NP B23 605
8.500 4.105 0.012 0.005 + KREBS 70

Reaction [200] $\pi^+p \rightarrow \Lambda K^*(890)^+ \pi^+$
 $\rightarrow K^+ \pi^0$

5.500 3.350 0.008 +- 0.001 COOPER 70 NP B23 605

Reaction [201] $\pi^+p \rightarrow Y^*(1385)^0 K^+ \pi^+$
 $\rightarrow \Lambda \pi^0$

5.500 3.350 0.010 +- 0.002 COOPER 70 NP B23 605

Reaction [202] $\pi^+p \rightarrow Y^*(1385)^+ K^+ \pi^0$
 $\rightarrow \Lambda \pi^+$

4.000 2.900 0.041 +- 0.011 + BARTSCH 66 NC 43A 1010
5.500 3.350 0.018 0.002 COOPER 70 NP B23 605
8.000 3.989 0.014 0.002 + ADERHOLZ 69 NP B11 259

P_{beam} $E_{\text{C.M.}}$ σ (mb) References
(GeV/c) (GeV)

Reaction [203] $\pi^+p \rightarrow Y^*(1385)^+ K^0 \pi^+$
 $\rightarrow \Lambda \pi^+$

5.500 3.350 0.012 +- 0.003 COOPER 70 NP B23 605
8.000 3.989 0.024 0.004 + ADERHOLZ 69 NP B11 259
8.500 4.105 0.010 0.005 + KREBS 70

Reaction [204]

$\pi^+p \rightarrow Y^*(1385)^+ \pi^+ MM(>K^0) + Y^*(1385)^+ K^+ MM(>\pi^0)$
 $\rightarrow \Lambda \pi^+$

8.000 3.989 0.027 +- 0.010 + ADERHOLZ 69 NP B11 259

Reaction [205] $\pi^+p \rightarrow Y^*(1520) K^+ \pi^+$
 $\rightarrow p K^- + \text{<other mode>}$

3.700 2.801 0.016 +- 0.006 + BUTLER 70 UCRL 19845

Reaction [206] $\pi^+p \rightarrow \text{Hyperon } K^*(890)^0 \pi^+$
 $\rightarrow K \pi$

4.000 2.900 0.083 +- 0.018 + BARTSCH 66 NC 43A 1010

Reaction [207] $\pi^+p \rightarrow p \pi^+ \pi^+ \pi^-$

0.850	0.020	1.586	0.210	0.040	DEBAISIEUX	68	NP B5 147
0.940	0.009	1.638	0.500	0.050	DE BEER	69	NP B12 617
0.990	0.030	1.666	0.780	0.140	KOPP	61	PR 123 301
1.040		1.694	0.340	0.060	FOELSCH	64	PR 134B1138
1.222		1.791	1.040	0.050	FOELSCH	64	PR 134B1138
1.293		1.878	2.180	0.140	FOELSCH	64	PR 134B1138
1.585	0.015	1.971	3.300	0.100	DARONIAN	66	NC 41 503
1.950		2.137	3.040	0.150	CHAPMAN	71	PR D 3 38
2.080		2.194	3.400	0.110	JAMES	66	PR 142 896
2.300		2.286	3.610	0.250	KO	71	
2.340	0.060	2.302	3.740	0.110	ANGELOV	69	JINRP P1-4611
2.350	0.015	2.306	3.440	0.160	ALFF-STEIN	66	PR 145 1072
2.620	0.015	2.413	3.490	0.250	ALFF-STEIN	66	PR 145 1072
2.670		2.432	3.900	0.230	KO	71	
2.750		2.463	3.600	0.100	ARMENISE	66	NC 41A 159
2.770		2.471	3.190	0.170	YAMAMOTO	65	PR 140 8730
2.900	0.040	2.520	2.950	0.140	ALFF-STEIN	66	PR 145 1072
2.950	0.015	2.538	2.930	0.250	BROWN	68	UCRL 18254
3.190		2.625	2.910	0.210	BROWN	68	UCRL 18254
3.430		2.710	3.300	0.300	ABOLINS	63	PRL 11 381
3.500		2.734	3.180	0.130	RONAT	72	NP B38 20
3.530		2.744	3.330	0.240	BROWN	68	UCRL 18254
3.540		2.747	3.500	0.200	ABOLINS	63	PRL 11 381
3.560		2.754	3.590	0.140	MACNAUGHTO	71	UCRL 20178
3.650		2.785	3.850	0.300	GOLDBERGER	64	PRL 12 336
3.670		2.791	3.470	0.120	MACNAUGHTO	71	UCRL 20178
3.700		2.801	3.520	0.100	ABRAMS	70	PRL 25 617
3.740		2.815	3.390	0.240	BROWN	68	UCRL 18254
4.000	0.040	2.900	3.090	0.210	ADERHOLZ	65	PR 138 8897
4.080		2.926	2.830	0.210	BROWN	68	UCRL 18254
4.500		3.057	1.550	0.150	FORINO	65	PL 19 68
5.000		3.207	2.780	0.030	BOECKMANN	70	NP B16 221
5.100		3.236	1.960	0.200	ARMENISE	70	NC 65A 637
5.450		3.336	1.920	0.051	BLOODWORTH	71	NP B35 79
5.720		3.411	1.710	0.280	SHENG	70	
7.000		3.747	1.940	0.100	SLATTERY	67	
8.040	0.040	3.999	2.050	0.060	ADERHOLZ	68	NP B8 45
8.490	0.060	4.103	2.110	0.180	KUNG	69	NP B8 45
11.700	0.117	4.781	1.450	0.150	MADDOCK	71	NC 5A 433
13.100		5.048	1.230	0.040	GAIDOS	70	PR D1 3190
16.000		5.561	1.320	0.150	BALLAM	71	PR D4 1946

See plot on the following page.

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π^+p cross sections

P_{beam} $E_{c.m.}$ σ (mb) References
(GeV/c) (GeV)

S (GeV ²)					
61	KOPP	61	ANGELOV	69	
63	ABOLINS	63	DE BEER	69	
64	FOELSCH	64	KUNG	69	
64	GOLDHABER	64	ABRAMS	70	
65	ADERHOLZ	65	ARMENISE	70	
65	FORINO	65	BOECKMANN	70	
65	YAMAMOTO	65	GAIDOS	70	
66	ALFF-STEIN	66	SHENG	70	
66	ARMENISE	66	BALLAM	71	
66	DARONIAN	66	BLOODWORTH	71	
66	JAMES	66	CHAPMAN	71	
67	SLATTERY	67	KO	71	
68	ADERHOLZ	68	MACNAUGHTO	71	
68	BROWN	68	MADDOCK	71	
68	DEBAISIEUX	68	RONAT	72	

Reaction [208] $\pi^+p \rightarrow p\pi^+\pi^-\pi^-$ background

2.340 ± 0.060	2.302	1.180 ± 0.150	ANGELOV	69	JINRP P1-46
2.950	2.538	0.480	BROWN	68	UCRL 18254
3.190	2.625	0.210	BROWN	68	UCRL 18254
3.500	2.734	0.710	RONAT	72	NP 838 20
3.530	2.744	0.280	BROWN	68	UCRL 18254
3.650	2.785	0.530	GOLDHABER	64	PRL 12 336
3.740	2.815	0.370	BROWN	68	UCRL 18254
4.000	2.900	0.400	ADERHOLZ	65	PR 138 8897
4.080	2.926	0.320	BROWN	68	UCRL 18254
5.720	3.411	0.051	SHENG	70	

Reaction [209] $\pi^+p \rightarrow p\pi^+\pi^0\pi^0$

2.050	2.181	1.550 ± 0.320	JACQUET	69	NC 63A 743
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Reaction [210] $\pi^+p \rightarrow p\rho^+\pi^-\pi^0$

5.720	3.411	0.170 ± 0.070	DAO	70	
7.000	3.747	0.554	SLATTERY	67	
8.490 ± 0.060	4.103	0.280	KUNG	69	
18.500	5.968	0.240 ± 0.010	HONES	70	PR D2 827

Reaction [211] $\pi^+p \rightarrow p\rho^0\pi^+\pi^-$

5.720	3.411	0.140 ± 0.060	DAO	70	
7.000	3.747	0.463	SLATTERY	67	
8.490 ± 0.060	4.103	0.509	KUNG	69	
18.500	5.968	0.210	HONES	70	PR D2 827

P_{beam} $E_{c.m.}$ σ (mb) References
(GeV/c) (GeV)

Reaction [212] $\pi^+p \rightarrow p\rho^-\pi^+\pi^0$

7.000	3.747	0.341 ± 0.068	SLATTERY	67	
8.490 ± 0.060	4.103	0.057 ± 0.050	KUNG	69	
18.500	5.968	0.076 ± 0.015	HONES	70	PR D2 827

Reaction [213] $\pi^+p \rightarrow p\rho\pi\pi$

4.000 ± 0.040	2.900	0.100 ± 0.020	ADERHOLZ	65	PR 138 8897
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Reaction [214] $\pi^+p \rightarrow p\rho^0\rho^0\pi^+$

7.000	3.747	0.131 ± 0.053	SLATTERY	67	
8.040 ± 0.060	3.999	0.108	BARDADIN-O	71	PR D4 2711
8.490	4.103	0.023	KUNG	69	PR D4 2711

Reaction [215] $\pi^+p \rightarrow p\rho\rho^0\pi^+$

8.040 ± 0.060	3.999	0.041 ± 0.033	BARDADIN-O	71	PR D4 2711
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Reaction [216] $\pi^+p \rightarrow pA_1^+\pi^+\pi^-$

5.000 ± 0.025	3.207	<0.030	DREVERMANN	67	PR 161 1356
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Reaction [217] $\pi^+p \rightarrow pA_1^-\pi^+\pi^-$

5.000 ± 0.025	3.207	<0.020	DREVERMANN	67	PR 161 1356
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Reaction [218] $\pi^+p \rightarrow pA_1^+\pi^+\pi^- + pA_1^-\pi^+\pi^-$

5.000 ± 0.025	3.207	<0.030	DREVERMANN	67	PR 161 1356
8.040	0.060	3.999	BARDADIN-O	71	PR D4 2711

Reaction [219] $\pi^+p \rightarrow pB^+\pi^+\pi^-$

5.000 ± 0.025	3.207	<0.040	DREVERMANN	67	PR 161 1356
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Reaction [220] $\pi^+p \rightarrow pB^-\pi^+\pi^-$

5.000 ± 0.025	3.207	<0.030	DREVERMANN	67	PR 161 1356
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* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
‡ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
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π^+p cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [221] $\pi^+p \rightarrow pB^+\pi^+\pi^- + pB^-\pi^+\pi^+$			
$\begin{array}{c} \nearrow \omega\pi^+ \quad \searrow \omega\pi^- \\ \nearrow \pi^+\pi^-\pi^0 \quad \searrow \pi^+\pi^-\pi^0 \end{array}$			
5.000 $\pm$ 0.025	3.207	<.025	DREVERMANN 67 PR 161 1356
8.040 $\pm$ 0.060	3.999	<.090	BARDADIN-O 71 PR D4 2711

Reaction [222] $\pi^+p \rightarrow pA_2^+\pi^+\pi^-$			
$\searrow \pi^+\pi^+\pi^-$			
5.000 $\pm$ 0.025	3.207	<.020	DREVERMANN 67 PR 161 1356

Reaction [223] $\pi^+p \rightarrow pA_2^-\pi^+\pi^+$			
$\searrow \pi^+\pi^-\pi^-$			
5.000 $\pm$ 0.025	3.207	<.010	DREVERMANN 67 PR 161 1356

Reaction [224] $\pi^+p \rightarrow pA_2^+\pi^+\pi^- + pA_2^-\pi^+\pi^+$			
$\begin{array}{c} \searrow \rho^0\pi^+ \quad \searrow \rho^0\pi^- \end{array}$			
5.000 $\pm$ 0.025	3.207	<.020	DREVERMANN 67 PR 161 1356
8.040 $\pm$ 0.060	3.999	<.030	BARDADIN-O 71 PR D4 2711

Reaction [225] $\pi^+p \rightarrow ppp\bar{p}\pi^+$			
8.040	3.999	0.016 $\pm$ 0.004	ADERHOLZ 69 NP B14 255
13.100	5.048	0.014 $\pm$ 0.005	GAIDOS 71 NP B32 10

Reaction [226] $\pi^+p \rightarrow p\Lambda\bar{\Lambda}\pi^+$			
8.500	4.105	0.001 $\pm$ 0.001	KREBS 70

Reaction [227] $\pi^+p \rightarrow \Delta(1238)^{++}\pi^+\pi^-\pi^0$			
$\searrow p\pi^+$

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P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
1.585 $\pm$ 0.015	1.971	0.200 $\pm$ 0.030	DARONIAN 66 NC 41 503
1.950	2.137	0.390 $\pm$ 0.050	CHAPMAN 71 PR D 3 38
2.340	2.302	0.410	ANGELOV 69 JINRP P1-4611
2.350	2.306	0.130	ALFF-STEIN 66 PR 145 1072
2.620	2.413	0.230	ALFF-STEIN 66 PR 145 1072
2.900	2.520	0.100	ALFF-STEIN 66 PR 145 1072
2.950	2.538	0.990	BROWN 68 UCRL 18254
3.190	2.625	0.130	BROWN 68 UCRL 18254
3.500	2.734	1.870	RONAT 72 NP B38 20
3.530	2.744	0.120	BROWN 68 UCRL 18254
3.650	2.785	0.300	SHEN 65 UCRL 16170
3.740	2.815	0.130	BROWN 68 UCRL 18254
3.920	2.874	0.190	WINKELMANN 68 PR 138 8897
4.000	2.900	0.220	ADERHOLZ 65 PR 138 8897
4.080	2.926	0.030	BROWN 68 UCRL 18254
5.720	3.411	0.220	DAO 70
7.000	3.747	0.153	SLATTERY 67
8.490	4.103	0.227	KUNG 69
18.500	5.968	0.200 $\pm$ 0.010	HONES 70 PR D2 827

Plot precedes data.

Reaction [228] $\pi^+p \rightarrow \Delta(1238)^{++}\rho^0\pi^+\pi^-$			
$\begin{array}{c} \searrow p\pi^+ \quad \searrow \pi^+\pi^- \end{array}$			
8.040 $\pm$ 0.060	3.999	0.066 $\pm$ 0.047	BARDADIN-O 71 PR D4 2711
8.040 $\pm$ 0.060	3.999	0.053 $\pm$ 0.032	BARDADIN-O 71 PR D4 2711

Reaction [229] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$			
$\begin{array}{c} \searrow p\pi^+ \quad \searrow \pi^+\pi^-\pi^0 \end{array}$			
8.040 $\pm$ 0.060	3.999	0.265 $\pm$ 0.037	BARDADIN-O 71 PR D4 2711

Reaction [230] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$			
$\begin{array}{c} \searrow p\pi^+ \quad \searrow \pi^+\pi^-\pi^0 + \text{<other mode>} \end{array}$			
8.040 $\pm$ 0.060	3.999	0.199 $\pm$ 0.040	BARDADIN-O 71 PR D4 2711

Reaction [231] $\pi^+p \rightarrow \Delta(1238)^{++}\omega\pi^+\pi^-$			
$\begin{array}{c} \searrow \pi^+\pi^-\pi^0 + \text{<other mode>} \end{array}$			
4.000	2.900	0.150 $\pm$ 0.033	BONDAR 66 NC 44A 530

Reaction [232] $\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-$			
$\searrow p\pi^0$			
7.000	3.747	0.120 $\pm$ 0.048	SLATTERY 67
8.490 $\pm$ 0.060	4.103	0.078 $\pm$ 0.050	KUNG 69
8.500	5.968	0.061 $\pm$ 0.006	HONES 70 PR D2 827

Reaction [233] $\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^0$			
$\searrow p\pi^-$			
5.720	3.411	0.240 $\pm$ 0.070	DAO 70
7.000	3.747	0.184 $\pm$ 0.060	SLATTERY 67
8.490 $\pm$ 0.060	4.103	0.174 $\pm$ 0.085	KUNG 69

Reaction [234] $\pi^+p \rightarrow \Delta(1238)^-\pi^+\pi^+\pi^+$			
$\searrow n\pi^-$			
4.000 $\pm$ 0.040	2.900	0.250	ADERHOLZ 65 PR 138 8897

Reaction [235] $\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-$			
$\searrow p\pi^+\pi^-$			
8.040 $\pm$ 0.060	3.999	<.037	BARDADIN-O 71 PR D4 2711

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [236] $\pi^+p \rightarrow N(1700)^+ \pi^+ \pi^+ \pi^-$ $\quad \quad \quad \rightarrow p \pi^+ \pi^-$			
8.040 $\pm$ 0.060	3.999	< 0.035	BARDADIN-O 71 PR 04 2711

Reaction [237] $\pi^+p \rightarrow pK^+K^-\pi^+$			
3.430	2.710	0.120 $\pm$ 0.035	ABOLINS 63 PRL 11 381
3.540	2.747	0.120 0.020	ABOLINS 63 PRL 11 381
3.650	2.785	0.100 0.020	TRILLING 65 PL 19 427
3.700	2.801	0.080 0.008	BUTLER 70 UCRL 19845
4.000	2.900	0.059 0.024	BARTSCH 66 NC 43A 1010
5.000	3.207	0.148 0.008	BOECKMANN 70 NP B16 221
8.000	3.989	0.073 0.010	ADERHOLZ 69 NP B11 259
8.500	4.105	0.060 0.008	KREBS 70
13.100	5.048	0.039 0.008	GAIDOS 71 NP B32 10

Reaction [238] $\pi^+p \rightarrow pK^+ \bar{K}^0 \pi^0$			
2.350 $\pm$ 2.620	2.306	0.014 $\pm$ 0.008	BERLEY 65 PR 139B1097
- 2.900			
2.770 $\pm$ 0.040	2.471	0.022 0.008	YAMAMOTO 64 PR 134 B383
4.000	2.900	0.059 0.014	BARTSCH 66 NC 43A 1010
5.500	3.350	0.056 0.007	COOPER 70 NP B23 605
8.000	3.989	0.062 0.006	ADERHOLZ 69 NP B11 259
8.500	4.105	0.048 0.010	KREBS 70

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [239] $\pi^+p \rightarrow pK^+ \bar{K}^0 \pi^+ \pi^0$			
4.000	2.900	0.018 $\pm$ 0.013	BARTSCH 66 NC 43A 1010

Reaction [240] $\pi^+p \rightarrow pK_S^0 K_S^0 \pi^+$			
2.770 $\pm$ 0.040	2.471	0.005 $\pm$ 0.003	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.022 0.004	BUTLER 70 UCRL 19845
8.000	3.989	0.018 0.003	ADERHOLZ 69 NP B11 259

Reaction [241] $\pi^+p \rightarrow pK_S^0 K_L^0 \pi^+$			
2.770 $\pm$ 0.040	2.471	0.013 $\pm$ 0.005	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.020 0.005	BUTLER 70 UCRL 19845
8.000	3.989	0.037 0.003	ADERHOLZ 69 NP B11 259

Reaction [242] $\pi^+p \rightarrow pK^0 \bar{K}^0 \pi^+$			
2.350 $\pm$ 2.620	2.306	0.016 $\pm$ 0.007	BERLEY 65 PR 139B1097
- 2.900			
3.650	2.785	0.120 0.030	TRILLING 65 PL 19 427
3.700	2.801	0.064 0.007	BUTLER 70 UCRL 19845
4.000	2.900	0.087 0.014	BARTSCH 66 NC 43A 1010
5.500	3.350	0.174 0.026	COOPER 70 NP B23 605
8.500	4.105	0.100 0.015	KREBS 70
8.500	4.105	0.092 0.028	KREBS 70

Reaction [243] $\pi^+p \rightarrow nK^+ \bar{K}^0 \pi^+$			
2.350 $\pm$ 2.620	2.306	0.014 $\pm$ 0.009	BERLEY 65 PR 139B1097
- 2.900			
2.770 $\pm$ 0.040	2.471	0.019 0.007	YAMAMOTO 64 PR 134 B383
4.000	2.900	0.080 0.016	BARTSCH 66 NC 43A 1010
5.500	3.350	0.039 0.005	COOPER 70 NP B23 605
8.000	3.989	0.049 0.012	ADERHOLZ 69 NP B11 259
8.500	4.105	0.047 0.010	KREBS 70

See plot on the following page.

* DATA READ FROM GRAPH
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π^+p cross sections

P_{beam} (GeV/c) $E_{\text{c.m.}}$ (GeV) σ (mb) References

Reaction [244] $\pi^+p \rightarrow K^+\bar{K}^0\pi^+MM(>N)$

4.000 2.900 0.030 $\pm$ 0.015 BARTSCH 66 NC 43A 1010

Reaction [245] $\pi^+p \rightarrow \Lambda K^+\pi^+\pi^0$

1.700	2.025	0.000 $\pm$ 0.000	PAN	70	PR D 2 449
1.950	2.137	0.010	DAGAN	67	PR 161 1384
2.350 + 2.620 - 2.900	2.306	0.061	BERLEY	65	PR 139B1097
2.770 $\pm$ 0.040	2.471	0.084	YAMAMOTO	64	PR 134 8383
3.700	2.801	0.121	BUTLER	70	UCRL 19845
4.000	2.900	0.148	BARTSCH	66	NC 43A 1010
5.500	3.350	0.127	COOPER	70	NP B23 605
8.000	3.989	0.075	ADERSHOLZ	69	NP B11 259
8.500	4.105	0.054	KREBS	70

P_{beam} (GeV/c) $E_{\text{c.m.}}$ (GeV) σ (mb) References

Reaction [246] $\pi^+p \rightarrow \Lambda K^+\pi^+MM(>\pi^0)$

4.000 2.900 0.023 $\pm$ 0.010 $\dagger$ BARTSCH 66 NC 43A 1010

Reaction [247] $\pi^+p \rightarrow \Lambda K_S^0\pi^+\pi^+$

8.500 4.105 0.056 $\pm$ 0.012 KREBS 70

Reaction [248] $\pi^+p \rightarrow \Lambda K_L^0\pi^+\pi^+$

8.500 4.105 0.060 $\pm$ 0.010 KREBS 70

Reaction [249] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+$

1.700	2.025	0.001 $\pm$ 0.000	PAN	70	PR D 2 449
2.350 + 2.620 - 2.900	2.306	0.081	BERLEY	65	PR 139B1097
3.700	2.801	0.062	0.009 $\dagger$	BUTLER	70 UCRL 19845
5.500	3.350	0.088	0.014 $\dagger$	COOPER	70 NP B23 605
8.000	3.989	0.071	0.006	ADERSHOLZ	69 NP B11 259
8.500	4.105	0.034	0.012	KREBS	70

Reaction [250] $\pi^+p \rightarrow \Lambda K^0\pi^+\pi^+ + \Lambda K^+\pi^+\pi^0$

2.350	2.306	0.064 $\pm$ 0.019	BERLEY	65	PR 139B1097
2.620	2.413	0.190	BERLEY	65	PR 139B1097
2.900	2.520	0.190	BERLEY	65	PR 139B1097

Reaction [251]

$\pi^+p \rightarrow \Lambda\pi^+\pi^+MM(>K^0) + \Lambda K^+\pi^+MM(>\pi^0)$

8.000 3.989 0.141 $\pm$ 0.013 ADERSHOLZ 69 NP B11 259

* DATA READ FROM GRAPH
 $\dagger$ SEE DATA LISTING FOR ADDITIONAL COMMENTS
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π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [252] $\pi^+p \rightarrow \Sigma^0 K^0 \pi^+ \pi^+$			
2.350 + 2.620 - 2.900	2.306	<.008	BERLEY 65 PR 139B1097
3.700	2.801	0.023 +- 0.006	BUTLER 70 UCRL 19845
8.500	4.105	0.011 0.006	KREBS 70

Reaction [253] $\pi^+p \rightarrow \Lambda K^0 \pi^+ \pi^+ + \Sigma^0 K^0 \pi^+ \pi^+$			
1.950	2.137	0.015 +- 0.011	DAGAN 67 PR 161 1384
2.770 +- 0.040	2.471	0.085 0.012	YAMAMOTO 64 PR 134 B383
4.000	2.900	0.091 0.010	BARTSCH 66 NC 43A 1010

Reaction [254] $\pi^+p \rightarrow \Lambda K^+ \rho^0 \pi^+ \rightarrow \pi^+ \pi^-$			
8.500	4.105	0.017 +- 0.008	KREBS 70

Reaction [255] $\pi^+p \rightarrow \Lambda K^*(890)^+ \pi^+ \pi^0 \rightarrow K^0 \pi^+$			
8.000	3.989	0.015 +- 0.005	ADERHOLZ 69 NP B11 259

Reaction [256] $\pi^+p \rightarrow \Lambda K^*(890)^0 \pi^+ \pi^+ \rightarrow K^+ \pi^-$			
8.500	4.105	0.017 +- 0.008	KREBS 70

Reaction [257] $\pi^+p \rightarrow \Sigma^+ K^+ \pi^+ \pi^-$			
2.770 +- 0.040	2.471	0.007 +- 0.003	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.118 0.017	BUTLER 70 UCRL 19845
4.000	2.900	0.052 0.008	BARTSCH 66 NC 43A 1010
5.500	3.350	0.037 0.005	COOPER 70 NP 823 605

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [258] $\pi^+p \rightarrow \Sigma^+ K^0 \pi^+ \pi^0$			
2.350 + 2.620 - 2.900	2.306	<.006	BERLEY 65 PR 139B1097
2.770 +- 0.040	2.471	0.037 +- 0.006	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.066 0.014	BUTLER 70 UCRL 19845
4.000	2.900	0.040 0.013	BARTSCH 66 NC 43A 1010

Reaction [259] $\pi^+p \rightarrow \Sigma^+ K^0 \pi^+ \pi^0 \text{MM}(>\pi^0)$			
4.000	2.900	0.029 +- 0.021	BARTSCH 66 NC 43A 1010

Reaction [260] $\pi^+p \rightarrow \Sigma^- K^+ \pi^+ \pi^+$			
2.770 +- 0.040	2.471	0.013 +- 0.004	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.019 0.004	BUTLER 70 UCRL 19845
4.000	2.900	0.010 0.003	BARTSCH 66 NC 43A 1010
5.500	3.350	0.010 0.002	COOPER 70 NP 823 605

Reaction [261] $\pi^+p \rightarrow Y^*(1385)^+ K^+ \pi^+ \pi^- \rightarrow \Lambda \pi^+$			
8.500	4.105	0.008 +- 0.002	KREBS 70

Reaction [262] $\pi^+p \rightarrow Y^*(1385)^+ K^0 \pi^+ \pi^0 \rightarrow \Lambda \pi^+$			
8.000	3.989	0.012 +- 0.004	ADERHOLZ 69 NP B11 259

Reaction [263] $\pi^+p \rightarrow Y^*(1385)^- K^+ \pi^+ \pi^+ \rightarrow \Lambda \pi^-$			
8.500	4.105	0.002 +- 0.002	KREBS 70

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π^+p cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [264] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$			
1.040	1.694	<0.004	† FOELSCH 64 PR 13481138
1.222	1.791	0.074	† FOELSCH 64 PR 13481138
1.393	1.878	0.220	† FOELSCH 64 PR 13481138
1.585 ± 0.015	1.971	0.500	† DARONIAN 66 NC 41 503
1.950	2.137	2.070	† CHAPMAN 71 PR D 3 38
2.080	2.194	2.410	† JAMES 66 PR 142 896
2.300	2.286	2.400	† KO 71
2.340	2.302	3.070	† ANGELOV 69 JINRP P1-461
2.350	0.015	2.306	† ALFF-STEIN 66 PR 145 1072
2.620	0.015	2.413	† ALFF-STEIN 66 PR 145 1072
2.670		2.432	† KO 71
2.750		2.463	† ARMENISE 65 NC 40A 273
2.770	0.040	2.471	† YAMAMOTO 65 PR 140 8730
2.900	0.015	2.520	† ALFF-STEIN 66 PR 145 1072
2.950		2.538	† BROWN 68 UCRL 18254
3.190		2.625	† BROWN 68 UCRL 18254
3.430		2.710	† ABOLINS 63 PRL 11 381
3.500		2.734	† RONAT 72 NP 838 20
3.530		2.744	† BROWN 68 UCRL 18254
3.540		2.747	† ABOLINS 63 PRL 11 381
3.560		2.754	† MACNAUGHTO 71 UCRL 20178
3.650		2.785	† GOLDBERGER 64 PRL 12 336
3.670		2.791	† MACNAUGHTO 71 UCRL 20178
3.700		2.801	† ABRAMS 70 PRL 25 617
3.740		2.815	† BROWN 68 UCRL 18254
3.920		2.874	† WINKELMANN 68
4.000	0.040	2.900	† ADERHOLZ 65 PR 138 8897
4.080		2.926	† BROWN 68 UCRL 18254
5.000		3.207	† BOECKMANN 70 NP 816 221
5.450		3.336	† BLOODWORTH 71 NP 835 79
5.720		3.411	† DAO 70
7.000		3.747	† SLATTERY 67
8.040	0.040	3.999	† ADERHOLZ 68 NP 88 45
8.490	0.060	4.103	† KUNG 69 NP 88 45
11.700		4.781	† EVANS 71 PR D3 2606
16.000		5.561	† BALLAM 71 PR D2 827
18.500		5.968	† HONES 70 PR D2 827

Reaction [265] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$ background

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
2.340 ± 0.060	2.302	1.200 ± 0.090	† ANGELOV 69 JINRP P1-46
2.950	2.538	0.320	† BROWN 68 UCRL 18254
3.190	2.625	1.060	† BROWN 68 UCRL 18254
3.500	2.734	0.730	† RONAT 72 NP 838 20
3.530	2.744	1.180	† BROWN 68 UCRL 18254
3.650	2.785	1.010	† SHEN 65 UCRL 16170
3.740	2.815	1.330	† BROWN 68 UCRL 18254
4.000	0.040	2.900	† ADERHOLZ 65 PR 138 8897
4.080		2.926	† BROWN 68 UCRL 18254
18.500		5.968	† HONES 70 PR D2 827

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P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [266] $\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0$			
2.750	2.463	0.670 ± 0.040	† ARMENISE 66 NC 41A 159
3.500	2.734	1.040	† RONAT 72 NP 838 20
3.560	2.754	1.130	† MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.990	† MACNAUGHTO 71 UCRL 20178
4.000 ± 0.040	2.900	1.330	† ADERHOLZ 65 PR 138 8897
5.000	3.207	2.300	† BOECKMANN 70 NP 816 221
8.040	0.040	3.999	† ADERHOLZ 68 NP 88 45

Reaction [267] $\pi^+p \rightarrow p\pi^+\pi^0\pi^0\pi^0$			
2.050	2.181	0.680 ± 0.200	† JACQUET 69 NC 63A 743

Reaction [268] $\pi^+p \rightarrow n\pi^+\pi^+\pi^-\pi^0$			
1.585 ± 0.015	1.971	0.070 ± 0.020	† DARONIAN 66 NC 41 503
1.950	2.137	0.180	† CHAPMAN 71 PR D 3 38
2.080	2.194	0.260	† JAMES 66 PR 142 896
2.340	0.060	2.302	† ANGELOV 69 JINRP P1-461
2.350	0.015	2.306	† ALFF-STEIN 66 PR 145 1072
2.620	0.015	2.413	† ALFF-STEIN 66 PR 145 1072
2.750		2.463	† ARMENISE 66 NC 41A 159
2.770	0.040	2.471	† YAMAMOTO 65 PR 140 8730
2.900	0.015	2.520	† ALFF-STEIN 66 PR 145 1072
2.950		2.538	† BROWN 68 UCRL 18254
3.190		2.625	† BROWN 68 UCRL 18254
3.430		2.710	† ABOLINS 63 PRL 11 381
3.500		2.734	† RONAT 72 NP 838 20
3.530		2.744	† BROWN 68 UCRL 18254
3.540		2.747	† ABOLINS 63 PRL 11 381
3.560		2.754	† MACNAUGHTO 71 UCRL 20178
3.650		2.785	† GOLDBERGER 64 PRL 12 336
3.670		2.791	† MACNAUGHTO 71 UCRL 20178
3.740		2.815	† BROWN 68 UCRL 18254
4.000	0.040	2.900	† ADERHOLZ 65 PR 138 8897
4.080		2.926	† BROWN 68 UCRL 18254
5.000		3.207	† POLS 70 NP 825 109
8.040	0.040	3.999	† ADERHOLZ 68 NP 88 45

Reaction [269] $\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^-\pi^0$

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
2.750	2.463	0.170 ± 0.020	† ARMENISE 66 NC 41A 159
3.500	2.734	0.380	† RONAT 72 NP 838 20
3.560	2.754	0.510	† MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.520	† MACNAUGHTO 71 UCRL 20178
4.000 ± 0.040	2.900	0.870	† ADERHOLZ 65 PR 138 8897
5.000	3.207	1.180	† POLS 70 NP 825 109
8.040	0.040	3.999	† ADERHOLZ 68 NP 88 45

π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [270]

2.770 $\pm$ 0.040	2.471	0.600 $\pm$ 0.050	YAMAMOTO 65 PR 140 8730
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Reaction [271]

1.020	1.683	0.110 $\pm$ 0.040	METZGER 67 PR 164 1680
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Reaction [272]

4.000	2.900	0.106 $\pm$ 0.035	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.100	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999	0.090 0.035 BARDADIN-O 71 PR D4 2711

Reaction [273]

5.450	3.336	10.055 $\pm$ 0.005	BLOODWORTH 72 NP 839 525
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Reaction [274]

5.000 $\pm$ 0.025	3.207	0.027 $\pm$ 0.006	DREVERMANN 67 PR 161 1356
7.000	3.747	0.047	0.020 SLATTERY 67
8.490	0.060	4.103	0.024 0.009 KUNG 69

Reaction [275]

5.000 $\pm$ 0.025	3.207	0.260 $\pm$ 0.050	DREVERMANN 67 PR 161 1356
7.000	3.747	0.183	0.076 SLATTERY 67
8.040	0.060	3.999	0.078 0.075 BARDADIN-O 71 PR D4 2711
8.490	0.060	4.103	0.229 0.028 KUNG 69 PR D4 2711

Reaction [276]

4.000	2.900	0.028 $\pm$ 0.028	BONDAR 66 NC 44A 530
8.040 $\pm$ 0.060	3.999	0.036	0.043 BARDADIN-O 71 PR D4 2711
8.040	0.060	3.999	0.289 0.043 BARDADIN-O 71 PR D4 2711

Reaction [277]

4.000	2.900	0.178 $\pm$ 0.026	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.260	0.030 DREVERMANN 67 PR 161 1356
7.000	3.747	0.346	0.072 SLATTERY 67
8.490	0.060	4.103	0.290 0.050 KUNG 69

Reaction [278]

5.000 $\pm$ 0.025	3.207	<0.030	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999	<0.060 BARDADIN-O 71 PR D4 2711

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [279]

5.000 $\pm$ 0.025	3.207	<0.030	DREVERMANN 67 PR 161 1356
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Reaction [280]

5.000 $\pm$ 0.025	3.207	<0.020	DREVERMANN 67 PR 161 1356
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Reaction [281]

8.040 $\pm$ 0.060	3.999	<0.050	BARDADIN-O 71 PR D4 2711
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Reaction [282]

5.000 $\pm$ 0.025	3.207	<0.005	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999	<0.020 BARDADIN-O 71 PR D4 2711

Reaction [283]

5.000 $\pm$ 0.025	3.207	<0.010	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999	<0.050 BARDADIN-O 71 PR D4 2711

Reaction [284]

5.000 $\pm$ 0.025	3.207	<0.015	DREVERMANN 67 PR 161 1356
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Reaction [285]

5.000 $\pm$ 0.025	3.207	<0.010	DREVERMANN 67 PR 161 1356
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Reaction [286]

8.040 $\pm$ 0.060	3.999	<0.040	BARDADIN-O 71 PR D4 2711
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Reaction [287]

4.000	2.900	0.204 $\pm$ 0.039	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.250	0.050 DREVERMANN 67 PR 161 1356
7.000	3.747	0.194	0.036 SLATTERY 67
8.040	0.060	3.999	0.158 0.034 BARDADIN-O 71 PR D4 2711
8.490	0.060	4.103	0.235 0.033 KUNG 69 PR D4 2711

Reaction [288]

8.040 $\pm$ 0.060	3.999	0.100 $\pm$ 0.053	BARDADIN-O 71 PR D4 2711
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π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [289]	$\pi^+p \rightarrow \Delta(1238)^0 \pi^+ \pi^+ \pi^-$ $\quad \quad \quad \rightarrow p \pi^-$		
5.000 $\pm$ 0.025	3.207	<0.020	DREVERMANN 67 PR 161 1356
7.000	3.747	0.037 $\pm$ 0.018	SLATTERY 67
8.040 $\pm$ 0.060	3.999	0.046 $\pm$ 0.018	BARDADIN-O 71 PR D4 2711
Reaction [290]	$\pi^+p \rightarrow N(1512)^+ \pi^+ \pi^- \pi^0$ $\quad \quad \quad \rightarrow p \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.058	BARDADIN-O 71 PR D4 2711
Reaction [291]	$\pi^+p \rightarrow N(1512)^+ \pi^+ \pi^- \pi^- MM(>\pi^0)$ $\quad \quad \quad \rightarrow p \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.110	BARDADIN-O 71 PR D4 2711
Reaction [292]	$\pi^+p \rightarrow N(1512)^0 \pi^+ \pi^+ \pi^-$ $\quad \quad \quad \rightarrow p \pi^- + p \pi^- \pi^0 + n \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.072	BARDADIN-O 71 PR D4 2711
Reaction [293]	$\pi^+p \rightarrow N(1688)^+ \pi^+ \pi^- \pi^0$ $\quad \quad \quad \rightarrow p \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.082	BARDADIN-O 71 PR D4 2711
Reaction [294]	$\pi^+p \rightarrow N(1688)^+ \pi^+ \pi^- \pi^- MM(>\pi^0)$ $\quad \quad \quad \rightarrow p \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.120	BARDADIN-O 71 PR D4 2711
Reaction [295]	$\pi^+p \rightarrow N(1688)^0 \pi^+ \pi^+ \pi^-$ $\quad \quad \quad \rightarrow p \pi^- + p \pi^- \pi^0 + n \pi^+ \pi^-$		
8.040 $\pm$ 0.060	3.999	<0.088	BARDADIN-O 71 PR D4 2711
Reaction [296]	$\pi^+p \rightarrow p K^+ K^- \pi^+ \pi^0$		
4.000	2.900	0.054 $\pm$ 0.024	BARTSCH 66 NC 43A 1010
Reaction [297]	$\pi^+p \rightarrow p K^+ \bar{K}^0 \pi^+ \pi^-$		
4.000	2.900	0.012 $\pm$ 0.006	BARTSCH 66 NC 43A 1010
5.500	3.350	0.023 $\pm$ 0.005	COOPER 70 NP 823 605
Reaction [298]	$\pi^+p \rightarrow p K^+ K_S^0 \pi^+ \pi^-$		
5.100	3.236	0.019 $\pm$ 0.005	METTEL 70

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P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [299]	$\pi^+p \rightarrow p K_S^0 K_S^0 \pi^+ \pi^0$		
8.000	3.989	0.004 $\pm$ 0.002	ADERHOLZ 69 NP B11 259
Reaction [300]	$\pi^+p \rightarrow p K^0 \bar{K}^0 \pi^+ \pi^0$		
4.000	2.900	0.030 $\pm$ 0.017	BARTSCH 66 NC 43A 1010
8.500	4.105	0.043 $\pm$ 0.015	KREBS 70
Reaction [301]	$\pi^+p \rightarrow p K^0 \bar{K}^0 \pi^+ MM(>\pi^0)$		
4.000	2.900	0. $\pm$ 0.019	BARTSCH 66 NC 43A 1010
Reaction [302]	$\pi^+p \rightarrow p K^- K_S^0 \pi^+ \pi^+$		
5.100	3.236	0.010 $\pm$ 0.002	METTEL 70
Reaction [303]	$\pi^+p \rightarrow p K^- K^0 \pi^+ \pi^+$		
4.000	2.900	0.021 $\pm$ 0.008	BARTSCH 66 NC 43A 1010
5.500	3.350	0.021 $\pm$ 0.005	COOPER 70 NP 823 605
Reaction [304]	$\pi^+p \rightarrow p K^+ \bar{K}^0 \pi^+ \pi^- + p K^- K^0 \pi^+ \pi^+$		
8.040 $\pm$ 0.060	3.999	[0.170 $\pm$ 0.017]	SABAU 71 NCL 1 514
8.500	4.105	0.106 $\pm$ 0.019	KREBS 70 NCL 1 514
Reaction [305]	$\pi^+p \rightarrow n K^+ K^- \pi^+ \pi^+$		
4.000	2.900	0.066 $\pm$ 0.038	BARTSCH 66 NC 43A 1010
Reaction [306]	$\pi^+p \rightarrow n K_S^0 K_S^0 \pi^+ \pi^+$		
8.000	3.989	0.008 $\pm$ 0.002	ADERHOLZ 69 NP B11 259
Reaction [307]	$\pi^+p \rightarrow n K^0 \bar{K}^0 \pi^+ \pi^+$		
4.000	2.900	0.038 $\pm$ 0.022	BARTSCH 66 NC 43A 1010
8.500	4.105	0.030 $\pm$ 0.015	KREBS 70
Reaction [308]	$\pi^+p \rightarrow \Lambda K^+ \pi^+ \pi^-$		
5.500	3.350	0.020 $\pm$ 0.003	COOPER 70 NP 823 605
8.000	3.989	0.056 $\pm$ 0.010	ADERHOLZ 69 NP B11 259
8.500	4.105	0.030 $\pm$ 0.008	KREBS 70
Reaction [309]	$\pi^+p \rightarrow \Sigma^0 K^+ \pi^+ \pi^-$		
8.500	4.105	0.024 $\pm$ 0.007	KREBS 70

π^+p cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [310] $\pi^+p \rightarrow \Lambda K^+ \pi^+ \pi^- + \Sigma^0 K^+ \pi^+ \pi^-$			
4.000	2.900	0.026 $\pm$ 0.007	BARTSCH 66 NC 43A 1010

Reaction [311] $\pi^+p \rightarrow \Lambda K^0 \pi^+ \pi^0$			
4.000	2.900	0.020 $\pm$ 0.012 $\dagger$	BARTSCH 66 NC 43A 1010
8.000	3.989	0.049 $\pm$ 0.008	ADERHOLZ 69 NP B11 259
8.500	4.105	0.046 $\pm$ 0.013	KREBS 70

Reaction [312] $\pi^+p \rightarrow \Lambda K^0 \pi^+ \pi^- MM(>\pi^0)$			
4.000	2.900	0.017 $\pm$ 0.020 $\dagger$	BARTSCH 66 NC 43A 1010
8.000	3.989	0.036 $\pm$ 0.017 $\dagger$	ADERHOLZ 69 NP B11 259

Reaction [313] $\pi^+p \rightarrow \Sigma^+ K^+ \pi^+ \pi^- \pi^0$			
4.000	2.900	0.030 $\pm$ 0.006	BARTSCH 66 NC 43A 1010

Reaction [314] $\pi^+p \rightarrow \Sigma^+ K^+ \pi^+ \pi^- MM(>\pi^0)$			
4.000	2.900	0.014 $\pm$ 0.006	BARTSCH 66 NC 43A 1010

Reaction [315] $\pi^+p \rightarrow \Sigma^+ K^0 \pi^+ \pi^-$			
4.000	2.900	0.011 $\pm$ 0.004	BARTSCH 66 NC 43A 1010
5.500	3.350	0.011 $\pm$ 0.003 $\dagger$	COOPER 70 NP B23 605
8.500	4.105	0.005 $\pm$ 0.003	KREBS 70

Reaction [316] $\pi^+p \rightarrow \Sigma^- K^+ \pi^+ \pi^0$			
4.000	2.900	0.008 $\pm$ 0.003	BARTSCH 66 NC 43A 1010

Reaction [317] $\pi^+p \rightarrow \Sigma^- K^0 \pi^+ \pi^+$			
4.000	2.900	0.007 $\pm$ 0.003	BARTSCH 66 NC 43A 1010
8.500	4.105	0.005 $\pm$ 0.003	KREBS 70

Reaction [318] $\pi^+p \rightarrow p \pi^+ \pi^+ \pi^- \pi^-$			
2.080	2.194	0.010	JAMES 66 PR 142 896
3.560	2.754	0.200 $\pm$ 0.020	MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.220 $\pm$ 0.020	MACNAUGHTO 71 UCRL 20178
4.000	2.900	0.249 $\pm$ 0.036	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.410 $\pm$ 0.020	DREVERMANN 67 PR 161 1356
7.000	3.747	0.390 $\pm$ 0.032	SLATTERY 67 PR 161 1356
8.040	0.060	3.999 $\pm$ 0.400	BARDADIN-O 71 PR D4 2711
8.490	0.060	4.103 $\pm$ 0.447	KUNG 69 PR D4 2711

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Reaction [319] $\pi^+p \rightarrow p \pi^+ \pi^+ \pi^- \pi^0 \pi^0$			
5.450	3.336	0.980 $\pm$ 0.140 $\dagger$	BLOODWORTH 72 NP B39 525

Reaction [320] $\pi^+p \rightarrow p \rho^+ \pi^+ \pi^- \pi^- \rightarrow \pi^+ \pi^0$			
5.000 $\pm$ 0.025	3.207	<0.020	DREVERMANN 67 PR 161 1356
7.000	3.747	0.222 $\pm$ 0.061 $\dagger$	SLATTERY 67
8.040	0.060	3.999 $\pm$ 0.086	0.029 $\dagger$ BARDADIN-O 71 PR D4 2711

Reaction [321] $\pi^+p \rightarrow p \rho^0 \pi^+ \pi^- \pi^0 \rightarrow \pi^+ \pi^-$			
5.000 $\pm$ 0.025	3.207	<0.030	DREVERMANN 67 PR 161 1356
7.000	3.747	0.325 $\pm$ 0.328 $\dagger$	SLATTERY 67
8.040	0.060	3.999 $\pm$ 0.320	0.049 $\dagger$ BARDADIN-O 71 PR D4 2711
8.040	0.060	3.999 $\pm$ 0.143	0.057 $\dagger$ BARDADIN-O 71 PR D4 2711

Reaction [322] $\pi^+p \rightarrow p \rho^- \pi^+ \pi^+ \pi^- \rightarrow \pi^- \pi^0$			
5.000 $\pm$ 0.025	3.207	<0.015	DREVERMANN 67 PR 161 1356
7.000	3.747	0.089 $\pm$ 0.026 $\dagger$	SLATTERY 67
8.040	0.060	3.999 $\pm$ 0.053	0.023 $\dagger$ BARDADIN-O 71 PR D4 2711

Reaction [323] $\pi^+p \rightarrow p f \pi^+ \pi^+ \pi^- \pi^0 \rightarrow \pi^+ \pi^-$			
5.000 $\pm$ 0.025	3.207	<0.001	$\dagger$ DREVERMANN 67 PR 161 1356
8.040	0.060	3.999 $\pm$ <0.020	$\dagger$ BARDADIN-O 71 PR D4 2711

Reaction [324] $\pi^+p \rightarrow n \rho^0 \pi^+ \pi^+ \pi^- \rightarrow \pi^+ \pi^-$			
8.040 $\pm$ 0.060	3.999	0.034 $\pm$ 0.031 $\dagger$	BARDADIN-O 71 PR D4 2711

π^+p cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [325]		$\pi^+p \rightarrow n\pi^+\pi^+\pi^-\pi^-$ $\rightarrow \pi^+\pi^-$	
8.040 $\pm$ 0.060	3.999	<.015	† BARDADIN-O 71 PR D4 2711

Reaction [326]		$\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-\pi^0$ $\rightarrow p\pi^+$	
4.000	2.900	0.197	0.035 BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.350	0.050 DREVERMANN 67 PR 161 1356
7.000	3.747	0.342	0.073 † SLATTERY 67
8.040	3.999	0.330	0.056 † BARDADIN-O 71 PR D4 2711
8.040	0.060	0.033	0.060 † BARDADIN-O 71 PR D4 2711
8.490	0.060	4.103	0.283 KUNG 69 PR D4 2711

Reaction [327]		$\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-\pi^-$ $\rightarrow p\pi^0$	
5.000 $\pm$ 0.025	3.207	<.020	† DREVERMANN 67 PR 161 1356
7.000	3.747	0.030 $\pm$ 0.021	† SLATTERY 67
8.040	0.060	0.026	† BARDADIN-O 71 PR D4 2711

Reaction [328]		$\pi^+p \rightarrow \Delta(1238)^+\pi^+\pi^+\pi^-\pi^-$ $\rightarrow n\pi^+$	
8.040 $\pm$ 0.060	3.999	<.016	† BARDADIN-O 71 PR D4 2711

Reaction [329]		$\pi^+p \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^-\pi^0$ $\rightarrow p\pi^-$	
5.000 $\pm$ 0.025	3.207	<.030	† DREVERMANN 67 PR 161 1356
7.000	3.747	0.050 $\pm$ 0.036	† SLATTERY 67
8.040	0.060	0.045	0.028 † BARDADIN-O 71 PR D4 2711

Reaction [330]		$\pi^+p \rightarrow \Delta(1238)^-\pi^+\pi^+\pi^+\pi^-$ $\rightarrow n\pi^-$	
8.040 $\pm$ 0.060	3.999	0.175 $\pm$ 0.033	† BARDADIN-O 71 PR D4 2711

Reaction [331]		$\pi^+p \rightarrow N(1512)^+\pi^+\pi^+\pi^-\pi^-$ $\rightarrow p\pi^0 + n\pi^+$	
8.040 $\pm$ 0.060	3.999	<.056	† BARDADIN-O 71 PR D4 2711

Reaction [332]		$\pi^+p \rightarrow N(1512)^0\pi^+\pi^+\pi^-\pi^0$ $\rightarrow p\pi^-$	
8.040 $\pm$ 0.060	3.999	<.014	† BARDADIN-O 71 PR D4 2711

Reaction [333]		$\pi^+p \rightarrow N(1512)^0\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$ $\rightarrow p\pi^-$	
8.040 $\pm$ 0.060	3.999	<.044	† BARDADIN-O 71 PR D4 2711

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [334]		$\pi^+p \rightarrow N(1700)^+\pi^+\pi^+\pi^-\pi^-$ $\rightarrow p\pi^0 + n\pi^+$	
8.040 $\pm$ 0.060	3.999	<.056	† BARDADIN-O 71 PR D4 2711

Reaction [335]		$\pi^+p \rightarrow N(1700)^0\pi^+\pi^+\pi^-\pi^0$ $\rightarrow p\pi^-$	
8.040 $\pm$ 0.060	3.999	<.024	† BARDADIN-O 71 PR D4 2711

Reaction [336]		$\pi^+p \rightarrow N(1700)^0\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$ $\rightarrow p\pi^-$	
8.040 $\pm$ 0.060	3.999	<.028	† BARDADIN-O 71 PR D4 2711

Reaction [337]		$\pi^+p \rightarrow pK^+\bar{K}^0\pi^+\pi^-\pi^0$	
4.000	2.900	0.003 $\pm$ 0.003	BARTSCH 66 NC 43A 1010
5.500	3.350	0.020	0.004 † COOPER 70 NP 823 605

Reaction [338]		$\pi^+p \rightarrow pK^0\bar{K}^0\pi^+\pi^-\pi^-$	
8.500	4.105	0.049 $\pm$ 0.020	KREBS 70

Reaction [339]		$\pi^+p \rightarrow pK^-\bar{K}^0\pi^+\pi^+\pi^0$	
4.000	2.900	0.003 $\pm$ 0.003	BARTSCH 66 NC 43A 1010
5.500	3.350	0.010	0.003 † COOPER 70 NP 823 605

Reaction [340]		$\pi^+p \rightarrow nK^+\bar{K}^0\pi^+\pi^-\pi^-$	
4.000	2.900	0.003 $\pm$ 0.003	BARTSCH 66 NC 43A 1010
5.500	3.350	0.008	0.003 † COOPER 70 NP 823 605

Reaction [341]		$\pi^+p \rightarrow nK^-\bar{K}^0\pi^+\pi^+\pi^+$	
4.000	2.900	0.007 $\pm$ 0.005	BARTSCH 66 NC 43A 1010
5.500	3.350	0.002	0.002 † COOPER 70 NP 823 605

Reaction [342]		$\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^0$	
4.000	2.900	0.008 $\pm$ 0.004	BARTSCH 66 NC 43A 1010
8.000	3.989	0.088	0.012 † ADERHOLZ 69 NP 811 259

Reaction [343]		$\pi^+p \rightarrow \Lambda K^+\pi^+\pi^-\pi^-MM(>\pi^0)$	
4.000	2.900	0.010 $\pm$ 0.005	† BARTSCH 66 NC 43A 1010

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π^+p cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [344]	$\pi^+p \rightarrow AK^0\pi^+\pi^+\pi^-\pi^-$		
8.000	3.989	0.054 $\pm$ 0.010	ADERHOLZ 69 NP B11 259
8.500	4.105	0.014 $\pm$ 0.006	KREBS 70

Reaction [345]

$\pi^+p \rightarrow AK^0\pi^+\pi^+\pi^-\pi^- + \Sigma^0 K^0\pi^+\pi^+\pi^-\pi^-$			
4.000	2.900	0.002 $\pm$ 0.002	BARTSCH 66 NC 43A 1010

Reaction [346]

$\pi^+p \rightarrow \Sigma^+ K^0\pi^+\pi^-\pi^- MM(>\pi^0)$			
4.000	2.900	0.009 $\pm$ 0.005	BARTSCH 66 NC 43A 1010

Reaction [347]

$\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0$			
3.560	2.754	0.170 $\pm$ 0.020	MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.165 $\pm$ 0.020	MACNAUGHTO 71 UCRL 20178
4.000	2.900	0.253 $\pm$ 0.036	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.610 $\pm$ 0.030	DREVERMANN 67 PR 161 1356
7.000	3.747	0.856 $\pm$ 0.106	SLATTERY 67
8.040	0.060	3.999 $\pm$ 0.060	BARDADIN-O 71 PR D4 2711
8.490	0.060	4.103 $\pm$ 0.051	KUNG 69 PR D4 2711

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Reaction [348]

$\pi^+p \rightarrow p\pi^+\pi^+\pi^-\pi^0\pi^0\pi^0$			
5.450	3.336	0.290 $\pm$ 0.060 $\pm$	BLOODWORTH 72 NP B39 525

Reaction [349]

$\pi^+p \rightarrow p\eta\pi^+\pi^+\pi^-\pi^-\pi^0$			
8.490 $\pm$ 0.060	4.103	0.009 $\pm$ 0.008 $\pm$	KUNG 69

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [350]	$\pi^+p \rightarrow p\omega\pi^+\pi^+\pi^-\pi^-\pi^0$		
8.490 $\pm$ 0.060	4.103	0.048 $\pm$ 0.017 $\pm$	KUNG 69

Reaction [351]

$\pi^+p \rightarrow p$ at least 2 resonances $\pi^+\pi^+\pi^-\pi^-\pi^0$			
8.040 $\pm$ 0.060	3.999	0.119 $\pm$ 0.054 $\pm$	BARDADIN-O 71 PR D4 2711

Reaction [352]

$\pi^+p \rightarrow n\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$			
3.560	2.754	0.016 $\pm$ 0.030	MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.017 $\pm$ 0.020	MACNAUGHTO 71 UCRL 20178
4.000	2.900	0.040 $\pm$ 0.009	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.110 $\pm$ 0.010	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999 $\pm$ 0.040	BARDADIN-O 71 PR D4 2711

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Reaction [353]

$\pi^+p \rightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0 MM(>N)$			
3.560	2.754	0.003 $\pm$ 0.006	MACNAUGHTO 71 UCRL 20178
3.670	2.791	0.001 $\pm$ 0.006	MACNAUGHTO 71 UCRL 20178
4.000	2.900	0.020 $\pm$ 0.010	BONDAR 66 NC 44A 530
5.000 $\pm$ 0.025	3.207	0.050 $\pm$ 0.050	DREVERMANN 67 PR 161 1356
8.040	0.060	3.999 $\pm$ 0.460	BARDADIN-O 71 PR D4 2711

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π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References	P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [354] $\pi^+p \rightarrow \Delta(1238)^{++} \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$ $\quad \quad \quad \downarrow$ $\quad \quad \quad p\pi^+$				Reaction [363] $\pi^+p \rightarrow n\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$			
8.490 $\pm$ 0.060	4.103	0.026 $\pm$ 0.009	KUNG 69	8.000	3.989	0.032 $\pm$ 0.004	COGHEN 71 NP 832 189
*****				*****			
Reaction [355] $\pi^+p \rightarrow \Lambda K^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^-$				Reaction [364] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>\pi^0)$ $\quad \quad \quad + \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>N)$			
8.000	3.989	0.009 $\pm$ 0.004	ADERHOLZ 69 NP 811 259	8.040 $\pm$ 0.040	3.999	0.087 $\pm$ 0.023	ADERHOLZ 68 NP 88 45
*****				*****			
Reaction [356] $\pi^+p \rightarrow \Lambda K^0 \pi^+ \pi^+ \pi^+ \pi^- \pi^0$				Reaction [365] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$			
8.000	3.989	0.059 $\pm$ 0.015	ADERHOLZ 69 NP 811 259	8.000	3.989	0.003 $\pm$ 0.001	COGHEN 71 NP 832 189
*****				*****			
Reaction [357] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$				Reaction [366] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^0$			
8.000	3.989	0.076 $\pm$ 0.007	COGHEN 71 NP 832 189	8.000	3.989	0.005 $\pm$ 0.001	COGHEN 71 NP 832 189
8.490 $\pm$ 0.060	4.103	0.058 $\pm$ 0.008	KUNG 69	*****			
*****				Reaction [367] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>\pi^0)$			
Reaction [358] $\pi^+p \rightarrow p$ at least 2 resonances $\pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^0$				8.040 $\pm$ 0.040	3.999	0.000 $\pm$ 0.000	ADERHOLZ 68 NP 88 45
8.040 $\pm$ 0.060	3.999	0.406 $\pm$ 0.087	BARDADIN-O 71 PR D4 2711	*****			
*****				Reaction [368] $\pi^+p \rightarrow n\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^-$			
Reaction [359] $\pi^+p \rightarrow \Delta(1238)^{++} \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^0$ $\quad \quad \quad \downarrow$ $\quad \quad \quad p\pi^+$				8.000	3.989	0.002 $\pm$ 0.001	COGHEN 71 NP 832 189
8.490 $\pm$ 0.060	4.103	0.011 $\pm$ 0.011	KUNG 69	*****			
*****				Reaction [369] $\pi^+p \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>N)$			
Reaction [360] $\pi^+p \rightarrow \Lambda K^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^0$				8.040 $\pm$ 0.040	3.999	0.002 $\pm$ 0.001	ADERHOLZ 68 NP 88 45
8.000	3.989	0.011 $\pm$ 0.005	ADERHOLZ 69 NP 811 259	*****			
*****				Reaction [370] $\pi^+p \rightarrow \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>N)$ $\quad \quad \quad + p\pi^+ \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- MM(>\pi^0)$			
Reaction [361] $\pi^+p \rightarrow \Lambda K^0 \pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^-$				8.000	3.989	0.003 $\pm$ 0.001	ESKREYS 68 APP 34 159
8.000	3.989	0.006 $\pm$ 0.004	ADERHOLZ 69 NP 811 259	*****			
*****				*****			
Reaction [362] $\pi^+p \rightarrow p\pi^+ \pi^+ \pi^+ \pi^+ \pi^- \pi^- \pi^- \pi^0$							
8.000	3.989	0.108 $\pm$ 0.009	COGHEN 71 NP 832 189				
8.490 $\pm$ 0.060	4.103	0.111 $\pm$ 0.016	KUNG 69				
11.000	4.641	0.154	YOST 71 PR D 3 642				

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π^+n CROSS SECTIONS

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [371]	$\pi^+n \rightarrow \pi^0 p$		
0.623 ± 0.016	1.450	8.500 ± 1.390 *	PAULI 63 SIENA CONF 1
0.655 ± 0.016	1.470	9.780 ± 0.830 *	PAULI 63 SIENA CONF 1
0.687 ± 0.016	1.490	9.260 ± 0.830 *	PAULI 63 SIENA CONF 1
0.720 ± 0.016	1.510	8.110 ± 0.690 *	PAULI 63 SIENA CONF 1
0.753 ± 0.017	1.530	8.420 ± 0.550 *	PAULI 63 SIENA CONF 1
0.786 ± 0.017	1.550	6.580 ± 0.560 *	PAULI 63 SIENA CONF 1
0.820 ± 0.017	1.570	6.050 ± 0.490 *	PAULI 63 SIENA CONF 1
0.854 ± 0.017	1.590	5.050 ± 0.490 *	PAULI 63 SIENA CONF 1
0.888 ± 0.017	1.610	5.910 ± 0.480 *	PAULI 63 SIENA CONF 1
0.906 ± 0.018	1.620	1.410 ± 0.290 **†	KRAEMER 64 PR 136 B496
0.923 ± 0.018	1.630	7.470 ± 0.560 *	PAULI 63 SIENA CONF 1
0.959 ± 0.018	1.650	7.570 ± 0.490 *	PAULI 63 SIENA CONF 1
0.976 ± 0.018	1.660	1.810 ± 0.290 **†	KRAEMER 64 PR 136 B496
0.994 ± 0.018	1.670	6.980 ± 0.760 *	PAULI 63 SIENA CONF 1
1.030 ± 0.018	1.690	6.320 ± 0.900 *	PAULI 63 SIENA CONF 1
1.049 ± 0.018	1.700	1.300 ± 0.210 **†	KRAEMER 64 PR 136 B496
1.122 ± 0.018	1.740	1.130 ± 0.210 **†	KRAEMER 64 PR 136 B496
1.198 ± 0.018	1.780	1.020 ± 0.150 **†	KRAEMER 64 PR 136 B496
1.275 ± 0.018	1.820	0.850 ± 0.150 **†	KRAEMER 64 PR 136 B496
1.354 ± 0.018	1.860	0.790 ± 0.150 **†	KRAEMER 64 PR 136 B496
6.000	3.490	0.126 ± 0.020 \$	BRUYANT 64 PL 12 278

Reaction [372]	$\pi^+n \rightarrow pMM(>\pi^0)$		
5.100	3.239	0.920 ± 0.100 **†	ARMENISE 70 NC 65A 637

Reaction [373]	$\pi^+n \rightarrow \eta p$ $\rightarrow \pi^+ \pi^- \pi^0$		
1.141	1.750	1.300 ± 0.440 †	DANBURG 70 PR D2 2564
1.236	1.800	1.090 ± 0.350 †	DANBURG 70 PR D2 2564
1.334	1.850	1.660 ± 0.330 †	DANBURG 70 PR D2 2564
1.434	1.900	0.870 ± 0.200 †	DANBURG 70 PR D2 2564
1.537	1.950	0.900 ± 0.190 †	DANBURG 70 PR D2 2564
1.643	2.000	0.500 ± 0.130 †	DANBURG 70 PR D2 2564
1.680	2.017	0.150 ± 0.040 **†	BACON 67 PR 157 1263
1.751	2.050	0.590 ± 0.140 †	DANBURG 70 PR D2 2564
1.861	2.100	0.550 ± 0.140 †	DANBURG 70 PR D2 2564
1.975	2.150	0.600 ± 0.140 †	DANBURG 70 PR D2 2564
2.091	2.200	0.550 ± 0.140 †	DANBURG 70 PR D2 2564
2.210	2.250	0.290 ± 0.120 †	DANBURG 70 PR D2 2564
2.331	2.300	0.300 ± 0.120 †	DANBURG 70 PR D2 2564
2.455	2.350	0.160 ± 0.110 †	DANBURG 70 PR D2 2564
3.290	2.663	0.100 ± 0.030 †	COHN 67 NP 81 57

Reaction [374]	$\pi^+n \rightarrow \eta p$ $\rightarrow \text{neutrals}$		
6.000	3.490	0.035 ± 0.005	BRUYANT 64 PL 12 278

Reaction [375]	$\pi^+n \rightarrow \eta p$ $\rightarrow \text{total}$		
1.141 ± 0.193 - 0.183	1.750	0.800 ± 0.200 *	KRAEMER 64 PR 136 B496

Reaction [376]	$\pi^+n \rightarrow \eta p$ $\rightarrow \pi^+ \pi^- \pi^0 + \text{<other mode>}$		
2.700	2.446	0.210 ± 0.040 †	MILLER 69 PR 178 2061
4.190 ± 0.004	2.963	0.078 ± 0.021 †	GORDON 70 ILL 1195
5.400	3.325	0.117 ± 0.042 †	FARBER 71 NP 829 237

Reaction [377]	$\pi^+n \rightarrow \eta p$ $\rightarrow \pi^+ \pi^- \pi^0 + \pi^+ \pi^- \gamma + \text{<other mode>}$		
0.690 ± 0.014	1.491	0.990 ± 0.210 †	LITCHFIELD 69 PR 183 1152
0.717 ± 0.013	1.508	1.790 ± 0.260 †	LITCHFIELD 69 PR 183 1152
0.743 ± 0.013	1.524	1.560 ± 0.250 †	LITCHFIELD 69 PR 183 1152
0.769 ± 0.013	1.540	2.220 ± 0.300 †	LITCHFIELD 69 PR 183 1152
0.797 ± 0.014	1.556	3.230 ± 0.350 †	LITCHFIELD 69 PR 183 1152
0.824 ± 0.013	1.572	2.580 ± 0.290 †	LITCHFIELD 69 PR 183 1152
0.850 ± 0.014	1.588	1.850 ± 0.240 †	LITCHFIELD 69 PR 183 1152
0.877 ± 0.013	1.603	2.490 ± 0.350 †	LITCHFIELD 69 PR 183 1152
0.917 ± 0.027	1.626	1.950 ± 0.340 †	LITCHFIELD 69 PR 183 1152

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π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [378] $\pi^+n \rightarrow \eta p$			
$\rightarrow$ neutrals + <other mode>			
0.720 $\pm$ 0.016	1.510	2.980 $\pm$ 0.560 $\pm$	PAULI 63 SIENA CONF 1
0.753 0.017	1.530	1.970 0.420 $\pm$	PAULI 63 SIENA CONF 1
0.786 0.017	1.550	1.660 0.350 $\pm$	PAULI 63 SIENA CONF 1
0.820 0.017	1.570	2.620 0.420 $\pm$	PAULI 63 SIENA CONF 1
0.854 0.017	1.590	2.740 0.350 $\pm$	PAULI 63 SIENA CONF 1
0.888 0.017	1.610	2.570 0.420 $\pm$	PAULI 63 SIENA CONF 1
0.923 0.018	1.630	2.960 0.420 $\pm$	PAULI 63 SIENA CONF 1
0.959 0.018	1.650	2.520 0.420 $\pm$	PAULI 63 SIENA CONF 1
0.994 0.018	1.670	4.460 0.920 $\pm$	PAULI 63 SIENA CONF 1
1.030 0.018	1.690	3.380 0.780 $\pm$	PAULI 63 SIENA CONF 1

Reaction [379] $\pi^+n \rightarrow \rho^0 p$			
$\rightarrow \pi^+ \pi^-$			
1.198 $\pm$ 0.038	1.780	1.476 $\pm$ 0.517 $\pm$	MANNING 69 UCRL 19339
1.299 $\pm$ 0.064	1.832	3.376 0.526 $\pm$	MANNING 69 UCRL 19339
- 0.063			
1.399 $\pm$ 0.035	1.882	3.241 0.515 $\pm$	MANNING 69 UCRL 19339
1.485 0.052	1.925	4.144 0.417 $\pm$	MANNING 69 UCRL 19339
1.590 0.053	1.975	3.587 0.288 $\pm$	MANNING 69 UCRL 19339
1.696 0.054	2.025	4.691 0.384 $\pm$	MANNING 69 UCRL 19339
1.806 0.056	2.075	3.550 0.317 $\pm$	MANNING 69 UCRL 19339
1.918 0.057	2.125	3.760 0.393 $\pm$	MANNING 69 UCRL 19339
2.033 0.058	2.175	4.493 0.451 $\pm$	MANNING 69 UCRL 19339
2.210 $\pm$ 0.121	2.250	2.608 0.258 $\pm$	MANNING 69 UCRL 19339
- 0.119			
2.455 $\pm$ 0.127	2.350	1.793 0.306 $\pm$	MANNING 69 UCRL 19339
- 0.124			
2.700	2.446	2.200 0.250 $\pm$	MILLER 69 PR 178 2061
5.100	3.239	0.650 0.083 $\pm$	ARMENISE 70 NC 65A 637
5.400	3.325	0.533 0.100 $\pm$	FARBER 71 NP 829 237
7.000	3.749	0.350 0.070 $\pm$	MATTHEWS 71 NP 832 366
9.000	4.221	0.193 0.016 $\pm$	ARMENISE 70 NCL 4 199

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Reaction [380] $\pi^+n \rightarrow \omega p$			
$\rightarrow \pi^+ \pi^- \pi^0$			
1.141	1.750	1.500 $\pm$ 0.290 $\pm$	DANBURG 70 PR D2 2564
1.236	1.800	2.460 0.350 $\pm$	DANBURG 70 PR D2 2564
1.334	1.850	2.510 0.250 $\pm$	DANBURG 70 PR D2 2564
1.434	1.900	2.110 0.200 $\pm$	DANBURG 70 PR D2 2564
1.537	1.950	1.990 0.190 $\pm$	DANBURG 70 PR D2 2564
1.643	2.000	1.520 0.170 $\pm$	DANBURG 70 PR D2 2564
1.680	2.017	1.800 0.200 $\pm$	BACON 67 PR 157 1263
1.751	2.050	1.680 0.190 $\pm$	DANBURG 70 PR D2 2564
1.861	2.100	1.580 0.180 $\pm$	DANBURG 70 PR D2 2564
1.975	2.150	1.400 0.160 $\pm$	DANBURG 70 PR D2 2564
2.091	2.200	1.700 0.190 $\pm$	DANBURG 70 PR D2 2564
2.210	2.250	1.190 0.170 $\pm$	DANBURG 70 PR D2 2564
2.331	2.300	1.080 0.160 $\pm$	DANBURG 70 PR D2 2564
2.455	2.350	1.040 0.190 $\pm$	DANBURG 70 PR D2 2564
3.290	2.663	0.220 $\pm$	COHN 67 NP 81 57
4.190 $\pm$ 0.004	2.963	0.360 0.050 $\pm$	GORDON 70 ILL 1195
5.100	3.239	0.195 0.040 $\pm$	ARMENISE 70 NC 65A 637

π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [381] $\pi^+n \rightarrow \omega p$
 $\rightarrow \pi^+\pi^-\pi^0 + \text{<other mode>}$

2.700	2.446	0.800 +- 0.080	MILLER 69 PR 178 2061
5.400	3.325	0.149 0.035	FARBER 71 NP B29 237
6.950	3.737	0.096 0.014	MATTHEWS 71 PRL 26 400
6.950	3.737	0.090 0.013	MATTHEWS 71 PRL 26 400

Reaction [382] $\pi^+n \rightarrow \omega p$
 $\rightarrow \text{total}$

1.109	1.733	0.400 +- 0.170	KRAEMER 64 PR 136 8496
1.147	1.753	0.980	KRAEMER 64 PR 136 8496
1.202	1.782	1.390	KRAEMER 64 PR 136 8496
1.236	1.800	1.090	KRAEMER 64 PR 136 8496
1.322	1.844	1.090	KRAEMER 64 PR 136 8496
1.412	1.889	2.000	KRAEMER 64 PR 136 8496

Reaction [383] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \pi^+\pi^+\pi^-\pi^-\pi^0$

1.680	2.017	<.025	++ BACON 67 PR 157 1263
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Reaction [384] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \gamma\gamma$

2.150	2.225	0.013 +- 0.008	BENSINGER 70 PL 338 505
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Reaction [385] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \eta\pi^+\pi^-$
 $\rightarrow \pi^+\pi^-\pi^0$

3.100	2.595	0.004 +- 0.001	MILLER 71
5.100	3.239	0.004 0.001	PICCIARELLI 70

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [386] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \eta\pi^0\pi^0$
 $\rightarrow \pi^0\pi^0\pi^0$

2.150	2.225	0.011 +- 0.006	BENSINGER 70 PL 338 505
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Reaction [387] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \eta\pi^+\pi^-$
 $\rightarrow \text{neutrals}$

2.700	2.446	0.050 +- 0.020	MILLER 69 PR 178 2061
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Reaction [388] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \text{total}$

