LBL-53
May 1973

$\pi^{\pm}p$, $\pi^{\pm}n$, AND $\pi^{\pm}d$ INTERACTIONS– A COMPILATION: PARTS I AND II

Particle Data Group

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Lawrence Berkeley Laboratory
University of California
Berkeley, California

For Reference

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π^+p Kinematics

P(LAB)---T(LAB)---INV MASS---P(CMS)----4PILAMBARSQ-- (MEV/C)	(MEV)	(MEV)	(MEV/C)	(MB)
0	0	1078	0	
20	1	1079	17	16180.19
40	6	1083	35	4072.38
60	12	1089	52	1829.45
80	21	1096	68	1043.66
100	32	1105	85	679.23
120	44	1116	101	480.65
140	58	1127	117	360.38
160	73	1139	132	281.88
180	88	1152	147	227.69
200	104	1165	161	188.63
220	121	1178	175	159.48
240	138	1192	189	137.11
260	156	1206	202	119.52
280	173	1219	215	105.42
300	191	1233	228	93.92
320	210	1247	241	84.40
340	228	1261	253	76.43
360	247	1274	265	69.67
380	265	1288	277	63.88
400	284	1302	288	58.88
420	303	1315	300	54.52
440	322	1329	311	50.70
460	341	1342	322	47.33
480	360	1356	332	44.34
500	380	1369	343	41.66
520	399	1382	353	39.26
540	418	1395	363	37.10
560	438	1408	373	35.14
580	457	1421	383	33.36
600	476	1434	393	31.74
620	496	1447	402	30.26
640	515	1459	412	28.89
660	535	1472	421	27.63
680	555	1484	430	26.47
700	574	1496	439	25.40
720	594	1509	448	24.40
740	613	1521	457	23.48
760	633	1533	465	22.61
780	653	1545	474	21.81
800	673	1557	482	21.05
820	692	1569	490	20.34
840	712	1580	499	19.68
860	732	1592	507	19.05
880	751	1604	515	18.46
900	771	1615	523	17.90
920	791	1627	531	17.38
940	811	1638	538	16.88
960	831	1649	546	16.41
980	850	1661	554	15.96
1000	870	1672	561	15.53
1020	890	1683	569	15.13
1040	910	1694	576	14.74
1060	930	1705	583	14.38
1080	949	1716	591	14.03
1100	969	1726	598	13.69
1120	989	1737	605	13.37
1140	1009	1748	612	13.07
1160	1029	1758	619	12.77
1180	1049	1769	626	12.49
1200	1069	1780	633	12.22
1220	1088	1790	639	11.97
1240	1108	1800	646	11.72
1260	1128	1811	653	11.48
1280	1148	1821	660	11.25
1300	1168	1831	666	11.03
1320	1188	1841	673	10.82
1340	1208	1851	679	10.61
1360	1228	1862	685	10.41
1380	1247	1872	692	10.22
1400	1267	1881	698	10.04
1420	1287	1891	704	9.86
1440	1307	1901	711	9.69
1460	1327	1911	717	9.52
1480	1347	1921	723	9.36

P(LAB)---T(LAB)---INV MASS---P(CMS)----4PILAMBARSQ-- (MEV/C)	(MEV)	(MEV)	(MEV/C)	(MB)
1500	1367	1930	729	9.21
1520	1387	1940	735	9.06
1540	1407	1950	741	8.91
1560	1427	1959	747	8.77
1580	1447	1969	753	8.63
1600	1467	1978	759	8.50
1620	1486	1988	765	8.37
1640	1506	1997	770	8.24
1660	1526	2006	776	8.12
1680	1546	2016	782	8.00
1700	1566	2025	788	7.89
1720	1586	2034	793	7.77
1740	1606	2043	799	7.67
1760	1626	2053	805	7.56
1780	1646	2062	810	7.46
1800	1666	2071	816	7.36
1820	1686	2080	821	7.26
1840	1706	2089	827	7.16
1860	1726	2098	832	7.07
1880	1746	2107	837	6.98
1900	1766	2115	843	6.89
1920	1785	2124	848	6.80
1940	1805	2133	853	6.72
1960	1825	2142	859	6.64
1980	1845	2150	864	6.56
2000	1865	2159	869	6.48
2020	1885	2168	874	6.40
2040	1905	2176	879	6.33
2060	1925	2185	885	6.25
2080	1945	2194	890	6.18
2100	1965	2202	895	6.11
2120	1985	2211	900	6.04
2140	2005	2219	905	5.98
2160	2025	2227	910	5.91
2180	2045	2236	915	5.85
2200	2065	2244	920	5.78
2220	2085	2253	925	5.72
2240	2105	2261	930	5.66
2260	2125	2269	934	5.60
2280	2145	2277	939	5.55
2300	2165	2286	944	5.49
2320	2185	2294	949	5.43
2340	2205	2302	954	5.38
2360	2225	2310	959	5.33
2380	2245	2318	963	5.27
2400	2264	2326	968	5.22
2420	2284	2334	973	5.17
2440	2304	2342	977	5.12
2460	2324	2350	982	5.07
2480	2344	2358	987	5.03
2500	2364	2366	991	4.98
2520	2384	2374	996	4.93
2540	2404	2382	1001	4.89
2560	2424	2390	1005	4.84
2580	2444	2398	1010	4.80
2600	2464	2405	1014	4.76
2620	2484	2413	1019	4.72
2640	2504	2421	1023	4.67
2660	2524	2429	1028	4.63
2680	2544	2436	1032	4.59
2700	2564	2444	1037	4.55
2720	2584	2452	1041	4.52
2740	2604	2459	1045	4.48
2760	2624	2467	1050	4.44
2780	2644	2474	1054	4.40
2800	2664	2482	1058	4.37
2820	2684	2490	1063	4.33
2840	2704	2497	1067	4.30
2860	2724	2505	1071	4.26
2880	2744	2512	1076	4.23
2900	2764	2520	1080	4.20
2920	2784	2527	1084	4.16
2940	2804	2534	1088	4.13
2960	2824	2542	1093	4.10
2980	2844	2549	1097	4.07

P(LAB)---T(LAB)---INV MASS---P(CMS)----4PILAMBARSQ-- (GEV/C)	(GEV)	(GEV)	(GEV/C)	(MB)
3.0	2.86	2.56	1.10	4.04
3.2	3.06	2.63	1.14	3.75
3.4	3.26	2.70	1.18	3.50
3.6	3.46	2.77	1.22	3.29
3.8	3.66	2.83	1.26	3.09
4.0	3.86	2.90	1.29	2.92
4.2	4.06	2.96	1.33	2.77
4.4	4.26	3.03	1.36	2.63
4.6	4.46	3.09	1.40	2.50
4.8	4.66	3.15	1.43	2.39
5.0	4.86	3.21	1.46	2.29
5.2	5.06	3.27	1.49	2.19
5.4	5.26	3.32	1.53	2.10
5.6	5.46	3.38	1.56	2.02
5.8	5.66	3.43	1.59	1.95
6.0	5.86	3.49	1.61	1.88
6.2	6.06	3.54	1.64	1.81
6.4	6.26	3.59	1.67	1.75
6.6	6.46	3.65	1.70	1.70
6.8	6.66	3.70	1.73	1.64
7.0	6.86	3.75	1.75	1.59
7.2	7.06	3.80	1.78	1.55
7.4	7.26	3.85	1.81	1.50
7.6	7.46	3.89	1.83	1.46
7.8	7.66	3.94	1.86	1.42
8.0	7.86	3.99	1.88	1.38
8.2	8.06	4.04	1.91	1.35
8.4	8.26	4.08	1.93	1.31
8.6	8.46	4.13	1.95	1.28
8.8	8.66	4.17	1.98	1.25
9.0	8.86	4.22	2.00	1.22
9.2	9.06	4.26	2.03	1.19
9.4	9.26	4.31	2.05	1.17
9.6	9.46	4.35	2.07	1.14
9.8	9.66	4.39	2.09	1.12
10.0	9.86	4.43	2.12	1.09
10.5	10.36	4.54	2.17	1.04
11.0	10.86	4.64	2.22	.99
11.5	11.36	4.74	2.28	.94
12.0	11.86	4.84	2.33	.90
12.5	12.36	4.94	2.38	.87
13.0	12.86	5.03	2.43	.83
13.5	13.36	5.12	2.47	.80
14.0	13.86	5.21	2.52	.77
14.5	14.36	5.30	2.57	.74
15.0	14.86	5.39	2.61	.72
16.0	15.86	5.56	2.70	.67
17.0	16.86	5.73	2.78	.63
18.0	17.86	5.89	2.87	.59
19.0	18.86	6.05	2.95	.56
20.0	19.86	6.20	3.03	.53
22.0	21.86	6.49	3.18	.48
24.0	23.86	6.78	3.32	.44
26.0	25.86	7.05	3.46	.41
28.0	27.86	7.31	3.59	.38
30.0	29.86	7.56	3.72	.35
32.0	31.86	7.81	3.85	.33
34.0	33.86	8.04	3.97	.31
36.0	35.86	8.27	4.08	.29
38.0	37.86	8.50	4.20	.28
40.0	39.86	8.72	4.31	.26
42.0	41.86	8.93	4.41	.25
44.0	43.86	9.14	4.52	.24
46.0	45.86	9.34	4.62	.23
48.0	47.86	9.54	4.72	.22
50.0	49.86	9.73	4.82	.21
55.0	54.86	10.20	5.06	.19
60.0	59.86	10.65	5.28	.18
65.0	64.86	11.08	5.50	.16
70.0	69.86	11.50	5.71	.15
80.0	79.86	12.29	6.11	.13
90.0	89.86	13.03	6.48	.12
100.0	99.86	13.73	6.83	.10
200.0	199.86	19.40	9.67	.05
500.0	499.86	30.65	15.31	.02

0 0 0 0 3 0 0 3 7 1 9

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

Particle Data Group

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	Reaction Nos.	
2 body and quasi-two-body	[371-451]	I-52
3 body	[452-477]	I-59
4 body	[478-495]	I-62
5 body	[496-506]	I-63
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	Reaction Nos.	
Miscellaneous Final States	[515]	I-65
2 body and quasi-two-body	[516-518]	I-65
3 body	[519-539]	I-65
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PART II

Data Listings by Article

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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, $\pi^+p \rightarrow \rho^+p\pi^0$ 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 [$\mu b/(GeV/c)^2$ or $mb/(GeV/c)^2$] 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

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

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 $\pi^+ p \to K^+ \Sigma^+$, $\pi^+ n \to K^+ \Lambda$, and $\pi^+ n \to K^*(890)^+ \Lambda$. The polarization of the hyperon is measured along the direction of the normal to the production plane,

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

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

Section B1.

CROSS SECTIONS

NUMERICAL LIST OF ALL π^+p REACTIONS

Reaction

Miscellaneous Final States

[1] $\pi^+p \to$ 2 prongs

[2] $\pi^+p \to$ 4 prongs

[3] $\pi^+p \to$ 4 prongs and more

[4] $\pi^+p \to$ 6 prongs

[5] $\pi^+p \to$ 8 prongs

[6] $\pi^+p \to$ 10 prongs

[7] $\pi^+p \to 3\pi$ or more + Nucleon

[8] $\pi^+p \to$ Strange Particle

[9] $\pi^+p \to K^+\bar{K}^0$ Anything + K^-K^0 Anything

[10] $\pi^+p \to K^0\bar{K}^0$ Anything

[11] $\pi^+p \to \Lambda K^+$ Anything + Σ^0K^+ Anything

[12] $\pi^+p \to \Lambda K^0$ Anything + Σ^0K^0 Anything

[13] $\pi^+p \to V^0$ + Anything

[14] $\pi^+p \to$ 4 prongs + K^0

[15] $\pi^+p \to$ 4 prongs + Λ

[16] $\pi^+p \to$ 4 prongs + Σ^-

[17] $\pi^+p \to$ 6 prongs + Λ

2 Body and Quasi-two Body Reactions

[18] $\pi^+p \to \rho^+p$
$\quad \hookrightarrow \pi^+\pi^0$

[19] $\pi^+p \to$ "A_1 and A_2 Mass region" p
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

[20] $\pi^+p \to$ "A_1 and A_2 Mass region" p
$\quad \hookrightarrow \rho^0\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-$

[21] $\pi^+p \to A_1{}^+p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

[22] $\pi^+p \to A_1{}^+p$
$\quad \hookrightarrow \rho^0\pi^+$

[23] $\pi^+p \to A_1{}^+p$
$\quad \hookrightarrow K^+\bar{K}^0$

[24] $\pi^+p \to A_1{}^+p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$ + <other mode>

[25] $\pi^+p \to A_{1.5}p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

[26] $\pi^+p \to B^+p$
$\quad \hookrightarrow \omega\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

Reaction

[27] $\pi^+p \to B^+p$
$\quad \hookrightarrow \omega\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[28] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

[29] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \pi^+\pi^0\pi^0$

[30] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \rho^0\pi^+$

[31] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow K^+\bar{K}^0$

[32] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow K^+K_S^0$

[33] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \eta\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[34] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \eta\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[35] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \eta'\pi^+$
$\quad\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$ + neutrals

[36] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \eta'\pi^+$
$\quad\quad \hookrightarrow \eta\pi^+\pi^-$ + <other mode>
$\quad\quad\quad \hookrightarrow$ neutrals + <other mode>

[37] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \eta'\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^-$MM($>\pi^0$)

[38] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow$ total

[39] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$ + <other mode>

[40] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \rho^0\pi^+$ + <other mode>

[41] $\pi^+p \to A_2^+p$
$\quad \hookrightarrow \rho^0\pi^+$ + $\rho^+\pi^0$ + <other mode>

[42] $\pi^+p \to A_3{}^+p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

[43] $\pi^+p \to A_3{}^+p$
$\quad \hookrightarrow \pi^+\pi^0\pi^0$

Numerical List of All π^+p Reactions

Reaction

[44] $\pi^+p \to A_3{}^+p$
  ↳ $\rho^0\pi^+$

[45] $\pi^+p \to A_3{}^+p$
  ↳ $f\pi^+$
    ↳ $\pi^+\pi^-$

[46] $\pi^+p \to A_3{}^+p$
  ↳ $\pi^+\pi^+\pi^-$ + <other mode>

[47] $\pi^+p \to g^+p$
  ↳ $\pi^+\pi^0$

[48] $\pi^+p \to g^+p$
  ↳ $\pi^+MM(>\pi^0)$

[49] $\pi^+p \to g^+p$
  ↳ $\pi^+\pi^+\pi^-\pi^0$

[50] $\pi^+p \to g^+p$
  ↳ $\rho\pi$ + $\omega\pi$
    ↳ $\pi^+\pi^-\pi^0$

[51] $\pi^+p \to g^+p$
  ↳ $\pi\pi$ + $\pi\pi\pi\pi$ + $K\bar{K}$ + $K\bar{K}\pi$

[52] $\pi^+p \to S^+p$
  ↳ $\pi^+\pi^0$

[53] $\pi^+p \to T^+p$
  ↳ $\pi^+\pi^0$

[54] $\pi^+p \to T^+p$
  ↳ $\pi^+MM(>\pi^0)$

[55] $\pi^+p \to X(2620)^+p$
  ↳ $\pi^+MM(>\pi^0)$

[56] $\pi^+p \to X(2800)p$
  ↳ $K^+K^0\pi^+\pi^-$ + $K^-K^0\pi^+\pi^+$

[57] $\pi^+p \to \Delta(2850)++$
  ↳ $p\pi^+\pi^+\pi^-$

[58] $\pi^+p \to \Delta(2850)++$
  ↳ $\Delta(1238)^{++}\rho^0$

[59] $\pi^+p \to \pi^0\Delta(1238)^{++}$
  ↳ $p\pi^+$

[60] $\pi^+p \to \Delta(1238)^{++}MM(>\pi^0)$
  ↳ $p\pi^+$

[61] $\pi^+p \to \eta\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-\pi^0$

[62] $\pi^+p \to \eta\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ neutrals

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

Reaction

[64] $\pi^+p \to \eta\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ total

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

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

[68] $\pi^+p \to \omega\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-\pi^0$ + <other mode>

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

[68] $\pi^+p \to \omega\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-\pi^0$ + <other mode>

[69] $\pi^+p \to \omega\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ total

[70] $\pi^+p \to \phi\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $K^0_SK^0_L$

[71] $\pi^+p \to \phi\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ K^+K^-

[72] $\pi^+p \to \phi\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ K^+K^- + $K^0_SK^0_L$

[73] $\pi^+p \to \eta'\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\eta\pi^+\pi^-$ + <other mode>

[74] $\pi^+p \to \eta'\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\eta\pi^+\pi^-$ + <other mode>
    ↳ total

[75] $\pi^+p \to \eta'\Delta(1238)^{++}$
  ↳ $\pi^+\pi^+\pi^-\pi^-\pi^0$ + <other mode>

[76] $\pi^+p \to \eta'\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\eta\pi^+\pi^-$ + <other mode>
    ↳ neutrals

[77] $\pi^+p \to H^0\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-\pi^0$

[78] $\pi^+p \to f\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-$

[79] $\pi^+p \to f\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ $\pi^+\pi^-$ + <other mode>

[80] $\pi^+p \to f\Delta(1238)^{++}$
  ↳ $p\pi^+$
  ↳ K^+K^-

Numerical List of All π^+p Reactions

Reaction

[81] $\pi^+p \to f\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow K^0_S K^0_S$

[82] $\pi^+p \to f\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \pi^+\pi^- + \pi^0\pi^0$

[83] $\pi^+p \to D(1285)\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[84] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[85] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \rho^{+/-}\pi^{-/+}$

[86] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow K^+K^-$

[87] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow K^0_S K^0_S$

[88] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow K^0\bar{K}^0$

[89] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \eta\pi^0$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[90] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[91] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \rho^{+/-}\pi^{-/+}$ + <other mode>

[92] $\pi^+p \to A^0_2\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow K^+K^-$ + <other mode>

[93] $\pi^+p \to g^0\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$
$\quad \hookrightarrow \pi^+\pi^-$

[94] $\pi^+p \to \pi^+\Delta(1238)^+$
$\quad \hookrightarrow p\pi^0$

[95] $\pi^+p \to \pi^+\Delta(1238)^+$
$\quad \hookrightarrow n\pi^+$

[96] $\pi^+p \to \pi^+\Delta(1238)^+$
$\quad \hookrightarrow p\pi^0 + n\pi^+$

[97] $\pi^+p \to \pi^+N(1400)^+$
$\quad \hookrightarrow n\pi^+ + p\pi^0$

[98] $\pi^+p \to \pi^+N(1400)^+$
$\quad \hookrightarrow p\pi^+\pi^-$

Reaction

[99] $\pi^+p \to \pi^+N(1400)^+$
$\quad \hookrightarrow \Delta(1238)^{++}\pi^-$
$\quad \hookrightarrow p\pi^+$

[100] $\pi^+p \to \pi^+N(1512)^+$
$\quad \hookrightarrow n\pi^+$

[101] $\pi^+p \to \pi^+N(1512)^+$
$\quad \hookrightarrow p\pi^0$

[102] $\pi^+p \to \pi^+N(1700)^+$
$\quad \hookrightarrow p\pi^0$

[103] $\pi^+p \to \pi^+N(1700)^+$
$\quad \hookrightarrow n\pi^+$

[104] $\pi^+p \to \pi^+N(1700)^+$
$\quad \hookrightarrow p\pi^+\pi^-$

[105] $\pi^+p \to \pi^+N(1700)^+$
$\quad \hookrightarrow \Delta(1238)^{++}\pi^-$
$\quad \hookrightarrow p\pi^+$

[106] $\pi^+p \to \pi^+N(1700)^+$
$\quad \hookrightarrow \Lambda K^+$

[107] $\pi^+p \to \pi^+N(3690)^+$
$\quad \hookrightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

[108] $\pi^+p \to \pi^+N(3690)^+$
$\quad \hookrightarrow p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$

[109] $\pi^+p \to \pi^+N(3690)^+$
$\quad \hookrightarrow n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

[110] $\pi^+p \to \pi^-N^{*++}$
$\quad \hookrightarrow p\pi^+\pi^+$

[111] $\pi^+p \to \pi^+$Diffraction Dissociation
$\quad \hookrightarrow p\pi^0$

[112] $\pi^+p \to \pi^+$Diffraction Dissociation
$\quad \hookrightarrow n\pi^+$

[113] $\pi^+p \to K^+\Sigma^+$

[114] $\pi^+p \to K^+\Sigma^+$
$\quad \hookrightarrow n\pi^+$

[115] $\pi^+p \to K^*(890)^+\Sigma^+$
$\quad \hookrightarrow K^+\pi^0 + K^0\pi^+$

[116] $\pi^+p \to K^*(890)^+\Sigma^+$
$\quad \hookrightarrow K^0\pi^+$ + <other mode>

[117] $\pi^+p \to K^*(890)^+\Sigma^+$
$\quad \hookrightarrow K^+\pi^0$

[118] $\pi^+p \to K^*(890)^+\Sigma^+$
$\quad \hookrightarrow K^0\pi^+$

[119] $\pi^+p \to K^+Y^*(1385)^+$
$\quad \hookrightarrow \Lambda\pi^+$

[120] $\pi^+p \to K^+Y^*(1385)^+$
$\quad \hookrightarrow \Lambda\pi^+ + \Sigma^0\pi^+$

[121] $\pi^+p \to K^+Y^*(1385)^+$
$\quad \hookrightarrow \Lambda\pi^+$ + <other mode>

Numerical List of All π^+p Reactions

Reaction

[122] $\pi^+p \to K^+Y^*(1385)^+$
$\quad \hookrightarrow \Lambda\pi^+ + \Sigma^+\pi^0 + \Sigma^0\pi^+$

[123] $\pi^+p \to K^+Y^*(1385)^+$
$\quad \hookrightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$

[124] $\pi^+p \to K^*(890)^+Y^*(1385)^+$
$\quad K^*(890)^+ \hookrightarrow K^0\pi^+ + K^+\pi^0$; $\quad Y^*(1385)^+ \hookrightarrow \Lambda\pi^+$

[125] $\pi^+p \to K^*(890)^+Y^*(1385)^+$
$\quad K^*(890)^+ \hookrightarrow K^0\pi^+$; $\quad Y^*(1385)^+ \hookrightarrow \Lambda\pi^+$

[126] $\pi^+p \to K^*(890)^+Y^*(1385)^+$
$\quad K^*(890)^+ \hookrightarrow K^+\pi^0$; $\quad Y^*(1385)^+ \hookrightarrow \Lambda\pi^+$

[127] $\pi^+p \to K^+Y^*(1475)^+$
$\quad \hookrightarrow \Sigma^0\pi^+ + \Sigma^+\pi^0$

[128] $\pi^+p \to K^+Y^*(1475)^+$
$\quad \hookrightarrow p\bar{K}^0$

[129] $\pi^+p \to K^+Y^*(1475)^+$
$\quad \hookrightarrow \Lambda\pi^+$

[130] $\pi^+p \to K^+Y^*(1690)^+$
$\quad \hookrightarrow \Lambda\pi^+$

3 Body Reactions

[131] $\pi^+p \to p\pi^+\pi^0$

[132] $\pi^+p \to p\pi^+\pi^0$ background

[133] $\pi^+p \to p\pi^+MM(>\pi^0)$

[134] $\pi^+p \to n\pi^+\pi^+$

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

[136] $\pi^+p \to p\pi^+MM(>\pi^0) + \pi^+\pi^+MM(>N)$

[137] $\pi^+p \to p\eta\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[138] $\pi^+p \to p\eta\pi^+$
$\quad \hookrightarrow$ neutrals

[139] $\pi^+p \to p\eta\pi^+$
$\quad \hookrightarrow$ total

[140] $\pi^+p \to p\eta\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[141] $\pi^+p \to p\rho^0\pi^+$
$\quad \hookrightarrow \pi^+\pi^-$

[142] $\pi^+p \to p\omega\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[143] $\pi^+p \to p\omega\pi^+$
$\quad \hookrightarrow$ neutrals

[144] $\pi^+p \to p\omega\pi^+$
$\quad \hookrightarrow$ total

[145] $\pi^+p \to p\omega\pi^+$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

Reaction

[146] $\pi^+p \to p\omega\pi^+$
$\quad \omega \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>; $\quad \pi^0 \hookrightarrow \gamma\gamma$

[147] $\pi^+p \to p\eta'\pi^+$
$\quad \eta' \hookrightarrow \eta\pi^+\pi^-$; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$

[148] $\pi^+p \to p\eta'\pi^+$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-\pi^0$

[149] $\pi^+p \to p\eta'\pi^+$
$\quad \eta' \hookrightarrow \eta\pi^+\pi^-$ + <other mode>; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$