2.700	2.446	0.061 +- 0.009	MILLER 71
3.100	2.595	0.030 0.018	MILLER 71

Reaction [389] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\rightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma$

1.516	1.940	0.021 +- 0.014	RADER 69 UCRL 19431
1.707	2.030	0.087 0.030	RADER 69 UCRL 19431
1.884	2.110	0.103 0.027	RADER 69 UCRL 19431
2.138	2.220	0.104 0.024	RADER 69 UCRL 19431
2.405	2.330	0.076 0.039	RADER 69 UCRL 19431

Reaction [390] $\pi^+n \rightarrow \eta' p$
 $\rightarrow \eta\pi^+\pi^- + \text{<other mode>}$
 $\rightarrow \text{neutrals} + \text{<other mode>}$

3.290	2.663	0.030 + 0.018 - 0.011	COHN 66 PL 21 347
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Reaction [391] $\pi^+n \rightarrow \text{Hp}$
 $\rightarrow \pi^+\pi^-\pi^0$

3.290	2.663	0.050	COHN 67 NP B1 57
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π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [392] $\pi^+n \rightarrow S^+p \rightarrow K^+K^-$			
5.400	3.325	<.008	FARBER 71 NP B29 237

Reaction [393] $\pi^+n \rightarrow S^+p \rightarrow K^0\bar{K}^0$			
5.100	3.239	<.008	† METTEL 70

Reaction [394] $\pi^+n \rightarrow \phi p \rightarrow K^+K^-$			
1.696 + 0.165 - 0.159	2.025	[0.019 +- 0.004] †	DAVIES 70 PR D 2 506
2.033 + 0.177 - 0.171	2.175	[0.007 0.001] †	DAVIES 70 PR D 2 506
2.392 + 0.189 - 0.183	2.325	[0.020 0.004] †	DAVIES 70 PR D 2 506
5.400	3.325	<.009	FARBER 71 NP B29 237

Reaction [395] $\pi^+n \rightarrow \phi p \rightarrow \text{total}$			
1.696 + 0.165 - 0.159	2.025	0.038 +- 0.011 †	DAVIES 70 PR D 2 506
2.033 + 0.177 - 0.171	2.175	0.014 + 0.021 - 0.006	DAVIES 70 PR D 2 506
2.392 + 0.189 - 0.183	2.325	0.042 +- 0.017 †	DAVIES 70 PR D 2 506

Reaction [396] $\pi^+n \rightarrow \phi p \rightarrow K_S^0 K_L^0 + K^+K^-$			
5.100	3.239	<.004	† METTEL 70

Reaction [397] $\pi^+n \rightarrow A_1^0 p \rightarrow \pi^+ \pi^- \pi^0$			
2.700	2.446	0.170 +- 0.100 †	MILLER 69 PR 178 2061
5.400	3.325	<.030	† FARBER 71 NP B29 237

Reaction [398] $\pi^+n \rightarrow \phi p \rightarrow \pi^+ \pi^-$			
2.700	2.446	0.510 +- 0.200 †	MILLER 69 PR 178 2061
5.100	3.239	0.460 0.061 †	ARMENISE 70 NC 65A 637
5.400	3.325	0.322 0.064 *†	FARBER 71 NP B29 237
9.000	4.221	0.139 0.015 †	ARMENISE 70 NCL 4 199

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Reaction [399] $\pi^+n \rightarrow \phi p \rightarrow \text{neutrals}$			
5.100	3.239	0.210 +- 0.030 †	ARMENISE 70 NC 65A 637
9.000	4.221	0.070 0.015 †	ARMENISE 70 NCL 4 199

Reaction [400] $\pi^+n \rightarrow \phi p \rightarrow K^0\bar{K}^0$			
5.100	3.239	<.012	† METTEL 70

Reaction [401] $\pi^+n \rightarrow \phi p \rightarrow \pi^+ \pi^+ \pi^- \pi^-$			
5.100	3.239	0.009 +- 0.001 †	PICCIARELLI 70

Reaction [402] $\pi^+n \rightarrow D(1285)p \rightarrow \delta(970)^+ \pi^- + \delta(970)^- \pi^+ \rightarrow \eta \pi^- + \eta \pi^+ \rightarrow \pi^+ \pi^- \pi^0 + \text{All other mode}$			
2.700	2.446	44.000 +- 8.000 †	CAMPBELL 69 PRL 22 1204

Reaction [403] $\pi^+n \rightarrow D(1285)p \rightarrow \eta \pi^+ \pi^- \rightarrow \pi^+ \pi^- \pi^0$			
3.100	2.595	[0.012 +- 0.002] †	MILLER 71

Reaction [404] $\pi^+n \rightarrow D(1285)p \rightarrow \eta \pi^+ \pi^- + \eta \pi^0 \pi^0 \rightarrow \text{All } \zeta$			
2.700	2.446	0.074 +- 0.017 †	MILLER 71
3.100	2.595	0.033 0.008 †	MILLER 71

π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [405]	$\pi^+n \rightarrow A_2^0 p$ $\rightarrow \pi^+ \pi^- \pi^0$		
5.100	3.239	0.147 $\pm$ 0.030 $\dagger$	ARMENISE 70 NC 65A 637
5.400	3.325	0.050 $\dagger$ 0.020 $\dagger$	FARBER 71 NP 829 237

Reaction [406]	$\pi^+n \rightarrow A_2^0 p$ $\rightarrow \rho^+ / - \pi^- / +$		
2.700	2.446	0.140 $\pm$ 0.080 $\dagger$	MILLER 69 PR 178 2061
3.290	2.663	0.180 $\dagger$	COHN 67 NP 81 57
3.650	2.787	0.190 $\dagger$ 0.050 $\dagger$	BENSON 66 PRL 16 1177

Reaction [407]	$\pi^+n \rightarrow A_2^0 p$ $\rightarrow K^0 \bar{K}^0$		
5.100	3.239	0.014 $\pm$ 0.006 $\dagger$	METTEL 70

Reaction [408]	$\pi^+n \rightarrow f p + A_2^0 p$ $\rightarrow K^+ K^- \rightarrow K^+ K^-$		
5.400	3.325	0.024 $\pm$ 0.010 $\dagger$	FARBER 71 NP 829 237

Reaction [409]	$\pi^+n \rightarrow E p$ $\rightarrow \eta \pi^+ \pi^-$ $\rightarrow \pi^+ \pi^- \pi^0$		
3.100	2.595	0.010 $\pm$ 0.002 $\dagger$	MILLER 71

Reaction [410]	$\pi^+n \rightarrow E p$ $\rightarrow \eta \pi^+ \pi^- + \eta \pi^0 \pi^0$ $\rightarrow \text{total}$		
2.700	2.446	0.027 $\pm$ 0.015 $\dagger$	MILLER 71
3.100	2.595	0.058 $\dagger$ 0.020 $\dagger$	MILLER 71

Reaction [411]	$\pi^+n \rightarrow f p$ $\rightarrow K^+(890) \bar{K} + K \bar{K}^*(890)$		
5.100	3.239	0.006 $\pm$ 0.002 $\dagger$	METTEL 70

Reaction [412]	$\pi^+n \rightarrow f p$ $\rightarrow \eta \pi^+ \pi^-$ $\rightarrow \pi^+ \pi^- \pi^0$		
3.100	2.595	0.010 $\pm$ 0.002 $\dagger$	MILLER 71

Reaction [413]	$\pi^+n \rightarrow f p$ $\rightarrow \eta \pi^+ \pi^- + \eta \pi^0 \pi^0$ $\rightarrow \text{total}$		
3.100	2.595	0.049 $\pm$ 0.018 $\dagger$	MILLER 71

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
Reaction [414]	$\pi^+n \rightarrow g^0 p$ $\rightarrow \pi^+ \pi^-$		
5.100	3.239	0.083 $\pm$ 0.019 $\dagger$	ARMENISE 70 NC 65A 637
5.400	3.325	0.043 $\pm$ 0.014 $\dagger$	FARBER 71 NP 829 237
7.000	3.749	0.050 $\dagger$ 0.014 $\dagger$	MATTHEWS 71 NP 833 1
9.000	4.221	0.036 $\dagger$ 0.012 $\dagger$	ARMENISE 70 NCL 4 199

Reaction [415]	$\pi^+n \rightarrow g^0 p$ $\rightarrow K_S^0 K_L^0 + K^+ K^-$		
5.100	3.239	< 0.007 $\dagger$	METTEL 70

Reaction [416]	$\pi^+n \rightarrow g^0 p$ $\rightarrow K^*(890) \bar{K} + K \bar{K}^*(890)$		
5.100	3.239	0.006 $\pm$ 0.002 $\dagger$	METTEL 70

Reaction [417]	$\pi^+n \rightarrow g^0 p$ $\rightarrow \rho^0 \pi^+ \pi^-$		
5.100	3.239	0.011 $\pm$ 0.001 $\dagger$	PICCIARELL 70

Reaction [418]	$\pi^+n \rightarrow g^0 p$ $\rightarrow A_2^+ \pi^- + A_2^- \pi^+$ $\rightarrow \pi^+ \pi^+ \pi^- \rightarrow \pi^+ \pi^- \pi^-$		
5.100	3.239	0.003 $\pm$ 0.001 $\dagger$	PICCIARELL 70

Reaction [419]	$\pi^+n \rightarrow g^0 p$ $\rightarrow \pi^+ \pi^+ \pi^- \pi^-$		
5.100	3.239	0.021 $\pm$ 0.002 $\dagger$	PICCIARELL 70

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π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [420]	$\pi^+n \rightarrow \Phi(1675)p$ $\rightarrow \rho^0 \pi^0$		
5.100	3.239	0.053 $\pm$ 0.020 $\dagger$	ARMENISE 68 PL 268 336

Reaction [421]	$\pi^+n \rightarrow \Phi(1675)p$ $\rightarrow \pi^+ \pi^- \pi^0$		
6.950	3.737	0.033 $\pm$ 0.009 $\dagger$	MATTHEWS 71 PR D3 2561

Reaction [422]	$\pi^+n \rightarrow A_2^+ n$ $\rightarrow K^+ \bar{K}^0$		
5.100	3.239	0.018 $\pm$ 0.004 $\dagger$	METTEL 70

Reaction [423]	$\pi^+n \rightarrow g^+ n$ $\rightarrow K^+ K_S^0$		
5.100	3.239	<0.001 $\dagger$	METTEL 70

Reaction [424]	$\pi^+n \rightarrow \pi^- \Delta(1238)^{++}$ $\rightarrow p \pi^+$		
1.021 $\pm$ 0.027	1.685	10.001 $\pm$ 2.868 $\dagger$	MANNING 69 UCRL 19339
1.076 $\pm$ 0.028	1.715	7.231 $\pm$ 1.899 $\dagger$	MANNING 69 UCRL 19339
1.132 $\pm$ 0.028	1.745	7.164 $\pm$ 1.921 $\dagger$	MANNING 69 UCRL 19339
1.198 $\pm$ 0.038	1.780	3.137 $\pm$ 0.730 $\dagger$	MANNING 69 UCRL 19339
1.299 $\pm$ 0.064	1.832	2.018 $\pm$ 0.421 $\dagger$	MANNING 69 UCRL 19339
1.399 $\pm$ 0.035	1.882	0.865 $\pm$ 0.299 $\dagger$	MANNING 69 UCRL 19339
1.485 $\pm$ 0.052	1.925	0.812 $\pm$ 0.194 $\dagger$	MANNING 69 UCRL 19339
1.590 $\pm$ 0.053	1.975	0.330 $\pm$ 0.109 $\dagger$	MANNING 69 UCRL 19339
1.696 $\pm$ 0.054	2.025	0.377 $\pm$ 0.091 $\dagger$	MANNING 69 UCRL 19339
1.806 $\pm$ 0.056	2.075	0.212 $\pm$ 0.063 $\dagger$	MANNING 69 UCRL 19339
1.918 $\pm$ 0.057	2.125	0.273 $\pm$ 0.071 $\dagger$	MANNING 69 UCRL 19339

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [425]	$\pi^+n \rightarrow \rho^0 \Delta(1238)^+$ $\rightarrow \pi^+ \pi^- \pi^0$		
4.190 $\pm$ 0.004	2.963	0.043 $\pm$ 0.030 $\dagger$	GORDON 70 ILL 1195
5.400	3.325	0.060 $\pm$ 0.022 $\dagger$	FARBER 71 NP B29 237

Reaction [426]	$\pi^+n \rightarrow g^0 \Delta(1238)^+$ $\rightarrow \pi^+ \pi^- \pi^0$		
5.100	3.239	0.003 $\pm$ 0.001 $\dagger$	PICCIARELL 70

Reaction [427]	$\pi^+n \rightarrow \pi^+ \Delta(1238)^0$ $\rightarrow p \pi^-$		
2.700	2.446	1.800 $\pm$ 0.200 $\dagger$	MILLER 69 PR 178 2061

Reaction [428]	$\pi^+n \rightarrow \rho^+ \Delta(1238)^0$ $\rightarrow \pi^+ \pi^- \pi^0$		
4.190 $\pm$ 0.004	2.963	0.069 $\pm$ 0.010 $\dagger$	GORDON 70 ILL 1195
5.100	3.239	0.365 $\pm$ 0.080 $\dagger$	GHIDINI 68 NC 58A 524
5.400	3.325	0.055 $\pm$ 0.020 $\dagger$	FARBER 71 NP B29 237

Reaction [429]	$\pi^+n \rightarrow A_2^+ \Delta(1238)^0$ $\rightarrow \pi^+ \pi^- \pi^0$		
5.100	3.239	0.010 $\pm$ 0.002 $\dagger$	PICCIARELL 70

Reaction [430]	$\pi^+n \rightarrow K^+ \Lambda$		
2.042	2.179	0.197 $\pm$ 0.015	MOORE 70
2.178	2.237	0.153 $\pm$ 0.012	MOORE 70
2.330	2.300	0.158 $\pm$ 0.012	MOORE 70
5.100	3.239	0.042 $\pm$ 0.004	METTEL 70

π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
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Reaction [431] $\pi^+n \rightarrow K^+\Sigma^0$

2.178	2.237	0.118 $\pm$ 0.011	MOORE 70
5.100	3.239	0.023 $\pm$ 0.002	METTEL 70

Reaction [432] $\pi^+n \rightarrow K^+\Lambda + K^+\Sigma^0$

5.100	3.239	0.065 $\pm$ 0.001	METTEL 70
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Reaction [433] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^0\pi^+$

2.042	2.179	[0.110 $\pm$ 0.020] $\dagger$	MOORE 70
2.178	2.237	[0.038 $\pm$ 0.011] $\dagger$	MOORE 70
2.184	2.239	[0.057 $\pm$ 0.010] $\dagger$	MOORE 70
2.330	2.300	[0.067 $\pm$ 0.042] $\dagger$	MOORE 70
5.100	3.239	0.029 $\pm$ 0.003 $\dagger$	METTEL 70

Reaction [434] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^0\pi^+ + K^+\pi^0$

5.100	3.239	0.044 $\pm$ 0.005 $\dagger$	METTEL 70
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Reaction [435] $\pi^+n \rightarrow K^*(890)^+\Lambda \rightarrow K^+\pi^0$

2.042	2.179	[0.031 $\pm$ 0.019] $\dagger$	MOORE 70
2.178	2.237	[0.025 $\pm$ 0.010] $\dagger$	MOORE 70
2.184	2.239	[0.043 $\pm$ 0.007] $\dagger$	MOORE 70
2.330	2.300	[0.040 $\pm$ 0.001] $\dagger$	MOORE 70
5.100	3.239	[0.015 $\pm$ 0.003] $\dagger$	METTEL 70

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P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
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Reaction [436] $\pi^+n \rightarrow K^*(890)^+\Sigma^0 \rightarrow K^0\pi^+$

2.184	2.239	[0.047 $\pm$ 0.004] $\dagger$	MOORE 70
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Reaction [437] $\pi^+n \rightarrow K^+Y^*(1385)^0 \rightarrow \Lambda\pi^0$

2.042	2.179	[0.042 $\pm$ 0.102] $\dagger$	MOORE 70
2.178	2.237	[0.039 $\pm$ 0.006] $\dagger$	MOORE 70
2.330	2.300	[0.049 $\pm$ 0.012] $\dagger$	MOORE 70
3.000 $\pm$ 0.200	2.558	0.025 $\dagger$	ABOLINS 69 PRL 22 427
4.000 $\pm$ 0.200	2.902	0.023 $\dagger$	ABOLINS 69 PRL 22 427

Reaction [438] $\pi^+n \rightarrow K^+Y^*(1385)^0 \rightarrow \Lambda\pi^0$

2.184	2.239	[0.047 $\pm$ 0.030] $\dagger$	MOORE 70
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Reaction [439] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

2.184	2.239	[0.038 $\pm$ 0.011] $\dagger$	MOORE 70
5.100	3.239	0.018 $\pm$ 0.004 $\dagger$	METTEL 70

Reaction [440] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^+\pi^-$

2.184	2.239	[0.026 $\pm$ 0.010] $\dagger$	MOORE 70
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Reaction [441] $\pi^+n \rightarrow K^+Y^*(1405) \rightarrow \Sigma^-\pi^+$

2.184	2.239	[0.012 $\pm$ 0.005] $\dagger$	MOORE 70
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π^+n cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [442]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow pK^-$		
1.696 + 0.165 - 0.159	2.025	[0. ...]†	DAVIES 70 PR D 2 506
2.033 + 0.177 - 0.171	2.175	[0.020 +- 0.003]†	DAVIES 70 PR D 2 506
2.392 + 0.189 - 0.183	2.325	[0.010 0.002]†	DAVIES 70 PR D 2 506

Reaction [443]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \text{TOTAL}$		
1.696 + 0.165 - 0.159	2.025	0. ... +- 0.013	† DAVIES 70 PR D 2 506
2.033 + 0.177 - 0.171	2.175	0.094 0.036	† DAVIES 70 PR D 2 506
2.392 + 0.189 - 0.183	2.325	0.045 0.031	† DAVIES 70 PR D 2 506

Reaction [444]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow pK^- + \text{<other mode>}$		
2.700	2.446	0.090 +- 0.020	† GARFINKEL 69 PR 186 1400

Reaction [445]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$		
2.184	2.239	[0.023 +- 0.009]†	MOORE 70
5.100	3.239	0.018 0.005	† METTEL 70

Reaction [446]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^-\pi^+$		
2.184	2.239	[0.003 +- 0.002]†	MOORE 70

Reaction [447]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow \Sigma^+\pi^-$		
2.184	2.239	[0.020 +- 0.008]†	MOORE 70

Reaction [448]	$\pi^+n \rightarrow K^+Y^*(1520) \rightarrow nK^0$		
2.184	2.239	[0.018 +- 0.003]†	MOORE 70

Reaction [449]	$\pi^+n \rightarrow K^0\Sigma^+$		
2.178	2.237	0.072 +- 0.016	MOORE 70
5.100	3.239	0.003 0.001	METTEL 70

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P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [450]	$\pi^+n \rightarrow K^0Y^*(1385)^+ \rightarrow \Lambda\pi^+$		
2.042	2.179	[0.043 +- 0.015]†	MOORE 70
2.178	2.237	[0.030 0.011]†	MOORE 70
2.184	2.239	[0.027 0.006]†	MOORE 70
2.330	2.300	[0.023 0.008]†	MOORE 70
3.000 +- 0.200	2.558	0.006	† ABOLINS 69 PRL 22 427
4.000 0.200	2.902	0.007	† ABOLINS 69 PRL 22 427
5.100	3.239	0.001 0.001	† METTEL 70

Reaction [451]	$\pi^+n \rightarrow K^*(890)^0 \Sigma^+ \rightarrow K^+\pi^-$		
2.184	2.239	[0.042 +- 0.011]†	MOORE 70

Reaction [452]	$\pi^+n \rightarrow p\pi^+\pi^-$		
0.594 +- 0.028	1.431	5.290 +- 0.530	§ LITCHFIELD 69 PR 183 1152
0.634 0.013	1.457	5.810 0.460	§ LITCHFIELD 69 PR 183 1152
0.662 0.014	1.474	6.270 0.330	§ LITCHFIELD 69 PR 183 1152
0.690 0.014	1.491	6.720 0.270	§ LITCHFIELD 69 PR 183 1152
0.717 0.013	1.508	6.550 0.250	§ LITCHFIELD 69 PR 183 1152
0.743 0.013	1.524	6.370 0.250	§ LITCHFIELD 69 PR 183 1152
0.769 0.013	1.540	6.390 0.250	§ LITCHFIELD 69 PR 183 1152
0.797 0.014	1.556	6.060 0.240	§ LITCHFIELD 69 PR 183 1152
0.824 0.013	1.572	7.080 0.240	§ LITCHFIELD 69 PR 183 1152
0.850 0.014	1.588	8.520 0.250	§ LITCHFIELD 69 PR 183 1152
0.877 0.013	1.603	8.850 0.310	§ LITCHFIELD 69 PR 183 1152
0.904 0.014	1.619	11.030 0.510	§ LITCHFIELD 69 PR 183 1152
0.932 + 0.062	1.635	13.950 2.850	§ MANNING 69 UCRL 19339
- 0.061			
0.945 +- 0.028	1.642	11.280 0.590	§ LITCHFIELD 69 PR 183 1152
1.021 0.027	1.685	14.860 2.910	§ MANNING 69 UCRL 19339
1.076 0.028	1.715	13.670 2.820	§ MANNING 69 UCRL 19339
1.132 0.028	1.745	11.960 2.780	§ MANNING 69 UCRL 19339
1.198 0.038	1.780	10.320 1.590	§ MANNING 69 UCRL 19339
1.299 + 0.064	1.832	9.700 1.130	§ MANNING 69 UCRL 19339
- 0.063			
1.399 +- 0.035	1.882	6.600 0.730	§ MANNING 69 UCRL 19339
1.485 0.052	1.925	7.590 0.620	§ MANNING 69 UCRL 19339
1.590 0.053	1.975	5.900 0.400	§ MANNING 69 UCRL 19339
1.680	2.017	6.600 0.300	† BACON 67 PR 157 1263
1.696 0.054	2.025	7.250 0.490	§ MANNING 69 UCRL 19339
1.806 0.056	2.075	5.590 0.400	§ MANNING 69 UCRL 19339
1.918 0.057	2.125	5.570 0.480	§ MANNING 69 UCRL 19339
2.033 0.058	2.175	6.240 0.490	§ MANNING 69 UCRL 19339
2.210 + 0.121	2.250	4.180 0.290	§ MANNING 69 UCRL 19339
- 0.119			
2.455 + 0.127	2.350	3.550 0.380	§ MANNING 69 UCRL 19339
- 0.124			
5.100	3.239	1.390 0.170	+ ARNENISE 70 NC 65A 637

See plot on the following page.

π^+n cross sections

P_{beam} $E_{C.M.}$ σ (mb) References
(GeV/c) (GeV)

Reaction [453] $\pi^+n \rightarrow p\pi^0\pi^0$

0.623 +- 0.016	1.450	3.080 +- 1.390	PAULI	63	SIENA CONF 1
0.655 0.016	1.470	2.010 0.830	PAULI	63	SIENA CONF 1
0.687 0.016	1.490	3.990 0.830	PAULI	63	SIENA CONF 1
0.720 0.016	1.510	2.710 0.560	PAULI	63	SIENA CONF 1
0.753 0.017	1.530	2.820 0.490	PAULI	63	SIENA CONF 1
0.786 0.017	1.550	2.170 0.350	PAULI	63	SIENA CONF 1
0.820 0.017	1.570	1.370 0.350	PAULI	63	SIENA CONF 1
0.854 0.017	1.590	2.240 0.350	PAULI	63	SIENA CONF 1
0.888 0.017	1.610	2.140 0.350	PAULI	63	SIENA CONF 1
0.923 0.018	1.630	1.760 0.350	PAULI	63	SIENA CONF 1
0.959 0.018	1.650	3.540 0.500	PAULI	63	SIENA CONF 1
0.994 0.018	1.670	2.460 0.620	PAULI	63	SIENA CONF 1
1.030 0.018	1.690	3.120 0.970	PAULI	63	SIENA CONF 1
2.150	2.225	0.825 0.101 +	BENSINGER	71	PL 368 134

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P_{beam} $E_{C.M.}$ σ (mb) References
(GeV/c) (GeV)

Reaction [454]	$\pi^+n \rightarrow p\rho^+\pi^-$ $\rightarrow \pi^+\pi^0$						
2.700	2.446	0.340 +- 0.070 +	MILLER	69	PR 178 2061		
5.100	3.239	0.517 0.017	MURRO	71	NC 3A 721		
5.400	3.325	0.317 0.064 +	FARBER	71	NP 829 237		

Reaction [455]	$\pi^+n \rightarrow p\rho^0\pi^0$ $\rightarrow \pi^+\pi^-$						
2.700	2.446	0.340 +- 0.070 +	MILLER	69	PR 178 2061		
5.100	3.239	0.531 0.017	MURRO	71	NC 3A 721		
5.400	3.325	0.241 0.048 +	FARBER	71	NP 829 237		

Reaction [456]	$\pi^+n \rightarrow p\rho^-\pi^+$ $\rightarrow \pi^-\pi^0$						
5.100	3.239	0.428 +- 0.015	MURRO	71	NC 3A 721		
5.400	3.325	<.040	FARBER	71	NP 829 237		

Reaction [457]	$\pi^+n \rightarrow p\delta(970)^+\pi^- + p\delta(970)^-\pi^+$ $\rightarrow \eta\pi^+$ $\rightarrow \eta\pi^-$ $\rightarrow \text{total}$ $\rightarrow \text{total}$						
2.700	2.446	0.072 +- 0.015 +	MILLER	71			
3.100	2.595	0.030 0.025 +	MILLER	71			

Reaction [458]	$\pi^+n \rightarrow pA_2^-\pi^+$ $\rightarrow \pi^+\pi^-\pi^-$						
3.100	2.595	0.013 +- 0.004 +	MILLER	71			

Reaction [459]	$\pi^+n \rightarrow n\rho^0\pi^+$ $\rightarrow \pi^+\pi^-$						
2.700	2.446	0.430 +- 0.070 +	MILLER	69	PR 178 2061		
5.100	3.239	0.605 0.022	MURRO	71	NC 3A 721		

Reaction [460]	$\pi^+n \rightarrow \Delta(1238)^+\pi^-\pi^0$ $\rightarrow p\pi^+$						
5.400	3.325	<.050	FARBER	71	NP 829 237		

Reaction [461]	$\pi^+n \rightarrow \Delta(1238)^+\pi^+\pi^-$ $\rightarrow p\pi^0$						
2.700	2.446	<.750 +	MILLER	69	PR 178 2061		
5.400	3.325	0.349 +- 0.085 +	FARBER	71	NP 829 237		

Reaction [462]	$\pi^+n \rightarrow \Delta(1238)^0\pi^+\pi^0$ $\rightarrow p\pi^-$						
2.700	2.446	<.750 +	MILLER	69	PR 178 2061		
5.400	3.325	0.198 +- 0.038 +	FARBER	71	NP 829 237		

π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [463] $\pi^+n \rightarrow \Delta(1238)^- \pi^+ \pi^+$
 $\rightarrow n \pi^-$

2.700	2.446	0.650 $\pm$ 0.100	MILLER 69 PR 178 2061
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Reaction [464] $\pi^+n \rightarrow p K^+ K^-$

1.696 $\pm$ 0.165 - 0.159	2.025	0.038 $\pm$ 0.007	DAVIES 70 PR D 2 506
2.033 $\pm$ 0.177 - 0.171	2.175	0.067 $\pm$ 0.010	DAVIES 70 PR D 2 506
2.392 $\pm$ 0.189 - 0.183	2.325	0.102 $\pm$ 0.019	DAVIES 70 PR D 2 506
5.400	3.325	0.137 $\pm$ 0.027	FARBER 71 NP B29 237

Reaction [465] $\pi^+n \rightarrow p K_S^0 K_S^0$

2.042	2.179	0.015 $\pm$ 0.003	MOORE 70
2.178	2.237	0.011 $\pm$ 0.003	MOORE 70
2.330	2.300	0.018 $\pm$ 0.004	MOORE 70
5.100	3.239	0.028 $\pm$ 0.009	METTEL 70

Reaction [466] $\pi^+n \rightarrow p K_S^0 K_S^0$

2.042	2.179	0.011 $\pm$ 0.004	MOORE 70
2.178	2.237	0.020 $\pm$ 0.005	MOORE 70
2.330	2.300	0.022 $\pm$ 0.005	MOORE 70
5.100	3.239	0.056 $\pm$ 0.013	METTEL 70

Reaction [467] $\pi^+n \rightarrow p K^0 \bar{K}^0$

5.100	3.239	0.112 $\pm$ 0.027	METTEL 70
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Reaction [468] $\pi^+n \rightarrow n K^+ K_S^0$

5.100	3.239	0.087 $\pm$ 0.018	METTEL 70
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Reaction [469] $\pi^+n \rightarrow n K^+ \bar{K}^0$

2.042	2.179	0.019 $\pm$ 0.006	MOORE 70
2.178	2.237	0.030 $\pm$ 0.007	MOORE 70
2.330	2.300	0.056 $\pm$ 0.010	MOORE 70

Reaction [470] $\pi^+n \rightarrow \Lambda K^+ \pi^0$

2.042	2.179	0.170 $\pm$ 0.013	MOORE 70
2.178	2.237	0.131 $\pm$ 0.011	MOORE 70
2.330	2.300	0.156 $\pm$ 0.013	MOORE 70
5.100	3.239	0.070 $\pm$ 0.006	METTEL 70

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [471] $\pi^+n \rightarrow \Lambda K^0 \pi^+$

2.042	2.179	0.181 $\pm$ 0.016	MOORE 70
2.178	2.237	0.155 $\pm$ 0.015	MOORE 70
2.330	2.300	0.167 $\pm$ 0.017	MOORE 70
5.100	3.239	0.088 $\pm$ 0.009	METTEL 70

Reaction [472] $\pi^+n \rightarrow \Sigma^0 K^0 \pi^+$

2.042	2.179	0.060 $\pm$ 0.010	MOORE 70
2.178	2.237	0.062 $\pm$ 0.011	MOORE 70
2.330	2.300	0.100 $\pm$ 0.016	MOORE 70

π^+n cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [473] $\pi^+n \rightarrow \Sigma^+ K^+ \pi^-$

2.042	2.179	0.126 $\pm$ 0.011	MOORE 70
2.178	2.237	0.135 $\pm$ 0.012	MOORE 70
2.330	2.300	0.119 $\pm$ 0.012	MOORE 70
5.100	3.239	0.040 $\pm$ 0.008	METTEL 70

Reaction [474] $\pi^+n \rightarrow \Sigma^+ K^0 \pi^0$

2.178	2.237	0.049 $\pm$ 0.015	MOORE 70
5.100	3.239	0.027 $\pm$ 0.009	METTEL 70

Reaction [475] $\pi^+n \rightarrow \Sigma^- K^+ \pi^+$

2.042	2.179	0.028 $\pm$ 0.006	MOORE 70
2.178	2.237	0.039 $\pm$ 0.007	MOORE 70
2.330	2.300	0.040 $\pm$ 0.008	MOORE 70
5.100	3.239	0.033 $\pm$ 0.005	METTEL 70

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction [476] $\pi^+n \rightarrow Y^*(1385)^+ K^+ \pi^-$
 $\rightarrow \Delta \pi^+$

2.184	2.239	10.010 $\pm$ 0.004	MOORE 70
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Reaction [477] $\pi^+n \rightarrow Y^*(1385)^- K^+ \pi^+$
 $\rightarrow \Delta \pi^-$

2.184	2.239	10.008 $\pm$ 0.001	MOORE 70
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Reaction [478] $\pi^+n \rightarrow p \pi^+ \pi^- \pi^0$

1.680	2.017	5.000 $\pm$ 0.300	BACON 67 PR 157 1263
4.500	3.060	1.620 $\pm$ 0.240	FORINO 65 PL 19 68
5.100	3.239	2.120 $\pm$ 0.600	ARMENISE 70 NC 65A 637
5.400	3.325	1.430 $\pm$ 0.240	FARBER 71 NP 829 237

Reaction [479] $\pi^+n \rightarrow p \pi^+ \pi^- \pi^0$

1.680	2.017	0.700 $\pm$ 0.100	BACON 67 PR 157 1263
4.500	3.060	0.650 $\pm$ 0.100	FORINO 64 PL 11 347

Reaction [480] $\pi^+n \rightarrow p \eta \pi^+ \pi^-$
 $\rightarrow \text{total}$

2.700	2.446	0.250 $\pm$ 0.041	MILLER 71
3.100	2.595	0.137 $\pm$ 0.024	MILLER 71

Reaction [481] $\pi^+n \rightarrow p \rho^0 \pi^+ \pi^-$
 $\rightarrow \pi^+ \pi^-$

2.700	2.446	0.250 $\pm$ 0.040	MILLER 71
3.100	2.595	0.135 $\pm$ 0.018	MILLER 71
5.100	3.239	0.040 $\pm$ 0.002	PICCIARELL 70

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π^+n cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References	P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [482] $\pi^+n \rightarrow p\omega\pi^+\pi^-$ $\quad \quad \quad \searrow \pi^+\pi^-\pi^0$				Reaction [491] $\pi^+n \rightarrow \Lambda K^0\pi^+\pi^0$			
2.700	2.446	0.139 $\pm$ 0.021 $\dagger$	MILLER 71	2.042	2.179	0. $\pm$ 0.000	MOORE 70
3.100	2.595	0.377 $\pm$ 0.046 $\dagger$	MILLER 71	2.178	2.237	0.016 $\pm$ 0.008	MOORE 70
5.100	3.239	0.020 $\pm$ 0.001 $\dagger$	PICCIARELL 70	2.330	2.300	0.035 $\pm$ 0.013	MOORE 70
*****				5.100	3.239	0.115 $\pm$ 0.025	METTEL 70
*****				*****			
Reaction [483] $\pi^+n \rightarrow n\pi^+\pi^+\pi^-$				Reaction [492] $\pi^+n \rightarrow \Sigma^+K^+\pi^-\pi^0$			
4.500	3.060	1.250 $\pm$ 0.200 $\dagger$	FORINO 65 PL 19 68	5.100	3.239	0.045 $\pm$ 0.007	METTEL 70
*****				*****			
Reaction [484] $\pi^+n \rightarrow \Delta(1238)^{++}\pi^+\pi^-\pi^-$ $\quad \quad \quad \searrow p\pi^+$				Reaction [493] $\pi^+n \rightarrow \Sigma^+K^0\pi^+\pi^-$			
2.700	2.446	0.205 $\pm$ 0.034 $\dagger$	MILLER 71	5.100	3.239	0.060 $\pm$ 0.014	METTEL 70
3.100	2.595	0.218 $\pm$ 0.048 $\dagger$	MILLER 71	*****			
5.100	3.239	0.039 $\pm$ 0.003 $\dagger$	PICCIARELL 70	*****			
*****				Reaction [494] $\pi^+n \rightarrow \Sigma^-K^+\pi^+\pi^0$			
Reaction [485] $\pi^+n \rightarrow \Delta(1238)^0\pi^+\pi^+\pi^-$ $\quad \quad \quad \searrow p\pi^-$				5.100	3.239	0.044 $\pm$ 0.006	METTEL 70
5.100	3.239	0.022 $\pm$ 0.002 $\dagger$	PICCIARELL 70	*****			
*****				Reaction [495] $\pi^+n \rightarrow \Sigma^-K^0\pi^+\pi^+$			
Reaction [486] $\pi^+n \rightarrow pK^+K_S^0\pi^-$				5.100	3.239	0.058 $\pm$ 0.013	METTEL 70
5.100	3.239	0.092 $\pm$ 0.016	METTEL 70	*****			
*****				Reaction [496] $\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-$			
Reaction [487] $\pi^+n \rightarrow pK_S^0K_S^0\pi^0$				1.104	1.730	0.013 $\pm$ 0.009	RADER 69 UCRL 19431
5.100	3.239	0.013 $\pm$ 0.005	METTEL 70	1.314	1.840	0.032 $\pm$ 0.011	RADER 69 UCRL 19431
*****				1.516	1.940	0.059 $\pm$ 0.008	RADER 69 UCRL 19431
*****				1.680	2.017	0.220 $\pm$ 0.040 $\pm$	BACON 67 PR 157 1263
*****				1.686	2.020	0.124 $\pm$ 0.013	RADER 69 UCRL 19431
*****				1.884	2.110	0.198 $\pm$ 0.019	RADER 69 UCRL 19431
*****				2.138	2.220	0.337 $\pm$ 0.029	RADER 69 UCRL 19431
*****				2.405	2.330	0.429 $\pm$ 0.049	RADER 69 UCRL 19431
*****				*****			
Reaction [488] $\pi^+n \rightarrow pK^-K_S^0\pi^+$				Reaction [497] $\pi^+n \rightarrow pK^+K_S^0\pi^-\pi^0$			
5.100	3.239	0.065 $\pm$ 0.013	METTEL 70	5.100	3.239	0.018 $\pm$ 0.005	METTEL 70
*****				*****			
Reaction [489] $\pi^+n \rightarrow \Lambda K^+\pi^+\pi^-$				Reaction [498] $\pi^+n \rightarrow pK^0K_S^0\pi^+\pi^-$			
2.042	2.179	0.009 $\pm$ 0.003	MOORE 70	5.100	3.239	0.093 $\pm$ 0.016	METTEL 70
2.178	2.237	0.034 $\pm$ 0.006	MOORE 70	*****			
2.330	2.300	0.048 $\pm$ 0.008	MOORE 70	*****			
*****				Reaction [499] $\pi^+n \rightarrow pK_S^0K_S^0\pi^+\pi^-$			
*****				5.100	3.239	0.023 $\pm$ 0.008	METTEL 70
*****				*****			
Reaction [490] $\pi^+n \rightarrow \Lambda K^+\pi^+\pi^- + \Sigma^0K^+\pi^+\pi^-$				Reaction [500] $\pi^+n \rightarrow pK^-K_S^0\pi^+\pi^0$			
5.100	3.239	0.127 $\pm$ 0.011	METTEL 70	5.100	3.239	0.013 $\pm$ 0.004	METTEL 70
*****				*****			

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π^+n cross sections

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [501]	$\pi^+n \rightarrow nK^+K_S^0\pi^-\pi^-$		
5.100	3.239	0.103 +- 0.017	METTEL 70

Reaction [502]	$\pi^+n \rightarrow nK^-K_S^0\pi^+\pi^+$		
5.100	3.239	0.046 +- 0.011	METTEL 70

Reaction [503]	$\pi^+n \rightarrow \Lambda K^+\pi^+\pi^-\pi^0$		
5.100	3.239	0.140 +- 0.015	METTEL 70

Reaction [504]	$\pi^+n \rightarrow \Lambda K^0\pi^+\pi^-\pi^0$		
5.100	3.239	0.123 +- 0.010	METTEL 70

Reaction [505]	$\pi^+n \rightarrow \Sigma^+K^0\pi^+\pi^-\pi^0$		
5.100	3.239	0.030 +- 0.015	METTEL 70

Reaction [506]	$\pi^+n \rightarrow \Sigma^-K^0\pi^+\pi^+\pi^0$		
5.100	3.239	0.025 +- 0.011	METTEL 70

Reaction [507]	$\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0$		
1.680	2.017	0.040 +- 0.020 +†	BACON 67 PR 157 1263

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P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [508]	$\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0 + p\pi^+\pi^+\pi^-\pi^-\gamma$		
1.516	1.940	0.008 +- 0.003	RADER 69 UCRL 19431
1.686	2.020	0.027 0.005	RADER 69 UCRL 19431
1.884	2.110	0.054 0.007	RADER 69 UCRL 19431
2.138	2.220	0.142 0.015	RADER 69 UCRL 19431
2.405	2.330	0.259 0.034	RADER 69 UCRL 19431

Reaction [509]	$\pi^+n \rightarrow p\pi^+\pi^+\pi^-\pi^-\pi^0$		
1.686	2.020	0.002 +- 0.001	RADER 69 UCRL 19431
1.884	2.110	0.004 0.002	RADER 69 UCRL 19431
2.138	2.220	0.006 0.002	RADER 69 UCRL 19431
2.405	2.330	0.015 0.006	RADER 69 UCRL 19431

Reaction [510]	$\pi^+n \rightarrow pK_S^0K_S^0\pi^+\pi^-\pi^0$		
5.100	3.239	0.038 +- 0.017	METTEL 70

Reaction [511]	$\pi^+n \rightarrow \Lambda K^0\pi^+\pi^+\pi^-\pi^0$		
5.100	3.239	0.038 +- 0.016	METTEL 70

Reaction [512]	$\pi^+n \rightarrow$ Strange particles		
5.100	3.239	1.900	METTEL 70

Reaction [513]	$\pi^+n \rightarrow K\bar{K} + \text{Anything}$		
5.100	3.239	0.850	METTEL 70

Reaction [514]	$\pi^+n \rightarrow$ Hyperon K + Anything		
5.100	3.239	1.050	METTEL 70

π^+d CROSS SECTIONS

P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [515]	$\pi^+d \rightarrow 1 \text{ prong} + 2 \text{ prongs}$		

0.290 2.178 157.8 $\pm$ 7.000 NOREM 71 NP B33 512

Reaction [516] $\pi^+d \rightarrow pp$

0.245 $\pm$ 0.003	2.143	11.800 $\pm$ 0.500	RICHARD-SE 70 NP B20 413
0.271 0.003	2.163	11.300 0.500	RICHARD-SE 70 NP B20 413
0.290 0.003	2.178	7.000 0.600	NOREM 71 NP B33 512
0.295 0.003	2.182	8.830 0.410	RICHARD-SE 70 NP B20 413
0.342 0.004	2.218	4.690 0.200	RICHARD-SE 70 NP B20 413
0.377 0.004	2.245	2.980 0.130	RICHARD-SE 70 NP B20 413
0.650	2.455	0.303 0.011 *	DEKKERS 64 PL 11 161
0.750	2.529	0.177 0.013 *	DEKKERS 64 PL 11 161
0.850	2.601	0.133 0.005 *	DEKKERS 64 PL 11 161
1.000	2.706	0.080 0.006 *	DEKKERS 64 PL 11 161
1.220	2.853	0.041 0.005 *	DEKKERS 64 PL 11 161
1.400	2.968	0.037 0.004 *	DEKKERS 64 PL 11 161
1.660	3.128	0.018 0.003 *	DEKKERS 64 PL 11 161
1.950	3.297	0.011 0.003 *	DEKKERS 64 PL 11 161

Reaction [517] $\pi^+d \rightarrow A_1^+ d$
 $\downarrow$
 $\rho^0 \pi^+$

8.000 5.792 0.150 $\pm$ 0.020 $\dagger$ CNOPS 69 PL 298 45

Reaction [518] $\pi^+d \rightarrow A_2^+ d$
 $\downarrow$
 $\rho^0 \pi^+$
 $\downarrow$
 $\pi^+ \pi^-$

6.950 5.441 0.010 $\dagger$ HARRISON 72 PR D5 2730

Reaction [519] $\pi^+d \rightarrow d \rho^0 \pi^+$

5.400 4.878 0.306 $\pm$ 0.075 $\dagger$ DEERY 71 PR D 3 635

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P _{beam} (GeV/c)	E _{C.M.} (GeV)	σ (mb)	References
Reaction [520]	$\pi^+d \rightarrow (p_s) p \pi^0$		

0.290 2.178 32.500 $\pm$ 3.000 NOREM 71 NP B33 512

Reaction [521] $\pi^+d \rightarrow (n_s) p A_{1.5}$
 $\downarrow$
 $\rho^0 \pi^+$
 $\downarrow$
 $\pi^+ \pi^-$

5.100 4.761 0.027 $\pm$ 0.013 $\dagger$ ARMENISE 69 NCL 2 501

Reaction [522] $\pi^+d \rightarrow (n_s) p A_2^+$
 $\downarrow$
 $\rho^0 \pi^+$
 $\downarrow$
 $\pi^+ \pi^-$

5.100 4.761 0.164 $\pm$ 0.050 $\dagger$ ARMENISE 69 NCL 2 501

Reaction [523] $\pi^+d \rightarrow (n_s) p A_3^+$
 $\downarrow$
 $\pi^+ \pi^+ \pi^-$

5.100 4.761 0.150 $\pm$ 0.045 $\dagger$ ARMENISE 69 NCL 2 501

Reaction [524] $\pi^+d \rightarrow (n_s) p A_3^+$
 $\downarrow$
 π^+
 $\downarrow$
 $\pi^+ \pi^-$

5.100 4.761 0.114 $\pm$ 0.034 $\dagger$ ARMENISE 69 NCL 2 501

Reaction [525] $\pi^+d \rightarrow pp \pi^0$

4.500 4.519 0.133 $\pm$ 0.014 $\dagger$ FORINO 65 PL 19 65

Reaction [526] $\pi^+d \rightarrow (p_s) p \text{MM}(>\pi^0)$

9.000 6.107 0.735 $\dagger$ ARMENISE 70 NCL 4 199

Reaction [527] $\pi^+d \rightarrow pp \text{MM}(>\pi^0)$

4.500 4.519 1.080 $\pm$ 0.060 $\dagger$ FORINO 65 PL 19 65
 6.070 5.129 0.810 $\pm$ 0.080 $\dagger$ BRUYANT 64 PL 10 232

Reaction [528] $\pi^+d \rightarrow pp \eta$

4.500 4.519 0.062 $\pm$ 0.010 $\dagger$ FORINO 65 PL 19 65

Reaction [529] $\pi^+d \rightarrow pp \epsilon$
 $\downarrow$
 $\pi^0 \pi^0$

4.500 4.519 0.032 $\pm$ 0.007 $\dagger$ FORINO 65 PL 19 65

π^+d cross sections

P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
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Reaction [530]	$\pi^+d \rightarrow pp\rho^0$ $\rightarrow \pi^+\pi^-$		
4.500	4.519	0.544 $\pm$ 0.030 $\dagger$	FORINO 65 PL 19 65

Reaction [531]	$\pi^+d \rightarrow (p_s)p\eta'$ $\rightarrow \eta\pi^+\pi^-$ $\rightarrow \pi^+\pi^-\pi^0$		
3.290	3.986	0.030	BUGG 68 NP 86 246

Reaction [532]	$\pi^+d \rightarrow ppf$ $\rightarrow \pi^0\pi^0$		
4.500	4.519	0.149 $\pm$ 0.015 $\dagger$	FORINO 65 PL 19 65
6.070	5.129	0.115 $\pm$ 0.020 $\dagger$	BRUYANT 64 PL 10 232

Reaction [533]	$\pi^+d \rightarrow ppf$ $\rightarrow \pi^+\pi^-$		
4.500	4.519	0.285 $\pm$ 0.021 $\dagger$	FORINO 65 PL 19 65

Reaction [534]	$\pi^+d \rightarrow (p_s)pg^0$ $\rightarrow \pi^+\pi^-$		
7.000	5.458	0.042 $\pm$ 0.012 $\dagger$	MATTHEWS 71 NP 833 1

Reaction [535]	$\pi^+d \rightarrow pp g^0$ $\rightarrow \pi^+\pi^-$		
6.000	5.103	0.061 $\pm$ 0.008 $\dagger$	GOLDBERG 65 PL 17 354
6.000	5.103	0.035 $\pm$ 0.009 $\dagger$	GOLDBERG 65 PL 17 354

Reaction [536]	$\pi^+d \rightarrow pp\phi(1675)$ $\rightarrow \rho^0\pi^0 + \rho^+\pi^- + \rho^-\pi^+$		
8.000	5.792	0.019 $\pm$ 0.005 $\dagger$	KENYON 69 PRL 23 146

Reaction [537]	$\pi^+d \rightarrow pAK^+$		
1.120	2.787	0.368 $\pm$ 0.055 $\dagger$	DAVIES 70 PR D 2 506
1.300	2.905	0.475 $\pm$ 0.055 $\dagger$	DAVIES 70 PR D 2 506
1.530	3.049	0.292 $\pm$ 0.020 $\dagger$	DAVIES 70 PR D 2 506
1.580	3.080	0.248 $\pm$ 0.050 $\dagger$	DAVIES 70 PR D 2 506
1.700	3.152	0.246 $\pm$ 0.020 $\dagger$	DAVIES 70 PR D 2 506
1.860	3.245	0.167 $\pm$ 0.025 $\dagger$	DAVIES 70 PR D 2 506
2.150	3.408	0.121 $\pm$ 0.025 $\dagger$	DAVIES 70 PR D 2 506
2.370	3.527	0.101 $\pm$ 0.030 $\dagger$	DAVIES 70 PR D 2 506

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P_{beam} (GeV/c)	$E_{\text{c.m.}}$ (GeV)	σ (mb)	References
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Reaction [538]	$\pi^+d \rightarrow p\Sigma^0 K^+$		
1.120	2.787	0.149 $\pm$ 0.045 $\dagger$	DAVIES 70 PR D 2 506
1.300	2.905	0.178 $\pm$ 0.045 $\dagger$	DAVIES 70 PR D 2 506
1.530	3.049	0.132 $\pm$ 0.018 $\dagger$	DAVIES 70 PR D 2 506
1.580	3.080	0.135 $\pm$ 0.040 $\dagger$	DAVIES 70 PR D 2 506
1.700	3.152	0.106 $\pm$ 0.015 $\dagger$	DAVIES 70 PR D 2 506
1.860	3.245	0.152 $\pm$ 0.027 $\dagger$	DAVIES 70 PR D 2 506
2.150	3.408	0.114 $\pm$ 0.025 $\dagger$	DAVIES 70 PR D 2 506
2.370	3.527	0.077 $\pm$ 0.025 $\dagger$	DAVIES 70 PR D 2 506

Reaction [539]	$\pi^+d \rightarrow p\Sigma^+ K^0$		
1.120	2.787	0.039 $\pm$ 0.039 $\dagger$	DAVIES 70 PR D 2 506
1.300	2.905	0.254 $\pm$ 0.090 $\dagger$	DAVIES 70 PR D 2 506
1.530	3.049	0.234 $\pm$ 0.045 $\dagger$	DAVIES 70 PR D 2 506
1.580	3.080	0.270 $\pm$ 0.090 $\dagger$	DAVIES 70 PR D 2 506
1.700	3.152	0.188 $\pm$ 0.039 $\dagger$	DAVIES 70 PR D 2 506
1.860	3.245	0.174 $\pm$ 0.033 $\dagger$	DAVIES 70 PR D 2 506
2.150	3.408	0.142 $\pm$ 0.033 $\dagger$	DAVIES 70 PR D 2 506
2.370	3.527	0.052 $\pm$ 0.033 $\dagger$	DAVIES 70 PR D 2 506

See plot on the following page.

π^+d cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction	[540]	$\pi^+d \rightarrow d\pi^+\pi^+\pi^-$					
1.680	3.140	0.080	$\leftarrow$	0.016	BACON	67	PR 157 1263
4.190	4.388	0.275		0.060	† EISENSTEIN	70	PR D 1 841
4.500	4.519	0.260		0.070	† FORINO	65	PL 19 68
5.400	4.678	0.102		0.025	† DEERY	71	PR D 3 635
6.000	5.103	0.200		0.050	† VEGT	65	PL 19 526
950	5.441	0.530		†	HARRISON	72	PR D5 2730

Reaction [541]		$\pi^+ d \rightarrow (p_s) p \pi^+ \pi^-$							
2.700	3.698	3.420	$\leftarrow$	0.300	$\uparrow$	MILLER	69	PR 178	2061
9.000	6.107	0.660			$\uparrow$	ARMENISE	70	NCL 4	199

Reaction [542]		$\pi^+ d \rightarrow pp \pi^+ \pi^-$			
4.500	4.519	1.560	+- 0.040	†	FORINO 65 PL 19 65

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P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
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Reaction	[543]	$\pi^+d \rightarrow ppK_S^0K_L^0$							
1.530	3.049	0.002	←	0.001	†	DAVIES	70	PR	D 2 506
1.580	3.080	0.		0.004	†	DAVIES	70	PR	D 2 506
1.700	3.152	0.017		0.004	†	DAVIES	70	PR	D 2 506
1.660	3.245	0.019		0.004	†	DAVIES	70	PR	D 2 506
2.150	4.408	0.029		0.005	†	DAVIES	70	PR	D 2 506
2.370	3.527	0.019		0.008	†	DAVIES	70	PR	D 2 506

Reaction	[544]	$\pi^+d \rightarrow ppK_S^0K_S^0$						
1.700	3.152	0.006	$\leftarrow$ 0.003	†	DAVIES	70	PR	D 2 506
1.860	3.245	0.008	0.004	†	DAVIES	70	PR	D 2 506
2.150	3.408	0.013	0.005	†	DAVIES	70	PR	D 2 506
2.370	3.527	0.005	0.005	†	DAVIES	70	PR	D 2 506

π^+d cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [545]	$\pi^+d \rightarrow pnK^+\bar{K}^0$		
1.530	3.049	0.004 $\pm$ 0.003 $\uparrow$	DAVIES 70 PR D 2 506
1.580	3.080	0.011 $\pm$ 0.011 $\uparrow$	DAVIES 70 PR D 2 506
1.700	3.152	0.020 $\pm$ 0.006 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.025 $\pm$ 0.006 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.048 $\pm$ 0.009 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.067 $\pm$ 0.018 $\uparrow$	DAVIES 70 PR D 2 506

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [547]	$\pi^+d \rightarrow p\Lambda K^0\pi^+$		
1.530	2.905	0.009 $\pm$ 0.007 $\uparrow$	DAVIES 70 PR D 2 506
1.530	3.049	0.069 $\pm$ 0.007 $\uparrow$	DAVIES 70 PR D 2 506
1.580	3.080	0.073 $\pm$ 0.018 $\uparrow$	DAVIES 70 PR D 2 506
1.700	3.152	0.084 $\pm$ 0.007 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.104 $\pm$ 0.008 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.160 $\pm$ 0.010 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.126 $\pm$ 0.017 $\uparrow$	DAVIES 70 PR D 2 506

Reaction [546]	$\pi^+d \rightarrow p\Lambda K^+\pi^0$		
1.530	3.049	0.079 $\pm$ 0.010 $\uparrow$	DAVIES 70 PR D 2 506
1.580	3.080	0.089 $\pm$ 0.022 $\uparrow$	DAVIES 70 PR D 2 506
1.700	3.152	0.114 $\pm$ 0.009 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.131 $\pm$ 0.009 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.151 $\pm$ 0.012 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.150 $\pm$ 0.022 $\uparrow$	DAVIES 70 PR D 2 506

Reaction [548]	$\pi^+d \rightarrow p\Sigma^0 K^0\pi^+$		
1.530	3.049	0.021 $\pm$ 0.011 $\uparrow$	DAVIES 70 PR D 2 506
1.580	3.080	0. $\pm$ 0.018 $\uparrow$	DAVIES 70 PR D 2 506
1.700	3.152	0.019 $\pm$ 0.009 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.034 $\pm$ 0.010 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.055 $\pm$ 0.015 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.074 $\pm$ 0.029 $\uparrow$	DAVIES 70 PR D 2 506

* DATA READ FROM GRAPH
 $\uparrow$ GLAUBER CORRECTION APPLIED
 $\dagger$ SEE DATA LISTING FOR ADDITIONAL COMMENTS
 $\dagger$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 $\square$ CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+d cross sections

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
Reaction [549]	$\pi^+d \rightarrow n\Lambda K^+\pi^+$		
1.300	2.905	0.011 $\pm$ 0.007 $\uparrow$	DAVIES 70 PR D 2 506
1.530	3.049	0.072 0.012 $\uparrow$	DAVIES 70 PR D 2 506
1.580	3.080	0.065 0.022 $\uparrow$	DAVIES 70 PR D 2 506
1.700	3.152	0.108 0.012 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.134 0.014 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.118 0.012 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.067 0.016 $\uparrow$	DAVIES 70 PR D 2 506

Reaction [550]	$\pi^+d \rightarrow n\Sigma^+K^0\pi^+$		
1.700	3.152	0.007 $\pm$ 0.015 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.062 0.021 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.110 0.026 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.160 0.060 $\uparrow$	DAVIES 70 PR D 2 506

P_{beam} (GeV/c)	$E_{\text{C.M.}}$ (GeV)	σ (mb)	References
------------------------------	----------------------------	---------------	------------

Reaction [551]	$\pi^+d \rightarrow (p_s)n\pi^+\pi^-\pi^-$		
2.700	3.698	1.860 $\pm$ 0.180 $\uparrow$	MILLER 69 PR 178 2061

Reaction [552]	$\pi^+d \rightarrow pn\pi^+\pi^-\pi^-$		
1.680	3.140	3.270 $\pm$ 0.140	BACON 67 PR 157 1263

Reaction [553]	$\pi^+d \rightarrow (p_s)p\pi^+\pi^-\pi^0$		
2.700	3.698	4.220 $\pm$ 0.370 $\uparrow$	MILLER 69 PR 178 2061
4.190 $\pm$ 0.004	4.388	2.090 0.110 $\uparrow$	GORDON 70 ILL 1195
9.000	6.107	0.994 $\uparrow$	ARMENISE 70 NCL 4 199

Reaction [554]	$\pi^+d \rightarrow (p_s)p\pi^+\pi^-\pi^0$		
2.700	3.698	1.610 $\pm$ 0.210 $\uparrow$	MILLER 69 PR 178 2061

Reaction [555]	$\pi^+d \rightarrow (p_s)p\eta\pi^+\pi^-$ $\rightarrow \pi^+\pi^-\pi^0$		
2.700	3.698	0.070 $\pm$ 0.005 $\uparrow$	MILLER 71
3.100	3.895	0.038 0.003 $\uparrow$	MILLER 71

Reaction [556]	$\pi^+d \rightarrow (p_s)nK_S^0K_S^0\pi^+ + (n_s)pK_S^0K_S^0\pi^+$		
5.100	4.761	0.018 $\pm$ 0.006	METTEL 70

Reaction [557]	$\pi^+d \rightarrow p\Lambda K^+\pi^-\pi^-$		
1.700	3.152	0.010 $\pm$ 0.003 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.018 0.004 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.047 0.007 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.058 0.015 $\uparrow$	DAVIES 70 PR D 2 506

Reaction [558]	$\pi^+d \rightarrow p\Lambda K^0\pi^+\pi^0$		
1.700	3.152	0.003 $\pm$ 0.003 $\uparrow$	DAVIES 70 PR D 2 506
1.860	3.245	0.010 0.006 $\uparrow$	DAVIES 70 PR D 2 506
2.150	3.408	0.028 0.010 $\uparrow$	DAVIES 70 PR D 2 506
2.370	3.527	0.063 0.024 $\uparrow$	DAVIES 70 PR D 2 506

Reaction [559]	$\pi^+d \rightarrow (p_s)p\pi^+\pi^-\pi^-\pi^-$		
2.700	3.698	0.388 $\pm$ 0.012 $\uparrow$	MILLER 71
3.100	3.895	0.376 0.010 $\uparrow$	MILLER 71
3.290	3.986	0.250	BUGG 68 NP 86 246
5.100	4.761	0.339 0.009	PICCIARELL 70 NP 86 246

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 $\ddagger$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
 $\{ \}$ CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+d cross sections

P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References	P_{beam} (GeV/c)	$E_{c.m.}$ (GeV)	σ (mb)	References
Reaction [560] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-$				Reaction [565] $\pi^+d \rightarrow (p_s)n\pi^+\pi^+\pi^-\pi^-$			
1.100	2.774	0.007 +- 0.005 †	RADER 69 UCRL 19431	2.700	3.698	[0.030 +- 0.003 †	MILLER 71
1.300	2.905	0.026 0.008 †	RADER 69 UCRL 19431	3.100	3.895	[0.070 0.004 †	MILLER 71
1.530	3.049	0.060 0.007 †	RADER 69 UCRL 19431	*****			
1.580	3.080	0.101 0.020 †	RADER 69 UCRL 19431	Reaction [566] $\pi^+d \rightarrow pn\pi^+\pi^+\pi^-\pi^-$			
1.700	3.152	0.132 0.012 †	RADER 69 UCRL 19431	1.530	3.049	0.002 +- 0.001 †	RADER 69 UCRL 19431
1.860	3.245	0.194 0.017 †	RADER 69 UCRL 19431	1.700	3.152	0.006 0.002 †	RADER 69 UCRL 19431
2.150	3.408	0.339 0.027 †	RADER 69 UCRL 19431	1.860	3.245	0.011 0.002 †	RADER 69 UCRL 19431
2.370	3.527	0.443 0.055 †	RADER 69 UCRL 19431	2.150	3.408	0.045 0.005 †	RADER 69 UCRL 19431
*****				2.370	3.527	0.070 0.013 †	RADER 69 UCRL 19431
*****				*****			
Reaction [561] $\pi^+d \rightarrow (p_s)\Delta(1238)^{++}\pi^+\pi^-\pi^-\pi^0$ $\rightarrow p\pi^+$				Reaction [567] $\pi^+d \rightarrow (p_s)\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0 MM(>N)$			
3.290	3.986	0.040	BUGG 68 NP 86 246	2.700	3.698	[0.003 +- 0.001 †	MILLER 71
*****				3.100	3.895	[0.003 0.001 †	MILLER 71
*****				*****			
Reaction [562] $\pi^+d \rightarrow (p_s)p\pi^+\pi^+\pi^-\pi^-\pi^0$				Reaction [568] $\pi^+d \rightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0 MM(>N)$			
2.700	3.698	[0.359 +- 0.011 †	MILLER 71	1.700	3.152	0.001 +- 0.001	RADER 69 UCRL 19431
3.100	3.895	[0.520 0.011 †	MILLER 71	1.860	3.245	0.002 0.001	RADER 69 UCRL 19431
3.290	3.986	0.220	BUGG 68 NP 86 246	2.150	3.408	0.009 0.002	RADER 69 UCRL 19431
5.100	4.761	0.588 0.013	PICCIARELL 70 NP 86 246	2.370	3.527	0.018 0.006	RADER 69 UCRL 19431
*****				*****			
*****				*****			
Reaction [563] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-\pi^0 MM(>\pi^0)$				Reaction [569] $\pi^+d \rightarrow (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^- + (n_s)p\pi^+\pi^+\pi^+\pi^-\pi^-$			
1.530	3.049	0.001 +- 0.001 †	RADER 69 UCRL 19431	0.	2.015	0.001 +- 0.001 †	RADER 69 UCRL 19431
1.700	3.152	0.001 0.001 †	RADER 69 UCRL 19431	0.040	2.020	0.004 0.002 †	RADER 69 UCRL 19431
1.860	3.245	0.004 0.001 †	RADER 69 UCRL 19431	0.201	2.110	0.012 0.004 †	RADER 69 UCRL 19431
2.150	3.408	0.009 0.002 †	RADER 69 UCRL 19431	0.344	2.220	0.039 0.007 †	RADER 69 UCRL 19431
2.370	3.527	0.008 0.004 †	RADER 69 UCRL 19431	0.485	2.330	0.086 0.018 †	RADER 69 UCRL 19431
*****				*****			
*****				*****			
Reaction [564] $\pi^+d \rightarrow pp\pi^+\pi^+\pi^-\pi^-\pi^0 + pp\pi^+\pi^+\pi^-\pi^-\pi^0$				Reaction [570] $\pi^+d \rightarrow (p_s)nK_S^0K_S^0\pi^+\pi^-\pi^- + (n_s)pK_S^0K_S^0\pi^+\pi^-\pi^-$			
1.530	3.049	0.009 +- 0.002 †	RADER 69 UCRL 19431	5.100	4.761	0.046 +- 0.019	METTEL 70
1.580	3.080	0.012 0.006 †	RADER 69 UCRL 19431	*****			
1.700	3.152	0.026 0.004 †	RADER 69 UCRL 19431	*****			
1.860	3.245	0.059 0.007 †	RADER 69 UCRL 19431	*****			
2.150	3.408	0.152 0.013 †	RADER 69 UCRL 19431	*****			
2.370	3.527	0.253 0.034 †	RADER 69 UCRL 19431	*****			
*****				*****			
*****				*****			

* DATA READ FROM GRAPH
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Section B2.

DIFFERENTIAL CROSS SECTIONS

$$\frac{d\sigma}{d \cos \theta}$$
 Differential Cross Sections1. π^+ p Interactions

Differential cross section for $\pi^+p \rightarrow \rho^+p$ $\searrow \pi^+\pi^0$

BEAM MOMENTUM= 2.077 +- .030

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.975	0.737	0.260
-0.975	-0.950	0.368	0.184
-0.950	-0.925	0.276	0.159
-0.925	-0.900	0.645	0.244
-0.900	-0.875	0.645	0.244
-0.875	-0.850	0.276	0.159
-0.850	-0.825	0.368	0.184
-0.825	-0.800	0.460	0.206
-0.800	-0.775	0.368	0.184
-0.775	-0.750	0.184	0.130
-0.750	-0.725	0.552	0.226
-0.725	-0.700	0.276	0.159
-0.700	-0.675	0.460	0.206
-0.675	-0.650	0.368	0.184
-0.650	-0.625	0.645	0.244
-0.625	-0.600	0.184	0.130
-0.600	-0.575	0.276	0.159
-0.575	-0.550	0.921	0.291
-0.550	-0.525	0.184	0.130
-0.525	-0.500	0.552	0.226
-0.500	-0.475	0.368	0.184
-0.475	-0.450	0.829	0.276
-0.450	-0.425	0.737	0.260
-0.425	-0.400	0.276	0.159
-0.400	-0.375	0.460	0.206
-0.375	-0.350	0.184	0.130
-0.350	-0.325	0.552	0.226
-0.325	-0.300	0.737	0.260
-0.300	-0.275	0.737	0.260
-0.275	-0.250	0.645	0.244
-0.250	-0.225	0.092	0.092
-0.225	-0.200	0.552	0.226
-0.200	-0.175	0.645	0.244
-0.175	-0.150	0.368	0.184
-0.150	-0.125	0.184	0.130
-0.125	-0.100	0.460	0.206
-0.100	-0.075	0.552	0.226
-0.075	-0.050	1.565	0.380
-0.050	-0.025	1.473	0.368
-0.025	0.	0.645	0.244
0.	0.025	0.921	0.291
0.025	0.050	0.737	0.260
0.050	0.075	0.368	0.184
0.075	0.100	0.552	0.226
0.100	0.125	0.737	0.260
0.125	0.150	0.921	0.291
0.150	0.175	0.460	0.206
0.175	0.200	0.737	0.260
0.200	0.225	0.829	0.276
0.225	0.250	0.460	0.206
0.250	0.275	0.460	0.206
0.275	0.300	0.460	0.206
0.300	0.325	0.552	0.226
0.325	0.350	0.460	0.206
0.350	0.375	0.645	0.244
0.375	0.400	0.829	0.276
0.400	0.425	0.552	0.226
0.425	0.450	0.460	0.206
0.450	0.475	0.184	0.130
0.475	0.500	0.460	0.206
0.500	0.525	0.	0.092
0.525	0.550	0.368	0.184
0.550	0.575	0.	0.092
0.575	0.600	0.368	0.184
0.600	0.625	0.552	0.226
0.625	0.650	0.737	0.260
0.650	0.675	0.276	0.159
0.675	0.700	0.645	0.244
0.700	0.725	0.368	0.184
0.725	0.750	0.921	0.291
0.750	0.775	0.829	0.276
0.775	0.800	1.750	0.401
0.800	0.825	1.473	0.368
0.825	0.850	1.750	0.401
0.850	0.875	2.762	0.504
0.875	0.900	2.486	0.478
0.900	0.925	4.052	0.611
0.925	0.950	4.604	0.651
0.950	0.975	5.433	0.707
0.975	1.000	9.300	0.925

JAMES 66.....PR 142 896

HBC 20

* DATA READ FROM GRAPH
 + SEE DATA LISTING FOR ADDITIONAL COMMENTS

BEAM MOMENTUM= 2.62 + .28 - .27

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.950	0.243	0.109
-0.950	-0.900	0.340	0.129
-0.900	-0.850	0.340	0.129
-0.850	-0.800	0.146	0.084
-0.800	-0.750	0.194	0.097
-0.750	-0.700	0.194	0.097
-0.700	-0.650	0.437	0.146
-0.650	-0.600	0.097	0.069
-0.600	-0.550	0.243	0.109
-0.550	-0.500	0.194	0.097
-0.500	-0.450	0.292	0.119
-0.450	-0.400	0.340	0.129
-0.400	-0.350	0.194	0.097
-0.350	-0.300	0.583	0.168
-0.300	-0.250	0.340	0.129
-0.250	-0.200	0.389	0.137
-0.200	-0.150	0.389	0.137
-0.150	-0.100	0.389	0.137
-0.100	-0.050	0.389	0.137
-0.050	0.	0.194	0.097
0.	0.050	0.146	0.084
0.050	0.100	0.292	0.119
0.100	0.150	0.292	0.119
0.150	0.200	0.389	0.137
0.200	0.250	0.583	0.168
0.250	0.300	0.486	0.154
0.300	0.350	0.583	0.168
0.350	0.400	0.680	0.182
0.400	0.450	0.583	0.168
0.450	0.500	0.680	0.182
0.500	0.550	0.583	0.168
0.550	0.600	0.680	0.182
0.600	0.650	0.583	0.168
0.650	0.700	1.166	0.238
0.700	0.750	0.583	0.168
0.750	0.800	0.778	0.194
0.800	0.850	1.264	0.248
0.850	0.900	2.624	0.357
0.900	0.950	3.985	0.440
0.950	1.000	8.165	0.630

ALFF-STEIN 66.....PR 145 1072

HBC 20

Differential cross section for $\pi^+p \rightarrow \eta\Delta(1238)^{++}$

$$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^-\pi^0 \end{array}$$

BEAM MOMENTUM= 1.95

COS(THETA)		DSIGMA/D COS(THETA) (NB)			
MIN	MAX				
-1.000	-0.800	0.102	+-	0.032	**
-0.800	-0.600	0.020		0.014	**
-0.600	-0.400	0.051		0.023	**
-0.400	-0.200	0.010		0.010	**
-0.200	0.	0.041		0.020	**
0.	0.200	0.061		0.025	**
0.200	0.400	0.061		0.025	**
0.400	0.600	0.173		0.042	**
0.600	0.800	0.173		0.042	**
0.800	1.000	0.102		0.032	**

CHAPMAN 71.....PR D 3 38

HBC 20

BEAM MOMENTUM= 2.077 +- .030

COS(THETA)		DSIGMA/D COS(THETA) (NB)			
MIN	MAX				
-1.000	-0.900	0.024	+-	0.024	**
-0.900	-0.800	0.047		0.033	**
-0.800	-0.700	0.		0.024	**
-0.700	-0.600	0.		0.024	**
-0.600	-0.500	0.047		0.033	**
-0.500	-0.400	0.		0.024	**
-0.400	-0.300	0.		0.024	**
-0.300	-0.200	0.		0.024	**
-0.200	-0.100	0.		0.024	**
-0.100	0.	0.		0.024	**
0.	0.100	0.024		0.024	**
0.100	0.200	0.024		0.024	**
0.200	0.300	0.024		0.024	**
0.300	0.400	0.024		0.024	**
0.400	0.500	0.047		0.033	**
0.500	0.600	0.094		0.047	**
0.600	0.700	0.236		0.075	**
0.700	0.800	0.142		0.058	**
0.800	0.900	0.118		0.053	**
0.900	1.000	0.047		0.033	**

JAMES 66.....PR 142 896

HBC 20

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

BEAM MOMENTUM= 2.077 +- .030

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.656	+-	0.140	**
-0.900	-0.800	0.596		0.133	**
-0.800	-0.700	0.685		0.143	**
-0.700	-0.600	0.775		0.152	**
-0.600	-0.500	0.477		0.119	**
-0.500	-0.400	0.656		0.140	**
-0.400	-0.300	0.417		0.112	**
-0.300	-0.200	0.596		0.133	**
-0.200	-0.100	0.477		0.119	**
-0.100	0.	0.745		0.149	**
0.	0.100	0.566		0.130	**
0.100	0.200	0.685		0.143	**
0.200	0.300	0.507		0.123	**
0.300	0.400	0.596		0.133	**
0.400	0.500	0.596		0.133	**
0.500	0.600	0.268		0.089	**
0.600	0.700	1.162		0.186	**
0.700	0.800	1.460		0.209	**
0.800	0.900	1.937		0.240	**
0.900	1.000	4.589		0.370	**

JAMES 66.....PR 142 896 HBC 20

BEAM MOMENTUM= 2.95

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.220	+-	0.090	**
-0.900	-0.800	0.220		0.090	**
-0.800	-0.700	0.073		0.052	**
-0.700	-0.600	0.147		0.073	**
-0.600	-0.500	0.073		0.052	**
-0.500	-0.400	0.294		0.104	**
-0.400	-0.300	0.184		0.082	**
-0.300	-0.200	0.147		0.073	**
-0.200	-0.100	0.110		0.064	**
-0.100	0.	0.110		0.064	**
0.	0.100	0.184		0.082	**
0.100	0.200	0.294		0.104	**
0.200	0.300	0.294		0.104	**
0.300	0.400	0.294		0.104	**
0.400	0.500	0.220		0.090	**
0.500	0.600	0.257		0.097	**
0.600	0.700	0.110		0.064	**
0.700	0.800	0.514		0.137	**
0.800	0.900	1.028		0.194	**
0.900	1.000	5.067		0.431	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.74

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.091	+-	0.045	**
-0.900	-0.800	0.068		0.039	**
-0.800	-0.700	0.113		0.051	**
-0.700	-0.600	0.023		0.023	**
-0.600	-0.500	0.091		0.045	**
-0.500	-0.400	0.045		0.032	**
-0.400	-0.300	0.113		0.051	**
-0.300	-0.200	0.113		0.051	**
-0.200	-0.100	0.045		0.032	**
-0.100	0.	0.023		0.023	**
0.	0.100	0.136		0.055	**
0.100	0.200	0.158		0.060	**
0.200	0.300	0.091		0.045	**
0.300	0.400	0.068		0.039	**
0.400	0.500	0.068		0.039	**
0.500	0.600	0.226		0.072	**
0.600	0.700	0.453		0.101	**
0.700	0.800	0.543		0.111	**
0.800	0.900	0.950		0.147	**
0.900	1.000	6.314		0.378	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 2.34 +- .06

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.302	+-	0.057	**
-0.900	-0.800	0.313		0.058	**
-0.800	-0.700	0.377		0.064	**
-0.700	-0.600	0.377		0.064	**
-0.600	-0.500	0.367		0.063	**
-0.500	-0.400	0.313		0.058	**
-0.400	-0.300	0.345		0.061	**
-0.300	-0.200	0.269		0.054	**
-0.200	-0.100	0.323		0.059	**
-0.100	0.	0.345		0.061	**
0.	0.100	0.356		0.062	**
0.100	0.200	0.496		0.073	**
0.200	0.300	0.528		0.075	**
0.300	0.400	0.539		0.076	**
0.400	0.500	0.431		0.068	**
0.500	0.600	0.614		0.081	**
0.600	0.700	0.690		0.086	**
0.700	0.800	0.938		0.101	**
0.800	0.900	1.940		0.145	**
0.900	1.000	5.045		0.233	**

ANGELOV 69.....JINR P1-4657 HBC

BEAM MOMENTUM= 3.19

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.104	+-	0.042	**
-0.900	-0.800	0.086		0.039	**
-0.800	-0.700	0.086		0.039	**
-0.700	-0.600	0.086		0.039	**
-0.600	-0.500	0.121		0.046	**
-0.500	-0.400	0.138		0.049	**
-0.400	-0.300	0.138		0.049	**
-0.300	-0.200	0.190		0.057	**
-0.200	-0.100	0.086		0.039	**
-0.100	0.	0.052		0.030	**
0.	0.100	0.121		0.046	**
0.100	0.200	0.190		0.057	**
0.200	0.300	0.086		0.039	**
0.300	0.400	0.138		0.049	**
0.400	0.500	0.121		0.046	**
0.500	0.600	0.190		0.057	**
0.600	0.700	0.501		0.093	**
0.700	0.800	0.588		0.101	**
0.800	0.900	0.934		0.127	**
0.900	1.000	4.980		0.293	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 4.08

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.143	+-	0.054	**
-0.900	-0.800	0.061		0.035	**
-0.800	-0.700	0.041		0.029	**
-0.700	-0.600	0.041		0.029	**
-0.600	-0.500	0.061		0.035	**
-0.500	-0.400	0.		0.020	**
-0.400	-0.300	0.		0.020	**
-0.300	-0.200	0.		0.020	**
-0.200	-0.100	0.020		0.020	**
-0.100	0.	0.020		0.020	**
0.	0.100	0.		0.020	**
0.100	0.200	0.061		0.035	**
0.200	0.300	0.020		0.020	**
0.300	0.400	0.041		0.029	**
0.400	0.500	0.082		0.041	**
0.500	0.600	0.082		0.041	**
0.600	0.700	0.246		0.071	**
0.700	0.800	0.307		0.079	**
0.800	0.900	0.696		0.119	**
0.900	1.000	5.401		0.332	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 2.77 +- .04

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.041	+-	0.041	**
-0.900	-0.800	0.249		0.102	**
-0.800	-0.700	0.083		0.059	**
-0.700	-0.600	0.083		0.059	**
-0.600	-0.500	0.166		0.083	**
-0.500	-0.400	0.166		0.083	**
-0.400	-0.300	0.		0.041	**
-0.300	-0.200	0.124		0.072	**
-0.200	-0.100	0.083		0.059	**
-0.100	0.	0.041		0.041	**
0.	0.100	0.124		0.072	**
0.100	0.200	0.124		0.072	**
0.200	0.300	0.124		0.072	**
0.300	0.400	0.166		0.083	**
0.400	0.500	0.083		0.059	**
0.500	0.600	0.124		0.072	**
0.600	0.700	0.124		0.072	**
0.700	0.800	0.124		0.072	**
0.800	0.900	0.124		0.072	**
0.900	1.000	0.		0.041	**
0.	0.050	0.		0.041	**
0.050	0.100	0.207		0.093	**
0.100	0.150	0.124		0.072	**
0.150	0.200	0.041		0.041	**
0.200	0.250	0.166		0.083	**
0.250	0.300	0.207		0.093	**
0.300	0.350	0.414		0.131	**
0.350	0.400	0.249		0.102	**
0.400	0.450	0.373		0.124	**
0.450	0.500	0.332		0.117	**
0.500	0.550	0.124		0.072	**
0.550	0.600	0.207		0.093	**
0.600	0.650	0.414		0.131	**
0.650	0.700	0.373		0.124	**
0.700	0.750	0.290		0.110	**
0.750	0.800	0.705		0.171	**
0.800	0.850	0.708		0.181	**
0.850	0.900	1.907		0.281	**
0.900	0.950	2.694		0.334	**
0.950	1.000	6.134		0.504	**

YAMAMOTO 65.....PR 140 B730 HBC 20

BEAM MOMENTUM= 3.53

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.103	+-	0.042	**
-0.900	-0.800	0.103		0.042	**
-0.800	-0.700	0.103		0.042	**
-0.700	-0.600	0.069		0.034	**
-0.600	-0.500	0.034		0.024	**
-0.500	-0.400	0.103		0.042	**
-0.400	-0.300	0.154		0.051	**
-0.300	-0.200	0.069		0.034	**
-0.200	-0.100	0.017		0.017	**
-0.100	0.	0.137		0.048	**
0.	0.100	0.		0.017	**
0.100	0.200	0.154		0.051	**
0.200	0.300	0.171		0.054	**
0.300	0.400	0.103		0.042	**
0.400	0.500	0.206		0.059	**
0.500	0.600	0.206		0.059	**
0.600	0.700	0.309		0.073	**
0.700	0.800	0.497		0.092	**
0.800	0.900	0.977		0.129	**
0.900	1.000	6.033		0.322	**

BROWN 68.....UCRL 18254 HBC 72

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-$

Differential cross section for $\pi^+p \rightarrow \omega\Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 2.077 +- .030						BEAM MOMENTUM= 2.95						BEAM MOMENTUM= 3.74					
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX					MIN	MAX					MIN	MAX				
-1.000	-0.900	0.212	+-	0.071	**	-1.000	-0.900	0.175	+-	0.078	**	-1.000	-0.900	0.143	+-	0.054	**
-0.900	-0.800	0.212		0.071	**	-0.900	-0.800	0.175		0.078	**	-0.900	-0.800	0.082		0.041	**
-0.800	-0.700	0.142		0.058	**	-0.800	-0.700	0.140		0.070	**	-0.800	-0.700	0.082		0.041	**
-0.700	-0.600	0.142		0.058	**	-0.700	-0.600	0.105		0.061	**	-0.700	-0.600	0.082		0.041	**
-0.600	-0.500	0.330		0.088	**	-0.600	-0.500	0.070		0.050	**	-0.600	-0.500	0.061		0.035	**
-0.500	-0.400	0.236		0.075	**	-0.500	-0.400	0.105		0.061	**	-0.500	-0.400	0.041		0.029	**
-0.400	-0.300	0.330		0.088	**	-0.400	-0.300	0.140		0.070	**	-0.400	-0.300	0.082		0.041	**
-0.300	-0.200	0.260		0.078	**	-0.300	-0.200	0.105		0.061	**	-0.300	-0.200	0.041		0.029	**
-0.200	-0.100	0.189		0.067	**	-0.200	-0.100	0.		0.035	**	-0.200	-0.100	0.082		0.041	**
-0.100	0.	0.330		0.088	**	-0.100	0.	0.035		0.035	**	-0.100	0.	0.		0.041	**
0.	0.100	0.661		0.125	**	0.	0.100	0.035		0.035	**	0.	0.100	0.061		0.035	**
0.100	0.200	0.425		0.100	**	0.100	0.200	0.035		0.035	**	0.100	0.200	0.041		0.029	**
0.200	0.300	0.590		0.118	**	0.200	0.300	0.140		0.070	**	0.200	0.300	0.041		0.029	**
0.300	0.400	0.873		0.144	**	0.300	0.400	0.140		0.070	**	0.300	0.400	0.102		0.046	**
0.400	0.500	0.708		0.129	**	0.400	0.500	0.210		0.086	**	0.400	0.500	0.061		0.035	**
0.500	0.600	1.038		0.157	**	0.500	0.600	0.245		0.093	**	0.500	0.600	0.123		0.050	**
0.600	0.700	0.968		0.151	**	0.600	0.700	0.841		0.172	**	0.600	0.700	0.246		0.071	**
0.700	0.800	1.274		0.173	**	0.700	0.800	0.947		0.182	**	0.700	0.800	0.655		0.116	**
0.800	0.900	0.944		0.149	**	0.800	0.900	1.473		0.227	**	0.800	0.900	1.208		0.157	**
0.900	1.000	0.873		0.144	**	0.900	1.000	2.174		0.276	**	0.900	1.000	1.740		0.189	**
JAMES 66.....PR 142 896 HBC 20						BROWN 68.....UCRL 18254 HBC 72						BROWN 68.....UCRL 18254 HBC 72					
BEAM MOMENTUM= 2.34 +- .06						BEAM MOMENTUM= 3.19						BEAM MOMENTUM= 4.08					
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX					MIN	MAX					MIN	MAX				
-1.000	-0.900	0.169	+-	0.042	**	-1.000	-0.900	0.077	+-	0.034	**	-1.000	-0.900	0.089	+-	0.040	**
-0.900	-0.800	0.222		0.048	**	-0.900	-0.800	0.031		0.022	**	-0.900	-0.800	0.107		0.044	**
-0.800	-0.700	0.127		0.037	**	-0.800	-0.700	0.031		0.022	**	-0.800	-0.700	0.071		0.036	**
-0.700	-0.600	0.169		0.042	**	-0.700	-0.600	0.123		0.044	**	-0.700	-0.600	0.071		0.036	**
-0.600	-0.500	0.137		0.038	**	-0.600	-0.500	0.062		0.031	**	-0.600	-0.500	0.018		0.018	**
-0.500	-0.400	0.243		0.051	**	-0.500	-0.400	0.108		0.041	**	-0.500	-0.400	0.036		0.025	**
-0.400	-0.300	0.275		0.054	**	-0.400	-0.300	0.092		0.038	**	-0.400	-0.300	0.036		0.025	**
-0.300	-0.200	0.327		0.059	**	-0.300	-0.200	0.154		0.049	**	-0.300	-0.200	0.018		0.018	**
-0.200	-0.100	0.243		0.051	**	-0.200	-0.100	0.077		0.034	**	-0.200	-0.100	0.036		0.025	**
-0.100	0.	0.275		0.054	**	-0.100	0.	0.139		0.046	**	-0.100	0.	0.018		0.018	**
0.	0.100	0.201		0.046	**	0.	0.100	0.077		0.034	**	0.	0.100	0.053		0.031	**
0.100	0.200	0.317		0.058	**	0.100	0.200	0.108		0.041	**	0.100	0.200	0.036		0.025	**
0.200	0.300	0.401		0.065	**	0.200	0.300	0.046		0.027	**	0.200	0.300	0.053		0.031	**
0.300	0.400	0.496		0.072	**	0.300	0.400	0.154		0.049	**	0.300	0.400	0.071		0.036	**
0.400	0.500	0.634		0.082	**	0.400	0.500	0.108		0.041	**	0.400	0.500	0.036		0.025	**
0.500	0.600	0.750		0.089	**	0.500	0.600	0.339		0.072	**	0.500	0.600	0.071		0.036	**
0.600	0.700	1.056		0.106	**	0.600	0.700	0.570		0.094	**	0.600	0.700	0.213		0.062	**
0.700	0.800	1.236		0.114	**	0.700	0.800	0.785		0.110	**	0.700	0.800	0.409		0.085	**
0.800	0.900	1.690		0.134	**	0.800	0.900	0.939		0.120	**	0.800	0.900	0.961		0.131	**
0.900	1.000	2.682		0.168	**	0.900	1.000	1.925		0.172	**	0.900	1.000	1.761		0.177	**
ANGELOV 69.....JINR P1-4657 HBC						BROWN 68.....UCRL 18254 HBC 72						BROWN 68.....UCRL 18254 HBC 72					
BEAM MOMENTUM= 2.77 +- .04						BEAM MOMENTUM= 3.53											
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)									
MIN	MAX					MIN	MAX										
-1.000	-0.950	0.206	+-	0.092	**	-1.000	-0.900	0.128	+-	0.045	**						
-0.950	-0.900	0.247		0.101	**	-0.900	-0.800	0.080		0.036	**						
-0.900	-0.850	0.041		0.041	**	-0.800	-0.700	0.096		0.039	**						
-0.850	-0.800	0.330		0.117	**	-0.700	-0.600	0.080		0.036	**						
-0.800	-0.750	0.041		0.041	**	-0.600	-0.500	0.064		0.032	**						
-0.750	-0.700	0.082		0.058	**	-0.500	-0.400	0.032		0.023	**						
-0.700	-0.650	0.041		0.041	**	-0.400	-0.300	0.048		0.028	**						
-0.650	-0.600	0.082		0.058	**	-0.300	-0.200	0.048		0.028	**						
-0.600	-0.550	0.124		0.071	**	-0.200	-0.100	0.032		0.023	**						
-0.550	-0.500	0.289		0.109	**	-0.100	0.	0.048		0.028	**						
-0.500	-0.450	0.041		0.041	**	0.	0.100	0.032		0.023	**						
-0.450	-0.400	0.165		0.082	**	0.100	0.200	0.032		0.023	**						
-0.400	-0.350	0.247		0.101	**	0.200	0.300	0.032		0.023	**						
-0.350	-0.300	0.247		0.101	**	0.300	0.400	0.048		0.028	**						
-0.300	-0.250	0.165		0.082	**	0.400	0.500	0.144		0.048	**						
-0.250	-0.200	0.082		0.058	**	0.500	0.600	0.367		0.077	**						
-0.200	-0.150	0.165		0.082	**	0.600	0.700	0.271		0.066	**						
-0.150	-0.100	0.289		0.109	**	0.700	0.800	0.734		0.108	**						
-0.100	-0.050	0.082		0.058	**	0.800	0.900	1.357		0.147	**						
-0.050	0.	0.		0.041	**	0.900	1.000	1.724		0.166	**						
0.	0.050	0.206		0.092	**												
0.050	0.100	0.124		0.071	**												
0.100	0.150	0.454		0.137	**												
0.150	0.200	0.124		0.071	**												
0.200	0.250	0.289		0.109	**												
0.250	0.300	0.289		0.109	**												
0.300	0.350	0.495		0.143	**												
0.350	0.400	0.330		0.117	**												
0.400	0.450	0.660		0.165	**												
0.450	0.500	0.119		0.160	**												
0.500	0.550	0.660		0.165	**												
0.550	0.600	0.742		0.175	**												
0.600	0.650	1.031		0.206	**												
0.650	0.700	1.072		0.210	**												
0.700	0.750	1.279		0.230	**												
0.750	0.800	2.186		0.300	**												
0.800	0.850	1.815		0.274	**												
0.850	0.900	2.227		0.303	**												
0.900	0.950	2.970		0.350	**												
0.950	1.000	2.681		0.333	**												
YAMAMOTO 65.....PR 140 B730 HBC 20						BROWN 68.....UCRL 18254 HBC 72											

Differential cross section for $\pi^+p \rightarrow \omega \Delta(1238)^{++}$
 $\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^-\pi^0 \end{array}$

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

BEAM MOMENTUM= 1.044 +- .007

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.016	+-	0.006 *
-0.800	-0.600	0.011		0.006 *
-0.600	-0.400	0.024		0.008 *
-0.400	-0.200	0.037		0.010 *
-0.200	0.	0.022		0.007 *
0.	0.200	0.027		0.009 *
0.200	0.400	0.027		0.009 *
0.400	0.600	0.045		0.011 *
0.600	0.800	0.043		0.011 *
0.800	1.000	0.045		0.011 *
GRARD		62.....PR 127	607	HBC 72

BEAM MOMENTUM= 1.058 +- .007

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.023	+-	0.008 *
-0.800	-0.600	0.015		0.006 *
-0.600	-0.400	0.030		0.010 *
-0.400	-0.200	0.035		0.009 *
-0.200	0.	0.038		0.010 *
0.	0.200	0.035		0.009 *
0.200	0.400	0.040		0.010 *
0.400	0.600	0.053		0.012 *
0.600	0.800	0.068		0.014 *
0.800	1.000	0.073		0.013 *
GRARD		62.....PR 127	607	HBC 72

BEAM MOMENTUM= 1.111

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-0.900	-0.700	0.027	+-	0.008 **
-0.700	-0.500	0.029		0.008 **
-0.500	-0.300	0.047		0.010 **
-0.300	-0.100	0.038		0.009 **
-0.100	0.	0.045		0.010 **
0.	0.100	0.056		0.011 **
0.100	0.300	0.092		0.014 **
0.300	0.500	0.101		0.015 **
0.500	0.700	0.130		0.017 **
0.700	0.900	0.155		0.019 **
CARAYANNOP		65.....PR 138	B433	HBC 72

BEAM MOMENTUM= 1.155 +- .025

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.500	0.079	+-	0.026 *
-0.500	0.	0.060		0.022 *
0.	0.500	0.131		0.035 *
0.500	1.000	0.158		0.039 *
BERTHELOT		61.....NC 21	693	PBC 42

BEAM MOMENTUM= 1.17

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-0.950	-0.850	0.057	+-	0.022
-0.850	-0.750	0.063		0.025
-0.750	-0.650	0.094		0.031
-0.650	-0.550	0.050		0.025
-0.550	-0.450	0.044		0.019
-0.450	-0.350	0.019		0.013
-0.350	-0.250	0.019		0.013
-0.250	-0.150	0.038		0.025
-0.150	-0.050	0.094		0.031
-0.050	0.	0.094		0.031
0.	0.050	0.132		0.035
0.050	0.150	0.094		0.028
0.150	0.250	0.195		0.038
0.250	0.350	0.113		0.028
0.350	0.450	0.157		0.035
0.450	0.550	0.170		0.035
0.550	0.650	0.132		0.035
0.650	0.750	0.138		0.025
0.750	0.850	0.188		0.050
0.850	0.950	0.132		0.031
CRAWFORD		62.....PR 128	368	HBC 72

BEAM MOMENTUM= 1.206

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-0.900	-0.700	0.074	+-	0.015 **
-0.700	-0.500	0.071		0.014 **
-0.500	-0.300	0.028		0.009 **
-0.300	-0.100	0.043		0.011 **
-0.100	0.	0.088		0.016 **
0.	0.100	0.108		0.018 **
0.100	0.300	0.154		0.021 **
0.300	0.500	0.196		0.024 **
0.500	0.700	0.148		0.021 **
0.700	0.900	0.159		0.021 **
CARAYANNOP		65.....PR 138	B433	HBC 72

BEAM MOMENTUM= 1.252

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.660	0.	+-	0.019
-0.660	-0.330	0.013		0.020
-0.330	0.	0.031		0.031
0.	0.330	0.057		0.013
0.330	0.660	0.057		0.035
0.660	1.000	0.075		0.021
		0.088		0.038
		0.088		0.025
		0.088		0.044
		0.088		0.031
BALTAY		61.....RMP 33	374	HBC 20

BEAM MOMENTUM= 1.265

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-0.900	-0.700	0.090	+-	0.019 **
-0.700	-0.500	0.090		0.019 **
-0.500	-0.300	0.031		0.011 **
-0.300	-0.100	0.109		0.021 **
-0.100	0.	0.128		0.022 **
0.	0.100	0.171		0.026 **
0.100	0.300	0.214		0.029 **
0.300	0.500	0.214		0.029 **
0.500	0.700	0.241		0.031 **
0.700	0.900	0.101		0.020 **
CARAYANNOP		65.....PR 138	B433	HBC 72

BEAM MOMENTUM= 1.362

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.082	+-	0.019
-0.800	-0.600	0.050		0.013
-0.600	-0.400	0.038		0.013
-0.400	-0.200	0.082		0.019
-0.200	0.	0.088		0.019
0.	0.200	0.145		0.025
0.200	0.400	0.170		0.025
0.400	0.600	0.214		0.031
0.600	0.800	0.209		0.031
0.800	1.000	0.132		0.025
BALTAY		61.....RMP 33	374	HBC 20

BEAM MOMENTUM= 1.533

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.214	+-	0.126
-0.800	-0.600	0.126		0.075
-0.600	-0.400	0.		0.088
-0.400	-0.200	0.075		0.050
-0.200	0.	0.157		0.063
0.	0.200	0.151		0.094
0.200	0.400	0.484		0.057
0.400	0.600	0.509		0.132
0.600	0.800	0.188		0.138
0.800	1.000	0.220		0.101
BALTAY		61.....RMP 33	374	HBC 20

BEAM MOMENTUM= 1.7

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.900	0.395	+-	0.041
-0.900	-0.800	0.160		0.024
-0.800	-0.700	0.141		0.023
-0.700	-0.600	0.186		0.026
-0.600	-0.500	0.232		0.030
-0.500	-0.400	0.224		0.029
-0.400	-0.300	0.280		0.033
-0.300	-0.200	0.229		0.030
-0.200	-0.100	0.245		0.031
-0.100	0.	0.171		0.025
0.	0.100	0.242		0.031
0.100	0.200	0.238		0.030
0.200	0.300	0.271		0.033
0.300	0.400	0.213		0.028
0.400	0.500	0.177		0.025
0.500	0.600	0.161		0.025
0.600	0.700	0.109		0.019
0.700	0.800	0.119		0.020
0.800	0.900	0.304		0.035
0.900	1.000	0.646		0.057
PAN		70.....PR D 2	449	HBC 16

BEAM MOMENTUM= 1.95

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.126	+-	0.031 *
-0.800	-0.600	0.170		0.057 *
-0.600	-0.400	0.264		0.082 *
-0.400	-0.200	0.138		0.057 *
-0.200	0.	0.107		0.057 *
0.	0.200	0.251		0.069 *
0.200	0.400	0.195		0.050 *
0.400	0.600	0.239		0.069 *
0.600	0.800	0.188		0.057 *
0.800	1.000	0.446		0.082 *
DAGAN		67.....PR 161	1384	HBC 20

BEAM MOMENTUM= 2.35 + 2.62, - 2.90

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.900	0.051	+-	0.029 **
-0.900	-0.800	0.051		0.029 **
-0.800	-0.700	0.017		0.017 **
-0.700	-0.600	0.051		0.029 **
-0.600	-0.500	0.017		0.017 **
-0.500	-0.400	0.051		0.029 **
-0.400	-0.300	0.		0.017 **
-0.300	-0.200	0.		0.017 **
-0.200	-0.100	0.034		0.024 **
-0.100	0.	0.17		0.017 **
0.	0.100	0.153		0.051 **
0.100	0.200	0.102		0.042 **
0.200	0.300	0.085		0.038 **
0.300	0.400	0.170		0.054 **
0.400	0.500	0.017		0.017 **
0.500	0.600	0.068		0.034 **
0.600	0.700	0.017		0.017 **
0.700	0.800	0.017		0.017 **
0.800	0.900	0.136		0.048 **
0.900	1.000	0.646		0.105 **
BERLEY		65.....PR 13981097		HBC 20

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$ $\searrow \rightarrow n\pi^+$

BEAM MOMENTUM= 1.28						BEAM MOMENTUM= 1.43						BEAM MOMENTUM= 1.68					
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX					MIN	MAX					MIN	MAX				
-1.000	-0.900	0.058	+-	0.019	**	-1.000	-0.900	0.039	+-	0.014	**	-1.000	-0.900	0.137	+-	0.026	**
-0.900	-0.800	0.046		0.017	**	-0.900	-0.800	0.107		0.023	**	-0.900	-0.800	0.076		0.019	**
-0.800	-0.700	0.089		0.023	**	-0.800	-0.700	0.127		0.025	**	-0.800	-0.700	0.092		0.022	**
-0.700	-0.600	0.125		0.027	**	-0.700	-0.600	0.134		0.026	**	-0.700	-0.600	0.083		0.020	**
-0.600	-0.500	0.080		0.022	**	-0.600	-0.500	0.127		0.025	**	-0.600	-0.500	0.122		0.025	**
-0.500	-0.400	0.144		0.029	**	-0.500	-0.400	0.158		0.028	**	-0.500	-0.400	0.137		0.026	**
-0.400	-0.300	0.069		0.020	**	-0.400	-0.300	0.128		0.025	**	-0.400	-0.300	0.132		0.026	**
-0.300	-0.200	0.077		0.022	**	-0.300	-0.200	0.103		0.023	**	-0.300	-0.200	0.105		0.023	**
-0.200	-0.100	0.077		0.022	**	-0.200	-0.100	0.079		0.020	**	-0.200	-0.100	0.068		0.016	**
-0.100	0.	0.093		0.024	**	-0.100	0.	0.073		0.019	**	-0.100	0.	0.096		0.022	**
0.	0.100	0.048		0.017	**	0.	0.100	0.058		0.017	**	0.	0.100	0.061		0.018	**
0.100	0.200	0.074		0.021	**	0.100	0.200	0.090		0.021	**	0.100	0.200	0.072		0.019	**
0.200	0.300	0.049		0.017	**	0.200	0.300	0.063		0.018	**	0.200	0.300	0.111		0.024	**
0.300	0.400	0.025		0.012	**	0.300	0.400	0.044		0.015	**	0.300	0.400	0.039		0.014	**
0.400	0.500	0.017		0.010	**	0.400	0.500	0.018		0.009	**	0.400	0.500	0.067		0.018	**
0.500	0.600	0.018		0.010	**	0.500	0.600	0.033		0.013	**	0.500	0.600	0.061		0.014	**
0.600	0.700	0.026		0.012	**	0.600	0.700	0.011		0.008	**	0.600	0.700	0.034		0.013	**
0.700	0.800	0.041		0.016	**	0.700	0.800	0.068		0.018	**	0.700	0.800	0.029		0.012	**
0.800	0.900	0.035		0.014	**	0.800	0.900	0.114		0.024	**	0.800	0.900	0.072		0.019	**
0.900	1.000	0.096		0.024	**	0.900	1.000	0.290		0.038	**	0.900	1.000	0.299		0.039	**
KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS	

BEAM MOMENTUM= 1.34						BEAM MOMENTUM= 1.55						BEAM MOMENTUM= 1.77					
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX					MIN	MAX					MIN	MAX				
-1.000	-0.900	0.029	+-	0.011	**	-1.000	-0.900	0.082	+-	0.026	**	-1.000	-0.900	0.195	+-	0.037	**
-0.900	-0.800	0.071		0.017	**	-0.900	-0.800	0.059		0.022	**	-0.900	-0.800	0.088		0.025	**
-0.800	-0.700	0.130		0.023	**	-0.800	-0.700	0.047		0.019	**	-0.800	-0.700	0.045		0.018	**
-0.700	-0.600	0.058		0.015	**	-0.700	-0.600	0.136		0.033	**	-0.700	-0.600	0.088		0.025	**
-0.600	-0.500	0.096		0.020	**	-0.600	-0.500	0.166		0.036	**	-0.600	-0.500	0.139		0.031	**
-0.500	-0.400	0.140		0.024	**	-0.500	-0.400	0.166		0.036	**	-0.500	-0.400	0.081		0.024	**
-0.400	-0.300	0.135		0.023	**	-0.400	-0.300	0.148		0.034	**	-0.400	-0.300	0.038		0.016	**
-0.300	-0.200	0.121		0.022	**	-0.300	-0.200	0.160		0.036	**	-0.300	-0.200	0.095		0.026	**
-0.200	-0.100	0.098		0.020	**	-0.200	-0.100	0.160		0.036	**	-0.200	-0.100	0.064		0.021	**
-0.100	0.	0.036		0.012	**	-0.100	0.	0.080		0.025	**	-0.100	0.	0.129		0.030	**
0.	0.100	0.074		0.017	**	0.	0.100	0.080		0.025	**	0.	0.100	0.052		0.019	**
0.100	0.200	0.086		0.019	**	0.100	0.200	0.062		0.022	**	0.100	0.200	0.090		0.025	**
0.200	0.300	0.049		0.014	**	0.200	0.300	0.154		0.035	**	0.200	0.300	0.045		0.018	**
0.300	0.400	0.059		0.015	**	0.300	0.400	0.059		0.022	**	0.300	0.400	0.081		0.024	**
0.400	0.500	0.025		0.010	**	0.400	0.500	0.059		0.022	**	0.400	0.500	0.113		0.028	**
0.500	0.600	0.018		0.009	**	0.500	0.600	0.066		0.023	**	0.500	0.600	0.070		0.022	**
0.600	0.700	0.040		0.013	**	0.600	0.700	0.022		0.013	**	0.600	0.700	0.029		0.014	**
0.700	0.800	0.043		0.013	**	0.700	0.800	0.045		0.019	**	0.700	0.800	0.070		0.022	**
0.800	0.900	0.064		0.016	**	0.800	0.900	0.148		0.034	**	0.800	0.900	0.119		0.029	**
0.900	1.000	0.152		0.025	**	0.900	1.000	0.356		0.053	**	0.900	1.000	0.285		0.045	**
KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS	

BEAM MOMENTUM= 1.41						BEAM MOMENTUM= 1.63						BEAM MOMENTUM= 1.84					
COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)				COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX					MIN	MAX					MIN	MAX				
-1.000	-0.900	0.044	+-	0.016	**	-1.000	-0.900	0.138	+-	0.026	**	-1.000	-0.900	0.155	+-	0.037	**
-0.900	-0.800	0.160		0.031	**	-0.900	-0.800	0.109		0.023	**	-0.900	-0.800	0.099		0.030	**
-0.800	-0.700	0.101		0.025	**	-0.800	-0.700	0.109		0.023	**	-0.800	-0.700	0.081		0.027	**
-0.700	-0.600	0.143		0.029	**	-0.700	-0.600	0.098		0.022	**	-0.700	-0.600	0.053		0.022	**
-0.600	-0.500	0.110		0.026	**	-0.600	-0.500	0.109		0.023	**	-0.600	-0.500	0.099		0.030	**
-0.500	-0.400	0.164		0.031	**	-0.500	-0.400	0.166		0.029	**	-0.500	-0.400	0.125		0.034	**
-0.400	-0.300	0.096		0.024	**	-0.400	-0.300	0.148		0.027	**	-0.400	-0.300	0.053		0.022	**
-0.300	-0.200	0.133		0.028	**	-0.300	-0.200	0.096		0.022	**	-0.300	-0.200	0.078		0.027	**
-0.200	-0.100	0.136		0.029	**	-0.200	-0.100	0.052		0.016	**	-0.200	-0.100	0.046		0.020	**
-0.100	0.	0.070		0.020	**	-0.100	0.	0.046		0.015	**	-0.100	0.	0.087		0.028	**
0.	0.100	0.089		0.023	**	0.	0.100	0.097		0.022	**	0.	0.100	0.102		0.010	**
0.100	0.200	0.058		0.019	**	0.100	0.200	0.039		0.014	**	0.100	0.200	0.087		0.028	**
0.200	0.300	0.046		0.017	**	0.200	0.300	0.056		0.017	**	0.200	0.300	0.121		0.033	**
0.300	0.400	0.050		0.017	**	0.300	0.400	0.069		0.019	**	0.300	0.400	0.032		0.017	**
0.400	0.500	0.068		0.020	**	0.400	0.500	0.114		0.024	**	0.400	0.500	0.139		0.035	**
0.500	0.600	0.038		0.015	**	0.500	0.600	0.020		0.010	**	0.500	0.600	0.081		0.027	**
0.600	0.700	0.059		0.019	**	0.600	0.700	0.028		0.012	**	0.600	0.700	0.023		0.015	**
0.700	0.800	0.042		0.016	**	0.700	0.800	0.077		0.020	**	0.700	0.800	0.049		0.021	**
0.800	0.900	0.047		0.017	**	0.800	0.900	0.073		0.019	**	0.800	0.900	0.087		0.028	**
0.900	1.000	0.191		0.034	**	0.900	1.000	0.223		0.033	**	0.900	1.000	0.336		0.055	**
KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS		KALMUS	70.....PR D2 1824			HBCS	

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$
 $\rightarrow n\pi^+$

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$

BEAM MOMENTUM= 1.42 +- .01

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.008	+-	0.005	**
-0.800	-0.600	0.021		0.008	**
-0.600	-0.400	0.016		0.007	**
-0.400	-0.200	0.041		0.012	**
-0.200	0.	0.033		0.011	**
0.	0.200	0.031		0.010	**
0.200	0.400	0.021		0.009	**
0.400	0.600	0.012		0.007	**
0.600	0.800	0.013		0.007	**
0.800	1.000	0.005		0.004	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.458 + .146 , - .141

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.666	0.019	+-	0.006	**
-0.666	-0.333	0.024		0.007	**
-0.333	0.	0.024		0.007	**
0.	0.333	0.036		0.009	**
0.333	0.666	0.032		0.008	**
0.666	1.000	0.013		0.005	**
DAVIES	70.....PR D 2 506	DBC	72		

BEAM MOMENTUM= 1.55

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.043	+-	0.015	**
-0.800	-0.600	0.006		0.005	**
-0.600	-0.400	0.024		0.011	**
-0.400	-0.200	0.046		0.015	**
-0.200	0.	0.032		0.013	**
0.	0.200	0.037		0.014	**
0.200	0.400	0.056		0.017	**
0.400	0.600	0.052		0.016	**
0.600	0.800	0.037		0.014	**
0.800	1.000	0.039		0.014	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.62

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.038	+-	0.011	**
-0.800	-0.600	0.066		0.014	**
-0.600	-0.400	0.051		0.013	**
-0.400	-0.200	0.039		0.011	**
-0.200	0.	0.041		0.011	**
0.	0.200	0.052		0.013	**
0.200	0.400	0.093		0.017	**
0.400	0.600	0.093		0.017	**
0.600	0.800	0.057		0.013	**
0.800	1.000	0.041		0.011	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.68

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.013	+-	0.006	**
-0.800	-0.600	0.028		0.009	**
-0.600	-0.400	0.024		0.009	**
-0.400	-0.200	0.032		0.010	**
-0.200	0.	0.051		0.013	**
0.	0.200	0.035		0.011	**
0.200	0.400	0.088		0.017	**
0.400	0.600	0.069		0.015	**
0.600	0.800	0.034		0.010	**
0.800	1.000	0.023		0.008	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.689 + .087 , - .086

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.666	0.020	+-	0.006	**
-0.666	-0.333	0.026		0.007	**
-0.333	0.	0.036		0.009	**
0.	0.333	0.053		0.010	**
0.333	0.666	0.061		0.011	**
0.666	1.000	0.020		0.006	**
DAVIES	70.....PR D 2 506	DBC	72		

BEAM MOMENTUM= 1.7

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.900	0.025	+-	0.006	**
-0.900	-0.800	0.030		0.007	**
-0.800	-0.700	0.031		0.007	**
-0.700	-0.600	0.021		0.006	**
-0.600	-0.500	0.034		0.007	**
-0.500	-0.400	0.028		0.007	**
-0.400	-0.300	0.040		0.008	**
-0.300	-0.200	0.034		0.007	**
-0.200	-0.100	0.055		0.009	**
-0.100	0.	0.048		0.008	**
0.100	0.200	0.060		0.010	**
0.200	0.300	0.066		0.010	**
0.300	0.400	0.057		0.009	**
0.400	0.500	0.066		0.010	**
0.	1.000	0.034		0.007	**
0.500	0.600	0.076		0.011	**
0.600	0.700	0.051		0.009	**
0.700	0.800	0.058		0.009	**
0.800	0.900	0.045		0.008	**
0.900	1.000	0.027		0.006	**
PAN	70.....NP B21 395	HBC	16		

BEAM MOMENTUM= 1.77

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.035	+-	0.012	**
-0.800	-0.600	0.043		0.014	**
-0.600	-0.400	0.053		0.015	**
-0.400	-0.200	0.059		0.016	**
-0.200	0.	0.070		0.018	**
0.	0.200	0.066		0.017	**
0.200	0.400	0.039		0.013	**
0.400	0.600	0.093		0.020	**
0.600	0.800	0.077		0.018	**
0.800	1.000	0.033		0.012	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.84

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.039	+-	0.015	**
-0.800	-0.600	0.028		0.013	**
-0.600	-0.400	0.026		0.012	**
-0.400	-0.200	0.049		0.017	**
-0.200	0.	0.028		0.013	**
0.	0.200	0.051		0.017	**
0.200	0.400	0.053		0.017	**
0.400	0.600	0.037		0.015	**
0.600	0.800	0.072		0.020	**
0.800	1.000	0.072		0.020	**
HANSON	71.....PR D4 1296	HBGS			

BEAM MOMENTUM= 1.888 + .114 , - .111

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.666	0.022	+-	0.007	**
-0.666	-0.333	0.044		0.010	**
-0.333	0.	0.032		0.009	**
0.	0.333	0.041		0.010	**
0.333	0.666	0.080		0.014	**
0.666	1.000	0.068		0.013	**
DAVIES	70.....PR D 2 506	DBC	72		

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.026	+-	0.005	**
-0.800	-0.600	0.018		0.004	**
-0.600	-0.400	0.018		0.004	**
-0.400	-0.200	0.018		0.004	**
-0.200	0.	0.006		0.002	**
0.	0.200	0.008		0.003	**
0.200	0.400	0.032		0.005	**
0.400	0.600	0.030		0.005	**
0.600	0.800	0.047		0.007	**
0.800	1.000	0.037		0.006	**
MOORE	70.....THESIS	DBC	33		

BEAM MOMENTUM= 2.238 + .247 , - .236

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.666	0.021	+-	0.006	**
-0.666	-0.333	0.010		0.004	**
-0.333	0.	0.014		0.005	**
0.	0.333	0.012		0.005	**
0.333	0.666	0.040		0.008	**
0.666	1.000	0.038		0.008	**
DAVIES	70.....PR D 2 506	DBC	72		

BEAM MOMENTUM= 5.5

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
0.820	0.840	0.055			**
0.840	0.860	0.038			**
0.860	0.880	0.024			**
0.880	0.900	0.050			**
0.900	0.920	0.050			**
0.920	0.940	0.025			**
0.940	0.960	0.221			**
0.960	0.980	0.199			**
0.980	1.000	0.099			**
COOPER	70.....NP B23 605	HBC	33		

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

$$\Lambda \rightarrow \Lambda \pi^+$$

Differential cross section

for $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^0\pi^+$

BEAM MOMENTUM= 2.34 $\pm$.155

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.666	0.043	$\pm$ 0.014
-0.666	-0.333	0.029	0.012
-0.333	0.	0.048	0.015
0.	0.333	0.062	0.017
0.333	0.666	0.062	0.017
0.666	1.000	0.038	0.014

DAVIES 70.....PR D 2 506

DBC 72

BEAM MOMENTUM= 2.62 $\pm$.28 $\pm$.27

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.038	$\pm$ 0.019
-0.800	-0.600	0.066	0.025
-0.600	-0.400	0.038	0.019
-0.400	-0.200	0.019	0.013
-0.200	0.	0.	0.009
0.	0.200	0.009	0.009
0.200	0.400	0.019	0.013
0.400	0.600	0.047	0.021
0.600	0.800	0.038	0.019
0.800	1.000	0.085	0.028

BERLEY 65.....PR 139B1097

HBC 20

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \rightarrow K^+\pi^0 + K^0\pi^+$

BEAM MOMENTUM= 2.77 $\pm$.04

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.051	$\pm$ 0.018
-0.800	-0.600	0.051	0.018
-0.600	-0.400	0.019	0.011
-0.400	-0.200	0.013	0.009
-0.200	0.	0.006	0.006
0.	0.200	0.006	0.006
0.200	0.400	0.025	0.013
0.400	0.600	0.044	0.017
0.600	0.800	0.044	0.017
0.800	1.000	0.108	0.026

YAMAMOTO 64.....PR 134 B383

HBC 20

BEAM MOMENTUM= 5.4

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
0.600	0.640	0.	$\pm$ 0.012
0.640	0.680	0.012	0.012
0.680	0.720	0.	0.012
0.720	0.760	0.094	0.033
0.760	0.800	0.035	0.020
0.800	0.840	0.152	0.042
0.840	0.880	0.129	0.039
0.880	0.920	0.222	0.051
0.920	0.960	0.433	0.071
0.960	1.000	0.526	0.078

COOPER 68.....PRL 20 472

HBC 33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

$$\frac{d\sigma}{d \cos \theta} \quad \text{Differential Cross Sections}$$

2. $\pi^+ n$ Interactions

Differential cross section for $\pi^+n \rightarrow \pi^0p$

BEAM MOMENTUM= .72

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
-0.850	2.136	0.691 *
-0.750	1.759	0.565 *
-0.650	1.194	0.377 *
-0.550	1.382	0.565 *
-0.450	0.817	0.377 *
-0.350	0.628	0.377 *
-0.250	1.194	0.565 *
-0.150	1.194	0.565 *
-0.050	1.696	0.565 *
0.050	2.765	0.565 *
0.150	2.199	0.503 *
0.250	2.765	0.691 *
0.350	5.215	1.068 *
0.450	6.472	1.257 *
0.550	9.676	1.445 *
0.650	7.728	1.068 *
0.750	9.299	1.257 *
0.850	9.488	1.257 *

MULLER

64.....PL 10 349

HBC,DBC

BEAM MOMENTUM= .786

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
-0.950	1.194	0.565 *
-0.850	2.953	0.880 *
-0.750	3.519	1.005 *
-0.650	5.027	1.194 *
-0.550	1.131	0.565 *
-0.400	1.131	0.565 *
-0.250	1.257	0.440 *
-0.150	0.942	0.440 *
-0.050	2.011	0.754 *
0.050	2.262	0.880 *
0.250	1.696	0.880 *
0.350	4.650	1.005 *
0.450	4.775	1.194 *
0.550	3.267	1.005 *
0.650	3.581	1.005 *
0.750	8.859	1.194 *
0.850	11.247	1.948 *

MULLER

64.....PL 10 349

HBC,DBC

BEAM MOMENTUM= .854

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
-0.950	3.330	0.942 *
-0.850	3.079	0.817 *
-0.750	3.958	0.942 *
-0.650	4.398	1.005 *
-0.550	4.147	0.942 *
-0.450	4.456	0.942 *
-0.350	1.508	0.440 *
-0.250	0.880	0.565 *
-0.150	0.880	0.377 *
-0.050	1.005	0.440 *
0.050	0.503	0.314 *
0.150	1.194	0.440 *
0.250	1.382	0.565 *
0.350	2.325	0.817 *
0.450	1.696	0.565 *
0.550	2.011	0.691 *
0.650	1.319	0.691 *
0.750	5.215	1.257 *
0.850	4.712	1.131 *

MULLER

64.....PL 10 349

HBC,DBC

BEAM MOMENTUM= .923

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
-0.850	7.477	0.817 *
-0.750	8.859	1.131 *
-0.650	5.781	0.817 *
-0.550	3.204	0.817 *
-0.450	2.073	0.817 *
-0.350	2.325	0.565 *
-0.250	0.942	0.251 *
-0.150	0.628	0.565 *
-0.050	1.131	0.565 *
0.050	1.696	0.565 *
0.150	1.382	0.251 *
0.250	1.885	0.565 *
0.350	1.319	0.565 *
0.450	1.005	0.565 *
0.550	1.822	0.314 *
0.650	2.890	0.817 *
0.750	3.707	0.817 *
0.850	7.603	0.817 *

MULLER

64.....PL 10 349

HBC,DBC

BEAM MOMENTUM= .994

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
-0.950	3.330	1.382 *
-0.850	7.791	2.262 *
-0.750	7.163	2.513 *
-0.650	3.267	1.696 *
-0.550	4.650	1.948 *
-0.400	1.759	0.817 *
-0.200	0.880	0.817 *
0.	1.131	0.817 *
0.150	3.016	1.382 *
0.250	2.450	1.131 *
0.350	2.136	0.565 *
0.450	2.388	1.131 *
0.550	3.204	1.131 *
0.650	1.508	0.817 *
0.750	3.142	1.382 *
0.850	9.550	3.079 *

MULLER

64.....PL 10 349

HBC,DBC

* DATA READ FROM GRAPH

Differential cross section
for $\pi^+ n \rightarrow \eta p$
 $\rightarrow \pi^+ \pi^- \pi^0 + \pi^+ \pi^- \gamma + \text{<other mode>}$

BEAM MOMENTUM= .703 + .027 , - .027

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.938	+- 0.242 **
-0.800	-0.600	0.750	0.217 **
-0.600	-0.400	0.500	0.177 **
-0.400	-0.200	0.750	0.217 **
-0.200	0.	1.063	0.258 **
0.	0.200	0.813	0.225 **
0.200	0.400	0.563	0.188 **
0.400	0.600	1.000	0.250 **
0.600	0.800	0.813	0.225 **
0.800	1.000	1.063	0.258 **

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .756 + .027 , - .026

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.860	+- 0.169 **
-0.800	-0.600	0.926	0.175 **
-0.600	-0.400	0.926	0.175 **
-0.400	-0.200	0.860	0.169 **
-0.200	0.	0.926	0.175 **
0.	0.200	0.992	0.181 **
0.200	0.400	0.926	0.175 **
0.400	0.600	1.455	0.219 **
0.600	0.800	1.124	0.193 **
0.800	1.000	1.256	0.204 **

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .81 + .027 , - .027

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	1.796	+- 0.277 **
-0.800	-0.600	1.411	0.246 **
-0.600	-0.400	1.198	0.226 **
-0.400	-0.200	1.625	0.266 **
-0.200	0.	1.240	0.230 **
0.	0.200	1.283	0.234 **
0.200	0.400	1.198	0.226 **
0.400	0.600	1.240	0.230 **
0.600	0.800	1.497	0.253 **
0.800	1.000	2.010	0.293 **

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .89 + .054 , - .053

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	2.016	+- 0.319 **
-0.800	-0.600	0.857	0.208 **
-0.600	-0.400	1.260	0.252 **
-0.400	-0.200	0.907	0.214 **
-0.200	0.	1.008	0.225 **
0.	0.200	0.706	0.189 **
0.200	0.400	1.059	0.231 **
0.400	0.600	1.361	0.262 **
0.600	0.800	2.117	0.327 **
0.800	1.000	1.159	0.242 **

LITCHFIELD 69.....PR 183 1152

DBC 180

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow \eta p$

$\rightarrow \pi^+ \pi^- \pi^0$

BEAM MOMENTUM= 1.049

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.	0.710 **
-0.900	-0.800	0.	0.710 **
-0.800	-0.700	0.583	0.643 **
-0.700	-0.600	0.	0.710 **
-0.600	-0.500	0.	0.710 **
-0.500	-0.400	0.	0.710 **
-0.400	-0.300	0.021	0.123 **
-0.300	-0.200	0.	0.710 **
-0.200	-0.100	1.336	0.974 **
-0.100	0.	0.007	0.071 **
0.	0.100	0.590	0.647 **
0.100	0.200	0.	0.710 **
0.200	0.300	1.314	0.966 **
0.300	0.400	2.750	1.398 **
0.400	0.500	0.604	0.655 **
0.500	0.600	1.300	0.961 **
0.600	0.700	1.336	0.974 **
0.700	0.800	0.597	0.651 **
0.800	0.900	1.407	1.000 **
0.900	1.000	0.703	0.707 **

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.236

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.228	0.240 **
-0.900	-0.800	0.203	0.227 **
-0.800	-0.700	0.228	0.240 **
-0.700	-0.600	0.228	0.240 **
-0.600	-0.500	0.	0.253 **
-0.500	-0.400	0.	0.253 **
-0.400	-0.300	0.	0.253 **
-0.300	-0.200	0.203	0.227 **
-0.200	-0.100	0.025	0.080 **
-0.100	0.	0.735	0.432 **
0.	0.100	0.	0.253 **
0.100	0.200	0.482	0.349 **
0.200	0.300	0.710	0.424 **
0.300	0.400	0.228	0.240 **
0.400	0.500	2.205	0.748 **
0.500	0.600	0.203	0.227 **
0.600	0.700	1.977	0.708 **
0.700	0.800	1.217	0.555 **
0.800	0.900	1.039	0.513 **
0.900	1.000	0.532	0.367 **

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.434

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.070	0.090 **
-0.900	-0.800	0.070	0.090 **
-0.800	-0.700	0.012	0.037 **
-0.700	-0.600	0.186	0.147 **
-0.600	-0.500	0.	0.116 **
-0.500	-0.400	0.012	0.037 **
-0.400	-0.300	0.186	0.147 **
-0.300	-0.200	0.058	0.082 **
-0.200	-0.100	0.070	0.090 **
-0.100	0.	0.197	0.151 **
0.	0.100	0.081	0.097 **
0.100	0.200	0.081	0.097 **
0.200	0.300	0.186	0.147 **
0.300	0.400	0.870	0.318 **
0.400	0.500	1.114	0.359 **
0.500	0.600	1.346	0.395 **
0.600	0.700	0.892	0.320 **
0.700	0.800	0.534	0.249 **
0.800	0.900	1.021	0.344 **
0.900	1.000	0.093	0.104 **

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.643

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.100	0.088 **
-0.900	-0.800	0.092	0.084 **
-0.800	-0.700	0.177	0.117 **
-0.700	-0.600	0.	0.077 **
-0.600	-0.500	0.	0.077 **
-0.500	-0.400	0.031	0.049 **
-0.400	-0.300	0.	0.077 **
-0.300	-0.200	0.023	0.042 **
-0.200	-0.100	0.023	0.042 **
-0.100	0.	0.108	0.091 **
0.	0.100	0.008	0.024 **
0.100	0.200	0.185	0.119 **
0.200	0.300	0.485	0.193 **
0.300	0.400	0.570	0.209 **
0.400	0.500	0.716	0.235 **
0.500	0.600	0.639	0.222 **
0.600	0.700	0.570	0.209 **
0.700	0.800	1.132	0.295 **
0.800	0.900	0.200	0.124 **
0.900	1.000		

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.861

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.045	0.058 **
-0.900	-0.800	0.121	0.095 **
-0.800	-0.700	0.	0.075 **
-0.700	-0.600	0.053	0.063 **
-0.600	-0.500	0.	0.075 **
-0.500	-0.400	0.211	0.126 **
-0.400	-0.300	0.045	0.058 **
-0.300	-0.200	0.045	0.058 **
-0.200	-0.100	0.128	0.098 **
-0.100	0.	0.	0.075 **
0.	0.100	0.045	0.058 **
0.100	0.200	0.271	0.143 **
0.200	0.300	0.271	0.143 **
0.300	0.400	0.505	0.195 **
0.400	0.500	0.422	0.178 **
0.500	0.600	0.723	0.233 **
0.600	0.700	0.573	0.208 **
0.700	0.800	0.731	0.235 **
0.800	0.900	0.746	0.237 **
0.900	1.000	0.384	0.170 **

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 2.091

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.	0.141 **
-0.900	-0.800	0.	0.141 **
-0.800	-0.700	0.	0.141 **
-0.700	-0.600	0.071	0.100 **
-0.600	-0.500	0.071	0.100 **
-0.500	-0.400	0.	0.141 **
-0.400	-0.300	0.085	0.109 **
-0.300	-0.200	0.	0.141 **
-0.200	-0.100	0.071	0.100 **
-0.100	0.	0.	0.141 **
0.	0.100	0.071	0.100 **
0.100	0.200	0.014	0.045 **
0.200	0.300	0.197	0.167 **
0.300	0.400	0.071	0.100 **
0.400	0.500	0.508	0.268 **
0.500	0.600	0.352	0.223 **
0.600	0.700	0.352	0.223 **
0.700	0.800	1.340	0.435 **
0.800	0.900	2.214	0.559 **
0.900	1.000	0.536	0.275 **

DANBURG 70.....PR D2 2564 DBC 72

for $\pi^+n \rightarrow \eta p$

$\rightarrow$ Neutrals

BEAM MOMENTUM= .906 + .088 , - .086

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	1.514	0.297 **
-0.800	-0.600	1.573	0.303 **
-0.600	-0.400	1.165	0.261 **
-0.400	-0.200	1.340	0.279 **
-0.200	0.	0.816	0.218 **
0.	0.200	1.806	0.324 **
0.200	0.400	0.699	0.202 **
0.400	0.600	1.340	0.279 **
0.600	0.800	1.514	0.297 **
0.800	1.000	1.631	0.308 **

PAULI 63.....SIENA CONF 1 92 DBC

Differential cross section

for $\pi^+n \rightarrow \eta p$
 $\rightarrow \pi^+ \pi^- \pi^0$

for $\pi^+n \rightarrow \eta p$
 $\rightarrow \text{Neutrals}$

Differential cross section for $\pi^+n \rightarrow \omega p$

$\rightarrow \pi^+ \pi^- \pi^0$

BEAM MOMENTUM= 1.236

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.384	+- 0.192 **
-0.900	-0.800	1.259	0.348 **
-0.800	-0.700	0.596	0.239 **
-0.700	-0.600	0.500	0.219 **
-0.600	-0.500	1.269	0.349 **
-0.500	-0.400	0.875	0.290 **
-0.400	-0.300	0.394	0.195 **
-0.300	-0.200	1.653	0.399 **
-0.200	-0.100	0.586	0.237 **
-0.100	0.	1.269	0.349 **
0.	0.100	0.942	0.301 **
0.100	0.200	1.461	0.375 **
0.200	0.300	1.067	0.320 **
0.300	0.400	2.210	0.461 **
0.400	0.500	1.739	0.409 **
0.500	0.600	1.643	0.397 **
0.600	0.700	1.547	0.386 **
0.700	0.800	1.643	0.397 **
0.800	0.900	1.518	0.382 **
0.900	1.000	1.768	0.412 **

DANBURG 70.....PR D2 2564

DBC 72

BEAM MOMENTUM= 1.434

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.042	+- 0.040 **
-0.900	-0.800	0.313	0.109 **
-0.800	-0.700	0.283	0.104 **
-0.700	-0.600	0.462	0.133 **
-0.600	-0.500	0.957	0.159 **
-0.500	-0.400	0.741	0.168 **
-0.400	-0.300	0.581	0.149 **
-0.300	-0.200	0.929	0.188 **
-0.200	-0.100	0.956	0.191 **
-0.100	0.	1.250	0.219 **
0.	0.100	1.334	0.226 **
0.100	0.200	1.739	0.258 **
0.200	0.300	1.445	0.235 **
0.300	0.400	1.208	0.215 **
0.400	0.500	1.800	0.262 **
0.500	0.600	2.052	0.280 **
0.600	0.700	1.475	0.237 **
0.700	0.800	1.185	0.213 **
0.800	0.900	1.024	0.198 **
0.900	1.000	1.162	0.211 **

DANBURG 70.....PR D2 2564

DBC 72

BEAM MOMENTUM= 1.643

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.233	+- 0.076 **
-0.900	-0.800	0.214	0.072 **
-0.800	-0.700	0.278	0.083 **
-0.700	-0.600	0.187	0.068 **
-0.600	-0.500	0.567	0.118 **
-0.500	-0.400	0.511	0.112 **
-0.400	-0.300	0.673	0.129 **
-0.300	-0.200	0.702	0.131 **
-0.200	-0.100	0.550	0.116 **
-0.100	0.	0.965	0.154 **
0.	0.100	0.911	0.150 **
0.100	0.200	0.990	0.156 **
0.200	0.300	0.860	0.145 **
0.300	0.400	0.855	0.145 **
0.400	0.500	1.393	0.185 **
0.500	0.600	1.068	0.162 **
0.600	0.700	0.855	0.145 **
0.700	0.800	1.272	0.177 **
0.800	0.900	1.046	0.160 **
0.900	1.000	0.990	0.156 **

DANBURG 70.....PR D2 2564

DBC 72

BEAM MOMENTUM= 1.68

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.217	+- 0.069 **
-0.800	-0.600	0.347	0.087 **
-0.600	-0.400	0.802	0.132 **
-0.400	-0.200	0.737	0.126 **
-0.200	0.	1.171	0.159 **
0.	0.200	1.192	0.161 **
0.200	0.400	1.236	0.164 **
0.400	0.600	1.127	0.156 **
0.600	0.800	0.997	0.147 **
0.800	1.000	1.192	0.161 **

BACON 67.....PR 157 1263

DBC 20

BEAM MOMENTUM= 1.861

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.471	+- 0.115 **
-0.900	-0.800	0.156	0.066 **
-0.800	-0.700	0.229	0.080 **
-0.700	-0.600	0.477	0.115 **
-0.600	-0.500	0.212	0.077 **
-0.500	-0.400	0.510	0.119 **
-0.400	-0.300	0.387	0.104 **
-0.300	-0.200	0.669	0.137 **
-0.200	-0.100	0.836	0.153 **
-0.100	0.	0.552	0.124 **
0.	0.100	0.577	0.127 **
0.100	0.200	0.747	0.144 **
0.200	0.300	0.739	0.143 **
0.300	0.400	0.889	0.157 **
0.400	0.500	0.591	0.128 **
0.500	0.600	1.001	0.167 **
0.600	0.700	1.346	0.194 **
0.700	0.800	1.661	0.215 **
0.800	0.900	1.831	0.226 **
0.900	1.000	1.530	0.207 **

DANBURG 70.....PR D2 2564

DBC 72

BEAM MOMENTUM= 2.091

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.297	+- 0.107 **
-0.900	-0.800	0.069	0.052 **
-0.800	-0.700	0.054	0.046 **
-0.700	-0.600	0.115	0.061 **
-0.600	-0.500	0.258	0.100 **
-0.500	-0.400	0.509	0.140 **
-0.400	-0.300	0.520	0.142 **
-0.300	-0.200	0.528	0.143 **
-0.200	-0.100	0.436	0.130 **
-0.100	0.	0.601	0.152 **
0.	0.100	0.347	0.116 **
0.100	0.200	0.412	0.126 **
0.200	0.300	0.131	0.071 **
0.300	0.400	0.567	0.148 **
0.400	0.500	0.682	0.162 **
0.500	0.600	0.640	0.157 **
0.600	0.700	2.074	0.283 **
0.700	0.800	2.217	0.292 **
0.800	0.900	2.595	0.340 **
0.900	1.000	3.084	0.345 **

DANBURG 70.....PR D2 2564

DBC 72

BEAM MOMENTUM= 2.331

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.286	+- 0.126 **
-0.900	-0.800	0.269	0.123 **
-0.800	-0.700	0.050	0.053 **
-0.700	-0.600	0.062	0.059 **
-0.600	-0.500	0.235	0.115 **
-0.500	-0.400	0.241	0.116 **
-0.400	-0.300	0.045	0.050 **
-0.300	-0.200	0.056	0.056 **
-0.200	-0.100	0.274	0.124 **
-0.100	0.	0.218	0.111 **
0.	0.100	0.224	0.112 **
0.100	0.200	0.146	0.090 **
0.200	0.300	0.084	0.069 **
0.300	0.400	0.028	0.040 **
0.400	0.500	0.386	0.147 **
0.500	0.600	0.678	0.195 **
0.600	0.700	0.969	0.233 **
0.700	0.800	1.422	0.282 **
0.800	0.900	2.458	0.371 **
0.900	1.000	2.537	0.377 **

DANBURG 70.....PR D2 2564

DBC 72

* DATA READ FROM GRAPH
 + GLAUBER CORRECTION APPLIED
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow \omega p$
 $\rightarrow \pi^+\pi^-\pi^0$

Differential cross section

for $\pi^+ n \rightarrow \rho^0 p$
 $\quad \quad \quad \searrow \rightarrow \pi^+ \pi^-$

BEAM MOMENTUM= 2.7

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
0.785	1.005	0.691 **
0.795	1.382	0.691 **
0.805	1.759	0.691 **
0.815	2.073	0.691 **
0.825	1.948	0.880 **
0.835	1.257	0.691 **
0.845	2.639	0.691 **
0.855	4.210	0.691 **
0.865	3.707	1.005 **
0.875	4.398	1.005 **
0.885	4.273	1.005 **
0.895	5.152	1.382 **
0.905	5.655	1.005 **
0.915	6.912	1.005 **
0.925	6.912	1.194 **
0.935	8.671	1.382 **
0.945	11.561	1.696 **
0.955	14.012	1.885 **
0.965	12.315	2.073 **
0.975	20.923	2.388 **
0.985	24.190	2.890 **
0.995	31.604	3.770 **

MILLER 69.....PR 178 2061

DBC 72

for $\pi^+ n \rightarrow \phi p$
 $\quad \quad \quad \searrow \rightarrow K^+ K^-$

BEAM MOMENTUM= 2.31 ± .225

COS(THETA)	DSIGMA/D COS(THETA) (MB)	
MIN	MAX	
-1.000	-0.666	0.010 ± 0.004 **
-0.666	-0.333	0.010 0.004 **
-0.333	0.	0.004 0.003 **
0.	0.333	0.012 0.005 **
0.333	0.666	0.008 0.004 **
0.666	1.000	0.014 0.005 **

DAVIES 70.....PR D 2 506

DBC 72

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow K^+\Lambda$

BEAM MOMENTUM= 2.042

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.124	0.026
-0.900	-0.800	0.090	0.022
-0.800	-0.700	0.045	0.016
-0.700	-0.600	0.034	0.014
-0.600	-0.500	0.034	0.006
-0.500	-0.400	0.034	0.014
-0.400	-0.300	0.045	0.016
-0.300	-0.200	0.	0.006
-0.200	-0.100	0.034	0.014
-0.100	0.	0.056	0.018
0.	0.100	0.051	0.017
0.100	0.200	0.039	0.015
0.200	0.300	0.096	0.023
0.300	0.400	0.073	0.020
0.400	0.500	0.084	0.022
0.500	0.600	0.067	0.019
0.600	0.700	0.101	0.024
0.700	0.800	0.124	0.026
0.800	0.900	0.146	0.029
0.900	1.000	0.382	0.046

MOORE

70.....THESIS

DBC 33

BEAM MOMENTUM= 2.178

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.022	0.011
-0.900	-0.800	0.124	0.026
-0.800	-0.700	0.	0.006
-0.700	-0.600	0.034	0.014
-0.600	-0.500	0.011	0.008
-0.500	-0.400	0.034	0.014
-0.400	-0.300	0.	0.006
-0.300	-0.200	0.028	0.013
-0.200	-0.100	0.022	0.011
-0.100	0.	0.034	0.014
0.	0.100	0.028	0.013
0.100	0.200	0.017	0.010
0.200	0.300	0.034	0.014
0.300	0.400	0.056	0.018
0.400	0.500	0.045	0.016
0.500	0.600	0.045	0.016
0.600	0.700	0.045	0.016
0.700	0.800	0.084	0.022
0.800	0.900	0.163	0.030
0.900	1.000	0.450	0.050

MOORE

70.....THESIS

DBC 33

BEAM MOMENTUM= 2.33

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.900	0.146	0.029
-0.900	-0.800	0.022	0.011
-0.800	-0.700	0.022	0.011
-0.700	-0.600	0.	0.006
-0.600	-0.500	0.011	0.008
-0.500	-0.400	0.	0.006
-0.400	-0.300	0.	0.006
-0.300	-0.200	0.011	0.008
-0.200	-0.100	0.	0.006
-0.100	0.	0.006	0.006
0.	0.100	0.045	0.016
0.100	0.200	0.045	0.016
0.200	0.300	0.	0.006
0.300	0.400	0.028	0.013
0.400	0.500	0.051	0.017
0.500	0.600	0.056	0.018
0.600	0.700	0.112	0.025
0.700	0.800	0.079	0.021
0.800	0.900	0.124	0.026
0.900	1.000	0.618	0.059

MOORE

70.....THESIS

DBC 33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+n \rightarrow K^*(890)^+\Lambda$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$

COS(THETA)		DSIGMA/D COS(THETA) (NB)	
MIN	MAX		
-1.000	-0.800	0.006	+- 0.002 **
-0.800	-0.600	0.012	0.003 **
-0.600	-0.400	0.018	0.004 **
-0.400	-0.200	0.020	0.004 **
-0.200	0.	0.017	0.004 **
0.	0.200	0.013	0.004 **
0.200	0.400	0.025	0.005 **
0.400	0.600	0.019	0.004 **
0.600	0.800	0.034	0.006 **
0.800	1.000	0.041	0.006 **
MOORE	70.....THESIS	DBC	33

for $\pi^+n \rightarrow K^+Y^*(1405)$
 $\quad \quad \quad \searrow \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

COS(THETA)		DSIGMA/D COS(THETA) (NB)	
MIN	MAX		
-1.000	-0.800	0.004	+- 0.002 **
-0.800	-0.600	0.007	0.002 **
-0.600	-0.400	0.009	0.003 **
-0.400	-0.200	0.001	0.001 **
-0.200	0.	0.005	0.002 **
0.	0.200	0.003	0.002 **
0.200	0.400	0.005	0.002 **
0.400	0.600	0.006	0.002 **
0.600	0.800	0.009	0.003 **
0.800	1.000	0.047	0.007 **
MOORE	70.....THESIS	DBC	33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+n \rightarrow K^+Y^*(1520)$
 $\quad \quad \quad \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.001	+-	0.001	**
-0.800	-0.600	0.006		0.002	**
-0.600	-0.400	0.004		0.002	**
-0.400	-0.200	0.001		0.001	**
-0.200	0.	0.001		0.001	**
0.	0.200	0.008		0.003	**
0.200	0.400	0.005		0.002	**
0.400	0.600	0.006		0.002	**
0.600	0.800	0.010		0.003	**
0.800	1.000	0.006		0.002	**

MOORE

70.....THESIS

DBC

33

for $\pi^+n \rightarrow K^+Y^*(1520)$
 $\quad \quad \quad \rightarrow nK^0$

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)			
MIN	MAX				
-1.000	-0.800	0.	+-	0.001	**
-0.800	-0.600	0.011		0.003	**
-0.600	-0.400	0.007		0.003	**
-0.400	-0.200	0.007		0.003	**
-0.200	0.	0.004		0.002	**
0.	0.200	0.004		0.002	**
0.200	0.400	0.008		0.003	**
0.400	0.600	0.009		0.003	**
0.600	0.800	0.010		0.003	**
0.800	1.000	0.019		0.004	**

MOORE

70.....THESIS

DBC

33

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section
for $\pi^+n \rightarrow K^+\Sigma^0$

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.900	0.018	+-	0.006 **
-0.900	-0.800	0.006		0.003 **
-0.800	-0.700	0.010		0.004 **
-0.700	-0.600	0.009		0.004 **
-0.600	-0.500	0.017		0.006 **
-0.500	-0.400	0.017		0.006 **
-0.400	-0.300	0.018		0.006 **
-0.300	-0.200	0.010		0.004 **
-0.200	-0.100	0.020		0.006 **
-0.100	0.	0.020		0.006 **
0.	0.100	0.017		0.006 **
0.100	0.200	0.055		0.010 **
0.200	0.300	0.026		0.007 **
0.300	0.400	0.023		0.007 **
0.400	0.500	0.023		0.007 **
0.500	0.600	0.012		0.005 **
0.600	0.700	0.017		0.006 **
0.700	0.800	0.021		0.006 **
0.800	0.900	0.067		0.011 **
0.900	1.000	0.117		0.015 **

MOORE 70.....THESIS DBC 33

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+n \rightarrow K^*(890)^+\Sigma^0$
 $\hookrightarrow K^0\pi^+$

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.006	+-	0.002 **
-0.800	-0.600	0.021		0.004 **
-0.600	-0.400	0.016		0.004 **
-0.400	-0.200	0.004		0.002 **
-0.200	0.	0.008		0.003 **
0.	0.200	0.009		0.003 **
0.200	0.400	0.019		0.004 **
0.400	0.600	0.011		0.003 **
0.600	0.800	0.018		0.004 **
0.800	1.000	0.060		0.007 **

MOORE 70.....THESIS DBC 33

for $\pi^+n \rightarrow K^+\Upsilon^*(1385)^0$
 $\hookrightarrow \Lambda\pi^0$

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)		
MIN	MAX			
-1.000	-0.800	0.015	+-	0.004 **
-0.800	-0.600	0.007		0.003 **
-0.600	-0.400	0.008		0.003 **
-0.400	-0.200	0.011		0.003 **
-0.200	0.	0.021		0.004 **
0.	0.200	0.028		0.005 **
0.200	0.400	0.033		0.006 **
0.400	0.600	0.060		0.008 **
0.600	0.800	0.037		0.006 **
0.800	1.000	0.048		0.007 **

MOORE 70.....THESIS DBC 33

Differential cross section

for $\pi^+n \rightarrow K^0\Sigma^+$ for $\pi^+n \rightarrow K^*(890)^0\Sigma^+$
 $\quad \quad \quad \hookrightarrow K^+\pi^-$

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.088	*
-0.800	-0.600	0.065	*
-0.600	-0.400	0.030	*
-0.400	-0.200	0.045	*
-0.200	0.	0.015	*
0.	0.200	0.040	*
0.200	0.400	0.010	*
0.400	0.600	0.017	*
0.600	0.800	0.	*
0.800	1.000	0.007	*
MOORE	70.....THESIS	DBC	33

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.005	← 0.002 **
-0.800	-0.600	0.011	0.003 **
-0.600	-0.400	0.012	0.003 **
-0.400	-0.200	0.009	0.003 **
-0.200	0.	0.005	0.002 **
0.	0.200	0.008	0.003 **
0.200	0.400	0.007	0.002 **
0.400	0.600	0.007	0.002 **
0.600	0.800	0.011	0.003 **
0.800	1.000	0.018	0.004 **
MOORE	70.....THESIS	DBC	33

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow K^0 Y^*(1385)^+ \rightarrow \Lambda \pi^+$

BEAM MOMENTUM= 2.11 +- .068

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.010	+- 0.004 **
-0.800	-0.600	0.018	0.006 **
-0.600	-0.400	0.000	0.001 **
-0.400	-0.200	0.016	0.005 **
-0.200	0.	0.003	0.003 **
0.	0.200	0.023	0.007 **
0.200	0.400	0.	0.002 **
0.400	0.600	0.006	0.003 **
0.600	0.800	0.011	0.004 **
0.800	1.000	0.012	0.005 **
MOORE	70.....THESIS	DBC	33

BEAM MOMENTUM= 2.184

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.019	+- 0.004 **
-0.800	-0.600	0.022	0.005 **
-0.600	-0.400	0.006	0.002 **
-0.400	-0.200	0.009	0.003 **
-0.200	0.	0.006	0.002 **
0.	0.200	0.020	0.004 **
0.200	0.400	0.013	0.003 **
0.400	0.600	0.014	0.004 **
0.600	0.800	0.026	0.005 **
0.800	1.000	0.036	0.006 **
MOORE	70.....THESIS	DBC	33

BEAM MOMENTUM= 2.254 +- .076

COS(THETA)		DSIGMA/D COS(THETA) (MB)	
MIN	MAX		
-1.000	-0.800	0.014	+- 0.005 **
-0.800	-0.600	0.020	0.006 **
-0.600	-0.400	0.008	0.004 **
-0.400	-0.200	0.	0.002 **
-0.200	0.	0.006	0.003 **
0.	0.200	0.	0.002 **
0.200	0.400	0.012	0.005 **
0.400	0.600	0.010	0.004 **
0.600	0.800	0.010	0.004 **
0.800	1.000	0.042	0.009 **
MOORE	70.....THESIS	DBC	33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

$$\frac{d\sigma}{d \cos \theta}$$
 Differential Cross Sections3. π^+ d Interactions

Differential cross section for $\pi^+d \rightarrow pp$

BEAM MOMENTUM= .65

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.111 +- 0.021	*	
0.300	0.146		*
0.600	0.342		*
0.800	0.386		*
0.860	0.480		*
0.930	0.455		*
0.960	0.373		*
0.980	0.217		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= 1.22

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.009 +- 0.004	*	
0.300	0.019		*
0.450	0.030		*
0.600	0.026		*
0.690	0.046		*
0.790	0.047		*
0.870	0.053		*
0.950	0.112		*
0.990	0.163		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= .75

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.105 +- 0.016	*	
0.300	0.099		*
0.590	0.215		*
0.800	0.303		*
0.930	0.246		*
0.980	0.146		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= 1.4

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
-0.020	0.013 +- 0.006	*	
0.290	0.019		*
0.590	0.021		*
0.790	0.053		*
0.880	0.081		*
0.950	0.109		*
0.970	0.216		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= .85

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.045 +- 0.010	*	
0.290	0.046		*
0.600	0.116		*
0.820	0.229		*
0.860	0.240		*
0.920	0.287		*
0.950	0.246		*
0.970	0.169		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= 1.66

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.006 +- 0.003	*	
0.300	0.006		*
0.600	0.013		*
0.790	0.020		*
0.870	0.035		*
0.960	0.054		*
0.990	0.107		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= 1.