[150] $\pi^+p \to p\eta'\pi^+$
$\quad \eta' \hookrightarrow \eta\pi^+\pi^-$ + <other mode>; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[151] $\pi^+p \to p\eta'\pi^+$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-\pi^0$ + <other mode>

[152] $\pi^+p \to p\phi\pi^+$
$\quad \hookrightarrow K^+K^-$

[153] $\pi^+p \to p\phi\pi^+$
$\quad \hookrightarrow K^0_SK^0_L$

[154] $\pi^+p \to p\phi\pi^+$
$\quad \hookrightarrow K^+K^- + K^0_SK^0_L$

[155] $\pi^+p \to p\phi\pi^+$
$\quad \hookrightarrow K^+K^-$ + <other mode>

[156] $\pi^+p \to pA_1{}^+\pi^0$
$\quad A_1{}^+ \hookrightarrow \rho^0\pi^+$; $\quad \rho^0 \hookrightarrow \pi^+\pi^-$

[157] $\pi^+p \to pf\pi^+$
$\quad \hookrightarrow \pi^+\pi^-$

[158] $\pi^+p \to pf\pi^+$
$\quad \hookrightarrow K^+K^-$

[159] $\pi^+p \to pD(1285)\pi^+$
$\quad D(1285) \hookrightarrow \eta\pi^+\pi^-$; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[160] $\pi^+p \to pD(1285)\pi^+$
$\quad D(1285) \hookrightarrow \rho^0\pi^+\pi^-$; $\quad \rho^0 \hookrightarrow \pi^+\pi^-$

[161] $\pi^+p \to pD(1285)\pi^+$
$\quad D(1285) \hookrightarrow \delta(970)^+\pi^- + \delta(970)^-\pi^+$
$\quad \delta(970)^+ \hookrightarrow \eta\pi^+$; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$
$\quad \delta(970)^- \hookrightarrow \eta\pi^-$; $\quad \eta \hookrightarrow \pi^+\pi^-\pi^0$

Numerical List of All π^+p Reactions

Reaction

[162] $\pi^+p \to pD(1285)\pi^+$
$\hookrightarrow \eta\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$

[163] $\pi^+p \to pA_2^0\pi^+$
$\hookrightarrow \pi^+\pi^-\pi^0$

[164] $\pi^+p \to pA_2^0\pi^+$
$\hookrightarrow \rho^+\pi^- + \rho^-\pi^+$

[165] $\pi^+p \to pA_2^+\pi^0$
$\hookrightarrow \rho^0\pi^+$
$\hookrightarrow \pi^+\pi^-$

[166] $\pi^+p \to pf'\pi^+$
$\hookrightarrow K_S^0K_S^0$

[167] $\pi^+p \to p\rho^+\rho^0$
$\hookrightarrow \pi^+\pi^-$
$\hookrightarrow \pi^+\pi^0$

[168] $\pi^+p \to pX(3025)^+\pi^0 + pX(3025)^0\pi^+$
$\hookrightarrow \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$
$\hookrightarrow \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

[169] $\pi^+p \to \Delta(1238)^{++}\pi^+\pi^-$
$\hookrightarrow p\pi^+$

[170] $\pi^+p \to \Delta(1238)^{++}\rho^0\rho^0$
$\hookrightarrow \pi^+\pi^-$
$\hookrightarrow p\pi^+$

[171] $\pi^+p \to \Delta(1238)^{++}\rho\pi$
$\hookrightarrow \pi\pi$
$\hookrightarrow p\pi^+$

[172] $\pi^+p \to \Delta(1238)^{++}\omega\rho^0$
$\hookrightarrow \pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$
$\hookrightarrow p\pi^+$

[173] $\pi^+p \to \Delta(1238)^{++}p\bar{p}$
$\hookrightarrow p\pi^+$

[174] $\pi^+p \to \Delta(1238)^0\pi^+\pi^+$
$\hookrightarrow p\pi^-$

[175] $\pi^+p \to N(1700)^+\pi^+\pi^0 + N(1700)^0\pi^+\pi^+$
$\hookrightarrow \Lambda K^0$
$\hookrightarrow \Lambda K^+$

[176] $\pi^+p \to pK^+K_S^0$

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

[178] $\pi^+p \to pK^*(890)^+\bar{K}^0$
$\hookrightarrow K^0\pi^+$ + <other mode>

[179] $\pi^+p \to pK^*(890)^+\bar{K}^0$
$\hookrightarrow K^0\pi^+$

[180] $\pi^+p \to pK^*(890)^+\bar{K}^0$
$\hookrightarrow K^+\pi^0$

[181] $\pi^+p \to pK^*(890)^0K^+$
$\hookrightarrow K^-\pi^+$

[182] $\pi^+p \to pK^*(890)^0K^+$
$\hookrightarrow K^-\pi^+$ + <other mode>

Reaction

[183] $\pi^+p \to pK^*(890)^0K^+$
$\hookrightarrow \bar{K}^0\pi^0$

[184] $\pi^+p \to \Delta(1238)^{++}K^+K^-$
$\hookrightarrow p\pi^+$

[185] $\pi^+p \to \Delta(1238)^{++}K_S^0K_S^0$
$\hookrightarrow p\pi^+$

[186] $\pi^+p \to \Delta(1238)^{++}K_S^0K_L^0$
$\hookrightarrow p\pi^+$

[187] $\pi^+p \to \Delta(1238)^{++}K^0\bar{K}^0$
$\hookrightarrow p\pi^+$

[188] $\pi^+p \to \Delta(1238)^+K^+\bar{K}^0$
$\hookrightarrow p\pi^0$

[189] $\pi^+p \to N(1700)^+ + K^0\bar{K}^0$
$\hookrightarrow p\pi^+$

[190] $\pi^+p \to \Lambda K^+\pi^+$

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

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

[193] $\pi^+p \to \Sigma^+K^+\pi^0$

[194] $\pi^+p \to \Sigma^+K^+\pi^0$
$\hookrightarrow n\pi^+$ + <other mode>

[195] $\pi^+p \to \Sigma^+K^+MM(>\pi^0)$

[196] $\pi^+p \to \Sigma^+K^0\pi^+$

[197] $\pi^+p \to \Sigma^+K^0\pi^+$
$\hookrightarrow n\pi^+$ + <other mode>

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

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

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

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

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

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

[204] $\pi^+p \to Y^*(1385)^+\pi^+MM(>K^0) + Y^*(1385)^+K^+MM(>\pi^0)$
$\hookrightarrow \Lambda\pi^+$

[205] $\pi^+p \to Y^*(1520)K^+\pi^+$
$\hookrightarrow pK^-$ + <other mode>

[206] $\pi^+p \to$ Hyperon $K^*(890)\pi$
$\hookrightarrow K\pi$

Numerical List of All π^+p Reactions

Reaction

4 Body Reactions

[207] $\pi^+p \to p\pi^+\pi^+\pi^-$

[208] $\pi^+p \to p\pi^+\pi^+\pi^-$ background

[209] $\pi^+p \to p\pi^+\pi^0\pi^0$

[210] $\pi^+p \to p\rho^+\pi^+\pi^-$, $\rho^+ \to \pi^+\pi^0$

[211] $\pi^+p \to p\rho^0\pi^+\pi^0$, $\rho^0 \to \pi^+\pi^-$

[212] $\pi^+p \to p\rho^-\pi^+\pi^+$, $\rho^- \to \pi^-\pi^0$

[213] $\pi^+p \to p\rho\pi\pi$, $\rho \to \pi\pi$

[214] $\pi^+p \to p\rho^0\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

[215] $\pi^+p \to p\omega\rho^0\pi^+$, $\omega \to \pi^+\pi^-\pi^0$, $\rho^0 \to \pi^+\pi^-$

[216] $\pi^+p \to pA_1{}^+\pi^+\pi^-$, $A_1{}^+ \to \pi^+\pi^+\pi^-$

[217] $\pi^+p \to pA_1{}^-\pi^+\pi^+$, $A_1{}^- \to \pi^+\pi^-\pi^-$

[218] $\pi^+p \to pA_1{}^+\pi^+\pi^-$, $A_1{}^+ \to \rho^0\pi^+$ + $pA_1{}^-\pi^+\pi^+$, $A_1{}^- \to \rho^0\pi^-$

[219] $\pi^+p \to pB^+\pi^+\pi^-$, $B^+ \to \pi^+\pi^+\pi^-\pi^0$

[220] $\pi^+p \to pB^-\pi^+\pi^+$, $B^- \to \pi^+\pi^-\pi^-\pi^0$

[221] $\pi^+p \to pB^+\pi^+\pi^-$, $B^+ \to \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + $pB^-\pi^+\pi^+$, $B^- \to \omega\pi^-$, $\omega \to \pi^+\pi^-\pi^0$

[222] $\pi^+p \to pA_2^+\pi^+\pi^-$, $A_2^+ \to \pi^+\pi^+\pi^-$

[223] $\pi^+p \to pA_2{}^-\pi^+\pi^+$, $A_2{}^- \to \pi^+\pi^-\pi^-$

[224] $\pi^+p \to pA_2^+\pi^+\pi^-$, $A_2^+ \to \rho^0\pi^+$ + $pA_2{}^-\pi^+\pi^+$, $A_2{}^- \to \rho^0\pi^-$

[225] $\pi^+p \to pp\bar{p}\pi^+$

[226] $\pi^+p \to p\Lambda\bar{\Lambda}\pi^+$

[227] $\pi^+p \to \Delta(1238)^{++}\pi^+\pi^-\pi^0$, $\Delta(1238)^{++} \to p\pi^+$

[228] $\pi^+p \to \Delta(1238)^{++}\rho^0\pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$, $\rho^0 \to \pi^+\pi^-$

[229] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

[230] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>

Reaction

[231] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>

[232] $\pi^+p \to \Delta(1238)^+\pi^+\pi^+\pi^-$, $\Delta(1238)^+ \to p\pi^0$

[233] $\pi^+p \to \Delta(1238)^0\pi^+\pi^+\pi^0$, $\Delta(1238)^0 \to p\pi^-$

[234] $\pi^+p \to \Delta(1238)^-\pi^+\pi^+\pi^+$, $\Delta(1238)^- \to n\pi^-$

[235] $\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-$, $N(1512)^+ \to p\pi^+\pi^-$

[236] $\pi^+p \to N(1700)^+\pi^+\pi^+\pi^-$, $N(1700)^+ \to p\pi^+\pi^-$

[237] $\pi^+p \to pK^+K^-\pi^+$

[238] $\pi^+p \to pK^+\bar{K}^0\pi^0$

[239] $\pi^+p \to pK^+\bar{K}^0MM(>\pi^0)$

[240] $\pi^+p \to pK_S^0K_S^0\pi^+$

[241] $\pi^+p \to pK_S^0K_L^0\pi^+$

[242] $\pi^+p \to pK^0\bar{K}^0\pi^+$

[243] $\pi^+p \to nK^+\bar{K}^0\pi^+$

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

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

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

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

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

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

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

[251] $\pi^+p \to \Lambda\pi^+\pi^+MM(>K^0)$ + $\Lambda K^+\pi^+MM(>\pi^0)$

[252] $\pi^+p \to \Sigma^0K^0\pi^+\pi^+$

[253] $\pi^+p \to \Lambda K^0\pi^+\pi^+$ + $\Sigma^0K^0\pi^+\pi^+$

[254] $\pi^+p \to \Lambda K^+\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

[255] $\pi^+p \to \Lambda K^*(890)^+\pi^+\pi^0$, $K^*(890)^+ \to K^0\pi^+$

[256] $\pi^+p \to \Lambda K^*(890)^0\pi^+\pi^+$, $K^*(890)^0 \to K^+\pi^-$

[257] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-$

[258] $\pi^+p \to \Sigma^+K^0\pi^+\pi^0$

[259] $\pi^+p \to \Sigma^+K^0\pi^+MM(>\pi^0)$

[260] $\pi^+p \to \Sigma^-K^+\pi^+\pi^+$

[261] $\pi^+p \to Y^*(1385)^+K^+\pi^+\pi^-$, $Y^*(1385)^+ \to \Lambda\pi^+$

[262] $\pi^+p \to Y^*(1385)^+K^0\pi^+\pi^0$, $Y^*(1385)^+ \to \Lambda\pi^+$

[263] $\pi^+p \to Y^*(1385)^-K^+\pi^+\pi^+$, $Y^*(1385)^- \to \Lambda\pi^-$

Numerical List of All π^+p Reactions

Reaction

5 Body Reactions

[264] $\pi^+p \to p\pi^+\pi^+\pi^-\pi^0$

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

[266] $\pi^+p \to p\pi^+\pi^+\pi^-MM(>\pi^0)$

[267] $\pi^+p \to p\pi^+\pi^0\pi^0\pi^0$

[268] $\pi^+p \to n\pi^+\pi^+\pi^+\pi^-$

[269] $\pi^+p \to \pi^+\pi^+\pi^+\pi^-MM(>N)$

[270] $\pi^+p \to p\pi^+\pi^+\pi^-MM(>\pi^0)$ + $\pi^+\pi^+\pi^+\pi^-MM(>N)$

[271] $\pi^+p \to pe^+\pi^+e^-\gamma$

[272] $\pi^+p \to p\eta\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[273] $\pi^+p \to p\eta\pi^+\pi^+\pi^-$
$\hookrightarrow$ neutrals

[274] $\pi^+p \to p\eta\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$

[275] $\pi^+p \to p\rho^0\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-$

[276] $\pi^+p \to p\omega\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[277] $\pi^+p \to p\omega\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$

[278] $\pi^+p \to pA_1{}^0\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$

[279] $\pi^+p \to pA_1{}^+\pi^+\pi^-\pi^0$
$\hookrightarrow \pi^+\pi^+\pi^-$

[280] $\pi^+p \to pA_1{}^-\pi^+\pi^+\pi^0$
$\hookrightarrow \pi^+\pi^-\pi^-$

[281] $\pi^+p \to pA_1{}^+\pi^+\pi^-\pi^0$ + $pA_1{}^-\pi^+\pi^+\pi^0$
$\hookrightarrow \rho^0\pi^+$ $\hookrightarrow \rho^0\pi^-$

[282] $\pi^+p \to pf\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-$

[283] $\pi^+p \to pA_2^0\pi^+\pi^+\pi^-$
$\hookrightarrow \pi^+\pi^-\pi^0$

[284] $\pi^+p \to pA_2^+\pi^+\pi^-\pi^0$
$\hookrightarrow \pi^+\pi^+\pi^-$

[285] $\pi^+p \to pA_2{}^-\pi^+\pi^+\pi^0$
$\hookrightarrow \pi^+\pi^-\pi^-$

[286] $\pi^+p \to pA_2^+\pi^+\pi^-\pi^0$ + $pA_2{}^-\pi^+\pi^+\pi^0$
$\hookrightarrow \rho^0\pi^+$ $\hookrightarrow \rho^0\pi^-$

[287] $\pi^+p \to \Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^-$
$\hookrightarrow p\pi^+$

Reaction

[288] $\pi^+p \to \Delta(1238)^{++}\rho^0\pi^+\pi^-\pi^0$
$\hookrightarrow p\pi^+$ $\hookrightarrow \pi^+\pi^-$

[289] $\pi^+p \to \Delta(1238)^0\pi^+\pi^+\pi^+\pi^-$
$\hookrightarrow p\pi^-$

[290] $\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-\pi^0$
$\hookrightarrow p\pi^+\pi^-$

[291] $\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-MM(>\pi^0)$
$\hookrightarrow p\pi^+\pi^-$

[292] $\pi^+p \to N(1512)^0\pi^+\pi^+\pi^+\pi^-$
$\hookrightarrow p\pi^-$ + $p\pi^-\pi^0$ + $n\pi^+\pi^-$

[293] $\pi^+p \to N(1688)^+\pi^+\pi^+\pi^-\pi^0$
$\hookrightarrow p\pi^+\pi^-$

[294] $\pi^+p \to N(1688)^+\pi^+\pi^+\pi^-MM(>\pi^0)$
$\hookrightarrow p\pi^+\pi^-$

[295] $\pi^+p \to N(1688)^0\pi^+\pi^+\pi^+\pi^-$
$\hookrightarrow p\pi^-$ + $p\pi^-\pi^0$ + $n\pi^+\pi^-$

[296] $\pi^+p \to pK^+K^-\pi^+\pi^0$

[297] $\pi^+p \to pK^+\bar{K}^0\pi^+\pi^-$

[298] $\pi^+p \to pK^+K_S^0\pi^+\pi^-$

[299] $\pi^+p \to pK_S^0K_S^0\pi^+\pi^0$

[300] $\pi^+p \to pK^0\bar{K}^0\pi^+\pi^0$

[301] $\pi^+p \to pK^0\bar{K}^0\pi^+MM(>\pi^0)$

[302] $\pi^+p \to pK^-K_S^0\pi^+\pi^+$

[303] $\pi^+p \to pK^-K^0\pi^+\pi^+$

[304] $\pi^+p \to pK^+\bar{K}^0\pi^+\pi^-$ + $pK^-K^0\pi^+\pi^+$

[305] $\pi^+p \to nK^+K^-\pi^+\pi^+$

[306] $\pi^+p \to nK_S^0K_S^0\pi^+\pi^+$

[307] $\pi^+p \to nK^0\bar{K}^0\pi^+\pi^+$

[308] $\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^-$

[309] $\pi^+p \to \Sigma^0K^+\pi^+\pi^+\pi^-$

[310] $\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^-$ + $\Sigma^0K^+\pi^+\pi^+\pi^-$

[311] $\pi^+p \to \Lambda K^0\pi^+\pi^+\pi^0$

[312] $\pi^+p \to \Lambda K^0\pi^+\pi^+MM(>\pi^0)$

[313] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-\pi^0$

[314] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-MM(>\pi^0)$

[315] $\pi^+p \to \Sigma^+K^0\pi^+\pi^+\pi^-$

[316] $\pi^+p \to \Sigma^-K^+\pi^+\pi^+\pi^0$

[317] $\pi^+p \to \Sigma^-K^0\pi^+\pi^+\pi^+$

Numerical List of All π^+p Reactions

Reaction

6 Body Reactions

[318] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^-\pi^-$

[319] $\pi^+p\to p\pi^+\pi^+\pi^-\pi^0\pi^0$

[320] $\pi^+p\to p\rho^+\pi^+\pi^+\pi^-\pi^-$, $\rho^+\to\pi^+\pi^0$

[321] $\pi^+p\to p\rho^0\pi^+\pi^+\pi^-\pi^0$, $\rho^0\to\pi^+\pi^-$

[322] $\pi^+p\to p\rho^-\pi^+\pi^+\pi^+\pi^-$, $\rho^-\to\pi^-\pi^0$

[323] $\pi^+p\to pf\pi^+\pi^+\pi^-\pi^0$, $f\to\pi^+\pi^-$

[324] $\pi^+p\to n\rho^0\pi^+\pi^+\pi^+\pi^-$, $\rho^0\to\pi^+\pi^-$

[325] $\pi^+p\to nf\pi^+\pi^+\pi^+\pi^-$, $f\to\pi^+\pi^-$

[326] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^-\pi^0$, $\Delta(1238)^{++}\to p\pi^+$

[327] $\pi^+p\to\Delta(1238)^{+}\pi^+\pi^+\pi^+\pi^-\pi^-$, $\Delta(1238)^{+}\to p\pi^0$

[328] $\pi^+p\to\Delta(1238)^{+}\pi^+\pi^+\pi^+\pi^-\pi^-$, $\Delta(1238)^{+}\to n\pi^+$

[329] $\pi^+p\to\Delta(1238)^{0}\pi^+\pi^+\pi^+\pi^-\pi^0$, $\Delta(1238)^{0}\to p\pi^-$

[330] $\pi^+p\to\Delta(1238)^{-}\pi^+\pi^+\pi^+\pi^+\pi^-$, $\Delta(1238)^{-}\to n\pi^-$

[331] $\pi^+p\to N(1512)^{+}\pi^+\pi^+\pi^+\pi^-\pi^-$, $N(1512)^{+}\to p\pi^0 + n\pi^+$

[332] $\pi^+p\to N(1512)^{0}\pi^+\pi^+\pi^+\pi^-\pi^0$, $N(1512)^{0}\to p\pi^-$

[333] $\pi^+p\to N(1512)^{0}\pi^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $N(1512)^{0}\to p\pi^-$

[334] $\pi^+p\to N(1700)^{+}\pi^+\pi^+\pi^+\pi^-\pi^-$, $N(1700)^{+}\to p\pi^0 + n\pi^+$

[335] $\pi^+p\to N(1700)^{0}\pi^+\pi^+\pi^+\pi^-\pi^0$, $N(1700)^{0}\to p\pi^-$

[336] $\pi^+p\to N(1700)^{0}\pi^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $N(1700)^{0}\to p\pi^-$

[337] $\pi^+p\to pK^+\bar{K}^0\pi^+\pi^-\pi^0$

[338] $\pi^+p\to pK^0\bar{K}^0\pi^+\pi^+\pi^-$

[339] $\pi^+p\to pK^-K^0\pi^+\pi^+\pi^0$

[340] $\pi^+p\to nK^+\bar{K}^0\pi^+\pi^+\pi^-$

[341] $\pi^+p\to nK^-K^0\pi^+\pi^+\pi^+$

[342] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^-\pi^0$

[343] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^-MM(>\pi^0)$

Reaction

[344] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^-$

[345] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^- + \Sigma^0K^0\pi^+\pi^+\pi^+\pi^-$

[346] $\pi^+p\to\Sigma^+K^0\pi^+\pi^+\pi^-MM(>\pi^0)$

[347] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$

[348] $\pi^+p\to p\pi^+\pi^+\pi^-\pi^0\pi^0\pi^0$

[349] $\pi^+p\to p\eta\pi^+\pi^+\pi^+\pi^-\pi^-$, $\eta\to\pi^+\pi^-\pi^0$

[350] $\pi^+p\to p\omega\pi^+\pi^+\pi^+\pi^-\pi^-$, $\omega\to\pi^+\pi^-\pi^0$

[351] $\pi^+p\to p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-$

7 Body Reactions

[352] $\pi^+p\to n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-$

[353] $\pi^+p\to\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

[354] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$, $\Delta(1238)^{++}\to p\pi^+$

[355] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^+\pi^-\pi^-$

[356] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^-\pi^0$

8 Body Reactions

[357] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

[358] $\pi^+p\to p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$

[359] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$, $\Delta(1238)^{++}\to p\pi^+$

[360] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$

[361] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-$

9–12 Body Reactions

[362] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$

[363] $\pi^+p\to n\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

[364] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-MM(>\pi^0)$
$+ \pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-MM(>N)$

[365] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$

[366] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^0$

[367] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>\pi^0)$

[368] $\pi^+p\to n\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$

[369] $\pi^+p\to\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>N)$

[370] $\pi^+p\to\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>N)$
$+ p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>\pi^0)$

NUMERICAL LIST OF ALL π^+n REACTIONS

Reaction

2 Body and Quasi–two Body Reactions

[371] $\pi^+n \to \pi^0 p$

[372] $\pi^+n \to pMM(>\pi^0)$

[373] $\pi^+n \to \eta p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[374] $\pi^+n \to \eta p$
$\quad \hookrightarrow$ neutrals

[375] $\pi^+n \to \eta p$
$\quad \hookrightarrow$ total

[376] $\pi^+n \to \eta p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[377] $\pi^+n \to \eta p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma$ + <other mode>

[378] $\pi^+n \to \eta p$
$\quad \hookrightarrow$ neutrals + <other mode>

[379] $\pi^+n \to \rho^0 p$
$\quad \hookrightarrow \pi^+\pi^-$

[380] $\pi^+n \to \omega p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[381] $\pi^+n \to \omega p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$ + <other mode>

[382] $\pi^+n \to \omega p$
$\quad \hookrightarrow$ total

[383] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-\pi^0$

[384] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \gamma\gamma$

[385] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[386] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \eta\pi^0\pi^0$
$\quad\quad \hookrightarrow \pi^0\pi^0\pi^0$

[387] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad \hookrightarrow$ neutrals

[388] $\pi^+n \to \eta' p$
$\quad \hookrightarrow$ total

[389] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \eta\pi^+\pi^-$ + <other mode>
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma$

[390] $\pi^+n \to \eta' p$
$\quad \hookrightarrow \eta\pi^+\pi^-$ + <other mode>
$\quad\quad \hookrightarrow$ neutrals + <other mode>

[391] $\pi^+n \to Hp$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

Reaction

[392] $\pi^+n \to S^*p$
$\quad \hookrightarrow K^+K^-$

[393] $\pi^+n \to S^*p$
$\quad \hookrightarrow K^0\bar{K}^0$

[394] $\pi^+n \to \phi p$
$\quad \hookrightarrow K^+K^-$

[395] $\pi^+n \to \phi p$
$\quad \hookrightarrow$ total

[396] $\pi^+n \to \phi p$
$\quad \hookrightarrow K^0_S K^0_L + K^+K^-$

[397] $\pi^+n \to A_1{}^0 p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[398] $\pi^+n \to fp$
$\quad \hookrightarrow \pi^+\pi^-$