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.	0.025 +- 0.005	*	
0.300	0.041		*
0.590	0.066		*
0.790	0.142		*
0.860	0.142		*
0.920	0.193		*
0.960	0.168		*
0.980	0.198		*

DEKKERS 64.....PL 11 161 CNTR

BEAM MOMENTUM= 1.95

COS(THETA)	DSIGMA/D COS(THETA) (MB)		
0.100	0.011 +- 0.008	*	
0.290	0.011		*
0.590	0.013		*
0.790	0.023		*
0.890	0.024		*
0.960	0.063		*

DEKKERS 64.....PL 11 161 CNTR

* DATA READ FROM GRAPH

Differential cross section for $\pi^+d \rightarrow pp$

$\frac{d\sigma}{dt}$ and $\frac{d\sigma}{dt'}$ Differential Cross Sections

1. π^+ p Interactions

Differential cross section for $\pi^+p \rightarrow \rho^+p$

$\searrow \rightarrow \pi^+\pi^0$

BEAM MOMENTUM= 1.55					BEAM MOMENTUM= 2.077 +- .030					BEAM MOMENTUM= 2.62 + .28 , - .27				
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX				MIN	MAX				MIN	MAX			
0.050	0.100	11.000	+-	1.220	0.024	0.055	7.637	+-	0.760	0.014	0.101	4.714	+-	0.364
0.100	0.150	9.700		1.120	0.055	0.085	4.461		0.581	0.101	0.101	2.301		0.254
0.150	0.200	6.910		0.880	0.085	0.116	3.781		0.535	0.101	0.187	1.515		0.206
0.200	0.250	4.840		0.730	0.116	0.146	3.327		0.502	0.187	0.274	0.730		0.143
0.250	0.300	3.840		0.640	0.146	0.177	2.042		0.393	0.274	0.361	0.449		0.112
0.300	0.400	2.630		0.390	0.177	0.207	2.268		0.414	0.361	0.447	0.337		0.097
0.400	0.550	1.080		0.220	0.207	0.238	1.437		0.330	0.447	0.534	0.673		0.137
0.550	0.700	1.180		0.240	0.238	0.268	1.210		0.302	0.534	0.621	0.337		0.097
0.700	0.850	1.260		0.240	0.268	0.298	1.437		0.330	0.621	0.707	0.393		0.105
0.850	0.950	1.400		0.310	0.298	0.329	0.681		0.227	0.707	0.794	0.337		0.097
0.950	1.050	1.590		0.320	0.329	0.359	0.756		0.239	0.794	0.880	0.393		0.105
1.050	1.150	1.350		0.320	0.359	0.390	0.302		0.151	0.880	0.967	0.337		0.097
1.150	1.250	1.650		0.300	0.390	0.420	0.529		0.200	0.967	1.054	0.393		0.105
1.250	1.350	1.500		0.300	0.420	0.451	0.227		0.131	1.054	1.140	0.337		0.097
1.350	1.500	1.490		0.220	0.451	0.481	0.605		0.214	1.140	1.227	0.281		0.089
					0.481	0.512	0.454		0.185	1.227	1.313	0.337		0.097
					0.512	0.542	0.302		0.151	1.313	1.400	0.224		0.079
					0.542	0.572	0.302		0.151	1.400	1.487	0.168		0.069
					0.572	0.603	0.302		0.151	1.487	1.573	0.168		0.069
					0.603	0.633	0.302		0.151	1.573	1.660	0.084		0.049
					0.633	0.664	0.378		0.169	1.660	1.746	0.112		0.056
					0.664	0.694	0.378		0.169	1.746	1.833	0.224		0.079
					0.694	0.725	0.378		0.169	1.833	1.920	0.224		0.079
					0.725	0.755	0.454		0.185	1.920	2.006	0.224		0.079
					0.755	0.786	0.681		0.227	2.006	2.093	0.196		0.074
					0.786	0.816	0.529		0.200	2.093	2.179	0.337		0.097
					0.816	0.846	0.378		0.169	2.179	2.266	0.112		0.056
					0.846	0.877	0.454		0.185	2.266	2.353	0.196		0.074
					0.877	0.907	0.378		0.169	2.353	2.439	0.168		0.069
					0.907	0.938	0.378		0.169	2.439	2.526	0.112		0.056
					0.938	0.968	0.378		0.169	2.526	2.612	0.140		0.063
					0.968	0.999	0.681		0.227	2.612	2.699	0.056		0.040
					0.999	1.029	0.605		0.214	2.699	2.786	0.253		0.084
					1.029	1.060	0.378		0.169	2.786	2.872	0.112		0.056
					1.060	1.090	0.756		0.239	2.872	2.959	0.112		0.056
					1.090	1.120	0.605		0.214	2.959	3.045	0.084		0.049
					1.120	1.151	0.454		0.185	3.045	3.132	0.196		0.074
					1.151	1.181	0.302		0.151	3.132	3.219	0.196		0.074
					1.181	1.212	0.605		0.214	3.219	3.305	0.140		0.063
					1.212	1.242	0.756		0.239	3.305	3.392			
					1.242	1.273	0.529		0.200	3.392	3.478			
					1.273	1.303	0.210		0.302					
					1.303	1.334	1.285		0.312					
					1.334	1.364	0.454		0.185					
					1.364	1.395	0.378		0.169					
					1.395	1.425	0.151		0.107					
					1.425	1.455	0.302		0.151					
					1.455	1.486	0.529		0.200					
					1.486	1.516	0.454		0.185					
					1.516	1.547	0.076		0.076					
					1.547	1.577	0.529		0.200					
					1.577	1.608	0.605		0.214					
					1.608	1.638	0.605		0.214					
					1.638	1.669	0.454		0.185					
					1.669	1.699	0.151		0.107					
					1.699	1.729	0.378		0.169					
					1.729	1.760	0.227		0.131					
					1.760	1.790	0.605		0.214					
					1.790	1.821	0.681		0.227					
					1.821	1.851	0.302		0.151					
					1.851	1.882	0.454		0.185					
					1.882	1.912	0.151		0.107					
					1.912	1.943	0.756		0.239					
					1.943	1.973	0.227		0.131					
					1.973	2.003	0.151		0.107					
					2.003	2.034	0.529		0.200					
					2.034	2.064	0.302		0.151					
					2.064	2.095	0.378		0.169					
					2.095	2.125	0.227		0.131					
					2.125	2.156	0.454		0.185					
					2.156	2.186	0.151		0.107					
					2.186	2.217	0.302		0.151					
					2.217	2.247	0.378		0.169					
					2.247	2.277	0.302		0.151					
					2.277	2.308	0.227		0.131					
					2.308	2.338	0.529		0.200					
					2.338	2.369	0.302		0.151					
					2.369	2.399	0.227		0.131					
					2.399	2.430	0.302		0.151					
					2.430	2.460	0.605		0.214					
WILLIAMSON 72.....PRL 29 1353					JAMES 66.....PR 142 896					MICHAEL 72.....PRL 28 1475				
HBC					HBC					HBC				
20					20					25				
BEAM MOMENTUM= 1.67					BEAM MOMENTUM= 2.34									
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]							
MIN	MAX				MIN	MAX								
0.050	0.100	9.580	+-	1.130	0.016	0.050	5.900	+-	0.700					
0.100	0.150	7.530		0.950	0.050	0.100	7.500		0.700					
0.150	0.200	7.050		0.920	0.100	0.150	2.900		0.400					
0.200	0.300	3.520		0.460	0.150	0.200	1.800		0.300					
0.300	0.400	2.110		0.350	0.200	0.250	2.100		0.400					
0.400	0.550	1.090		0.240	0.250	0.300	0.400		0.100					
0.550	0.700	1.060		0.260	0.300	0.350	0.400		0.100					
0.700	0.850	1.620		0.270	0.350	0.400	0.400		0.100					
0.850	1.000	1.900		0.280	0.400	0.450	0.400		0.100					
1.000	1.150	1.580		0.270	0.450	0.500	0.400		0.100					
1.150	1.300	1.030		0.230	0.500	0.550	0.400		0.100					
1.300	1.450	1.460		0.250	0.550	0.600	0.400		0.100					
1.450	1.600	1.080		0.240	0.600	0.650	0.400		0.100					
WILLIAMSON 72.....PRL 29 1353					GRAMENITSK 66.....NAUK 31 1519									
HBC					HLBC									
20					24									

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow \rho^+p$
 $\searrow \pi^+\pi^0$

Differential cross section for $\pi^+p \rightarrow \rho^+p$ $\searrow \pi^+\pi^0$

BEAM MOMENTUM= 3.9

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.060	2.822	+-	0.391 **
0.020	0.100	4.299		0.595 **
0.070	0.130	2.728		0.586 **
0.120	0.200	1.788		0.248 **
0.180	0.400	0.793		0.140 **
0.390	0.810	0.246		0.053 **
0.800	1.200	0.182		0.032 **

BASTIEN 71.....PR D3 2047 HBC 33

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.025	0.050	3.950	+-	0.600 †
0.050	0.075	2.600		0.400 †
0.075	0.100	1.700		0.300 †
0.100	0.150	0.720		0.180 †
0.150	0.200	0.900		0.200 †
0.200	0.250	0.370		0.100 †
0.250	0.300	0.370		0.100 †
0.300	0.400	0.240		0.080 †
0.400	0.500	0.095		0.045 †
0.500	0.600	0.054		0.030 †
0.600	0.700	0.120		0.060 †
0.700	0.800	0.092		0.040 †
0.800	0.900	0.160		0.050 †
0.900	1.000	0.140		0.060 †
1.000	1.200	0.083		0.030 †
1.200	1.600	0.046		0.030 †
1.600	2.000	0.028		0.030 †
2.000	2.500	0.004		0.030 †
2.500	3.000	0.007		0.030 †
3.000	3.500	0.018		0.030 †
3.500	4.000	0.018		0.030 †
4.000	4.500	0.018		0.030 †
4.500	5.000	0.004		0.030 †
5.000	5.500	0.015		0.010 †
5.500	6.000	0.011		0.010 †
6.000	6.700	0.051		0.010 †
		0.018		0.010 †

ADERHOLZ 65.....PR 138 B897 HBC 81

BEAM MOMENTUM= 5.2

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
7.488	7.788	0.005	+-	0.002 †
7.788	7.988	0.010		0.003 †
7.988	8.138	0.016		0.005 †
8.138	8.238	0.025		0.005 †
8.238	8.282	0.030		0.007 †

CARLSON 70.....PL 338 502 SPRK

BEAM MOMENTUM= 6.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.020	0.925	+-	0.125 **
0.020	0.080	1.335		0.110 **
0.080	0.120	0.692		0.096 **
0.120	0.200	0.619		0.073 **
0.200	0.250	0.395		0.061 **
0.250	0.350	0.095		0.035 **
0.350	0.500	0.088		0.088 **
0.500	0.600	0.079		0.021 **
0.600	0.800	0.078		0.014 **
0.800	1.000	0.078		0.014 **
1.000	1.400	0.012		0.007 **
1.400	2.000	0.005		0.004 **

CRENNELL 71.....PRL 27 1674 HBC 80

BEAM MOMENTUM= 13.1

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
-0.010	0.026	0.207	+-	0.010 **
0.026	0.044	0.484		0.057 **
0.035	0.061	0.297		0.029 **
0.052	0.088	0.213		0.044 **
0.065	0.101	0.176		0.033 **
0.096	0.140	0.060		0.016 **
0.145	0.181	0.089		0.020 **
0.176	0.220	0.053		0.017 **
0.230	0.274	0.081		0.020 **
0.277	0.375	0.008		0.003 **
0.374	0.498	0.003		0.001 **
0.498	0.792	0.004		0.002 **

KRAMER 71.....THESIS HBC 82

BEAM MOMENTUM= 15.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.020	0.030	0.416	+-	0.047 **
0.030	0.040	0.427		0.057 **
0.040	0.060	0.287		0.059 **
0.060	0.080	0.196		0.042 **
0.080	0.120	0.129		0.053 **
0.120	0.200	0.070		0.029 **
0.200	0.350	0.038		0.009 **
0.350	0.600	0.013		0.003 **
0.600	0.800	0.010		0.002 **

PRATT 72.....SLAC PUB-1071 SPRK

BEAM MOMENTUM= 5.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.003	0.023	1.590	+-	0.330 **
0.022	0.042	2.420		0.470 **
0.038	0.058	1.780		0.350 **
0.064	0.080	1.940		0.320 **
0.088	0.102	2.880		0.390 **
0.107	0.121	1.280		0.330 **
0.120	0.140	0.850		0.270 **
0.141	0.161	0.729		0.235 **
0.154	0.202	0.666		0.161 **
0.198	0.302	0.357		0.064 **
0.304	0.394	0.172		0.050 **
0.406	0.490	0.086		0.031 **
0.507	0.597	0.085		0.038 **
0.600	0.796	0.074		0.021 **
0.805	0.993	0.038		0.014 **
0.995	1.197	0.031		0.016 **
1.200	1.598	0.022		0.008 **

SCHOTANUS 70.....NP B22 45 HBC 151

BEAM MOMENTUM= 8.04

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.050	0.710	+-	0.070 †
0.050	0.100	0.580		0.070 †
0.100	0.150	0.390		0.050 †
0.150	0.200	0.320		0.050 †
0.200	0.300	0.112		0.020 †
0.300	0.400	0.064		0.015 †
0.400	0.500	0.034		0.011 †
0.500	0.600	0.015		0.007 †
0.600	0.700	0.045		0.013 †
0.700	0.800	0.022		0.009 †
0.800	0.900	0.022		0.009 †
0.900	1.000	0.026		0.010 †
1.000	1.200	0.017		0.006 †
1.200	1.500	0.008		0.003 †
1.500	2.000	0.002		0.001 †

ADERHOLZ 68.....NP B8 45 HBC

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow \rho^+p$
 $\searrow \rightarrow \pi^+\pi^0$

Differential cross section for $\pi^+p \rightarrow A_2^+p$

A2(1300)+ * RHO(765)0 PI+

BEAM MOMENTUM= 4. +- .04

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]		
MIN	MAX			
0.050	0.100	0.373	+-	0.084
0.100	0.200	0.234		0.054
0.200	0.300	0.228		0.054
0.300	0.400	0.174		0.048
0.400	0.500	0.084		0.024
0.500	0.600	0.090		0.024
0.600	0.700	0.055		0.017
0.700	0.800	0.045		0.016
0.800	0.900	0.026		0.011
0.900	1.000	0.018		0.008
1.000	1.500	0.020		0.010
1.500	2.000	0.013		0.010
2.000	2.500	0.007		0.007
2.500	3.000	0.011		0.007
3.000	3.500	0.007		0.018
3.500	4.000	0.018		0.013
4.000	4.500	0.013		0.015
4.500	4.700	0.015		

ADERHOLZ 65.....PR 138 B897

HBC 81

A2(1300)+ * RHO(765)0 PI+

BEAM MOMENTUM= 5.

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]		
MIN	MAX			
0.	0.020	0.729	+-	0.017
0.020	0.040	0.750		0.017
0.040	0.060	0.662		0.016
0.060	0.080	0.514		0.014
0.080	0.100	0.515		0.014
0.100	0.120	0.618		0.016
0.120	0.140	0.573		0.015
0.140	0.160	0.532		0.014
0.160	0.200	0.313		0.011
0.200	0.250	0.231		0.010
0.250	0.300	0.210		0.009
0.300	0.400	0.096		0.006
0.400	0.500	0.063		0.005
0.500	0.700	0.046		0.004
0.700	0.900	0.017		0.003

POLS 70.....NP B25 109

HBC 151

A2(1300)+ * PI+ PI+ PI-

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]		
MIN	MAX			
0.	0.040	0.931	+-	0.108
0.040	0.080	0.931		0.108
0.080	0.120	0.727		0.097
0.120	0.160	0.612		0.088
0.160	0.200	0.650		0.091
0.200	0.240	0.459		0.076
0.240	0.280	0.319		0.064
0.280	0.320	0.382		0.070
0.320	0.360	0.357		0.068
0.360	0.400	0.306		0.062
0.400	0.440	0.191		0.050
0.440	0.480	0.178		0.047
0.480	0.600	0.140		0.042
0.600	0.720	0.051		0.025

ARMENISE 70.....NC 65A 637

DBC 86

A2(1300)+ * RHO(765)0 PI+

BEAM MOMENTUM= 5.45

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]		
MIN	MAX			
0.	0.100	0.032	+-	0.003
0.100	0.200	0.024		0.002
0.200	0.300	0.013		0.002
0.300	0.400	0.012		0.002
0.400	0.500	0.006		0.001
0.500	0.600	0.003		0.001
0.600	0.700	0.002		0.001
0.700	0.800	0.004		0.001
0.800	0.900	0.002		0.001
0.900	1.000	0.001		0.000

BLOODWORTH 72.....NP B37 203

HBC 33

A2(1300)+ * PI+ PI+ PI-

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]		
MIN	MAX			
0.	0.050	1.370	+-	0.100
0.050	0.100	0.790		0.080
0.100	0.150	0.460		0.060
0.150	0.200	0.500		0.060
0.200	0.250	0.370		0.060
0.250	0.300	0.190		0.040
0.300	0.350	0.200		0.040
0.350	0.400	0.200		0.030
0.400	0.500	0.078		0.010
0.500	0.600	0.065		0.010
0.600	0.700	0.039		0.010
0.700	0.800	0.017		0.010
0.800	1.100	0.007		0.002
1.100	1.400	0.004		0.002
1.400	1.700	0.007		0.002
1.700	2.000	0.004		0.002

ADERHOLZ 68.....NP B8 45

HBC

* DATA READ FROM GRAPH

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow A_2^+p$

Differential cross section

for $\pi^+p \rightarrow A_1^+p$
 $\quad \quad \quad \rightarrow \pi^+\pi^+\pi^-$

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' (MB/(GEV/C)**2)			
MIN	MAX				
0.	0.050	2.210	+-	0.160	†
0.050	0.100	1.180		0.110	†
0.100	0.150	0.690		0.090	†
0.150	0.200	0.410		0.070	†
0.200	0.250	0.300		0.060	†
0.250	0.300	0.103		0.023	†
0.300	0.350	0.072		0.020	†
0.350	0.400	0.026		0.010	†
0.400	0.450	0.011		0.005	†
0.450	0.500	0.003		0.002	†
0.500	0.550	0.002		0.001	†
0.550	0.600				
0.600	0.650				
0.650	0.700				
0.700	0.750				
0.750	0.800				
0.800	0.850				
0.850	0.900				
0.900	0.950				
0.950	1.000				
1.000	1.050				
1.050	1.100				
1.100	1.150				
1.150	1.200				
1.200	1.250				
1.250	1.300				
1.300	1.350				
1.350	1.400				
1.400	1.450				
1.450	1.500				
1.500	1.550				
1.550	1.600				
1.600	1.650				
1.650	1.700				
1.700	1.750				
1.750	1.800				
1.800	1.850				
1.850	1.900				
1.900	1.950				
1.950	2.000				

ADERHOLZ 68.....NP 88 45

HBC

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+p \rightarrow B^+p$
 $\quad \quad \quad \rightarrow \omega\pi^+$
 $\quad \quad \quad \rightarrow \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 5.

-T' (GEV/C)**2		D SIGMA/D T' (MB/(GEV/C)**2)			
MIN	MAX				
0.	0.100	0.102	+-	0.006	††
0.100	0.200	0.078		0.006	††
0.200	0.300	0.077		0.005	††
0.300	0.400	0.037		0.004	††
0.400	0.500	0.018		0.003	††
0.500	0.600	0.010		0.002	††
0.600	0.700				
0.700	0.800				
0.800	0.900				
0.900	1.000				
1.000	1.100				
1.100	1.200				
1.200	1.300				
1.300	1.400				
1.400	1.500				
1.500	1.600				
1.600	1.700				
1.700	1.800				
1.800	1.900				
1.900	2.000				

POLS 70.....NP 825 109

HBC 151

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' (MB/(GEV/C)**2)			
MIN	MAX				
0.	0.050	0.130	+-	0.030	†
0.050	0.100	0.110		0.030	†
0.100	0.200	0.060		0.013	†
0.200	0.300	0.024		0.008	†
0.300	0.400	0.021		0.008	†
0.400	0.500	0.021		0.008	†
0.500	0.600	0.013		0.004	†
0.600	0.700	0.009		0.004	†
0.700	0.800	0.004		0.002	†
0.800	0.900	0.002		0.001	†
0.900	1.000	0.002		0.001	†
1.000	1.100	0.002		0.001	†
1.100	1.200	0.002		0.001	†
1.200	1.300	0.002		0.001	†
1.300	1.400	0.002		0.001	†
1.400	1.500	0.002		0.001	†
1.500	1.600	0.002		0.001	†
1.600	1.700	0.002		0.001	†
1.700	1.800	0.002		0.001	†
1.800	1.900	0.002		0.001	†
1.900	2.000	0.002		0.001	†

ADERHOLZ 68.....NP 88 45

HBC

Differential cross section for $\pi^+p \rightarrow A_3^+p$ A3(1640)+ $\rightarrow$ $\pi^+\pi^+\pi^-$

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.080	0.746	+- 0.082 **
0.080	0.160	0.675	0.048 **
0.160	0.240	0.487	0.053 **
0.240	0.320	0.489	0.063 **
0.320	0.400	0.427	0.047 **
0.400	0.480	0.187	0.035 **
0.480	0.560	0.142	0.030 **
0.560	0.640	0.104	0.024 **
0.640	0.720	0.065	0.019 **
0.720	0.800	0.046	0.017 **

ARMENISE 69.....NCL 2 501

DBC 81

A3(1640)+ $\rightarrow$ $\pi^+\pi^+\pi^-$
F(1260) $\rightarrow$ $\pi^+\pi^-\pi^-$

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.080	0.269	+- 0.040 **
0.080	0.160	0.243	0.036 **
0.160	0.240	0.155	0.026 **
0.240	0.320	0.185	0.035 **
0.320	0.400	0.157	0.030 **
0.400	0.480	0.065	0.018 **
0.480	0.560	0.057	0.018 **
0.560	0.640	0.019	0.010 **
0.640	0.720	0.032	0.013 **
0.720	0.800	0.019	0.010 **

ARMENISE 69.....NCL 2 501

DBC 81

A3(1640)+ $\rightarrow$ $\pi^+\pi^+\pi^-$

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.050	0.310	+- 0.040 †
0.050	0.100	0.230	0.030 †
0.100	0.150	0.180	0.030 †
0.150	0.200	0.120	0.020 †
0.200	0.250	0.140	0.030 †
0.250	0.300	0.050	0.015 †
0.300	0.400	0.042	0.009 †
0.400	0.500	0.038	0.009 †
0.500	0.600	0.025	0.007 †
0.600	0.700	0.020	0.007 †
0.700	1.000	0.012	0.003 †
1.000	1.500	0.007	0.002 †
1.500	2.000	0.002	0.001 †

ADERHOLZ 68.....NP B8 45

HBC

* DATA READ FROM GRAPH

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow g^+p$ $\searrow \pi^+\pi^0$

BEAM MOMENTUM= 8.04 +- .04

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
-0.002	0.040	0.100	+- 0.006 **
0.045	0.079	0.357	0.100 **
0.080	0.122	0.245	0.083 **
0.114	0.164	0.167	0.057 **
0.165	0.199	0.090	0.063 **
0.207	0.241	0.110	0.070 **
0.246	0.322	0.048	0.043 **
0.322	0.482	0.041	0.026 **
0.478	0.646	0.029	0.006 **

BARTSCH 70.....NP B22 109

HBCS

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' [MB/(GEV/C)**2]	
MIN	MAX		
0.	0.050	0.250	+- 0.030 †
0.050	0.100	0.126	0.024 †
0.100	0.150	0.095	0.021 †
0.150	0.200	0.081	0.019 †
0.200	0.300	0.036	0.009 †
0.300	0.400	0.027	0.008 †
0.400	0.550	0.008	0.003 †
0.550	0.700	0.008	0.003 †
0.700	0.900	0.005	0.002 †
0.900	1.100	0.007	0.003 †
1.100	1.300	0.007	0.003 †
1.300	1.600	0.002	0.001 †
1.600	2.000	0.002	0.001 †

ADERHOLZ 68.....NP B8 45

HBC

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2		D SIGMA/D T' [MB/(GEV/C)**2]	
MIN	MAX		
0.	0.030	0.084	+- 0.022 **
0.030	0.060	0.101	0.024 **
0.060	0.090	0.062	0.019 **
0.090	0.120	0.045	0.016 **
0.120	0.150	0.023	0.011 **
0.150	0.180	0.023	0.011 **
0.180	0.210	0.023	0.011 **
0.210	0.240	0.023	0.011 **
0.240	0.270	0.017	0.010 **
0.270	0.300	0.023	0.011 **
0.300	0.330	0.023	0.011 **
0.330	0.360	0.006	0.006 **
0.360	0.390	0.011	0.008 **
0.390	0.420	0.011	0.008 **
0.420	0.450	0.006	0.006 **
0.450	0.480	0.006	0.006 **
0.480	0.510	0.017	0.010 **
0.510	0.540	0.	0.000 **
0.540	0.570	0.006	0.006 **
0.570	0.600	0.	0.000 **
0.600	0.630	0.	0.000 **
0.630	0.660	0.006	0.006 **

KRAMER 70.....PRL 25 396

HBC 82

* DATA READ FROM GRAPH

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+p \rightarrow S^+p$
 $\searrow \pi^+\pi^0$

BEAM MOMENTUM= 8.04

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.050	0.117	0.020
0.050	0.100	0.081	0.017
0.100	0.150	0.042	0.012
0.150	0.200	0.060	0.015
0.200	0.250	0.028	0.010
0.250	0.400	0.015	0.004
0.400	0.550	0.012	0.004
0.550	0.700	0.008	0.003
0.700	0.850	0.004	0.002
0.850	1.000	0.003	0.002
1.000	1.200	0.002	0.001
1.200	1.600	0.001	0.001

ADERHOLZ 68.....NP B8 45

HBC

BEAM MOMENTUM= 13.1

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.030	0.084	0.022
0.030	0.060	0.113	0.025
0.060	0.090	0.051	0.017
0.090	0.120	0.011	0.008
0.120	0.150	0.028	0.013
0.150	0.180	0.011	0.008
0.180	0.210	0.	0.000
0.210	0.240	0.023	0.011
0.240	0.270	0.028	0.013
0.270	0.300	0.017	0.010
0.300	0.330	0.006	0.006
0.330	0.360	0.006	0.006
0.360	0.390	0.011	0.008
0.390	0.420	0.006	0.006
0.420	0.450	0.011	0.008
0.450	0.480	0.006	0.006
0.480	0.510	0.	0.000
0.510	0.540	0.	0.000
0.540	0.570	0.	0.000
0.570	0.600	0.011	0.008
0.600	0.630	0.	0.000
0.630	0.660	0.	0.000
0.660	0.690	0.	0.000
0.690	0.720	0.011	0.008
0.720	0.750	0.006	0.006

KRAMER 70.....PRL 25 396

HBC 82

for $\pi^+p \rightarrow T^+p$
 $\searrow \pi^+\pi^0$

BEAM MOMENTUM= 13.1

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.030	0.079	0.021
0.030	0.060	0.056	0.018
0.060	0.090	0.062	0.019
0.090	0.120	0.028	0.013
0.120	0.150	0.017	0.010
0.150	0.180	0.039	0.015
0.180	0.210	0.006	0.006
0.210	0.240	0.028	0.013
0.240	0.270	0.028	0.013
0.270	0.300	0.023	0.011
0.300	0.330	0.023	0.011
0.330	0.360	0.	0.000
0.360	0.390	0.006	0.006
0.390	0.420	0.	0.000
0.420	0.450	0.	0.000
0.450	0.480	0.	0.000
0.480	0.510	0.006	0.006
0.510	0.540	0.	0.000
0.540	0.570	0.011	0.008
0.570	0.600	0.011	0.008
0.600	0.630	0.006	0.006
0.630	0.660	0.011	0.008
0.660	0.690	0.011	0.008
0.690	0.720	0.	0.000

KRAMER 70.....PRL 25 396

HBC 82

Differential cross section for $\pi^+p \rightarrow \pi^0\Delta(1238)^{++}$ $\searrow \rightarrow p\pi^+$

BEAM MOMENTUM= 2.67

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.	0.050
0.050	0.100
0.100	0.200
0.200	0.300
0.300	0.400
0.400	0.500
0.500	0.700
0.700	0.900
0.900	1.100
1.100	1.300
1.300	1.500
1.500	1.700
1.700	1.900
1.900	2.300
2.300	2.700
2.671	2.871
2.700	3.100
2.871	3.071
3.071	3.271
3.100	3.300
3.271	3.471
3.300	3.500
3.471	3.671
3.500	3.700
3.700	3.900

GIDAL 69.....PRL 23 994 HBC

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.	0.050
0.050	0.100
0.100	0.200
0.200	0.300
0.300	0.400
0.400	0.500
0.500	0.700
0.700	0.900
0.900	1.100
1.100	1.300
1.300	1.500
1.500	1.700
1.700	2.000
4.455	4.655
4.655	4.855
4.855	5.055
5.055	5.255

GIDAL 69.....PRL 23 994 HBC

BEAM MOMENTUM= 3.54

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.	0.050
0.050	0.100
0.100	0.150
0.150	0.200
0.200	0.250
0.250	0.300
0.300	0.350
0.350	0.400
0.400	0.450
0.450	0.500
0.500	0.550
0.550	0.600
0.600	0.650
0.650	0.700
0.700	0.750
0.750	0.800
0.800	0.850
0.850	0.900
0.900	0.950
0.950	1.000
1.000	1.050
1.050	1.100
1.100	1.150
1.150	1.200
1.200	1.250

ABOLINS 64.....PR 136 8195 HBC 20

BEAM MOMENTUM= 3.9

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
-0.070	0.070
0.010	0.070
0.050	0.110
0.110	0.190
0.190	0.390
0.420	0.780
0.780	1.180
1.190	1.550

BASTIEN 71.....PR D3 2047 HBC 33

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.025	0.050
0.050	0.075
0.075	0.100
0.100	0.150
0.150	0.200
0.200	0.250
0.250	0.300
0.300	0.400
0.400	0.500
0.500	0.600
0.600	0.700
0.700	0.800
0.800	0.900
0.900	1.000
1.000	1.200
1.200	1.600
1.600	2.000
2.000	2.500
2.500	3.000
3.000	3.500
3.500	4.000
4.000	4.500
4.500	5.000
5.000	5.500
5.500	6.000
6.000	6.200

ADERHOLZ 65.....PR 138 8897 HBC 81

BEAM MOMENTUM= 13.1

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.005	0.013
-0.001	0.037
0.048	0.078
0.074	0.120
0.123	0.177
0.183	0.237
0.243	0.297
0.305	0.373
0.383	0.497
0.497	0.657
0.657	1.005

KRAMER 71.....THESIS HBC 82

BEAM MOMENTUM= 5.

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.	0.016
0.021	0.037
0.042	0.058
0.064	0.072
0.072	0.098
0.102	0.118
0.119	0.135
0.140	0.156
0.164	0.198
0.206	0.290
0.296	0.492
0.506	0.692
0.694	0.898
0.924	1.074
1.098	1.294
1.296	1.594

SCHOTANUS 70.....NP B22 45 HBC 151

BEAM MOMENTUM= 8.04

-T (GEV/C)**2	D SIGMA/D T (MB/(GEV/C)**2)
MIN	MAX
0.	0.050
0.050	0.100
0.100	0.150
0.150	0.200
0.200	0.250
0.250	0.300
0.300	0.400
0.400	0.500
0.500	0.700
0.700	0.900
0.900	1.200
1.200	1.500

ADERHOLZ 68.....NP B8 45 HBC

Differential cross section for $\pi^+p \rightarrow \pi^0\Delta(1238)^{++}$ $\searrow$ $p\pi^+$

Differential cross section for $\pi^+p \rightarrow \eta\Delta(1238)^{++}$

BEAM MOMENTUM= 1.95

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.082	0.273
0.273	0.463
0.463	0.654
0.654	0.845
0.845	1.035
1.035	1.226
1.226	1.417
1.417	1.607
1.607	1.798
1.798	

CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.077 +- .030

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.074	0.181
0.181	0.289
0.289	0.396
0.396	0.504
0.504	0.611
0.611	0.719
0.719	0.826
0.826	0.934
0.934	1.041
1.041	1.149
1.149	1.256
1.256	1.363
1.363	1.471
1.471	1.578
1.578	1.686
1.686	1.793
1.793	1.901
1.901	2.008
2.008	2.116
2.116	2.223

JAMES 66.....PR 142 896 HBC 20

BEAM MOMENTUM= 3.00

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.	0.100
0.100	0.150
0.150	0.200
0.200	0.250
0.250	0.300
0.300	0.350
0.350	0.400
0.400	0.450
0.450	0.500
0.500	0.550
0.550	0.600
0.600	0.650
0.650	0.700
0.700	0.750
0.750	0.800
0.800	0.850
0.850	0.900
0.900	0.950
0.950	1.000
1.000	1.050
1.050	1.100
1.100	1.150
1.150	1.200
1.200	1.250
1.250	1.300
1.300	1.350
1.350	1.400
1.400	1.450
1.450	1.500
1.500	1.550
1.550	1.600
1.600	1.650
1.650	1.700
1.700	1.750
1.750	1.800
1.800	1.850
1.850	1.900
1.900	1.950
1.950	2.000
2.000	2.050
2.050	2.100
2.100	2.150
2.150	2.200
2.200	2.250
2.250	2.300
2.300	2.350
2.350	2.400
2.400	2.450
2.450	2.500
2.500	2.550
2.550	2.600
2.600	2.650
2.650	2.700
2.700	2.750
2.750	2.800
2.800	2.850
2.850	2.900
2.900	2.950
2.950	3.000
3.000	3.050
3.050	3.100
3.100	3.150
3.150	3.200
3.200	3.250
3.250	3.300
3.300	3.350

GREYER 71.....PRL 26 792 HBC 25

BEAM MOMENTUM= 3.00

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.	0.150
0.150	0.200
0.200	0.250
0.250	0.300
0.300	0.350
0.350	0.400
0.400	0.450
0.450	0.500
0.500	0.550
0.550	0.600
0.600	0.650
0.650	0.700
0.700	0.750
0.750	0.800
0.800	0.850
0.850	0.900
0.900	0.950
0.950	1.000
1.000	1.050
1.050	1.100
1.100	1.150
1.150	1.200
1.200	1.250
1.250	1.300
1.300	1.350
1.350	1.400
1.400	1.450
1.450	1.500
1.500	1.550
1.550	1.600
1.600	1.650
1.650	1.700
1.700	1.750
1.750	1.800
1.800	1.850
1.850	1.900
1.900	1.950
1.950	2.000
2.000	2.050
2.050	2.100
2.100	2.150
2.150	2.200
2.200	2.250
2.250	2.300
2.300	2.350
2.350	2.400
2.400	2.450
2.450	2.500
2.500	2.550
2.550	2.600
2.600	2.650
2.650	2.700
2.700	2.750
2.750	2.800
2.800	2.850
2.850	2.900
2.900	2.950
2.950	3.000
3.000	3.050
3.050	3.100
3.100	3.150
3.150	3.200
3.200	3.250
3.250	3.300
3.300	3.350

GREYER 71.....PRL 26 792 HBC 25

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BEAM MOMENTUM= 3.515 +- .565

                                D SIGMA/D T
                                [MB/(GEV/C)**2]

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Differential cross section for $\pi^+p \rightarrow \eta\Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0$

• OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

for $\pi^+p \rightarrow \eta\Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \text{Neutrals}$

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

$\rightarrow \pi^+ \pi^-$
 $\rightarrow \rho \pi^+$

BEAM MOMENTUM= 2.077 $\pm$.030

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.208	0.265	5.974	$\pm$ 0.481	**	
0.285	0.362	2.522	0.313	**	
0.362	0.439	1.901	0.272	**	
0.439	0.516	1.513	0.242	**	
0.516	0.592	0.349	0.116	**	
0.592	0.669	0.776	0.173	**	
0.669	0.746	0.776	0.173	**	
0.746	0.823	0.660	0.160	**	
0.823	0.900	0.892	0.186	**	
0.900	0.977	0.737	0.169	**	
0.977	1.053	0.970	0.194	**	
1.053	1.130	0.621	0.155	**	
1.130	1.207	0.776	0.173	**	
1.207	1.284	0.543	0.145	**	
1.284	1.361	0.853	0.162	**	
1.361	1.437	0.621	0.155	**	
1.437	1.514	1.009	0.198	**	
1.514	1.591	0.892	0.186	**	
1.591	1.668	0.776	0.173	**	
1.668	1.745	0.853	0.182	**	

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BEAM MOMENTUM= 2.34 $\pm$.06

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.161	0.266	4.784	$\pm$ 0.221	**	
0.266	0.371	1.840	0.137	**	
0.371	0.477	0.899	0.095	**	
0.477	0.582	0.654	0.082	**	
0.582	0.688	0.583	0.077	**	
0.688	0.793	0.409	0.065	**	
0.793	0.899	0.511	0.072	**	
0.899	1.004	0.501	0.072	**	
1.004	1.110	0.470	0.069	**	
1.110	1.215	0.337	0.059	**	
1.215	1.321	0.327	0.058	**	
1.321	1.426	0.307	0.056	**	
1.426	1.531	0.256	0.051	**	
1.531	1.637	0.327	0.058	**	
1.637	1.742	0.296	0.055	**	
1.742	1.848	0.348	0.060	**	
1.848	1.953	0.188	0.080	**	
1.953	2.059	0.358	0.060	**	
2.059	2.164	0.296	0.055	**	
2.164	2.270	0.286	0.054	**	

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BEAM MOMENTUM= 2.62 $\pm$.28 $\pm$.27

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.100	0.200	0.117	$\pm$ 0.052	**	
0.200	0.300	1.824	0.207	**	
0.300	0.400	2.012	0.217	**	
0.400	0.500	0.748	0.132	**	
0.500	0.600	0.304	0.084	**	
0.600	0.700	0.281	0.081	**	
0.700	0.800	0.140	0.057	**	
0.800	0.900	0.164	0.062	**	
0.900	1.000	0.140	0.057	**	
1.000	1.100	0.187	0.066	**	
1.100	1.200	0.211	0.070	**	
1.200	1.300	0.117	0.052	**	
1.300	1.400	0.140	0.057	**	
1.400	1.500	0.164	0.062	**	
1.500	1.600	0.023	0.023	**	
1.600	1.700	0.070	0.041	**	
1.700	1.800	0.094	0.047	**	
1.800	1.900	0.140	0.057	**	
1.900	2.000	0.140	0.057	**	
2.000	2.100	0.047	0.033	**	
2.100	2.200	0.117	0.052	**	
2.200	2.300	0.070	0.041	**	
2.300	2.400	0.094	0.047	**	
2.400	2.500	0.0	0.023	**	
2.500	2.600	0.047	0.033	**	
2.600	2.700	0.070	0.041	**	

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BEAM MOMENTUM= 2.75

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.040	0.080	0.0	$\pm$ 0.028	**	
0.080	0.120	0.084	0.049	**	
0.120	0.160	2.222	0.250	**	
0.160	0.200	4.107	0.340	**	
0.200	0.240	2.729	0.277	**	
0.240	0.280	2.391	0.259	**	
0.280	0.320	1.913	0.232	**	
0.320	0.360	1.406	0.199	**	
0.360	0.400	0.956	0.164	**	
0.400	0.440	0.675	0.138	**	
0.440	0.480	0.647	0.135	**	
0.480	0.520	0.394	0.105	**	
0.520	0.560	0.506	0.119	**	
0.560	0.600	0.169	0.089	**	
0.600	0.640	0.113	0.056	**	
0.640	0.680	0.338	0.097	**	
0.680	0.720	0.422	0.109	**	
0.720	0.760	0.169	0.069	**	
0.760	0.800	0.366	0.101	**	
0.800	0.840	0.197	0.074	**	
0.840	0.880	0.197	0.074	**	
0.880	0.920	0.225	0.080	**	
0.920	0.960	0.281	0.089	**	
0.960	1.000	0.309	0.093	**	
1.000	1.040	0.309	0.093	**	
1.040	1.080	0.225	0.080	**	
1.080	1.120	0.169	0.069	**	
1.120	1.160	0.169	0.069	**	
1.160	1.200	0.281	0.089	**	
1.200	1.240	0.281	0.089	**	
1.240	1.280	0.309	0.093	**	
1.280	1.320	0.225	0.080	**	
1.320	1.360	0.281	0.089	**	
1.360	1.400	0.281	0.089	**	
1.400	1.440	0.309	0.093	**	
1.440	1.480	0.169	0.069	**	
1.480	1.520	0.225	0.080	**	
1.520	1.560	0.056	0.040	**	
1.560	1.600	0.056	0.040	**	
1.600	1.640	0.113	0.056	**	
1.640	1.680	0.169	0.069	**	
1.680	1.720	0.169	0.069	**	
1.720	1.760	0.056	0.040	**	
1.760	1.800	0.169	0.069	**	
1.800	1.840	0.028	0.028	**	
1.840	1.880	0.056	0.040	**	
1.880	1.920	0.056	0.040	**	
1.920	1.960	0.028	0.028	**	
1.960	2.000	0.028	0.028	**	
2.000	2.040	0.084	0.049	**	
2.040	2.080	0.056	0.040	**	
2.080	2.120	0.197	0.074	**	
2.120	2.160	0.084	0.049	**	
2.160	2.200	0.113	0.056	**	
2.200	2.240	0.113	0.056	**	
2.240	2.280	0.084	0.049	**	
2.280	2.320	0.084	0.049	**	
2.320	2.360	0.338	0.097	**	
2.360	2.400	0.113	0.056	**	
2.400	2.440	0.197	0.074	**	
2.440	2.480	0.056	0.040	**	
2.480	2.520	0.056	0.040	**	
2.520	2.560	0.056	0.040	**	
2.560	2.600	0.084	0.049	**	
2.600	2.640	0.169	0.069	**	
2.640	2.680	0.141	0.063	**	
2.680	2.720	0.113	0.056	**	
2.720	2.760	0.028	0.028	**	
2.760	2.800	0.113	0.056	**	
2.800	2.840	0.141	0.063	**	
2.840	2.880	0.141	0.063	**	
2.880	2.920	0.169	0.069	**	
2.920	2.960	0.028	0.028	**	
2.960	3.000	0.141	0.063	**	
3.000	3.040	0.141	0.063	**	
3.040	3.080	0.084	0.049	**	
3.080	3.120	0.253	0.084	**	
3.120	3.160	0.169	0.069	**	
3.160	3.200	0.169	0.069	**	
3.200	3.240	0.084	0.049	**	
3.240	3.280	0.056	0.040	**	
3.280	3.320	0.084	0.049	**	
3.320	3.360	0.028	0.028	**	
3.360	3.400	0.028	0.028	**	
3.400	3.440	0.028	0.028	**	

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BEAM MOMENTUM= 2.77 $\pm$.04

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.118	0.192	4.117	$\pm$ 0.338	**	
0.192	0.267	1.808	0.224	**	
0.267	0.341	1.280	0.189	**	
0.341	0.416	0.529	0.121	**	
0.416	0.490	0.473	0.115	**	
0.490	0.565	0.195	0.074	**	
0.565	0.639	0.250	0.083	**	
0.639	0.714	0.278	0.088	**	
0.714	0.788	0.139	0.062	**	
0.788	0.863	0.083	0.048	**	
0.863	0.937	0.223	0.079	**	
0.937	1.012	0.250	0.083	**	
1.012	1.086	0.167	0.068	**	
1.086	1.161	0.278	0.088	**	
1.161	1.235	0.139	0.062	**	
1.235	1.310	0.111	0.056	**	
1.310	1.384	0.028	0.028	**	
1.384	1.459	0.083	0.048	**	
1.459	1.533	0.139	0.062	**	
1.533	1.608	0.0	0.028	**	
1.608	1.682	0.0	0.028	**	
1.682	1.757	0.083	0.048	**	
1.757	1.831	0.083	0.048	**	
1.831	1.906	0.083	0.048	**	
1.906	1.980	0.056	0.039	**	
1.980	2.055	0.111	0.056	**	
2.055	2.129	0.083	0.048	**	
2.129	2.204	0.083	0.048	**	
2.204	2.278	0.083	0.048	**	
2.278	2.353	0.056	0.039	**	
2.353	2.427	0.028	0.028	**	
2.427	2.502	0.056	0.039	**	
2.502	2.576	0.083	0.048	**	
2.576	2.651	0.0	0.028	**	
2.651	2.725	0.111	0.056	**	
2.725	2.800	0.111	0.056	**	
2.800	2.874	0.056	0.039	**	
2.874	2.949	0.056	0.039	**	
2.949	3.023	0.167	0.068	**	
3.023	3.098	0.028	0.028	**	

YAMAMOTO 65.....PR 140 B730 HBC 20

BEAM MOMENTUM= 2.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.106	0.273	3.040	$\pm$ 0.259	**	
0.273	0.440	0.617	0.117	**	
0.440	0.606	0.308	0.082	**	
0.606	0.773	0.066	0.038	**	
0.773	0.940	0.154	0.058	**	
0.940	1.106	0.132	0.054	**	
1.106	1.273	0.176	0.062	**	
1.273	1.440	0.176	0.062	**	
1.440	1.606	0.110	0.049	**	
1.606	1.773	0.066	0.038	**	
1.773	1.940	0.066	0.038	**	

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

$$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$$

* OBTAINED AFTER TRANSFORMATION OF $\cos(\theta)$ INTO t

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.035	0.049	0.310	+- 0.119	**
0.	0.100	1.450	0.081	**
0.047	0.061	0.880	0.200	**
0.057	0.071	2.006	0.302	**
0.065	0.079	2.507	0.338	**
0.074	0.088	4.330	0.444	**
0.088	0.102	4.350	0.444	**
0.093	0.107	3.601	0.405	**
0.108	0.122	5.151	0.485	**
0.114	0.128	3.920	0.423	**
0.122	0.134	4.695	0.463	**
0.134	0.148	3.920	0.423	**
0.100	0.200	3.146	0.120	**
0.145	0.171	2.233	0.319	**
0.164	0.190	2.051	0.306	**
0.184	0.210	1.869	0.292	**
0.203	0.243	1.686	0.277	**
0.220	0.274	1.139	0.228	**
0.200	0.300	1.254	0.076	**
0.272	0.298	0.834	0.195	**
0.290	0.344	0.661	0.174	**
0.300	0.400	0.575	0.051	**
0.336	0.402	0.497	0.150	**
0.394	0.446	0.324	0.121	**
0.400	0.500	0.274	0.035	**
0.451	0.491	0.223	0.101	**
0.506	0.546	0.315	0.120	**
0.500	0.600	0.347	0.040	**
0.546	0.586	0.328	0.122	**
0.589	0.655	0.178	0.090	**
0.600	0.700	0.160	0.027	**
0.634	0.700	0.128	0.076	**
0.695	0.749	0.201	0.096	**
0.700	0.800	0.214	0.031	**
0.749	0.789	0.201	0.096	**
0.807	0.847	0.150	0.083	**
0.800	0.900	0.178	0.028	**
0.848	0.888	0.187	0.092	**
0.892	0.944	0.100	0.068	**
0.900	1.000	0.105	0.022	**
0.944	0.996	0.091	0.064	**
1.000	1.500	0.089	0.020	**
1.500	2.000	0.053	0.016	**
2.000	2.500	0.047	0.015	**
2.500	3.000	0.044	0.014	**
3.000	3.500	0.046	0.014	**
3.500	4.000	0.027	0.011	**
4.000	5.000	0.014	0.008	**
5.000	6.000	0.004	0.004	**

BROWN 68.....UCRL 18254 HBC 72

→ BEAM MOMENTUM= 3.53

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.081	0.303	2.709	+- 0.144	**
0.303	0.526	0.439	0.058	**
0.526	0.749	0.223	0.041	**
0.749	0.972	0.139	0.033	**
0.972	1.194	0.092	0.027	**
1.194	1.417	0.092	0.027	**
1.417	1.640	0.046	0.019	**
1.640	1.862	0.077	0.024	**
1.862	2.085	0.069	0.023	**
2.085	2.308	0.	0.008	**
2.308	2.530	0.062	0.022	**
2.530	2.753	0.008	0.008	**
2.753	2.976	0.031	0.015	**
2.976	3.199	0.069	0.023	**
3.199	3.421	0.046	0.019	**
3.421	3.644	0.015	0.011	**
3.644	3.867	0.031	0.015	**
3.867	4.089	0.046	0.019	**
4.089	4.312	0.046	0.019	**
4.312	4.535	0.046	0.019	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.65

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.020	0.	+- 0.108	**
0.020	0.040	0.	0.108	**
0.040	0.060	1.295	0.374	**
0.060	0.080	5.071	0.740	**
0.080	0.100	5.287	0.755	**
0.100	0.120	8.092	0.934	**
0.120	0.140	6.150	0.815	**
0.140	0.160	4.300	0.665	**
0.160	0.180	2.697	0.540	**
0.180	0.200	1.942	0.458	**
0.200	0.220	2.266	0.494	**
0.220	0.240	1.403	0.389	**
0.240	0.260	1.403	0.389	**
0.260	0.280	0.863	0.305	**
0.280	0.300	0.647	0.264	**
0.300	0.320	0.755	0.285	**
0.320	0.340	0.971	0.324	**
0.340	0.360	0.863	0.305	**
0.360	0.380	0.324	0.187	**
0.380	0.400	0.324	0.187	**
0.400	0.420	0.432	0.216	**
0.420	0.440	0.432	0.216	**
0.440	0.460	0.216	0.153	**
0.460	0.480	0.216	0.153	**
0.480	0.500	0.	0.108	**
0.500	0.520	0.324	0.187	**
0.520	0.540	0.432	0.216	**
0.540	0.560	0.647	0.264	**
0.560	0.580	0.216	0.153	**
0.580	0.600	0.216	0.153	**
0.600	0.620	0.108	0.108	**
0.620	0.640	0.216	0.153	**
0.640	0.660	0.432	0.216	**
0.660	0.680	0.216	0.153	**
0.680	0.700	0.324	0.187	**
0.700	0.720	0.324	0.187	**
0.720	0.740	0.432	0.216	**
0.740	0.760	0.108	0.108	**
0.760	0.780	0.324	0.187	**
0.780	0.800	0.	0.108	**
0.800	0.820	0.	0.108	**
0.820	0.840	0.216	0.153	**
0.840	0.860	0.108	0.108	**
0.860	0.880	0.324	0.187	**
0.880	0.900	0.216	0.153	**
0.900	0.920	0.	0.108	**
0.920	0.940	0.432	0.216	**
0.940	0.960	0.216	0.153	**
0.960	0.980	0.216	0.153	**
0.980	1.000	0.108	0.108	**

SHEN 65.....UCRL 16170 HBOS

→ BEAM MOMENTUM= 3.74

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.074	0.317	2.601	+- 0.156	**
0.317	0.560	0.392	0.060	**
0.560	0.803	0.224	0.046	**
0.803	1.045	0.186	0.042	**
1.045	1.288	0.093	0.029	**
1.288	1.531	0.028	0.016	**
1.531	1.774	0.028	0.016	**
1.774	2.016	0.037	0.019	**
2.016	2.259	0.065	0.025	**
2.259	2.502	0.056	0.023	**
2.502	2.745	0.009	0.009	**
2.745	2.988	0.019	0.013	**
2.988	3.230	0.047	0.021	**
3.230	3.473	0.047	0.021	**
3.473	3.716	0.019	0.013	**
3.716	3.959	0.037	0.019	**
3.959	4.201	0.009	0.009	**
4.201	4.444	0.047	0.021	**
4.444	4.687	0.028	0.016	**
4.687	4.930	0.037	0.019	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.075	0.100	6.900	+- 0.780	†
0.100	0.125	5.850	0.650	†
0.125	0.150	4.550	0.650	†
0.150	0.175	3.250	0.780	†
0.175	0.200	1.880	0.390	†
0.200	0.250	0.250	1.820	†
0.250	0.300	0.300	1.230	†
0.300	0.350	0.590	0.140	†
0.350	0.400	0.470	0.130	†
0.400	0.500	0.312	0.078	†
0.500	0.600	0.188	0.052	†
0.600	0.700	0.169	0.052	†
0.700	0.800	0.208	0.065	†
0.800	0.900	0.175	0.052	†
0.900	1.000	0.169	0.052	†
1.000	1.500	0.047	0.030	†
1.500	2.000	0.023	0.030	†
2.000	2.500	0.031	0.030	†
2.500	3.000	0.012	0.030	†
3.000	3.500	0.010	0.030	†
3.500	4.000	0.004	0.004	†
4.000	4.500	0.004	0.004	†
4.500	5.000	0.039	0.039	†

ADERHOLZ 65.....PR 138 B897 HBC 81

→ BEAM MOMENTUM= 4.08

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.066	0.341	1.963	+- 0.121	**
0.341	0.616	0.253	0.043	**
0.616	0.891	0.112	0.029	**
0.891	1.166	0.089	0.026	**
1.166	1.441	0.030	0.015	**
1.441	1.717	0.030	0.015	**
1.717	1.992	0.015	0.011	**
1.992	2.267	0.007	0.007	**
2.267	2.542	0.022	0.013	**
2.542	2.817	0.	0.007	**
2.817	3.092	0.007	0.007	**
3.092	3.367	0.007	0.007	**
3.367	3.642	0.	0.007	**
3.642	3.917	0.	0.007	**
3.917	4.193	0.	0.007	**
4.193	4.468	0.022	0.013	**
4.468	4.743	0.015	0.011	**
4.743	5.018	0.015	0.011	**
5.018	5.293	0.022	0.013	**
5.293	5.568	0.052	0.020	**

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 5.45

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.020	0.040	0.750	+- 0.137	†
0.040	0.060	6.175	0.393	†
0.060	0.080	5.850	0.382	†
0.080	0.100	4.350	0.330	†
0.100	0.120	2.675	0.259	†
0.120	0.140	2.350	0.242	†
0.140	0.160	1.725	0.208	†
0.160	0.180	1.525	0.195	†
0.180	0.200	1.100	0.166	†
0.200	0.220	0.700	0.132	†
0.220	0.240	0.825	0.144	†
0.240	0.280	0.450	0.075	†
0.280	0.320	0.438	0.074	†
0.320	0.360	0.350	0.066	†
0.360	0.400	0.237	0.054	†
0.400	0.450	0.230	0.048	†
0.450	0.500	0.230	0.048	†
0.500	0.550	0.170	0.041	†
0.550	0.600	0.160	0.040	†
0.600	0.650	0.160	0.040	†
0.650	0.700	0.100	0.032	†
0.700	0.750	0.130	0.036	†
0.750	0.800	0.060	0.024	†
0.800	1.000	0.070	0.013	†
1.000	1.400	0.027	0.006	†

BLOODWORTH 71.....NP 835 79 HBC 33

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$
 $\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$

• OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

BEAM MOMENTUM= 1.95				BEAM MOMENTUM= 3.5				BEAM MOMENTUM= 3.7			
-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]		-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]		-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX			MIN	MAX			MIN	MAX		
0.	0.050	4.100	**	0.002	0.018	9.600	+- 1.400	0.	0.020	11.350	+- 0.516
0.050	0.100	2.370	**	0.041	0.057	6.900	1.000	0.020	0.040	8.789	0.454
0.100	0.150	1.320	**	0.057	0.079	4.400	0.900	0.040	0.060	6.157	0.380
0.150	0.200	1.720	**	0.079	0.095	2.900	0.700	0.060	0.080	5.170	0.349
0.200	0.250	0.810	**	0.095	0.117	3.500	0.900	0.080	0.100	4.206	0.314
0.250	0.300	0.870	**	0.110	0.140	2.120	0.670	0.100	0.120	3.172	0.273
0.300	0.350	0.530	**	0.136	0.158	1.290	0.480	0.120	0.140	1.950	0.214
0.350	0.400	0.790	**	0.155	0.177	1.290	0.480	0.140	0.160	2.303	0.233
0.400	0.450	0.680	**	0.174	0.196	1.690	0.430	0.160	0.180	1.809	0.206
0.450	0.500	0.630	**	0.197	0.219	1.020	0.380	0.180	0.200	1.104	0.161
0.500	0.550	0.890	**	0.215	0.237	0.980	0.430	0.200	0.240	1.2690	0.244
0.550	0.600	0.630	**	0.241	0.257	1.170	0.440	0.240	0.280	0.9753	0.214
0.600	0.650	0.890	**	0.260	0.276	0.980	0.370	0.280	0.320	0.6580	0.176
0.650	0.700	0.380	**	0.279	0.339	0.380	0.170	0.320	0.360	0.6463	0.174
0.700	0.750	0.720	**	0.344	0.396	0.390	0.150	0.360	0.400	0.4465	0.145
0.750	0.800	0.080	**	0.392	0.460	0.217	0.082	0.400	0.460	0.3361	0.156
0.800	0.850	0.720	**	0.445	0.521	0.380	0.170	0.460	0.520	0.3055	0.145
0.850	0.900	0.550	**	0.513	0.581	0.260	0.130	0.520	0.580	0.2585	0.133
0.900	0.950	0.680	**	0.592	0.698	0.165	0.062	0.580	0.640	0.2350	0.127
0.950	1.000	0.680	**	0.510	0.990	0.610	0.080	0.640	0.700	0.2585	0.135
1.000	1.050	0.740	**	0.990	1.470	0.350	0.080	0.700	0.800	0.1645	0.139
1.050	1.100	0.630	**	1.500	1.940	0.190	0.037	0.800	0.900	0.1141	0.127
1.100	1.150	0.630	**	2.010	2.450	0.200	0.047	0.900	1.000	0.1175	0.117
1.150	1.200	0.740	**					1.000	1.200	0.1081	0.159
1.200	1.250	0.470	**					1.200	1.400	0.0635	0.122
1.250	1.300	0.560	**								
1.300	1.350	0.470	**								
1.350	1.400	0.560	**								
1.400	1.450	0.220	**								
1.450	1.500	0.320	**								
1.500	1.550	0.110	**								
1.550	1.600	0.050	**								
1.600	1.650	0.110	**								
1.650	1.700		**								
CHAPMAN 71.....PR D 3 38 HBC 20				RONAT 72.....NP 838 20 HBC 33				ABRAMS 70.....PRL 25 617 HBC 72			
BEAM MOMENTUM= 2.34 +- .06				BEAM MOMENTUM= 3.515 +- .565				BEAM MOMENTUM= 5.00			
-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]		-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]		-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX			MIN	MAX			MIN	MAX		
0.	0.020	8.800	+- 0.400	0.001	8.205	1.368	**	0.	0.020	6.578	+- 0.051
0.020	0.040	6.900	0.100	0.003	7.522	1.309	**	0.020	0.060	3.796	0.039
0.040	0.060	7.900	0.400	0.005	8.205	1.368	**	0.060	0.100	3.045	0.035
0.060	0.080	4.800	0.800	0.007	10.485	1.546	**	0.100	0.150	1.308	0.023
0.080	0.100	4.300	0.700	0.009	4.353	0.996	**	0.150	0.200	0.652	0.016
0.100	0.120	2.250	0.480	0.010	7.864	0.423	**	0.200	0.300	0.418	0.013
0.120	0.140	3.800	0.500	0.011	7.157	1.277	**	0.300	0.400	0.155	0.008
0.140	0.160	2.700	0.500	0.013	8.889	0.423	**	0.400	0.500	0.109	0.004
0.160	0.180	1.980	0.320	0.015	7.294	1.289	**	0.500	0.600	0.114	0.007
0.180	0.200	1.290	0.330	0.016	6.086	1.178	**	0.600	0.800	0.098	0.006
0.200	0.220	1.790	0.370	0.019	5.356	1.105	**	0.800	1.000	0.045	0.004
0.220	0.240	1.400	0.360	0.021	6.268	1.195	**	1.000	1.200	0.021	0.003
0.240	0.260	1.280	0.330	0.023	7.294	1.289	**	1.250	1.500	0.006	0.002
0.260	0.280	1.210	0.310	0.025	5.174	1.086	**				
0.280	0.300	1.110	0.280	0.026	5.499	1.119	**				
0.300	0.320	1.320	0.360	0.029	4.285	0.988	**				
0.320	0.340	0.800	0.240	0.030	5.448	0.352	**				
0.340	0.360	0.580	0.200	0.031	4.285	0.988	**				
0.360	0.380	1.010	0.260	0.033	3.875	0.940	**				
0.380	0.400	0.680	0.210	0.035	6.587	1.225	**				
0.400	0.420	0.940	0.340	0.037	5.128	1.081	**				
0.420	0.440	0.800	0.240	0.039	5.288	1.098	**				
0.440	0.460	0.760	0.230	0.041	5.607	1.130	**				
0.460	0.480	0.670	0.210	0.042	5.265	1.095	**				
0.480	0.500	0.610	0.220	0.044	4.946	1.062	**				
0.500	0.520	0.680	0.210	0.046	4.787	1.045	**				
0.520	0.540	0.258	0.148	0.048	2.895	0.812	**				
0.540	0.560	0.450	0.200	0.050	4.536	0.322	**				
0.560	0.580	0.910	0.240	0.053	4.627	0.027	**				
0.580	0.600	0.600	0.280	0.054	2.393	0.739	**				
0.600	0.620	0.820	0.250	0.055	6.496	1.217	**				
0.620	0.640	0.750	0.230	0.056	5.197	1.088	**				
0.640	0.660	0.660	0.230	0.058	3.920	0.945	**				
0.660	0.680	0.580	0.210	0.061	3.259	0.862	**				
0.680	0.700	0.930	0.290	0.062	4.718	1.037	**				
0.700	0.720	0.680	0.210	0.064	5.334	1.103	**				
0.720	0.740	0.340	0.150	0.066	3.237	0.659	**				
0.740	0.760	0.530	0.210	0.068	3.442	0.886	**				
0.760	0.780	0.480	0.170	0.070	3.601	0.287	**				
0.780	0.800	0.190	0.114	0.071	3.442	0.886	**				
0.800	0.820	0.540	0.170	0.072	3.761	0.926	**				
0.820	0.840	0.720	0.190	0.074	2.439	0.746	**				
0.840	0.860	0.770	0.240	0.076	3.761	0.926	**				
0.860	0.880	0.580	0.180	0.078	3.761	1.103	**				
0.880	0.900	0.780	0.240	0.081	3.214	0.856	**				
0.900	0.920	0.660	0.200	0.082	4.103	0.967	**				
0.920	0.940	0.330	0.170	0.084	2.484	0.753	**				
0.940	0.960	0.720	0.260	0.087	1.755	0.632	**				
0.960	0.980	0.400	0.190	0.088	2.644	0.776	**				
0.980	1.000	0.191	0.114	0.090	2.484	0.238	**				
1.000	1.020	0.220	0.170	0.091	2.484	0.753	**				
1.020	1.040	0.760	0.150	0.092	2.257	0.717	**				
1.040	1.060	0.197	0.127	0.094	1.755	0.632	**				
1.060	1.080	0.330	0.150	0.096	2.257	0.717	**				
1.080	1.100	0.141	0.091	0.099	3.054	0.834	**				
1.100	1.120	0.330	0.140	0.110	2.074	0.217	**				
1.120	1.140	0.330	0.170	0.130	0.010	1.664	**				
1.140	1.160	0.410	0.170	0.150	0.010	1.504	**				
1.160	1.180	0.540	0.190	0.170	0.010	1.140	**				
1.180	1.200	0.330	0.170	0.190	0.010	0.912	**				
1.200	1.220	0.660	0.240	0.225	0.025	0.661	**				
1.220	1.240	0.730	0.220	0.275	0.025	0.123	**				
1.240	1.260	0.205	0.120	0.325	0.025	0.385	**				
1.260	1.280	0.330	0.170	0.375	0.025	0.372	**				
1.280	1.300	0.480	0.200	0.450	0.050	0.271	**				
1.300	1.320	0.320	0.170	0.550	0.050	0.079	**				
1.320	1.340	0.480	0.200	0.650	0.050	0.176	**				
1.340	1.360	0.530	0.220	0.750	0.050	0.223	**				
1.360	1.380	0.530	0.210	0.850	0.050	0.107	**				
				0.950	0.050	0.166	**				
ANGELOV 69.....JINR PI-4657 HBC				BROWN 68.....UCRL 18254 HBC 72				ARMENISE 70.....NC 65A 637 OBC 86			

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$ $\rightarrow p\pi^+$ $\rightarrow \pi^+\pi^-$

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

BEAM MOMENTUM= 5.45

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.020	8.175	0.452
0.020	0.040	5.875	0.383
0.040	0.060	3.775	0.307
0.060	0.080	2.800	0.265
0.080	0.100	2.050	0.226
0.100	0.120	1.575	0.198
0.120	0.140	1.400	0.187
0.140	0.160	1.100	0.166
0.160	0.180	0.725	0.135
0.180	0.220	0.613	0.087
0.220	0.260	0.425	0.073
0.260	0.300	0.325	0.064
0.300	0.340	0.300	0.061
0.340	0.420	0.206	0.036
0.420	0.500	0.225	0.038
0.500	0.600	0.145	0.027
0.600	0.700	0.130	0.025
0.700	0.800	0.065	0.018
0.800	1.000	0.063	0.013
1.000	1.400	0.025	0.006

BLOODWORTH 71.....NP 835 79

HBC 33

BEAM MOMENTUM= 5.72

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.020	7.644	1.352
0.020	0.040	7.232	1.352
0.040	0.060	6.938	1.470
0.060	0.080	4.175	1.058
0.080	0.100	2.293	0.764
0.100	0.120	0.764	0.470
0.120	0.140	1.646	0.647
0.140	0.160	0.764	0.470
0.160	0.180	1.000	0.470
0.180	0.200	1.000	0.470
0.200	0.220	0.647	0.470
0.220	0.240	0.764	0.470
0.240	0.260	0.764	0.470
0.260	0.280	0.294	0.159
0.280	0.300	0.259	0.188
0.300	0.320	0.129	0.153
0.320	0.340	0.329	0.176
0.340	0.440		
0.440	0.500		

SHENG 70.....THESIS

HBC 33

BEAM MOMENTUM= 5.72

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.020	7.115	0.794
0.020	0.040	5.880	0.823
0.040	0.060	5.116	0.888
0.060	0.080	3.175	0.594
0.080	0.100	1.823	0.400
0.100	0.120	1.235	0.341
0.120	0.140	1.529	0.423
0.140	0.160	0.823	0.265
0.160	0.180	1.352	0.325
0.180	0.200	0.823	0.288
0.200	0.220	0.705	0.276
0.220	0.240	0.353	0.223
0.240	0.260	0.647	0.294
0.260	0.280	0.541	0.265
0.280	0.300	0.270	0.206
0.300	0.320	0.312	0.241
0.320	0.340	0.235	0.176
0.340	0.400	0.253	0.229
0.400	0.460	0.059	0.182
0.460	0.520		
0.520	0.580		

SHENG 70.....THESIS

HBC 33

BEAM MOMENTUM= 8.04

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.050	3.420	0.160
0.050	0.100	1.470	0.100
0.100	0.150	0.540	0.060
0.150	0.200	0.470	0.060
0.200	0.250	0.190	0.040
0.250	0.300	0.118	0.030
0.300	0.400	0.096	0.019
0.400	0.500	0.059	0.015
0.500	0.600	0.052	0.014
0.600	0.750	0.025	0.008
0.750	0.900	0.020	0.007
0.900	1.100	0.009	0.004
1.100	1.500	0.005	0.002
1.500	2.000	0.002	0.001

ADERHOLZ 68.....NP 88 45

HBC

BEAM MOMENTUM= 11.7 +- .117

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.010	4.940	0.620
0.010	0.020	3.940	0.657
0.020	0.030	2.800	0.378
0.030	0.040	2.060	0.295
0.040	0.050	1.585	0.252
0.050	0.060	1.140	0.185
0.060	0.070	1.040	0.175
0.070	0.080	0.906	0.165
0.080	0.090	0.778	0.145
0.090	0.100	0.834	0.169
0.100	0.110	0.845	0.189
0.110	0.130	0.540	0.103
0.130	0.150	0.502	0.100
0.150	0.170	0.387	0.083
0.170	0.200	0.228	0.047
0.200	0.260	0.189	0.042
0.260	0.400	0.170	0.024

MADDOCK 71.....NC 5A 433

HBC 200

BEAM MOMENTUM= 13.1

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.005	0.020	4.320	0.320
0.020	0.040	2.400	0.220
0.040	0.060	1.200	0.100
0.060	0.080	0.625	0.051
0.080	0.100	0.298	0.030
0.100	0.120	0.174	0.025
0.120	0.140	0.096	0.013
0.140	0.160	0.054	0.009
0.160	0.180	0.041	0.009
0.180	0.200	0.033	0.009
0.200	0.220	0.015	0.005

GAIDOS 70.....PR D1 3190

HBC 82

BEAM MOMENTUM= 18.5

-T ⁺ (GEV/C)**2		D SIGMA/D T ⁺ [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.010	1.132	0.173
0.010	0.020	0.606	0.126
0.020	0.030	0.843	0.149
0.030	0.040	0.421	0.105
0.040	0.060	0.342	0.095
0.060	0.100	0.171	0.067
0.100	0.160	0.097	0.051

BISWAS 70.....PR D2 2529

HBC 80

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

$$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$$

$$\begin{array}{l} \longrightarrow p\pi^+ \\ \longrightarrow \pi^+\pi^-\pi^0 \end{array}$$

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      → BEAM MOMENTUM= 2.77 ← .04

      -T                      D SIGMA/D T
      (GEV/C)**2             [MB/(GEV/C)**2]

      MIN                     MAX

0.124      0.198      1.822      ← 0.226      **
0.198      0.271      2.018      0.238      **
0.271      0.345      1.514      0.206      **
0.345      0.418      1.233      0.186      **
0.418      0.492      1.486      0.204      **
0.492      0.566      0.869      0.156      **
0.566      0.639      0.729      0.143      **
0.639      0.713      0.701      0.140      **
0.713      0.786      0.505      0.119      **
0.786      0.860      0.449      0.112      **
0.860      0.933      0.420      0.109      **
0.933      1.007      0.449      0.112      **
1.007      1.081      0.224      0.079      **
1.081      1.154      0.336      0.097      **
1.154      1.228      0.196      0.074      **
1.228      1.301      0.196      0.074      **
1.301      1.375      0.084      0.049      **
1.375      1.448      0.308      0.093      **
1.448      1.522      0.084      0.049      **
1.522      1.595      0.140      0.063      **
1.595      1.669      0.      0.028      **
1.669      1.743      0.056      0.040      **

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2.110	2.184	0.185		
2.184	2.258	0.112	0.056	**
2.258	2.331	0.028	0.028	**
2.331	2.405	0.196	0.074	**
2.405	2.478	0.084	0.049	**
2.478	2.552	0.056	0.040	**
2.552	2.625	0.028	0.028	**
2.625	2.699	0.056	0.040	**
2.699	2.772	0.028	0.028	**
2.772	2.846	0.224	0.079	**
2.846	2.920	0.028	0.028	**
2.920	2.993	0.168	0.069	**
2.993	3.067	0.140	0.063	**

YAMAMOTO 65.....PR 140 B730 HBC 20

→ BEAM MOMENTUM = 2.95

-T [GEV/C]**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.112	0.277	1.318	+- 0.167	**
0.277	0.442	0.893	0.138	**
0.442	0.606	0.574	0.110	**
0.606	0.771	0.510	0.104	**

1.431	1.596	0.021	0.021	**
1.596	1.761	0.085	0.043	**
1.761	1.926	0.021	0.021	**
1.926	2.091	0.	0.021	**
2.091	2.255	0.064	0.037	**
2.255	2.420	0.085	0.043	**
2.420	2.585	0.064	0.037	**
2.585	2.750	0.043	0.030	**
2.750	2.915	0.064	0.037	**
2.915	3.080	0.085	0.043	**
3.080	3.245	0.106	0.048	**
3.245	3.410	0.106	0.048	**

BROWN	68.....UCRL 16254	HBC	72
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* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 ‡ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow \omega \Delta(1238)^{++}$
 $\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^-\pi^0 \end{array}$

* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow \omega\Delta(1238)^{++}$

BEAM MOMENTUM= 3.19

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.099	0.287	1.022	+-	0.091	†
0.287	0.475	0.499		0.064	†
0.475	0.664	0.417		0.058	†
0.664	0.852	0.303		0.050	†
0.852	1.040	0.180		0.038	†
1.040	1.229	0.057		0.022	†
1.229	1.417	0.082		0.026	†
1.417	1.605	0.025		0.014	†
1.605	1.793	0.057		0.022	†
1.793	1.982	0.041		0.018	†
1.982	2.170	0.074		0.025	†
2.170	2.358	0.041		0.018	†
2.358	2.547	0.082		0.026	†
2.547	2.735	0.049		0.020	†
2.735	2.923	0.057		0.022	†
2.923	3.112	0.033		0.016	†
3.112	3.300	0.065		0.023	†
3.300	3.488	0.016		0.012	†
3.488	3.677	0.016		0.016	†
3.677	3.865	0.041		0.018	†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.040	0.080	0.201	+-	0.040	†
0.080	0.120	0.753		0.078	†
0.120	0.160	0.861		0.098	†
0.160	0.200	0.822		0.088	†
0.200	0.240	0.910		0.098	†
0.240	0.280	0.265		0.078	†
0.280	0.320	0.753		0.078	†
0.320	0.360	0.587		0.078	†
0.360	0.400	0.783		0.078	†
0.400	0.440	0.440		0.039	†
0.440	0.480	0.401		0.039	†
0.480	0.520	0.367		0.029	†
0.520	0.560	0.262		0.028	†
0.560	0.600	0.100		0.020	†
0.600	0.640	0.153		0.022	†
0.640	0.680	0.109		0.020	†
0.680	0.720	0.059		0.010	†
0.720	0.760	0.030		0.007	†
0.760	0.800	0.019		0.006	†
0.800	0.840	0.027		0.007	†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.53

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.085	0.306	0.780	+-	0.075	†
0.306	0.527	0.614		0.067	†
0.527	0.748	0.332		0.049	†
0.748	0.969	0.123		0.030	†
0.969	1.190	0.166		0.035	†
1.190	1.411	0.065		0.022	†
1.411	1.632	0.022		0.013	†
1.632	1.853	0.014		0.010	†
1.853	2.075	0.014		0.010	†
2.075	2.296	0.014		0.010	†
2.296	2.517	0.022		0.013	†
2.517	2.738	0.014		0.010	†
2.738	2.959	0.022		0.013	†
2.959	3.180	0.022		0.013	†
3.180	3.401	0.014		0.010	†
3.401	3.622	0.029		0.014	†
3.622	3.843	0.036		0.016	†
3.843	4.064	0.043		0.018	†
4.064	4.286	0.036		0.016	†
4.286	4.507	0.058		0.020	†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.65

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.000	0.100	0.259	+-	0.075	†
0.100	0.200	0.971		0.145	†
0.200	0.300	1.165		0.159	†
0.300	0.400	0.971		0.145	†
0.400	0.500	0.561		0.110	†
0.500	0.600	0.388		0.092	†
0.600	0.700	0.302		0.081	†
0.700	0.800	0.173		0.061	†
0.800	0.900	0.108		0.048	†
0.900	1.000	0.086		0.043	†
1.000	1.100	0.022		0.022	†
1.100	1.200	0.086		0.043	†
1.200	1.300	0.043		0.031	†
1.300	1.400	0.022		0.022	†
1.400	1.500	0.086		0.043	†
1.500	1.600	0.022		0.022	†
1.600	1.700	0.		0.022	†
1.700	1.800	0.		0.022	†
1.800	1.900	0.022		0.022	†
1.900	2.000	0.022		0.022	†
2.000	2.100	0.		0.022	†
2.100	2.200	0.022		0.022	†
2.200	2.300	0.		0.022	†
2.300	2.400	0.		0.022	†
2.400	2.500	0.043		0.031	†
2.500	2.600	0.043		0.031	†
2.600	2.700	0.086		0.043	†
2.700	2.800	0.043		0.031	†
2.800	2.900	0.043		0.031	†
2.900	3.000	0.022		0.022	†
3.000	3.100	0.043		0.031	†
3.100	3.200	0.		0.022	†
3.200	3.300	0.022		0.022	†
3.300	3.400	0.		0.022	†
3.400	3.500	0.022		0.022	†
3.500	3.600	0.043		0.031	†
3.600	3.700	0.022		0.022	†
3.700	3.800	0.022		0.022	†
3.800	3.900	0.065		0.037	†
3.900	4.000	0.065		0.037	†
4.000	4.100	0.065		0.037	†
4.100	4.200	0.086		0.043	†
4.200	4.300	0.043		0.031	†
4.300	4.400	0.		0.022	†
4.400	4.500	0.		0.022	†
4.500	4.600	0.043		0.031	†
4.600	4.700	0.043		0.031	†
4.700	4.800	0.		0.022	†
4.800	4.900	0.043		0.031	†
4.900	5.000	0.043		0.031	†

SHEN 65.....UCRL 16170 HBSC

BEAM MOMENTUM= 3.74

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.078	0.319	0.721	+-	0.078	†
0.319	0.560	0.501		0.065	†
0.560	0.802	0.272		0.048	†
0.802	1.043	0.102		0.029	†
1.043	1.284	0.051		0.015	†
1.284	1.525	0.025		0.015	†
1.525	1.766	0.042		0.019	†
1.766	2.008	0.017		0.012	†
2.008	2.249	0.017		0.012	†
2.249	2.490	0.025		0.015	†
2.490	2.731	0.017		0.012	†
2.731	2.972	0.034		0.017	†
2.972	3.214	0.017		0.012	†
3.214	3.455	0.034		0.017	†
3.455	3.696	0.017		0.012	†
3.696	3.937	0.025		0.015	†
3.937	4.178	0.034		0.017	†
4.178	4.420	0.034		0.017	†
4.420	4.661	0.034		0.017	†
4.661	4.902	0.059		0.022	†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.92

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.075	0.100	0.600	+-	0.150	†
0.100	0.150	0.820		0.170	†
0.150	0.200	0.820		0.170	†
0.200	0.250	0.820		0.170	†
0.250	0.300	0.560		0.140	†
0.300	0.350	0.740		0.170	†
0.350	0.400	0.630		0.150	†
0.400	0.450	0.600		0.140	†
0.450	0.500	0.480		0.140	†
0.500	0.550	0.480		0.140	†
0.550	0.600	0.370		0.110	†
0.600	0.650	0.110		0.060	†
0.650	0.700	0.060		0.020	†
0.700	0.750	0.030		0.010	†
0.750	0.800	0.060		0.020	†
0.800	0.850	0.030		0.010	†
0.850	0.900	0.030		0.010	†
0.900	0.950	0.030		0.010	†
0.950	1.000	0.030		0.010	†
1.000	1.050	0.030		0.010	†
1.050	1.100	0.030		0.010	†
1.100	1.150	0.030		0.010	†
1.150	1.200	0.030		0.010	†

WINKELMANN 68.....THESIS HBC 33

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      ———→ BEAM MOMENTUM= 4. +- .04

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-T		D SIGMA/D T			
(GEV/C)**2		[MB/(GEV/C)**2]			
MIN	MAX				
0.100	0.150	0.870	+-	0.022	†
0.150	0.200	1.150		0.150	†
0.200	0.250	0.890		0.220	†
0.250	0.300	0.840		0.200	†
0.300	0.400	0.690		0.110	†
0.400	0.500	0.470		0.100	†
0.500	0.600	0.420		0.090	†
0.600	0.700	0.160		0.050	†
0.700	0.800	0.060		0.060	†
0.800	0.900	0.160		0.050	†
0.900	1.000	0.076		0.038	†
1.000	1.500	0.051		0.030	†
1.500	2.000	0.027		0.030	†
2.000	2.500	0.021			†
2.500	3.000	0.015			†
3.000	3.500	0.012			†
3.500	4.000	0.009			†
4.000	4.500	0.012			†
4.500	4.750	0.024			†
4.750	5.000	0.030			†
5.000	5.200	0.038			†

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      ADERHOLZ      65.....PR 138 8897      HBC      81

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Differential cross section for $\pi^+p \rightarrow \omega\Delta(1238)^{++}$

$$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^-\pi^0 \end{array}$$
* OBTAINED AFTER TRANSFORMATION OF $\cos(\theta)$ INTO t

Differential cross section for $\pi^+p \rightarrow \omega \Delta(1238)^{++}$

BEAM MOMENTUM= 1.95

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.050	1.860
0.050	0.100	2.030
0.100	0.150	1.910
0.150	0.200	1.670
0.200	0.250	1.620
0.250	0.300	2.220
0.300	0.350	1.540
0.350	0.400	1.720
0.400	0.450	1.800
0.450	0.500	1.600
0.500	0.550	0.860
0.550	0.600	1.120
0.600	0.650	0.960
0.650	0.700	0.910
0.700	0.750	1.120
0.750	0.800	0.870
0.800	0.850	0.680
0.850	0.900	0.970
0.900	0.950	0.750
0.950	1.000	0.500
1.000	1.050	0.640
1.050	1.100	0.620
1.100	1.150	0.060
1.150	1.200	0.330
1.200	1.250	0.160
1.250	1.300	0.110
1.300	1.350	0.110
1.350	1.400	0.050
1.400	1.450	0.050

CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.34 +- .06

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.020	3.170
0.020	0.040	2.400
0.040	0.060	3.080
0.060	0.080	2.990
0.080	0.100	2.910
0.100	0.120	3.200
0.120	0.140	2.420
0.140	0.160	1.950
0.160	0.180	2.510
0.180	0.200	1.680
0.200	0.220	1.740
0.220	0.240	1.630
0.240	0.260	1.640
0.260	0.280	2.040
0.280	0.300	1.410
0.300	0.320	1.450
0.320	0.340	1.870
0.340	0.360	1.330
0.360	0.380	1.180
0.380	0.400	1.040
0.400	0.420	1.010
0.420	0.440	0.810
0.440	0.460	1.260
0.460	0.480	1.020
0.480	0.500	0.990
0.500	0.520	0.930
0.520	0.540	0.750
0.540	0.560	0.800
0.560	0.580	0.850
0.580	0.600	1.280
0.600	0.620	0.780
0.620	0.640	0.450
0.640	0.660	0.200
0.660	0.680	0.480
0.680	0.700	0.670
0.700	0.720	0.680
0.720	0.740	0.530
0.740	0.760	0.321
0.760	0.780	0.470
0.780	0.800	0.390
0.800	0.820	0.460
0.820	0.840	0.185
0.840	0.860	0.238
0.860	0.880	0.470
0.880	0.900	0.540
0.900	0.920	0.390
0.920	0.940	0.610
0.940	0.960	0.220
0.960	0.980	0.111
0.980	1.000	0.610
1.000	1.020	0.242
1.020	1.040	0.132
1.040	1.060	0.470
1.060	1.080	0.173
1.080	1.100	0.109
1.100	1.120	0.040
1.120	1.140	0.315
1.140	1.160	0.400
1.160	1.180	0.460
1.180	1.200	0.470
1.200	1.220	0.210
1.220	1.240	0.690
1.240	1.260	0.241
1.260	1.280	0.171
1.280	1.300	0.249
1.300	1.320	0.321
1.320	1.340	0.620
1.340	1.360	0.320
1.360	1.380	0.085
1.380	1.400	0.037

ANGELOV 69.....JINR P1-4657 HBC

BEAM MOMENTUM= 3.5

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.100	0.870
0.100	0.200	0.840
0.200	0.300	0.790
0.300	0.400	0.550
0.400	0.500	0.560
0.500	0.600	0.330
0.600	0.700	0.280
0.700	0.800	0.144
0.800	0.900	0.118
0.900	1.000	0.143
1.000	1.100	0.093
1.100	1.200	0.113
1.200	1.300	0.035
1.300	1.400	0.023
1.400	1.500	0.008
1.500	1.600	0.017

RONAT 72.....NP B38 20 HBC 33

BEAM MOMENTUM= 3.515 +- .565

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.040	1.057
0.040	0.080	0.910
0.080	0.120	0.841
0.120	0.160	0.841
0.160	0.200	0.587
0.200	0.240	0.753
0.240	0.280	0.616
0.280	0.320	0.489
0.320	0.360	0.450
0.360	0.400	0.479
0.400	0.440	0.421
0.440	0.480	0.333
0.480	0.520	0.271
0.520	0.560	0.128
0.560	0.600	0.125
0.600	0.640	0.135
0.640	0.680	0.076
0.680	0.720	0.046
0.720	0.760	0.015
0.760	0.800	0.037
0.800	0.840	0.025

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.7

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.020	1.325
0.020	0.040	1.275
0.040	0.060	1.575
0.060	0.080	1.825
0.080	0.100	1.375
0.100	0.120	1.325
0.120	0.140	1.600
0.140	0.160	0.975
0.160	0.180	1.275
0.180	0.200	1.300
0.200	0.220	1.1625
0.220	0.240	1.05
0.240	0.260	0.925
0.260	0.280	0.5625
0.280	0.300	0.6575
0.300	0.320	0.4750
0.320	0.340	0.4075
0.340	0.360	0.2750
0.360	0.380	0.2
0.380	0.400	0.16
0.400	0.420	0.15
0.420	0.440	0.16
0.440	0.460	0.0775
0.460	0.480	0.0625

ABRAMS 70.....PRL 25 617 HBC 72

BEAM MOMENTUM= 5.0

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.025	0.529
0.025	0.050	0.473
0.050	0.075	0.547
0.075	0.100	0.588
0.100	0.125	0.379
0.125	0.150	0.489
0.150	0.175	0.351
0.175	0.200	0.261
0.200	0.225	0.168
0.225	0.250	0.135
0.250	0.275	0.060
0.275	0.300	0.029
0.300	0.325	0.013
0.325	0.350	0.011

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 5.0

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.040	0.350
0.040	0.080	0.540
0.080	0.120	0.370
0.120	0.160	0.460
0.160	0.200	0.310
0.200	0.240	0.300
0.240	0.280	0.146
0.280	0.320	0.136
0.320	0.360	0.045
0.360	0.400	0.018
0.400	0.440	0.012
0.440	0.480	0.008

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 5.45

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.050	0.433
0.050	0.100	0.695
0.100	0.150	0.707
0.150	0.200	0.502
0.200	0.250	0.581
0.250	0.300	0.502
0.300	0.350	0.388
0.350	0.400	0.410
0.400	0.450	0.228
0.450	0.500	0.262
0.500	0.550	0.194
0.550	0.600	0.194
0.600	0.650	0.137
0.650	0.700	0.125
0.700	0.750	0.068
0.750	0.800	0.046
0.800	0.850	0.028
0.850	0.900	0.013
0.900	1.000	0.013
1.000	1.400	0.004

BLOODWORTH 71.....NP B35 79 HBC 33

BEAM MOMENTUM= 5.72

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.100	0.205
0.100	0.200	0.221
0.200	0.300	0.274
0.300	0.400	0.341
0.400	0.500	0.085
0.500	0.600	0.085
0.600	0.700	0.126
0.700	0.800	0.078
0.800	0.900	0.032
0.900	1.000	0.021

DAO 70.....THESIS HBC 33

BEAM MOMENTUM= 8.04

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.040	0.143
0.040	0.080	0.280
0.080	0.120	0.250
0.120	0.160	0.280
0.160	0.200	0.158
0.200	0.240	0.226
0.240	0.300	0.123
0.300	0.350	0.117
0.350	0.400	0.109
0.400	0.500	0.067
0.500	0.600	0.004
0.600	0.700	0.019
0.700	0.800	0.011
0.800	0.900	0.008
0.900	1.000	0.008
1.000	1.300	0.003
1.300	2.000	0.001

ADERHOLZ 68.....NP B8 45 HBC

BEAM MOMENTUM= 18.5

-T* (GEV/C)**2	D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX	
0.	0.100	0.263
0.100	0.200	0.342
0.200	0.300	0.369
0.300	0.500	0.158
0.500	1.000	0.037

BISWAS 70.....PR D2 2529 HBC 80

Differential cross section for $\pi^+p \rightarrow \omega \Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-\pi^0$

Differential cross section for $\pi^+p \rightarrow f\Delta(1238)^{++}$

BEAM MOMENTUM= 3.65

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.100	0.	0.022	**	
0.100	0.200	0.	0.022	**	
0.200	0.300	0.	0.194	**	
0.300	0.400	0.410	0.094	**	
0.400	0.500	0.432	0.097	**	
0.500	0.600	0.237	0.072	**	
0.600	0.700	0.281	0.078	**	
0.700	0.800	0.151	0.057	**	
0.800	0.900	0.086	0.043	**	
0.900	1.000	0.151	0.057	**	
1.000	1.100	0.043	0.031	**	
1.100	1.200	0.086	0.043	**	
1.200	1.300	0.237	0.072	**	
1.300	1.400	0.151	0.057	**	
1.400	1.500	0.043	0.031	**	
1.500	1.600	0.129	0.053	**	
1.600	1.700	0.129	0.053	**	
1.700	1.800	0.108	0.048	**	
1.800	1.900	0.086	0.043	**	
1.900	2.000	0.065	0.037	**	
2.000	2.100	0.022	0.022	**	
2.100	2.200	0.065	0.037	**	
2.200	2.300	0.086	0.043	**	
2.300	2.400	0.	0.022	**	
2.400	2.500	0.022	0.022	**	
2.500	2.600	0.022	0.022	**	
2.600	2.700	0.022	0.022	**	
2.700	2.800	0.108	0.048	**	
2.800	2.900	0.022	0.022	**	
2.900	3.000	0.	0.022	**	
3.000	3.100	0.022	0.022	**	
3.100	3.200	0.043	0.031	**	
3.200	3.300	0.043	0.031	**	
3.300	3.400	0.043	0.031	**	
3.400	3.500	0.	0.022	**	
3.500	3.600	0.065	0.037	**	
3.600	3.700	0.043	0.031	**	

SHEN 65.....UCRL 16170 HBCS

BEAM MOMENTUM= 3.79 +- .29

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.100	0.200	0.007	0.007	**	
0.200	0.300	0.164	0.032	**	
0.300	0.400	0.344	0.056	**	
0.400	0.500	0.207	0.039	**	
0.500	0.600	0.185	0.035	**	
0.600	0.800	0.099	0.016	**	
0.800	1.000	0.076	0.017	**	
1.000	1.500	0.063	0.010	**	
1.500	2.000	0.033	0.007	**	

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.79 +- .29

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.100	0.422	0.056	**	
0.100	0.200	0.295	0.042	**	
0.200	0.300	0.174	0.033	**	
0.300	0.500	0.093	0.020	**	
0.500	0.700	0.089	0.017	**	
0.700	1.000	0.076	0.012	**	
1.000	1.500	0.042	0.008	**	
1.500	2.000	0.022	0.005	**	

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 5.

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.025	1.505	0.024	**	
0.025	0.050	0.976	0.020	**	
0.050	0.075	0.732	0.017	**	
0.075	0.100	0.788	0.018	**	
0.100	0.150	0.475	0.014	**	
0.150	0.200	0.298	0.011	**	
0.200	0.300	0.208	0.009	**	
0.300	0.400	0.168	0.008	**	
0.400	0.500	0.068	0.005	**	
0.500	0.600	0.069	0.005	**	
0.600	0.800	0.054	0.005	**	
0.800	1.000	0.054	0.005	**	
1.000	1.250	0.034	0.004	**	
1.250	1.500	0.017	0.003	**	

POLS 70.....NP 825 109 HBC 151

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.040	1.007	0.115	**	
0.040	0.080	0.752	0.098	**	
0.080	0.120	0.446	0.076	**	
0.120	0.160	0.370	0.069	**	
0.160	0.200	0.382	0.070	**	
0.200	0.240	0.280	0.060	**	
0.240	0.280	0.191	0.051	**	
0.280	0.320	0.102	0.036	**	
0.320	0.520	0.078	0.031	**	
0.520	0.720	0.046	0.024	**	

ARMENISE 70.....NC 65A 637 DBC 86

BEAM MOMENTUM= 5.72

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.020	1.411	0.353	**	
0.020	0.040	1.588	0.412	**	
0.040	0.060	1.000	0.318	**	
0.060	0.080	1.000	0.318	**	
0.080	0.100	0.588	0.282	**	
0.100	0.120	0.764	0.276	**	
0.120	0.140	0.706	0.253	**	
0.140	0.200	0.270	0.129	**	
0.200	0.280	0.218	0.147	**	
0.280	0.360	0.206	0.129	**	
0.360	0.440	0.218	0.147	**	
0.440	0.600	0.112	0.071	**	

SHENG 70.....THESIS HBC 33

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.050	1.620	0.120	†	
0.050	0.100	0.890	0.090	†	
0.100	0.150	0.480	0.070	†	
0.150	0.200	0.290	0.050	†	
0.200	0.300	0.170	0.030	†	
0.300	0.400	0.088	0.020	†	
0.400	0.500	0.050	0.015	†	
0.500	0.700	0.043	0.010	†	
0.700	0.900	0.024	0.007	†	
0.900	1.100	0.017	0.006	†	
1.100	1.500	0.003	0.002	†	
1.500	2.000	0.003	0.002	†	

ADERHOLZ 68.....NP 88 45 HBC

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.006	1.350	0.150	**		
0.015	1.170	0.150	**		
0.026	1.000	0.130	**		
0.041	0.650	0.090	**		
0.070	0.380	0.040	**		
0.126	0.260	0.020	**		
0.176	0.126	0.016	**		
0.250	0.083	0.011	**		
0.350	0.048	0.006	**		
0.450	0.020	0.008	**		

GAIDOS 71.....NP 826 225 HBC 82

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
-0.001	0.017	1.270	0.140	**	
0.015	0.041	1.000	0.150	**	
0.040	0.058	0.600	0.090	**	
0.055	0.081	0.436	0.047	**	
0.078	0.100	0.442	0.074	**	
0.103	0.139	0.383	0.049	**	
0.143	0.179	0.295	0.061	**	
0.179	0.219	0.148	0.037	**	
0.223	0.257	0.193	0.044	**	
0.255	0.299	0.099	0.036	**	
0.298	0.398	0.058	0.027	**	

KRAMER 71.....THESIS HBC 82

BEAM MOMENTUM= 18.5

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]			
MIN	MAX				
0.	0.010	0.606	0.126	**	
0.010	0.020	0.421	0.105	**	
0.020	0.030	0.132	0.059	**	
0.030	0.040	0.316	0.091	**	
0.040	0.060	0.224	0.077	**	
0.060	0.100	0.191	0.071	**	
0.100	0.160	0.055	0.038	**	

BISWAS 70.....PR D2 2529 HBC 80

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow f\Delta(1238)^{++}$

$\rightarrow p\pi^+$
 $\rightarrow \pi^+\pi^-$

Differential cross section

A2(1300)0 • RHO+/- PI-/+

BEAM MOMENTUM= 5.

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.050	0.227	+- 0.009 **
0.050	0.100	0.161	0.008 **
0.100	0.150	0.260	0.010 **
0.150	0.200	0.236	0.010 **
0.200	0.250	0.158	0.008 **
0.250	0.300	0.167	0.008 **
0.300	0.400	0.107	0.006 **
0.400	0.500	0.074	0.005 **
0.500	0.600	0.067	0.005 **
0.600	0.700	0.060	0.005 **
0.700	0.900	0.026	0.003 **

POLS 70.....NP B25 109

HBC 151

A2(1300)0 • PI+ PI- P10

BEAM MOMENTUM= 8.04

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.030	0.129	+- 0.011 **
0.030	0.060	0.097	0.021 **
0.060	0.090	0.148	0.026 **
0.090	0.120	0.075	0.016 **
0.120	0.160	0.094	0.012 **
0.160	0.200	0.076	0.010 **
0.200	0.240	0.055	0.009 **
0.240	0.300	0.031	0.007 **
0.300	0.350	0.110	0.025 **
0.350	0.400	0.078	0.015 **
0.400	0.500	0.045	0.010 **
0.500	0.600	0.059	0.014 **
0.600	0.700	0.042	0.042 **
0.700	0.800	0.059	0.009 **
0.800	1.500	0.005	0.003 **
0.900	1.100	0.007	0.003 **
1.100	1.130	0.005	0.003 **
1.300	1.500	0.010	0.003 **
1.700	2.000	0.008	0.003 **

ADERHOLZ 68.....NP B8 45

HBC

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

BEAM MOMENTUM= 18.5

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.020	0.237	+- 0.079 **
0.020	0.040	0.237	0.079 **
0.040	0.060	0.169	0.067 **
0.060	0.100	0.097	0.051 **
0.100	0.160	0.037	0.031 **

BISWAS 70.....PR D2 2529

HBC 80

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+p \rightarrow \pi^+N(1470)^+ \rightarrow n\pi^+$

BEAM MOMENTUM= 6.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.000	0.100	0.467	+- 0.056 **
0.100	0.200	0.253	0.041 **
0.200	0.300	0.093	0.025 **
0.300	0.400	0.093	0.025 **
0.400	0.500	0.040	0.016 **

BELL 68.....PRL 20 164 HBC 80

* DATA READ FROM GRAPH
* SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+p \rightarrow \pi^+N(1700)^+ \rightarrow p\pi^+\pi^-$

BEAM MOMENTUM= 5.

-T' (GEV/C)**2		D SIGMA/D T' [MB/(GEV/C)**2]	
MIN	MAX		
0.	0.050	0.136	+- 0.007 **
0.050	0.100	0.094	0.006 **
0.100	0.150	0.067	0.005 **
0.150	0.200	0.044	0.004 **
0.200	0.250	0.030	0.003 **
0.250	0.300	0.028	0.003 **
0.300	0.350	0.019	0.003 **
0.350	0.400	0.017	0.003 **
0.400	0.450	0.020	0.003 **
0.450	0.500	0.006	0.002 **
0.500	0.550	0.008	0.002 **
0.550	0.600	0.005	0.001 **
0.600	0.650	0.007	0.002 **
0.650	0.700	0.006	0.002 **
0.700	0.750	0.005	0.001 **
0.750	0.800	0.005	0.001 **
0.800	0.850	0.003	0.001 **
0.850	0.900	0.003	0.001 **
0.900	0.950	0.002	0.001 **
0.950	1.000	0.004	0.001 **
1.000	1.050	0.001	0.001 **
1.050	1.100	0.003	0.001 **

CIRBA 70.....NP 823 533 HBC 151

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

→ BEAM MOMENTUM= 1.044 +- .007

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.225	0.247	0.412	+-	0.099 *
0.247	0.269	0.390		0.099 *
0.269	0.290	0.413		0.100 *
0.290	0.312	0.242		0.081 *
0.312	0.334	0.242		0.081 *
0.334	0.356	0.198		0.068 *
0.356	0.378	0.340		0.087 *
0.378	0.400	0.221		0.072 *
0.400	0.422	0.096		0.053 *
0.422	0.444	0.149		0.056 *
GRARD 62.....PR 127 607 HBC 72				

→ BEAM MOMENTUM= 1.058 +- .007

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.206	0.234	0.521	+-	0.090 *
0.234	0.262	0.483		0.100 *
0.262	0.290	0.382		0.084 *
0.290	0.318	0.289		0.073 *
0.318	0.346	0.251		0.065 *
0.346	0.374	0.271		0.071 *
0.374	0.402	0.251		0.065 *
0.402	0.430	0.216		0.071 *
0.430	0.458	0.108		0.042 *
0.458	0.486	0.162		0.059 *
GRARD 62.....PR 127 607 HBC 72				

→ BEAM MOMENTUM= 1.111

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.186	0.214	0.686	+-	0.083 **
0.214	0.242	0.576		0.076 **
0.242	0.270	0.447		0.067 **
0.270	0.298	0.407		0.064 **
0.298	0.326	0.248		0.050 **
0.326	0.354	0.199		0.044 **
0.354	0.382	0.169		0.041 **
0.382	0.410	0.209		0.046 **
0.410	0.438	0.129		0.036 **
0.438	0.466	0.119		0.034 **
CARAYANNOP 65.....PR 138 B433 HBC 72				

→ BEAM MOMENTUM= 1.155 +- .025

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.143	0.284	0.557	+-	0.138 *
0.284	0.426	0.461		0.122 *
0.426	0.567	0.213		0.078 *
0.567	0.709	0.280		0.091 *
BERTHELOT 61.....NC 21 693 PBC 42				

→ BEAM MOMENTUM= 1.17

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.152	0.180	0.438	+-	0.104 *
0.180	0.208	0.625		0.167 *
0.208	0.236	0.459		0.083 *
0.236	0.264	0.438		0.115 *
0.264	0.292	0.563		0.115 *
0.292	0.320	0.521		0.115 *
0.320	0.348	0.375		0.094 *
0.348	0.376	0.646		0.125 *
0.376	0.404	0.313		0.094 *
0.404	0.432	0.438		0.115 *
0.432	0.460	0.313		0.104 *
0.460	0.488	0.313		0.104 *
0.488	0.516	0.125		0.083 *
0.516	0.544	0.063		0.042 *
0.544	0.572	0.063		0.042 *
0.572	0.600	0.146		0.063 *
0.600	0.628	0.167		0.083 *
0.628	0.656	0.313		0.104 *
0.656	0.684	0.208		0.083 *
0.684	0.712	0.188		0.073 *
CRAWFORD 62.....PR 128 368 HBC 72				

→ BEAM MOMENTUM= 1.206

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.160	0.188	0.464	+-	0.062 **
0.188	0.216	0.431		0.060 **
0.216	0.244	0.572		0.069 **
0.244	0.272	0.448		0.061 **
0.272	0.300	0.315		0.051 **
0.300	0.328	0.257		0.046 **
0.328	0.356	0.124		0.032 **
0.356	0.384	0.083		0.026 **
0.384	0.412	0.207		0.041 **
0.412	0.440	0.216		0.042 **
CARAYANNOP 65.....PR 138 B433 HBC 72				

→ BEAM MOMENTUM= 1.252

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.113	0.247	0.223	+	0.112
			-	0.080
0.247	0.377	0.192	+	0.096
			-	0.064
0.377	0.507	0.144	+	0.089
			-	0.054
0.507	0.637	0.080	+	0.080
			-	0.032
0.637	0.767	0.032	+	0.051
			-	0.027
0.767	0.901	0.	+	0.048
			-	0.048
BALTAY 61.....RMP 33 374 HBC 20				

→ BEAM MOMENTUM= 1.265

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.151	0.248	0.248	+-	0.049 **
0.248	0.396	0.592		0.075 **
0.396	0.544	0.525		0.071 **
0.544	0.692	0.525		0.071 **
0.692	0.840	0.420		0.063 **
0.840	0.988	0.315		0.055 **
0.988	1.136	0.267		0.051 **
1.136	1.284	0.076		0.027 **
1.284	1.432	0.220		0.046 **
1.432	1.580	0.220		0.046 **
CARAYANNOP 65.....PR 138 B433 HBC 72				

→ BEAM MOMENTUM= 1.362

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.093	0.195	0.260	+-	0.049
0.195	0.296	0.411		0.062
0.296	0.398	0.421		0.062
0.398	0.499	0.334		0.049
0.499	0.601	0.284		0.049
0.601	0.703	0.173		0.037
0.703	0.804	0.161		0.037
0.804	0.906	0.074		0.025
0.906	1.007	0.099		0.025
1.007	1.109	0.161		0.037
BALTAY 61.....RMP 33 374 HBC 20				

→ BEAM MOMENTUM= 1.533

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.073	0.208	0.326	+	0.149
			-	0.102
0.208	0.343	0.279	+	0.149
			-	0.093
0.343	0.478	0.754	+-	0.205
0.478	0.613	0.717		0.196
0.613	0.748	0.223	+	0.140
			-	0.084
0.748	0.883	0.233	+	0.140
			-	0.084
0.883	1.018	0.112	+	0.112
			-	0.047
1.018	1.153	0.	+	0.093
1.153	1.288	0.186	+	0.130
			-	0.074
1.288	1.423	0.317	+	0.186
			-	0.112
BALTAY 61.....RMP 33 374 HBC 20				

→ BEAM MOMENTUM= 1.7

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.061	0.145	0.776	+-	0.069
0.145	0.228	0.365		0.041
0.228	0.311	0.143		0.024
0.311	0.394	0.131		0.023
0.394	0.478	0.193		0.029
0.478	0.561	0.212		0.030
0.561	0.644	0.256		0.034
0.644	0.727	0.325		0.039
0.727	0.811	0.285		0.036
0.811	0.894	0.290		0.037
0.894	0.977	0.205		0.030
0.977	1.061	0.294		0.037
1.061	1.144	0.275		0.035
1.144	1.227	0.336		0.039
1.227	1.310	0.269		0.035
1.310	1.394	0.279		0.035
1.394	1.477	0.223		0.032
1.477	1.560	0.169		0.027
1.560	1.644	0.192		0.029
1.644	1.727	0.475		0.049
PAN 70.....PR D 2 449 HBC 16				

→ BEAM MOMENTUM= 1.95

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.049	0.262	0.418	+-	0.077 *
0.262	0.476	0.177		0.053 *
0.476	0.689	0.224		0.065 *
0.689	0.902	0.183		0.047 *
0.902	1.115	0.236		0.065 *
1.115	1.329	0.100		0.053 *
1.329	1.542	0.130		0.053 *
1.542	1.755	0.248		0.077 *
1.755	1.968	0.159		0.053 *
1.968	2.182	0.118		0.029 *
DAGAN 67.....PR 161 1384 HBC 20				

→ BEAM MOMENTUM= 2.35 + 2.62 , - 2.90

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.037	0.181	0.450	+-	0.073 **
0.181	0.325	0.095		0.033 **
0.325	0.468	0.012		0.012 **
0.468	0.612	0.012		0.012 **
0.612	0.756	0.047		0.024 **
0.756	0.900	0.012		0.012 **
0.900	1.043	0.118		0.037 **
1.043	1.187	0.071		0.029 **
1.187	1.331	0.106		0.035 **
1.331	1.474	0.		0.012 **
1.474	1.618	0.024		0.017 **
1.618	1.762	0.		0.012 **
1.762	1.905	0.		0.012 **
1.905	2.049	0.		0.012 **
2.049	2.193	0.035		0.020 **
2.193	2.336	0.012		0.012 **
2.336	2.480	0.035		0.020 **
2.480	2.624	0.012		0.012 **
2.624	2.767	0.035		0.020 **
2.767	2.911	0.035		0.020 **
BERLEY 65.....PR 13981097 HBC 20				

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 ‡ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

BEAM MOMENTUM= 3.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.625	0.044	+- 0.005
0.775	0.042	0.004
0.925	0.037	0.005
1.075	0.030	0.004
1.225	0.021	0.004

HAN 70.....PRL 24 1353 CNTR

BEAM MOMENTUM= 3.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.029	0.685	+- 0.034
0.033	0.672	0.040
0.038	0.619	0.033
0.044	0.543	0.038
0.051	0.486	0.032

KALBACI 71.....PRL 27 74 SPRK+CNTR

BEAM MOMENTUM= 3.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.075	0.354	+- 0.009
0.125	0.227	0.006
0.175	0.162	0.005
0.225	0.116	0.004
0.275	0.083	0.003
0.325	0.069	0.003
0.375	0.052	0.003
0.425	0.039	0.002
0.475	0.040	0.003
0.525	0.041	0.003
0.575	0.043	0.003
0.650	0.038	0.002

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 3.23

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.025	0.960	+- 0.160
0.075	0.730	0.120
0.150	0.320	0.040
0.250	0.134	0.057
0.350	0.020	0.012
0.450	0.034	0.014
0.550	0.007	0.006
0.650	0.013	0.009
0.750	0.045	0.017
0.850	0.047	0.015
0.950	0.057	0.015
1.050	0.062	0.013
1.150	0.051	0.016
1.250	0.025	0.011
1.350	0.006	0.006
1.450	0.018	0.009
1.550	0.013	0.007
1.650	0.014	0.008
1.750	0.012	0.007
1.850	0.012	0.008
1.950	0.031	0.012
3.250	0.007	0.006
3.450	0.021	0.011
3.550	0.013	0.009
3.650	0.007	0.005
3.750	0.007	0.005
3.950	0.007	0.005
4.050	0.007	0.005
4.150	0.008	0.006
4.250	0.022	0.011
4.350	0.015	0.009
4.450	0.048	0.013

KOFER 67.....PR 163 1479 HBC 20

BEAM MOMENTUM= 3.25

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.075	0.343	+- 0.010
0.125	0.232	0.007
0.175	0.163	0.006
0.225	0.107	0.005
0.275	0.073	0.004
0.325	0.049	0.003
0.375	0.039	0.003
0.425	0.032	0.002
0.475	0.030	0.002
0.525	0.029	0.003
0.575	0.029	0.003
0.650	0.031	0.002
0.750	0.031	0.002

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 3.5

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.040	0.050	0.387 +- 0.029
0.050	0.060	0.424 0.033
0.060	0.070	0.358 0.032
0.070	0.080	0.330 0.033
0.080	0.090	0.293 0.035
0.090	0.100	0.282 0.038
0.100	0.110	0.175 0.034
0.110	0.120	0.197 0.041
0.120	0.130	0.227 0.064

BASHIAN 71.....PR D4 2667 CNTR

BEAM MOMENTUM= 3.7

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.020	0.040	0.480 +- 0.150
0.040	0.060	0.400 0.130
0.060	0.100	0.320 0.120
0.100	0.140	0.290 0.100
0.140	0.180	0.280 0.090
0.180	0.240	0.110 0.040
0.240	0.400	0.048 0.017
0.400	0.800	0.029 0.010
0.800	1.200	0.036 0.012
1.200	2.000	0.015 0.005
2.000	4.000	0.001 0.001
4.000	5.600	0.007 0.002

BUTLER 70.....UCRL 19845 HBC 72

BEAM MOMENTUM= 3.75

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.040	0.050	0.422 +- 0.029
0.050	0.060	0.469 0.033
0.060	0.070	0.411 0.032
0.070	0.080	0.330 0.030
0.080	0.090	0.308 0.031
0.090	0.100	0.234 0.029
0.100	0.110	0.256 0.032
0.110	0.120	0.234 0.035
0.120	0.130	0.218 0.037
0.130	0.140	0.187 0.040

BASHIAN 71.....PR D4 2667 CNTR

BEAM MOMENTUM= 4.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.040	0.050	0.321 +- 0.017
0.050	0.060	0.291 0.017
0.060	0.070	0.268 0.018
0.070	0.080	0.247 0.019
0.080	0.090	0.235 0.021
0.090	0.100	0.201 0.021
0.100	0.110	0.212 0.025
0.110	0.120	0.201 0.028
0.120	0.130	0.215 0.032
0.130	0.140	0.141 0.030

BASHIAN 71.....PR D4 2667 CNTR

BEAM MOMENTUM= 4.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.900	0.023	+- 0.002
1.100	0.022	0.002
1.300	0.014	0.002
1.500	0.012	0.002
1.700	0.006	0.001
1.900	0.004	0.001
2.200	0.002	0.001

HAN 70.....PRL 24 1353 CNTR

BEAM MOMENTUM= 4.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.075	0.243	+- 0.007
0.125	0.176	0.006
0.175	0.128	0.004
0.225	0.076	0.003
0.275	0.054	0.003
0.325	0.037	0.002
0.375	0.027	0.002
0.425	0.019	0.001
0.475	0.019	0.001
0.525	0.018	0.001
0.575	0.018	0.002
0.650	0.015	0.001
0.750	0.017	0.001
0.850	0.018	0.001
0.950	0.021	0.002
1.050	0.018	0.002
1.150	0.020	0.002

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 4.25

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
0.040	0.050	0.329 +- 0.021
0.050	0.060	0.322 0.022
0.060	0.070	0.309 0.023
0.070	0.080	0.284 0.024
0.080	0.090	0.238 0.023
0.090	0.100	0.211 0.023
0.100	0.110	0.174 0.023
0.110	0.120	0.193 0.025
0.120	0.130	0.133 0.023
0.130	0.140	0.153 0.027
0.140	0.150	0.150 0.030
0.150	0.160	0.133 0.034

BASHIAN 71.....PR D4 2667 CNTR

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$

BEAM MOMENTUM= 4.5					
-T		D SIGMA/D T			
(GEV/C)**2		[MB/(GEV/C)**2]			
MIN	MAX				
0.040	0.050	0.295	+-	0.019	†
0.050	0.060	0.284		0.020	†
0.060	0.070	0.306		0.022	†
0.070	0.080	0.240		0.020	†
0.080	0.090	0.266		0.023	†
0.090	0.100	0.287		0.025	†
0.100	0.110	0.219		0.024	†
0.110	0.120	0.199		0.023	†
0.120	0.130	0.182		0.024	†
0.130	0.140	0.190		0.026	†
0.140	0.150	0.200		0.030	†
0.150	0.160	0.163		0.029	†
0.160	0.170	0.096		0.026	†
0.170	0.180	0.151		0.034	†
0.180	0.190	0.121		0.035	†

BASHIAN 71.....PR D4 2667 CNTR

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BEAM MOMENTUM= 4.75

```

-T		D SIGMA/D T	
(GEV/C)**2		[4B/(GEV/C)**2]	
MIN	MAX		
0.040	0.050	0.311	+- 0.023 ↑
0.050	0.060	0.292	0.021 ↑
0.060	0.070	0.307	0.023 ↑
0.070	0.080	0.259	0.022 ↑
0.080	0.090	0.275	0.024 ↑
0.090	0.100	0.238	0.024 ↑
0.100	0.110	0.222	0.024 ↑
0.110	0.120	0.213	0.025 ↑
0.120	0.130	0.165	0.023 ↑
0.130	0.140	0.185	0.027 ↑
0.140	0.150	0.113	0.022 ↑
0.150	0.160	0.149	0.028 ↑
0.160	0.170	0.148	0.031 ↑
0.170	0.180	0.127	0.030 ↑
0.180	0.190	0.109	0.032 ↑
0.190	0.200	0.129	0.044 ↑

BASHIAN 71.....PR D4 2667 CNTR

```

BEAM MOMENTUM= 5. +- .05

-T
(GEV/C)**2
2.300
2.500
2.700
2.900
3.100
3.350

D SIGMA/D T
[MB/(GEV/C)**2]
0.001 +- 0.000
0.001 0.000
0.000 0.000
0.000 0.000
0.000 0.000
0.000 0.000

```

AKERLOF 71.....PRL 27 219 SPRK+CNTR

BEAM MOMENTUM= 5.					
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX				
0.040	0.050	0.255	+-	0.027	†
0.050	0.060	0.251		0.027	†
0.060	0.070	0.218		0.027	†
0.070	0.080	0.250		0.030	†
0.080	0.090	0.234		0.031	†
0.090	0.100	0.154		0.026	†
0.100	0.110	0.195		0.031	†
0.110	0.120	0.165		0.029	†
0.120	0.130	0.122		0.027	†
0.130	0.140	0.162		0.033	†
0.140	0.150	0.107		0.029	†
0.150	0.160	0.086		0.027	†
0.160	0.170	0.124		0.036	†
0.170	0.180	0.109		0.035	†
0.180	0.190	0.110		0.039	†

BASHIAN 71.....PR D4 2667 CNTR

```

      BEAM MOMENTUM= 5.

      -T
(GEV/C)**2      D SIGMA/D T
                  [MB/(GEV/C)**2]
      1.150      0.009      +-      0.001
      1.250      0.008      0.001
      1.450      0.006      0.001
      1.750      0.003      0.000
      2.050      0.002      0.000
      2.350      0.001      0.000
      2.650      0.000      0.000
      2.950      0.000      0.000
      3.300      0.000      0.000

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HAN 70.....PRL 24 1353 CNTR

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BEAM MOMENTUM= 5.

      -T
(GBV/C)**2
0.025
0.045
0.065
0.085
0.105
0.125

      D SIGMA/D T
[MB/(GBV/C)**2]
0.405
0.312
0.305
0.220
0.183
0.170

      +-
0.017
0.018
0.020
0.020
0.018
0.018

```

KALBACI 71.....PRL 27 74 SPRK+CNTR

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BEAM MOMENTUM= 5.05

```

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX	
0.105	0.159	+- 0.005
0.150	0.123	0.003
0.210	0.059	0.002
0.270	0.039	0.002
0.330	0.024	0.001
0.390	0.016	0.001
0.450	0.012	0.001
0.510	0.010	0.001
0.570	0.009	0.001
0.630	0.010	0.001
0.690	0.011	0.001
0.750	0.011	0.001
0.810	0.010	0.001
0.870	0.009	0.001
0.930	0.008	0.001
0.990	0.007	0.001
1.050	0.006	0.001
1.110	0.005	0.001
1.170	0.007	0.001

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 5.4				
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX		+-	
0.020	0.060	0.164		0.054
0.090	0.130	0.077		0.020
0.160	0.200	0.048		0.017
0.230	0.270	0.042		0.015
0.300	0.360	0.028		0.010
0.390	0.430	0.014		0.008
0.490	0.530	0.006		0.004
0.670	0.710	0.006		0.004
0.830	0.870	0.006		0.003
0.970	1.070	0.004		0.002
1.130	1.410	0.002		0.001
1.430	1.750	0.004		0.002

COOPER 68.....PRL 20 472 HBC 33

BEAM MOMENTUM= 6.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]				
MIN	MAX				
0.050	0.100	0.273	+-	0.011	†
0.100	0.150	0.182	0.009		
0.150	0.200	0.095	0.004		
0.200	0.250	0.060	0.003		
0.250	0.300	0.041	0.002		
0.300	0.350	0.025	0.002		
0.350	0.400	0.015	0.001		
0.400	0.450	0.011	0.001		
0.450	0.500	0.007	0.001		
0.500	0.550	0.008	0.001		
0.550	0.600	0.009	0.001		
0.600	0.650	0.006	0.001		
0.650	0.700	0.008	0.002		

BASHIAN 71.....PR D4 2667 CNTR

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BEAM MOMENTUM= 7.

                                D SIGMA/D T
                                [MB/(GEV/C)**2]
#2                                +-
                                0.229      0.012      †
                                0.153      0.011      †
                                0.112      0.010      †
                                0.067      0.008      †

71.....PRL 27      74      SPRK,CNTR

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KALBACI 71.....PRL 27 74 SPRK+CNTR

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BEAM MOMENTUM= 7.