[399] $\pi^+n \to fp$
$\quad \hookrightarrow$ neutrals

[400] $\pi^+n \to fp$
$\quad \hookrightarrow K^0\bar{K}^0$

[401] $\pi^+n \to fp$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-$

[402] $\pi^+n \to D(1285)p$
$\quad \hookrightarrow \delta(970)^+\pi^- + \delta(970)^-\pi^+$
$\quad\quad \hookrightarrow \eta\pi^-$ $\quad\quad \hookrightarrow \eta\pi^+$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$ + All other mode>

[403] $\pi^+n \to D(1285)p$
$\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[404] $\pi^+n \to D(1285)p$
$\quad \hookrightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
$\quad\quad \hookrightarrow$ All

[405] $\pi^+n \to A^0_2 p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[406] $\pi^+n \to A^0_2 p$
$\quad \hookrightarrow \rho^{+/-}\pi^{-/+}$

[407] $\pi^+n \to A^0_2 p$
$\quad \hookrightarrow K^0\bar{K}^0$

[408] $\pi^+n \to fp + A^0_2 p$
$\quad \hookrightarrow K^+K^-$ $\quad\quad \hookrightarrow K^+K^-$

[409] $\pi^+n \to Ep$
$\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[410] $\pi^+n \to Ep$
$\quad \hookrightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
$\quad\quad \hookrightarrow$ total

Numerical List of All π^+n Reactions

Reaction

[411] $\pi^+n \to f'p$
$\quad \hookrightarrow K^*(890)\bar{K} + K\bar{K}^*(890)$

[412] $\pi^+n \to f'p$
$\quad \hookrightarrow \eta\pi^+\pi^-$

[413] $\pi^+n \to f'p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$
$\quad \hookrightarrow \eta\pi^+\pi^- + \eta\pi^0\pi^0$
$\quad \hookrightarrow$ total

[414] $\pi^+n \to g^0p$
$\quad \hookrightarrow \pi^+\pi^-$

[415] $\pi^+n \to g^0p$
$\quad \hookrightarrow K^0_SK^0_L + K^+K^-$

$\pi^+n \to g^0p$
$\quad \hookrightarrow K^*(890)\bar{K} + K\bar{K}^*(890)$

[417] $\pi^+n \to g^0p$
$\quad \hookrightarrow \rho^0\pi^+\pi^-$

[418] $\pi^+n \to g^0\rho$
$\quad \hookrightarrow A_2^+\pi^- + A_2^-\pi^+$
$\quad\quad \hookrightarrow \pi^+\pi^+\pi^-$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^-$

[419] $\pi^+n \to g^0p$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-$

[420] $\pi^+n \to \Phi(1675)p$
$\quad \hookrightarrow \rho^0\pi^0$

[421] $\pi^+n \to \Phi(1675)p$
$\quad \hookrightarrow \pi^+\pi^-\pi^0$

[422] $\pi^+n \to A_2^+n$
$\quad \hookrightarrow K^+\bar{K}^0$

[423] $\pi^+n \to g^+n$
$\quad \hookrightarrow K^+K^0_S$

[424] $\pi^+n \to \pi^-\Delta(1238)^{++}$
$\quad \hookrightarrow p\pi^+$

[425] $\pi^+n \to \rho^0\Delta(1238)^+$
$\quad \hookrightarrow p\pi^0$
$\quad \hookrightarrow \pi^+\pi^-$

[426] $\pi^+n \to g^0\Delta(1238)^+$
$\quad \hookrightarrow p\pi^0$
$\quad \hookrightarrow \pi^+\pi^+\pi^-\pi^-$

[427] $\pi^+n \to \pi^+\Delta(1238)^0$
$\quad \hookrightarrow p\pi^-$

[428] $\pi^+n \to \rho^+\Delta(1238)^0$
$\quad \hookrightarrow p\pi^-$
$\quad \hookrightarrow \pi^+\pi^0$

[429] $\pi^+n \to A_2^+\Delta(1238)^0$
$\quad \hookrightarrow p\pi^-$
$\quad \hookrightarrow \pi^+\pi^+\pi^-$

Reaction

[430] $\pi^+n \to K^+\Lambda$

[431] $\pi^+n \to K^+\Sigma^0$

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

[433] $\pi^+n \to K^*(890)^+\Lambda$
$\quad \hookrightarrow K^0\pi^+$

[434] $\pi^+n \to K^*(890)^+\Lambda$
$\quad \hookrightarrow K^0\pi^+ + K^+\pi^0$

[435] $\pi^+n \to K^*(890)^+\Lambda$
$\quad \hookrightarrow K^+\pi^0$

[436] $\pi^+n \to K^*(890)^+\Sigma^0$
$\quad \hookrightarrow K^0\pi^+$

[437] $\pi^+n \to K^+Y^*(1385)^0$
$\quad \hookrightarrow \Lambda\pi^0$

[438] $\pi^+n \to K^+Y^*(1385)^0$
$\quad \hookrightarrow \Lambda\pi^0$

[439] $\pi^+n \to K^+Y^*(1405)$
$\quad \hookrightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

[440] $\pi^+n \to K^+Y^*(1405)$
$\quad \hookrightarrow \Sigma^+\pi^-$

[441] $\pi^+n \to K^+Y^*(1405)$
$\quad \hookrightarrow \Sigma^-\pi^+$

[442] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow pK^-$

[443] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow$ TOTAL

[444] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow pK^- +$ <other mode>

[445] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

[446] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow \Sigma^-\pi^+$

[447] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow \Sigma^+\pi^-$

[448] $\pi^+n \to K^+Y^*(1520)$
$\quad \hookrightarrow nK^0$

[449] $\pi^+n \to K^0\Sigma^+$

[450] $\pi^+n \to K^0Y^*(1385)^+$
$\quad \hookrightarrow \Lambda\pi^+$

[451] $\pi^+n \to K^*(890)^0\Sigma^+$
$\quad \hookrightarrow K^+\pi^-$

Numerical List of All π^+n Reactions

Reaction

3 Body Reactions

[452] $\pi^+n \to p\pi^+\pi^-$

[453] $\pi^+n \to p\pi^0\pi^0$

[454] $\pi^+n \to p\rho^+\pi^-$, $\rho^+ \to \pi^+\pi^0$

[455] $\pi^+n \to p\rho^0\pi^0$, $\rho^0 \to \pi^+\pi^-$

[456] $\pi^+n \to p\rho^-\pi^+$, $\rho^- \to \pi^-\pi^0$

[457] $\pi^+n \to p\delta(970)^+\pi^- + p\delta(970)^-\pi^+$, $\delta(970)^+ \to \eta\pi^+$, $\delta(970)^- \to \eta\pi^-$, $\eta \to$ total

[458] $\pi^+n \to pA_2^-\pi^+$, $A_2^- \to \pi^+\pi^-\pi^-$

[459] $\pi^+n \to n\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

[460] $\pi^+n \to \Delta(1238)^{++}\pi^-\pi^0$, $\Delta(1238)^{++} \to p\pi^+$

[461] $\pi^+n \to \Delta(1238)^+\pi^+\pi^-$, $\Delta(1238)^+ \to p\pi^0$

[462] $\pi^+n \to \Delta(1238)^0\pi^+\pi^0$, $\Delta(1238)^0 \to p\pi^-$

[463] $\pi^+n \to \Delta(1238)^-\pi^+\pi^+$, $\Delta(1238)^- \to n\pi^-$

[464] $\pi^+n \to pK^+K^-$

[465] $\pi^+n \to pK_S^0K_S^0$

[466] $\pi^+n \to pK_S^0K_L^0$

[467] $\pi^+n \to pK^0\bar{K}^0$

[468] $\pi^+n \to nK^+K_S^0$

[469] $\pi^+n \to nK^+\bar{K}^0$

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

[471] $\pi^+n \to \Lambda K^0\pi^+$

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

[473] $\pi^+n \to \Sigma^+K^+\pi^-$

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

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

[476] $\pi^+n \to Y^*(1385)^+K^+\pi^-$, $Y^*(1385)^+ \to \Lambda\pi^+$

[477] $\pi^+n \to Y^*(1385)^-K^+\pi^+$, $Y^*(1385)^- \to \Lambda\pi^-$

Reaction

4 Body Reactions

[478] $\pi^+n \to p\pi^+\pi^-\pi^0$

[479] $\pi^+n \to p\pi^+\pi^-MM(>\pi^0)$

[480] $\pi^+n \to p\eta\pi^+\pi^-$, $\eta \to$ total

[481] $\pi^+n \to p\rho^0\pi^+\pi^-$, $\rho^0 \to \pi^+\pi^-$

[482] $\pi^+n \to p\omega\pi^+\pi^-$, $\omega \to \pi^+\pi^-\pi^0$

[483] $\pi^+n \to n\pi^+\pi^+\pi^-$

[484] $\pi^+n \to \Delta(1238)^{++}\pi^+\pi^-\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

[485] $\pi^+n \to \Delta(1238)^0\pi^+\pi^+\pi^-$, $\Delta(1238)^0 \to p\pi^-$

[486] $\pi^+n \to pK^+K_S^0\pi^-$

[487] $\pi^+n \to pK_S^0K_S^0\pi^0$

[488] $\pi^+n \to pK^-K_S^0\pi^+$

[489] $\pi^+n \to \Lambda K^+\pi^+\pi^-$

[490] $\pi^+n \to \Lambda K^+\pi^+\pi^- + \Sigma^0K^+\pi^+\pi^-$

[491] $\pi^+n \to \Lambda K^0\pi^+\pi^0$

[492] $\pi^+n \to \Sigma^+K^+\pi^-\pi^0$

[493] $\pi^+n \to \Sigma^+K^0\pi^+\pi^-$

[494] $\pi^+n \to \Sigma^-K^+\pi^+\pi^0$

[495] $\pi^+n \to \Sigma^-K^0\pi^+\pi^+$

5 Body Reactions

[496] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-$

[497] $\pi^+n \to pK^+K_S^0\pi^-\pi^0$

[498] $\pi^+n \to pK^0K_S^0\pi^+\pi^-$

[499] $\pi^+n \to pK_S^0K_S^0\pi^+\pi^-$

[500] $\pi^+n \to pK^-K_S^0\pi^+\pi^0$

[501] $\pi^+n \to nK^+K_S^0\pi^+\pi^-$

[502] $\pi^+n \to nK^-K_S^0\pi^+\pi^+$

[503] $\pi^+n \to \Lambda K^+\pi^+\pi^-\pi^0$

[504] $\pi^+n \to \Lambda K^0\pi^+\pi^+\pi^-$

[505] $\pi^+n \to \Sigma^+K^0\pi^+\pi^-\pi^0$

[506] $\pi^+n \to \Sigma^-K^0\pi^+\pi^+\pi^0$

6 Body Reactions

[507] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-\pi^0$

[508] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-\pi^0 + p\pi^+\pi^+\pi^-\pi^-\gamma$

[509] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$

[510] $\pi^+n \to pK_S^0K_S^0\pi^+\pi^-\pi^0$

[511] $\pi^+n \to \Lambda K^0\pi^+\pi^+\pi^-\pi^0$

Miscellaneous Final States

[512] $\pi^+n \to$ Strange particles

[513] $\pi^+n \to K\bar{K}$ + Anything

[514] $\pi^+n \to$ Hyperon K + Anything

NUMERICAL LIST OF ALL π^+d REACTIONS

Reaction

Miscellaneous Final States

[515] $\pi^+d \to$ 1 prong + 2 prongs

2 Body and Quasi-two Body Reactions

[516] $\pi^+d \to pp$

[517] $\pi^+d \to A_1{}^+d$
$\quad\quad \hookrightarrow \rho^0\pi^+$

[518] $\pi^+d \to A_2^+d$
$\quad\quad \hookrightarrow \rho^0\pi^+$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-$

3 Body Reactions

[519] $\pi^+d \to d\rho^0\pi^+$

[520] $\pi^+d \to (p_s)p\pi^0$

[521] $\pi^+d \to (n_s)pA_1{}^5$
$\quad\quad \hookrightarrow \rho^0\pi^+$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-$

[522] $\pi^+d \to (n_s)pA_2^+$
$\quad\quad \hookrightarrow \rho^0\pi^+$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-$

[523] $\pi^+d \to (n_s)pA_3{}^+$
$\quad\quad \hookrightarrow \pi^+\pi^+\pi^-$

[524] $\pi^+d \to (n_s)pA_3{}^+$
$\quad\quad \hookrightarrow f\pi^+$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-$

[525] $\pi^+d \to pp\pi^0$

[526] $\pi^+d \to (p_s)pMM(>\pi^0)$

[527] $\pi^+d \to ppMM(>\pi^0)$

[528] $\pi^+d \to pp\eta$

[529] $\pi^+d \to pp\epsilon$
$\quad\quad \hookrightarrow \pi^0\pi^0$

[530] $\pi^+d \to pp\rho^0$
$\quad\quad \hookrightarrow \pi^+\pi^-$

[531] $\pi^+d \to (p_s)p\eta'$
$\quad\quad \hookrightarrow \eta\pi^+\pi^-$
$\quad\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[532] $\pi^+d \to ppf$
$\quad\quad \hookrightarrow \pi^0\pi^0$

[533] $\pi^+d \to ppf$
$\quad\quad \hookrightarrow \pi^+\pi^-$

[534] $\pi^+d \to (p_s)pg^0$
$\quad\quad \hookrightarrow \pi^+\pi^-$

[535] $\pi^+d \to ppg^0$
$\quad\quad \hookrightarrow \pi^+\pi^-$

[536] $\pi^+d \to pp\Phi(1675)$
$\quad\quad \hookrightarrow \rho^0\pi^0 + \rho^+\pi^- + \rho^-\pi^+$

[537] $\pi^+d \to p\Lambda K^+$

[538] $\pi^+d \to p\Sigma^0K^+$

[539] $\pi^+d \to p\Sigma^+K^0$

Reaction

4 Body Reactions

[540] $\pi^+d \to d\pi^+\pi^+\pi^-$

[541] $\pi^+d \to (p_s)p\pi^+\pi^-$

[542] $\pi^+d \to pp\pi^+\pi^-$

[543] $\pi^+d \to ppK_S^0K_L^0$

[544] $\pi^+d \to ppK_S^0K_S^0$

[545] $\pi^+d \to pnK^+\bar{K}^0$

[546] $\pi^+d \to p\Lambda K^+\pi^0$

[547] $\pi^+d \to p\Lambda K^0\pi^+$

[548] $\pi^+d \to p\Sigma^0K^0\pi^+$

[549] $\pi^+d \to n\Lambda K^+\pi^+$

[550] $\pi^+d \to n\Sigma^+K^0\pi^+$

5 Body Reactions

[551] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^-$

[552] $\pi^+d \to pn\pi^+\pi^+\pi^-$

[553] $\pi^+d \to (p_s)p\pi^+\pi^-\pi^0$

[554] $\pi^+d \to (p_s)p\pi^+\pi^-MM(>\pi^0)$

[555] $\pi^+d \to (p_s)p\eta\pi^+\pi^-$
$\quad\quad \hookrightarrow \pi^+\pi^-\pi^0$

[556] $\pi^+d \to (p_s)nK_S^0K_S^0\pi^+ + (n_s)pK_S^0K_S^0\pi^+$

[557] $\pi^+d \to p\Lambda K^+\pi^+\pi^-$

[558] $\pi^+d \to p\Lambda K^0\pi^+\pi^0$

6 Body Reactions

[559] $\pi^+d \to (p_s)p\pi^+\pi^+\pi^-\pi^-$

[560] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-$

[561] $\pi^+d \to (p_s)\Delta(1238)^{++}\pi^+\pi^-\pi^-\pi^0$
$\quad\quad \hookrightarrow p\pi^+$

7 Body Reactions

[562] $\pi^+d \to (p_s)p\pi^+\pi^+\pi^-\pi^-\pi^0$

[563] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$

[564] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-\pi^0 + pp\pi^+\pi^+\pi^-\pi^-\gamma$

[565] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^-$

[566] $\pi^+d \to pn\pi^+\pi^+\pi^+\pi^-\pi^-$

[567] $\pi^+d \to (p_s)\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

[568] $\pi^+d \to p\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

[569] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^- + (n_s)p\pi^+\pi^+\pi^+\pi^-\pi^-$

[570] $\pi^+d \to (p_s)nK_S^0K_S^0\pi^+\pi^+\pi^- + (n_s)pK_S^0K_S^0\pi^+\pi^+\pi^-$

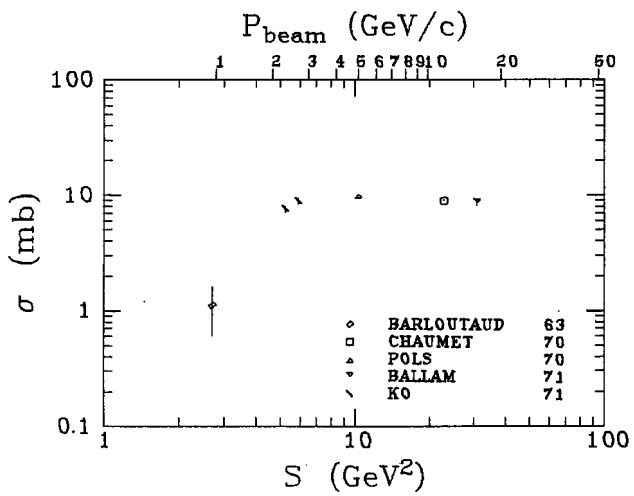
π^+p CROSS SECTIONS

Reaction [1] $\pi^+p \to 2$ prongs

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
5.000	3.207	13.650 +- 0.140	†	SCHOTANUS 70 NP B22 45
13.100	5.048	9.550 1.800		KRAMER 71
16.000	5.561	7.600 0.600		BALLAM 71 PR D3 2606

Reaction [2] $\pi^+p \to 4$ prongs

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.300	2.286	7.600 +- 0.500		KO 71
2.670	2.432	8.900 0.500		KO 71
5.000	3.207	10.060 0.060	†	POLS 70 NP B25 109
11.700 +- 0.060	4.781	8.930 0.070		CHAUMET 70
16.000	5.561	8.600 0.600		BALLAM 71 PR D3 2606



Reaction [3] $\pi^+p \to 4$ prongs and more

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
0.725 +- 0.013	1.512	0.200		NEWCOMB 63 PR 132 1283

Reaction [4] $\pi^+p \to 6$ prongs

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
16.000	5.561	4.500 +- 0.500	†	BALLAM 71 PR D4 1946

Reaction [5] $\pi^+p \to 8$ prongs

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
16.000	5.561	1.100 +- 0.300	†	BALLAM 71 PR D4 1946

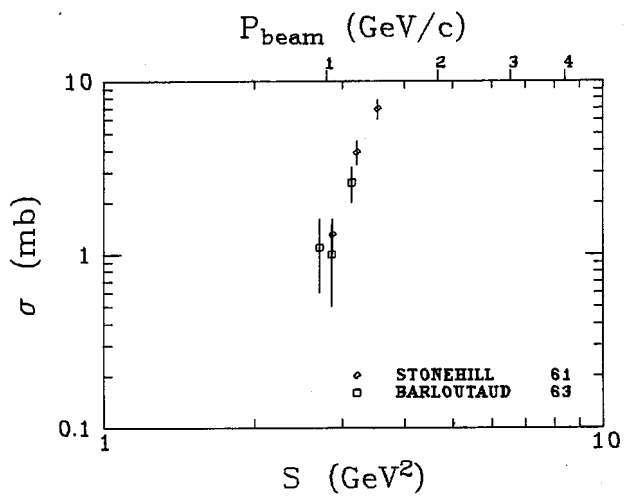
Reaction [6] $\pi^+p \to 10$ prongs

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

Reaction [7] $\pi^+p \to 3\pi$ or more + Nucleon

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
0.949 +- 0.030	1.643	1.100 +- 0.500	BARLOUTAUD 63 NC 27 238
1.030 0.030	1.688	1.000 0.500	BARLOUTAUD 63 NC 27 238
1.040	1.694	1.300 0.300	STONEHILL 61 PRL 6 624
1.181 0.030	1.770	2.600 0.600	BARLOUTAUD 63 NC 27 238
1.222	1.791	3.900 0.600	STONEHILL 61 PRL 6 624
1.393	1.878	6.900 0.900	STONEHILL 61 PRL 6 624



Reaction [8] $\pi^+p \to$ Strange Particle

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.950	2.137	0.700 +- 0.080	†	DAGAN 67 PR 161 1384
2.080	2.194	0.720 0.070		JAMES 66 PR 142 896
4.000	2.900	1.500 0.100		BARTSCH 66 NC 43A 1010

Reaction [9]

$\pi^+p \to K^+\bar{K}^0$ Anything + K^-K^0 Anything

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.500	4.105	0.680 +- 0.180	†	KREBS 70

Reaction [10] $\pi^+p \to K^0\bar{K}^0$ Anything

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.500	4.105	0.250 +- 0.075	†	KREBS 70

Reaction [11]

$\pi^+p \to \Lambda K^+$ Anything + Σ^0K^+ Anything

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.500	4.105	0.420 +- 0.090	†	KREBS 70

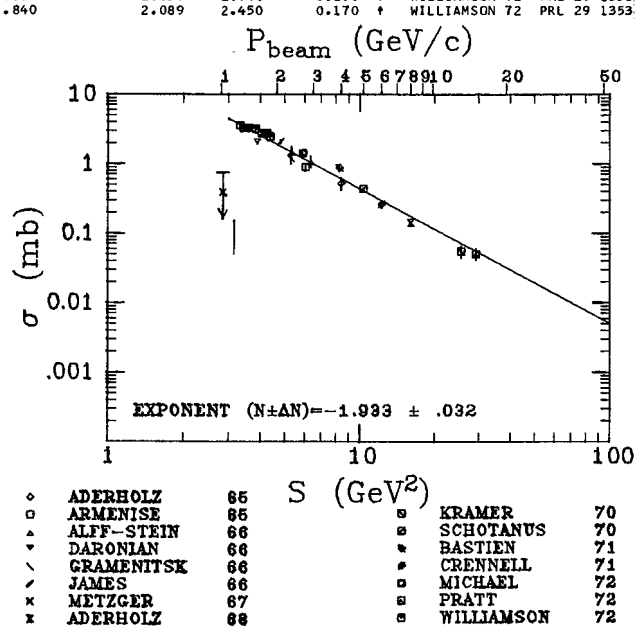
Reaction [12]

$\pi^+p \to \Lambda K^0$ Anything + Σ^0K^0 Anything

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.500	4.105	0.170 +- 0.035	†	KREBS 70