                                D SIGMA/D T
                                [MB/(GEV/C)**2]
#2      0.099      +-      0.001
        0.053      0.002
        0.032      0.002
        0.019      0.001
        0.010      0.001
        0.008      0.001
        0.006      0.001
        0.005      0.001
        0.004      0.000
        0.004      0.000
        0.003      0.000
        0.003      0.000
        0.002      0.000
        0.001      0.000
        0.001      0.000

```

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 10.					
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX				
0.050	0.100	0.132	+-	0.005	†
0.100	0.150	0.073		0.003	†
0.150	0.200	0.050		0.003	†
0.200	0.250	0.029		0.002	†
0.250	0.300	0.020		0.002	†
0.300	0.350	0.012		0.001	†
0.350	0.400	0.007		0.001	†
0.400	0.450	0.005		0.001	†
0.450	0.500	0.003		0.001	†
0.500	0.600	0.002		0.000	†
0.600	0.700	0.002		0.000	†
0.700	0.800	0.001		0.000	†
0.800	0.900	0.001		0.000	†
0.900	1.000	0.001		0.000	†

BASHIAN 71.....PR D4 2667 CNTR

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BEAM MOMENTUM= 14.

      -T                      D SIGMA/D T
      (GEV/C)**2             [4B/(GEV/C)**2]

      MIN                     MAX

0.050      0.100      0.102      +-      0.004      †
0.100      0.150      0.059      0.003      †
0.150      0.200      0.037      0.002      †
0.200      0.250      0.021      0.001      †
0.250      0.300      0.012      0.001      †
0.300      0.350      0.007      0.001      †
0.350      0.400      0.005      0.001      †
0.400      0.450      0.004      0.001      †
0.450      0.500      0.002      0.000      †
0.500      0.600      0.002      0.000      †
0.600      0.700      0.001      0.000      †
0.700      0.800      0.001      0.000      †
0.800      0.900      0.001      0.000      †
0.900      1.000      0.001      0.000      †

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BASHIAN 71.....PR D4 2667 CNTR

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+ \rightarrow n\pi^+$

→ BEAM MOMENTUM= 1.28						→ BEAM MOMENTUM= 1.43						→ BEAM MOMENTUM= 1.68					
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX					MIN	MAX					MIN	MAX				
0.107	0.150	0.227	+-	0.057	**	0.084	0.142	0.504	+-	0.066	**	0.062	0.144	0.367	+-	0.048	**
0.150	0.192	0.082		0.034	**	0.142	0.199	0.199		0.042	**	0.144	0.225	0.088		0.023	**
0.192	0.234	0.098		0.037	**	0.199	0.257	0.118		0.032	**	0.225	0.307	0.036		0.015	**
0.234	0.277	0.061		0.029	**	0.257	0.314	0.020		0.013	**	0.307	0.388	0.042		0.016	**
0.277	0.319	0.043		0.025	**	0.314	0.372	0.058		0.023	**	0.388	0.469	0.050		0.018	**
0.319	0.361	0.041		0.024	**	0.372	0.429	0.031		0.017	**	0.469	0.551	0.082		0.022	**
0.361	0.404	0.058		0.029	**	0.429	0.487	0.077		0.026	**	0.551	0.632	0.049		0.017	**
0.404	0.446	0.116		0.041	**	0.487	0.544	0.110		0.031	**	0.632	0.714	0.136		0.029	**
0.446	0.488	0.174		0.050	**	0.544	0.601	0.157		0.037	**	0.714	0.795	0.088		0.023	**
0.488	0.531	0.113		0.040	**	0.601	0.659	0.101		0.030	**	0.795	0.876	0.076		0.022	**
0.531	0.573	0.220		0.056	**	0.659	0.716	0.127		0.033	**	0.876	0.958	0.119		0.027	**
0.573	0.616	0.183		0.051	**	0.716	0.774	0.138		0.035	**	0.958	1.039	0.060		0.019	**
0.616	0.658	0.183		0.051	**	0.774	0.831	0.180		0.040	**	1.039	1.121	0.129		0.028	**
0.658	0.700	0.163		0.048	**	0.831	0.889	0.223		0.044	**	1.121	1.202	0.162		0.032	**
0.700	0.743	0.340		0.069	**	0.889	0.946	0.275		0.049	**	1.202	1.283	0.168		0.032	**
0.743	0.785	0.190		0.052	**	0.946	1.004	0.221		0.044	**	1.283	1.365	0.150		0.030	**
0.785	0.827	0.296		0.065	**	1.004	1.061	0.234		0.045	**	1.365	1.446	0.103		0.025	**
0.827	0.870	0.211		0.055	**	1.061	1.119	0.221		0.044	**	1.446	1.528	0.114		0.026	**
0.870	0.912	0.109		0.039	**	1.119	1.176	0.186		0.040	**	1.528	1.609	0.093		0.024	**
0.912	0.954	0.137		0.044	**	1.176	1.234	0.069		0.024	**	1.609	1.690	0.168		0.032	**
KALMUS 70.....PR D2 1824 HBGS						KALMUS 70.....PR D2 1824 HBGS						KALMUS 70.....PR D2 1824 HBGS					
→ BEAM MOMENTUM= 1.34						→ BEAM MOMENTUM= 1.55						→ BEAM MOMENTUM= 1.77					
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX					MIN	MAX					MIN	MAX				
0.096	0.145	0.313	+-	0.051	**	0.072	0.141	0.515	+-	0.077	**	0.057	0.147	0.317	+-	0.050	**
0.145	0.194	0.131		0.033	**	0.141	0.210	0.214		0.050	**	0.147	0.237	0.132		0.032	**
0.194	0.242	0.089		0.027	**	0.210	0.279	0.065		0.027	**	0.237	0.327	0.078		0.025	**
0.242	0.291	0.082		0.026	**	0.279	0.348	0.032		0.019	**	0.327	0.417	0.032		0.016	**
0.291	0.339	0.038		0.018	**	0.348	0.417	0.095		0.033	**	0.417	0.506	0.078		0.025	**
0.339	0.388	0.051		0.021	**	0.417	0.486	0.086		0.032	**	0.506	0.596	0.126		0.031	**
0.388	0.436	0.122		0.032	**	0.486	0.556	0.086		0.032	**	0.596	0.686	0.090		0.027	**
0.436	0.485	0.176		0.038	**	0.556	0.625	0.222		0.051	**	0.686	0.776	0.050		0.020	**
0.485	0.533	0.152		0.035	**	0.625	0.694	0.089		0.032	**	0.776	0.866	0.100		0.028	**
0.533	0.582	0.074		0.025	**	0.694	0.763	0.116		0.037	**	0.866	0.956	0.058		0.021	**
0.582	0.630	0.201		0.041	**	0.763	0.832	0.116		0.037	**	0.956	1.046	0.144		0.034	**
0.630	0.679	0.250		0.045	**	0.832	0.901	0.232		0.052	**	1.046	1.135	0.072		0.024	**
0.679	0.727	0.279		0.048	**	0.901	0.970	0.232		0.052	**	1.135	1.225	0.106		0.029	**
0.727	0.776	0.198		0.040	**	0.970	1.039	0.214		0.050	**	1.225	1.315	0.042		0.018	**
0.776	0.824	0.120		0.031	**	1.039	1.108	0.240		0.053	**	1.315	1.405	0.090		0.027	**
0.824	0.873	0.267		0.047	**	1.108	1.177	0.240		0.053	**	1.405	1.495	0.154		0.035	**
0.873	0.922	0.147		0.035	**	1.177	1.246	0.197		0.048	**	1.495	1.585	0.098		0.028	**
0.922	0.970	0.109		0.039	**	1.246	1.315	0.068		0.028	**	1.585	1.674	0.050		0.020	**
0.970	1.019	0.059		0.022	**	1.315	1.385	0.086		0.032	**	1.674	1.764	0.098		0.028	**
1.019	1.067	0.137		0.044	**	1.385	1.454	0.119		0.037	**	1.764	1.854	0.217		0.041	**
KALMUS 70.....PR D2 1824 HBGS						KALMUS 70.....PR D2 1824 HBC						KALMUS 70.....PR D2 1824 HBGS					
→ BEAM MOMENTUM= 1.41						→ BEAM MOMENTUM= 1.63						→ BEAM MOMENTUM= 1.84					
-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]				-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX					MIN	MAX					MIN	MAX				
0.087	0.142	0.345	+-	0.061	**	0.066	0.143	0.290	+-	0.043	**	0.054	0.150	0.348	+-	0.057	**
0.142	0.198	0.085		0.030	**	0.143	0.219	0.095		0.025	**	0.150	0.247	0.091		0.029	**
0.198	0.253	0.076		0.029	**	0.219	0.296	0.100		0.026	**	0.247	0.343	0.050		0.022	**
0.253	0.309	0.106		0.034	**	0.296	0.373	0.037		0.015	**	0.343	0.439	0.024		0.015	**
0.309	0.364	0.068		0.027	**	0.373	0.449	0.027		0.013	**	0.439	0.536	0.084		0.028	**
0.364	0.420	0.122		0.036	**	0.449	0.526	0.149		0.031	**	0.536	0.632	0.144		0.037	**
0.420	0.475	0.090		0.031	**	0.526	0.603	0.090		0.024	**	0.632	0.728	0.034		0.018	**
0.475	0.531	0.083		0.030	**	0.603	0.679	0.074		0.022	**	0.728	0.825	0.125		0.034	**
0.531	0.586	0.105		0.034	**	0.679	0.756	0.052		0.018	**	0.825	0.921	0.091		0.029	**
0.586	0.642	0.160		0.042	**	0.756	0.833	0.127		0.029	**	0.921	1.018	0.012		0.011	**
0.642	0.697	0.125		0.037	**	0.833	0.909	0.060		0.020	**	1.018	1.114	0.091		0.029	**
0.697	0.753	0.244		0.051	**	0.909	0.986	0.068		0.021	**	1.114	1.210	0.048		0.021	**
0.753	0.808	0.239		0.051	**	0.986	1.063	0.126		0.029	**	1.210	1.307	0.081		0.028	**
0.808	0.864	0.173		0.043	**	1.063	1.139	0.194		0.036	**	1.307	1.403	0.055		0.023	**
0.864	0.919	0.296		0.057	**	1.139	1.216	0.217		0.038	**	1.403	1.500	0.130		0.035	**
0.919	0.975	0.199		0.046	**	1.216	1.293	0.142		0.030	**	1.500	1.596	0.103		0.031	**
0.975	1.030	0.257		0.053	**	1.293	1.369	0.128		0.029	**	1.596	1.692	0.055		0.023	**
1.030	1.086	0.183		0.044	**	1.369	1.446	0.142		0.030	**	1.692	1.789	0.084		0.028	**
1.086	1.141	0.287		0.056	**	1.446	1.523	0.142		0.030	**	1.789	1.885	0.103		0.031	**
1.141	1.197	0.079		0.029	**	1.523	1.599	0.181		0.034	**	1.885	1.981	0.161		0.039	**
KALMUS 70.....PR D2 1824 HBGS						KALMUS 70.....PR D2 1824 HBGS						KALMUS 70.....PR D2 1824 HBGS					

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow K^+\Sigma^+$ $\searrow \rightarrow n\pi^+$

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$

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      → BEAM MOMENTUM= 1.42 +- .01

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-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.316	0.345	0.033	± 0.028	**
0.345	0.374	0.093	0.047	**
0.374	0.403	0.085	0.045	**
0.403	0.432	0.147	0.059	**
0.432	0.461	0.211	0.071	**
0.461	0.490	0.225	0.073	**
0.490	0.520	0.282	0.082	**
0.520	0.549	0.111	0.051	**
0.549	0.578	0.142	0.058	**
0.578	0.607	0.057	0.037	**

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HANSON 71.....PR D4 1296 HBSC

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      → BEAM MOMENTUM= 1.458 + .146 , - .141

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-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.268	0.343	0.057	±	0.023 **
0.343	0.418	0.143		0.037 **
0.418	0.493	0.162		0.039 **
0.493	0.568	0.105		0.032 **
0.568	0.642	0.105		0.032 **
0.642	0.718	0.086		0.029 **

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DAVIES 70.....PR D 2 506      DBC 72

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→ BEAM MOMENTUM= 1.55

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.208	0.281	0.107	+ - 0.039	**
0.281	0.353	0.101	0.038	**
0.353	0.425	0.145	0.045	**
0.425	0.498	0.154	0.046	**
0.498	0.570	0.101	0.038	**
0.570	0.642	0.089	0.035	**
0.642	0.715	0.127	0.042	**
0.715	0.787	0.067	0.030	**
0.787	0.859	0.015	0.015	**
0.859	0.932	0.120	0.041	**

HANSON 71.....PR D4 1296 HBSC

→ BEAM MOMENTUM= 1.62

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.181	0.271	0.091	← 0.025	**
0.271	0.360	0.127	0.030	**
0.360	0.450	0.208	0.038	**
0.450	0.540	0.208	0.038	**
0.540	0.629	0.116	0.029	**
0.629	0.719	0.092	0.025	**
0.719	0.808	0.086	0.025	**
0.808	0.898	0.114	0.028	**
0.898	0.987	0.147	0.032	**
0.987	1.077	0.084	0.024	**

HANSON 71.....PR D4 1296 HBSC

→ BEAM MOMENTUM= 1.68

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.164	0.267	0.044	+-	0.016
0.267	0.371	0.065		0.020
0.371	0.474	0.135		0.029
0.474	0.577	0.171		0.032
0.577	0.680	0.068		0.020
0.680	0.783	0.099		0.025
0.783	0.887	0.062		0.019
0.887	0.990	0.046		0.017
0.990	1.093	0.054		0.018
1.093	1.196	0.024		0.012

HANSON 71.....PR D4 1296 HBSC

→ BEAM MOMENTUM= 1.689 + .087 , - .086

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX	
0.162	0.338	0.038 +- 0.012 **
0.338	0.513	0.115 0.021 **
0.513	0.688	0.100 0.020 **
0.688	0.863	0.069 0.016 **
0.863	1.039	0.050 0.014 **
1.039	1.214	0.038 0.012 **

DAVIES 70.....PR D 2 506 DBC 72

→ BEAM MOMENTUM= 1.7

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX			
0.159	0.213	0.050	± 0.012	**
0.213	0.267	0.084	0.015	**
0.267	0.321	0.109	0.017	**
0.321	0.374	0.095	0.016	**
0.374	0.428	0.142	0.020	**
0.428	0.482	0.064	0.013	**
0.482	0.536	0.123	0.018	**
0.536	0.590	0.106	0.017	**
0.590	0.643	0.123	0.018	**
0.643	0.697	0.111	0.018	**
0.697	0.751	0.089	0.016	**
0.751	0.805	0.103	0.017	**
0.805	0.859	0.064	0.013	**
0.859	0.913	0.075	0.014	**
0.913	0.966	0.053	0.012	**
0.966	1.020	0.064	0.013	**
1.020	1.074	0.039	0.010	**
1.074	1.128	0.059	0.013	**
1.128	1.182	0.056	0.012	**
1.182	1.235	0.047	0.011	**

PAN 70.....NP B21 395 HBC 16

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      → BEAM MOMENTUM= 1.77

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-T		D SIGMA/D T		
(GEV/C)**2		[MB/(GEV/C)**2]		
MIN	MAX			
0.144	0.267	0.053	← 0.020	**
0.267	0.390	0.126	0.030	**
0.390	0.512	0.151	0.033	**
0.512	0.635	0.063	0.021	**
0.635	0.757	0.108	0.028	**
0.757	0.880	0.114	0.029	**
0.880	1.003	0.097	0.026	**
1.003	1.125	0.086	0.025	**
1.125	1.248	0.070	0.022	**
1.248	1.370	0.057	0.020	**

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HANSON 71.....PR D4 1296      HBSC

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→ BEAM MOMENTUM= 1.84

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.132	0.269	0.105	± 0.029 *
0.269	0.406	0.105	0.029 *
0.406	0.544	0.054	0.021 *
0.544	0.681	0.078	0.025 *
0.681	0.818	0.075	0.025 *
0.818	0.955	0.041	0.018 *
0.955	1.092	0.072	0.024 *
1.092	1.229	0.038	0.018 *
1.229	1.366	0.041	0.018 *
1.366	1.503	0.057	0.022 *

HANSON 71.....PR D4 1296 HBSC

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      → BEAM MOMENTUM= 1.888 + .114 , - .111

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-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.125	0.370	0.093	+ - 0.018
0.370	0.615	0.110	0.019
0.615	0.859	0.056	0.014
0.859	1.104	0.043	0.012
1.104	1.348	0.060	0.014
1.348	1.593	0.030	0.010

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DAVIES 70.....PR D 2 506 DBC 72

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* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.095	0.300	0.037	+-	0.006 **
0.300	0.504	0.046		0.006 **
0.504	0.709	0.029		0.005 **
0.709	0.914	0.031		0.005 **
0.914	1.119	0.008		0.003 **
1.119	1.323	0.005		0.002 **
1.323	1.528	0.017		0.004 **
1.528	1.733	0.017		0.004 **
1.733	1.938	0.018		0.004 **
1.938	2.142	0.026		0.005 **

MOORE 70.....THESIS

DBC 33

→ BEAM MOMENTUM= 2.238 + .247 , - .236

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.091	0.450	0.036	+-	0.008 **
0.450	0.808	0.037		0.008 **
0.808	1.166	0.011		0.004 **
1.166	1.524	0.013		0.005 **
1.524	1.883	0.010		0.004 **
1.883	2.242	0.019		0.006 **

DAVIES 70.....PR D 2 506

DBC 72

BEAM MOMENTUM= 3.7

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.100	0.036	+-	0.012 †
0.100	0.250	0.042		0.013 †
0.250	0.400	0.035		0.012 †
0.400	0.600	0.021		0.008 †
0.600	1.500	0.004		0.002 †
1.500	5.000	0.001		0.001 †

BUTLER 70.....UCRL 19845

HBC 72

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
‡ OBTAINED AFTER TRANSFORMATION CF COS(THETA) INTO T

BEAM MOMENTUM= 4.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.200	0.400	0.040	+-	0.009 *
0.300	0.500	0.032		0.005 *
0.390	0.590	0.025		0.005 *
0.500	0.700	0.021		0.004 *
0.610	0.810	0.015		0.003 *
0.820	1.020	0.010		0.003 *

YING 69.....PL 308 289

SPRK

BEAM MOMENTUM= 5.05

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.110	0.220	0.023	+-	0.004 *
0.220	0.330	0.023		0.002 *
0.330	0.440	0.015		0.003 *
0.440	0.550	0.014		0.002 *
0.550	0.660	0.006		0.002 *
0.660	0.770	0.008		0.002 *
0.770	0.880	0.005		0.002 *
0.880	0.990	0.003		0.001 *

YING 69.....PL 308 289

SPRK

→ BEAM MOMENTUM= 5.5

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.026	0.109	0.024		**
0.109	0.191	0.048		**
0.191	0.274	0.054		**
0.274	0.356	0.006		**
0.356	0.439	0.012		**
0.439	0.521	0.012		**
0.521	0.603	0.006		**
0.603	0.686	0.009		**
0.686	0.768	0.013		**

COOPER 70.....NP B23 605

HBC 33

BEAM MOMENTUM= 8.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.	0.300	0.012	+-	0.003 *
0.300	0.600	0.009		0.003 *
0.600	0.900	0.003		0.002 *
0.900	1.200	0.002		0.002 *

ADERHOLZ 69.....NP B11 259

HBCS

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \Lambda\pi^+$

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \text{All}$

BEAM MOMENTUM= 3.5

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.060	0.080	0.045	+- 0.009 †
0.080	0.100	0.077	0.016 †
0.100	0.120	0.079	0.022 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 3.75

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.060	0.080	0.080	+- 0.010 †
0.080	0.100	0.087	0.013 †
0.100	0.120	0.107	0.017 †
0.120	0.140	0.080	0.021 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 4.25

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.023	+- 0.003 †
0.060	0.080	0.044	0.007 †
0.080	0.100	0.032	0.007 †
0.100	0.120	0.048	0.009 †
0.120	0.140	0.046	0.010 †
0.140	0.160	0.041	0.017 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 4.5

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.022	+- 0.005 †
0.060	0.080	0.034	0.006 †
0.080	0.100	0.056	0.008 †
0.100	0.120	0.040	0.008 †
0.120	0.140	0.053	0.011 †
0.140	0.160	0.037	0.011 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 4.75

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.018	+- 0.003 †
0.060	0.080	0.032	0.006 †
0.080	0.100	0.046	0.008 †
0.100	0.120	0.039	0.008 †
0.120	0.140	0.051	0.011 †
0.140	0.160	0.049	0.013 †
0.160	0.180	0.074	0.019 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 5.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.018	+- 0.005 †
0.060	0.080	0.010	0.005 †
0.080	0.100	0.036	0.011 †
0.100	0.120	0.054	0.014 †
0.120	0.140	0.054	0.015 †
0.140	0.160	0.022	0.011 †
0.160	0.180	0.015	0.011 †
0.180	0.200	0.053	0.023 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 5.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.036	0.060	0.008	+- 0.006 †
0.052	0.080	0.011	0.006 †
0.072	0.100	0.029	0.007 †
0.099	0.120	0.027	0.007 †
0.132	0.140	0.025	0.006 †

KALBACI 71.....PRL 27 74

SPRK,CNTR

BEAM MOMENTUM= 6.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.031	+- 0.007 †
0.060	0.080	0.037	0.007 †
0.080	0.100	0.027	0.007 †
0.100	0.120	0.038	0.008 †
0.120	0.140	0.059	0.011 †
0.140	0.160	0.039	0.009 †
0.160	0.200	0.048	0.003 †
0.200	0.240	0.039	0.003 †
0.240	0.280	0.031	0.003 †
0.280	0.320	0.023	0.002 †
0.320	0.360	0.020	0.002 †
0.360	0.400	0.014	0.002 †
0.400	0.440	0.012	0.002 †
0.440	0.480	0.013	0.002 †
0.480	0.520	0.009	0.002 †
0.520	0.560	0.009	0.002 †
0.560	0.640	0.006	0.001 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 10.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.021	+- 0.003 †
0.060	0.080	0.026	0.003 †
0.080	0.120	0.023	0.002 †
0.120	0.160	0.020	0.002 †
0.160	0.200	0.017	0.002 †
0.200	0.240	0.015	0.002 †
0.240	0.280	0.016	0.002 †
0.280	0.320	0.012	0.002 †
0.320	0.360	0.008	0.002 †
0.360	0.400	0.007	0.002 †
0.400	0.480	0.005	0.001 †
0.480	0.560	0.003	0.000 †
0.560	0.640	0.002	0.000 †
0.640	0.720	0.001	0.000 †
0.720	0.800	0.001	0.000 †
0.800	0.960	0.001	0.000 †

BASHIAN 71.....PR D4 2667

CNTR

BEAM MOMENTUM= 14.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.040	0.060	0.018	+- 0.003 †
0.060	0.080	0.022	0.003 †
0.080	0.120	0.016	0.002 †
0.120	0.160	0.014	0.001 †
0.160	0.200	0.014	0.001 †
0.200	0.240	0.009	0.001 †
0.240	0.280	0.008	0.001 †
0.280	0.320	0.007	0.001 †
0.320	0.360	0.004	0.001 †
0.360	0.400	0.006	0.001 †
0.400	0.480	0.002	0.000 †
0.480	0.560	0.001	0.000 †
0.560	0.640	0.001	0.000 †
0.640	0.720	0.001	0.000 †
0.720	0.800	0.000	0.000 †
0.800	0.960	0.000	0.000 †

BASHIAN 71.....PR D4 2667

CNTR

Differential cross section for $\pi^+p \rightarrow K^+Y^*(1385)^+ \rightarrow \text{All}$

Differential cross section

for $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$

→ BEAM MOMENTUM= 2.34 ± .155

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.216	0.526	0.041	± 0.015
0.526	0.835	0.067	0.019
0.835	1.144	0.067	0.019
1.144	1.453	0.052	0.016
1.453	1.762	0.031	0.013
1.762	2.072	0.046	0.015

DAVIES 70.....PR D 2 506 DBC 72

→ BEAM MOMENTUM= 2.62 ± .28 ± .27

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.213	0.401	0.091	± 0.030
0.401	0.589	0.040	0.020
0.589	0.777	0.050	0.022
0.777	0.965	0.020	0.014
0.965	1.153	0.010	0.010
1.153	1.341	0.	0.010
1.341	1.528	0.020	0.014
1.528	1.716	0.040	0.020
1.716	1.904	0.070	0.027
1.904	2.092	0.040	0.020

BERLEY 65.....PR 139B1097 HBC 20

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

for $\pi^+p \rightarrow K^*(890)^+\Sigma^+$
 $\quad \quad \quad \searrow \rightarrow K^+\pi^0 + K^0\pi^+$

→ BEAM MOMENTUM= 2.77 ± .04

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.151	0.429	0.078	± 0.019
0.429	0.707	0.032	0.012
0.707	0.984	0.032	0.012
0.984	1.262	0.018	0.009
1.262	1.540	0.005	0.005
1.540	1.817	0.005	0.005
1.817	2.095	0.009	0.006
2.095	2.373	0.014	0.008
2.373	2.651	0.037	0.013
2.651	2.928	0.037	0.013

YAMAMOTO 64.....PR 134 B383 HBC 20

→ BEAM MOMENTUM= 5.4

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.054	0.212	0.134	± 0.020
0.212	0.369	0.110	0.018
0.369	0.526	0.057	0.013
0.526	0.683	0.033	0.010
0.683	0.841	0.039	0.011
0.841	0.998	0.009	0.005
0.998	1.155	0.024	0.008
1.155	1.313	0.	0.003
1.313	1.470	0.003	0.003
1.470	1.627	0.	0.003

COOPER 68.....PRL 20 472 HBC 33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

$\frac{d\sigma}{dt}$ and $\frac{d\sigma}{dt'}$ Differential Cross Sections

2. π^+ n Interactions

Differential cross section for $\pi^+n \rightarrow \pi^0p$

→ BEAM MOMENTUM= .72

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.060	23.551	←	3.119 *
0.101	23.083		3.119 *
0.141	19.184		2.651 *
0.181	24.019		3.587 *
0.222	16.064		3.119 *
0.262	12.945		2.651 *
0.302	6.862		1.716 *
0.342	5.459		1.248 *
0.383	6.862		1.404 *
0.423	4.211		1.404 *
0.463	2.963		1.404 *
0.504	2.963		1.404 *
0.544	1.560		0.936 *
0.584	2.028		0.936 *
0.624	3.431		1.404 *
0.665	2.963		0.936 *
0.705	4.367		1.404 *
0.745	5.303		1.716 *

MULLER 64.....PL 10 349

HBC,DBC

→ BEAM MOMENTUM= .994

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.094	15.220	←	4.907 *
0.157	5.007		2.203 *
0.220	2.403		1.302 *
0.282	5.107		1.802 *
0.345	3.805		1.802 *
0.408	3.405		0.901 *
0.471	3.905		1.802 *
0.533	4.806		2.203 *
0.627	1.802		1.302 *
0.753	1.402		1.302 *
0.878	2.804		1.302 *
0.973	7.410		3.104 *
1.035	5.207		2.704 *
1.098	11.415		4.005 *
1.161	12.416		3.605 *
1.224	5.307		2.203 *

MULLER 64.....PL 10 349

HBC,DBC

→ BEAM MOMENTUM= .786

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.068	24.678	←	4.274 *
0.114	19.439		2.619 *
0.160	7.858		2.206 *
0.205	7.169		2.206 *
0.251	10.478		2.619 *
0.296	10.202		2.206 *
0.342	11.029		2.619 *
0.433	4.963		1.930 *
0.479	4.412		1.654 *
0.524	2.068		0.965 *
0.570	2.757		0.965 *
0.638	2.482		1.241 *
0.706	2.482		1.241 *
0.752	11.029		2.619 *
0.798	7.721		2.206 *
0.843	6.480		1.930 *
0.889	2.619		1.241 *

MULLER 64.....PL 10 349

HBC,DBC

→ BEAM MOMENTUM= .854

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.077	9.225	←	2.214 *
0.128	10.209		2.460 *
0.179	2.583		1.353 *
0.230	3.936		1.353 *
0.281	3.321		1.107 *
0.332	4.551		1.599 *
0.383	2.706		1.107 *
0.434	2.337		0.861 *
0.485	0.984		0.615 *
0.536	1.968		0.861 *
0.587	1.722		0.738 *
0.639	1.722		1.107 *
0.690	2.952		0.861 *
0.741	6.765		1.845 *
0.792	8.118		1.845 *
0.843	8.610		1.968 *
0.894	7.749		1.845 *
0.945	6.027		1.599 *
0.996	6.519		1.845 *

MULLER 64.....PL 10 349

HBC,DBC

→ BEAM MOMENTUM= .923

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.085	13.382	←	1.438 *
0.142	6.525		1.438 *
0.199	5.087		1.438 *
0.256	3.207		0.553 *
0.312	1.770		0.995 *
0.369	2.323		0.995 *
0.426	3.318		0.995 *
0.483	2.433		0.442 *
0.540	2.986		0.995 *
0.597	1.991		
0.653	1.106		0.995 *
0.710	1.659		0.442 *
0.767	4.092		0.995 *
0.824	3.650		1.438 *
0.881	5.640		1.438 *
0.937	10.175		1.438 *
0.994	15.594		1.991 *
1.051	13.161		1.438 *

MULLER 64.....PL 10 349

HBC,DBC

BEAM MOMENTUM= 1.232 +- .015

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX		
0.040	0.040	2.712	← 0.578 ***
0.040	0.080	2.835	0.591 ***
0.080	0.120	2.095	0.508 ***
0.120	0.160	2.588	0.565 ***
0.160	0.200	1.479	0.427 ***
0.200	0.240	0.370	0.213 ***
0.240	0.280	0.739	0.302 ***
0.280	0.320	0.986	0.349 ***
0.320	0.360	0.739	0.302 ***
0.360	0.400	0.493	0.247 ***
0.400	0.440	0.370	0.213 ***
0.440	0.480	1.109	0.370 ***
0.480	0.520	0.616	0.276 ***
0.520	0.560	0.370	0.213 ***
0.560	0.600	0.370	0.213 ***
0.600	0.640	0.863	0.326 ***
0.640	0.680	0.370	0.213 ***
0.680	0.720	0.863	0.326 ***
0.720	0.760	0.370	0.213 ***
0.760	0.800	0.123	0.123 ***
0.800	0.840	0.0	0.123 ***
0.840	0.880	0.493	0.247 ***
0.880	0.920	0.247	0.174 ***
0.920	0.960	0.247	0.174 ***
0.960	1.000	0.123	0.123 ***
1.000	1.040	0.247	0.174 ***
1.040	1.080	0.123	0.123 ***
1.080	1.120	0.247	0.174 ***
1.120	1.160	0.616	0.276 ***
1.160	1.200	0.0	0.123 ***
1.200	1.240	0.123	0.123 ***
1.240	1.280	0.370	0.213 ***
1.280	1.320	0.247	0.174 ***
1.320	1.360	0.493	0.247 ***
1.360	1.400	0.123	0.123 ***
1.400	1.440	0.123	0.123 ***
1.440	1.480	0.0	0.123 ***
1.480	1.520	0.247	0.174 ***
1.520	1.560	0.0	0.123 ***
1.560	1.600	0.0	0.123 ***
1.600	1.640	0.0	0.123 ***
1.640	1.680	0.247	0.174 ***
1.680	1.720	0.370	0.213 ***
1.720	1.760	0.0	0.123 ***
1.760	1.800	0.247	0.174 ***
1.800	1.840	0.123	0.123 ***

KRAEMER 64.....PR 136 B496

DBC 72

BEAM MOMENTUM= 6.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX		
0.100	0.100	0.457	← 0.102 *
0.200	0.200	0.337	0.101 *
0.300	0.300	0.344	0.100 *
	0.400	0.121	0.074 *

BRUYANT 64.....PL 12 278

DBC 81

Y-axis label: $d\sigma/dt$ [mb/(GeV/c)²]

X-axis label: $|t|$ (GeV/c)²

Legend:

- ◇ BRUYANT 64
- KRAEMER 64
- ▽ MULLER 64

Beam momenta labeled in the plot:

- $P_{\text{beam}} = 6.000$
- $P_{\text{beam}} = 1.232$
- $P_{\text{beam}} = .994$
- $P_{\text{beam}} = .923$
- $P_{\text{beam}} = .854$
- $P_{\text{beam}} = .786$
- $P_{\text{beam}} = .720$

* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

•

→ BEAM MOMENTUM= 1.861

-T		D SIGMA/D T	
(GEV/C)**2		[M8/(GEV/C)**2]	
MIN	MAX		
0.006	0.128	0.317	+ - 0.140
0.128	0.249	0.615	0.195
0.249	0.370	0.502	0.193
0.370	0.492	0.472	0.171
0.492	0.613	0.596	0.192
0.613	0.734	0.348	0.147
0.734	0.856	0.416	0.161
0.856	0.977	0.224	0.118
0.977	1.098	0.224	0.118
1.098	1.220	0.037	0.048
1.220	1.341	0.	0.062
1.341	1.463	0.106	0.081
1.463	1.584	0.037	0.048
1.584	1.705	0.037	0.048
1.705	1.827	0.174	0.104
1.827	1.948	0.	0.062
1.948	2.069	0.043	0.052
2.069	2.191	0.	0.062
2.191	2.312	0.099	0.079
2.312	2.433	0.037	0.048
DANBURG	70.....PR 02 2564	D8C	72

→ BEAM MOMENTUM= 2.091

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.005	0.147	0.376	+-- 0.193
0.147	0.290	1.554	0.392
0.290	0.432	0.940	0.305
0.432	0.575	0.247	0.156
0.575	0.717	0.247	0.156
0.717	0.860	0.356	0.188
0.860	1.002	0.049	0.070
1.002	1.145	0.139	0.117
1.145	1.287	0.010	0.031
1.287	1.430	0.049	0.070
1.430	1.572	0.	0.099
1.572	1.715	0.049	0.070
1.715	1.857	0.	0.099
1.857	2.000	0.059	0.077
2.000	2.142	0.	0.099
2.142	2.285	0.049	0.070
2.285	2.427	0.049	0.070
2.427	2.570	0.	0.099
2.570	2.712	0.	0.099
2.712	2.855	0.	0.099
DANBURG	70.....PR D2 2564	DBC	72

BEAM MOMENTUM= 2.7

-T (GEV/C)**2	D SIGMA/D T 【MB/(GEV/C)**2】	
0.060	0.282	+- 0.090 *
0.130	0.347	0.100 *
0.220	0.379	0.098 *
0.300	0.337	0.097 *
0.380	0.313	0.081 *
0.440	0.285	0.082 *
0.510	0.116	0.044 *
0.600	0.118	0.041 *
0.670	0.053	0.029 *

MT11FR 69-200-PR 178 2061 DBC 72

BEAM MOMENTUM= 3.65

-T' (GEV/C)**2		D SIGMA/O T' [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.100	0.021	+- 0.015
0.100	0.200	0.074	0.028
0.200	0.300	0.127	0.037
0.300	0.400	0.011	0.011
0.400	0.500	0.042	0.021
0.500	0.600	0.042	0.021
0.600	0.700	0.042	0.021
0.700	0.800	0.	0.011
0.800	0.900	0.011	0.011
0.900	1.000	0.032	0.018

RENSON 69.....PRL 22 1074 DBC 20

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+n \rightarrow \eta p$ $\searrow \rightarrow \pi^+ \pi^- \pi^0$

• OBTAINED AFTER TRANSFORMATION OF $\cos(\theta)$ INTO t

Differential cross section for $\pi^+n \rightarrow \eta p$

All

BEAM MOMENTUM= .703 + .027 , - .027

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.112	0.128
0.128	0.144
0.144	0.161
0.161	0.177
0.177	0.194
0.194	0.210
0.210	0.226
0.226	0.243
0.243	0.259
0.259	0.276

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .756 + .027 , - .026

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.073	0.106
0.106	0.139
0.139	0.172
0.172	0.205
0.205	0.238
0.238	0.271
0.271	0.304
0.304	0.337
0.337	0.370
0.370	0.403

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .81 + .027 , - .027

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.055	0.101
0.101	0.146
0.146	0.192
0.192	0.238
0.238	0.283
0.283	0.329
0.329	0.375
0.375	0.420
0.420	0.466
0.466	0.512

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= .89 + .054 , - .053

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.040	0.102
0.102	0.165
0.165	0.227
0.227	0.290
0.290	0.352
0.352	0.415
0.415	0.477
0.477	0.539
0.539	0.602
0.602	0.664

LITCHFIELD 69.....PR 183 1152

DBC 180

BEAM MOMENTUM= 1.232 +- .015

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.	0.040
0.040	0.080
0.080	0.120
0.120	0.160
0.160	0.200
0.200	0.240
0.240	0.280
0.280	0.320
0.320	0.360
0.360	0.400
0.400	0.440
0.440	0.480
0.480	0.520
0.520	0.560
0.560	0.600
0.600	0.640
0.640	0.680
0.680	0.720
0.720	0.760
0.760	0.800
0.800	0.840
0.840	0.880
0.880	0.920
0.920	0.960
0.960	1.000
1.000	1.040
1.040	1.080
1.080	1.120
1.120	1.160
1.160	1.200
1.200	1.240
1.240	1.280

KRAEMER 64.....PR 136 8496

DBC 72

for $\pi^+n \rightarrow \eta p$

Neutrals

BEAM MOMENTUM= .906 + .088 , - .086

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.038	0.103
0.103	0.169
0.169	0.234
0.234	0.300
0.300	0.366
0.366	0.431
0.431	0.497
0.497	0.562
0.562	0.628
0.628	0.693

PAULI 63.....SIENA CONF 1 92

DBC

* DATA READ FROM GRAPH
 * GLAUBER CORRECTION APPLIED
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section

for $\pi^+n \rightarrow \eta p$
 $\rightarrow$ All

for $\pi^+n \rightarrow \eta p$
 $\rightarrow$ Neutrals

Differential cross section for $\pi^+n \rightarrow \rho^0 p$ $\searrow \rightarrow \pi^+ \pi^-$

→ BEAM MOMENTUM= 2.7

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.015	17.300	4.900	**
0.022	17.449	2.081	**
0.025	13.700	1.500	**
0.035	12.600	1.800	**
0.040	13.355	1.596	**
0.045	13.700	1.700	**
0.055	12.800	1.600	**
0.058	11.552	1.318	**
0.065	11.800	1.300	**
0.075	10.800	1.400	**
0.076	6.799	1.145	**
0.085	8.300	0.900	**
0.095	7.736	1.041	**
0.095	8.300	0.900	**
0.105	8.700	1.200	**
0.113	6.383	0.937	**
0.115	6.920	0.980	**
0.125	5.910	0.880	**
0.131	4.787	0.763	**
0.135	7.110	0.900	**
0.145	4.730	0.960	**
0.149	3.816	0.659	**
0.155	3.930	0.740	**
0.165	4.320	0.810	**
0.167	3.816	0.555	**
0.175	3.740	0.700	**
0.185	4.620	0.860	**
0.185	3.122	0.555	**
0.195	3.070	0.720	**
0.203	2.845	0.763	**
0.205	4.000	0.690	**
0.215	3.700	0.810	**
0.221	2.359	0.555	**
0.225	2.300	0.660	**
0.235	3.240	0.710	**
0.239	2.428	0.555	**
0.245	2.050	0.620	**
0.255	2.630	0.700	**
0.258	2.047	0.555	**
0.276	2.324	0.382	**
0.294	1.457	0.382	**
0.312	0.694	0.382	**
0.330	1.075	0.486	**
0.348	1.145	0.382	**
0.366	0.971	0.382	**
0.384	0.763	0.382	**
0.402	0.555	0.382	**

MILLER 69.....PR 178 2061 DBC 72

BEAM MOMENTUM= 5.4

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.019	3.524	0.554	**
0.063	2.336	0.317	**
0.093	1.782	0.277	**
0.131	1.137	0.147	**
0.168	0.851	0.158	**
0.202	0.286	0.317	**
0.293	0.337	0.083	**
0.362	0.516	0.116	**
0.520	0.798	0.071	**

FARBER 71.....NP 829 237 DBC 33

BEAM MOMENTUM= 5.1

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.010	2.543	0.237	**
0.010	2.995	0.183	**
0.020	3.448	0.274	**
0.020	3.383	0.274	**
0.020	3.362	0.194	**
0.030	3.340	0.274	**
0.040	3.232	0.263	**
0.040	2.985	0.183	**
0.050	2.736	0.243	**
0.060	1.767	0.194	**
0.060	1.713	0.136	**
0.070	1.659	0.190	**
0.080	1.508	0.179	**
0.080	1.401	0.124	**
0.090	1.293	0.166	**
0.100	1.088	0.108	**
0.120	1.067	0.108	**
0.140	0.830	0.095	**
0.160	0.700	0.086	**
0.180	0.517	0.075	**
0.200	0.453	0.070	**
0.220	0.345	0.059	**
0.240	0.388	0.065	**
0.260	0.172	0.043	**
0.280	0.205	0.048	**
0.300	0.226	0.050	**
0.320	0.162	0.043	**
0.340	0.183	0.044	**
0.360	0.162	0.043	**
0.380	0.097	0.032	**
0.400	0.101	0.032	**
0.500	0.086	0.030	**
0.600	0.054	0.024	**

ARMENISE 70.....NC 65A 637 DBC 86

Differential cross section for $\pi^+n \rightarrow \omega p$

→ All

BEAM MOMENTUM= 1.232 +- .015

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.	0.040	0.	0.257
0.040	0.080	0.	0.257
0.080	0.120	0.515	0.364
0.120	0.160	1.287	0.576
0.160	0.200	1.802	0.681
0.200	0.240	4.377	1.062
0.240	0.280	2.575	0.814
0.280	0.320	2.317	0.772
0.320	0.360	3.090	0.892
0.360	0.400	2.317	0.772
0.400	0.440	2.060	0.728
0.440	0.480	3.605	0.963
0.480	0.520	2.832	0.854
0.520	0.560	2.317	0.772
0.560	0.600	0.772	0.446
0.600	0.640	1.802	0.681
0.640	0.680	1.802	0.681
0.680	0.720	1.545	0.631
0.720	0.760	0.257	0.257
0.760	0.800	0.515	0.364
0.800	0.840	0.515	0.364
0.840	0.880	0.515	0.364
0.880	0.920	0.515	0.364
0.920	0.960	0.	0.257
0.960	1.000	0.257	0.257
1.000	1.040	0.515	0.364
1.040	1.080	0.515	0.364
1.080	1.120	0.	0.257
1.120	1.160	0.	0.257
1.160	1.200	0.257	0.257

KRAEMER 64.....PR 136 8496

DBC 72

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.018	0.072	0.100	0.017
0.078	0.104	0.223	0.037
0.113	0.153	0.192	0.029
0.154	0.194	0.249	0.033
0.204	0.244	0.178	0.021
0.252	0.320	0.158	0.027
0.322	0.362	0.138	0.023
0.383	0.423	0.115	0.022
0.437	0.503	0.062	0.012
0.526	0.604	0.042	0.009
0.573	0.817	0.020	0.005
0.795	1.009	0.011	0.004

MATTHEWS 71.....PRL 26 400

DBC 33

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
-0.003	0.065	0.176	0.033
0.055	0.109	0.272	0.041
0.101	0.141	0.215	0.034
0.143	0.183	0.271	0.041
0.188	0.228	0.198	0.026
0.241	0.295	0.169	0.026
0.301	0.355	0.142	0.021
0.361	0.415	0.117	0.020

MATTHEWS 71.....PRL 26 400

DBC 33

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.011	0.065	0.058	0.016
0.070	0.110	0.190	0.033
0.098	0.154	0.164	0.031
0.150	0.192	0.227	0.039
0.194	0.264	0.161	0.021
0.253	0.323	0.152	0.026
0.327	0.367	0.137	0.023
0.375	0.429	0.115	0.019
0.436	0.518	0.059	0.013
0.499	0.609	0.042	0.009
0.624	0.804	0.020	0.005
0.797	1.015	0.011	0.003

MATTHEWS 71.....PRL 26 400

DBC 33

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.013	0.055	0.121	0.035
0.043	0.085	0.237	0.045
0.086	0.128	0.190	0.040
0.133	0.161	0.253	0.041
0.171	0.227	0.176	0.031
0.256	0.298	0.163	0.028
0.306	0.362	0.142	0.027
0.364	0.434	0.119	0.021

MATTHEWS 71.....PRL 26 400

DBC 33

* DATA READ FROM GRAPH
+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow \omega p$

$\rightarrow \pi^+ \pi^- \pi^0$

BEAM MOMENTUM= 1.236

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.120	0.154
0.154	0.188
0.188	0.221
0.221	0.255
0.255	0.289
0.289	0.322
0.322	0.356
0.356	0.389
0.389	0.423
0.423	0.457
0.457	0.490
0.490	0.524
0.524	0.558
0.558	0.591
0.591	0.625
0.625	0.659
0.659	0.692
0.692	0.726
0.726	0.760
0.760	0.793

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.434

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.071	0.128
0.128	0.184
0.184	0.241
0.241	0.298
0.298	0.355
0.355	0.411
0.411	0.468
0.468	0.525
0.525	0.581
0.581	0.638
0.638	0.695
0.695	0.752
0.752	0.808
0.808	0.865
0.865	0.922
0.922	0.978
0.978	1.035
1.035	1.092
1.092	1.149
1.149	1.205

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.643

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.048	0.126
0.126	0.204
0.204	0.282
0.282	0.361
0.361	0.439
0.439	0.517
0.517	0.595
0.595	0.674
0.674	0.752
0.752	0.830
0.830	0.908
0.908	0.987
0.987	1.065
1.065	1.143
1.143	1.221
1.221	1.299
1.299	1.378
1.378	1.456
1.456	1.534
1.534	1.612

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 1.68

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.045	0.209
0.209	0.373
0.373	0.537
0.537	0.701
0.701	0.865
0.865	1.028
1.028	1.192
1.192	1.356
1.356	1.520
1.520	1.684

BACON 67.....PR 157 1263 DBC 20

BEAM MOMENTUM= 1.861

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.034	0.134
0.134	0.234
0.234	0.334
0.334	0.434
0.434	0.533
0.533	0.633
0.633	0.733
0.733	0.833
0.833	0.933
0.933	1.032
1.032	1.132
1.132	1.232
1.232	1.332
1.332	1.432
1.432	1.531
1.531	1.631
1.631	1.731
1.731	1.831
1.831	1.931
1.931	2.030

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 2.091

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.026	0.148
0.148	0.270
0.270	0.392
0.392	0.513
0.513	0.635
0.635	0.757
0.757	0.879
0.879	1.001
1.001	1.123
1.123	1.245
1.245	1.367
1.367	1.489
1.489	1.611
1.611	1.733
1.733	1.855
1.855	1.977
1.977	2.099
2.099	2.221
2.221	2.342
2.342	2.464

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 2.331

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.020	0.165
0.165	0.310
0.310	0.454
0.454	0.599
0.599	0.744
0.744	0.889
0.889	1.034
1.034	1.178
1.178	1.323
1.323	1.468
1.468	1.613
1.613	1.758
1.758	1.903
1.903	2.047
2.047	2.192
2.192	2.337
2.337	2.482
2.482	2.627
2.627	2.771
2.771	2.916

DANBURG 70.....PR D2 2564 DBC 72

BEAM MOMENTUM= 2.7

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.070	1.120
1.120	0.230
0.230	0.360
0.360	0.490
0.490	0.620
0.620	0.750
0.750	0.880
0.880	1.010
1.010	1.140
1.140	1.270
1.270	1.400
1.400	1.530
1.530	1.660
1.660	1.790
1.790	1.920
1.920	2.050
2.050	2.180
2.180	2.310
2.310	2.440
2.440	2.570
2.570	2.700

MILLER 69.....PR 178 2061 DBC 72

BEAM MOMENTUM= 3.25

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.060	0.060
0.060	0.120
0.120	0.180
0.180	0.240
0.240	0.300
0.300	0.360
0.360	0.420
0.420	0.480
0.480	0.540
0.540	0.600
0.600	0.660
0.660	0.720
0.720	0.780

COHN 65.....PL 15 344 DBC 20

BEAM MOMENTUM= 4.19 +- .004

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.100	0.100
0.100	0.200
0.200	0.300
0.300	0.400
0.400	0.500
0.500	0.600
0.600	0.700
0.700	0.800
0.800	0.900
0.900	1.000

GORDON 70.....ILL 1195 DBC 72

BEAM MOMENTUM= 5.4

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.005	0.107
0.106	0.208
0.208	0.310
0.310	0.400
0.400	0.507
0.507	0.609
0.609	0.711
0.711	0.813
0.813	0.915
0.915	1.017

FARBER 71.....NP B29 237 DBC 33

BEAM MOMENTUM= 3.65

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.100	0.100
0.100	0.200
0.200	0.300
0.300	0.400
0.400	0.500
0.500	0.600
0.600	0.700
0.700	0.800
0.800	0.900
0.900	1.000

BENSON 69.....PRL 22 1074 DBC 20

BEAM MOMENTUM= 5.1

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]
MIN	MAX
0.040	0.040
0.040	0.080
0.080	0.120
0.120	0.160
0.160	0.200
0.200	0.240
0.240	0.280
0.280	0.320
0.320	0.360
0.360	0.400
0.400	0.440
0.440	0.480
0.480	0.520
0.520	0.560
0.560	0.600
0.600	0.640
0.640	0.680
0.680	0.720
0.720	0.760
0.760	0.800

ARMENISE 70.....NC 65A 637 DBC 86

* DATA READ FROM GRAPH
 + GLAUBER CORRECTION APPLIED
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 - OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+n \rightarrow \omega p$

 $\rightarrow \pi^+ \pi^- \pi^0$

 • OBTAINED AFTER TRANSFORMATION OF $\cos(\theta)$ INTO T

Differential cross section

for $\pi^+ n \rightarrow fp$
 $\searrow \rightarrow \pi^+ \pi^-$

BEAM MOMENTUM= 5.1

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.010	3.448	+- 0.276 **
0.	0.020	3.556	0.194 **
0.010	0.020	3.663	0.280 **
0.020	0.030	2.521	0.233 **
0.020	0.040	2.349	0.162 **
0.030	0.040	2.176	0.215 **
0.040	0.050	2.090	0.211 **
0.040	0.060	2.069	0.151 **
0.050	0.060	2.047	0.209 **
0.060	0.070	1.724	0.194 **
0.060	0.080	1.810	0.140 **
0.070	0.080	1.896	0.203 **
0.080	0.090	1.724	0.194 **
0.080	0.100	1.401	0.124 **
0.090	0.100	1.077	0.151 **
0.100	0.120	1.271	0.119 **
0.120	0.140	0.884	0.097 **
0.140	0.160	0.657	0.084 **
0.160	0.180	0.776	0.092 **
0.180	0.200	0.593	0.081 **
0.200	0.220	0.431	0.070 **
0.220	0.240	0.259	0.054 **
0.240	0.260	0.409	0.067 **
0.260	0.280	0.248	0.052 **
0.280	0.300	0.205	0.048 **
0.300	0.320	0.334	0.060 **
0.320	0.340	0.237	0.048 **
0.340	0.360	0.151	0.041 **
0.360	0.380	0.162	0.042 **
0.380	0.400	0.075	0.028 **
0.400	0.500	0.092	0.031 **
0.500	0.600	0.058	0.025 **
0.600	0.700	0.075	0.028 **

ARMENISE 70.....NC 65A 637 DBC 86

for $\pi^+ n \rightarrow A_2^0 p$
 $\searrow \rightarrow \pi^+ \pi^- \pi^0$

BEAM MOMENTUM= 5.1

-T* (GEV/C)**2		D SIGMA/D T* [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.040	0.799	+- 0.105 **
0.040	0.080	0.631	0.094 **
0.080	0.120	0.617	0.092 **
0.120	0.160	0.547	0.088 **
0.160	0.200	0.308	0.066 **
0.200	0.240	0.617	0.092 **
0.240	0.280	0.476	0.081 **
0.280	0.320	0.519	0.085 **
0.320	0.360	0.308	0.066 **
0.360	0.400	0.364	0.071 **
0.400	0.440	0.364	0.071 **
0.440	0.480	0.308	0.066 **
0.480	0.600	0.266	0.062 **
0.600	0.720	0.140	0.045 **

ARMENISE 70.....NC 65A 637 DBC 86

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow g^0 p$ $\searrow \pi^+ \pi^-$

BEAM MOMENTUM= 7.

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.036	0.048	0.243	0.039 **
0.047	0.073	0.265	0.027 **
0.068	0.094	0.209	0.026 **
0.076	0.114	0.188	0.022 **
0.108	0.134	0.161	0.019 **
0.137	0.149	0.111	0.014 **
0.149	0.175	0.112	0.016 **
0.171	0.197	0.074	0.012 **
0.203	0.229	0.068	0.008 **
0.224	0.274	0.060	0.007 **
0.276	0.314	0.043	0.007 **
0.319	0.395	0.022	0.004 **
0.397	0.499	0.016	0.003 **
0.483	0.597	0.010	0.002 **
0.593	0.795	0.007	0.001 **
0.791	1.007	0.005	0.001 **

MATTHEWS 71.....NP B33 1 DBC,HBC

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [(MB/(GEV/C)**2)]	
MIN	MAX		
0.	0.010	1.185	0.159 **
0.	0.020	1.067	0.108 **
0.010	0.020	0.968	0.142 **
0.020	0.030	0.905	0.140 **
0.020	0.040	0.862	0.097 **
0.030	0.040	0.819	0.134 **
0.040	0.050	0.646	0.119 **
0.040	0.060	0.593	0.080 **
0.050	0.060	0.539	0.108 **
0.060	0.070	0.431	0.097 **
0.060	0.080	0.399	0.065 **
0.070	0.080	0.366	0.088 **
0.080	0.090	0.366	0.088 **
0.080	0.100	0.431	0.068 **
0.090	0.100	0.496	0.103 **
0.100	0.120	0.323	0.059 **
0.120	0.140	0.291	0.056 **
0.140	0.160	0.334	0.060 **
0.160	0.180	0.172	0.043 **
0.180	0.200	0.226	0.050 **
0.200	0.220	0.162	0.043 **
0.220	0.240	0.065	0.026 **
0.240	0.260	0.194	0.046 **
0.260	0.280	0.065	0.026 **
0.280	0.300	0.108	0.036 **
0.300	0.400	0.075	0.029 **
0.400	0.500	0.054	0.024 **
0.500	0.600	0.037	0.019 **
0.600	0.700	0.037	0.019 **

ARMENISE 70.....NC 65A 637 DBC 86

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow \Phi(1675)p$ $\searrow \rightarrow \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.040	0.080	0.005	0.001 **
0.080	0.120	0.005	0.001 **
0.120	0.160	0.003	0.001 **
0.160	0.200	0.003	0.000 **
0.200	0.240	0.003	0.000 **
0.240	0.280	0.002	0.000 **
0.280	0.320	0.002	0.000 **
0.320	0.360	0.002	0.000 **
0.360	0.400	0.003	0.000 **
0.400	0.440	0.002	0.000 **
0.440	0.520	0.001	0.000 **
0.520	0.600	0.001	0.000 **
0.600	0.800	0.001	0.000 **
0.800	1.000	0.000	0.000 **

MATTHEWS 71.....PR D3 2561

DBC 33

BEAM MOMENTUM= 6.95

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.040	0.080	0.000	0.000 **
0.080	0.120	0.001	0.000 **
0.120	0.160	0.000	0.000 **
0.160	0.200	0.000	0.000 **
0.200	0.240	0.001	0.000 **
0.240	0.280	0.001	0.000 **
0.280	0.320	0.001	0.000 **
0.320	0.360	0.001	0.000 **
0.360	0.400	0.002	0.000 **
0.400	0.440	0.001	0.000 **
0.440	0.520	0.000	0.000 **
0.520	0.600	0.000	0.000 **
0.600	0.800	0.000	0.000 **

MATTHEWS 71.....PR D3 2561

DBC 33

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow \rho^+\Delta(1238)^0$

BEAM MOMENTUM= 5.1

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)	
MIN	MAX		
0.	0.020	0.	† 0.008 **
0.020	0.040	0.190	0.010 **
0.040	0.060	1.910	0.033 **
0.060	0.080	2.430	0.037 **
0.080	0.100	2.290	0.036 **
0.100	0.120	1.600	0.030 **
0.120	0.140	0.680	0.020 **
0.140	0.160	0.840	0.022 **
0.160	0.180	0.570	0.018 **
0.180	0.200	0.420	0.015 **
0.200	0.220	0.300	0.013 **
0.220	0.240	0.720	0.021 **
0.240	0.260	0.290	0.013 **
0.260	0.280	0.200	0.011 **

GHIDINI 68.....NC 58A 524 D8C 81

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+n \rightarrow K^+\Lambda$

→ BEAM MOMENTUM= 2.042

-T (GEV/C)**2	MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)		
0.030	0.030	0.154	0.308	±	0.037
0.154	0.154	0.278	0.118		0.023
0.278	0.278	0.402	0.100		0.021
0.402	0.402	0.526	0.082		0.019
0.526	0.526	0.650	0.054		0.016
0.650	0.650	0.774	0.068		0.018
0.774	0.774	0.898	0.059		0.016
0.898	0.898	1.022	0.077		0.019
1.022	1.022	1.146	0.032		0.012
1.146	1.146	1.270	0.041		0.014
1.270	1.270	1.394	0.045		0.014
1.394	1.394	1.518	0.027		0.011
1.518	1.518	1.642	0.		0.005
1.642	1.642	1.766	0.036		0.013
1.766	1.766	1.890	0.027		0.011
1.890	1.890	2.014	0.		0.005
2.014	2.014	2.138	0.027		0.011
2.138	2.138	2.262	0.036		0.013
2.262	2.262	2.386	0.073		0.018
2.386	2.386	2.509	0.100		0.021

MOORE 70.....THESIS DBC 33

→ BEAM MOMENTUM= 2.178

-T (GEV/C)**2	MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)		
0.028	0.028	0.164	0.329	±	0.037
0.164	0.164	0.301	0.119		0.022
0.301	0.301	0.437	0.062		0.016
0.437	0.437	0.574	0.033		0.012
0.574	0.574	0.710	0.033		0.012
0.710	0.710	0.847	0.033		0.012
0.847	0.847	0.983	0.061		0.013
0.983	0.983	1.120	0.025		0.010
1.120	1.120	1.256	0.012		0.007
1.256	1.256	1.393	0.021		0.009
1.393	1.393	1.529	0.025		0.010
1.529	1.529	1.666	0.016		0.008
1.666	1.666	1.802	0.021		0.009
1.802	1.802	1.939	0.		0.004
1.939	1.939	2.075	0.025		0.010
2.075	2.075	2.212	0.008		0.006
2.212	2.212	2.348	0.025		0.010
2.348	2.348	2.485	0.		0.004
2.485	2.485	2.621	0.091		0.019
2.621	2.621	2.758	0.016		0.008

MOORE 70.....THESIS DBC 33

→ BEAM MOMENTUM= 2.33

-T (GEV/C)**2	MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)		
0.025	0.025	0.176	0.411	±	0.039
0.176	0.176	0.326	0.082		0.018
0.326	0.326	0.477	0.052		0.014
0.477	0.477	0.627	0.075		0.017
0.627	0.627	0.778	0.037		0.012
0.778	0.778	0.928	0.034		0.011
0.928	0.928	1.079	0.019		0.008
1.079	1.079	1.229	0.		0.004
1.229	1.229	1.380	0.030		0.011
1.380	1.380	1.531	0.030		0.011
1.531	1.531	1.681	0.004		0.004
1.681	1.681	1.832	0.		0.004
1.832	1.832	1.982	0.007		0.005
1.982	1.982	2.133	0.		0.004
2.133	2.133	2.283	0.		0.004
2.283	2.283	2.434	0.007		0.005
2.434	2.434	2.584	0.		0.004
2.584	2.584	2.735	0.015		0.007
2.735	2.735	2.885	0.015		0.007
2.885	2.885	3.036	0.097		0.019

MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2	MIN	MAX	D SIGMA/D T' (MB/(GEV/C)**2)		
0.	0.	0.100	0.164	±	0.030
0.100	0.100	0.200	0.083		0.021
0.200	0.200	0.300	0.046		0.016
0.300	0.300	0.400	0.016		0.009
0.400	0.400	0.600	0.013		0.006
0.600	0.600	0.800	0.006		0.004
0.800	0.800	1.000	0.005		0.004
1.000	1.000	1.200	0.003		0.003

METTEL 70.....THESIS DBC 81

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+n \rightarrow K^+\Sigma^0$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.042	0.170	0.092	± 0.012 **
0.170	0.298	0.052	0.009 **
0.298	0.427	0.017	0.005 **
0.427	0.555	0.013	0.004 **
0.555	0.683	0.009	0.004 **
0.683	0.812	0.018	0.005 **
0.812	0.940	0.018	0.005 **
0.940	1.068	0.020	0.005 **
1.068	1.196	0.043	0.008 **
1.196	1.325	0.013	0.004 **
1.325	1.453	0.016	0.005 **
1.453	1.581	0.015	0.005 **
1.581	1.709	0.008	0.003 **
1.709	1.838	0.014	0.004 **
1.838	1.966	0.013	0.004 **
1.966	2.094	0.014	0.004 **
2.094	2.223	0.007	0.003 **
2.223	2.351	0.008	0.003 **
2.351	2.479	0.005	0.003 **
2.479	2.607	0.014	0.005 **

MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2		D SIGMA/D T' [MB/(GEV/C)**2]	
MIN	MAX		
0.160	0.320	0.080	± 0.016 **
0.320	0.480	0.025	0.009 **
0.480	0.640	0.010	0.006 **
0.640	0.800	0.005	0.005 **
0.800	0.960	0.010	0.006 **
0.960	1.120	0.005	0.005 **

METTEL 70.....THESIS DBC 81

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+n \rightarrow K^+Y^*(1405)$
 $\quad \quad \quad \searrow \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

— BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX				
0.103	0.301	0.047	+-	0.007	**
0.301	0.500	0.009		0.003	**
0.500	0.699	0.006		0.002	**
0.699	0.897	0.005		0.002	**
0.897	1.096	0.003		0.002	**
1.096	1.295	0.005		0.002	**
1.295	1.494	0.001		0.001	**
1.494	1.692	0.009		0.003	**
1.692	1.891	0.007		0.002	**
1.891	2.090	0.004		0.002	**
MOORE	70.....THESIS	DBC	33

for $\pi^+n \rightarrow K^+Y^*(1520)$
 $\quad \quad \quad \searrow \rightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

— BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX				
0.159	0.319	0.008	+-	0.003	**
0.319	0.478	0.012		0.004	**
0.478	0.638	0.007		0.003	**
0.638	0.797	0.006		0.003	**
0.797	0.957	0.011		0.004	**
0.957	1.116	0.001		0.001	**
1.116	1.276	0.001		0.001	**
1.276	1.436	0.005		0.002	**
1.436	1.595	0.007		0.003	**
1.595	1.755	0.001		0.001	**
MOORE	70.....THESIS	DBC	33

for $\pi^+n \rightarrow K^+Y^*(1520)$
 $\quad \quad \quad \searrow \rightarrow nK^0$

— BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]			
MIN	MAX				
0.159	0.319	0.023	+-	0.005	**
0.319	0.478	0.012		0.004	**
0.478	0.638	0.012		0.004	**
0.638	0.797	0.010		0.003	**
0.797	0.957	0.005		0.002	**
0.957	1.116	0.005		0.002	**
1.116	1.276	0.009		0.003	**
1.276	1.436	0.009		0.003	**
1.436	1.595	0.014		0.004	**
1.595	1.755	0.		0.001	**
MOORE	70.....THESIS	DBC	33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 • OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section

for $\pi^+n \rightarrow K^*(890)^+\Lambda$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.171	0.352	0.045	+-	0.007	**
0.352	0.532	0.038		0.006	**
0.532	0.713	0.021		0.005	**
0.713	0.893	0.028		0.005	**
0.893	1.074	0.015		0.004	**
1.074	1.254	0.019		0.004	**
1.254	1.435	0.022		0.005	**
1.435	1.615	0.020		0.005	**
1.615	1.796	0.013		0.004	**
1.796	1.976	0.007		0.003	**

MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.040	0.080	0.024	+-	0.011	**
0.080	0.160	0.077		0.019	**
0.160	0.240	0.072		0.019	**
0.240	0.320	0.058		0.017	**
0.320	0.400	0.053		0.016	**
0.400	0.480	0.005		0.005	**
0.480	0.560	0.034		0.013	**
0.560	0.640	0.043		0.014	**
0.640	0.720	0.048		0.015	**
0.720	0.800	0.039		0.014	**
		0.019		0.010	**

METTEL 70.....THESIS DBC 81

* DATA READ FROM GRAPH
 * SEE DATA LISTING FOR ADDITIONAL COMMENTS
 * OBTAINED AFTER TRANSFORMATION OF $\cos(\theta)$ INTO T

for $\pi^+n \rightarrow K^*(890)^+\Sigma^0$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.259	0.408	0.080	+-	0.010	**
0.408	0.556	0.025		0.006	**
0.556	0.704	0.015		0.004	**
0.704	0.852	0.025		0.006	**
0.852	1.000	0.012		0.004	**
1.000	1.148	0.011		0.004	**
1.148	1.296	0.005		0.002	**
1.296	1.445	0.022		0.005	**
1.445	1.593	0.029		0.006	**
1.593	1.741	0.007		0.003	**

MOORE 70.....THESIS DBC 33

for $\pi^+n \rightarrow K^+Y^*(1385)^0$
 $\quad \quad \quad \searrow \rightarrow \Lambda\pi^0$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T (MB/(GEV/C)**2)			
MIN	MAX				
0.004	0.300	0.047	+-	0.007	**
0.300	0.505	0.036		0.006	**
0.505	0.711	0.059		0.007	**
0.711	0.916	0.032		0.005	**
0.916	1.122	0.027		0.005	**
1.122	1.327	0.020		0.004	**
1.327	1.532	0.011		0.003	**
1.532	1.738	0.008		0.003	**
1.738	1.943	0.007		0.003	**
1.943	2.149	0.015		0.004	**

MOORE 70.....THESIS DBC 33

Differential cross section

for $\pi^+n \rightarrow K^0\Sigma^+$ for $\pi^+n \rightarrow K^*(890)^0\Sigma^+$
 $\quad \quad \quad \rightarrow K^+\pi^-$

— BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.042	0.299	0.006	*
0.299	0.555	0.	*
0.555	0.812	0.013	*
0.812	1.069	0.008	*
1.069	1.325	0.031	*
1.325	1.582	0.012	*
1.582	1.839	0.035	*
1.839	2.095	0.023	*
2.095	2.352	0.051	*
2.352	2.609	0.068	*

MOORE 70.....THESIS DBC 33

— BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]	
MIN	MAX		
0.255	0.405	0.024	++ 0.005 **
0.405	0.554	0.015	0.004 **
0.554	0.704	0.009	0.003 **
0.704	0.854	0.009	0.003 **
0.854	1.003	0.011	0.004 **
1.003	1.153	0.006	0.003 **
1.153	1.302	0.013	0.004 **
1.302	1.452	0.016	0.005 **
1.452	1.602	0.015	0.004 **
1.602	1.751	0.006	0.003 **

MOORE 70.....THESIS DBC 33

* DATA READ FROM GRAPH
 † SEE DATA LISTING FOR ADDITIONAL COMMENTS
 • OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+ n \rightarrow K^0 Y^*(1385)^+ \rightarrow \Lambda \pi^+$

→ BEAM MOMENTUM= 2.11 ± .068

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.102	0.293	0.012	± 0.005	**
0.293	0.483	0.011	0.005	**
0.483	0.673	0.006	0.003	**
0.673	0.864	0.	0.002	**
0.864	1.054	0.024	0.007	**
1.054	1.244	0.004	0.003	**
1.244	1.435	0.017	0.006	**
1.435	1.625	0.000	0.001	**
1.625	1.815	0.019	0.006	**
1.815	2.005	0.010	0.005	**

MOORE 70.....THESIS DBC 33

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.096	0.301	0.035	± 0.006	**
0.301	0.505	0.026	0.005	**
0.505	0.710	0.013	0.003	**
0.710	0.915	0.013	0.003	**
0.915	1.119	0.019	0.004	**
1.119	1.324	0.005	0.002	**
1.324	1.528	0.009	0.003	**
1.528	1.733	0.006	0.002	**
1.733	1.938	0.021	0.004	**
1.938	2.142	0.019	0.004	**

MOORE 70.....THESIS DBC 33

→ BEAM MOMENTUM= 2.254 ± .076

-T (GEV/C)**2		D SIGMA/D T [MB/(GEV/C)**2]		
MIN	MAX			
0.091	0.309	0.038	± 0.008	**
0.309	0.527	0.009	0.004	**
0.527	0.745	0.009	0.004	**
0.745	0.963	0.011	0.004	**
0.963	1.181	0.	0.002	**
1.181	1.399	0.006	0.003	**
1.399	1.617	0.	0.002	**
1.617	1.835	0.007	0.004	**
1.835	2.053	0.018	0.006	**
2.053	2.271	0.013	0.005	**

MOORE 70.....THESIS DBC 33

* DATA READ FROM GRAPH
* SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Fits to $\frac{d\sigma}{dt}$ and $\frac{d\sigma}{dt'}$ Data

AUTHORS' FITS TO DIFFERENTIAL CROSS SECTIONS

P_{beam} (GeV/c)		$ t $ (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ or SLOPE mb/(GeV/c) ²		References	
min	max						
Reaction $\pi^+p \rightarrow \rho^+p$ $\searrow$ $\pi^+\pi^0$							
5.000	0.1	.40	$Y=A*EXP(-B*ABS(T'))$	B	9.70	1.10 †	SCHOTANUS 70 NP 822 45
5.000	0.0	1.00	$Y=A_1*EXP(-B_1*ABS(T')) + B_1$	B	11.10	1.50 B2	SCHOTANUS 70 NP 822 45
5.200	0.0	.80	$Y=A*EXP(-B*ABS(U))$	A	32.00	6.00 B	CARLSON 70 PL 338 502
6.000	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	8.40	0.90 †	CRENNELL 71 PRL 27 1674
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	8.40	0.90 †	ADERHOLZ 68 NP 88 45
13.100	0.1	.40	$Y=A*EXP(-B*ABS(T'))$	B	13.60	1.50 †	KRAMER 71 NP 88 45

Reaction $\pi^+p \rightarrow A_1^+p$ $\searrow$ $\pi^+\pi^+\pi^-$							
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	10.30	0.50 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow B^+p$ $\searrow$ $\omega\pi^+$ $\searrow$ $\pi^+\pi^-\pi^0$							
5.000	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	2.90	1.00 †	POLS 70 NP 825 109
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	6.40	0.80 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow A_2^+p$ $\searrow$ $\rho^0\pi^+$ $\searrow$ $\pi^+\pi^-$							
5.000	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	6.10	1.00 †	POLS 70 NP 825 109
5.100	0.0	.72	$Y=A*EXP(-B*ABS(T'))$	B	3.70	0.30 †	ARMENISE 70 NC 65A 637
5.450	0.0	.50	$Y=A*EXP(-B*ABS(T'))$	B	4.00	0.70 †	BLOODWORTH 72 NP 837 203
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	6.10	0.70 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow A_3^+p$ $\searrow$ $\pi^+\pi^+\pi^-$							
5.100	0.0	.80	$Y=A*EXP(-B*ABS(T'))$	B	4.37	1.20 †	ARMENISE 69 NCL 2 501
5.100	0.0	.80	$Y=A*EXP(-B*ABS(T'))$	B	3.65	1.90 †	ARMENISE 69 NCL 2 501
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	5.80	0.70 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow g^+p$ $\searrow$ $\pi^+\pi^0$							
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	7.20	0.80 †	ADERHOLZ 68 NP 88 45
13.100	0.0	.30	$Y=A*EXP(-B*ABS(T'))$	B	6.20	0.60 †	KRAMER 70 PRL 25 396

Reaction $\pi^+p \rightarrow S^+p$ $\searrow$ $\pi^+\pi^0$							
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T'))$	B	6.60	0.90 †	ADERHOLZ 68 NP 88 45
13.100	0.0	.30	$Y=A*EXP(-B*ABS(T'))$	B	8.10	1.40 †	KRAMER 70 PRL 25 396

Reaction $\pi^+p \rightarrow T^+p$ $\searrow$ $\pi^+\pi^0$							
13.100	0.0	.30	$Y=A*EXP(-B*ABS(T'))$	B	5.80	0.70 †	KRAMER 70 PRL 25 396

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

* Complete formula is $Y=A_1*EXP(-B_1*ABS(T')) + A_2*EXP(-B_2*ABS(T'))$

Authors' Fits to Differential Cross Sections

P_{beam} (GeV/c)	$ t $ (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²	OR SLOPE (GeV/c) ⁻²	References	
min	max					
Reaction $\pi^+p \rightarrow \pi^0 \Delta(1238)^{++}$ $\searrow$ $\pi^+\pi^+$						
2.630	0.1	.60	$Y=A*EXP(-B*ABS(T))$	8	8.80 1.00 †	GIDAL 69 PRL 23 994
3.500	0.1	.60	$Y=A*EXP(-B*ABS(T))$	8	8.80 0.90 †	GIDAL 69 PRL 23 994
5.000	0.06	.40	$Y=A*EXP(-B*ABS(T))$	8	10.20 0.80 †	SCHOTANUS 70 NP 822 45
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T))$	8	7.50 0.70 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow \eta\Delta(1238)^{++}$
 $\searrow$
 $\pi^+\pi^-\pi^0$

5.000	0.0	.40	$Y=A*EXP(-B*ABS(T))$	8	3.70 2.00 †	POLS 70 NP 825 109
5.000	0.1	.40	$Y=A*EXP(-B*ABS(T))$	8	3.70 2.00 †	SCHOTANUS 70 NP 822 45
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T))$	8	10.40 1.70 †	ADERHOLZ 68 NP 88 45

Reaction $\pi^+p \rightarrow \rho^0\Delta(1238)^{++}$
 $\searrow$
 $\pi^+\pi^-\pi^0$

1.950	0.0	.40	$Y=A*EXP(-B*ABS(T))$	A	4.35 0.34 B	9.67 1.20 †	CHAPMAN 71 PR D 3 38
2.050	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	12.70 0.70 †		BROWN 68 UCRL 18254
2.340	0.0	.30	$Y=A*EXP(-B*ABS(T))$	A	135.50 8.20 B	8.54 0.52 †	ANGELOV 69 JINR P1-4657
2.950	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	6.10 1.30 †		BROWN 68 UCRL 18254
3.190	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	12.20 0.90 †		BROWN 68 UCRL 18254
3.190	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	6.90 0.90 †		BROWN 68 UCRL 18254
3.500	0.0	2.00	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	14.50 1.20 B2	1.50 0.20 †	RONAT 72 NP 838 20
3.500	0.0	0.30	$Y=A*EXP(-B*ABS(T))$	B	11.80 0.80 †		RONAT 72 NP 838 20
3.515	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	11.80 0.40 †		BROWN 68 UCRL 18254
3.515	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	7.30 0.50 †		BROWN 68 UCRL 18254
3.530	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	8.30 0.80 †		BROWN 68 UCRL 18254
3.530	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	11.60 0.80 †		BROWN 68 UCRL 18254
3.700	0.0	1.00	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	13.00 0.50 B2	2.40 0.50 †	ABRAMS 70 PRL 25 617