π^+p cross sections

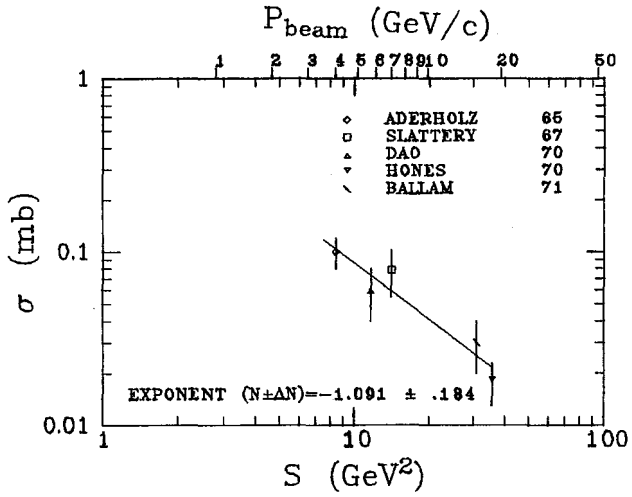
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [13] $\pi^+p \to V^0 +$ Anything			
16.000	5.561	2.100 +- 0.300 †	BALLAM 71 PR D4 1946
Reaction [14] $\pi^+p \to$ 4 prongs $+ K^0$			
4.000	2.900	0.004 +- 0.004	BARTSCH 66 NC 43A 1010
Reaction [15] $\pi^+p \to$ 4 prongs + Λ			
8.000	3.989	0.075 +- 0.011	ADERHOLZ 69 NP B11 259
Reaction [16] $\pi^+p \to$ 4 prongs + Σ^-			
4.000	2.900	0.005 +- 0.003	BARTSCH 66 NC 43A 1010
Reaction [17] $\pi^+p \to$ 6 prongs + Λ			
8.000	3.989	0.006 +- 0.004	ADERHOLZ 69 NP B11 259
Reaction [18] $\pi^+p \to \rho^+p$, $\rho^+ \to \pi^+\pi^0$			
1.020	1.683	0.390 + 0.360 †	METZGER 67 PR 164 1680
		- 0.390	
1.280	1.821	3.500 +- 0.290 †	WILLIAMSON 72 PRL 29 1353
1.340	1.851	3.250 0.250 †	WILLIAMSON 72 PRL 29 1353
1.420	1.891	3.220 0.230 †	WILLIAMSON 72 PRL 29 1353
1.550	1.955	3.130 0.220 †	WILLIAMSON 72 PRL 29 1353
1.585 +- 0.015	1.971	2.000 0.080	DARONIAN 66 NC 41 503
1.670	2.011	2.750 0.190 †	WILLIAMSON 72 PRL 29 1353
1.770	2.057	2.740 0.190 †	WILLIAMSON 72 PRL 29 1353
1.840	2.089	2.450 0.170 †	WILLIAMSON 72 PRL 29 1353
2.080	2.194	2.070 0.150 †	JAMES 66 PR 142 896
2.340	2.302	1.200 0.200 †	GRAMENITSK 66 NAUK 31 1519
2.350 0.015	2.306	1.500 0.300	ALFF-STEIN 66 PR 145 1072
2.670	2.432	1.400 0.080 †	MICHAEL 72 PRL 28 1475
2.750 0.030	2.463	0.890 0.100	ARMENISE 65 NC 37 361
2.900 0.015	2.520	1.100 0.200	ALFF-STEIN 66 PR 145 1072
3.900	2.868	0.860 0.060	BASTIEN 71 PR D3 2047
4.000 0.040	2.900	0.520 0.104 †	ADERHOLZ 65 PR 138 B897
5.000	3.207	0.430 0.020 †	SCHOTANUS 70 NP B22 45
6.000	3.487	0.260 0.030 †	CRENNELL 71 PRL 27 1674
8.040 0.040	3.999	0.141 0.010 †	ADERHOLZ 68 NP B8 45
13.100	5.048	0.054 0.010 †	KRAMER 70 PRL 25 396
15.000	5.390	0.050 0.009 †	PRATT 72 SLAC PUB-1071
Reaction [19] $\pi^+p \to$ "A_1 and A_2 Mass region" p, $A_1 \to \pi^+\pi^+\pi^-$			
16.000	5.561	0.350 +- 0.045 †	BALLAM 71 PR D4 1946
Reaction [20] $\pi^+p \to$ "A_1 and A_2 Mass region" p, $A_1 \to \rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$			
16.000	5.561	0.255 +- 0.035 †	BALLAM 71 PR D4 1946
Reaction [21] $\pi^+p \to A_1{}^+p$, $A_1 \to \pi^+\pi^+\pi^-$			
7.000	3.747	0.019 +- 0.019 †	SLATTERY 67
Reaction [22] $\pi^+p \to A_1{}^+p$, $A_1 \to \rho^0\pi^+$			
3.500	2.734	0.270 +- 0.080 †	RONAT 72 NP B38 20
4.000 +- 0.040	2.900	0.100 0.020 †	ADERHOLZ 65 PR 138 B897
5.720	3.411	0.154 +- 0.054 †	SHENG 70
Reaction [23] $\pi^+p \to A_1{}^+p$, $A_1 \to K^+\bar{K}^0$			
8.000	3.989	0.001 †	ADERHOLZ 69 NP B11 259
Reaction [24] $\pi^+p \to A_1{}^+p$, $A_1 \to \pi^+\pi^+\pi^-$ + <other mode>			
8.040 +- 0.040	3.999	0.270 +- 0.027 †	ADERHOLZ 68 NP B8 45
Reaction [25] $\pi^+p \to A_{1.5}p$, $A_{1.5} \to \pi^+\pi^+\pi^-$			
8.040 +- 0.040	3.999	0.014 +- 0.008 †	BOESEBECK 68 NP B4 501



* 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 [26] $\pi^+p \to B^+p$, $B^+ \to \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$						
4.000 +- 0.040	2.900	0.100 +- 0.020 †	ADERHOLZ	65	PR 138 B897	
5.720	3.411	0.060 0.020 †	DAO	70		
7.000	3.747	0.078 0.024 †	SLATTERY	67		
16.000	5.561	0.030 0.010 †	BALLAM	71	PR D3 2606	
18.500	5.968	0.018 0.005 †	HONES	70	PR D2 827	



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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [27] $\pi^+p \to B^+p$, $B^+ \to \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>						
5.000	3.207	0.092 +- 0.016 †	POLS	70	NP B25 109	
8.040 +- 0.040	3.999	0.032 0.011 †	ADERHOLZ	68	NP B8 45	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [28] $\pi^+p \to A_2^+p$, $A_2^+ \to \pi^+\pi^+\pi^-$						
5.100	3.236	0.118 +- 0.026 †	ARMENISE	70	NC 65A 637	
7.000	3.747	0.070 0.025 †	SLATTERY	67		

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [29] $\pi^+p \to A_2^+p$, $A_2^+ \to \pi^+\pi^0\pi^0$						
13.100	5.048	0.107 +- 0.038 †	KRAMER	71		

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [30] $\pi^+p \to A_2^+p$, $A_2^+ \to \rho^0\pi^+$						
3.500	2.734	0.180 +- 0.110 †	RONAT	72	NP B38 20	
4.000 +- 0.040	2.900	0.160 0.032 †	ADERHOLZ	65	PR 138 B897	
5.720	3.411	0.140 +- 0.063 †	SHENG	70		

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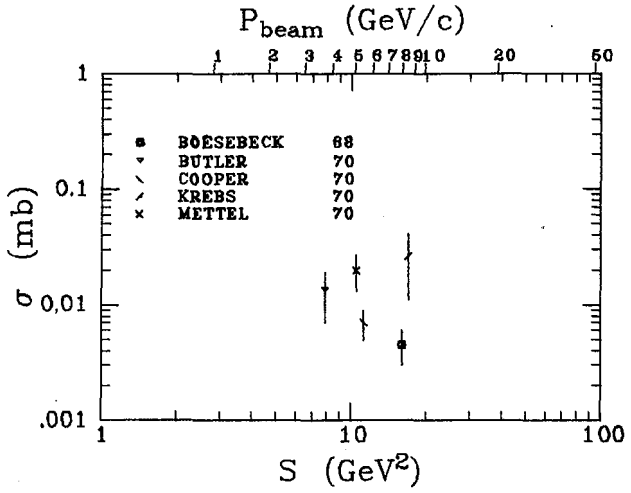
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [31] $\pi^+p \to A_2^+p$, $A_2^+ \to K^+\bar{K}^0$						
3.700	2.801	0.013 +- 0.006 †	BUTLER	70	UCRL 19845	
5.100	3.236	0.020 0.007 †	METTEL	70		
5.500	3.350	0.007 0.002	COOPER	70	NP B23 605	
8.040 +- 0.040	3.999	0.005 0.002 †	BOESEBECK	68	NP B4 501	
8.500	4.105	0.026 0.015 †	KREBS	70	NP B4 501	



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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [32] $\pi^+p \to A_2^+p$, $A_2^+ \to K^+K_S^0$						
5.000	3.207	0.011 +- 0.006 †	BOECKMANN	70	NP B16 221	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [33] $\pi^+p \to A_2^+p$, $A_2^+ \to \eta\pi^+$, $\eta \to \pi^+\pi^-\pi^0$						
5.000	3.207	0.048 +- 0.017 †	BOECKMANN	70	NP B16 221	
8.040 +- 0.040	3.999	0.019 0.005 †	BOESEBECK	68	NP B4 501	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [34] $\pi^+p \to A_2^+p$, $A_2^+ \to \eta\pi^+$, $\eta \to \pi^+\pi^-\pi^0$ + <other mode>						
3.700	2.801	0.032 +- 0.007	BARNHAM	71	PRL 26 1494	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [35] $\pi^+p \to A_2^+p$, $A_2^+ \to \eta'\pi^+$, $\eta' \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$ + neutrals						
5.000	3.207	0.005 + 0.003 - 0.005 †	BOECKMANN	70	NP B16 221	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [36] $\pi^+p \to A_2^+p$, $A_2^+ \to \eta'\pi^+$, $\eta' \to \eta\pi^+\pi^-$ + <other mode>, $\eta \to$ neutrals + <other mode>						
3.700	2.801	<.004 †	BARNHAM	71	PRL 26 1494	

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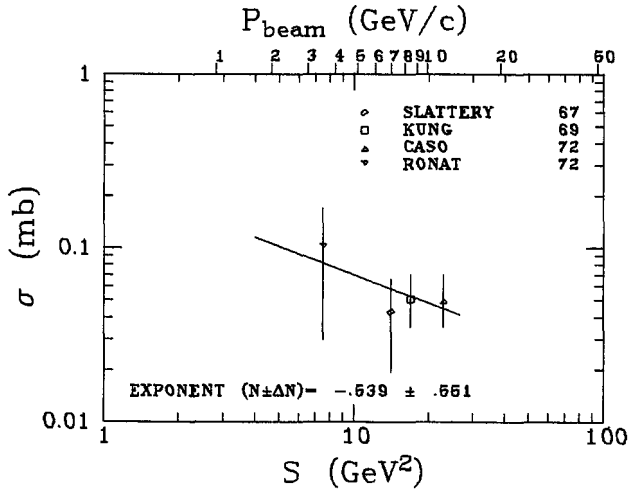
π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [37] $\pi^+p \to A_2^+p$, $\to \eta'\pi^+$, $\to \pi^+\pi^-MM(>\pi^0)$			
8.040 +- 0.040	3.999	0.001 +- 0.001 †	BOESEBECK 68 NP B4 501
Reaction [38] $\pi^+p \to A_2^+p$, $\to$ total			
3.700	2.801	0.212 +- 0.029	BARNHAM 71 PRL 26 1494
Reaction [39] $\pi^+p \to A_2^+p$, $\to \pi^+\pi^+\pi^-$ + <other mode>			
8.040 +- 0.040	3.999	0.237 +- 0.021 †	ADERHOLZ 68 NP B8 45
Reaction [40] $\pi^+p \to A_2^+p$, $\to \rho^0\pi^+$ + <other mode>			
3.700	2.801	0.166 +- 0.027	BARNHAM 71 PRL 26 1494
5.450	3.336	0.150 0.040 †	BLOODWORTH 72 NP B37 203
5.000	3.207	0.310 +- 0.060 †	POLS 70 NP B25 109
Reaction [41] $\pi^+p \to A_2^+p$, $\to \rho^0\pi^+ + \rho^+\pi^0$ + <other mode>			
5.000	3.207	0.228 +- 0.057 †	BOECKMANN 70 NP B16 221
Reaction [42] $\pi^+p \to A_3^+p$, $\to \pi^+\pi^+\pi^-$			
3.500	2.734	0.100 +- 0.070 †	RONAT 72 NP B38 20
7.000	3.747	0.043 0.023 †	SLATTERY 67
8.490 +- 0.060	4.103	0.051 + 0.019 - 0.015 †	KUNG 69
11.700	4.781	0.050 + 0.020 - 0.015 †	CASO 72 NP B36 349



P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [43] $\pi^+p \to A_3^+p$, $\to \pi^+\pi^0\pi^0$			
8.040 +- 0.040	3.999	0.031 +- 0.011 †	BARTSCH 68 NP B7 345
Reaction [44] $\pi^+p \to A_3^+p$, $\to \rho^0\pi^+$			
8.040 +- 0.040	3.999	0.014 +- 0.004 †	BARTSCH 68 NP B7 345
Reaction [45] $\pi^+p \to A_3^+p$, $\to \rho\pi^+$, $\to \pi^+\pi^-$			
8.040 +- 0.040	3.999	0.042 +- 0.015 †	BARTSCH 68 NP B7 345
Reaction [46] $\pi^+p \to A_3^+p$, $\to \pi^+\pi^+\pi^-$ + <other mode>			
8.040 +- 0.040	3.999	0.077 +- 0.018 †	ADERHOLZ 68 NP B8 45
Reaction [47] $\pi^+p \to g^+p$, $\to \pi^+\pi^0$			
8.040 +- 0.040	3.999	0.042 +- 0.006 †	ADERHOLZ 68 NP B8 45
13.100	5.048	0.009 0.002 †	KRAMER 70 PRL 25 396
Reaction [48] $\pi^+p \to g^+p$, $\to \pi^+MM(>\pi^0)$			
13.100	5.048	0.040 +- 0.009 †	KRAMER 71
Reaction [49] $\pi^+p \to g^+p$, $\to \pi^+\pi^+\pi^-\pi^0$			
8.490 +- 0.060	4.103	0.034 + 0.028 - 0.010 †	KUNG 69
Reaction [50] $\pi^+p \to g^+p$, $\to \rho\pi + \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$			
16.000	5.561	0.025 +- 0.010 †	BALLAM 71 PR D3 2606
Reaction [51] $\pi^+p \to g^+p$, $\to \pi\pi + \pi\pi\pi\pi + K\bar{K} + K\bar{K}\pi$			
8.040 +- 0.040	3.999	0.100	BARTSCH 70 NP B22 109

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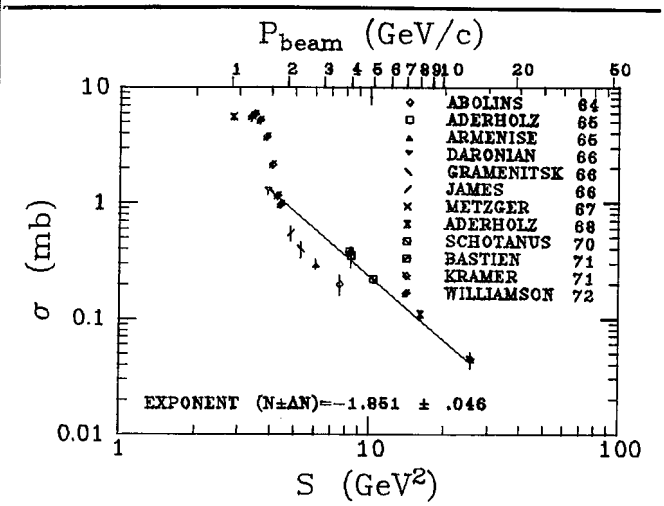
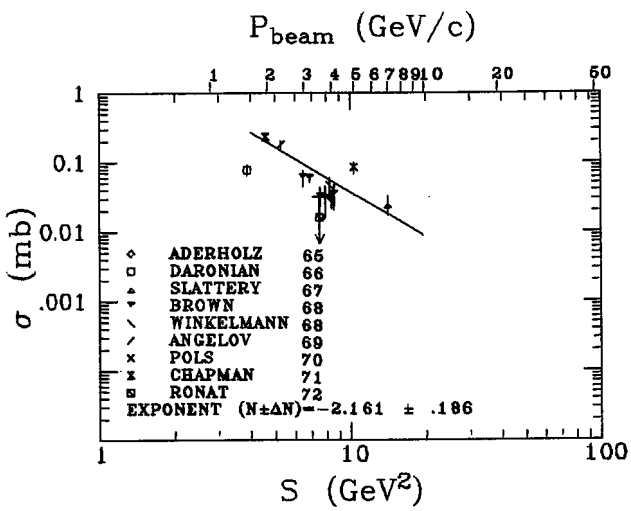
π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
Reaction [52] $\pi^+p \to S^+p$, $S^+ \to \pi^+\pi^0$							
8.040 +- 0.040	3.999	0.026 +- 0.008	†	ADERHOLZ	68	NP B8	45
13.100	5.048	0.007 0.002	†	KRAMER	70	PRL 25	396
Reaction [53] $\pi^+p \to T^+p$, $T^+ \to \pi^+\pi^0$							
13.100	5.048	0.011 +- 0.003	†	KRAMER	70	PRL 25	396
Reaction [54] $\pi^+p \to T^+p$, $T^+ \to \pi^+MM(>\pi^0)$							
13.100	5.048	0.019 +- 0.005	†	KRAMER	71		
Reaction [55] $\pi^+p \to X(2620)^+p$, $X(2620)^+ \to \pi^+MM(>\pi^0)$							
13.100	5.048	0.011 +- 0.003	†	KRAMER	71		
Reaction [56] $\pi^+p \to X(2800)p$, $X(2800) \to K^+\bar{K}^0\pi^+\pi^- + K^-K^0\pi^+\pi^+$							
8.040 +- 0.060	3.999	0.025 +- 0.010	†	SABAU	71	NCL 1	514
Reaction [57] $\pi^+p \to \Delta(2850)^{++}$, $\Delta(2850)^{++} \to p\pi^+\pi^+\pi^-$							
3.740	2.815	0.650	†	BROWN	68	UCRL 18254	
Reaction [58] $\pi^+p \to \Delta(2850)^{++}$, $\Delta(2850)^{++} \to \Delta(1238)^{++}\rho^0$							
3.740	2.815	0.250 +- 0.100	†	BROWN	68	UCRL 18254	
Reaction [59] $\pi^+p \to \pi^0\Delta(1238)^{++}$, $\Delta(1238)^{++} \to p\pi^+$							
1.020	1.683	5.570 + 0.250	†	METZGER	67	PR 164	1680
		- 0.260					
1.280	1.821	5.560 +- 0.460	†	WILLIAMSON	72	PRL 29	1353
1.340	1.851	5.850 0.450	†	WILLIAMSON	72	PRL 29	1353
1.420	1.891	5.150 0.280	†	WILLIAMSON	72	PRL 29	1353
1.550	1.955	3.740 0.260	†	WILLIAMSON	72	PRL 29	1353
1.585 +- 0.015	1.971	1.250 0.060		DARONIAN	66	NC 41	503
1.670	2.011	2.150 0.150	†	WILLIAMSON	72	PRL 29	1353
1.770	2.057	1.150 0.080	†	WILLIAMSON	72	PRL 29	1353
1.840	2.089	0.970 0.070	†	WILLIAMSON	72	PRL 29	1353
2.080	2.194	0.550 0.080	†	JAMES	66	PR 142	896
2.340	2.302	0.400 0.060	†	GRAMENITSK	66	NAUK 31	1515
2.750 0.030	2.463	0.300 0.030		ARMENISE	65	NC 37	361
3.540	2.747	0.200 0.040	†	ABOLINS	64	PR 136	B195
3.900	2.868	0.380 0.030		BASTIEN	71	PR D3	2047
4.000 0.040	2.900	0.350 0.070	†	ADERHOLZ	65	PR 138	B897
5.000	3.207	0.220 0.010	†	SCHOTANUS	70	NP B22	45
8.040 0.040	3.999	0.110 0.008	†	ADERHOLZ	68	NP B8	45
13.100	5.048	0.045 0.007	†	KRAMER	71	NP B8	45



P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
Reaction [60] $\pi^+p \to \Delta(1238)^{++}MM(>\pi^0)$, $\Delta(1238)^{++} \to p\pi^+$							
1.585 +- 0.015	1.971	1.600 +- 0.070	†	DARONIAN	66	NC 41	503
Reaction [61] $\pi^+p \to \eta\Delta(1238)^{++}$, $\Delta(1238)^{++} \to p\pi^+$, $\eta \to \pi^+\pi^-\pi^0$							
1.585 +- 0.015	1.971	0.078 +- 0.015	†	DARONIAN	66	NC 41	503
1.950	2.137	0.230 0.030	†	CHAPMAN	71	PR D 3	38
2.340 0.060	2.302	0.180 0.020	†	ANGELOV	69	JINRP P1-4611	
2.950	2.538	0.060 0.016	*†	BROWN	68	UCRL 18254	
3.190	2.625	0.058 0.008	*†	BROWN	68	UCRL 18254	
3.500	2.734	0.016 0.016	†	RONAT	72	NP B38	20
3.530	2.744	0.032 0.011	*†	BROWN	68	UCRL 18254	
3.740	2.815	0.030 0.015	*†	BROWN	68	UCRL 18254	
3.920	2.874	0.046 0.013	†	WINKELMANN	68		
4.000 0.040	2.900	0.030 0.009	†	ADERHOLZ	65	PR 138	B897
4.080	2.926	0.034 0.014	*†	BROWN	68	UCRL 18254	
5.000	3.207	0.083 0.017	†	POLS	70	NP B25	109
7.000	3.747	0.024 0.008	†	SLATTERY	67		



* DATA READ FROM GRAPH
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π^+p cross sections

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
1.585 +- 0.015	1.971	0.340 +- 0.030	†	DARONIAN	66	NC 41	503

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
1.280	1.821	0.272 +- 0.069	*†	GRETHER	71	PRL 26	792
1.390	1.877	0.599 0.091	*†	GRETHER	71	PRL 26	792
1.550	1.955	0.750 0.138	*†	GRETHER	71	PRL 26	792
1.620	1.988	0.669 0.102	*†	GRETHER	71	PRL 26	792
1.750	2.048	0.669 0.080	*†	GRETHER	71	PRL 26	792
1.850	2.093	0.518 0.079	*†	GRETHER	71	PRL 26	792
2.300	2.286	0.329 0.061	*†	GRETHER	71	PRL 26	792
2.670	2.432	0.247 0.046	*†	GRETHER	71	PRL 26	792
3.650	2.785	0.140 0.040	†	SHEN	65	UCRL 16170	
5.450	3.336	0.076 0.013	†	BLOODWORTH	72	NP B39	529
8.040 +- 0.040	3.999	0.052 0.009	†	ADERHOLZ	68	NP B8	45
18.500	5.968	0.020 0.008	†	BISWAS	70	PR D2	2529

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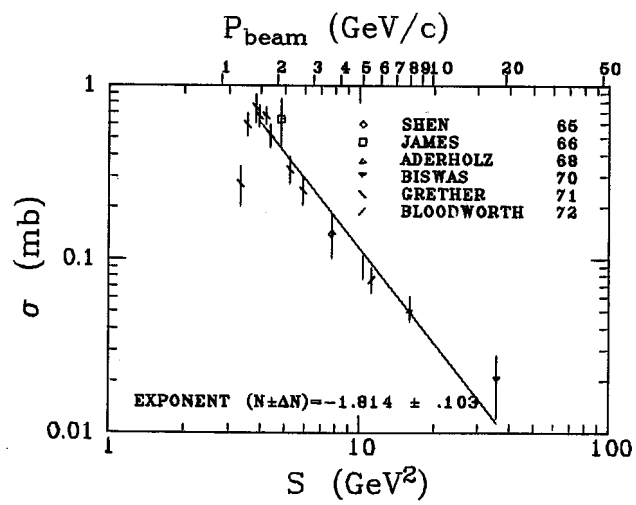
Reaction [64] $\pi^+p \to \eta\Delta(1238)^{++}$, $\eta \to p\pi^+$, $\eta \to$ total

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
2.080	2.194	0.640 +- 0.200	†	JAMES	66	PR 142	896



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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
5.000	3.207	0.090 +- 0.015	†	SCHOTANUS	70	NP B22	45
13.100	5.048	0.023 0.000	†	KRAMER	71		

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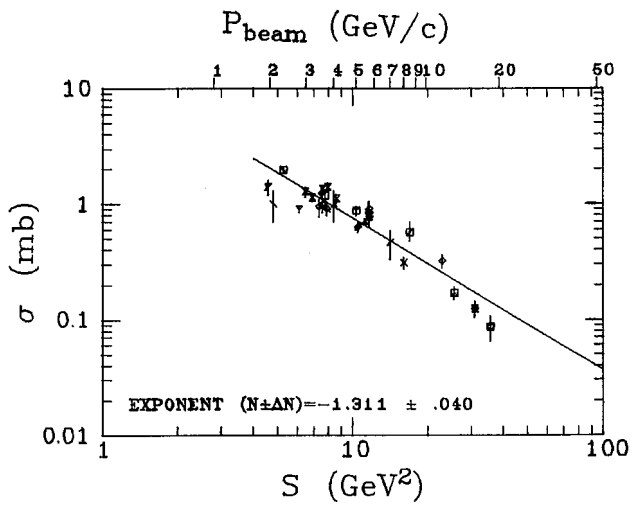
Reaction [66] $\pi^+p \to \rho^0\Delta(1238)^{++}$, $\rho^0 \to p\pi^+$, $\rho^0 \to \pi^+\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
1.950	2.137	1.400 +- 0.200	†	CHAPMAN	71	PR D 3	38
2.080	2.194	1.000 0.300	†	JAMES	66	PR 142	896
2.340 +- 0.060	2.302	1.970 0.100	†	ANGELOV	69	JINRP P1-46	
2.770 0.040	2.471	0.893 0.048	†	YAMAMOTO	65	PR 140	B730
2.950	2.538	1.270 0.120	*†	BROWN	68	UCRL 18254	
3.190	2.625	1.130 0.090	*†	BROWN	68	UCRL 18254	
3.430	2.710	[0.950 0.180]	††	ABOLINS	63	PRL 11	381
3.500	2.734	1.240 0.080	†	RONAT	72	NP B38	20
3.530	2.744	1.340 0.100	*†	BROWN	68	UCRL 18254	
3.540	2.747	[0.990 0.140]	††	ABOLINS	63	PRL 11	381
3.650	2.785	1.170 0.120	†	GOLDHABER	64	PRL 12	336
3.700	2.801	0.900 0.100	†	ABRAMS	70	PRL 25	617
3.740	2.815	1.390 0.120	*†	BROWN	68	UCRL 18254	
4.000 0.040	2.900	1.000 0.300	†	ADERHOLZ	65	PR 138	B897
4.080	2.926	1.120 0.090	*†	BROWN	68	UCRL 18254	
5.000	3.207	0.870 0.080	†	POLS	70	NP B25	109
5.100	3.236	0.632 0.060	†	ARMENISE	70	NC 65A	637
5.450	3.336	0.714 0.042	†	BLOODWORTH	71	NP B35	79
5.720	3.411	0.776 0.136	†	SHENG	70	PR D2	2529
5.720	3.411	0.832 0.142	†	SHENG	70		
5.720	3.411	0.902 0.166	†	SHENG	70		
7.000	3.747	0.462 0.126	†	SLATTERY	67		
8.040 0.040	3.999	0.311 0.035	†	ADERHOLZ	68	NP B8	45
8.490 0.060	4.103	0.570 + 0.136	†	KUNG	69	NP B8	45
		- 0.088					
11.700 0.117	4.781	0.320 +- 0.040	†	MADDOCK	71	NC 5A	433
13.100	5.048	0.170 0.020	†	GAIDOS	70	PR D1	3190
16.000	5.561	0.124 0.020	†	BALLAM	71	PR D4	1946
18.500	5.968	0.087 0.022	†	BISWAS	70	PR D2	2529



◇	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

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

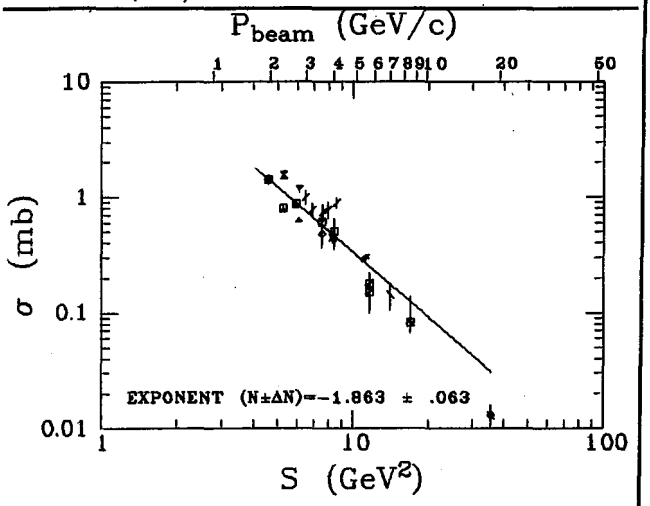
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
1.950	2.137	1.410 +- 0.140	†	CHAPMAN	71	PR D 3	38
2.300	2.286	0.809 0.050	†	KO	71		
2.340 +- 0.060	2.302	1.540 0.090	†	ANGELOV	69	JINRP P1-4611	
2.670	2.432	0.871 0.050	†	KO	71		
2.750	2.463	0.650 0.020	†	ARMENISE	65	NC 40A	273
2.770 0.040	2.471	1.161 0.063	†	YAMAMOTO	65	PR 140	B730
2.950	2.538	0.994 0.136	*†	BROWN	68	UCRL 18254	
3.190	2.625	0.778 0.114	*†	BROWN	68	UCRL 18254	
3.500	2.734	[0.480 0.120]	††	XUONG	63	PRL 11	227
3.500	2.734	0.610 0.050	†	RONAT	72	NP B38	20
3.530	2.744	0.739 0.125	*†	BROWN	68	UCRL 18254	
3.740	2.815	0.778 0.125	*†	BROWN	68	UCRL 18254	
3.920	2.874	0.450 0.050	†	WINKELMANN	68		
4.000 0.040	2.900	0.500 0.150	†	ADERHOLZ	65	PR 138	B897
4.080	2.926	0.898 0.097	*†	BROWN	68	UCRL 18254	
5.450	3.336	0.293 0.017	†	BLOODWORTH	71	NP B35	79
5.720	3.411	0.150 0.050	†	DAO	70		
5.720	3.411	0.180 0.040	†	DAO	70		
7.000	3.747	0.142 0.038	†	SLATTERY	67		
8.490 0.060	4.103	0.083 + 0.055	†	KUNG	69		
		- 0.017					
18.500	5.968	0.013 +- 0.003	†	HONES	70	PR D2	827

See plot on the following page.

* 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



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Reaction [68] $\pi^+p\to\omega\Delta(1238)^{++}$, $\omega\to p\pi^+$, $\omega\to\pi^+\pi^-\pi^0$ + <other mode>

3.430		2.710	[0.580 +- 0.120]†	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 0.080 †	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	+- 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

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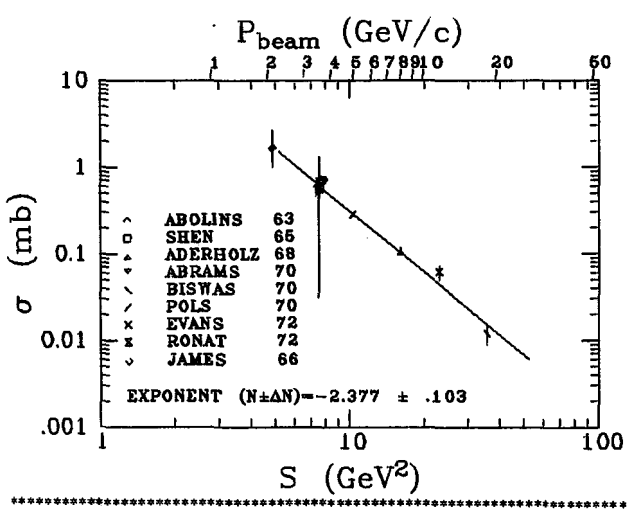
Reaction [69] $\pi^+p\to\omega\Delta(1238)^{++}$, $\omega\to p\pi^+$, $\omega\to$ total

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



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

Reaction [70] $\pi^+p\to\phi\Delta(1238)^{++}$, $\phi\to p\pi^+$, $\phi\to K^0_SK^0_L$

8.000		3.989	0.001 †	ADERHOLZ	69	NP B11	259

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Reaction [71] $\pi^+p\to\phi\Delta(1238)^{++}$, $\phi\to p\pi^+$, $\phi\to K^+K^-$

3.700		2.801	0. +- 0.002 †	BUTLER	70	UCRL 19845	

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Reaction [72] $\pi^+p\to\phi\Delta(1238)^{++}$, $\phi\to p\pi^+$, $\phi\to K^+K^-$ + $K^0_SK^0_L$

3.650		2.785	<.010 †	TRILLING	65	PL 19	427

****

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

8.040	+- 0.060	3.999	0.030 +- 0.013	BARDADIN-O	71	PR D4	2711

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Reaction [74] $\pi^+p\to\eta'\Delta(1238)^{++}$, $\eta'\to p\pi^+$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, <other mode> → total

5.450		3.336	0.017 +- 0.006 †	BLOODWORTH	72	NP B39	525

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Reaction [75] $\pi^+p\to\eta'\Delta(1238)^{++}$, $\eta'\to\pi^+\pi^+\pi^-\pi^-\pi^0$ + <other mode>

4.000		2.900	0.071 +- 0.032 †	BONDAR	66	NC 44A	530

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Reaction [76] $\pi^+p\to\eta'\Delta(1238)^{++}$, $\eta'\to p\pi^+$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, <other mode> → neutrals

3.650		2.785	0.047 + 0.020 - 0.014 †	TRILLING	65	PL 19	427

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Reaction [77] $\pi^+p\to H^0\Delta(1238)^{++}$, $H^0\to p\pi^+$, $H^0\to\pi^+\pi^-\pi^0$

4.000	+- 0.040	2.900	0.150 +- 0.045 †	ADERHOLZ	65	PR 138	B897

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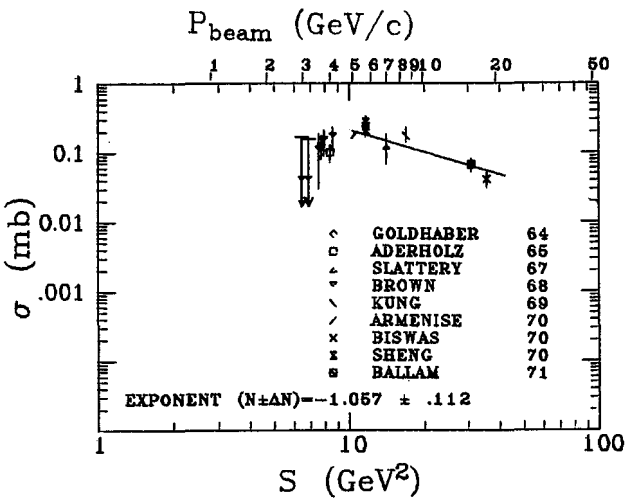
π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [78] $\pi^+p \to f\Delta(1238)^{++}$, $f \to p\pi^+$, $\Delta \to \pi^+\pi^-$						
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 +- 0.040	2.900	0.100 0.030	†	ADERHOLZ 65	PR 138 B897	
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 0.060	4.103	0.175 + 0.055	†	KUNG 69		
		- 0.035				
16.000	5.561	0.066 0.013	†	BALLAM 71	PR D4 1946	
18.500	5.968	0.041 0.010	†	BISWAS 70	PR D2 2529	



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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [79] $\pi^+p \to f\Delta(1238)^{++}$, $f \to p\pi^+$, $\Delta \to \pi^+\pi^-$ + <other mode>						
5.000	3.207	0.340 +- 0.070	†	POLS 70	NP B25 109	
8.040 +- 0.040	3.999	0.215 0.015	†	ADERHOLZ 68	NP B8 45	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [80] $\pi^+p \to f\Delta(1238)^{++}$, $f \to p\pi^+$, $\Delta \to K^+K^-$						
8.000	3.989	0.005 +- 0.002	†	ADERHOLZ 69	NP B11 259	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [81] $\pi^+p \to f\Delta(1238)^{++}$, $f \to p\pi^+$, $\Delta \to K^0_SK^0_S$						
8.000	3.989	0.005	†	ADERHOLZ 69	NP B11 259	

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* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
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( ) CALCULATED BY US FROM DATA IN THIS ARTICLE

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [82] $\pi^+p \to f\Delta(1238)^{++}$, $f \to p\pi^+$, $\Delta \to \pi^+\pi^-$ + $\pi^0\pi^0$						
13.100	5.048	0.115 +- 0.007	†	GAIDOS 71	NP B26 225	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [83] $\pi^+p \to D(1285)\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $D \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$						
8.000	3.989	0.006 +- 0.002	†	OTWINOWSKI 69	PL 29B 529	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [84] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to \pi^+\pi^-\pi^0$						
3.500	2.734	0.180 +- 0.060	†	RONAT 72	NP B38 20	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [85] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to \rho^{+/-}\pi^{-/+}$						
5.000	3.207	0.146 +- 0.022	†	BOECKMANN 70	NP B16 221	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [86] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to K^+K^-$						
8.000	3.989	0.002	†	ADERHOLZ 69	NP B11 259	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [87] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to K^0_SK^0_S$						
8.000	3.989	0.002	†	ADERHOLZ 69	NP B11 259	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [88] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to K^0\bar{K}^0$						
5.500	3.350	<.002		COOPER 70	NP B23 605	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [89] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to \eta\pi^0$, $\eta \to \pi^+\pi^-\pi^0$						
5.000	3.207	0.050 +- 0.029	†	BOECKMANN 70	NP B16 221	

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P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
Reaction [90] $\pi^+p \to A^0_2\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A^0_2 \to \pi^+\pi^-\pi^0$ + <other mode>						
8.040 +- 0.040	3.999	0.068 +- 0.013	†	ADERHOLZ 68	NP B8 45	

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0 0 0 0 3 6 0 0 7 3 5

π^+p cross sections

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

Reaction [91] $\pi^+p \to A_2^0 \Delta(1238)^{++}$, $\Delta(1238)^{++} \hookrightarrow p\pi^+$, $A_2^0 \hookrightarrow \rho^{+/-}\pi^{-/+}$ + <other mode>

5.000	3.207	0.220	+-	0.030	†	POLS	70	NP B25 109

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Reaction [92] $\pi^+p \to A_2^0 \Delta(1238)^{++}$, $\Delta(1238)^{++} \hookrightarrow p\pi^+$, $A_2^0 \hookrightarrow K^+K^-$ + <other mode>

5.000	3.207	0.021	+-	0.007	†	BOECKMANN	70	NP B16 221

****

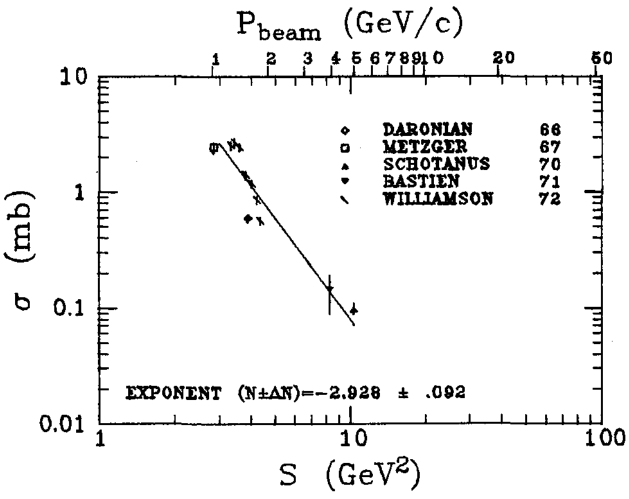
Reaction [93] $\pi^+p \to g^0 \Delta(1238)^{++}$, $\Delta(1238)^{++} \hookrightarrow p\pi^+$, $g^0 \hookrightarrow \pi^+\pi^-$

18.500	5.968	0.034	+-	0.008	†	BISWAS	70	PR D2 2529

****

Reaction [94] $\pi^+p \to \pi^+\Delta(1238)^+$, $\Delta(1238)^+ \hookrightarrow p\pi^0$

1.020	1.683	2.460	+	0.230	†	METZGER	67	PR 164 1680
			-	0.260				
1.280	1.821	2.540	+-	0.210	†	WILLIAMSON	72	PRL 29 1353
1.340	1.851	2.730		0.210	†	WILLIAMSON	72	PRL 29 1353
1.420	1.891	2.480		0.180	†	WILLIAMSON	72	PRL 29 1353
1.550	1.955	1.410		0.100	†	WILLIAMSON	72	PRL 29 1353
1.585 +- 0.015	1.971	0.600		0.040	†	DARONIAN	66	NC 41 503
1.670	2.011	1.200		0.080	†	WILLIAMSON	72	PRL 29 1353
1.770	2.057	0.860		0.060	†	WILLIAMSON	72	PRL 29 1353
1.840	2.089	0.570		0.040	†	WILLIAMSON	72	PRL 29 1353
3.900	2.868	0.140		0.050		BASTIEN	71	PR D3 2047
5.000	3.207	0.100		0.010	†	SCHOTANUS	70	NP B22 45



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Reaction [95] $\pi^+p \to \pi^+\Delta(1238)^+$, $\Delta(1238)^+ \hookrightarrow n\pi^+$

1.020	1.683	1.050	+	0.270	†	METZGER	67	PR 164 1680
			-	0.190				
1.585 +- 0.015	1.971	0.320	+-	0.040	†	DARONIAN	66	NC 41 503
3.900	2.868	0.080		0.010		BASTIEN	71	PR D3 2047

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Reaction [96] $\pi^+p \to \pi^+\Delta(1238)^+$, $\Delta(1238)^+ \hookrightarrow p\pi^0$ + $n\pi^+$

4.000 +- 0.040	2.900	0.200	+-	0.040	†	ADERHOLZ	65	PR 138 B897

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Reaction [97] $\pi^+p \to \pi^+N(1400)^+$, $N(1400)^+ \hookrightarrow n\pi^+$ + $p\pi^0$

6.000	3.487	0.034			†	BELL	68	PRL 20 164

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Reaction [98] $\pi^+p \to \pi^+N(1400)^+$, $N(1400)^+ \hookrightarrow p\pi^+\pi^-$

4.000	2.900	0.040	+-	0.025	†	BOESEBECK	71	NP B33 445
8.000	3.989	0.020		0.010	†	BOESEBECK	71	NP B33 445

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Reaction [99] $\pi^+p \to \pi^+N(1400)^+$, $N(1400)^+ \hookrightarrow \Delta(1238)^{++}\pi^-$, $\Delta(1238)^{++} \hookrightarrow p\pi^+$

3.500	2.734	0.270	+-	0.070	†	RONAT	72	NP B38 20

****

Reaction [100] $\pi^+p \to \pi^+N(1512)^+$, $N(1512)^+ \hookrightarrow n\pi^+$

1.585 +- 0.015	1.971	0.360	+-	0.040	†	DARONIAN	66	NC 41 503

****

Reaction [101] $\pi^+p \to \pi^+N(1512)^+$, $N(1512)^+ \hookrightarrow p\pi^0$

1.020	1.683	0.	+-	0.090	†	METZGER	67	PR 164 1680

****

Reaction [102] $\pi^+p \to \pi^+N(1700)^+$, $N(1700)^+ \hookrightarrow p\pi^0$

3.900	2.868	0.090	+-	0.020		BASTIEN	71	PR D3 2047

****

Reaction [103] $\pi^+p \to \pi^+N(1700)^+$, $N(1700)^+ \hookrightarrow n\pi^+$

1.585 +- 0.015	1.971	0.470	+-	0.050	†	DARONIAN	66	NC 41 503
2.080	2.194	0.770		0.140	†	JAMES	66	PR 142 896
3.900	2.868	0.180		0.030		BASTIEN	71	PR D3 2047

****

Reaction [104] $\pi^+p \to \pi^+N(1700)^+$, $N(1700)^+ \hookrightarrow p\pi^+\pi^-$

4.000	2.900	0.055	+-	0.025	†	BOESEBECK	71	NP B33 445
5.000	3.207	0.084		0.021	†	CIRBA	70	NP B23 533
8.000	3.989	0.030		0.010	†	BOESEBECK	71	NP B33 445

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π^+p cross sections

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

Reaction [105] $\pi^+p \to \pi^+ N(1700)^+$, $N(1700)^+ \to \Delta(1238)^{++}\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

3.500	2.734	0.400 +- 0.080 †	RONA	72	NP B38 20

Reaction [106] $\pi^+p \to \pi^+ N(1700)^+$, $N(1700)^+ \to \Lambda K^+$

1.950	2.137	0.030 +- 0.010 †	DAGAN	67	PR 161 1384
8.000	3.989	0.006 0.003 †	ADERHOLZ	69	NP B11 259

Reaction [107] $\pi^+p \to \pi^+ N(3690)^+$, $N(3690)^+ \to p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

8.040	3.999	[0.009 +- 0.007]†	BARTKE	67	PL 24B 118

Reaction [108] $\pi^+p \to \pi^+ N(3690)^+$, $N(3690)^+ \to p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$

8.040	3.999	[0.037 +- 0.011]†	BARTKE	67	PL 24B 118

Reaction [109] $\pi^+p \to \pi^+ N(3690)^+$, $N(3690)^+ \to n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$

8.040	3.999	[0.019 +- 0.006]†	BARTKE	67	PL 24B 118

Reaction [110] $\pi^+p \to \pi^- N^{*++}$, $N^{*++} \to p\pi^+\pi^+$

1.900	2.115	<.040 †	BANNER	70	NP B15 205

Reaction [111] $\pi^+p \to \pi^+$ Diffraction Dissociation, $\to p\pi^0$

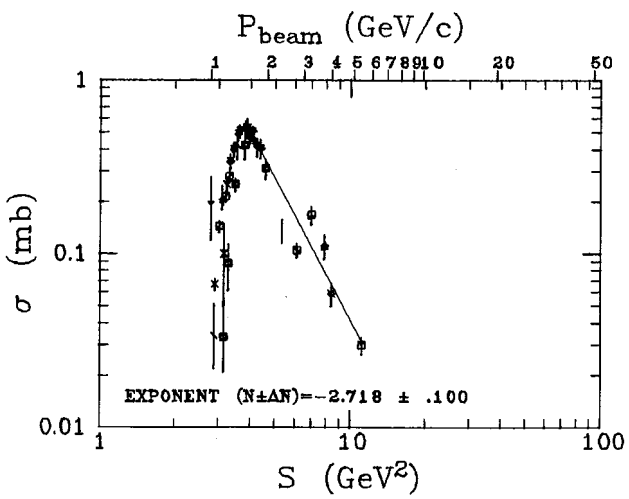
3.900	2.868	0.560 +- 0.080	BASTIEN	71	PR D3 2047

Reaction [112] $\pi^+p \to \pi^+$ Diffraction Dissociation, $\to n\pi^+$

3.900	2.868	1.130 +- 0.050	BASTIEN	71	PR D3 2047

Reaction [113] $\pi^+p \to K^+\Sigma^+$

0.990 +- 0.030	1.666	0.190 + 0.090 - 0.070	KOPP	61	PR 123	301
1.040	1.694	0.034 + 0.018 - 0.012	STONEHILL	61	PRL 6	624
1.051 0.014	1.700	0.067 +- 0.005	GRARD	62	PR 127	607
1.111	1.732	0.144 0.010	CARAYANNOP	65	PR 138	B433
1.155 0.025	1.756	0.214 0.035	BERTHELOT	61	NC 21	693
1.170	1.764	0.205 0.014	CRAWFORD	62	PR 128	368
1.181	1.770	0.033 + 0.018 - 0.012	BALTAY	61	RMP 33	374
1.181 0.030	1.770	0.100 +- 0.050	BARLOUTAUD	63	NC 27	238
1.206	1.783	0.214 0.015	CARAYANNOP	65	PR 138	B433
1.222	1.791	0.250 0.020	STONEHILL	61	PRL 6	624
1.252	1.806	0.088 0.026	BALTAY	61	RMP 33	374
1.265	1.813	0.278 0.020	CARAYANNOP	65	PR 138	B433
1.280	1.821	0.340 0.035 †	KALMUS	70	PR D2	1824
1.340	1.851	0.400 0.035 †	KALMUS	70	PR D2	1824
1.362	1.863	0.250 0.020	BALTAY	61	RMP 33	374
1.393	1.878	0.420 0.070	STONEHILL	61	PRL 6	624
1.410	1.886	0.490 0.045 †	KALMUS	70	PR D2	1824
1.430	1.896	0.510 0.040 †	KALMUS	70	PR D2	1824
1.533	1.946	0.420 0.070	BALTAY	61	RMP 33	374
1.550	1.955	0.530 0.050 †	KALMUS	70	PR D2	1824
1.585 0.015	1.971	0.530 0.070	DARONIAN	66	NC 41	503
1.630	1.992	0.470 0.040 †	KALMUS	70	PR D2	1824
1.680	2.016	0.505 0.040 †	KALMUS	70	PR D2	1824
1.700	2.025	0.470 0.040 †	PAN	70	PR D 2	449
1.770	2.057	0.415 0.050 †	KALMUS	70	PR D2	1824
1.840	2.089	0.405 0.050 †	KALMUS	70	PR D2	1824
1.950	2.137	0.310 0.040 †	DAGAN	67	PR 161	1384
2.770 0.040	2.471	0.105 0.010	YAMAMOTO	64	PR 134	B383
3.230	2.639	0.168 0.020 †	KOFLER	67	PR 163	1479
3.700	2.801	0.111 0.018 †	BUTLER	70	UCRL 19845	
4.000	2.900	0.059 0.009	BARTSCH	66	NC 43A	1010
5.400	3.322	0.030 0.004	COOPER	68	PRL 20	472



◇	BALTAY	61	⊠	CARAYANNOP	65
□	BALTAY	61	⊠	BARTSCH	66
△	BERTHELOT	61	⊠	DARONIAN	66
▽	KOPP	61	⊠	DAGAN	67
\	STONEHILL	61	⊠	KOFLER	67
/	CRAWFORD	62	⊠	COOPER	68
×	GRARD	62	⊠	BUTLER	70
⊠	BARLOUTAUD	63	⊠	KALMUS	70
⊠	YAMAMOTO	64	⊠	PAN	70

Reaction [114] $\pi^+p \to K^+\Sigma^+$, $\Sigma^+ \to n\pi^+$

2.350 + 2.620 - 2.900	2.306	0.136 +- 0.021	BERLEY	65	PR 139B 1097

Reaction [115] $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^+\pi^0 + K^0\pi^+$

4.000	2.900	0.023 +- 0.007 †	BARTSCH	66	NC 43A 1010
5.400	3.322	0.043 0.006 †	COOPER	68	PRL 20 472

Reaction [116] $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^0\pi^+$ + <other mode>