3.740	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	7.10 1.20 †		BRWYN 68 UCRL 18254
3.740	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	11.30 0.80 †		BRWYN 68 UCRL 18254
4.080	0.2	0.50	$Y=A*EXP(-B*ABS(T))$	B	7.80 1.00 †		BRWYN 68 UCRL 18254
4.080	0.0	0.20	$Y=A*EXP(-B*ABS(T))$	B	12.60 1.10 †		BRWYN 68 UCRL 18254
5.000	0.0	.40	$Y=A*EXP(-B*ABS(T))$	B	12.20 0.40 †		POLS 70 NP 825 109
5.000	0.0	1.00	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	11.90 1.90 B2	1.60 0.30 †	POLS 70 NP 825 109
5.100	0.0	.70	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	20.10 1.20 B2	3.40 0.40 †	ARMENISE 70 NC 65A 637
5.450	0.0	1.40	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	13.61 0.67 B2	2.77 0.30 †	BLOODWORTH 71 NP 835 79
5.450	0.0	1.40	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	15.49 0.73 B2	2.74 0.30 †	BLOODWORTH 71 NP 835 79
8.040	0.0	.40	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	19.10 2.00 B2	3.20 0.70 †	ADERHOLZ 68 NP 88 45
8.040	0.0	2.00	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	17.80 2.50 B2	3.10 0.50 †	ADERHOLZ 68 NP 88 45
8.040	0.4	2.00	$Y=A*EXP(-B*ABS(T))$	B	26.00 4.40 †		ADERHOLZ 68 NP 88 45
8.040	0.0	0.40	$Y=A*EXP(-B*ABS(T))$	B	36.00 11.00 †		ADERHOLZ 68 NP 88 45
8.040	0.0	0.02	$Y=A*EXP(-B*ABS(T))$	B	12.80 1.20 †		ADERHOLZ 68 NP 88 45
11.700	0.03	.20	$Y=A*EXP(-B*ABS(T))$	B	14.40 1.50 †		MADDOCK 71 NC 5A 433
11.700	0.0	.09	$Y=A*EXP(-B*ABS(T))$	B	24.80 2.20 †		MADDOCK 71 NC 5A 433
13.100	0.0	.70	$Y=A1*EXP(-B1*ABS(T)) + A2*EXP(-B2*ABS(T))$	B1	20.00 1.80 B2	3.80 †	GAIDOS 70 PR D1 3190
18.500	0.0	.15	$Y=A*EXP(-B*ABS(T))$	B	20.00 1.80 †		BISHAS 70 PR D2 2529

Reaction $\pi^+p \rightarrow \omega\Delta(1238)^{++}$
 $\searrow$
 $\pi^+\pi^-\pi^0$

2.340	0.1	.60	$Y=A*EXP(-B*ABS(T))$	A	102.30 11.00 B	2.84 0.34 †	ANGELOV 69 JINR P1-4657
2.950	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.16 0.25 †		BROWN 68 UCRL 18254
2.950	0.0	1.00	$Y=A*EXP(-B*ABS(T))$	B	2.54 0.14 †		BROWN 68 UCRL 18254
3.065	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.25 0.08 †		BROWN 68 UCRL 18254
3.190	0.0	1.00	$Y=A*EXP(-B*ABS(T))$	B	2.14 0.17 †		BRWYN 68 UCRL 18254
3.190	0.0	2.50	$Y=A*EXP(-B*ABS(T))$	B	2.05 0.19 †		BRWYN 68 UCRL 18254
3.500	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.25 0.16 †		RONAT 72 NP 838 20
3.515	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.31 0.06 †		BROWN 68 UCRL 18254
3.530	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.15 0.17 †		BRWYN 68 UCRL 18254
3.530	0.0	1.00	$Y=A*EXP(-B*ABS(T))$	B	2.06 0.15 †		BRWYN 68 UCRL 18254
3.700	0.2	1.40	$Y=A*EXP(-B*ABS(T))$	B	4.02 0.20 †		ABRAMS 70 PRL 25 617
3.740	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.45 0.22 †		BROWN 68 UCRL 18254
3.740	0.0	1.00	$Y=A*EXP(-B*ABS(T))$	B	2.12 0.18 †		BROWN 68 UCRL 18254
4.080	0.2	1.20	$Y=A*EXP(-B*ABS(T))$	B	2.71 0.28 †		BRWYN 68 UCRL 18254
4.080	0.0	1.00	$Y=A*EXP(-B*ABS(T))$	B	2.59 0.20 †		BROWN 68 UCRL 18254
5.000	0.0	.40	$Y=A*EXP(-B*ABS(T))$	B	4.40 1.00 †		POLS 70 NP 825 109
5.450	0.0	1.40	$Y=A*EXP(-B*ABS(T))$	B	3.96 0.21 †		BLOODWORTH 71 NP 835 79
5.450	0.0	1.40	$Y=A*EXP(-B*ABS(T))$	B	3.88 0.23 †		BLOODWORTH 71 NP 835 79
8.040	0.0	.40	$Y=A*EXP(-B*ABS(T))$	B	3.20 1.70 †		ADERHOLZ 68 NP 88 45

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

† Complete formula is $Y=A_1*EXP(-B_1*ABS(T)) + A_2*EXP(-B_2*ABS(T))$

* Complete formula is $Y=A_1*EXP(-B_1*ABS(T)) + A_2*EXP(-B_2*ABS(T))$

Authors' Fits to Differential Cross Sections

P _{beam} (GeV/c)	t (GeV/c) ²	min	max	FORMULA	dσ/dt[t=0] mb/(GeV/c) ²	OR	SLOPE (GeV/c) ⁻²	References	
Reaction $\pi^+p \rightarrow f\Delta(1238)^{++}$									
				$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$					
5.000	0.0	.40		Y=A*EXP(-B*ABS(T'))	B	8.10	0.80 †	POLS 70 NP 825 109	
5.000	0.0	1.00		Y=A1*EXP(-B1*ABS(T'))+*B1	B	16.70	0.90 B2	POLS 70 NP 825 109	
8.040	0.0	.40		Y=A*EXP(-B*ABS(T'))	B	9.70	0.70 †	ADERHOLZ 68 NP 88 45	
8.040	0.0	2.00		Y=A1*EXP(-B1*ABS(T'))+*B1	B	14.10	2.00 B2	ADERHOLZ 68 NP 88 45	
13.100	0.0	.70		Y=A1*EXP(-B1*ABS(T'))+*B1	B	20.00	B2	GAIDOS 71 NP 826 225	
13.100	0.0	.30		Y=A1*EXP(-B1*ABS(T'))+*B1	B	32.30	15.20 B2	KRAMER 71	
18.500	0.0	.15		Y=A*EXP(-B*ABS(T'))	B	16.20	2.40 †	BISWAS 70 PR D2 2529	

Reaction $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$									
				$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \rho^+\pi^-/+ \end{array}$					
5.000	0.0	.40		Y=A*EXP(-B*ABS(T'))	B	4.30	1.10 †	POLS 70 NP 825 109	
8.040	0.0	.40		Y=A*EXP(-B*ABS(T'))	B	5.50	1.10 †	ADERHOLZ 68 NP 88 45	

Reaction $\pi^+p \rightarrow g^0\Delta(1238)^{++}$									
				$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$					
18.500	0.0	.15		Y=A*EXP(-B*ABS(T'))	B	14.10	3.00 †	BISWAS 70 PR D2 2529	

Reaction $\pi^+p \rightarrow \pi^+\Delta(1238)^+$									
				$\rightarrow n\pi^+$					
6.000	0.0	.50		Y=A*EXP(-B*ABS(T))	B	6.10	0.70 †	BELL 68 PRL 20 164	

Reaction $\pi^+p \rightarrow \pi^+N(1470)^+$									
				$\rightarrow p\pi^+\pi^-$					
5.000	0.0	1.00		Y=A1*EXP(-B1*ABS(T'))+*B1	B	11.00	1.00 B2	3.00 0.30 †	CIRBA 70 NP 823 533

Reaction $\pi^+p \rightarrow K^+\Sigma^+$									
3.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	500.00	40.00 B	6.40 0.40 †	PRUSS 69 PRL 23 189
3.000	0.0	.40		Y=A1*EXP(-B1*ABS(T))+A1	B1	14.68	0.92 B2	6.06 0.20 †	KALBACI 71 PRL 27 74
3.230	0.1	.50		Y=A*EXP(-B*ABS(T))	B	9.60			KOFLER 67 PR 163 1479
3.250	0.0	.40		Y=A*EXP(-B*ABS(T))	A	540.00	40.00 B	7.20 0.40 †	PRUSS 69 PRL 23 189
3.700	0.02	.40		Y=A*EXP(-B*ABS(T))	B	8.40	1.40 A	0.69 0.16 †	BUTLER 70 UCRL 19845
4.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	430.00	30.00 B	7.60 0.40 †	PRUSS 69 PRL 23 189
5.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	411.70	12.20 B	9.37 0.16 †	KALBACI 71 PRL 27 74
5.050	0.0	.40		Y=A*EXP(-B*ABS(T))	A	360.00	40.00 B	8.80 0.50 †	PRUSS 69 PRL 23 189
5.400	0.0	.40		Y=A*EXP(-B*ABS(T))	A	148.00	37.00 B	6.70 1.20	COOPER 68 PRL 20 472
6.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	564.00	26.00 B	9.70 0.50 †	BASHIAN 71 PR D4 2667
7.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	320.00	50.00 B	9.30 0.60 †	PRUSS 69 PRL 23 189
7.000	0.0	.60		Y=A*EXP(-B*ABS(T))	A	274.90	8.60 B	9.01 0.21 †	KALBACI 71 PRL 27 74
10.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	265.00	12.00 B	9.70 0.50 †	BASHIAN 71 PR D4 2667
14.000	0.0	.40		Y=A*EXP(-B*ABS(T))	A	223.00	11.00 B	10.50 0.50 †	BASHIAN 71 PR D4 2667

Reaction $\pi^+p \rightarrow K^+Y^*(1385)^+$									
				$\begin{array}{l} \rightarrow \Lambda\pi^+ \\ \rightarrow K^0\pi^+ + K^+\pi^0 \end{array}$					
3.700	0.12	1.50		Y=A*EXP(-B*ABS(T'))	B	3.00	0.60 †		BUTLER 70 UCRL 19845
4.000	0.2	1.00		Y=A*EXP(-B*ABS(T))	B	2.30	0.30 †		YING 69 PL 308 289
5.050	0.1	1.10		Y=A*EXP(-B*ABS(T))	B	2.60	0.40 †		YING 69 PL 308 289
6.000	0.0	.72		Y=A*EXP(-B*ABS(T))	A	97.00	12.00 B	5.00 0.50 †	BASHIAN 71 PR D4 2667
8.000	0.0	1.20		Y=A*EXP(-B*ABS(T))	B	1.90	0.90 †		ADERHOLZ 69 NP 811 259
10.000	0.0	.72		Y=A*EXP(-B*ABS(T))	A	70.00	10.00 B	6.20 0.60 †	BASHIAN 71 PR D4 2667
14.000	0.0	.72		Y=A*EXP(-B*ABS(T))	A	34.00	5.00 B	5.70 0.60 †	BASHIAN 71 PR D4 2667

Reaction $\pi^+p \rightarrow K^*(890)^+Y^*(1385)^+$									
				$\begin{array}{l} \rightarrow \Lambda\pi^+ \\ \rightarrow K^0\pi^+ + K^+\pi^0 \end{array}$					
8.000	0.0	1.20		Y=A*EXP(-B*ABS(T))	B	1.60	0.80 †		ADERHOLZ 69 NP 811 259

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

† Complete formula is Y=A₁*EXP(-B₁*ABS(T))+A₂*EXP(-B₂*ABS(T))* Complete formula is Y=A₁*EXP(-B₁*ABS(T'))+A₂*EXP(-B₂*ABS(T'))

Authors' Fits to Differential Cross Sections

P _{beam} (GeV/c)	t (GeV/c) ²	FORMULA	dσ/dt[t=0] mb/(GeV/c) ²	or	SLOPE (GeV/c) ⁻²	References
min max						
Reaction $\pi^+n \rightarrow \rho^0 p$ $\searrow$ $\pi^+ \pi^-$						
2.700	0.0 .30	Y=A*EXP(-B*ABS(T))	A 20.00	1.30 B	8.70 0.70 †	MILLER 69 PR 178 2061
5.100	0.0 .70	Y=A1*EXP(-B1*ABS(T'))+ B1	14.00	1.20 B2	2.70 1.00 †	ARMENISE 70 NC 65A 637
5.400	0.06 .50	Y=A*EXP(-B*ABS(T))	8.30	0.70 †		FARBER 71 NP 829 237

Reaction $\pi^+n \rightarrow \omega p$ $\searrow$ $\pi^+ \pi^- \pi^0$						
2.700	0.0 1.20	Y=A*EXP(-B*ABS(T))	B 7.80		†	MILLER 69 PR 178 2061
4.190	0.3 1.00	Y=A*EXP(-B*ABS(T'))	B 5.50	0.55 †		GORDON 70 ILL 1195
5.100	0.2 0.7	Y=A*EXP(-B*ABS(T'))	B 3.80	0.60 †		ARMENISE 70 NC 65A 637

Reaction $\pi^+n \rightarrow fp$ $\searrow$ $\pi^+ \pi^-$						
5.100	0.0 .70	Y=A1*EXP(-B1*ABS(T'))+ B1	11.70	1.40 B2	2.70 1.00 †	ARMENISE 70 NC 65A 637
5.400	0.06 .50	Y=A*EXP(-B*ABS(T))	B 9.70	0.90 †		FARBER 71 NP 829 237

Reaction $\pi^+n \rightarrow A_{22}^0 p$ $\searrow$ $\pi^+ \pi^- \pi^0$						
5.100	0.0 0.72	Y=A*EXP(-B*ABS(T'))	B 2.00	0.30 †		ARMENISE 70 NC 65A 637

Reaction $\pi^+n \rightarrow g^0 p$ $\searrow$ $\pi^+ \pi^-$						
5.100	0.0 .70	Y=A1*EXP(-B1*ABS(T'))+ B1	17.10	3.20 B2	3.70 0.50 †	ARMENISE 70 NC 65A 637
7.000	0.08 1.00	Y=A1*EXP(-B1*ABS(T'))+A B1	9.40	0.60 B2	1.20 0.70 †	MATTHEWS 71 NP 833 1

Reaction $\pi^+n \rightarrow \rho^+ \Delta(1238)^0$ $\searrow$ $\pi^+ \pi^-$						
5.100	0.04 .20	Y=A*EXP(-B*ABS(T))	B 12.30	1.00 †		GHIDINI 68 NC 58A 524
5.100	0.04 .20	Y=A*EXP(-B*ABS(T'))	B 14.60	1.20 †		GHIDINI 68 NC 58A 524

Reaction $\pi^+n \rightarrow K^+ \Lambda$						
5.100	0.0 .40	Y=A*EXP(-B*ABS(T'))	B 7.80	0.80 †		METTEL 70

Reaction $\pi^+n \rightarrow K^+ \Sigma^0$						
5.100	0.0 .40	Y=A*EXP(-B*ABS(T'))	B 6.60	1.20 †		METTEL 70

Reaction $\pi^+n \rightarrow K^+ \Lambda + K^+ \Sigma^0$						
5.100	0.08 .40	Y=A*EXP(-B*ABS(T))	B 8.30	0.70 †		METTEL 70

Reaction $\pi^+n \rightarrow K^{*0}(890)^+ \Lambda$ $\searrow$ $K^0 \pi^+$						
5.100	0.08 .40	Y=A*EXP(-B*ABS(T))	B 1.70	0.50 †		METTEL 70

Reaction $\pi^+d \rightarrow A_1^+ d$ $\searrow$ $\rho^0 \pi^+$						
8.000	NCT PRECISED	Y=A*EXP(-B*ABS(T))	B 39.50	2.50 †		CNOPS 69 PL 29B 45

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

C****KRAMER71*, BEING IDENTICAL TO KRAMER70*, HAS BEEN OMITTED*****

OUR FITS TO DIFFERENTIAL CROSS SECTIONS

P _{beam} (GeV/c)	t (GeV/c) ²	min	max	FORMULA	dσ/dt[t=0] mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ ² ND	References
Reaction	π ⁺ p → ρ ⁺ p → π ⁺ π ⁰								
1.550	0.	0.50		Y = A*EXP(B*T)	A 18.34 1.90	B 5.74 0.42	7	0.368	WILLIAMSON 72 PRL 29 1353
1.670	0.	0.50		Y = A*EXP(B*T)	A 15.51 1.75	B 5.61 0.46	6	0.822	WILLIAMSON 72 PRL 29 1353
1.770	0.	0.50		Y = A*EXP(B*T)	A 16.46 1.77	B 6.67 0.45	6	2.177	WILLIAMSON 72 PRL 29 1353
1.840	0.	0.50		Y = A*EXP(B*T)	A 14.77 1.97	B 7.04 0.67	4	0.461	WILLIAMSON 72 PRL 29 1353
2.077	0.	0.50		Y = A*EXP(B*T)	A 8.25 0.64	B 6.95 0.38	16	1.686	JAMES 66 PR 142 896
2.340	0.	0.50		Y = A*EXP(B*T)	A 10.98 0.99	B 9.28 0.53	7	8.366	GRAMENITSK 66 NAUK 31 1519
2.620	0.	0.50		Y = A*EXP(B*T)	A 6.58 0.56	B 6.55 0.41	6	0.719	ALFF-STEIN 66 PR 145 1072
2.670	0.	0.50		Y = A*EXP(B*T)	A 6.98 0.33	B 7.64 0.26	9	3.337	MICHAEL 72 PRL 28 1475
3.900	0.	0.50		Y = A*EXP(B*T)	A 4.49 0.51	B 5.74 0.73	5	3.998	BASTIEN 71 PR D3 2047
4.000	0.	0.50*		Y = A*EXP(B*T)	A 4.32 0.48	B 9.20 0.63	9	2.448	ADERHOLZ 65 PR 138 8897
6.000	0.	0.50		Y = A*EXP(B*T)	A 1.51 0.12	B 6.29 0.62	7	5.523	CRENNELL 71 PRL 27 1674
13.100	0.	0.50		Y = A*EXP(B*T)	A 0.29 0.01	B 8.02 0.47	11	16.370	KRAMER 71
15.000	0.	0.50		Y = A*EXP(B*T)	A 0.47 0.04	B 8.12 0.46	8	2.329	PRATT 72 SLAC PUB-1071

5.000	0.10	0.50	Y = A*EXP(B*T)	A 2.63 0.64	B 7.81 0.89	7	0.201	SCHOTANUS 70 NP B22 45
8.040	0.10	0.50	Y = A*EXP(B*T)	A 1.10 0.21	B 8.13 0.75	5	1.493	ADERHOLZ 68 NP B8 45
5.000	0.	0.50	Y = A*EXP(B*T)	A 3.29 0.30	B 8.20 0.53	12	4.210	SCHOTANUS 70 NP B22 45
8.040	0.	0.50	Y = A*EXP(B*T)	A 0.94 0.08	B 7.49 0.47	7	1.360	ADERHOLZ 68 NP B8 45

Reaction π⁺p → A₁⁺p
→ π⁺π⁺π⁻

8.040	0.	0.60	Y = A*EXP(B*T)	A 2.57 0.16	B 9.65 0.40	8	1.621	ADERHOLZ 68 NP B8 45
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Reaction π⁺p → B⁺p
→ ωπ⁺
→ π⁺π⁻π⁰

5.000	0.	0.30	Y = A*EXP(B*T)	A 0.11 0.01	B 1.50 0.46	3	2.436	POLS 70 NP B25 109
8.040	0.	0.30	Y = A*EXP(B*T)	A 0.17 0.04	B 7.44 1.46	4	0.332	ADERHOLZ 68 NP B8 45
5.000	0.	1.00	Y = A*EXP(B*T)	A 0.13 0.01	B 3.05 0.18	6	4.049	POLS 70 NP B25 109
8.040	0.	1.00	Y = A*EXP(B*T)	A 0.11 0.02	B 3.67 0.38	8	1.720	ADERHOLZ 68 NP B8 45

Reaction π⁺p → A₂⁺p
→ ρ⁰π⁺
→ π⁺π⁻

4.010	0.	1.00	Y = A*EXP(B*T)	A 0.46 0.07	B 3.25 0.30	10	0.414	ADERHOLZ 65 PR 138 8897
5.000	0.	1.00	Y = A*EXP(B*T)	A 0.88 0.01	B 5.06 0.08	15	33.752	POLS 70 NP B25 109
5.100	0.	1.00	Y = A*EXP(B*T)	A 1.10 0.08	B 3.82 0.29	14	0.755	ARMENISE 70 NC 65A 637
5.450	0.	1.00	Y = A*EXP(B*T)	A 0.04 0.00	B 3.75 0.21	10	2.069	BLOODWORTH 72 NP B37 203
8.040	0.	1.00	Y = A*EXP(B*T)	A 1.33 0.07	B 5.72 0.17	13	2.637	ADERHOLZ 68 NP B8 45

Our Fits to Differential Cross Sections

P _{beam} (GeV/c)	t min	max	FORMULA	dσ/dt[t=0] mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ ² ND	References

Reaction	$\pi^+p \rightarrow A_3^+p$ $\searrow \pi^+\pi^+\pi^-$							
5.100	0.00	0.80	Y = A*EXP(B*T)	A 1.04 0.07	B 3.53 0.22	10	3.386	ARMENISE 69 NCL 2 501
5.100	0.00	0.80	Y = A*EXP(B*T)	A 0.36 0.04	B 3.45 0.33	10	2.043	ARMENISE 69 NCL 2 501
8.040	0.00	0.80	Y = A*EXP(B*T)	A 0.32 0.03	B 4.87 0.32	10	1.505	ADERHOLZ 68 NP 88 45

Reaction	$\pi^+p \rightarrow g^+p$ $\searrow \pi^+\pi^0$							
8.040	0.00	0.40	Y = A*EXP(B*T)	A 0.27 0.03	B 7.31 0.72	6	1.152	ADERHOLZ 68 NP 88 45
13.100	0.00	0.40	Y = A*EXP(B*T)	A 0.10 0.02	B 6.33 0.88	13	0.887	KRAMER 70 PRL 25 396

Reaction	$\pi^+p \rightarrow S^+p$ $\searrow \pi^+\pi^0$							
8.040	0.00	0.40	Y = A*EXP(B*T)	A 0.14 0.02	B 6.60 0.86	6	1.099	ADERHOLZ 68 NP 88 45
13.100	0.00	0.40	Y = A*EXP(B*T)	A 0.10 0.02	B 7.06 0.94	13	2.057	KRAMER 70 PRL 25 396

Reaction	$\pi^+p \rightarrow T^+p$ $\searrow \pi^+\pi^0$							
13.100	0.00	0.40	Y = A*EXP(B*T)	A 0.07 0.01	B 4.81 0.97	13	1.431	KRAMER 70 PRL 25 396

Reaction	$\pi^+p \rightarrow \pi^0\Delta(1238)^{++}$ $\searrow p\pi^+$							
2.670	0.10	0.60	Y = A*EXP(B*T)	A 3.83 1.01	B 8.92 1.13	4	0.303	GIDAL 69 PRL 23 994
3.515	0.10	0.60	Y = A*EXP(B*T)	A 2.31 0.54	B 7.76 0.92	4	0.408	GIDAL 69 PRL 23 994
3.540	0.10	0.60	Y = A*EXP(B*T)	A 1.93 0.85	B 9.62 1.65	10	0.571	ABOLINS 64 PR 136 8195
4.000	0.10	0.60	Y = A*EXP(B*T)	A 3.39 0.92	B 8.53 0.98	7	1.682	ADERHOLZ 65 PR 138 8897
13.100	0.10	0.60	Y = A*EXP(B*T)	A 0.72 0.13	B 9.87 0.57	6	1.965	KRAMER 71
2.670	0.05	0.60	Y = A*EXP(B*T)	A 3.09 0.58	B 8.07 0.93	5	0.799	GIDAL 69 PRL 23 994
3.515	0.05	0.60	Y = A*EXP(B*T)	A 2.03 0.28	B 7.29 0.68	5	0.468	GIDAL 69 PRL 23 994
3.540	0.05	0.60	Y = A*EXP(B*T)	A 2.14 0.51	B 10.02 1.19	11	0.521	ABOLINS 64 PR 136 8195
3.900	0.05	0.60	Y = A*EXP(B*T)	A 2.53 0.64	B 7.73 1.21	3	2.638	BASTIEN 71 PR D3 2047
4.000	0.05	0.60	Y = A*EXP(B*T)	A 2.69 0.48	B 7.78 0.77	9	2.380	ADERHOLZ 65 PR 138 8897
13.100	0.05	0.60	Y = A*EXP(B*T)	A 0.42 0.04	B 8.25 0.42	8	4.287	KRAMER 71

5.000	0.10	0.60	$Y = A \cdot \text{EXP}(B \cdot T)$	A 2.85 0.49	B 10.35 0.70	7	1.235	SCHOTANUS	70 NP 822 45
8.040	0.10	0.60	$Y = A \cdot \text{EXP}(B \cdot T)$	A 0.95 0.17	B 7.75 0.62	7	0.690	ADERHOLZ	68 NP 88 45
5.000	0.0	0.60	$Y = A \cdot \text{EXP}(B \cdot T)$	A 1.57 0.14	B 7.88 0.46	12	5.672	SCHOTANUS	70 NP 822 45
8.040	0.0	0.60	$Y = A \cdot \text{EXP}(B \cdot T)$	A 0.75 0.07	B 6.94 0.43	9	1.605	ADERHOLZ	68 NP 88 45

Our Fits to Differential Cross Sections

P_{beam} (GeV/c)	$ t $ (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ^2 ND	References
min	max						

Reaction $\pi^+p \rightarrow \eta \Delta(1238)^{++}$

$$\begin{array}{c} \swarrow \\ \pi^+ p \rightarrow \eta \Delta(1238)^{++} \\ \searrow \end{array}$$

1.950	0.40	1.50	$Y = A \cdot \exp(B \cdot T)$	A	0.87	0.56	8	2.92	0.62	5	0.955	CHAPMAN	71	PR D 3	38
2.077	0.40	1.50	$Y = A \cdot \exp(B \cdot T)$	A	1.22	0.93	8	4.31	0.86	10	0.841	JAMES	66	PR 142	896
3.000	0.40	1.50	$Y = A \cdot \exp(B \cdot T)$	A	0.72	0.17	8	3.61	0.34	12	1.030	GREYER	71	PRL 26	792
3.000	0.40	1.50	$Y = A \cdot \exp(B \cdot T)$	A	0.88	0.21	8	3.66	0.34	13	2.088	GREYER	71	PRL 26	792
3.500	0.40	1.50	$Y = A \cdot \exp(B \cdot T)$	A	0.22	0.11	8	3.11	0.61	5	1.713	BROWN	68	UCRL 18254	
3.500	0.20	1.00	$Y = A \cdot \exp(B \cdot T)$	A	0.23	0.09	8	3.47	0.76	5	2.721	BROWN	68	UCRL 18254	
5.000	0.20	1.00	$Y = A \cdot \exp(B \cdot T)$	A	0.49	0.36	8	3.87	1.17	3	0.200	POLS	70	NP 825	109
5.000	0.20	1.00	$Y = A \cdot \exp(B \cdot T)$	A	0.47	0.28	8	3.73	1.08	3	0.266	SCHOTANUS	70	NP 822	45
8.040	0.20	1.00	$Y = A \cdot \exp(B \cdot T)$	A	0.45	0.41	8	5.29	1.76	4	0.031	ADERHOLZ	68	NP 88	45

Reaction $\pi^+p \rightarrow \rho^0 \Delta(1238)^{++}$

$$\begin{array}{c} \swarrow \\ \pi^+ p \rightarrow \rho^0 \Delta(1238)^{++} \\ \searrow \end{array}$$

2.077	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	32.91	7.11	8	7.15	0.58	5	4.824	JAMES	66	PR 142	896
2.340	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	20.23	2.18	8	7.01	0.34	4	7.216	ANGELOV	69	JINR P1-4657	
2.620	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	12.51	3.80	8	7.56	0.79	4	2.573	ALFF-STEIN	66	PR 145	1072
2.750	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	11.86	2.31	8	7.18	0.53	10	1.053	ARMENISE	66	NC 41A	159
2.770	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	9.46	2.91	8	7.00	0.82	5	1.110	YAMAMOTO	65	PR 140	8730
3.515	0.20	0.60	$Y = A \cdot \exp(B \cdot T)$	A	4.17	0.52	8	5.15	0.33	13	3.413	BROWN	68	UCRL 18254	
3.650	0.20	0.40	$Y = A \cdot \exp(B \cdot T)$	A	4.41	1.19	8	4.92	0.67	20	1.288	SHEN	65	UCRL 16170	
4.000	0.00	0.40	$Y = A \cdot \exp(B \cdot T)$	A	16.74	2.01	8	9.88	0.61	9	0.688	ADERHOLZ	65	PR 138	8897
5.450	0.00	0.40	$Y = A \cdot \exp(B \cdot T)$	A	9.25	0.46	8	10.33	0.33	15	18.711	BLOODWORTH	71	NP 835	79

2.340	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	8.94	0.17	8	7.81	0.35	15	3.819	ANGELOV	69	JINR P1-4657	
3.500	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	9.70	1.02	8	10.07	0.80	13	1.186	RONAT	72	NP 838	20
3.500	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	7.99	0.23	8	11.22	0.35	62	1.359	BROWN	68	UCRL 18254	
3.700	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	11.55	0.37	8	10.84	0.31	13	3.570	ABRAMS	70	PRL 25	617
5.000	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	7.15	0.05	8	12.47	0.09	6	148.257	POLS	70	NP 825	109
5.000	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	13.04	1.18	8	13.88	0.65	7	7.197	POLS	70	NP 825	109
5.100	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	4.24	0.17	8	11.02	0.42	25	2.217	ARMENISE	70	NC 65A	637
5.450	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	8.23	0.33	8	13.20	0.40	12	2.806	BLOODWORTH	71	NP 835	79
5.720	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	9.44	1.09	8	12.30	1.00	14	1.208	SHENG	70		
5.720	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	7.66	0.63	8	11.78	0.76	14	1.560	SHENG	70		
8.040	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	4.65	0.24	8	14.40	0.54	6	4.748	ADERHOLZ	68	NP 88	45
11.700	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	3.70	0.24	8	14.99	0.68	16	2.653	MADDOCK	71	NC 5A	433
13.100	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	3.19	0.16	8	16.57	0.49	7	17.248	GAIDOS	70	PR D1	3190
18.500	0.00	0.30	$Y = A \cdot \exp(B \cdot T)$	A	1.13	0.13	8	21.50	2.84	7	1.528	BISWAS	70	PR D2	2529

Our Fits to Differential Cross Sections

P_{beam} (GeV/c)	$ t $ (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ^2 ND	References
min	max						

Reaction $\pi^+p \rightarrow \omega \Delta(1238)^{++}$

2.077	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.53	0.27	B	1.47	0.14	17	2.207	JAMES	66	PR 142	896
2.300	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.31	0.17	B	1.90	0.09	20	1.211	KO	71		
2.340	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	3.40	0.20	B	2.13	0.09	13	4.347	ANGELOV	69	JINR P1-4657	
2.620	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.63	0.27	B	2.12	0.15	17	1.324	ALFF-STEIN	66	PR 145	1072
2.670	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	4.29	0.28	B	3.16	0.10	20	1.862	KO	71		
2.750	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.28	0.24	B	1.74	0.21	8	2.103	ARMENISE	65	NC 40A	273
2.770	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	3.09	0.30	B	2.16	0.13	18	1.355	YAMAMOTO	65	PR 140	8730
2.950	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.43	0.56	B	2.70	0.30	7	1.193	BROWN	68	UCRL 18254	
3.190	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.25	0.24	B	2.10	0.25	6	1.924	BROWN	68	UCRL 18254	
3.500	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.59	0.10	B	2.52	0.10	14	2.790	BROWN	68	UCRL 18254	
3.530	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.58	0.31	B	2.39	0.25	5	2.914	BROWN	68	UCRL 18254	
3.650	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.47	0.34	B	3.14	0.22	13	1.774	SHEN	65	UCRL 16170	
3.740	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	2.06	0.53	B	3.14	0.33	5	0.254	BROWN	68	UCRL 18254	
3.920	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.86	0.28	B	3.17	0.23	12	2.320	WINKELMANN	68		
4.000	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.88	0.34	B	2.99	0.30	10	0.768	ADERHOLZ	65	PR 138	8897
4.080	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.16	0.15	B	2.69	0.23	5	0.436	BROWN	68	UCRL 18254	
5.450	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.58	0.19	B	3.73	0.22	13	1.292	BLOODWORTH	71	NP 835	79
11.700	0.20	1.50	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.35	0.07	B	4.26	0.39	9	1.361	EVANS	72	DESY 72/37

2.300	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	3.54	0.11	B	2.55	0.07	49	14.160	ANGELOV	69	JINR P1-4657	
3.500	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.25	0.16	B	2.38	0.27	10	0.963	RONAT	72	NP 838	20
3.500	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.09	0.05	B	2.26	0.11	16	1.109	BROWN	68	UCRL 18254	
3.700	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	1.87	0.09	B	2.65	0.17	23	1.897	ABRAMS	70	PRL 25	617
5.000	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.64	0.01	B	2.85	0.06	12	28.374	POLS	70	NP 825	109
5.000	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.67	0.09	B	3.26	0.38	10	1.843	POLS	70	NP 825	109
5.450	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.91	0.07	B	2.95	0.19	17	2.690	BLOODWORTH	71	NP 835	79
5.720	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.43	0.12	B	2.61	0.46	10	1.635	DAC	70		
8.040	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.34	0.04	B	3.78	0.28	14	2.568	ADERHOLZ	68	NP 88	45
18.500	0.	1.00	$Y = A \cdot \text{EXP}(B \cdot T)$	A	0.46	0.11	B	2.45	0.82	5	2.215	BISWAS	70	PR D2	2529

Our Fits to Differential Cross Sections

Reaction	P _{beam} (GeV/c)		t (GeV/c) ²	min	max	FORMULA	dσ/dt[t=0] mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ ² ND	References			
<div>π⁺p→fΔ(1238)⁺⁺<div><div>↘pπ⁺</div><div>↘π⁺π⁻</div></div></div>														
3.650	0.20	1.10	Y = A*EXP(B*T)	A		0.68	0.19	8	1.81	0.42	9	2.524 SHEN	65	UCRL 16170
3.740	0.20	1.10	Y = A*EXP(B*T)	A		0.46	0.09	8	1.95	0.34	6	4.647 BROWN	68	UCRL 18254
3.740	0.	0.50	Y = A*EXP(B*T)	A		0.54	0.07	8	4.36	0.63	4	0.125 BROWN	68	UCRL 18254
5.000	0.	0.50	Y = A*EXP(B*T)	A		1.39	0.02	8	7.23	0.10	9	56.338 POLS	70	NP 825 109
5.100	0.	0.50	Y = A*EXP(B*T)	A		1.09	0.10	8	6.74	0.57	9	0.852 ARMENISE	70	NC 65A 637
5.720	0.	0.50	Y = A*EXP(B*T)	A		1.50	0.22	8	6.37	1.02	11	0.761 SHENG	70	
8.040	0.	0.50	Y = A*EXP(B*T)	A		1.83	0.12	8	9.04	0.43	7	2.286 ADERHOLZ	68	NP 88 45
13.100	0.	0.50	Y = A*EXP(B*T)	A		1.03	0.06	8	9.83	0.33	10	6.528 GAIDOS	71	NP 826 225
13.100	0.	0.50	Y = A*EXP(B*T)	A		1.07	0.08	8	8.73	0.60	11	2.509 KRAMER	71	
18.500	0.	0.50	Y = A*EXP(B*T)	A		0.55	0.09	8	16.72	3.37	7	1.859 BISWAS	70	PR D2 2529

Reaction $\pi^+p \rightarrow A_2^0\Delta(1238)^{++}$													
													$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow p\pi^-\pi^+ \end{array}$
5.000	0.00	0.80	Y = A*EXP(B*T)	A	0.29	0.01	8	2.54	0.09	11	21.006 POLS	70	NP B25 109
8.040	0.00	0.80	Y = A*EXP(B*T)	A	0.11	0.01	8	1.21	0.19	14	4.526 ADERHOLZ	68	NP 88 45

Reaction $\pi^+p \rightarrow g^0\Delta(1238)^{++}$													
													$\begin{array}{l} \rightarrow p\pi^+ \\ \rightarrow \pi^+\pi^- \end{array}$
18.500	0.00	0.30	Y = A*EXP(B*T)	A	0.32	0.09	8	15.03	4.79	5	0.252 BISWAS	70	PR D2 2529

Reaction $\pi^+p \rightarrow \pi^+N(1470)^+$													
													$\rightarrow n\pi^+$
6.000	0.00	0.60	Y = A*EXP(B*T)	A	0.62	0.08	8	6.08	0.64	5	1.170 BELL	68	PPL 20 164

Reaction $\pi^+p \rightarrow N(1700)^+\pi^+$													
													$\rightarrow p\pi^+\pi^-$
5.000	0.00	0.40	Y = A*EXP(B*T)	A	0.15	0.01	8	6.47	0.28	8	1.461 CIRBA	70	NP B23 533

Our Fits to Differential Cross Sections

Reaction	P_{beam} (GeV/c)		t (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²	SLOPE (GeV/c) ⁻²	Nbr Pts	χ^2 ND	References
	min	max							
$\pi^+p \rightarrow K^+\Sigma^+$									
1.280	0.00	0.30	Y = A*EXP(B*T)	A	0.69	0.42	8 9.62	2.45	5 0.792 KALMUS 70 PR D2 1824
1.340	0.00	0.30	Y = A*EXP(B*T)	A	0.98	0.40	8 10.24	1.95	4 1.597 KALMUS 70 PR D2 1824
1.410	0.00	0.30	Y = A*EXP(B*T)	A	0.74	0.29	8 8.46	1.81	4 5.469 KALMUS 70 PR D2 1824
1.430	0.00	0.30	Y = A*EXP(B*T)	A	2.76	0.96	8 15.02	1.89	4 1.515 KALMUS 70 PR D2 1824
1.550	0.00	0.30	Y = A*EXP(B*T)	A	2.40	1.01	8 14.25	2.39	3 0.316 KALMUS 70 PR D2 1824
1.630	0.00	0.30	Y = A*EXP(B*T)	A	0.60	0.20	8 7.77	1.69	3 4.748 KALMUS 70 PR D2 1824
1.680	0.00	0.30	Y = A*EXP(B*T)	A	1.72	0.56	8 15.19	1.97	3 0.801 KALMUS 70 PR D2 1824
1.700	0.00	0.30	Y = A*EXP(B*T)	A	2.18	0.40	8 9.90	1.00	3 0.425 PAN 70 PR D 2 449
1.770	0.00	0.30	Y = A*EXP(B*T)	A	0.71	0.23	8 8.18	1.84	3 0.411 KALMUS 70 PR D2 1824
1.840	0.00	0.30	Y = A*EXP(B*T)	A	1.02	0.35	8 10.93	1.85	3 1.256 KALMUS 70 PR D2 1824
2.350	0.00	0.50	Y = A*EXP(B*T)	A	1.64	0.56	8 11.71	1.78	3 0.312 BERLEY 65 PR 139B1097
3.000	0.00	0.50	Y = A*EXP(B*T)	A	1.12	0.15	8 16.13	3.32	5 0.202 KALBACI 71 PRL 27 74
3.000	0.00	0.50	Y = A*EXP(B*T)	A	0.50	0.01	8 6.04	0.10	9 11.118 PRUSS 69 PRL 23 189
3.230	0.00	0.50	Y = A*EXP(B*T)	A	1.26	0.16	8 8.95	0.74	6 1.692 KOFLER 67 PR 163 1479
3.250	0.00	0.50	Y = A*EXP(B*T)	A	0.54	0.02	8 6.87	0.12	9 7.397 PRUSS 69 PRL 23 189
3.500	0.00	0.50	Y = A*EXP(B*T)	A	0.66	0.08	8 9.64	1.66	9 1.058 BASHIAN 71 PR D4 2667
3.700	0.00	0.50	Y = A*EXP(B*T)	A	0.66	0.14	8 7.76	1.19	7 0.575 RUTLER 70 UCRL 19845
3.750	0.00	0.50	Y = A*EXP(B*T)	A	0.74	0.07	8 10.20	1.21	10 1.073 BASHIAN 71 PR D4 2667
4.000	0.00	0.50	Y = A*EXP(B*T)	A	0.43	0.04	8 7.04	1.06	10 0.504 BASHIAN 71 PR D4 2667
4.000	0.00	0.50	Y = A*EXP(B*T)	A	0.42	0.01	8 7.15	0.12	9 5.657 PRUSS 69 PRL 23 189
4.250	0.00	0.50	Y = A*EXP(B*T)	A	0.53	0.04	8 9.35	0.97	12 0.637 BASHIAN 71 PR D4 2667
4.500	0.00	0.50	Y = A*EXP(B*T)	A	0.41	0.03	8 5.71	0.72	15 1.297 BASHIAN 71 PR D4 2667
4.750	0.00	0.50	Y = A*EXP(B*T)	A	0.45	0.03	8 7.11	0.73	16 0.710 BASHIAN 71 PR D4 2667
5.000	0.00	0.50	Y = A*EXP(B*T)	A	0.37	0.04	8 7.26	1.06	15 0.779 BASHIAN 71 PR D4 2667
5.000	0.00	0.50	Y = A*EXP(B*T)	A	0.50	0.03	8 9.04	0.82	6 1.151 KALBACI 71 PRL 27 74
5.050	0.00	1.30	Y = A*EXP(B*T)	A	0.38	0.01	8 8.25	0.14	7 10.746 PRUSS 69 PRL 23 189
5.400	0.00	0.50	Y = A*EXP(B*T)	A	0.16	0.04	8 5.67	1.05	6 0.469 COOPER 68 PRL 20 472
6.000	0.00	0.50	Y = A*EXP(B*T)	A	0.55	0.02	8 9.52	0.19	9 1.841 BASHIAN 71 PR D4 2667
7.000	0.00	0.50	Y = A*EXP(B*T)	A	0.31	0.02	8 9.76	0.87	4 0.441 KALBACI 71 PRL 27 74
7.000	0.00	0.50	Y = A*EXP(B*T)	A	0.41	0.01	8 9.83	0.19	6 7.786 PRUSS 69 PRL 23 189
10.000	0.00	0.50	Y = A*EXP(B*T)	A	0.25	0.01	8 9.44	0.22	9 1.007 BASHIAN 71 PR D4 2667
14.000	0.00	0.50	Y = A*EXP(B*T)	A	0.21	0.01	8 10.11	0.21	9 1.178 BASHIAN 71 PR D4 2667

Reaction $\pi^+p \rightarrow K^+\Upsilon^*(1385)^+$

1.840	0.20	1.00	Y = A*EXP(B*T)	A	0.13	0.04	8 1.04	0.51	6 0.698 HANSON 71 PR D4 1296
1.888	0.20	1.00	Y = A*EXP(B*T)	A	0.15	0.04	8 1.15	0.38	4 2.145 DAVIES 70 PR D 2 506
2.184	0.20	1.00	Y = A*EXP(B*T)	A	0.07	0.02	8 1.03	0.50	3 1.786 MOORE 70 PR D 2 506
2.238	0.20	1.00	Y = A*EXP(B*T)	A	0.06	0.02	8 1.20	0.49	3 5.375 DAVIES 70 PR D 2 506
4.000	0.20	1.00	Y = A*EXP(B*T)	A	0.06	0.01	8 2.27	0.43	6 0.049 YING 69 PL 308 289
5.050	0.20	1.00	Y = A*EXP(B*T)	A	0.04	0.01	8 2.73	0.30	7 0.895 YING 69 PL 308 289
6.000	0.20	1.00	Y = A*EXP(B*T)	A	0.11	0.01	8 4.92	0.34	10 0.886 BASHIAN 71 PR D4 2667
10.000	0.20	1.00	Y = A*EXP(B*T)	A	0.05	0.01	8 5.55	0.22	11 1.820 BASHIAN 71 PR D4 2667
14.000	0.20	1.00	Y = A*EXP(B*T)	A	0.03	0.00	8 5.57	0.31	11 1.849 BASHIAN 71 PR D4 2667
8.000	0.00	1.30	Y = A*EXP(B*T)	A	0.02	0.00	8 1.92	0.53	4 0.910 ADERHOLZ 69 NP 811 259
10.000	0.00	1.30	Y = A*EXP(B*T)	A	0.04	0.00	8 4.97	0.15	16 2.492 BASHIAN 71 PR D4 2667
14.000	0.00	1.30	Y = A*EXP(B*T)	A	0.03	0.00	8 5.40	0.21	16 1.902 BASHIAN 71 PR D4 2667
3.700	0.20	1.10	Y = A*EXP(B*T)	A	0.09	0.05	8 2.96	0.64	3 0.000 BUTLER 70 UCRL 19845

Reaction $\pi^+p \rightarrow K^*(890)^+\Sigma^+$

2.350	0.00	1.20	Y = A*EXP(B*T)	A	0.19	0.11	8 2.49	0.75	5 0.616 BERLEY 65 PR 139B1097
2.770	0.00	1.20	Y = A*EXP(B*T)	A	0.12	0.04	8 1.68	0.48	4 0.712 YAMAMOTO 64 PR 134 8383
5.400	0.00	1.20	Y = A*EXP(B*T)	A	0.18	0.03	8 2.27	0.27	7 1.964 COOPER 68 PRL 20 472
2.350	0.00	1.50	Y = A*EXP(B*T)	A	0.13	0.05	8 1.63	0.49	7 1.032 BERLEY 65 PR 139B1097
2.770	0.00	1.50	Y = A*EXP(B*T)	A	0.13	0.04	8 1.94	0.42	5 0.863 YAMAMOTO 64 PR 134 8383
5.400	0.00	1.50	Y = A*EXP(B*T)	A	0.19	0.03	8 2.40	0.26	9 1.788 COOPER 68 PRL 20 472

Reaction $\pi^+p \rightarrow K^*(890)^+\Upsilon^*(1385)^+$

5.500	0.20	1.00	Y = A*EXP(B*T)	A	0.04	0.01	8 2.11	0.43	3 1.148 COOPER 70 NP 823 605
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Our Fits to Differential Cross Sections

P_{beam} (GeV/c)			t (GeV/c) ²	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²		SLOPE (GeV/c) ⁻²		Nbr Pts	χ^2 ND	References		
min		max											
Reaction $\pi^+n \rightarrow \pi^0 p$													
0.720	0.	0.50	Y = A*EXP(B*T)	A	38.62	4.12	8	4.80	0.45	11	2.015 MULLER	64	PL 10 349
0.786	0.	0.50	Y = A*EXP(B*T)	A	28.89	4.12	8	4.28	0.59	9	2.135 MULLER	64	PL 10 349
0.854	0.	0.50	Y = A*EXP(B*T)	A	13.51	2.99	8	4.40	0.75	9	1.388 MULLER	64	PL 10 349
0.923	0.	0.50	Y = A*EXP(B*T)	A	15.77	1.94	8	4.43	0.44	8	3.902 MULLER	64	PL 10 349
0.994	0.	0.50	Y = A*EXP(B*T)	A	12.77	4.36	8	3.26	0.93	7	2.019 MULLER	64	PL 10 349
1.230	0.	0.50	Y = A*EXP(B*T)	A	3.08	0.39	8	3.63	0.51	13	2.059 KRAEMER	64	PR 136 B496
6.000	0.	0.50	Y = A*EXP(B*T)	A	0.54	0.14	8	2.81	1.32	4	1.088 BRUYANT	64	PL 12 278

Reaction	$\pi^+n \rightarrow \eta p$																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Reaction	$\pi^+n \rightarrow \eta p$		$\hookrightarrow$ All																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Reaction	$\pi^+n \rightarrow \rho^0 p$													
2.700	0.00	0.40	Y = A*EXP(B*T)	A	18.24	0.77	B 8.44	0.29	46	0.987 MILLER	69	PR 178 2061		
5.400	0.00	0.40	Y = A*EXP(B*T)	A	4.77	0.59	B 9.16	0.75	7	1.523 FARBER	71	NP B29 237		
5.100	0.05	0.40	Y = A*EXP(B*T)	A	3.82	0.17	B 9.81	0.30	23	2.465 ARMENISE	70	NC 65A 637		

Our Fits to Differential Cross Sections

P_{beam} (GeV/c)			t (GeV/c) ² min max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c) ²		SLOPE (GeV/c) ⁻²		Nbr Pts	χ^2 ND	References		
<hr/>													
Reaction	$\pi^+ n \rightarrow \omega p$ $\rightarrow \pi^+ \pi^- \pi^0$												
1.861	0.15	1.00	Y = A*EXP(B*T)	A	2.32	0.27	B	1.48	0.20	9	1.291 DANBURG	70	PR D2 2564
2.091	0.15	1.00	Y = A*EXP(B*T)	A	5.30	0.78	B	3.22	0.30	7	3.268 DANBURG	70	PR D2 2564
2.321	0.15	1.00	Y = A*EXP(B*T)	A	3.84	0.90	B	3.41	0.45	6	1.514 DANBURG	70	PR D2 2564
2.700	0.15	1.00	Y = A*EXP(B*T)	A	1.71	0.25	B	2.26	0.25	12	0.633 MILLER	69	PR 178 2061
4.190	0.15	1.00	Y = A*EXP(B*T)	A	1.29	0.20	B	3.41	0.34	9	1.981 GORDON	70	ILL 1195
5.400	0.15	1.00	Y = A*EXP(B*T)	A	0.74	0.17	B	3.98	0.52	6	1.462 FARBER	71	NP 829 237

3.650	0.15	1.00	Y = A*EXP(B*T)	A	1.16	0.14	B	2.99	0.26	9	1.148 BENSON 69 PRL 22 1074
5.100	0.15	1.00	Y = A*EXP(B*T)	A	1.33	0.20	B	3.45	0.39	12	1.129 ARMENISE 70 NC 65A 637

Reaction $\pi^+ n \rightarrow \omega p$
 $\rightarrow \text{All}$

1.232	0.15	1.00	Y = A*EXP(B*T)	A	6.30	1.27	B	2.40	0.37	21	1.736 KRAEMER 64 PR 136 8496
6.950	0.15	1.00	Y = A*EXP(B*T)	A	0.54	0.07	B	4.45	0.29	9	0.763 MATTHEWS 71 PRL 26 400
6.950	0.15	1.00	Y = A*EXP(B*T)	A	0.44	0.11	B	3.47	0.80	5	0.257 MATTHEWS 71 PRL 26 400
6.950	0.15	1.00	Y = A*EXP(B*T)	A	0.50	0.07	B	4.27	0.31	9	1.016 MATTHEWS 71 PRL 26 400
6.950	0.15	1.00	Y = A*EXP(B*T)	A	0.27	0.11	B	1.98	1.11	4	0.082 MATTHEWS 71 PRL 26 400

Reaction $\pi^+ n \rightarrow \pi^+ \pi^-$
 $\rightarrow \pi^+ \pi^-$

5.100	0.	0.40	Y = A*EXP(B*T)	A	3.42	0.09	B	9.17	0.23	30	2.217 ARMENISE 70 NC 65A 637
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Reaction $\pi^+ n \rightarrow A_2^0 p$
 $\rightarrow \pi^+ \pi^- \pi^0$

5.100	0.	1.00	Y = A*EXP(B*T)	A	0.77	0.06	B	2.05	0.27	14	1.419 ARMENISE 70 NC 65A 637
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Reaction $\pi^+ n \rightarrow \pi^0 p$
 $\rightarrow \pi^+ \pi^-$

7.000	0.	0.30	Y = A*EXP(B*T)	A	0.38	0.03	B	7.73	0.49	11	0.751 MATTHEWS 71 NP 833 1
5.100	0.	0.30	Y = A*EXP(B*T)	A	1.04	0.05	B	9.04	0.48	25	1.651 ARMENISE 70 NC 65A 637

Reaction $\pi^+ n \rightarrow \phi(1675) p$
 $\rightarrow \pi^+ \pi^- \pi^0$

6.950	0.	1.00	Y = A*EXP(B*T)	A	0.01	0.00	B	3.18	0.27	14	1.404 MATTHEWS 71 PR D3 2561
6.950	0.	1.00	Y = A*EXP(B*T)	A	0.00	0.00	B	0.71	0.56	13	5.484 MATTHEWS 71 PR D3 2561

Figure 1: Schematic representation of the experimental design. The diagram shows a flow from 'Stimulus' to 'Response' and 'Reaction time'. The 'Stimulus' is a 2x2 grid of colored squares (red, green, blue, yellow). The 'Response' is a 2x2 grid of colored squares (red, green, blue, yellow). The 'Reaction time' is a 2x2 grid of colored squares (red, green, blue, yellow). The 'Stimulus' and 'Response' are connected by a double-headed arrow. The 'Reaction time' is connected to the 'Response' by a double-headed arrow. The 'Stimulus' and 'Reaction time' are connected by a double-headed arrow.

P _{beam} t			FORMULA	dσ/dt[t=0]		SLOPE		Nbr	χ ² References		
(GeV/c)(GeV/c) ²				mb/(GeV/c) ²		(GeV/c) ⁻²		Pts	ND		
min max											

Reaction			π ⁺ n→ρ ⁰ Δ(1238) ⁺								
5.100	0.08	0.30	Y = A*EXP(B*T)	A	5.72	0.14	B 12.01	0.16	10	170.666	GHIDINI 68 NC 58A 524

Reaction			π ⁺ n→K ⁺ Λ								
2.042	0.	0.50	Y = A*EXP(B*T)	A	0.40	0.06	B 3.88	0.58	4	3.203	MOORE 70
2.178	0.	0.50	Y = A*EXP(B*T)	A	0.60	0.11	B 6.43	0.85	3	0.702	MOORE 70
2.331	0.	0.50	Y = A*EXP(B*T)	A	0.85	0.13	B 7.71	0.77	2	6.266	MOORE 70
5.100	0.	0.40	Y = A*EXP(B*T)	A	0.24	0.05	B 7.11	1.25	4	0.219	METTEL 70

Reaction			π ⁺ n→K ⁺ Σ ⁰								
2.184	0.	0.70	Y = A*EXP(B*T)	A	0.15	0.02	B 4.95	0.53	5	1.230	MOORE 70
5.100	0.	0.70	Y = A*EXP(B*T)	A	0.13	0.03	B 6.26	1.05	4	0.189	METTEL 70

Reaction			π ⁺ n→K ⁺ (890) ⁺ Λ └→K ⁰ π ⁺								
2.184	0.10	1.10	Y = A*EXP(B*T)	A	0.06	0.01	B 1.36	0.31	5	1.421	MOORE 70
5.100	0.10	1.10	Y = A*EXP(B*T)	A	0.09	0.02	B 1.55	0.45	10	1.780	METTEL 70

Reaction			π ⁺ n→K ⁺ (890) ⁺ Σ ⁰ └→K ⁰ π ⁺								
2.184	0.	1.30	Y = A*EXP(B*T)	A	0.17	0.03	B 2.82	0.28	7	4.052	MOORE 70

Reaction			π ⁺ n→K ⁺ Y ⁺ (1385) ⁰ └→Λπ ⁰								
2.184	0.	1.30	Y = A*EXP(B*T)	A	0.06	0.01	B 0.73	0.18	6	4.168	MOORE 70

Reaction			π ⁺ n→K ⁺ Y ⁺ (1405)								
2.184	0.	1.10	Y = A*EXP(B*T)	A	0.09	0.02	B 3.99	0.43	5	3.381	MOORE 70

Reaction			π ⁺ n→K ⁺ Y ⁺ (1520)								
2.184	0.	1.10	Y = A*EXP(B*T)	A	0.01	0.01	B 0.65	0.56	6	2.669	MOORE 70
2.184	0.	1.10	Y = A*EXP(B*T)	A	0.04	0.01	B 2.02	0.45	6	0.422	MOORE 70

Reaction			π ⁺ n→K ⁺ (890) ⁰ Σ ⁺ └→K ⁺ π ⁻								
2.186	0.00	0.70	Y = A*EXP(B*T)	A	0.07	0.05	B 3.30	1.23	3	0.016	MOORE 70

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Section B3.

POLARIZATION

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$ $\searrow \rightarrow p\pi^0$

BEAM MOMENTUM= 1.11			
-T (GEV/C)**2		ALPHA P	
0.224	0.544	0.146	
0.244	0.705	0.086	
0.266	0.718	0.057	
0.288	0.680	0.047	
0.310	0.620	0.045	
0.333	0.606	0.044	
0.340	0.577	0.016	
0.355	0.542	0.044	
0.377	0.514	0.047	
0.399	0.535	0.049	
0.421	0.520	0.055	
0.443	0.478	0.064	
0.465	0.271	0.124	

BELLAMY 72.....PL 39B 299 SPRK+CNTR

BEAM MOMENTUM= 1.28			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.107	0.277	-0.530	0.380 **
0.277	0.446	0.060	0.720 **
0.446	0.616	0.350	0.320 **
0.616	0.785	0.560	0.300 **
0.785	0.954	0.550	0.320 **

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.34			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.096	0.291	0.190	0.240 *
0.291	0.485	0.510	0.320 *
0.485	0.679	0.530	0.210 *
0.679	0.873	0.650	0.170 *
0.873	1.067	0.310	0.250 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.41			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.087	0.309	0.300	0.250 **
0.309	0.531	-0.380	0.300 **
0.531	0.753	-0.190	0.300 **
0.753	0.975	0.440	0.210 **
0.975	1.197	0.660	0.230 **

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.43			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.084	0.314	-0.230	0.240 *
0.314	0.544	0.190	0.450 *
0.544	0.774	0.	0.250 *
0.774	1.004	0.160	0.200 *
1.004	1.234	0.750	0.210 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.55			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.072	0.210	0.	0.350 *
0.210	0.763	-0.730	0.290 *
0.763	1.039	0.310	0.310 *
1.039	1.454	1.000	0.240 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.63			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.066	0.373	-0.370	0.240 *
0.373	0.679	-0.970	0.230 *
0.679	0.986	-0.610	0.290 *
0.986	1.293	0.290	0.260 *
1.293	1.599	1.100	0.200 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.68			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.062	0.388	0.930	0.250 *
0.388	0.714	-0.690	0.310 *
0.714	1.039	-0.480	0.250 *
1.039	1.365	0.670	0.250 *
1.365	1.690	0.760	0.290 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.7			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.061	0.113	0.005	0.201
0.113	0.165	0.557	0.198
0.165	0.269	0.104	0.281
0.269	0.478	-1.193	0.159
0.478	0.686	-1.011	0.182
0.686	0.894	-0.933	0.228
0.894	1.102	-0.474	0.257
1.102	1.310	0.524	0.243
1.310	1.519	0.589	0.261
1.519	1.727	0.168	0.305

PAN 70.....PR D 2 449 HBC 16

BEAM MOMENTUM= 1.77			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.057	0.237	0.400	0.530 *
0.237	0.776	-0.630	0.360 *
0.776	1.315	0.630	0.290 *
1.315	1.854	0.500	0.250 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.84			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.054	0.247	-0.760	0.290 *
0.247	0.632	-1.100	0.320 *
0.632	1.403	-0.890	0.310 *
1.403	1.981	0.810	0.310 *

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 5.4			
-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.020	0.220	0.130	0.550 *
0.190	0.450	1.260	0.460 *
0.430	0.950	1.300	0.550 *

COOPER 68.....PRL 20 472 HBC 33

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$ $\searrow \rightarrow p\pi^0$

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$ $\rightarrow p\pi^0$

BEAM MOMENTUM= 3.			
-T (GEV/C)**2		POLARIZATION	
0.470	0.600	0.190	**
0.620	0.720	0.160	**
0.780	0.570	0.180	**
0.920	0.880	0.190	**
1.070	0.300	0.190	**
1.230	0.590	0.280	**
HAN	70.....PRL 24 1353	CNTR	

BEAM MOMENTUM= 3.			
-T (GEV/C)**2		POLARIZATION	
0.070	0.	0.110	*
0.130	-0.050	0.110	*
0.170	-0.050	0.120	*
0.230	-0.200	0.130	*
0.300	0.350	0.190	*
0.330	0.600	0.130	*
0.400	0.330	0.200	*
0.530	0.700	0.200	*
0.680	0.880	0.340	*
PRUSS	69.....PRL 23 189	SPRK+CNTR	

BEAM MOMENTUM= 3.23			
-T (GEV/C)**2		POLARIZATION	
MIN	MAX		
0.020	0.100	0.010	0.240 *
0.100	0.200	0.160	0.240 *
0.200	0.500	0.420	0.320 *
0.500	1.000	-0.940	0.310 *
1.000	1.500	-0.750	0.280 *
KOFLER	67.....PR 163 1479	HBC	20

BEAM MOMENTUM= 3.25			
-T (GEV/C)**2		POLARIZATION	
0.070	-0.200	0.080	*
0.130	-0.130	0.080	*
0.170	0.130	0.100	*
0.230	0.120	0.100	*
0.300	0.100	0.100	*
0.330	0.530	0.200	*
0.400	0.530	0.200	*
0.530	0.860	0.360	*
0.730	0.740	0.340	*
PRUSS	69.....PRL 23 189	SPRK+CNTR	

BEAM MOMENTUM= 4.			
-T (GEV/C)**2		POLARIZATION	
0.720	0.550	0.250	**
0.980	0.580	0.140	**
1.250	0.380	0.150	**
1.570	0.890	0.200	**
1.860	1.020	0.220	**
HAN	70.....PRL 24 1353	CNTR	

BEAM MOMENTUM= 4.			
-T (GEV/C)**2		POLARIZATION	
0.070	-0.200	0.130	*
0.130	-0.060	0.080	*
0.170	-0.060	0.130	*
0.230	0.150	0.150	*
0.300	0.150	0.150	*
0.330	0.100	0.200	*
0.430	0.400	0.200	*
0.500	0.780	0.200	*
0.730	0.670	0.290	*
1.230	0.530	0.150	*
PRUSS	69.....PRL 23 189	SPRK+CNTR	

BEAM MOMENTUM= 5. +- .05			
-T (GEV/C)**2		POLARIZATION	
2.400	0.560	0.280	†
2.850	0.670	0.300	†
AKERLOF	71.....PRL 27 219	SPRK+CNTR	

BEAM MOMENTUM= 5.			
-T (GEV/C)**2		POLARIZATION	
1.170	0.400	0.120	**
1.460	0.520	0.170	**
1.760	0.460	0.210	**
2.070	0.300	0.310	**
2.690	0.550	0.500	**
HAN	70.....PRL 24 1353	CNTR	

BEAM MOMENTUM= 5.			
-T (GEV/C)**2		POLARIZATION	
0.070	-0.100	0.100	*
0.170	-0.060	0.110	*
0.200	-0.100	0.130	*
0.300	0.	0.130	*
0.330	0.500	0.170	*
0.400	0.340	0.190	*
0.530	0.450	0.200	*
0.650	0.450	0.250	*
0.770	0.700	0.250	*
0.870	0.750	0.250	*
1.070	0.400	0.250	*
1.200	0.130	0.200	*
1.400	0.520	0.250	*
1.630	0.670	0.270	*
PRUSS	69.....PRL 23 189	SPRK+CNTR	

BEAM MOMENTUM= 6.			
-T (GEV/C)**2		POLARIZATION	
MIN	MAX		
0.	0.100	0.230	0.230
0.100	0.200	-0.180	0.190
0.200	0.300	0.120	0.170
0.300	0.400	0.150	0.230
0.400	0.500	0.840	0.330
0.500	0.600	0.730	0.330
0.600	0.700	0.420	0.570
BASHIAN	71.....PR D4 2667	CNTR	

BEAM MOMENTUM= 7.			
-T (GEV/C)**2		POLARIZATION	
0.170	0.060	0.130	*
0.270	0.270	0.130	*
0.420	1.000	0.270	*
0.600	1.070	0.300	*
0.830	0.600	0.270	*
1.430	0.450	0.260	*
PRUSS	69.....PRL 23 189	SPRK+CNTR	

BEAM MOMENTUM= 10.			
-T (GEV/C)**2		POLARIZATION	
MIN	MAX		
0.	0.100	0.330	0.270
0.100	0.200	0.350	0.190
0.200	0.300	0.120	0.260
0.300	0.400	0.610	0.380
0.400	0.600	0.400	0.320
0.600	0.800	0.480	0.310
0.800	1.000	0.120	0.400
BASHIAN	71.....PR D4 2667	CNTR	

BEAM MOMENTUM= 14.			
-T (GEV/C)**2		POLARIZATION	
MIN	MAX		
0.	0.100	-0.130	0.320
0.100	0.200	0.030	0.200
0.200	0.300	0.200	0.230
0.300	0.400	0.500	0.320
0.400	0.600	1.300	0.280
0.600	0.800	1.110	0.410
0.800	1.000	0.250	0.290
BASHIAN	71.....PR D4 2667	CNTR	

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$

$\rightarrow p\pi^0$

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$ $\searrow \rightarrow n\pi^+$

BEAM MOMENTUM= 1.34

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.096	0.291	0.060	0.250 *
0.291	0.485	-0.060	0.390 *
0.582	0.679	0.420	0.240 *
0.679	0.873	0.250	0.200 *
0.873	1.067	0.300	0.260 *

KALMUS 70.....PR D2 1824 HBGS

BEAM MOMENTUM= 1.43

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.084	0.314	0.270	0.190 *
0.314	0.544	-0.060	0.360 *
0.544	0.774	0.150	0.270 *
0.774	1.004	0.190	0.210 *
1.004	1.234	0.130	0.210 *

KALMUS 70.....PR D2 1824 HBGS

BEAM MOMENTUM= 1.55

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.072	0.348	0.070	0.230 *
0.348	0.625	0.190	0.310 *
0.625	0.901	0.	0.290 *
0.901	1.177	0.040	0.230 *
1.177	1.454	0.	0.290 *

KALMUS 70.....PR D2 1824 HBGS

* DATA READ FROM GRAPH

BEAM MOMENTUM= 1.63

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.066	0.373	0.	0.220 *
0.373	0.679	-0.190	0.230 *
0.679	0.986	-0.300	0.200 *
0.986	1.293	0.120	0.200 *
1.293	1.599	0.	0.220 *

KALMUS 70.....PR D2 1824 HBGS

BEAM MOMENTUM= 1.68

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.062	0.388	-0.040	0.220 *
0.388	0.714	0.060	0.280 *
0.714	1.039	-0.090	0.280 *
1.039	1.365	0.080	0.190 *
1.365	1.690	0.	0.210 *

KALMUS 70.....PR D2 1824 HBGS

BEAM MOMENTUM= 1.77

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.057	0.417	0.220	0.250 *
0.417	0.776	0.	0.290 *
0.776	1.135	0.130	0.310 *
1.135	1.495	-0.130	0.280 *
1.495	1.854	0.	0.260 *

KALMUS 70.....PR D2 1824 HBGS

BEAM MOMENTUM= 1.84

-T (GEV/C)**2		ALPHA P	
MIN	MAX		
0.054	0.439	0.	0.300 *
0.439	0.825	0.130	0.350 *
0.825	1.210	-0.170	0.400 *
1.210	1.596	0.110	0.310 *
1.596	1.981	0.	0.340 *

KALMUS 70.....PR D2 1824 HBGS

Polarization for $\pi^+p \rightarrow K^+\Sigma^+$
 $\searrow \rightarrow n\pi^+$

Polarization

for $\pi^+n \rightarrow K^+\Lambda$

BEAM MOMENTUM= 2.184

-T (GEV/C)**2	POLARIZATION	
0.095	0.670	0.110 *
0.292	0.820	0.210 *
0.493	-0.090	0.260 *
0.692	-0.390	0.240 *
1.088	-0.610	0.410 *
1.296	-1.000	0.370 *
1.501	-0.280	0.390 *
1.700	-0.620	1.260 *
1.914	0.040	0.170 *

* DATA READ FROM GRAPH

MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T (GEV/C)**2	POLARIZATION	
MIN	MAX	
0.000	0.100	-0.580 0.450 †
0.100	0.250	-0.090 0.490 †
0.250	0.500	0.110 0.920 †
0.500	0.700	1.020 0.990 †
0.700	2.000	-0.340 0.910 †

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

METTEL 70.....THESIS DBC 81

for $\pi^+n \rightarrow K^*(890)^+\Lambda$
 $\quad \quad \quad \searrow \rightarrow K^0\pi^+$

BEAM MOMENTUM= 2.184

-T (GEV/C)**2	POLARIZATION	
0.312	0.590	0.210
0.899	0.340	0.210
1.514	-0.390	0.300

MOORE 70.....THESIS DBC 33

Section C.

INDICES

π^+p MOMENTUM INDEX

BEAM MOMENTUM	1ST AUTHOR	JOURNAL	VOLUME,PAGE	INSTITUTIONS	DETECTOR	YEAR PUBLISHED	REF.NR.
.420	DETOEUF	PRL	16 860	SACL	CNTR	66	150
.464	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.477	KIRZ	PR	126 763	LRL	HBC	62	209
.489	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.490	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.512	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.540	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.550	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.565	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.591	BOWLER	NP	B17 331	OXF	HBC	70	87
.594	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.625	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.635	WILLIS	PR	116 753	YALE BNL	HBC	59	289
.645	BOWLER	NP	B17 331	OXF	HBC	70	87
.654	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.660	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.685	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.698	BOWLER	NP	B17 331	OXF	HBC	70	87
.711	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.725	NEWCOMB	PR	132 1283	LRL	HBC	63	245
.730	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.730	CHAVANON	PL	288 296	CDEF	CNTR	68	113
.750	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.752	BOWLER	NP	B17 331	OXF	HBC	70	87
.764	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.794	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.809	BOWLER	NP	B17 331	OXF	HBC	70	87
.810	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.812	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.818	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.830	CHAVANON	PL	288 296	CDEF	CNTR	68	113
.838	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.850	DEBAISIEUX	NP	85 147	BELG	HBC	68	142
.868	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.870	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.897	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.910	TILGER	PR	142 972	IND	HBC	66	280
.920	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.930	CHAVANON	PL	288 296	CDEF	CNTR	68	113
.931	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.940	DE BEER	NP	B12 617	SACL	HBC	69	143
.949	BARLOUTAUD	NC	27 238	SACL	HBC	63	49
.962	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.980	DETOEUF	PR	134 B228	SACL	CNTR	64	149
.980	CHAVANON	PL	288 296	CDEF	CNTR	68	113
.990	KOPP	PR	123 301	BNL BROW WISC	HBC	61	212
.992	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.020	DETOEUF	PR	134 B228	SACL	CNTR	64	149
1.020	METZGER	PR	164 1680	ROCH	HBC	67	234
1.020	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.030	BARLOUTAUD	NC	27 238	SACL	HBC	63	49
1.040	STONEHILL	PRL	6 624	YALE	HBC	61	278
1.040	FOELSCH	PR	134B1138	YALE	HBC	64	166
1.044	GRARD	PR	127 607	LRL	HBC	62	191
1.049	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.050	GROSSMAN	PR	178 2109	LRL	HBC	69	193
1.051	GRARD	PR	127 607	LRL	HBC	62	191
1.058	GRARD	PR	127 607	LRL	HBC	62	191
1.070	DETOEUF	PR	134 B228	SACL	CNTR	64	149
1.070	DETOEUF	PRL	16 860	SACL	CNTR	66	150
1.080	CHAVANON	PL	288 296	CDEF	CNTR	68	113
1.090	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.110	BELLAMY	PL	398 299	WEST RHEL SUSS	SPRK	72	65
1.111	CARAYANNOP	PR	138 B433	PURD	HBC	65	100
1.120	DETOEUF	PR	134 B228	SACL	CNTR	64	149
1.131	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.143	DIETERLE	PR	167 1190	LRL BERK	SPRK	68	155
1.155	BERTHELOT	NC	21 693	SACL ORSA	PBC	61	73
1.170	CRAWFORD	PR	128 368	LRL	HBC	62	126
1.170	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.170	GROSSMAN	PR	178 2109	LRL	HBC	69	193
1.181	BALTAY	RMP	33 374	YALE BNL	HBC	61	41
1.181	BARLOUTAUD	NC	27 238	SACL	HBC	63	49
1.200	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.206	CARAYANNOP	PR	138 B433	PURD	HBC	65	100
1.222	STONEHILL	PRL	6 624	YALE	HBC	61	278
1.222	FOELSCH	PR	134B1138	YALE	HBC	64	166
1.230	DETOEUF	PR	134 B228	SACL	CNTR	64	149
1.230	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.230	CHAVANON	PL	288 296	CDEF	CNTR	68	113
1.252	BALTAY	RMP	33 374	YALE BNL	HBC	61	41
1.259	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.265	CARAYANNOP	PR	138 B433	PURD	HBC	65	100
1.278	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.280	KALMUS	PR	02 1824	LRL	HBGS	70	204
1.280	GREYHER	PRL	26 792	LRL	HBC	71	192
1.280	HANSON	PR	04 1296	LRL	HBGS	71	196
1.280	WILLIAMSON	PRL	29 1353	UCR LBL	HBC	72	287
1.299	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.320	DETOEUF	PR	134 B228	SACL	CNTR	64	149

I-200

1.330	CHAVANON	PL	288	296	CDEF		CNTR	68	113
1.337	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.340	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.340	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.340	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.362	BALTAY	RMP	33	374	YALE BNL		HBC	61	41
1.378	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.390	GRETHER	PRL	26	792	LRL		HBC	71	192
1.393	STONEHILL	PRL	6	624	YALE		HBC	61	278
1.393	FOELSCH	PR	134	81138	YALE		HBC	64	166
1.403	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.410	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.410	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.420	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.420	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.430	DETOEUF	PR	134	8228	SACL		CNTR	64	149
1.430	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.430	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.434	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.450	CHAVANON	PL	288	296	CDEF		CNTR	68	113
1.476	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.480	CARROLL	PRL	20	607	BNL ROCH		SPRK	68	102
1.506	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.517	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.520	DETOEUF	PR	134	8228	SACL		CNTR	64	149
1.533	BALTAY	RMP	33	374	YALE BNL		HBC	61	41
1.550	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.550	GRETHER	PRL	26	792	LRL		HBC	71	192
1.550	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.550	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.556	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.585	DARONIAN	NC	41	503	SACL BARI		HBC	66	137
1.605	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.620	GRETHER	PRL	26	792	LRL		HBC	71	192
1.620	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.630	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.630	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.654	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.670	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.680	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.680	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.700	PAN	PRL	23	806	PENN		HBC	69	252
1.700	PAN	PR D	2	449	PENN		HBC	70	253
1.700	PAN	NP	B16	61	PENN		HBC	70	254
1.700	PAN	NP	B21	395	PENN LLL PENN		HBC	70	255
1.721	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.750	GRETHER	PRL	26	792	LRL		HBC	71	192
1.770	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.770	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.770	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.785	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.840	KALMUS	PR	D2	1824	LRL		HBSC	70	204
1.840	HANSON	PR	D4	1296	LRL		HBSC	71	196
1.840	WILLIAMSON	PRL	29	1353	UCR LBL		HBC	72	287
1.850	GRETHER	PRL	26	792	LRL		HBC	71	192
1.851	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.900	BANNER	NP	B15	205	SACL		SPRK	70	47
1.929	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
1.950	DAGAN	PR	161	1384	DUKE		HBC	67	131
1.950	CHAPMAN	PR D	3	38	DUKE		HBC	71	108
1.954	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.000	SMITH	PRL	23	335	MICH LRL		HBC	69	276
2.004	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.042	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.050	BAGLIN	PL	23	286	EPOL BERG		HLBC	66	36
2.050	JACQUET	NC	63A	743	EPOL BERG		HLBC	69	201
2.053	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.077	JAMES	PR	142	896	YALE BNL		HBC	66	202
2.101	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.300	GRETHER	PRL	26	792	LRL		HBC	71	192
2.300	KO	THESIS			PENN		HBC	71	210
2.340	ALFF	PRL	9	322	COLU RUTG		HBC	62	16
2.340	GELFAND	THESIS			NEVI COLU		HBC	65	182
2.340	GRAMENITSK	NAUK	31	1519	JINR		HLBC	66	190
2.340	ANGELOV	JINRP	P1-4330		JINR		HLBC	69	21
2.340	ANGELOV	JINRP	P1-4611		JINR		HLBC	69	22
2.340	ANGELOV	JINR	P1-4657		JINR		HBC	69	23
2.340	ANGELOV	JINRP	P1-4668		JINR		HLBC	69	24
2.350	BERLEY	PR	139	81097	BNL COLU		HBC	65	72
2.350	ALFF-STEIN	PR	145	1072	COLU RUTG		HBC	66	17
2.469	CARTER	PR	168	1457	CAVE RHEL BIRM		CNTR	68	106
2.620	BERLEY	PR	139	81097	BNL COLU		HBC	65	72
2.620	ALFF-STEIN	PR	145	1072	COLU RUTG		HBC	66	17
2.670	GIDAL	PRL	23	994	LRL RIVS		HBC	69	185
2.670	GRETHER	PRL	26	792	LRL		HBC	71	192
2.670	KO	THESIS			PENN		HBC	71	210
2.670	MICHAEL	PRL	28	1475	LBL		HBC	72	235
2.750	ARMENISE	PL	13	341	BARI LJCP		HBC	64	25
2.750	ARMENISE	NC	37	361	BARI ORSA		HBC	65	26
2.750	ARMENISE	NC	40A	273	BARI ORSA		HBC	65	27
2.750	ARMENISE	NC	41A	159	BARI ORSA		HBC	66	28
2.750	FISCHER	THESIS			WISC		SPRK	70	164
2.770	YAMAMOTO	PR	134	8383	BNL		HBC	64	293
2.770	YAMAMOTO	PR	140	8730	BNL		HBC	65	294
2.770	YAMAMOTO	PR	173	1302	BNL		HBC	68	295
2.900	ALFF	PRL	9	322	COLU RUTG		HBC	62	16
2.900	BERLEY	PR	139	81097	BNL COLU		HBC	65	72
2.900	GELFAND	THESIS			NEVI COLU		HBC	65	182
2.900	ALFF-STEIN	PR	145	1072	COLU RUTG		HBC	66	17
2.900	BALDIN	SJNP	13	431	ITEP		HLBC	71	38

2.930	CARROLL	PRL	20	607	BNL	ROCH	SPRK	68	102
2.950	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
2.950	FUNG	PRL	21	47	RIVS	LRL	HBC	68	171
2.950	BROWN	PR D	1	3053	LRL	RIVS	HBC	70	93
3.000	VON DARDEL	PRL	5	333	CERN		CNTR	60	285
3.000	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
3.000	HAN	PRL	24	1353	ANNA	ANL NAL	CNTR	70	194
3.000	HAN	THESIS			ANNA		SPRK	70	195
3.000	KALBACI	PRL	27	74	ANNA		SPRK	71	203
3.000	GRETHER	PRL	26	792	LRL		HBC	71	192
3.190	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
3.230	KOFER	PR	163	1479	WISC		HBC	67	211
3.250	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
3.430	ABOLINS	PRL	11	381	UCSD		HBC	63	1
3.430	XUONG	PRL	11	227	UCSD		HBC	63	292
3.500	XUONG	PRL	11	227	UCSD		HBC	63	292
3.500	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
3.500	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
3.500	RONAT	NP	838	20	REHO		HBC	72	267
3.515	GIDAL	PRL	23	994	LRL	RIVS	HBC	69	185
3.530	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
3.540	ABOLINS	PRL	11	381	UCSD		HBC	63	1
3.540	ABOLINS	PR	136	8195	UCSD		HBC	64	2
3.560	MACNAUGHTO	UCRL	20178		LRL	BERK	HBCS	71	223
3.650	GOLDHABER	PRL	12	336	LRL	BERK	HBC	64	187
3.650	SHEN	UCRL	16170		LRL		HBCS	65	271
3.650	TRILLING	PL	19	427	LRL		HBC	65	282
3.670	MACNAUGHTO	UCRL	20178		LRL	BERK	HBCS	71	223
3.700	GOLDHABER	PRL	23	1351	LRL	BERK	HBC	69	188
3.700	ABRAMS	PRL	25	617	BERK	LRL	HBC	70	5
3.700	BUTLER	UCRL	19845		LRL		HBC	70	98
3.700	BARNHAM	PRL	26	1494	LRL	BERK	HBC	71	50
3.740	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
3.750	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
3.900	WOLFSON	THESIS		MIT	MIT		HBC	68	291
3.900	BASTIEN	PR	D3	2047	MIT		HBC	71	61
3.900	BRAU	PRL	27	1481	MIT		HBC	71	90
3.920	WINKELMANN	THESIS			MIT		HBC	68	290
4.000	ADERHOLZ	NC	34	495	PITH	BERL BIRM BONN	HBC	64	6
4.000	ADERHOLZ	PL	10	226	PITH	BERL BIRM BONN	HBC	64	7
4.000	BARTSCH	PL	10	229	PITH	BERL BIRM BONN	HBC	64	53
4.000	BARTSCH	PL	11	167	PITH	BERL BIRM BONN	HBC	64	54
4.000	ADERHOLZ	PR	138	897	PITH	BERL BIRM BONN	HBC	65	8
4.000	ADERHOLZ	NC	35	659	AACH	BERL BIRM BONN	HBC	65	9
4.000	BARTSCH	NC	43A	1010	AACH	DESY LOIC MPIM	HBC	66	55
4.000	BONDAR	NC	44A	530	AACH	BERL DESY MPIM	HBC	66	86
4.000	BARTKE	NP	85	582	INRC		HBC	68	52
4.000	GOLDHABER	PRL	23	1351	LRL	BERK	HBC	69	188
4.000	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
4.000	YING	PL	308	289	ANNA	ANL	SPRK	69	296
4.000	HAN	PRL	24	1353	ANNA	ANL NAL	CNTR	70	194
4.000	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
4.000	BOESEBECK	NP	B33	445	AACH	BERL BONN CERN	HBCS	71	84
4.080	BROWN	UCRL	18254		LRL	BERK	HBC	68	92
4.080	BROWN	PR D	1	3053	LRL	RIVS	HBC	70	93
4.100	FUNG	PRL	21	47	RIVS	LRL	HBC	68	171
4.250	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
4.500	VON DARDEL	PRL	7	127	CERN		CNTR	61	286
4.500	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