3.700	2.801	0.098 +- 0.020 †	BUTLER	70	UCRL 19845

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

π^+p cross sections

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

Reaction [117] $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^+\pi^0$

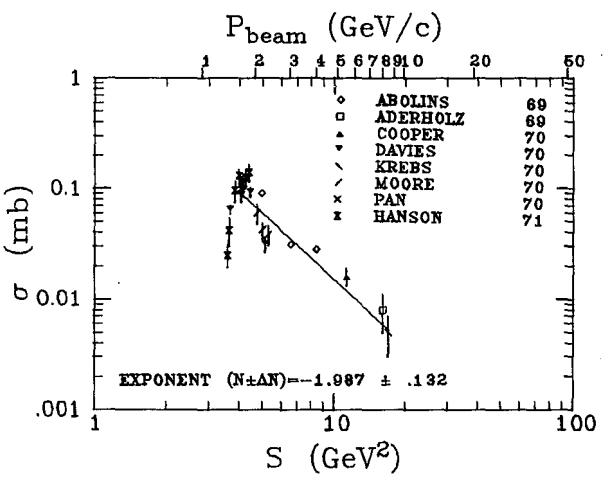
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.950	2.137	0.140 +- 0.030 †	DAGAN 67	PR 161 1384

Reaction [118] $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.072 + 0.413 − 0.382	2.190	0.083 +- 0.025 †	DAVIES 70	PR D 2 506
8.500	4.105	0.004 0.003 †	KREBS 70	

Reaction [119] $\pi^+p \to K^+Y^*(1385)^+$, $Y^*(1385)^+ \to \Lambda\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
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
1.458 + 0.146 − 0.141	1.910	[0.064 0.006]†	DAVIES 70	PR D 2 506
1.550	1.955	0.095 0.020 †	HANSON 71	PR D4 1296
1.630	1.992	0.130 0.020 †	HANSON 71	PR D4 1296
1.680	2.016	0.100 0.020 †	HANSON 71	PR D4 1296
1.689 + 0.087 − 0.086	2.020	[0.086 0.010]†	DAVIES 70	PR D 2 506
1.700	2.025	0.110 0.020 †	PAN 70	PR D 2 449
1.770	2.057	0.125 0.025 †	HANSON 71	PR D4 1296
1.840	2.089	0.140 0.025 †	HANSON 71	PR D4 1296
1.888 + 0.114 − 0.111	2.110	[0.093 0.009]†	DAVIES 70	PR D 2 506
2.042	2.177	[0.060 0.012]†	MOORE 70	
2.150 +- 0.250	2.223	0.090 †	ABOLINS 69	PRL 22 427
2.178	2.235	[0.042 0.007]†	MOORE 70	
2.184	2.238	[0.042 0.005]†	MOORE 70	
2.238 + 0.247 − 0.236	2.260	[0.031 0.005]†	DAVIES 70	PR D 2 506
2.330	2.298	[0.038 0.008]†	MOORE 70	
3.000 +- 0.200	2.556	0.031 †	ABOLINS 69	PRL 22 427
4.000 0.200	2.900	0.028 †	ABOLINS 69	PRL 22 427
5.500	3.350	0.016 0.003	COOPER 70	NP B23 605
8.000	3.989	0.008 0.003 †	ADERHOLZ 69	NP B11 259
8.500	4.105	0.005 0.002 †	KREBS 70	



Reaction [120] $\pi^+p \to K^+Y^*(1385)^+$, $Y^*(1385)^+ \to \Lambda\pi^+ + \Sigma^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
4.000	2.900	0.022 +- 0.007 †	BARTSCH 66	NC 43A 1010

* 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

Reaction [121] $\pi^+p \to K^+Y^*(1385)^+$, $Y^*(1385)^+ \to \Lambda\pi^+$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
3.700	2.801	0.028 +- 0.005 †	BUTLER 70	UCRL 19845
4.000	2.900	0.027 †	YING 69	PL 30B 289
5.050	3.222	0.013 †	YING 69	PL 30B 289

Reaction [122] $\pi^+p \to K^+Y^*(1385)^+$, $Y^*(1385)^+ \to \Lambda\pi^+ + \Sigma^+\pi^0 + \Sigma^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.950	2.137	0.140 +- 0.030 †	DAGAN 67	PR 161 1384

Reaction [123] $\pi^+p \to K^+Y^*(1385)^+$, $Y^*(1385)^+ \to \Sigma^0\pi^+ + \Sigma^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.700	2.025	0.014 +- 0.004 †	PAN 70	PR D 2 449

Reaction [124] $\pi^+p \to K^*(890)^+Y^*(1385)^+$, $K^*(890)^+ \to K^0\pi^+$, $Y^*(1385)^+ \to \Lambda\pi^+ + K^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.000	3.989	0.010 +- 0.005 †	ADERHOLZ 69	NP B11 259

Reaction [125] $\pi^+p \to K^*(890)^+Y^*(1385)^+$, $K^*(890)^+ \to K^0\pi^+$, $Y^*(1385)^+ \to \Lambda\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
5.500	3.350	0.006 +- 0.003	COOPER 70	NP B23 605

Reaction [126] $\pi^+p \to K^*(890)^+Y^*(1385)^+$, $K^*(890)^+ \to K^+\pi^0$, $Y^*(1385)^+ \to \Lambda\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
5.500	3.350	0.013 +- 0.002	COOPER 70	NP B23 605

Reaction [127] $\pi^+p \to K^+Y^*(1475)^+$, $Y^*(1475)^+ \to \Sigma^0\pi^+ + \Sigma^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.700	2.025	0.009 +- 0.004 †	PAN 70	PR D 2 449

Reaction [128] $\pi^+p \to K^+Y^*(1475)^+$, $Y^*(1475)^+ \to p\bar{K}^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.700	2.025	0.004 +- 0.002 †	PAN 70	PR D 2 449

Reaction [129] $\pi^+p \to K^+Y^*(1475)^+$, $Y^*(1475)^+ \to \Lambda\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
1.700	2.025	0.011 +- 0.005 †	PAN 70	PR D 2 449

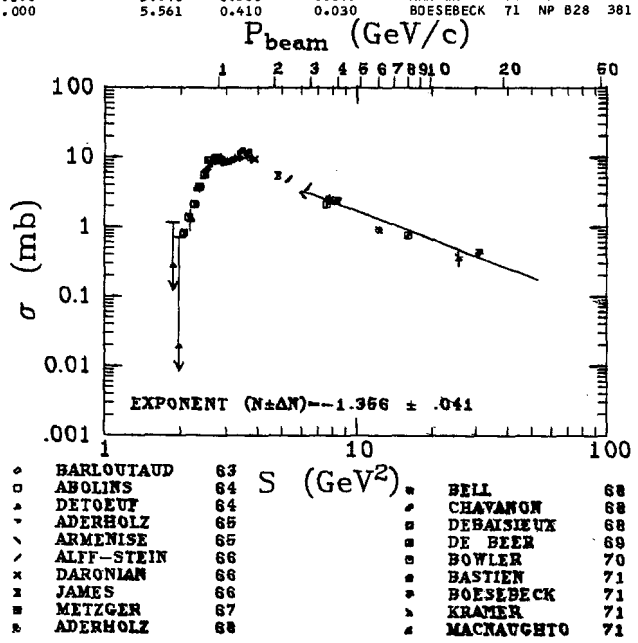
Reaction [130] $\pi^+p \to K^+Y^*(1690)^+$, $Y^*(1690)^+ \to \Lambda\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
5.500	3.350	0.006 +- 0.003	COOPER 70	NP B23 605
8.000	3.989	0.005 0.002 †	ADERHOLZ 69	NP B11 259
8.500	4.105	0.003 0.002 †	KREBS 70	

π^+p cross sections

Reaction [131] $\pi^+p \to p\pi^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
0.490	1.362	0.290 +- 0.860	DETOEUF 64 PR 134 B228
0.550	1.402	0.020 0.690	DETOEUF 64 PR 134 B228
0.591 +- 0.013	1.428	0.800 0.050 †	BOWLER 70 NP B17 331
0.645 0.013	1.462	1.320 0.140 †	BOWLER 70 NP B17 331
0.660	1.472	1.300 0.430	DETOEUF 64 PR 134 B228
0.698 0.014	1.495	2.050 0.090 †	BOWLER 70 NP B17 331
0.725 0.013	1.512	3.800 0.300	NEWCOMB 63 PR 132 1283
0.730	1.515	3.560 0.150	CHAVANON 68 PL 28B 296
0.750	1.527	3.620 0.430	DETOEUF 64 PR 134 B228
0.752 0.015	1.528	3.610 0.150 †	BOWLER 70 NP B17 331
0.809 0.020	1.562	5.490 0.220 †	BOWLER 70 NP B17 331
0.810	1.563	5.510 0.520	DETOEUF 64 PR 134 B228
0.830	1.575	6.540 0.170	CHAVANON 68 PL 28B 296
0.850 0.020	1.586	9.000 0.300	DEBAISIEUX 68 NP B5 147
0.870	1.598	7.920 0.430	DETOEUF 64 PR 134 B228
0.910 0.016	1.621	9.600 0.500 †	TILGER 66 PR 142 972
0.920	1.627	9.810 0.520	DETOEUF 64 PR 134 B228
0.930	1.632	8.600 0.300	CHAVANON 68 PL 28B 296
0.940 0.009	1.638	9.700 0.200	DE BEER 69 NP B12 617
0.949 0.030	1.643	9.300 0.800	BARLOUTAUD 63 NC 27 238
0.980	1.661	10.150 0.520	DETOEUF 64 PR 134 B228
0.980	1.661	8.700 0.200	CHAVANON 68 PL 28B 296
1.020	1.683	10.230 0.860	DETOEUF 64 PR 134 B228
1.020	1.683	8.880 0.370	METZGER 67 PR 164 1680
1.030 0.030	1.688	8.600 0.800	BARLOUTAUD 63 NC 27 238
1.040	1.694	10.400 0.900	STONEHILL 61 PRL 6 624
1.070	1.710	9.190 0.780	DETOEUF 64 PR 134 B228
1.080	1.716	8.100 0.100	CHAVANON 68 PL 28B 296
1.120	1.737	8.750 1.030	DETOEUF 64 PR 134 B228
1.181 0.030	1.770	8.900 0.900	BARLOUTAUD 63 NC 27 238
1.222	1.791	10.800 1.000	STONEHILL 61 PRL 6 624
1.230	1.795	10.120 0.860	DETOEUF 64 PR 134 B228
1.230	1.795	8.800 0.200	CHAVANON 68 PL 28B 296
1.280	1.821	12.100 1.000 †	WILLIAMSON 72 PRL 29 1353
1.320	1.841	10.020 1.290	DETOEUF 64 PR 134 B228
1.330	1.846	12.000 0.300	CHAVANON 68 PL 28B 296
1.340	1.851	13.000 1.000 †	WILLIAMSON 72 PRL 29 1353
1.393	1.878	11.900 1.200	STONEHILL 61 PRL 6 624
1.420	1.891	12.400 0.900 †	WILLIAMSON 72 PRL 29 1353
1.430	1.896	10.700 1.380	DETOEUF 64 PR 134 B228
1.450	1.906	11.400 0.250	CHAVANON 68 PL 28B 296
1.520	1.940	9.740 1.470	DETOEUF 64 PR 134 B228
1.550	1.955	10.100 0.700 †	WILLIAMSON 72 PRL 29 1353
1.585 0.015	1.971	9.200 0.200	DARONIAN 66 NC 41 503
1.670	2.011	8.600 0.600 †	WILLIAMSON 72 PRL 29 1353
1.770	2.057	7.200 0.500 †	WILLIAMSON 72 PRL 29 1353
1.840	2.089	5.700 0.400 †	WILLIAMSON 72 PRL 29 1353
2.080	2.194	5.290 0.130	JAMES 66 PR 142 896
2.350 0.015	2.306	4.700 0.200 †	ALFF-STEIN 66 PR 145 1072
2.750 0.030	2.463	2.790 0.100	ARMENISE 65 NC 37 361
2.770	2.471	4.880 0.230	YAMAMOTO 68 PR 173 1302
2.900 0.015	2.520	3.600 0.200 †	ALFF-STEIN 66 PR 145 1072
3.540	2.747	2.050 0.200	ABOLINS 64 PR 136 B195
3.560	2.754	2.510 0.200	MACNAUGHTO 71 UCRL 20178
3.670	2.791	2.360 0.200	MACNAUGHTO 71 UCRL 20178
3.900	2.868	2.300 0.060	BASTIEN 71 PR D3 2047
4.000 0.040	2.900	2.310	ADERHOLZ 65 PR 138 B897
5.000	3.207	1.300 0.030	SCHOTANUS 70 NP B22 45
6.000	3.487	0.883 0.054 †	BELL 68 PRL 20 164
8.040 0.040	3.999	0.740 0.060	ADERHOLZ 68 NP B8 45
13.100	5.048	0.366 0.095	KRAMER 71 NP B8 45
16.000	5.561	0.410 0.030	BOESEBECK 71 NP B28 381



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Reaction [132] $\pi^+p \to p\pi^+\pi^0$ background

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.020	1.683	0.460 + 0.600 †	METZGER 67 PR 164 1680
		- 0.460	
1.280	1.821	0.500 +- 0.040 †	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 +- 0.040	2.900	1.550 0.310	ADERHOLZ 65 PR 138 B897

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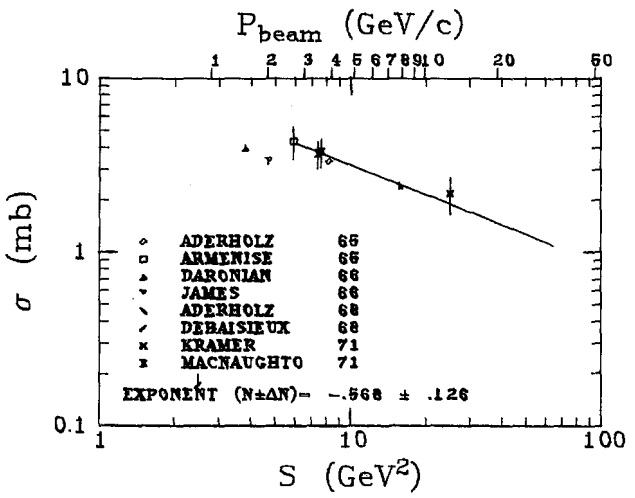
Reaction [133] $\pi^+p \to p\pi^+MM(>\pi^0)$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
0.850 +- 0.020	1.586	0.170 +- 0.030	DEBAISIEUX 68 NP B5 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	3.060 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 †	ADERHOLZ 65 PR 138 B897
5.000	3.207	3.570 0.400	SCHOTANUS 70 NP B22 45
8.040 0.040	3.999	2.400 0.100	ADERHOLZ 68 NP B8 45
13.100	5.048	2.170 0.530	KRAMER 71 NP B8 45



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Reaction [134] $\pi^+p \to n\pi^+\pi^+$

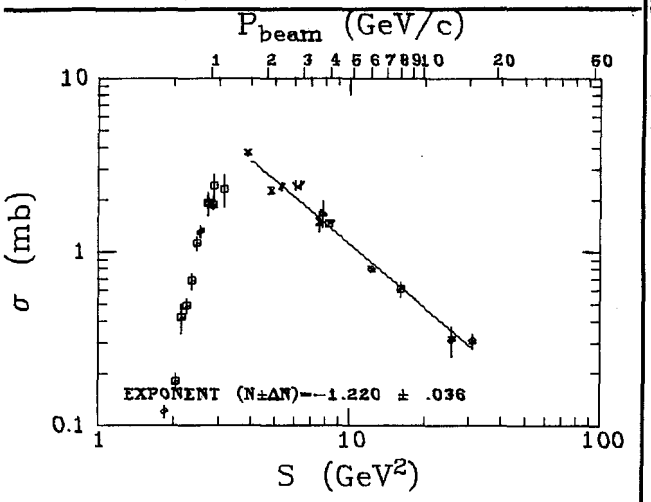
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
0.477 +- 0.005	1.353	0.120 +- 0.010 †	KIRZ 62 PR 126 763
0.591 0.013	1.428	0.180 0.020 †	BOWLER 70 NP B17 331
0.645 0.013	1.462	0.420 0.080 †	BOWLER 70 NP B17 331
0.698 0.014	1.495	0.490 0.050 †	BOWLER 70 NP B17 331
0.725 0.013	1.512	0.700 0.100	NEWCOMB 63 PR 132 1283
0.752 0.015	1.528	0.680 0.070 †	BOWLER 70 NP B17 331
0.809 0.020	1.562	1.120 0.100 †	BOWLER 70 NP B17 331
0.850 0.020	1.586	1.310 0.100	DEBAISIEUX 68 NP B5 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 B12 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	JAMES 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 B195
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	ADERHOLZ 65 PR 138 B897
5.000	3.207	0.710 0.040	SCHOTANUS 70 NP B22 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 B8 45
13.100	5.048	0.310 0.060	KRAMER 71 NP B8 45
16.000	5.561	0.310 0.030	BOESEBECK 71 NP B28 381

See plot on the following page.

* 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



◇	KIRZ	62	■	ADERHOLZ	68
□	BARLOUTAUD	63	◣	BELL	68
▲	ABOLINS	64	◢	DEBAISIEUX	68
▼	ADERHOLZ	65	◙	DE BEER	69
◝	ARMENISE	65	◙	BOWLER	70
◜	ALFF-STEIN	66	◙	BASTIEN	71
×	DARONIAN	66	▲	BOESEBECK	71
⧗	JAMES	66	■	KRAMER	71
■	METZGER	67	◣	MACNAUGHTO	71

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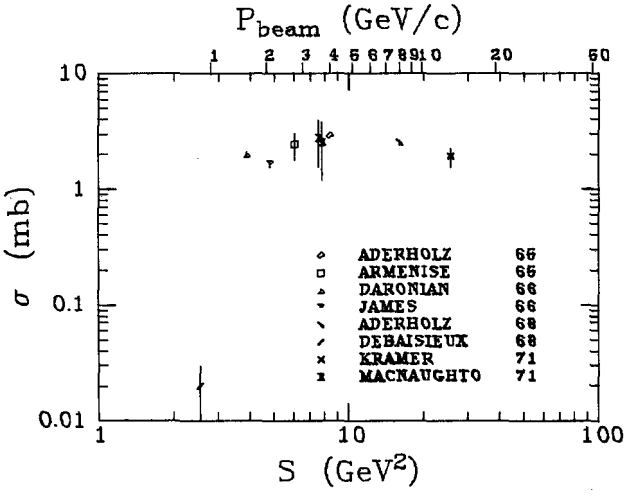
Reaction [135] $\pi^+p\to\pi^+\pi^+MM(>N)$

0.850	± 0.020	1.586	0.020	± 0.010		DEBAISIEUX	68	NP B5 147
1.585	0.015	1.971	2.000	0.100		DARONIAN	66	NC 41 503
2.080		2.194	1.630	0.070		JAMES	66	PR 142 896
2.750	0.030	2.463	2.420	0.600		ARMENISE	65	NC 37 361
2.770		2.471	1.690	0.100		YAMAMOTO	68	PR 173 1302
3.560		2.754	2.760	1.200		MACNAUGHTO	71	UCRL 20178
3.670		2.791	2.500	1.300		MACNAUGHTO	71	UCRL 20178
4.000	0.040	2.900	2.880		†	ADERHOLZ	65	PR 138 B897
5.000		3.207	2.210	0.400		SCHOTANUS	70	NP B22 45
8.040	0.040	3.999	2.500	0.100		ADERHOLZ	68	NP B8 45
13.100		5.048	1.890	0.380		KRAMER	71	NP B8 45



◇	ADERHOLZ	65
□	ARMENISE	65
▲	DARONIAN	66
▼	JAMES	66
◝	ADERHOLZ	68
◜	DEBAISIEUX	68
×	KRAMER	71
⧗	MACNAUGHTO	71

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* 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 [136] $\pi^+p\to p\pi^+MM(>\pi^0) + \pi^+\pi^+MM(>N)$

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 B12 617

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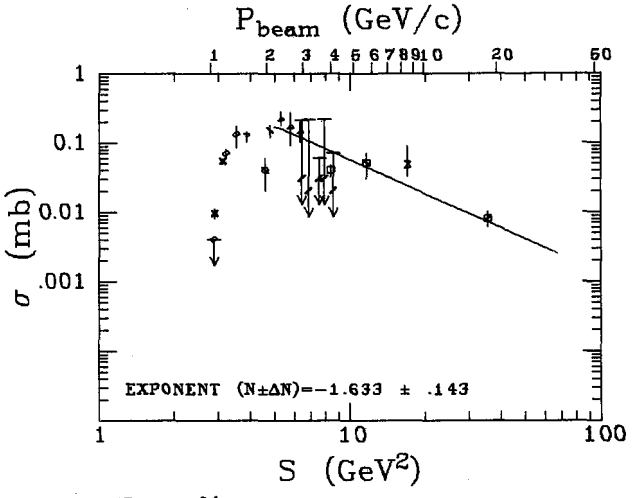
Reaction [137] $\pi^+p\to p\eta\pi^+$, $\eta\to\pi^+\pi^-\pi^0$

1.040		1.694	<.004		†	FOELSCHE	64	PR 134B1138
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	†	FOELSCHE	64	PR 134B1138
1.393		1.878	0.130	0.045	†	FOELSCHE	64	PR 134B1138
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	0.015	2.306	0.230	0.050	†	ALFF-STEIN	66	PR 145 1072
2.620	0.015	2.413	0.180	0.090	†	ALFF-STEIN	66	PR 145 1072
2.900	0.015	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	0.040	2.900	0.040	0.008	†	ADERHOLZ	65	PR 138 B897
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	0.060	4.103	0.047	+ 0.043	†	KUNG	69	
				− 0.015				
18.500		5.968	0.008	± 0.002	†	HONES	70	PR D2 827



◇	FOELSCHE	64		
□	ADERHOLZ	65	×	GROSSMAN 69
▲	ALFF-STEIN	66	⧗	KUNG 69
▼	DARONIAN	66	■	DAO 70
◝	JAMES	66	◙	HONES 70
◜	BROWN	68	■	CHAPMAN 71

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Reaction [138] $\pi^+p\to p\eta\pi^+$, $\eta\to$ neutrals

1.585	± 0.015	1.971	0.430	± 0.040	†	DARONIAN	66	NC 41 503
2.080		2.194	0.690	0.100	†	JAMES	66	PR 142 896
2.350	0.015	2.306	0.550	0.150	†	ALFF-STEIN	66	PR 145 1072
2.770		2.471	0.190	0.070	†	YAMAMOTO	68	PR 173 1302
2.900	0.015	2.520	0.550	0.150	†	ALFF-STEIN	66	PR 145 1072
13.100		5.048	0.045	0.015	†	KRAMER	71	

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Reaction [139] $\pi^+p\to p\eta\pi^+$, $\eta\to$ 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]

$\pi^+p \to p\eta\pi^+$, $\eta \to \pi^+\pi^-\pi^0$ + <other mode>

3.430	2.710	0.300 +- 0.130		ABOLINS	63	PRL 11	381
3.540	2.747	0.230 0.060		ABOLINS	63	PRL 11	381
3.650	2.785	0.210 0.070	†	SHEN	65	UCRL 16170	

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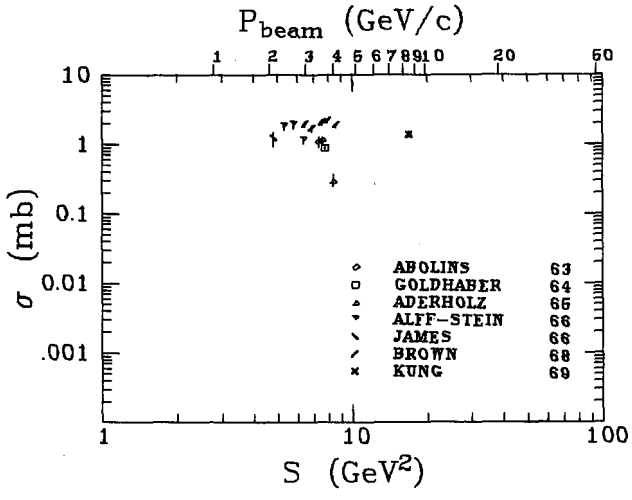
Reaction [141] $\pi^+p \to p\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