4.750	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
5.000	DREVERMANN	PR	161	1356	BONN	DURH NIJM EPOL	HBC	67	156
5.000	BOECKMANN	NP	87	681	BONN	DURH NIJM EPOL	HBC	68	79
5.000	BOECKMANN	PL	288	72	BONN	DURH NIJM EPOL	HBC	68	80
5.000	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
5.000	BOECKMANN	NP	B16	221	BONN	DURH NIJM EPOL	HBC	70	81
5.000	CHAURAND	THESIS(3)			EPOL		HBC	70	112
5.000	CIRBA	NP	B23	533	EPOL	BONN DURH NIJM	HBC	70	114
5.000	HAN	PRL	24	1353	ANNA	ANL NAL	CNTR	70	194
5.000	HAN	THESIS			ANNA		SPRK	70	195
5.000	POLS	NP	B25	109	NIJM	BONN DURH EPOL	HBC	70	260
5.000	SCHOTANUS	NP	B22	45	NIJM	DURH EPOL TORI	HBC	70	270
5.000	AKERLOF	PRL	27	219	ANNA	ANL	SPRK	71	15
5.000	BASHIAN	PR	D4	2667	STON	WISC	CNTR	71	60
5.000	KALBACI	PRL	27	74	ANNA		SPRK	71	203
5.000	RINAUDO	NC	5A	239	TORI	BONN DURH NIJM	HBC	71	265
5.000	RINAUDO	NC	10A	1	TORI	BONN NIJM EPOL	HBC	72	266
5.000	POLS	NP	B25	109	NIJM	BONN DURH EPOL	HBC	70	260
5.050	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
5.050	YING	PL	308	289	ANNA	ANL	SPRK	69	296
5.150	ESTERLING	PRL	21	1410	EFIN	ANL	CNTR	68	160
5.200	BAKER	PL	288	291	CERN		SPRK	68	37
5.200	CARLSON	PL	338	502	CERN		SPRK	70	101
5.400	COOPER	PRL	20	472	ANL		HBC	68	124
5.450	BLOODWORTH	NP	B35	79	TNTO		HBC	71	75
5.450	BLOODWORTH	NP	B35	133	TNTO		HBC	71	76
5.450	BLOODWORTH	NP	B37	203	TNTO		HBC	72	77
5.450	BLOODWORTH	NP	B39	525	TNTO		HBC	72	78
5.500	MOTT	NP	B13	565	IND		HBC	69	241
5.500	COOPER	NP	B23	605	ANL		HBC	70	125
5.720	DAO	THESIS			MIT		HBC	70	136
5.720	SHENG	THESIS			MIT		HBC	70	272
5.750	VON DARDEL	PRL	7	127	CERN		CNTR	61	286
6.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
6.000	CRENNELL	PRL	18	323	BNL	CCNY	HBC	67	127
6.000	BELL	PRL	20	164	BNL	CCNY	HBC	68	64

6.000	CRENNELL	PL	288	136	BNL		HBC	68	128
6.000	BASHIAN	PR	04	2667	STON	WISC	CNTR	71	60
6.000	CRENNELL	PRL	27	1674	BNL		HBC	71	129
6.900	BAKER	PL	288	291	CERN		SPRK	68	37
6.950	BALTAY	PRL	20	887	COLU	ROCH RUTG YALE	HBC	68	46
7.000	VON DARDEL	PRL	7	127	CERN		CNTR	61	286
7.000	SLATTERY	THESIS			YALE		HBC	67	273
7.000	SLATTERY	NC	50	377	YALE	ROCH	HBC	67	274
7.000	PRUSS	PRL	23	189	ANNA	ANL	SPRK	69	262
7.000	ALSTON-GAR	PL	348	156	LRL		HBC	71	19
7.000	FERBEL	PRL	26	344	ROCH		HBC	71	163
7.000	KALBACI	PRL	27	74	ANNA		SPRK	71	203
7.000	STONE	NP	832	19	ROCH		HBC	71	277
7.100	ALSTON-GAR	PL	338	607	LRL		HBC	70	18
7.100	ALSTON-GAR	PL	368	152	LBL	BERK	HBC	71	20
7.100	FLATTE	PL	348	551	LRL		HBC	71	165
8.000	DEUTSCHMAN	PL	18	351	AACH	BERL CERN	HBC	65	152
8.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
8.000	BRANDT	PL	22	109	CERN	INRC WARS INRW	HBC	66	88
8.000	BARTKE	PL	248	118	INRC	AMMC IPN	HBC	67	51
8.000	FOLEY	PRL	19	193	BNL		CNTR	67	167
8.000	ADERHOLZ	PL	278	174	PITH	BERL CERN	HBCS	68	10
8.000	BARTKE	NP	85	582	INRC		HBC	68	52
8.000	BARTSCH	PL	278	336	AACH	BERL CERN LDIC	HBCS	68	56
8.000	ESKREYS	APP	34	159	INRC		HBC	68	159
8.000	HOFMOKL	NP	84	573	WARS	INRW	HBC	68	198
8.000	ADERHOLZ	NP	811	259	AACH	BERL CERN INRC	HBCS	69	12
8.000	OTWINOWSKI	PL	298	529	INRW		HBC	69	248
8.000	ADERHOLZ	NP	824	509	AACH	BERL CERN	HBCS	70	14
8.000	BARTSCH	NP	819	381	AACH	BERL BONN CERN	HBC	70	58
8.000	BEAUPRE	NP	828	77	AACH	BERL CERN	HBCS	71	63
8.000	BOESEBECK	NP	828	381	AACH	BERL BONN CERN	HBC	71	83
8.000	BOESEBECK	NP	833	445	AACH	BERL BONN CERN	HBCS	71	84
8.000	COGHEN	NP	832	189	INRC	INTC	HBC	71	118
8.040	DEUTSCHMAN	PL	12	356	AACH	BERL CERN	HBC	64	151
8.040	DEUTSCHMAN	PL	19	608	PITH	BERL CERN	HBC	65	153
8.040	BRANDT	PL	22	230	CERN	INRC WARS INRW	HBC	66	89
8.040	CRIJNS	PL	22	533	PITH	BERL CERN	HBC	66	130
8.040	DEUTSCHMAN	PL	22	112	PITH	BERL CERN	HBC	66	154
8.040	BARTKE	PL	248	118	INRC	AMMC IPN	HBC	67	51
8.040	ADERHOLZ	NP	88	45	AACH	BERL CERN	HBC	68	11
8.040	BARTSCH	NP	87	345	AACH	BERL CERN	HBCS	68	57
8.040	BOESEBECK	NP	84	501	PITH	BERL CERN	HBC	68	82
8.040	ADERHOLZ	NP	814	255	AACH	BERL CERN LDIC	HBC	69	13
8.040	BARTSCH	NP	822	109	AACH	BERL CERN	HBCS	70	59
8.040	BARADIN-O	PR	04	2711	WARS	INRW	HBC	71	48
8.040	SABAU	NCL	1	514	BUCH	BUCH ANL	HBC	71	268
8.400	EHRlich	PRL	20	686	RUTG		HBC	68	157
8.490	KUNG	THESIS			NEVI	COLU	HBC	69	217
8.500	BALTAY	PL	258	160	COLU	BNL RUTG	HBC	67	43
8.500	BALTAY	PRL	20	887	COLU	ROCH RUTG YALE	HBC	68	46
8.500	KREBS	THESIS			RUTG		HBC	70	216
10.000	VON DARDEL	PRL	5	333	CERN		CNTR	60	285
10.000	VON DARDEL	PRL	7	127	CERN		CNTR	61	286
10.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
10.000	BASHIAN	PR	04	2667	STON	WISC	CNTR	71	60
11.000	YOST	PR D	3	642	FLAS		HBC	71	297
11.700	CHAUMET	THESIS(3)			ORSA		HBC	70	111
11.700	MADDOCK	NC	5A	433	DURH	GENO DESY MILA	HBC	71	224
11.700	MADDOCK	NC	5A	457	DURH	GENO DESY HAMB	HBC	71	225
11.700	CASO	NP	836	349	GENO	DURH DESY PSEH	HBC	72	107
11.700	EVANS	DESY	72/37		DURH	GENO HAMB DESY	HBC	72	161
11.700	TOMASINI	NC	7A	651	GENO	DESY MILA SACL	HBC	72	281
12.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
13.000	PALER	NCL	2	1063	PURD		DBC,	71	251
13.100	GAIDOS	NP	823	84	PURD		HBC	70	172
13.100	GAIDOS	PR	01	3190	PURD	IUPU	HBC	70	173
13.100	GAIDOS	PR	02	1226	PURD		HBC	70	174
13.100	KRAMER	PRL	25	396	PURD		HBC	70	214
13.100	LAMSA	PR	01	3091	PURD		HBC	70	218
13.100	WILLMANN	PRL	24	1260	PURD		HBC	70	288
13.100	GAIDOS	NP	826	109	PURD		HBC	71	175
13.100	GAIDOS	NP	826	225	PURD		HBC	71	176
13.100	GAIDOS	NP	832	10	PURD		HBC	71	177
13.100	KRAMER	THESIS			PURD		HBC	71	215
13.100	SCHARENGUI	NP	836	363	PURD	IUPU	HBC	72	269
14.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
14.000	FISCHER	THESIS			WISC		SPRK	70	164
14.000	BASHIAN	PR	04	2667	STON	WISC	CNTR	71	60
15.000	DENISOV	PL	368	415	SERP		HBC,	71	147
15.000	PRATT	SLAC	PUB-1071		SLAC		SPRK	72	261
16.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
16.000	BALLAM	PR	03	2606	SLAC		HBC	71	39
16.000	BALLAM	PR	04	1946	SLAC		HBC	71	40
16.000	BOESEBECK	NP	828	381	AACH	BERL BONN CERN	HBC	71	83
16.000	BOESEBECK	PL	348	659	AACH	BERL BONN CERN	HBC	71	85
18.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
18.500	BISWAS	PR	02	2529	NDAM		HBC	70	74
18.500	HONES	PR	02	827	NDAM		HBC	70	199
20.000	GALBRAITH	PR	138	8913	BNL	CORN	CNTR	65	178
20.000	DENISOV	PL	368	415	SERP		HBC,	71	147
25.000	DENISOV	PL	368	415	SERP		HBC,	71	147
26.000	FOLEY	PRL	19	193	BNL		CNTR	67	167
30.000	DENISOV	PL	368	415	SERP		HBC,	71	147
35.000	DENISOV	PL	368	415	SERP		HBC,	71	147
40.000	DENISOV	PL	368	415	SERP		HBC,	71	147
45.000	DENISOV	PL	368	415	SERP		HBC,	71	147
50.000	DENISOV	PL	368	415	SERP		HBC,	71	147
55.000	DENISOV	PL	368	415	SERP		HBC,	71	147
60.000	DENISOV	PL	368	415	SERP		HBC,	71	147

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.245	RICHARD-SE	NP	820 413	CERN	CNTR	70	264
.271	RICHARD-SE	NP	820 413	CERN	CNTR	70	264
.290	NOREM	NP	833 512	RUTG	DBC	71	246
.295	RICHARD-SE	NP	820 413	CERN	CNTR	70	264
.342	RICHARD-SE	NP	820 413	CERN	CNTR	70	264
.377	RICHARD-SE	NP	820 413	CERN	CNTR	70	264
.464	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.489	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.512	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.540	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.565	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.594	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.594	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.623	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.625	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.634	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.650	DEKKERS	PL	11 161	CERN IRAD	CNTR	64	146
.650	PAULI	PL	13 351	SACL	DBC	64	257
.654	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.655	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.662	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.685	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.687	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.690	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.703	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.711	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.717	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.720	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.720	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
.730	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.743	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.750	DEKKERS	PL	11 161	CERN IRAD	CNTR	64	146
.753	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.756	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.764	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.769	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.786	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.786	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
.794	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.797	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.810	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.812	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.818	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.820	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.820	BALTAY	PRL	16 1224	COLU STON	DBC	66	42
.820	LARRIBE	PL	23 600	SACL RHEL	DBC	66	219
.820	BALTAY	PRL	19 1495	COLU BNL BRAN	DBC	67	44
.820	BALTAY	PRL	19 1498	COLU BNL STON BNL	DBC	67	45
.820	BAZIN	PRL	19 1157	PPL PPPA QUNS	DBC	67	62
.820	LITCHFIELD	PL	248 486	RHEL SACL	DBC	67	220
.824	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.825	LITCHFIELD	NC	48A 468	RHEL	DBC	68	221
.838	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.850	DEKKERS	PL	11 161	CERN IRAD	CNTR	64	146
.850	PAULI	PL	13 351	SACL	DBC	64	257
.850	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.854	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
.854	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.854	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
.868	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.877	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.888	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.890	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.897	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.904	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.906	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.906	KRAEMER	PR	136 B496	JHOP NWES WOOD	DBC	64	213
.917	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.923	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.923	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
.931	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.932	MANNING	UCRL	19339	LRL	DBC	69	226
.945	LITCHFIELD	PR	183 1152	RHEL	DBC	69	222
.959	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.962	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.976	KRAEMER	PR	136 B496	JHOP NWES WOOD	DBC	64	213
.992	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.994	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
.994	MULLER	PL	10 349	SACL ROMA	HBC,	64	242
1.000	DEKKERS	PL	11 161	CERN IRAD	CNTR	64	146
1.020	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.021	MANNING	UCRL	19339	LRL	DBC	69	226
1.030	PAULI	SIENA CONF	1 92	SACL ROMA	DBC	63	256
1.049	KRAEMER	PR	136 B496	JHOP NWES WOOD	DBC	64	213
1.049	DANBURG	PR	D2 2564	LRL BERK	DBC	70	135
1.049	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.076	MANNING	UCRL	19339	LRL	DBC	69	226

1.090	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.100	SMITH	PR	171	1399	LRL	HBC	68	275
1.100	DANBURG	PRL	23	41	LRL MICH	DBC	69	132
1.100	DANBURG	PL	308	270	LRL	DBC	69	133
1.100	DANBURG	UCRL	19275		BERK LRL	DBC	69	134
1.100	DAVIES	UCRL	19263		LRL	DBC	69	140
1.104	RADER	UCRL	19431		LRL	DBC	69	263
1.109	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.120	DAVIES	PR D	2	506	LRL	DBC	70	141
1.122	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.131	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.132	MANNING	UCRL	19339		LRL	DBC	69	226
1.141	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.141	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.147	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.170	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.198	MANNING	UCRL	19339		LRL	DBC	69	226
1.198	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.200	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.202	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.220	DEKKERS	PL	11	161	CERN IRAD	CNTR	64	146
1.230	PEVSNER	PRL	7	421	JHOP NWES	DBC	61	258
1.230	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.232	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.236	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.236	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.259	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.275	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.278	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.299	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.299	MANNING	UCRL	19339		LRL	DBC	69	226
1.300	DAVIES	PR D	2	506	LRL	DBC	70	141
1.314	RADER	UCRL	19431		LRL	DBC	69	263
1.317	DAVIES	PR D	2	506	LRL	DBC	70	141
1.322	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.334	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.337	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.354	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.378	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.399	MANNING	UCRL	19339		LRL	DBC	69	226
1.400	DEKKERS	PL	11	161	CERN IRAD	CNTR	64	146
1.403	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.412	KRAEMER	PR	136	8496	JHOP NWES WOOD	DBC	64	213
1.434	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.434	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.458	DAVIES	PR D	2	506	LRL	DBC	70	141
1.476	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.485	MANNING	UCRL	19339		LRL	DBC	69	226
1.500	KATZ	THESIS			MINN	DBC	70	205
1.506	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.516	RADER	UCRL	19431		LRL	DBC	69	263
1.517	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.530	DAVIES	PR D	2	506	LRL	DBC	70	141
1.537	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.556	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.580	DAVIES	PR D	2	506	LRL	DBC	70	141
1.590	MANNING	UCRL	19339		LRL	DBC	69	226
1.604	DAVIES	PR D	2	506	LRL	DBC	70	141
1.605	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.643	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.654	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.660	DEKKERS	PL	11	161	CERN IRAD	CNTR	64	146
1.680	BACON	PR	157	1263	BNL	DBC	67	35
1.686	RADER	UCRL	19431		LRL	DBC	69	263
1.689	DAVIES	PR D	2	506	LRL	DBC	70	141
1.696	MANNING	UCRL	19339		LRL	DBC	69	226
1.696	DAVIES	PR D	2	506	LRL	DBC	70	141
1.700	DAVIES	PR D	2	506	LRL	DBC	70	141
1.707	RADER	UCRL	19431		LRL	DBC	69	263
1.721	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.751	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.776	DAVIES	PR D	2	506	LRL	DBC	70	141
1.785	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.800	DAUBER	PL	298	609	LRL MICH	DBC,	69	138
1.806	MANNING	UCRL	19339		LRL	DBC	69	226
1.851	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.860	DAVIES	PR D	2	506	LRL	DBC	70	141
1.861	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.884	RADER	UCRL	19431		LRL	DBC	69	263
1.888	DAVIES	PR D	2	506	LRL	DBC	70	141
1.918	MANNING	UCRL	19339		LRL	DBC	69	226
1.929	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.950	DEKKERS	PL	11	161	CERN IRAD	CNTR	64	146
1.954	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.975	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
2.002	DAVIES	PR D	2	506	LRL	DBC	70	141
2.004	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
2.033	MANNING	UCRL	19339		LRL	DBC	69	226
2.033	DAVIES	PR D	2	506	LRL	DBC	70	141
2.042	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
2.042	MOORE	THESIS			WISC	DBC	70	239
2.050	MOORE	THESIS			WISC	DBC	70	239
2.053	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
2.072	DAVIES	PR D	2	506	LRL	DBC	70	141
2.091	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
2.101	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
2.138	RADER	UCRL	19431		LRL	DBC	69	263

2.150	ABOLINS	PRL	22	427	LRL	STON	DBC	69	3
2.150	BRAUN	PRL	21	1275	WISC		DBC	68	91
2.150	CLINE	PRL	23	491	WISC	MINN	DBC	69	115
2.150	BENSINGER	PL	338	505	WISC		DBC	70	66
2.150	DAVIES	PR D	2	506	LRL		DBC	70	141
2.150	BENSINGER	PL	368	134	WISC		DBC	71	67
2.178	MOORE	THESIS			WISC		DBC	70	239
2.184	MOORE	THESIS			WISC		DBC	70	239
2.185	DAVIES	PR D	2	506	LRL		DBC	70	141
2.210	MANNING	UCRL	19339		LRL		DBC	69	226
2.210	DANBURG	PR	D2	2564	LRL	BERK	DBC	70	135
2.238	DAVIES	PR D	2	506	LRL		DBC	70	141
2.300	SMITH	PR	171	1399	LRL		HBC	68	275
2.330	MOORE	THESIS			WISC		DBC	70	239
2.331	DANBURG	PR	D2	2564	LRL	BERK	DBC	70	135
2.350	MOORE	THESIS			WISC		DBC	70	239
2.370	DANBURG	PRL	23	41	LRL	MICH	DBC	69	132
2.370	DANBURG	PL	308	270	LRL		DBC	69	133
2.370	DAVIES	PR D	2	506	LRL		DBC	70	141
2.400	DANBURG	UCRL	19275		BERK	LRL	DBC	69	134
2.400	DAVIES	UCRL	19263		LRL		DBC	69	140
2.405	RADER	UCRL	19431		LRL		DBC	69	263
2.455	MANNING	UCRL	19339		LRL		DBC	69	226
2.455	DANBURG	PR	D2	2564	LRL	BERK	DBC	70	135
2.469	CARTER	PR	168	1457	CAVE	RHEL BIRM	CNTR	68	106
2.700	GEZELTER	NC	53A	213	PURD		DBC	68	183
2.700	CAMPBELL	PRL	22	1204	PURD		DBC	69	99
2.700	GARFINKEL	PR	186	1400	PURD		DBC	69	180
2.700	MILLER	PR	178	2061	PURD		DBC	69	237
2.700	MILLER	THESIS			PURD		DBC	71	238
3.000	ABOLINS	PRL	22	427	LRL	STON	DBC	69	3
3.100	MILLER	THESIS			PURD		DBC	71	238
3.250	COHN	PL	15	344	ORNL	TENN ORNL	DBC	65	120
3.290	GELFAND	PRL	12	567	COLU	ORNL TENN ORNL	DBC	64	181
3.290	COHN	PRL	15	906	ORNL	TENN ORNL UCND	DBC	65	119
3.290	COHN	PL	21	347	ORNL	UCND TENN	HBC	66	121
3.290	COHN	NP	82	690	ORNL	UCND TENN ORNL	DBC	66	122
3.290	COHN	NP	81	57	ORNL	ORUC TENN ORNL	DBC	67	123
3.290	BUGG	NP	86	246	TENN	ORNL TENN ORUC	DBC	68	96
3.300	DAUBER	PL	298	609	LRL	MICH	DBC,	69	138
3.650	BENSON	PRL	12	600	ANNA		HBC	64	68
3.650	BENSON	PRL	16	1177	ANNA		HBC	66	69
3.650	BENSON	PRL	17	1234	ANNA		DBC	66	70
3.650	HSIUNG	PRL	21	187	ANNA		DBC	68	200
3.650	BENSON	PRL	22	1074	ANNA		DBC	69	71
3.650	CHAUDHARY	THESIS			MINN		DBC	70	109
3.650	CHAUDHARY	PR	D2	2110	MINN		DBC	70	110
4.000	ABOLINS	PRL	22	427	LRL	STON	DBC	69	3
4.190	ABRAMS	PRL	23	673	ILL		DBC	69	4
4.190	EISENSTEIN	PR D	1	841	ILL		HBC	70	158
4.190	GORDON	ILL	1195		ILL		DBC	70	189
4.500	FORINO	PL	11	347	BGNA	ORSA SACL	DBC	64	168
4.500	FORINO	PL	19	65	BGNA	IPN SACL	DBC	65	169
4.500	FORINO	PL	19	68	BGNA	BARI FIRZ IPN	DBC	65	170
5.000	VANDERHAGH	NP	813	329	EPOL	BARI BGNA IPNP	DBC	69	283
5.100	ARMENISE	PL	258	53	BARI	BGNA FIRZ ORSA	HBC	67	29
5.100	ARMENISE	PL	268	336	BARI	BGNA FIRZ ORSA	DBC	68	30
5.100	ARMENISE	NC	54A	999	BARI	BGNA FIRZ ORSA	DBC	68	31
5.100	GHIDINI	NC	58A	524	BARI	BGNA FIRZ ORSA	DBC	68	184
5.100	ARMENISE	NCL	2	501	BARI	BGNA FIRZ	DBC	69	33
5.100	ARMENISE	NC	65A	637	BARI	BGNA FIRZ IPN	DBC	70	34
5.100	METTEL	THESIS			IPNP		DBC	70	233
5.100	PICCIARELL	KIEV			BARI	IPN	DBC	70	259
5.100	MURRO	NC	2A	514	BARI		DBC	71	243
5.100	MURRO	NC	3A	721	BARI		DBC	71	244
5.400	DEERY	PL	318	82	NDAM		DBC	70	144
5.400	STUNTEBECK	PL	328	391	NDAM		HBC,	70	279
5.400	DEERY	PR D	3	635	NDAM		DBC	71	145
5.400	FARBER	NP	829	237	NDAM		DBC	71	162
6.000	BRUYANT	PL	12	278	CERN	EPOL	DBC	64	95
6.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
6.000	GOLDBERG	PL	17	354	CERN	EPOL ORSA EPOL	DBC	65	186
6.000	VEGNI	PL	19	526	CERN	EPOL	HBC	65	284
6.000	DE ROSNY	NC	48A	1137	EPOL		DBC	67	148
6.070	BRUYANT	PL	10	232	CERN	EPOL	DBC	64	94
6.950	MATTHEWS	THESIS			TNTD		DBC	71	227
6.950	MATTHEWS	NCL	1	361	TNTD	WISC	DBC	71	228
6.950	MATTHEWS	PR	D3	2561	TNTD	WISC	DBC	71	229
6.950	MATTHEWS	PRL	26	400	TNTD	WISC	DBC	71	232
6.950	HARRISON	PR	D5	2730	TNTD	WISC	DBC	72	197
7.000	OH	PRL	23	331	WISC	TNTD	DBC	69	247
7.000	CARROLL	PRL	25	1393	WISC	TNTD	HBCS	70	103
7.000	CARROLL	PRL	27	1025	WISC	TNTD	HBC	71	104
7.000	MATTHEWS	NP	B32	366	TNTD	WISC	HBC	71	230
7.000	MATTHEWS	NP	B33	1	TNTD	WISC	DBC,	71	231
7.000	MORSE	PR	D4	133	WISC	TNTD	HBCS	71	240
7.000	CARROLL	PRL	28	318	WISC	TNTD	HBC	72	105

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8.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
8.000	CNOPS	PRL	21	1609	BNL	ORNL UCND TENN	HBC	68	116
8.000	CNOPS	PL	298	45	BNL	ORNL DRUC TENN	DBC	69	117
8.000	KENYON	PRL	23	146	BNL	ORNL UCND TENN	DBC	69	208
9.000	ARMENISE	NCL	4	199	BARI	BGNA FIRZ	DBC	70	32
9.000	MURRO	NC	2A	514	BARI		DBC	71	243
10.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
11.700	KEMP	NCL	2	471	DURH	GENO MILA EPOL	HBC	71	206
11.700	KEMP	NC	8A	611	DURH	GENO MILA EPOL	DBC	72	207
12.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
13.000	PALER	PRL	26	1675	PURD		DBC	71	249
13.000	PALER	NP	833	13	IND		DBC	71	250
13.000	PALER	NCL	2	1063	PURD		DBC,	71	251
14.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
15.000	DENISOV	PL	368	415	SERP		HBC,	71	147
16.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
18.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
20.000	GALBRAITH	PR	138	B913	BNL	CORN	CNTR	65	178
20.000	DENISOV	PL	368	415	SERP		HBC,	71	147
25.000	DENISOV	PL	368	415	SERP		HBC,	71	147
30.000	DENISOV	PL	368	415	SERP		HBC,	71	147
35.000	DENISOV	PL	368	415	SERP		HBC,	71	147
40.000	DENISOV	PL	368	415	SERP		HBC,	71	147
45.000	DENISOV	PL	368	415	SERP		HBC,	71	147
50.000	DENISOV	PL	368	415	SERP		HBC,	71	147
55.000	DENISOV	PL	368	415	SERP		HBC,	71	147
60.000	DENISOV	PL	368	415	SERP		HBC,	71	147

Reference List by Author

- [1] ABOLINS, ET AL., PHYS. REV. LETTERS 11, 381 (1963)
 [2] ABOLINS, ET AL., PHYS. REV. 136, 8195 (1964)
 [3] ABOLINS, ET AL., PHYS. REV. LETTERS 22, 427 (1969)
 [4] ABRAMS, ET AL., PHYS. REV. LETTERS 23, 673 (1969)
 [5] ABRAMS, ET AL., PHYS. REV. LETTERS 25, 617 (1970)
 [6] ADERHOLZ, ET AL., NUOVO CIMENTO 34, 495 (1964)
 [7] ADERHOLZ, ET AL., PHYS. LETTERS 10, 226 (1964)
 [8] ADERHOLZ, ET AL., PHYS. REV. 138, 8897 (1965)
 [9] ADERHOLZ, ET AL., NUOVO CIMENTO 35, 659 (1965)
 [10] ADERHOLZ, ET AL., PHYS. LETTERS 278, 174 (1968)
 [11] ADERHOLZ, ET AL., NUC. PHYS. 81, 45 (1968)
 [12] ADERHOLZ, ET AL., NUC. PHYS. 81, 259 (1969)
 [13] ADERHOLZ, ET AL., NUC. PHYS. 814, 255 (1969)
 [14] ADERHOLZ, ET AL., NUC. PHYS. 824, 509 (1970)
 [15] AKERLOF, ET AL., PHYS. REV. LETTERS 27, 219 (1971)
 [16] ALFF, ET AL., PHYS. REV. LETTERS 9, 322 (1962)
 [17] ALFF-STEINBERGER, ET AL., PHYS. REV. 145, 1072 (1966)
 [18] ALSTON-GARNJOST, ET AL., PHYS. LETTERS 338, 607 (1970)
 [19] ALSTON-GARNJOST, ET AL., PHYS. LETTERS 348, 156 (1971)
 [20] ALSTON-GARNJOST, ET AL., PHYS. LETTERS 368, 152 (1971)
 [21] ANGELOV, ET AL., JINR (DUBNA) PREPRINT P1-4330 (1969)
 [22] ANGELOV, ET AL., JINR (DUBNA) PREPRINT P1-4611 (1969)
 [23] ANGELOV, ET AL., JINR (DUBNA) REPORT NO. P1-4657 (1969)
 [24] ANGELOV, ET AL., JINR (DUBNA) PREPRINT P1-4668 (1969)
 [25] ARMENISE, ET AL., PHYS. LETTERS 13, 341 (1964)
 [26] ARMENISE, ET AL., NUOVO CIMENTO 37, 361 (1965)
 [27] ARMENISE, ET AL., NUOVO CIMENTO 40A, 273 (1965)
 [28] ARMENISE, ET AL., NUOVO CIMENTO 41A, 159 (1966)
 [29] ARMENISE, ET AL., PHYS. LETTERS 258, 53 (1967)
 [30] ARMENISE, ET AL., PHYS. LETTERS 268, 336 (1968)
 [31] ARMENISE, ET AL., NUOVO CIMENTO 54A, 999 (1968)
 [32] ARMENISE, ET AL., NUOVO CIMENTO LETTERS 4, 199 (1970)
 [33] ARMENISE, ET AL., NUOVO CIMENTO LETTERS 2, 501 (1969)
 [34] ARMENISE, ET AL., NUOVO CIMENTO 65A, 637 (1970)
 [35] BACON, ET AL., PHYS. REV. 157, 1263 (1967)
 [36] BAGLIN, ET AL., PHYS. LETTERS 23, 286 (1966)
 [37] BAKER, ET AL., PHYS. LETTERS 288, 291 (1968)
 [38] BALDIN, ET AL., SOVIET JNP 13, 431 (1971)
 [39] BALLAM, ET AL., PHYS. REV. D3, 2606 (1971)
 [40] BALLAM, ET AL., PHYS. REV. D4, 1946 (1971)
 [41] BALTAY, ET AL., REV. MOD. PHYS. 33, 374 (1961)
 [42] BALTAY, ET AL., PHYS. REV. LETTERS 16, 1224 (1966)
 [43] BALTAY, ET AL., PHYS. LETTERS 258, 160 (1967)
 [44] BALTAY, ET AL., PHYS. REV. LETTERS 19, 1495 (1967)
 [45] BALTAY, ET AL., PHYS. REV. LETTERS 19, 1498 (1967)
 [46] BALTAY, ET AL., PHYS. REV. LETTERS 20, 887 (1968)
 [47] BANNER, ET AL., NUC. PHYS. 815, 205 (1970)
 [48] BARDADIN-OTWINOWSKA, ET AL., PHYS. REV. D4, 2711 (1971)
 [49] BARLOUTAUD, ET AL., NUOVO CIMENTO 27, 238 (1963)
 [50] BARNHAM, ET AL., PHYS. REV. LETTERS 26, 1494 (1971)
 [51] BARTKE, ET AL., PHYS. LETTERS 248, 119 (1967)
 [52] BARTKE, ET AL., NUC. PHYS. 85, 582 (1968)
 [53] BARTSCH, ET AL., PHYS. LETTERS 10, 229 (1964)
 [54] BARTSCH, ET AL., PHYS. LETTERS 11, 167 (1964)
 [55] BARTSCH, ET AL., NUOVO CIMENTO 43A, 1010 (1966)
 [56] BARTSCH, ET AL., PHYS. LETTERS 278, 336 (1968)
 [57] BARTSCH, ET AL., NUC. PHYS. 87, 345 (1968)
 [58] BARTSCH, ET AL., NUC. PHYS. 819, 381 (1970)
 [59] BARTSCH, ET AL., NUC. PHYS. 822, 109 (1970)
 [60] BASHIAN, ET AL., PHYS. REV. D4, 2667 (1971)
 [61] BASTIEN, ET AL., PHYS. REV. D3, 2047 (1971)
 [62] BAZIN, ET AL., PHYS. REV. LETTERS 19, 1157 (1967)
 [63] BEAUPRE, ET AL., NUC. PHYS. 828, 77 (1971)
 [64] BELL, ET AL., PHYS. REV. LETTERS 20, 164 (1968)
 [65] BELLAMY, ET AL., PHYS. LETTERS 398, 299 (1972)
 [66] BENSINGER, ET AL., PHYS. LETTERS 338, 505 (1970)
 [67] BENSINGER, ET AL., PHYS. LETTERS 368, 134 (1971)
 [68] BENSON, ET AL., PHYS. REV. LETTERS 12, 600 (1964)
 [69] BENSON, ET AL., PHYS. REV. LETTERS 16, 1177 (1966)
 [70] BENSON, ET AL., PHYS. REV. LETTERS 17, 1234 (1966)
 [71] BENSON, ET AL., PHYS. REV. LETTERS 22, 1074 (1969)
 [72] BERLEY, ET AL., PHYS. REV. 139, 81097 (1965)
 [73] BERTHELOT, ET AL., NUOVO CIMENTO 21, 693 (1961)
 [74] BISWAS, ET AL., PHYS. REV. D2, 2529 (1970)
 [75] BLOODWORTH, ET AL., NUC. PHYS. 835, 79 (1971)
 [76] BLOODWORTH, ET AL., NUC. PHYS. 835, 133 (1971)
 [77] BLOODWORTH, ET AL., NUC. PHYS. 837, 203 (1972)
 [78] BLOODWORTH, ET AL., NUC. PHYS. 839, 525 (1972)
 [79] BOCKMANN, ET AL., NUC. PHYS. 87, 681 (1968)
 [80] BOECKMANN, ET AL., PHYS. LETTERS 288, 72 (1968)
 [81] BOECKMANN, ET AL., NUC. PHYS. 816, 221 (1970)
 [82] BOESEBECK, ET AL., NUC. PHYS. 84, 501 (1968)
 [83] BOESEBECK, ET AL., NUC. PHYS. 828, 381 (1971)
 [84] BOESEBECK, ET AL., NUC. PHYS. 833, 445 (1971)
 [85] BOESEBECK, ET AL., PHYS. LETTERS 348, 659 (1971)
 [86] BONDAR, ET AL., NUOVO CIMENTO 44A, 530 (1966)
 [87] BOWLER, ET AL., NUC. PHYS. 817, 331 (1970)
 [88] BRANDT, ET AL., PHYS. LETTERS 22, 109 (1966)
 [89] BRANDT, ET AL., PHYS. LETTERS 22, 230 (1966)
 [90] BRAU, ET AL., PHYS. REV. LETTERS 27, 1481 (1971)
 [91] BRAUN, ET AL., PHYS. REV. LETTERS 21, 1275 (1968)
 [92] BROWN, UCRL 18254 (1968)
 [93] BROWN, ET AL., PHYSICAL REVIEW D 1, 3053 (1970)
 [94] BRUYANT, ET AL., PHYS. LETTERS 10, 232 (1964)
 [95] BRUYANT, ET AL., PHYS. LETTERS 12, 278 (1964)
 [96] BUGG, ET AL., NUC. PHYS. 86, 246 (1968)
 [97] BULLOCK, ET AL., PHYS. LETTERS 278, 402 (1968)
 [98] BUTLER, UCRL 19845 (1970)
 [99] CAMPBELL, ET AL., PHYS. REV. LETTERS 22, 1204 (1969)
 [100] CARAYANNOPOULOS, ET AL., PHYS. REV. 138, 8433 (1965)
 [101] CARLSON, ET AL., PHYS. LETTERS 338, 502 (1970)
 [102] CARROLL, ET AL., PHYS. REV. LETTERS 20, 607 (1968)
 [103] CARROLL, ET AL., PHYS. REV. LETTERS 25, 1393 (1970)
 [104] CARROLL, ET AL., PHYS. REV. LETTERS 27, 1025 (1971)
 [105] CARROLL, ET AL., PHYS. REV. LETTERS 28, 318 (1972)
 [106] CARTER, ET AL., PHYS. REV. 168, 1457 (1968)
 [107] CASO, ET AL., NUC. PHYS. 836, 349 (1972)
 [108] CHAPMAN, ET AL., PHYSICAL REVIEW D 3, 38 (1971)
 [109] CHAUDHARY, THESIS (1970)
 [110] CHAUDHARY, ET AL., PHYS. REV. D2, 2110 (1970)
 [111] CHAUMET, THESIS(3/CYCLE) (1970)
 [112] CHAURAND, THESIS(3/CYCLE) (1970)
 [113] CHAVANON, ET AL., PHYS. LETTERS 288, 296 (1968)
 [114] CIRBA, ET AL., NUC. PHYS. 823, 533 (1970)
 [115] CLINE, ET AL., PHYS. REV. LETTERS 23, 491 (1969)
 [116] CNOPS, ET AL., PHYS. REV. LETTERS 21, 1609 (1968)
 [117] CNOPS, ET AL., PHYS. LETTERS 298, 45 (1969)
 [118] COHEN, ET AL., NUC. PHYS. 832, 189 (1971)
 [119] COHN, ET AL., PHYS. REV. LETTERS 15, 906 (1965)
 [120] COHN, ET AL., PHYS. LETTERS 15, 344 (1965)
 [121] COHN, ET AL., PHYS. LETTERS 21, 347 (1966)
 [122] COHN, ET AL., NUC. PHYS. 82, 690 (1966)
 [123] COHN, ET AL., NUC. PHYS. 81, 57 (1967)
 [124] COOPER, ET AL., PHYS. REV. LETTERS 20, 472 (1968)
 [125] COOPER, ET AL., NUC. PHYS. 823, 605 (1970)
 [126] CRAWFORD JR., ET AL., PHYS. REV. 128, 368 (1962)
 [127] GRENELL, ET AL., PHYS. REV. LETTERS 18, 323 (1967)
 [128] GRENELL, ET AL., PHYS. LETTERS 288, 136 (1968)
 [129] GRENELL, ET AL., PHYS. REV. LETTERS 27, 1674 (1971)
 [130] CRIJNS, ET AL., PHYS. LETTERS 22, 533 (1966)
 [131] DAGAN, ET AL., PHYS. REV. 161, 1384 (1967)
 [132] DANBURG, ET AL., PHYS. REV. LETTERS 23, 41 (1969)
 [133] DANBURG, ET AL., PHYS. LETTERS 308, 270 (1969)
 [134] DANBURG, UCRL 19275 (1969)
 [135] DANBURG, ET AL., PHYS. REV. D2, 2564 (1970)
 [136] DAO, THESIS (1970)
 [137] DARNIAN, ET AL., NUOVO CIMENTO 41, 503 (1966)
 [138] DAUBER, ET AL., PHYS. LETTERS 298, 609 (1969)
 [139] DAVIDSON, THESIS (1971)
 [140] DAVIES, UCRL 19263 (1969)
 [141] DAVIES, ET AL., PHYSICAL REVIEW D 2, 506 (1970)
 [142] DEBAISIEUX, ET AL., NUC. PHYS. 85, 147 (1968)
 [143] DE BEER, ET AL., NUC. PHYS. 82, 617 (1969)
 [144] DEERY, ET AL., PHYS. LETTERS 318, 82 (1970)
 [145] DEERY, ET AL., PHYSICAL REVIEW D 3, 635 (1971)
 [146] DEKKERS, ET AL., PHYS. LETTERS 11, 161 (1964)
 [147] DENISOV, ET AL., PHYS. LETTERS 368, 415 (1971)
 [148] DE ROSNY, ET AL., NUOVO CIMENTO 48A, 1137 (1967)
 [149] DETOEUF, ET AL., PHYS. REV. 134, 8228 (1964)
 [150] DETOEUF, ET AL., PHYS. REV. LETTERS 16, 860 (1966)
 [151] DEUTSCHMANN, ET AL., PHYS. LETTERS 12, 356 (1964)
 [152] DEUTSCHMANN, ET AL., PHYS. LETTERS 18, 351 (1965)
 [153] DEUTSCHMANN, ET AL., PHYS. LETTERS 19, 608 (1965)
 [154] DEUTSCHMANN, ET AL., PHYS. LETTERS 22, 112 (1966)
 [155] DIETERLE, ET AL., PHYS. REV. 167, 1190 (1968)
 [156] DREVERMANN, ET AL., PHYS. REV. 161, 1356 (1967)
 [157] EHRLICH, ET AL., PHYS. REV. LETTERS 20, 686 (1968)
 [158] EISENSTEIN, ET AL., PHYSICAL REVIEW D 1, 841 (1970)
 [159] ESKREYS, ET AL., ACTA PHYSICA POLONICA 34, 159 (1968)
 [160] ESTERLING, ET AL., PHYS. REV. LETTERS 21, 1410 (1968)
 [161] EVANS, ET AL., DESY 72/37 (1972)
 [162] FARBER, ET AL., NUC. PHYS. 829, 237 (1971)
 [163] FERBEL, ET AL., PHYS. REV. LETTERS 26, 344 (1971)
 [164] FISCHER, THESIS (1970)
 [165] FLATTE, ET AL., PHYS. LETTERS 348, 551 (1971)
 [166] FOELSCH, ET AL., PHYS. REV. 134, 81138 (1964)
 [167] FOLEY, ET AL., PHYS. REV. LETTERS 19, 193 (1967)
 [168] FORINO, ET AL., PHYS. LETTERS 11, 347 (1964)
 [169] FORINO, ET AL., PHYS. LETTERS 19, 65 (1965)
 [170] FORINO, ET AL., PHYS. LETTERS 19, 68 (1965)
 [171] FUNG, ET AL., PHYS. REV. LETTERS 21, 47 (1968)
 [172] GAIDOS, ET AL., NUC. PHYS. 823, 84 (1970)
 [173] GAIDOS, ET AL., PHYS. REV. D1, 3190 (1970)
 [174] GAIDOS, ET AL., PHYS. REV. D2, 1226 (1970)
 [175] GAIDOS, ET AL., NUC. PHYS. 826, 109 (1971)
 [176] GAIDOS, ET AL., NUC. PHYS. 826, 225 (1971)
 [177] GAIDOS, ET AL., NUC. PHYS. 832, 10 (1971)
 [178] GALLAGHER, ET AL., PHYS. REV. 138, 8213 (1965)
 [179] GALLOWAY, PHYS. LETTERS 268, 334 (1968)
 [180] GARFINKEL, ET AL., PHYS. REV. 186, 1400 (1969)

- [181] GELFAND, ET AL., PHYS. REV. LETTERS 12, 567 (1964)
 [182] GELFAND, THESIS (1965)
 [183] GEZELTER, ET AL., NUOVO CIMENTO 53A, 213 (1968)
 [184] GHIDINI, ET AL., NUOVO CIMENTO 58A, 524 (1968)
 [185] GIDAL, ET AL., PHYS. REV. LETTERS 23, 994 (1969)
 [186] GOLDBERG, ET AL., PHYS. LETTERS 17, 354 (1965)
 [187] GOLDBERGER, ET AL., PHYS. REV. LETTERS 12, 336 (1964)
 [188] GOLDBERGER, ET AL., PHYS. REV. LETTERS 23, 1351 (1969)
 [189] GORDON, UNIV. OF ILLINOIS 1195 (1970)
 [190] GRAMENITSKII, ET AL., AKAD.NAUK SSR
 BULL. PHYSICAL SCIENCES 31, 1519 (1968)
 [191] GRARD, ET AL., PHYS. REV. 127, 607 (1962)
 [192] GREYER, ET AL., PHYS. REV. LETTERS 26, 792 (1971)
 [193] GROSSMAN, ET AL., PHYS. REV. 178, 2109 (1969)
 [194] HAN, ET AL., PHYS. REV. LETTERS 24, 1353 (1970)
 [195] HAN, THESIS (1970)
 [196] HANSON, ET AL., PHYS. REV. D4, 1296 (1971)
 [197] HARRISON, ET AL., PHYS. REV. D5, 2730 (1972)
 [198] HOFMOKL, ET AL., NUC. PHYS. B4, 573 (1968)
 [199] HONES, ET AL., PHYS. REV. D2, 827 (1970)
 [200] HSIUNG, ET AL., PHYS. REV. LETTERS 21, 187 (1968)
 [201] JACQUET, ET AL., NUOVO CIMENTO 63A, 743 (1969)
 [202] JAMES, ET AL., PHYS. REV. 142, 896 (1966)
 [203] KALBACI, ET AL., PHYS. REV. LETTERS 27, 74 (1971)
 [204] KALMUS, ET AL., PHYS. REV. D2, 1824 (1970)
 [205] KATZ, THESIS (1970)
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 [207] KEMP, ET AL., NUOVO CIMENTO 8A, 611 (1972)
 [208] KENYON, ET AL., PHYS. REV. LETTERS 23, 146 (1969)
 [209] KIRZ, ET AL., PHYS. REV. 126, 763 (1962)
 [210] KO, THESIS (1971)
 [211] KOFLER, ET AL., PHYS. REV. 163, 1479 (1967)
 [212] KOPP, ET AL., PHYS. REV. 123, 301 (1961)
 [213] KRAEMER, ET AL., PHYS. REV. 136, 8496 (1964)
 [214] KRAMER, ET AL., PHYS. REV. LETTERS 25, 396 (1970)
 [215] KRAMER, THESIS (1971)
 [216] KREBS, THESIS (1970)
 [217] KUNG, THESIS (1969)
 [218] LAMSA, ET AL., PHYS. REV. D1, 3091 (1970)
 [219] LARRIBE, ET AL., PHYS. LETTERS 23, 600 (1966)
 [220] LITCHFIELD, ET AL., PHYS. LETTERS 248, 486 (1967)
 [221] LITCHFIELD, NUOVO CIMENTO 48A, 468 (1968)
 [222] LITCHFIELD, PHYS. REV. 183, 1152 (1969)
 [223] MACNAUGHTON, UCRL 20178 (1971)
 [224] MADDOCK, ET AL., NUOVO CIMENTO 5A, 433 (1971)
 [225] MADDOCK, ET AL., NUOVO CIMENTO 5A, 457 (1971)
 [226] MANNING, UCRL 19339 (1969)
 [227] MATTHEWS, THESIS (1971)
 [228] MATTHEWS, ET AL., NUOVO CIMENTO LETTERS 1, 361 (1971)
 [229] MATTHEWS, ET AL., PHYS. REV. D3, 2561 (1971)
 [230] MATTHEWS, ET AL., NUC. PHYS. B32, 366 (1971)
 [231] MATTHEWS, ET AL., NUC. PHYS. B33, 1 (1971)
 [232] MATTHEWS, ET AL., PHYS. REV. LETTERS 26, 400 (1971)
 [233] MEYTEL, THESIS (1970)
 [234] METZGER, ET AL., PHYS. REV. 164, 1680 (1967)
 [235] MICHAEL, ET AL., PHYS. REV. LETTERS 28, 1475 (1972)
 [236] MILLER, ET AL., PHYS. LETTERS 288, 51 (1968)
 [237] MILLER, ET AL., PHYS. REV. 178, 2061 (1969)
 [238] MILLER, THESIS (1971)
 [239] MOORE, THESIS (1970)
 [240] MORSE, ET AL., PHYS. REV. D4, 133 (1971)
 [241] MOTT, NUC. PHYS. B13, 565 (1969)
 [242] MULLER, ET AL., PHYS. LETTERS 10, 349 (1964)
 [243] MURRO, ET AL., NUOVO CIMENTO 2A, 514 (1971)
 [244] MURRO, ET AL., NUOVO CIMENTO 3A, 721 (1971)
 [245] NEUCOMB, PHYS. REV. 132, 1283 (1963)
 [246] NOREM, NUC. PHYS. B33, 512 (1971)
 [247] OH, ET AL., PHYS. REV. LETTERS 23, 331 (1969)
 [248] OTWINOWSKI, PHYS. LETTERS 298, 529 (1969)
 [249] PALER, ET AL., PHYS. REV. LETTERS 26, 1675 (1971)
 [250] PALER, ET AL., NUC. PHYS. B33, 13 (1971)
 [251] PALER, ET AL., NUOVO CIMENTO LETTERS 2, 1063 (1971)
 [252] PAN, ET AL., PHYS. REV. LETTERS 23, 806 (1969)
 [253] PAN, ET AL., PHYSICAL REVIEW D 2, 449 (1970)
 [254] PAN, ET AL., NUC. PHYS. B16, 61 (1970)
 [255] PAN, ET AL., NUC. PHYS. B21, 395 (1970)
 [256] PAULI, ET AL., SIENNA CONFERENCE 1, 92 (1963)
 [257] PAULI, ET AL., PHYS. LETTERS 13, 351 (1964)
 [258] PEVSNER, ET AL., PHYS. REV. LETTERS 7, 421 (1961)
 [259] PICCIARELLI, ET AL., ANN. INT. CONF. ON HIGH EN. PHYSICS, KIEV (1970)
 [260] POLS, ET AL., NUC. PHYS. B25, 109 (1970)
 [261] PRATT, ET AL., STANF. LIN. ACCEL. CNTR., REPORT NO. SLAC-PUB-1071 (1972)
 [262] PRUSS, ET AL., PHYS. REV. LETTERS 23, 189 (1969)
 [263] RADER, UCRL 19431 (1969)
 [264] RICHARD-SERRE, ET AL., NUC. PHYS. B20, 413 (1970)
 [265] RINAUDO, ET AL., NUOVO CIMENTO 5A, 239 (1971)
 [266] RINAUDO, ET AL., NUOVO CIMENTO 10A, 1 (1972)
 [267] RONAT, ET AL., NUC. PHYS. B38, 20 (1972)
 [268] SABAU, ET AL., NUOVO CIMENTO LETTERS 1, 514 (1971)
 [269] SCHARENGUIVEL, ET AL., NUC. PHYS. B36, 363 (1972)
 [270] SCHOTANUS, ET AL., NUC. PHYS. B22, 45 (1970)
 [271] SHEN, UCRL 16170 (1965)
 [272] SHENG, THESIS (1970)
 [273] SLATTERY, THESIS (1967)
 [274] SLATTERY, ET AL., NUOVO CIMENTO 50, 377 (1967)
 [275] SMITH, ET AL., PHYS. REV. 171, 1399 (1968)
 [276] SMITH, ET AL., PHYS. REV. LETTERS 23, 335 (1969)
 [277] STONE, ET AL., NUC. PHYS. B32, 19 (1971)
 [278] STONEHILL, ET AL., PHYS. REV. LETTERS 6, 624 (1961)
 [279] STUNTEBECK, ET AL., PHYS. LETTERS 328, 391 (1970)
 [280] TILGER, ET AL., PHYS. REV. 142, 972 (1966)
 [281] TOMASINI, ET AL., NUOVO CIMENTO 7A, 651 (1972)
 [282] TRILLING, ET AL., PHYS. LETTERS 19, 427 (1965)
 [283] VANDERHAGHEN, ET AL., NUC. PHYS. B13, 329 (1969)
 [284] VEGNI, ET AL., PHYS. LETTERS 19, 526 (1965)
 [285] VONDARDEL, ET AL., PHYS. REV. LETTERS 5, 333 (1960)
 [286] VON DARDEL, ET AL., PHYS. REV. LETTERS 7, 127 (1961)
 [287] WILLIAMSON, ET AL., PHYS. REV. LETTERS 29, 1353 (1972)
 [288] WILLMANN, ET AL., PHYS. REV. LETTERS 24, 1260 (1970)
 [289] WILLIS, PHYS. REV. 116, 753 (1959)
 [290] WINKELMANN, THESIS (1968)
 [291] WOLFSON, THESIS MIT (1968)
 [292] XUONG, ET AL., PHYS. REV. LETTERS 11, 227 (1963)
 [293] YAMAMOTO, ET AL., PHYS. REV. 134, 8383 (1964)
 [294] YAMAMOTO, ET AL., PHYS. REV. 140, 8730 (1965)
 [295] YAMAMOTO, ET AL., PHYS. REV. 173, 1302 (1968)
 [296] YING, ET AL., PHYS. LETTERS 308, 289 (1969)
 [297] YOST, ET AL., PHYSICAL REVIEW D 3, 642 (1971)

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- [46] OBSERVATION OF MULTIPION RESONANCES AT 1630 AND 1720 MEV IN HIGH-ENERGY $\pi^+ p$ COLLISIONS. [PHYS. REV. LETTERS 20, 887 (1968)]
- [47] SEARCH FOR AN $I=5/2$ ISOBAR AT 1.9 GEV/C INCIDENT MOMENTUM IN THE REACTION $\pi^+ p \rightarrow \pi^- N^{+++}$. [NUC. PHYS. 815, 205 (1970)]
- [48] SIX-PRONG INTERACTIONS OF π^+ MESONS WITH PROTONS AT 8 GEV/C. [PHYS. REV. D4, 2711 (1971)]
- [49] SINGLE-PION PRODUCTION IN $\pi^+ p$ COLLISIONS AT 820, 900, AND 1050 MEV [NUOVO CIMENTO 27, 238 (1963)]
- [50] A_2^+ MASS SPECTRUM IN $\pi^+ p$ INTERACTIONS AT 3.7 GEV/C. [PHYS. REV. LETTERS 26, 1494 (1971)]
- [51] OBSERVATION OF THE HEAVY NUCLEON ISOBAR $N^*(1236)$ [PHYS. LETTERS 24B, 118 (1967)]
- [52] PION PRODUCTION IN PION-PROTON COLLISIONS AT 4-11 GEV/C MULTIPLICITY DISTRIBUTION AND A POSSIBLE QUALITATIVE INTERPRETATION OF THE BARYON ANGULAR DISTRIBUTION. [NUC. PHYS. 85, 582 (1968)]
- [53] ON THE PRODUCTION OF THE $3/2, 3/2$ ISOBAR IN 4 GEV/C $\pi^+ p$ INTERACTIONS. [PHYS. LETTERS 10, 229 (1964)]
- [54] EVIDENCE FOR AN ISOSCALAR RHO π RESONANCE AT 975 MEV. [PHYS. LETTERS 11, 167 (1964)]
- [55] STRANGE-PARTICLE PRODUCTION IN $\pi^- p$ AND $\pi^+ p$ COLLISIONS AT 4 GEV/C. [NUOVO CIMENTO 43A, 1010 (1966)]
- [56] MASS DEPENDENCE OF THE SMALL ANGLE DIFFERENTIAL CROSS SECTION FOR HIGH ENERGY INTERACTIONS. [PHYS. LETTERS 27B, 336 (1968)]
- [57] OBSERVATION AND ANALYSIS OF THE 1660 MEV 3π RESONANCE A_3^+ IN 8 GEV/C $\pi^+ p$ INTERACTIONS. [NUC. PHYS. 87, 345 (1968)]
- [58] COMPARISON OF $\pi^+ p$ AND $K^- p$ REACTIONS WITH A MULTIPERIPHERAL MODEL USING THE VAN HOFVE HEXAGON AND CUBOCTAHEDRON PLOTS. [NUC. PHYS. 819, 381 (1970)]
- [59] THE η -MESON. [NUC. PHYS. 822, 109 (1970)]
- [60] STUDY OF THE REACTIONS $\pi^+ p \rightarrow K^+ \Sigma^+ \pi^0$ AND $\pi^+ p \rightarrow K^+ Y (1385)^+ \pi^-$ BETWEEN 3.5 AND 14 GEV/C. [PHYS. REV. D4, 2667 (1971)]
- [61] STUDY OF THE TWO-CHARGED PARTICLE FINAL STATES OF 3.9-GEV/C $\pi^+ p$ INTERACTIONS INCLUDING A LONGITUDINAL-MOMENTUM ANALYSIS OF THE ONE-PION-PRODUCTION CHANNELS. [PHYS. REV. D3, 2047 (1971)]
- [62] SEARCH FOR RARE η DECAY MODES. C-NONCONSERVING DECAY $\eta \rightarrow \pi^0 \pi^0$; DALITZ DECAY $\eta \rightarrow e^- \gamma$ [PHYS. REV. LETTERS 19, 1157 (1967)]
- [63] S-WAVE INTERFERENCE IN THE ρ RESONANCE REGION. [NUC. PHYS. 82B, 77 (1971)]
- [64] EVIDENCE FOR THE $I = 1/2$ $N^*(1400)$ RESONANCE PRODUCTION IN $\pi^+ p$ INTERACTIONS AT 6 GEV/C. [PHYS. REV. LETTERS 20, 164 (1968)]

- [65] POLARISATION IN THE REACTION $\pi^+ p \rightarrow K^+ \Sigma^+ + \Lambda$ AT 1.11 GEV/C. [PHYS. LETTERS 398, 299 (1972)]
- [66] A BUBBLE CHAMBER MEASUREMENT OF $\eta \rightarrow \pi^+ \pi^- \pi^0$ AND $\eta \rightarrow \pi^+ \pi^- \pi^0 \pi^0$ DECAY RATES. [PHYS. LETTERS 338, 505 (1970)]
- [67] A STUDY OF S-WAVE $\pi^+ \pi^-$ SCATTERING IN THE REACTION $\pi^+ n \rightarrow \pi^+ \pi^0 p$ AT 2.15 GEV/C. [PHYS. LETTERS 368, 134 (1971)]
- [68] EVIDENCE THAT THE ρ HAS ISOTOPIC SPIN ZERO. [PHYS. REV. LETTERS 12, 600 (1964)]
- [69] OBSERVATION AND PROPERTIES OF THE NEUTRAL A_2 MESON [PHYS. REV. LETTERS 16, 1177 (1966)]
- [70] FURTHER EVIDENCE FOR THE H MESON [PHYS. REV. LETTERS 17, 1234 (1966)]
- [71] OMEGA AND η PRODUCTION IN $\pi^+ d \rightarrow \pi^+ \pi^+ \pi^- \pi^0$ AT 3.65 GEV/C. [PHYS. REV. LETTERS 22, 1074 (1969)]
- [72] STRANGE-PARTICLE PRODUCTION IN $\pi^+ - p$ COLLISIONS. [PHYS. REV. 139, 81097 (1965)]
- [73] ETUDE A 1.15 GEV/C DE LA CREATION ASSOCIEE $\pi^+ + p \rightarrow \Sigma^+ + K^+$ (STUDY AT 1.15 GEV/C OF ASSOCIATED PRODUCTION $\pi^+ p \rightarrow \Sigma^+ + K^+$ --- ARTICLE IN FRENCH) [NUOVO CIMENTO 21, 693 (1961)]
- [74] STUDY OF $\Delta(1236)^{++}$ + BOSON PRODUCTION IN $\pi^+ p$ INTERACTIONS AT 18.5 GEV/C. [PHYS. REV. D2, 2529 (1970)]
- [75] Δ^{++} ρ AND Δ^{++} ω FINAL STATES AT 5.45 GEV/C. [NUC. PHYS. B35, 79 (1971)]
- [76] ρ - ω INTERFERENCE AND EXCHANGE DEGENERACY IN $\pi^+ p$ INTERACTIONS AT 5.45 GEV/C. [NUC. PHYS. B35, 133 (1971)]
- [77] A_2 PRODUCTION IN 5.45 GEV/C $\pi^+ p$ INTERACTIONS. [NUC. PHYS. B37, 203 (1972)]
- [78] Δ^{++} η AND Δ^{++} χ_0 PRODUCTION IN $\pi^+ p$ INTERACTIONS AT 5.45 GEV/C AND η - χ_0 MIXING. [NUC. PHYS. B39, 525 (1972)]
- [79] TEST OF ABSORPTION-MODEL PREDICTIONS IN DOUBLE RESONANCE PRODUCTION BY 5 GEV/C π^+ MESONS ON PROTONS. [NUC. PHYS. B7, 681 (1968)]
- [80] TEST OF QUARK-MODEL PREDICTIONS IN DOUBLE RESONANCE PRODUCTION BY 5 GEV/C π^+ MESONS ON PROTONS. [PHYS. LETTERS 288, 72 (1968)]
- [81] DECAY-PROPERTIES OF THE $A_2(1300)^+$ -MESON. [NUC. PHYS. B16, 221 (1970)]
- [82] RESONANCE PRODUCTION IN 8 GEV/C π^+ INTERACTIONS IN HYDROGEN. [NUC. PHYS. B4, 501 (1968)]
- [83] SEPARATION OF ISOSPIN 1/2 AND 3/2 CONTRIBUTIONS IN SINGLE PION PRODUCTION IN $\pi^+ p$ INTERACTIONS AT 8 AND 16 GEV/C. [NUC. PHYS. B28, 381 (1971)]
- [84] ($\pi^+ \pi^-$) MASS ENHANCEMENTS IN THE INTERACTIONS OF 8 GEV/C π^+ , 16 GEV/C π^+ , 16 GEV/C π^- AND 10 GEV/C K^- WITH HYDROGEN. [NUC. PHYS. B33, 445 (1971)]
- [85] OBSERVATION OF THE FOUR-PION DECAY MODE OF THE $D(1285)$ MESON IN $\pi^+ p$ REACTIONS AT 16 GEV/C. [PHYS. LETTERS 348, 659 (1971)]
- [86] $\pi^+ p$ INTERACTIONS AT 4 GEV/C - SIX-PRONG EVENTS. [NUOVO CIMENTO 44A, 530 (1966)]
- [87] SINGLE PION PRODUCTION IN $\pi^+ p$ INTERACTIONS BETWEEN 0.6 AND 0.8 GEV/C [NUC. PHYS. B17, 331 (1970)]
- [88] THE PRODUCTION OF STRANGE PARTICLES IN 8 GEV/C π^+ PROTON INTERACTIONS. [PHYS. LETTERS 22, 109 (1966)]
- [89] PRODUCTION OF STRANGE PARTICLES IN 8 GEV/C π^+ PROTON INTERACTIONS. II. K^- $\bar{K}^0$ PRODUCTION AND Λ AND $\bar{K}^0$ CROSS SECTIONS. [PHYS. LETTERS 22, 230 (1966)]
- [90] PRISM PLOT. A NEW ANALYSIS OF MULTIBODY FINAL STATES. [PHYS. REV. LETTERS 27, 1481 (1971)]
- [91] STUDY OF THE REACTION $\pi^+ n \rightarrow \pi^+ \pi^0 p$ AT 2.15 GEV/C. [PHYS. REV. LETTERS 21, 1275 (1968)]
- [92] $\pi^+ p$ 4-PRONG INTERACTIONS BETWEEN 3 AND 4 GEV/C [UCRL 18254 (1968)]
- [93] STUDY OF $\pi^+ p$ FOUR-PRONG INTERACTIONS FROM 2.95 TO 4.08 GEV/C [PHYSICAL REVIEW D 1, 3053 (1970)]
- [94] PRODUCTION OF NEUTRAL PARTICLES IN $\pi^+ d$ INTERACTIONS AT 6 GEV/C AND 1-SPIN OF ρ . [PHYS. LETTERS 10, 232 (1964)]
- [95] CROSS SECTION FOR THE CHARGE EXCHANGE REACTION $\pi^+ + n \rightarrow \pi^0 + p$ AT 6 GEV/C PION MOMENTUM [PHYS. LETTERS 12, 278 (1964)]
- [96] $\pi^+ n$ INTERACTIONS AT 3.29 GEV/C. FOUR- AND FIVE-PION EVENTS [NUC. PHYS. B6, 246 (1968)]
- [97] A DETERMINATION OF THE BRANCHING RATIO ($\eta \rightarrow 3 \pi^0$)/($\eta \rightarrow \pi^+ \pi^- \pi^0$) [PHYS. LETTERS 278, 402 (1968)]
- [98] STRANGE PARTICLE PRODUCTION IN $\pi^+ p$ INTERACTIONS NEAR 3.7 GEV/C [UCRL 19845 (1970)]
- [99] STUDY OF $\rho \rightarrow \pi^+ \pi^-$ $\Delta^{++} \rightarrow \pi^+ \pi^-$ AND $\Delta^{++} \rightarrow \pi^+ \pi^- \eta$ IN THE REACTION $\pi^+ d \rightarrow \pi^+ \pi^- p$ AT 2.7 GEV/C [PHYS. REV. LETTERS 22, 1204 (1969)]
- [100] PRODUCTION OF $\Sigma^+ K^+$ BY $\pi^+ p$ INTERACTIONS AT 1111, 1206, AND 1265 MEV/C [PHYS. REV. 138, 8433 (1965)]
- [101] BACKWARD ρ^0 PRODUCTION IN $\pi^+ p$ REACTIONS AT 5.2 GEV/C. [PHYS. LETTERS 338, 502 (1970)]
- [102] $\pi^+ p$ BACKWARD SCATTERING BETWEEN 1.5 AND 3.0 GEV/C. [PHYS. REV. LETTERS 20, 607 (1968)]
- [103] DIFFERENCE IN ENERGY DEPENDENCE FOR A_2^- AND A_2^0 PRODUCTION. [PHYS. REV. LETTERS 25, 1393 (1970)]
- [104] OBSERVATION OF NATURAL-PARITY EXCHANGE IN ρ^0 PRODUCTION. [PHYS. REV. LETTERS 27, 1025 (1971)]
- [105] OBSERVATION OF AN S-WAVE RESONANCE IN THE ρ MASS REGION. [PHYS. REV. LETTERS 28, 318 (1972)]
- [106] PION-NUCLEON TOTAL CROSS SECTIONS FROM 0.5 TO 2.65 GEV/C. [PHYS. REV. 168, 1457 (1968)]
- [107] STUDY OF THE CHARGED THREE-PION SYSTEM IN THE MASS REGION OF 1400-1900 MEV AND THE QUANTUM NUMBERS OF THE $A_3(1640)$. [NUC. PHYS. B36, 349 (1972)]
- [108] QUASI-TWO-BODY PRODUCTION IN $\pi^+ p$ INTERACTIONS INTO FOUR PRONGS AT 1.95 GEV/C. [PHYSICAL REVIEW D 3, 38 (1971)]
- [109] PION NUCLEON INTERACTIONS IN DEUTERIUM AT 3.65 GEV/C. [THESIS (1970)]
- [110] COMMENT ON EVIDENCE FOR THE H MESON. [PHYS. REV. D2, 2110 (1970)]
- [111] ETUDE DE LA REACTION $\pi^+ p \rightarrow \rho^0 \Delta^{++} A$ 11.7 GEV/C. [THESIS(3/CYCLE) (1970)]
- [112] PRINCIPALES CARACTERISTIQUES DES REACTIONS $\pi^+ p \rightarrow \pi^+ p$, $\pi^+ p \rightarrow \pi^+ \pi^0 p$, $\pi^+ p \rightarrow \pi^+ p \eta$ A 5 GEV/C. ANALYSE DES PRODUCTIONS DE Δ^+ , Δ^0 , η ET ρ^0 . [THESIS(3/CYCLE) (1970)]
- [113] DETERMINATION OF THE ANGULAR DISTRIBUTION OF PION IN THE REACTION $\pi^+ p \rightarrow \pi^+ \pi^0 p$ BETWEEN 600 AND 1300 MEV. [PHYS. LETTERS 288, 296 (1968)]
- [114] ANALYSIS OF $\pi^+ p$ π^- ENHANCEMENTS PRODUCED IN THE REACTION $\pi^+ p \rightarrow \pi^+ p \pi^+ \pi^-$ AT 5 GEV/C. [NUC. PHYS. B23, 533 (1970)]
- [115] OBSERVATION OF 'PERIPHERAL' BACKWARD MULTIPION PRODUCTION AT 2.15 GEV/C [PHYS. REV. LETTERS 23, 491 (1969)]
- [116] COHERENT PRODUCTION OF $\pi^+ \pi^+ \pi^-$ IN DEUTERIUM BY 8 GEV/C π^+ [PHYS. REV. LETTERS 21, 1609 (1968)]
- [117] A_1 PRODUCTION IN 8 GEV/C $\pi^+ d$ INTERACTIONS [PHYS. LETTERS 298, 45 (1969)]
- [118] PION PRODUCTION MECHANISM IN HIGH MULTIPLICITY $\pi^+ p$ INTERACTIONS AT 8 GEV/C. [NUC. PHYS. B32, 189 (1971)]
- [119] SEARCH FOR A NEUTRAL SCALAR MESON. [PHYS. REV. LETTERS 15, 906 (1965)]
- [120] EXCHANGE MECHANISM FOR OMEGA-PRODUCTION IN $\pi^+ n$ INTERACTIONS. [PHYS. LETTERS 15, 344 (1965)]
- [121] OBSERVATION OF χ_0 PRODUCTION IN $\pi^+ n$ INTERACTIONS. [PHYS. LETTERS 21, 347 (1966)]
- [122] PRODUCTION AND DECAY OF THE F -ZERO MESON. [NUC. PHYS. B2, 690 (1966)]
- [123] PROPERTIES OF THE NEUTRAL A -MESONS [NUC. PHYS. B1, 57 (1967)]
- [124] Σ HYPERON PRODUCTION IN 2- AND 3-BODY FINAL STATES. [PHYS. REV. LETTERS 20, 472 (1968)]
- [125] PRODUCTION OF STRANGE PARTICLES IN $\pi^+ p$ INTERACTIONS AT 5.5 GEV/C. [NUC. PHYS. B23, 605 (1970)]
- [126] PRODUCTION OF $\Sigma^+ K^+$ BY (π^+, p) INTERACTION AT 1170 MEV/C [PHYS. REV. 128, 368 (1962)]
- [127] EVIDENCE FOR AN $I = 1$ DI-PION RESONANCE AT 1.63 GEV. [PHYS. REV. LETTERS 18, 323 (1967)]
- [128] PRODUCTION OF THE $G(1640)$ MESON IN $\pi^+ p$ INTERACTIONS AT 6 GEV/C. [PHYS. LETTERS 288, 136 (1968)]
- [129] STUDY OF OMEGA EXCHANGE ISOLATED IN THE REACTIONS $\pi^+ p \rightarrow \rho^0 n$ AT 6 GEV/C. [PHYS. REV. LETTERS 27, 1674 (1971)]
- [130] DECAY ANGULAR DISTRIBUTIONS OF RESONANCES IN TWO-BODY REACTIONS PRODUCED BY 8 GEV/C POSITIVE PIONS ON PROTONS. [PHYS. LETTERS 22, 533 (1966)]
- [131] STRANGE-PARTICLE PRODUCTION BY 1.95-GEV/C π^+ IN HYDROGEN. [PHYS. REV. 161, 1384 (1967)]
- [132] EVIDENCE AGAINST AN $I = 5/2$ BARYON RESONANCE OF MASS 1640 MEV/C-SQUARED. [PHYS. REV. LETTERS 23, 41 (1969)]
- [133] $\pi^+ n \rightarrow \eta p$. A REGGE PARAMETRIZATION OVER A LARGE ENERGY RANGE USING VENEZIANO-TYPE RESIDUE FUNCTIONS. [PHYS. LETTERS 308, 270 (1969)]
- [134] A STUDY OF THE REACTION $\pi^+ d \rightarrow (p) p \pi^+ \pi^- \pi^0$ AT INCIDENT PION MOMENTA BETWEEN 1.1 AND 2.4 GEV/C. [UCRL 19275 (1969)]
- [135] PRODUCTION AND DECAY OF η AND ω MESONS IN THE REACTION $\pi^+ d \rightarrow (p) p \pi^+ \pi^- \pi^0$ BETWEEN 1.1 AND 2.4 GEV/C. [PHYS. REV. D2, 2564 (1970)]
- [136] AN ANALYSIS OF THE REACTION $\pi^+ p \rightarrow \pi^+ \pi^+ \pi^- \pi^0$ AT 5.72 GEV/C [THESIS (1970)]
- [137] $\pi^+ p$ INTERACTIONS AT 1.6 GEV/C [NUOVO CIMENTO 41, 503 (1966)]
- [138] OBSERVATION OF FORWARD PEAKS IN SINGLE-MESON-EXCHANGE FORBIDDEN REACTIONS. [PHYS. LETTERS 298, 609 (1969)]
- [139] PION-PROTON TOTAL CROSS SECTION FROM 0.4-0.9 GEV/C. [THESIS (1971)]
- [140] STRANGE PARTICLE PRODUCTION IN $\pi^+ d$ INTERACTIONS FROM 1.1-2.4 GEV/C. [UCRL 19263 (1969)]
- [141] STRANGE-PARTICLE PRODUCTION IN $\pi^+ d$ INTERACTIONS FROM 1.1 TO 2.4 GEV/C [PHYSICAL REVIEW D 2, 506 (1970)]
- [142] $\pi^+ p$ INTERACTIONS AT 850 MEV/C [NUC. PHYS. B5, 147 (1968)]

- [143] PARTIAL WAVE ANALYSIS OF THE REACTION $\pi^+ n \rightarrow n \pi^+ \pi^-$ BELOW 1 GEV. (II) $\pi^+ p$ INELASTIC INTERACTIONS. [NUC. PHYS. B12, 617 (1969)]
- [144] APPLICATION OF THE VENEZIANO MODEL IN THE REACTION $\pi^+ d \rightarrow d \pi^+ \pi^-$ AT 5.4 GEV/C. [PHYS. LETTERS 318, 82 (1970)]
- [145] COHERENT PRODUCTION OF PIONS IN DEUTERIUM AT 5.4 GEV/C. [PHYSICAL REVIEW D 3, 635 (1971)]
- [146] EXPERIMENTAL STUDY OF THE $\pi^+ d \rightarrow p p$ REACTION BETWEEN 0.65 AND 1.95 GEV/C. [PHYS. LETTERS 11, 161 (1964)]
- [147] TOTAL CROSS SECTIONS OF π^+ , K^+ AND p ON PROTONS AND DEUTERONS IN THE MOMENTUM RANGE 15-60 GEV/C. [PHYS. LETTERS 368, 415 (1971)]
- [148] SPIN OF THE F ZERO FROM $\pi^+ d$ INTERACTIONS AT 6 GEV/C. [NUOVO CIMENTO 48A, 1137 (1967)]
- [149] MEASUREMENTS OF THE $\pi^+ p \rightarrow \pi^+ p \pi^0$ CROSS SECTION FROM 0.5 TO 1.5 GEV/C. [PHYS. REV. 134, B228 (1964)]
- [150] ANGULAR DISTRIBUTION OF THE π^0 -ZERO IN THE REACTION $\pi^+ + p \rightarrow \pi^+ + p + \pi^0$ UP TO 1070 MEV. [PHYS. REV. LETTERS 16, 860 (1966)]
- [151] RESONANCE PRODUCTION BY 8 GEV/C POSITIVE PIONS ON PROTONS. [PHYS. LETTERS 12, 356 (1964)]
- [152] SINGLE π^0 PRODUCTION BY 8 GEV/C POSITIVE PIONS AND POSSIBLE ENHANCEMENTS IN THE $(\pi^+ \pi^0)$ SYSTEM. [PHYS. LETTERS 18, 351 (1965)]
- [153] SLOPE OF D-SIGMA/D-T DISTRIBUTIONS IN QUASI-TWO-BODY INTERACTIONS OF 8 GEV/C POSITIVE PIONS. [PHYS. LETTERS 19, 608 (1965)]
- [154] EVIDENCE AGAINST THE INTERPRETATION OF THE A_1 ENHANCEMENT AS A KINEMATIC EFFECT. [PHYS. LETTERS 22, 112 (1966)]
- [155] EXPERIMENTAL DETERMINATION OF THE K SIGMA N PARITY USING A POLARIZED TARGET. [PHYS. REV. 167, 1190 (1968)]
- [156] STUDY OF THE 6-PRONGED $\pi^+ p$ INTERACTIONS AT 5 GEV/C. [PHYS. REV. 161, 1356 (1967)]
- [157] OBSERVATION OF A PPPBAR(3755) ENHANCEMENT IN THE REACTION $\pi^+ p \rightarrow \pi^+ p \text{ PPPBAR}$ AT 8.4 BEV/C. [PHYS. REV. LETTERS 20, 686 (1968)]
- [158] FEATURES OF THE REACTION $\pi^+ d \rightarrow \pi^+ d \pi^+ \pi^-$ AT 4.2 GEV/C. [PHYSICAL REVIEW D 1, 841 (1970)]
- [159] ANGULAR CORRELATIONS BETWEEN PIONS IN TEN-PRONG $\pi^+ p$ INTERACTIONS AT 8 GEV/C PRIMARY π^+ MOMENTUM. [ACTA PHYSICA POLONICA 34, 159 (1968)]
- [160] MEASUREMENTS OF THE POLARIZATION IN $\pi^+ p$ ELASTIC SCATTERING AT 5.15 GEV/C. [PHYS. REV. LETTERS 21, 1410 (1968)]
- [161] THE REACTION $\pi^+ p \rightarrow \Omega^- \Delta^+(1236)++$ AT 11.7 GEV/C. [DESY 72/37 (1972)]
- [162] RESONANCE PRODUCTION IN $\pi^+ d$ REACTIONS AT 5.4 GEV/C. [NUC. PHYS. B29, 237 (1971)]
- [163] MOMENTUM-TRANSFER DEPENDENCE IN REACTIONS OF THE TYPE $A + p \rightarrow \Delta^{++} + A + \pi^+$. [PHYS. REV. LETTERS 26, 344 (1971)]
- [164] DIFFERENTIAL CROSS SECTION AND POLARIZATION OF THE REACTION $\pi^+ p \rightarrow K^+ \Sigma^+$ FROM 2.75 TO 14 GEV/C. [THESIS (1970)]
- [165] ρ MASS SPECTRUM IN 7-GEV/C $\pi^+ p$ INTERACTIONS. [PHYS. LETTERS 348, 551 (1971)]
- [166] MULTIPLE PION PRODUCTION IN INTERACTIONS OF POSITIVE PIONS WITH PROTONS NEAR 1 BEV. [PHYS. REV. 134, B1138 (1964)]
- [167] EXPERIMENTAL TEST OF THE PION-NUCLEON FORWARD DISPERSION RELATIONS AT HIGH ENERGIES. [PHYS. REV. LETTERS 19, 193 (1967)]
- [168] PION SYSTEMS IN $\pi^+ d$ INTERACTIONS AT 4.5 GEV/C. [PHYS. LETTERS 11, 347 (1964)]
- [169] DIPION RESONANT SYSTEMS PRODUCED IN 4.5 GEV/C $\pi^+ d$ INTERACTIONS. [PHYS. LETTERS 19, 65 (1965)]
- [170] DOUBLE PION PRODUCTION IN $\pi^+ d$ INTERACTIONS AT 4.5 GEV/C. [PHYS. LETTERS 19, 68 (1965)]
- [171] EVIDENCE FOR THE KINEMATIC ORIGIN OF THE H ENHANCEMENT. [PHYS. REV. LETTERS 21, 47 (1968)]
- [172] DOUBLE-REGGE POLE ANALYSIS OF $\pi^+ p \rightarrow \pi^+ p \pi^- \Delta^{++}$ AT 13.1 GEV/C. [NUC. PHYS. B23, 84 (1970)]
- [173] REACTION $\pi^+ p \rightarrow \rho^0 \Delta^{++}$ AT 13.1 GEV/C. [PHYS. REV. D1, 3190 (1970)]
- [174] DOUBLE-REGGE-POLE ANALYSIS OF $\pi^+ p \rightarrow \pi^+ \rho^0 p$ AT 13.1 GEV/C. [PHYS. REV. D2, 1226 (1970)]
- [175] DOUBLE-REGGE-POLE ANALYSIS OF $\pi^+ p \rightarrow \pi^+ \rho^0 p$ AT 13.1 GEV/C. [NUC. PHYS. B26, 109 (1971)]
- [176] THE REACTION $\pi^+ p \rightarrow \rho^0 \Delta^{++}$ AT 13.1 GEV/C. [NUC. PHYS. B26, 225 (1971)]
- [177] PRODUCTION OF $K^+ K^-$ AND $p \bar{p}$ PAIRS IN FOUR-BODY REACTIONS AT 13.1 GEV/C. [NUC. PHYS. B32, 10 (1971)]
- [178] TOTAL CROSS SECTIONS OF PROTONS, ANTIPROTONS, AND π^+ AND K MESONS ON HYDROGEN AND DEUTERIUM IN THE MOMENTUM RANGE 6-22 GEV/C. [PHYS. REV. 138, B913 (1965)]
- [179] POSSIBLE EVIDENCE FOR THE N $\pi^+ \pi^-$ DECAY MODE OF THE $\Delta(1920)$ AND THE $\Delta(2420)$ NUCLEON ISOBARS. [PHYS. LETTERS 268, 334 (1968)]
- [180] REACTION $\pi^+ n \rightarrow K^+ K^- p$ AT 2.7 GEV/C. [PHYS. REV. 186, 1400 (1969)]
- [181] NEUTRAL DECAY AND ISOTOPIC SPIN OF THE F ZERO. [PHYS. REV. LETTERS 12, 567 (1964)]
- [182] PRODUCTION OF PIONIC RESONANCES IN $\pi^+ + p$ INTERACTIONS AROUND 2.5 BEV/C. [THESIS (1965)]
- [183] A SEARCH FOR THE EPSILON 0 MESON. [NUOVO CIMENTO 53A, 213 (1968)]
- [184] CHARGED ρ^0 PRODUCTION IN ASSOCIATION WITH Δ^0 IN $\pi^+ p \rightarrow \rho^0 \Delta^0$ INTERACTIONS AT 5 GEV/C. [NUOVO CIMENTO 58A, 524 (1968)]
- [185] OBSERVATION OF REGGE EFFECTS IN THE REACTION $\pi^+ p \rightarrow \pi^0 \Delta^{++}$. [PHYS. REV. LETTERS 23, 994 (1969)]
- [186] EVIDENCE FOR A NEW $\pi^+ \pi^-$ RESONANCE AT 1.67 GEV. [PHYS. LETTERS 17, 354 (1965)]
- [187] EVIDENCE FOR A $\pi^+ \rho^0$ INTERACTION PRODUCED IN THE $\pi^+ p$ REACTION AT 3.65 BEV. [PHYS. REV. LETTERS 12, 336 (1964)]
- [188] $\Omega^- \rho^0$ INTERFERENCE EFFECT IN THE $\pi^+ p \rightarrow \pi^+ \pi^- \Delta^{++}$ INTERACTION. [PHYS. REV. LETTERS 23, 1351 (1969)]
- [189] MESON AND BARYON PRODUCTION IN THE REACTION $\pi^+ d$ DEUTERON GOES TO PROTON $\pi^+ \pi^- \pi^0$ AT 4.19 GEV/C. [UNIV. OF ILLINOIS 1195 (1970)]
- [190] INVESTIGATION OF THE ρ^0 AND N^{*++} RESONANCES IN THE $\pi^+ p \rightarrow \pi^+ p \pi^0$ REACTION FOR 2.34 GEV/C π^+ MESONS. [AKAD.NAUK SSR BULL. PHYSICAL SCIENCES 31, 1519 (1966)]
- [191] STUDY OF THE REACTION $\pi^+ p \rightarrow \Sigma^+ + K^+$ NEAR THRESHOLD. [PHYS. REV. 127, 607 (1962)]
- [192] REACTION $\pi^+ p \rightarrow \eta \Delta^{++}$. A TEST OF A2 REGGE-POLE EXCHANGE. [PHYS. REV. LETTERS 26, 792 (1971)]
- [193] η PRODUCTION IN THE REACTION $\pi^+ p \rightarrow \pi^+ \eta$ AT 1050 AND 1170 MEV/C. [PHYS. REV. 178, 2109 (1969)]
- [194] MEASUREMENT OF THE REACTION $\pi^+ p \rightarrow K^+ \Sigma^+$ AT LARGE MOMENTUM TRANSFERS. [PHYS. REV. LETTERS 24, 1353 (1970)]
- [195] A MEASUREMENT OF THE REACTION $\pi^+ + p \rightarrow K^+ + \Sigma^+$ AT LARGE MOMENTUM TRANSFERS. [THESIS (1970)]
- [196] STRANGE-PARTICLE PRODUCTION FROM $\pi^+ p$ INTERACTIONS IN THE C.M. ENERGY RANGE 1820 TO 2090 MEV. [PHYS. REV. D4, 1296 (1971)]
- [197] EVIDENCE FOR COHERENT A_2 PRODUCTION OFF DEUTERIUM. [PHYS. REV. D5, 2730 (1972)]
- [198] ON THE DOMINANT ROLE OF THE BARYON VARIABLES IN THE DESCRIPTION OF HIGH-MULTIPLICITY INTERACTIONS AT HIGH ENERGY. [NUC. PHYS. B4, 573 (1968)]
- [199] REACTION $\pi^+ p \rightarrow \pi^+ p \pi^+ \pi^- \pi^0$ AT 18.5 GEV/C. [PHYS. REV. D2, 827 (1970)]
- [200] PION-DEUTERON ELASTIC SCATTERING AT 3.65 BEV/C. [PHYS. REV. LETTERS 21, 187 (1968)]
- [201] NEUTRAL-DECAY MODE OF η AND ω MESONS. [NUOVO CIMENTO 63A, 743 (1969)]
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- UCRL-20000 YN (Jan. 1970)
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L. R. PRICE, A. H. ROSENFELD
A Compilation of YN Reactions.
- *UCRL-20001 (Jan. 1970)
G. C. FOX, C. QUIGG
Compilation of Elastic Data.
- UCRL-20030 πN (Feb. 1970)
D. J. HERNDON, A. BARBARO-GALTIERI,
A. H. ROSENFELD
 πN Partial-Wave Amplitudes.
- UCRL-20000 NN (Aug. 1970)
O. BENARY, L. R. PRICE, G. ALEXANDER
 NN and ND Interactions
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F. UCHIYAMA, J. S. LOOS
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- LBL-80 (Aug. 1972)
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A Compilation of Data on Inclusive
Reactions.
- LBL-63 (April 1973)
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R. L. KELLY, V. P. HENRI
 πN Two-Body Scattering Data:
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Data Tape.
- LBL-53 (May 1973)
D. M. CHEW, V. P. HENRI, T. A. LASINSKI,
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