2.080		2.194	1.200 +- 0.300	†	JAMES	66	PR 142	896
2.340 +- 0.060		2.302	0.	†	ANGELOV	69	JINRP P1-461	
2.350	0.015	2.306	1.760 0.150		ALFF-STEIN	66	PR 145	1072
2.620	0.015	2.413	1.860 0.240		ALFF-STEIN	66	PR 145	1072
2.900	0.015	2.520	1.110 0.120		ALFF-STEIN	66	PR 145	1072
2.950		2.538	[1.960 0.160]		BROWN	68	UCRL 18254	
3.190		2.625	[1.660 0.170]		BROWN	68	UCRL 18254	
3.430		2.710	1.060 0.200		ABOLINS	63	PRL 11	381
3.530		2.744	[2.040 0.170]		BROWN	68	UCRL 18254	
3.540		2.747	1.100 0.150		ABOLINS	63	PRL 11	381
3.650		2.785	0.860 0.090	†	GOLDHABER	64	PRL 12	336
3.740		2.815	[2.160 0.140]		BROWN	68	UCRL 18254	
4.000	0.040	2.900	0.300 0.060	†	ADERHOLZ	65	PR 138	B897
4.080		2.926	[1.860 0.140]		BROWN	68	UCRL 18254	
5.100		3.236	1.353 0.026		MURRO	71	NC 3A	721
5.720		3.411	0.482 0.172	†	SHENG	70	NC 3A	721
7.000		3.747	1.145 0.129	†	SLATTERY	67	NC 3A	721
8.490	0.060	4.103	1.346 + 0.204	†	KUNG	69	NC 3A	721
			- 0.131					



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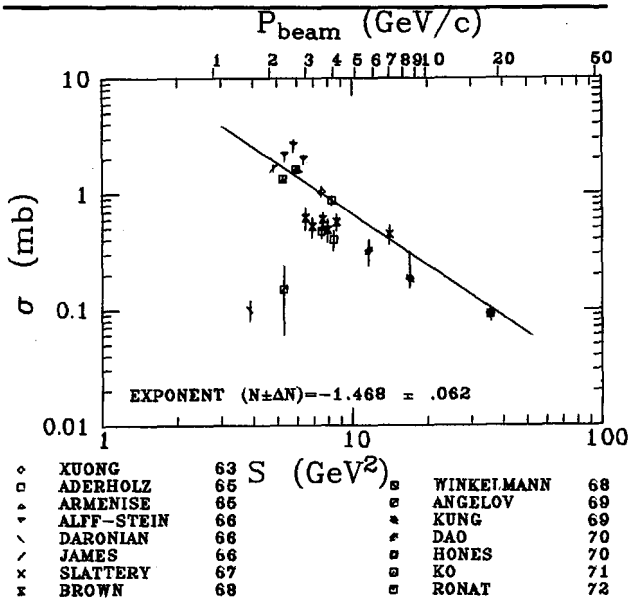
Reaction [142] $\pi^+p \to p\omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

1.585 +- 0.015		1.971	0.100 +- 0.020	†	DARONIAN	66	NC 41	503
2.080		2.194	1.660 0.130	†	JAMES	66	PR 142	896
2.300		2.286	1.360 0.090	†	KO	71		
2.340	0.060	2.302	0.150 0.090	†	ANGELOV	69	JINRP P1-461	
2.350	0.015	2.306	2.100 0.190	†	ALFF-STEIN	66	PR 145	1072
2.620	0.015	2.413	2.610 0.310	†	ALFF-STEIN	66	PR 145	1072
2.670		2.432	1.630 0.090	†	KO	71		
2.750		2.463	1.660 0.050	†	ARMENISE	65	NC 40A	273
2.900	0.015	2.520	1.970 0.170	†	ALFF-STEIN	66	PR 145	1072
2.950		2.538	[0.620 0.130]		BROWN	68	UCRL 18254	
3.190		2.625	[0.520 0.100]		BROWN	68	UCRL 18254	
3.500		2.734	1.050 0.100	†	XUONG	63	PRL 11	227
3.500		2.734	0.470 0.060	†	RONAT	72	NP B38	20
3.530		2.744	[0.600 0.090]		BROWN	68	UCRL 18254	
3.740		2.815	[0.490 0.110]		BROWN	68	UCRL 18254	
3.920		2.874	0.870 0.080	†	WINKELMANN	68		
4.000	0.040	2.900	0.400 0.080	†	ADERHOLZ	65	PR 138	B897
4.080		2.926	[0.570 0.090]		BROWN	68	UCRL 18254	
5.720		3.411	0.320 0.080	†	DAO	70		
7.000		3.747	0.448 0.083	†	SLATTERY	67		
8.490	0.060	4.103	0.184 + 0.134	†	KUNG	69		
			- 0.032					
18.500		5.968	0.091 +- 0.013	†	HONES	70	PR D2	827

* 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



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Reaction [143] $\pi^+p \to p\omega\pi^+$, $\omega \to$ neutrals

2.080		2.194	0.100 +- 0.030	†	JAMES	66	PR 142	896
2.350 +- 0.015		2.306	0.300 0.120	†	ALFF-STEIN	66	PR 145	1072
2.900	0.015	2.520	0.100 0.060	†	ALFF-STEIN	66	PR 145	1072

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Reaction [144] $\pi^+p \to p\omega\pi^+$, $\omega \to$ total

2.080		2.194	1.760 +- 0.160	†	JAMES	66	PR 142	896

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Reaction [145]

$\pi^+p \to p\omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>

3.430		2.710	1.200 +- 0.200	†	ABOLINS	63	PRL 11	381
3.540		2.747	1.060 0.100	†	ABOLINS	63	PRL 11	381
3.650		2.785	0.880 0.100	†	SHEN	65	UCRL 16170	

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Reaction [146]

$\pi^+p \to p\omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>, $\pi^0 \to \gamma\gamma$

2.900		2.520	0.160 +- 0.035	†	BALDIN	71	SJNP 13	431

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Reaction [147] $\pi^+p \to p\eta'\pi^+$, $\eta' \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

8.040 +- 0.060		3.999	0.008 +- 0.003	†	BARDADIN-O	71	PR D4	2711

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Reaction [148] $\pi^+p \to p\eta'\pi^+$, $\eta' \to \pi^+\pi^+\pi^-\pi^-\pi^0$

5.000 +- 0.025		3.207	0.006 +- 0.002	†	DREVERMANN	67	PR 161	1356

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π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [149] $\pi^+p\to p\eta'\pi^+$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, $\eta\to\pi^+\pi^-\pi^0$			
5.000 +- 0.025	3.207	0.050 +- 0.020 †	DREVERMANN 67 PR 161 1356
Reaction [150] $\pi^+p\to p\eta'\pi^+$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, $\eta\to\pi^+\pi^-\pi^0$ + <other mode>			
8.040 +- 0.060	3.999	0.060 +- 0.019 †	BARDADIN-O 71 PR D4 2711
Reaction [151] $\pi^+p\to p\eta'\pi^+$, $\eta'\to\pi^+\pi^+\pi^-\pi^-\pi^0$ + <other mode>			
4.000	2.900	0.035 +- 0.020 †	BONDAR 66 NC 44A 530
Reaction [152] $\pi^+p\to p\phi\pi^+$, $\phi\to K^+K^-$			
3.700	2.801	0.010 +- 0.003 †	BUTLER 70 UCRL 19845
8.040	3.999	0.002 0.002 †	ADERHOLZ 69 NP B14 255
Reaction [153] $\pi^+p\to p\phi\pi^+$, $\phi\to K^0_SK^0_L$			
8.000	3.989	0.003 †	ADERHOLZ 69 NP B11 259
Reaction [154] $\pi^+p\to p\phi\pi^+$, $\phi\to K^+K^-$ + $K^0_SK^0_L$			
3.650	2.785	<.010 †	TRILLING 65 PL 19 427
Reaction [155] $\pi^+p\to p\phi\pi^+$, $\phi\to K^+K^-$ + <other mode>			
3.430	2.710	0.020 +- 0.020	ABOLINS 63 PRL 11 381
3.540	2.747	0.020 0.010	ABOLINS 63 PRL 11 381
Reaction [156] $\pi^+p\to pA_1^+\pi^0$, $A_1^+\to\rho^0\pi^+$, $\rho^0\to\pi^+\pi^-$			
18.500	5.968	0.057 +- 0.008 †	HONES 70 PR D2 827
Reaction [157] $\pi^+p\to pf\pi^+$, $f\to\pi^+\pi^-$			
3.430	2.710	<.100	ABOLINS 63 PRL 11 381
3.540	2.747	<.070	ABOLINS 63 PRL 11 381
7.000	3.747	0.211 +- 0.052 †	SLATTERY 67
8.490 +- 0.060	4.103	0.195 + 0.055 - 0.041 †	KUNG 69

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [158] $\pi^+p\to pf\pi^+$, $f\to K^+K^-$			
8.040	3.999	0.005 +- 0.002 †	ADERHOLZ 69 NP B14 255
Reaction [159] $\pi^+p\to pD(1285)\pi^+$, $D\to\eta\pi^+\pi^-$, $\eta\to\pi^+\pi^-\pi^0$ + <other mode>			
8.040 +- 0.060	3.999	0.066 +- 0.017 †	BARDADIN-O 71 PR D4 2711
Reaction [160] $\pi^+p\to pD(1285)\pi^+$, $D\to\rho^0\pi^+\pi^-$, $\rho^0\to\pi^+\pi^-$			
16.000 +- 0.008	5.561	0.016 +- 0.005 †	BOESEBECK 71 PL 34B 659
Reaction [161] $\pi^+p\to pD(1285)\pi^+$, $D\to\delta(970)^+\pi^-$ + $\delta(970)^-\pi^+$, $\delta(970)^+\to\eta\pi^+$, $\delta(970)^-\to\eta\pi^-$, $\eta\to\pi^+\pi^-\pi^0$			
8.000	3.989	[0.017 +- 0.005]†	OTWINOWSKI 69 PL 29B 529
Reaction [162] $\pi^+p\to pD(1285)\pi^+$, $D\to\eta\pi^+\pi^-$, $\eta\to\pi^+\pi^-\pi^0$			
8.000	3.989	0.019 +- 0.005 †	OTWINOWSKI 69 PL 29B 529
Reaction [163] $\pi^+p\to pA_2^0\pi^+$, $A_2^0\to\pi^+\pi^-\pi^0$			
8.490 +- 0.060	4.103	0.138 + 0.114 - 0.035 †	KUNG 69
Reaction [164] $\pi^+p\to pA_2^0\pi^+$, $A_2^0\to\rho^+\pi^-$ + $\rho^-\pi^+$			
7.000	3.747	0.091 +- 0.052 †	SLATTERY 67
Reaction [165] $\pi^+p\to pA_2^+\pi^0$, $A_2^+\to\rho^0\pi^+$, $\rho^0\to\pi^+\pi^-$			
18.500	5.968	0.047 +- 0.007 †	HONES 70 PR D2 827
Reaction [166] $\pi^+p\to pf'\pi^+$, $f'\to K^0_SK^0_S$			
8.000	3.989	0.002 †	ADERHOLZ 69 NP B11 259

* 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

Reaction [167] $\pi^+p \to p\rho^+\rho^0$, $\rho^+ \to \pi^+\pi^0$, $\rho^0 \to \pi^+\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
18.500	5.968	0.076 +- 0.018	†	HONES	70	PR D2 827

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Reaction [168] $\pi^+p \to pX(3025)^+\pi^0 + pX(3025)^0\pi^+$, $X(3025)^+ \to \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$, $X(3025)^0 \to \pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
11.000	4.641	0.040	†	YOST	71	PR D 3 642

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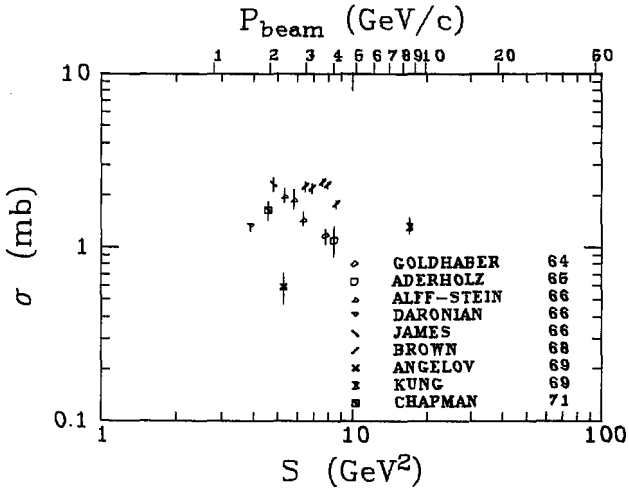
Reaction [169] $\pi^+p \to \Delta(1238)^{++}\pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
1.585 +- 0.015	1.971	1.300 +- 0.070		DARONIAN	66	NC 41 503
1.950	2.137	1.640 0.200	†	CHAPMAN	71	PR D 3 38
2.080	2.194	2.300 0.200	†	JAMES	66	PR 142 896
2.340 0.060	2.302	0.590 0.120	†	ANGELOV	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]		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	†	GOLDHABER	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	†	ADERHOLZ	65	PR 138 B897
4.080	2.926	1.770 0.100		BROWN	68	UCRL 18254
7.000	3.747	0.997 0.110	†	SLATTERY	67	
8.490 0.060	4.103	1.304 + 0.182	†	KUNG	69	
		- 0.119				



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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
8.040 +- 0.060	3.999	0.042 +- 0.022	†	BARDADIN-O	71	PR D4 2711

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Reaction [171] $\pi^+p \to \Delta(1238)^{++}\rho\pi$, $\Delta(1238)^{++} \to p\pi^+$, $\rho \to \pi\pi$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
4.000 +- 0.040	2.900	0.150 +- 0.045	†	ADERHOLZ	65	PR 138 B897

****

Reaction [172] $\pi^+p \to \Delta(1238)^{++}\omega\rho^0$, $\Delta(1238)^{++} \to p\pi^+$, $\omega \to \pi^+\pi^-$, $\rho^0 \to \pi^+\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
8.040 +- 0.060	3.999	0.066 +- 0.022	†	BARDADIN-O	71	PR D4 2711

****

Reaction [173] $\pi^+p \to \Delta(1238)^{++}p\bar{p}$, $\Delta(1238)^{++} \to p\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
8.040	3.999	0.010 +- 0.003	†	ADERHOLZ	69	NP B14 255
13.100	5.048	0.004	†	GAIDOS	71	NP B32 10

****

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
4.000 +- 0.040	2.900	0.250 +- 0.050	†	ADERHOLZ	65	PR 138 B897
7.000	3.747	0.041 0.029	†	SLATTERY	67	
8.490 0.060	4.103	0.063 + 0.018	†	KUNG	69	
		- 0.012				

****

Reaction [175] $\pi^+p \to N(1700)^+\pi^+\pi^0 + N(1700)^0\pi^+\pi^+$, $N(1700)^+ \to \Lambda K^+$, $N(1700)^0 \to \Lambda K^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
8.000	3.989	0.027 +- 0.006	†	ADERHOLZ	69	NP B11 259

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Reaction [176] $\pi^+p \to pK^+K^0_S$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
5.000	3.207	0.015 +- 0.002		BOECKMANN	70	NP B16 221
5.100	3.236	0.095 0.016		METTEL	70	
6.000	3.487	0.010	†	CRENNELL	68	PL 28B 136

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References		
1.550	1.955	0.004 + 0.005	†	HANSON	71	PR D4 1296
		- 0.002				
1.630	1.992	0.002 + 0.003	†	HANSON	71	PR D4 1296
		- 0.001				
1.680	2.016	0.008 + 0.005	†	HANSON	71	PR D4 1296
		- 0.003				
1.700	2.025	0.014 +- 0.003		PAN	70	PR D 2 449
1.770	2.057	0.017 0.007	†	HANSON	71	PR D4 1296
1.840	2.089	0.025 0.010	†	HANSON	71	PR D4 1296
1.950	2.137	<.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 + 2.620	2.306	0.024 0.011		BERLEY	65	PR 139B1097
- 2.900						
2.770 +- 0.040	2.471	0.059 0.013		YAMAMOTO	64	PR 134 B383
3.700	2.801	0.070 0.008	†	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	†	COOPER	70	NP B23 605
8.000	3.989	0.026 0.004		ADERHOLZ	69	NP B11 259
8.500	4.105	0.031 0.007		KREBS	70	

See plot on the following page.

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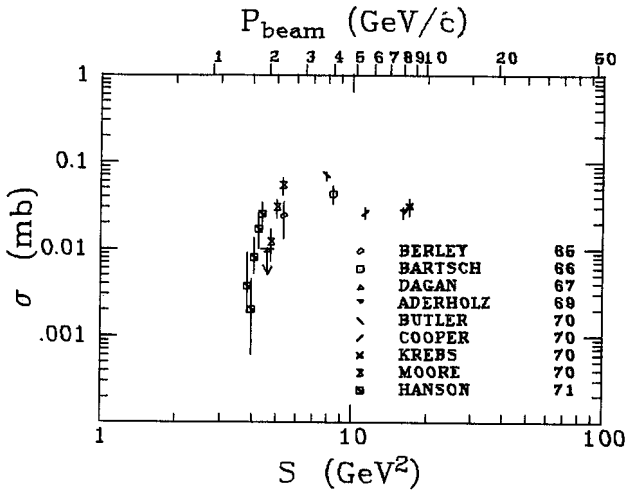
π^+p cross sections

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



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Reaction [178] $\pi^+p\to pK^*(890)^+\bar{K}^0$, $K^*(890)^+\to K^0\pi^+$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
3.700	2.801	0.029	+-	0.010	†	BUTLER	70	UCRL 19845

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Reaction [179] $\pi^+p\to pK^*(890)^+\bar{K}^0$, $K^*(890)^+\to K^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
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] $\pi^+p\to pK^*(890)^+\bar{K}^0$, $K^*(890)^+\to K^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
5.500	3.350	0.012	+-	0.003		COOPER	70	NP B23 605

****

Reaction [181] $\pi^+p\to pK^*(890)^0K^+$, $K^*(890)^0\to K^-\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
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] $\pi^+p\to pK^*(890)^0K^+$, $K^*(890)^0\to K^-\pi^+$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
3.700	2.801	0.023	+-	0.005	†	BUTLER	70	UCRL 19845

****

Reaction [183] $\pi^+p\to pK^*(890)^0K^+$, $K^*(890)^0\to \bar{K}^0\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
5.500	3.350	0.009	+-	0.002		COOPER	70	NP B23 605

****

Reaction [184] $\pi^+p\to\Delta(1238)^{++}K^+K^-$, $\Delta(1238)^{++}\to p\pi^+$

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

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Reaction [185] $\pi^+p\to\Delta(1238)^{++}K^0_SK^0_S$, $\Delta(1238)^{++}\to p\pi^+$

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

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Reaction [186] $\pi^+p\to\Delta(1238)^{++}K^0_SK^0_L$, $\Delta(1238)^{++}\to p\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
8.000	3.989	0.010	+-	0.002	†	ADERHOLZ	69	NP B11 259

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Reaction [187] $\pi^+p\to\Delta(1238)^{++}K^0\bar{K}^0$, $\Delta(1238)^{++}\to p\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
5.500	3.350	0.038	+-	0.007		COOPER	70	NP B23 605
8.500	4.105	0.			†	KREBS	70	

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Reaction [188] $\pi^+p\to\Delta(1238)^+K^+\bar{K}^0$, $\Delta(1238)^+\to p\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References		
5.500	3.350	0.008	+-	0.002	COOPER	70	NP B23 605

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Reaction [189] $\pi^+p\to N(1700)^+ + K^0\bar{K}^0$, $N(1700)^+\to p\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References		
5.500	3.350	0.004	+-	0.002	COOPER	70	NP B23 605

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Reaction [190] $\pi^+p\to\Lambda K^+\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References		
1.280	1.821	0.005	+	0.003	†	HANSON	71	PR D4 1296
			-	0.002				
1.340	1.851	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 - 2.900	2.306	0.065		0.015		BERLEY	65	PR 139B1097
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.

* DATA READ FROM GRAPH
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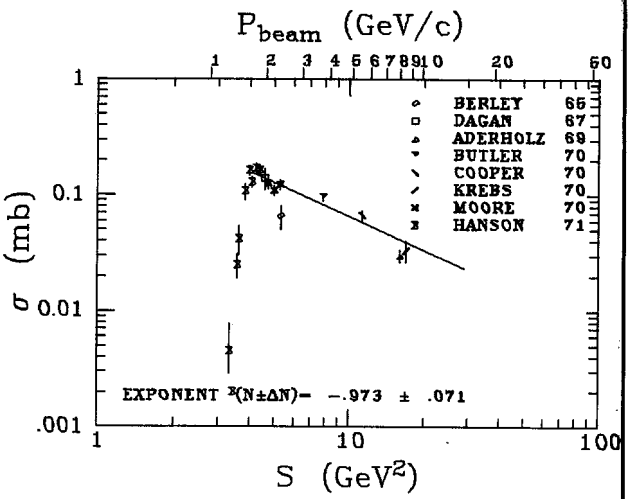
[] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections



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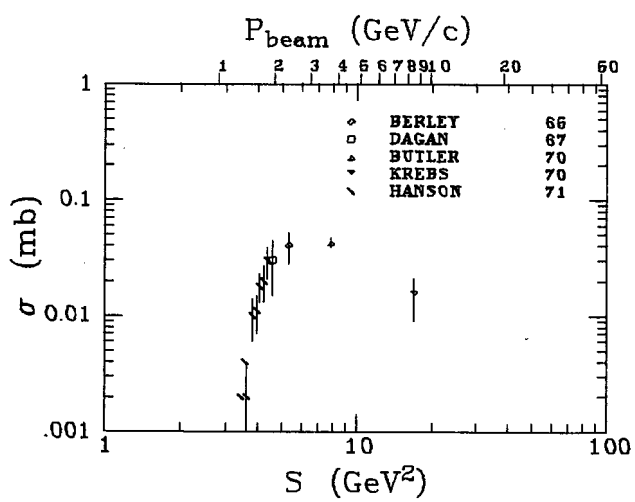
Reaction [191] $\pi^+p\to\Sigma^0K^+\pi^+$

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
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	+	0.002	†	HANSON	71	PR D4 1296
				−	0.001				
1.550		1.955	0.010	+−	0.004	†	HANSON	71	PR D4 1296
1.630		1.992	0.011		0.004	†	HANSON	71	PR D4 1296
1.680		2.016	0.018		0.005	†	HANSON	71	PR D4 1296
1.700		2.025	0.023		0.003	†	PAN	70	PR D 2 449
1.770		2.057	0.020		0.007	†	HANSON	71	PR D4 1296
1.840		2.089	0.030		0.009	†	HANSON	71	PR D4 1296
1.950		2.137	0.030		0.015	†	DAGAN	67	PR 161 1384
2.350	+ 2.620 − 2.900	2.306	0.040		0.012		BERLEY	65	PR 139B1097
3.700		2.801	0.043		0.004	†	BUTLER	70	UCRL 19845
8.500		4.105	0.015		0.006		KREBS	70	



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

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
2.770	+− 0.040	2.471	0.163	+−	0.018		YAMAMOTO	64	PR 134 B383
4.000		2.900	0.081		0.011		BARTSCH	66	NC 43A 1010

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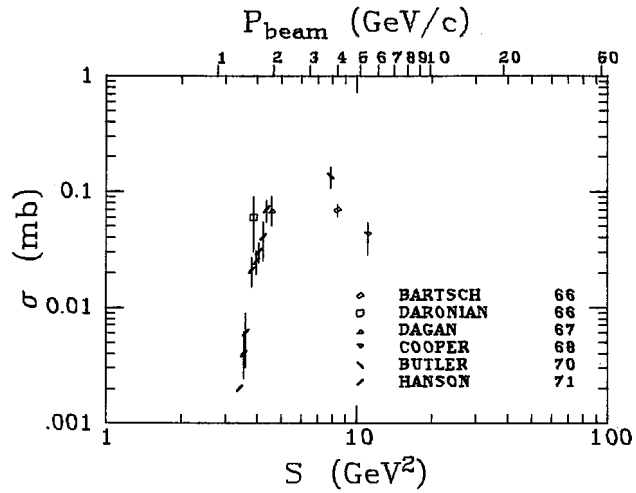
Reaction [193] $\pi^+p\to\Sigma^+K^+\pi^0$

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
1.340		1.851	0.002			†	HANSON	71	PR D4 1296
1.410		1.886	0.004	+	0.002	†	HANSON	71	PR D4 1296
				−	0.002				
1.430		1.896	0.006	+−	0.003	†	HANSON	71	PR D4 1296
1.550		1.955	0.021		0.006	†	HANSON	71	PR D4 1296
1.585	+− 0.015	1.971	0.060		0.030		DARONIAN	66	NC 41 503
1.630		1.992	0.025		0.006	†	HANSON	71	PR D4 1296
1.680		2.016	0.030		0.006	†	HANSON	71	PR D4 1296
1.770		2.057	0.040		0.015	†	HANSON	71	PR D4 1296
1.840		2.089	0.070		0.015	†	HANSON	71	PR D4 1296
1.950		2.137	0.070		0.020	†	DAGAN	67	PR 161 1384
2.770	0.040	2.471	0.120		0.010		YAMAMOTO	64	PR 134 B383
3.700		2.801	0.135		0.028	†	BUTLER	70	UCRL 19845
4.000		2.900	0.069		0.009		BARTSCH	66	NC 43A 1010
5.400		3.322	0.041		0.013		COOPER	68	PRL 20 472



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Reaction [194] $\pi^+p\to\Sigma^+K^+\pi^0$, $\Sigma^+\to n\pi^+$ + <other mode>

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
1.700		2.025	0.031	+−	0.004	†	PAN	70	PR D 2 449

****

Reaction [195] $\pi^+p\to\Sigma^+K^+MM(>\pi^0)$

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
4.000		2.900	0.022	+−	0.007		BARTSCH	66	NC 43A 1010

****

Reaction [196] $\pi^+p\to\Sigma^+K^0\pi^+$

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
1.340		1.851	0.003	+	0.002	†	HANSON	71	PR D4 1296
				−	0.001				
1.410		1.886	0.004			†	HANSON	71	PR D4 1296
1.430		1.896	0.002	+	0.002	†	HANSON	71	PR D4 1296
				−	0.001				
1.550		1.955	0.014	+−	0.006	†	HANSON	71	PR D4 1296
1.630		1.992	0.025		0.007	†	HANSON	71	PR D4 1296
1.680		2.016	0.024		0.006	†	HANSON	71	PR D4 1296
1.770		2.057	0.042		0.014	†	HANSON	71	PR D4 1296
1.840		2.089	0.072		0.016	†	HANSON	71	PR D4 1296
1.950		2.137	0.120		0.030	†	DAGAN	67	PR 161 1384
2.178		2.235	0.054		0.015		MOORE	70	
2.350	+ 2.620 − 2.900	2.306	0.117		0.034		BERLEY	65	PR 139B1097
2.770	+− 0.040	2.471	0.090		0.010		YAMAMOTO	64	PR 134 B383
3.700		2.801	0.104		0.018	†	BUTLER	70	UCRL 19845
4.000		2.900	0.052		0.007		BARTSCH	66	NC 43A 1010
5.400		3.322	0.051		0.014		COOPER	68	PRL 20 472
8.500		4.105	0.010		0.004		KREBS	70	

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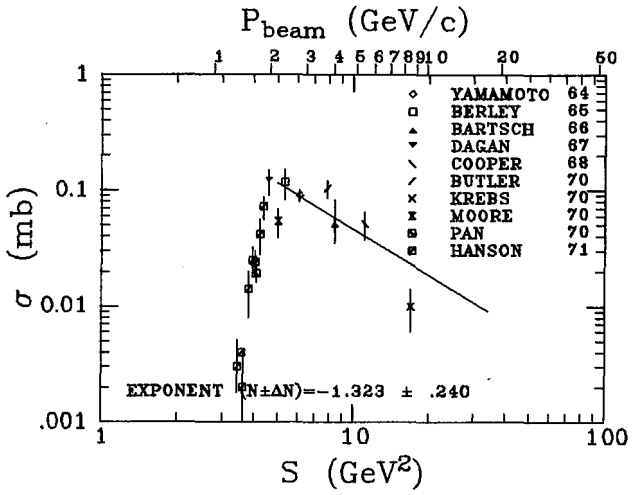
π^+p cross sections



Reaction [197] $\pi^+p \to \Sigma^+K^0\pi^+$, $\Sigma^+ \to n\pi^+$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
1.700	2.025	0.019 +- 0.003	†	PAN	70	PR D 2	449

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
8.000	3.989	0.039 +- 0.005	†	ADERHOLZ	69	NP B11	259

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
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] $\pi^+p \to \Lambda K^*(890)^+\pi^+$, $K^*(890)^+ \to K^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
5.500	3.350	0.008 +- 0.001		COOPER	70	NP B23	605

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
5.500	3.350	0.010 +- 0.002		COOPER	70	NP B23	605

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

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

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

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

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
8.000	3.989	0.027 +- 0.010	†	ADERHOLZ	69	NP B11	259

Reaction [205] $\pi^+p \to Y^*(1520)K^+\pi^+$, $Y^*(1520) \to pK^-$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
3.700	2.801	0.016 +- 0.006	†	BUTLER	70	UCRL 19845	

Reaction [206] $\pi^+p \to$ Hyperon $K^*(890)\pi$, $K^*(890) \to K\pi$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
4.000	2.900	0.083 +- 0.018	†	BARTSCH	66	NC 43A	1010

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References			
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		FOELSCHE	64	PR 134B	1138
1.222	1.791	1.040 0.050		FOELSCHE	64	PR 134B	1138
1.393	1.878	2.180 0.140		FOELSCHE	64	PR 134B	1138
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 0.040	2.471	3.190 0.170		YAMAMOTO	65	PR 140	B730
2.900 0.015	2.520	2.950 0.140	†	ALFF-STEIN	66	PR 145	1072
2.950	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		GOLDHABER	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		ADERHOLZ	65	PR 138	B897
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

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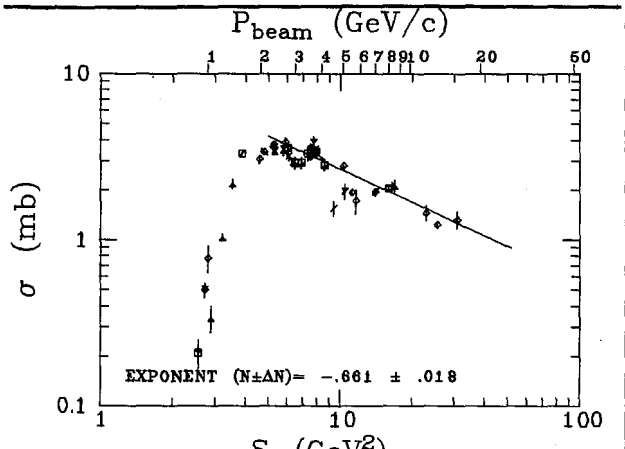
π^+p cross sections

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



◇	KOPP	61	◆	ANGELOV	69
□	ABOLINS	63	■	DE BEER	69
△	FOELSCHE	64	◣	KUNG	69
▽	GOLDHABER	64	◢	ABRAMS	70
◝	ADERHOLZ	65	◤	ARMENISE	70
◜	FORINO	65	◇	BOECKMANN	70
×	YAMAMOTO	65	◇	GAIDOS	70
⧗	ALFF-STEIN	66	◇	SHENG	70
⊠	ARMENISE	66	◇	BALLAM	71
⊠	DARONIAN	66	◇	BLOODWORTH	71
⊠	JAMES	66	◇	CHAPMAN	71
⊠	SLATTERY	67	◇	KO	71
⊠	ADERHOLZ	68	◇	MACNAUGHTO	71
⊠	BROWN	68	◇	MADDOCK	71
⊠	DEBAISIEUX	68	◇	RONAT	72

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
2.340 +- 0.060	2.302	1.180 +- 0.150	ANGELOV 69 JINRP P1-46
2.950	2.538	[0. 0.480]	BROWN 68 UCRL 18254
3.190	2.625	0.210 0.160	BROWN 68 UCRL 18254
3.500	2.734	0.710 0.080 †	RONAT 72 NP B38 20
3.530	2.744	0.280 0.150	BROWN 68 UCRL 18254
3.650	2.785	0.530 0.100	GOLDHABER 64 PRL 12 336
3.740	2.815	0.370 0.120	BROWN 68 UCRL 18254
4.000 0.040	2.900	0.400	ADERHOLZ 65 PR 138 B897
4.080	2.926	0.320 0.110	BROWN 68 UCRL 18254
5.720	3.411	0.051 0.049 †	SHENG 70

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
2.050	2.181	1.550 +- 0.320	JACQUET 69 NC 63A 743

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Reaction [210] $\pi^+p \to p\rho^+\pi^+\pi^-$, $\rho^+ \to \pi^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.720	3.411	0.170 +- 0.070	DAO 70
7.000	3.747	0.554 0.111 †	SLATTERY 67
8.490 +- 0.060	4.103	0.280 + 0.258 †	KUNG 69
		- 0.062	
18.500	5.968	0.240 +- 0.010 †	HONES 70 PR D2 827

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.720	3.411	0.140 +- 0.060	DAO 70
7.000	3.747	0.463 0.108 †	SLATTERY 67
8.490 +- 0.060	4.103	0.509 0.149 †	KUNG 69
18.500	5.968	0.210 0.010 †	HONES 70 PR D2 827

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
7.000	3.747	0.341 +- 0.068 †	SLATTERY 67
8.490 +- 0.060	4.103	0.057 + 0.050 †	KUNG 69
		- 0.015	
18.500	5.968	0.076 +- 0.006 †	HONES 70 PR D2 827

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Reaction [213] $\pi^+p \to p\rho\pi\pi$, $\rho \to \pi\pi$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
4.000 +- 0.040	2.900	0.100 +- 0.020 †	ADERHOLZ 65 PR 138 B897

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Reaction [214] $\pi^+p \to p\rho^0\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
7.000	3.747	0.131 +- 0.053 †	SLATTERY 67
8.040 +- 0.060	3.999	0.108 0.036 †	BARDADIN-O 71 PR D4 2711
8.490 0.060	4.103	0.023 0.004	KUNG 69 PR D4 2711

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Reaction [215] $\pi^+p \to p\omega\rho^0\pi^+$, $\omega \to \pi^+\pi^-$, $\omega \to \pi^+\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
8.040 +- 0.060	3.999	0.041 +- 0.033 †	BARDADIN-O 71 PR D4 2711

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Reaction [216] $\pi^+p \to pA_1^+\pi^+\pi^-$, $A_1^+ \to \pi^+\pi^+\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.000 +- 0.025	3.207	<.030 †	DREVERMANN 67 PR 161 1356

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Reaction [217] $\pi^+p \to pA_1^-\pi^+\pi^+$, $A_1^- \to \pi^+\pi^-\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.000 +- 0.025	3.207	<.020 †	DREVERMANN 67 PR 161 1356

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Reaction [218] $\pi^+p \to pA_1^+\pi^+\pi^-$, $A_1^+ \to \rho^0\pi^+$ + $pA_1^-\pi^+\pi^+$, $A_1^- \to \rho^0\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.000 +- 0.025	3.207	<.030 †	DREVERMANN 67 PR 161 1356
8.040 0.060	3.999	<.025 †	BARDADIN-O 71 PR D4 2711

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Reaction [219] $\pi^+p \to pB^+\pi^+\pi^-$, $B^+ \to \pi^+\pi^+\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.000 +- 0.025	3.207	<.040 †	DREVERMANN 67 PR 161 1356

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Reaction [220] $\pi^+p \to pB^-\pi^+\pi^+$, $B^- \to \pi^+\pi^-\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.000 +- 0.025	3.207	<.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
[ ] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections

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

Reaction [221] $\pi^+p \to pB^+\pi^+\pi^- + pB^-\pi^+\pi^+$, $B^+ \to \omega\pi^+$, $B^- \to \omega\pi^-$, $\omega \to \pi^+\pi^-\pi^0$

5.000 +- 0.025	3.207	<.025		†	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	<.090		†	BARDADIN-O 71	PR D4 2711

Reaction [222] $\pi^+p \to pA_2^+\pi^+\pi^-$, $A_2^+ \to \pi^+\pi^+\pi^-$

5.000 +- 0.025	3.207	<.020		†	DREVERMANN 67	PR 161 1356

Reaction [223] $\pi^+p \to pA_2^-\pi^+\pi^+$, $A_2^- \to \pi^+\pi^-\pi^-$

5.000 +- 0.025	3.207	<.010		†	DREVERMANN 67	PR 161 1356

Reaction [224] $\pi^+p \to pA_2^+\pi^+\pi^- + pA_2^-\pi^+\pi^+$, $A_2^+ \to \rho^0\pi^+$, $A_2^- \to \rho^0\pi^-$

5.000 +- 0.025	3.207	<.020		†	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	<.030		†	BARDADIN-O 71	PR D4 2711

Reaction [225] $\pi^+p \to pp\bar{p}\pi^+$

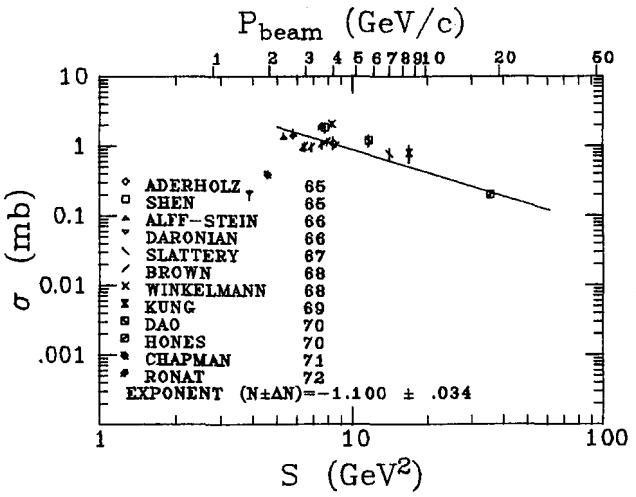
8.040	3.999	0.016	+-	0.004	ADERHOLZ	69	NP B14 255
13.100	5.048	0.014		0.005	GAIDOS	71	NP B32 10

Reaction [226] $\pi^+p \to p\Lambda\bar{\Lambda}\pi^+$

8.500	4.105	0.001	+-	0.001	KREBS	70

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

Data follows plot.



P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
1.585 +- 0.015	1.971	0.200	+-	0.030	DARONIAN 66 NC 41 503
1.950	2.137	0.390		0.050 †	CHAPMAN 71 PR D 3 38
2.340 0.060	2.302	0.		†	ANGELOV 69 JINRP P1-4611
2.350 0.015	2.306	1.410		0.130	ALFF-STEIN 66 PR 145 1072
2.620 0.015	2.413	1.520		0.230	ALFF-STEIN 66 PR 145 1072
2.900 0.015	2.520	0.960		0.100	ALFF-STEIN 66 PR 145 1072
2.950	2.538	[0.990		0.140]	BROWN 68 UCRL 18254
3.190	2.625	[0.960		0.130]	BROWN 68 UCRL 18254
3.500	2.734	1.870		0.200 †	RONAT 72 NP B38 20
3.530	2.744	[1.050		0.120]	BROWN 68 UCRL 18254
3.650	2.785	1.840		0.300 †	SHEN 65 UCRL 16170
3.740	2.815	[1.140		0.130]	BROWN 68 UCRL 18254
3.920	2.874	2.050		0.190 †	WINKELMANN 68
4.000 0.040	2.900	1.100		0.220 †	ADERHOLZ 65 PR 138 B897
4.080	2.926	[0.990		0.030]	BROWN 68 UCRL 18254
5.720	3.411	1.200		0.220	DAO 70
7.000	3.747	0.769		0.153 †	SLATTERY 67
8.490 0.060	4.103	0.799		0.227 †	KUNG 69
18.500	5.968	0.200		0.010 †	HONES 70 PR D2 827

Plot precedes data.

Reaction [228] $\pi^+p \to \Delta(1238)^{++}\rho^0\pi^+\pi^-$, $\Delta^{++} \to p\pi^+$, $\rho^0 \to \pi^+\pi^-$

8.040 +- 0.060	3.999	0.066	+-	0.047 †	BARDADIN-O 71	PR D4 2711
8.040 0.060	3.999	0.053		0.032 †	BARDADIN-O 71	PR D4 2711

Reaction [229] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\Delta^{++} \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

8.040 +- 0.060	3.999	0.265	+-	0.037 †	BARDADIN-O 71	PR D4 2711

Reaction [230] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\Delta^{++} \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>

8.040 +- 0.060	3.999	0.199	+-	0.040 †	BARDADIN-O 71	PR D4 2711

Reaction [231] $\pi^+p \to \Delta(1238)^{++}\omega\pi^+\pi^-$, $\omega \to \pi^+\pi^-\pi^0$ + <other mode>

4.000	2.900	0.150	+-	0.033 †	BONDAR 66	NC 44A 530

Reaction [232] $\pi^+p \to \Delta(1238)^+\pi^+\pi^+\pi^-$, $\Delta^+ \to p\pi^0$

7.000	3.747	0.120	+-	0.048 †	SLATTERY 67	
8.490 +- 0.060	4.103	0.078	+	0.050 †	KUNG 69	
			-	0.018		
8.500	5.968	0.061	+-	0.006 †	HONES 70	PR D2 827

Reaction [233] $\pi^+p \to \Delta(1238)^0\pi^+\pi^+\pi^0$, $\Delta^0 \to p\pi^-$

5.720	3.411	0.240	+-	0.070 †	DAO 70	
7.000	3.747	0.184		0.060 †	SLATTERY 67	
8.490 +- 0.060	4.103	0.174		0.085 †	KUNG 69	

Reaction [234] $\pi^+p \to \Delta(1238)^-\pi^+\pi^+\pi^+$, $\Delta^- \to n\pi^-$

4.000 +- 0.040	2.900	0.250		†	ADERHOLZ 65	PR 138 B897

Reaction [235] $\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-$, $N(1512)^+ \to p\pi^+\pi^-$

8.040 +- 0.060	3.999	<.037		†	BARDADIN-O 71	PR D4 2711

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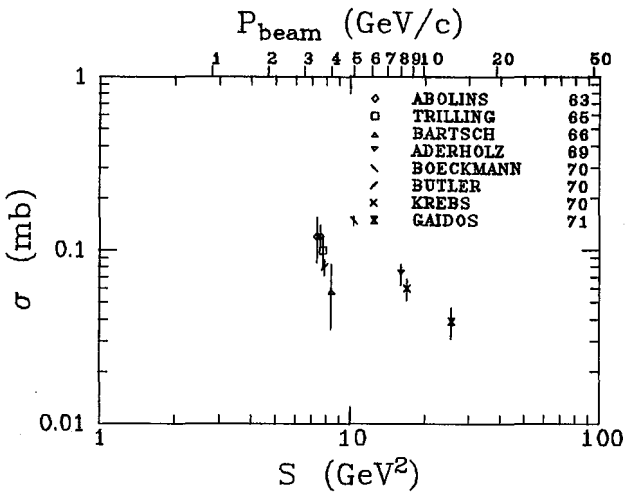
π^+p cross sections

Reaction [236] $\pi^+p \to N(1700)^+\pi^+\pi^+\pi^-$, $N(1700)^+ \to p\pi^+\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
8.040 +- 0.060	3.999	<.035	†	BARDADIN-O 71 PR D4 2711

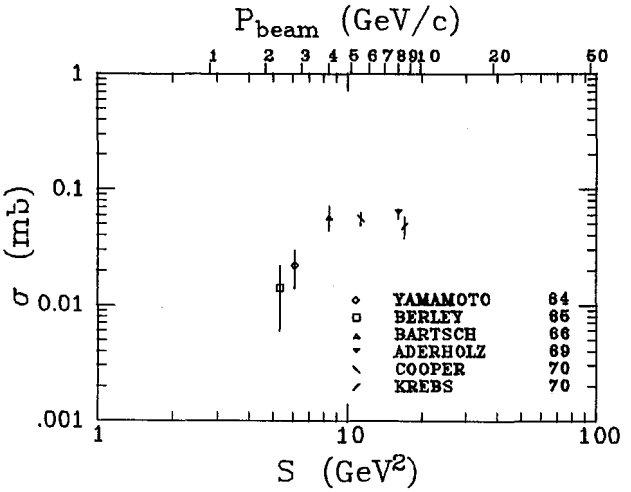
Reaction [237] $\pi^+p \to pK^+K^-\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
3.430	2.710	0.120 +- 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] $\pi^+p \to pK^+\bar{K}^0\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.350 + 2.620 - 2.900	2.306	0.014 +- 0.008		BERLEY 65 PR 13981097
2.770 +- 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



Reaction [239] $\pi^+p \to pK^+\bar{K}^0MM(>\pi^0)$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
4.000	2.900	0.018 +- 0.013		BARTSCH 66 NC 43A 1010

Reaction [240] $\pi^+p \to pK^0_SK^0_S\pi^+$

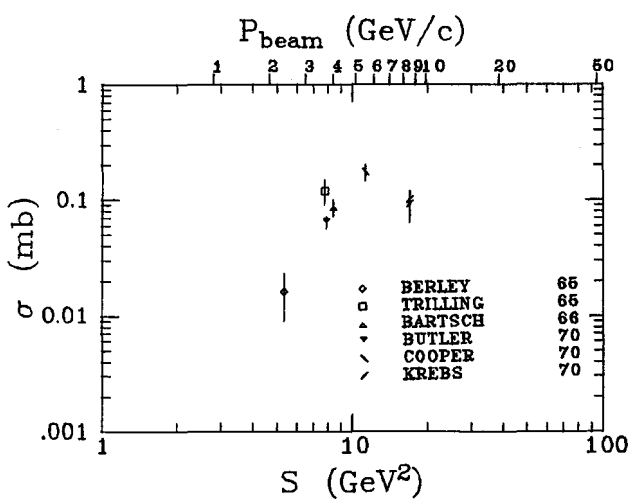
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.770 +- 0.040	2.471	0.005 +- 0.003		YAMAMOTO 64 PR 134 B383
3.700	2.801	0.022 0.004	†	BUTLER 70 UCRL 19845
8.000	3.989	0.018 0.003		ADERHOLZ 69 NP B11 259

Reaction [241] $\pi^+p \to pK^0_SK^0_L\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.770 +- 0.040	2.471	0.013 +- 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] $\pi^+p \to pK^0\bar{K}^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.350 + 2.620 - 2.900	2.306	0.016 +- 0.007		BERLEY 65 PR 13981097
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] $\pi^+p \to nK^+\bar{K}^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)		References
2.350 + 2.620 - 2.900	2.306	0.014 +- 0.009		BERLEY 65 PR 13981097
2.770 +- 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
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
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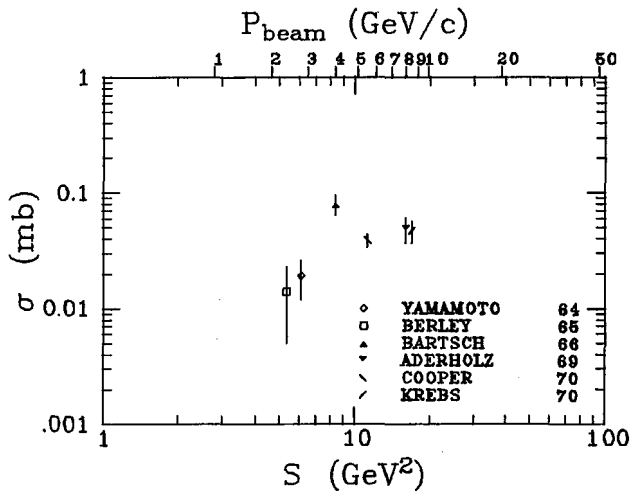
π^+p cross sections

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



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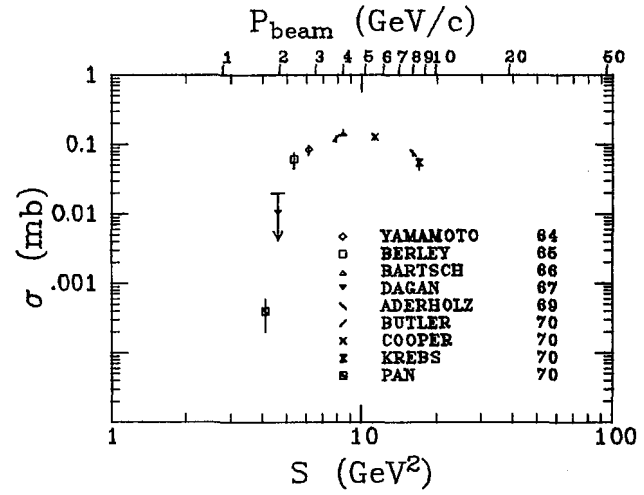
Reaction [244] $\pi^+p\to K^+\bar{K}^0\pi^+MM(>N)$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
4.000	2.900	0.030 +- 0.015	BARTSCH 66 NC 43A 1010

****

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.700	2.025	0.000 +- 0.000	PAN 70 PR D 2 449
1.950	2.137	0.010 0.010 †	DAGAN 67 PR 161 1384
2.350 + 2.620 - 2.900	2.306	0.061 0.016 †	BERLEY 65 PR 139B1097
2.770 +- 0.040	2.471	0.084 0.013 †	YAMAMOTO 64 PR 134 B383
3.700	2.801	0.121 0.011 †	BUTLER 70 UCRL 19845
4.000	2.900	0.148 0.016 †	BARTSCH 66 NC 43A 1010
5.500	3.350	0.127 0.010 †	COOPER 70 NP B23 605
8.000	3.989	0.075 0.007	ADERHOLZ 69 NP B11 259
8.500	4.105	0.054 0.010	KREBS 70



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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
4.000	2.900	0.023 +- 0.010 †	BARTSCH 66 NC 43A 1010

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Reaction [247] $\pi^+p\to\Lambda K^0_S\pi^+\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
8.500	4.105	0.056 +- 0.012	KREBS 70

****

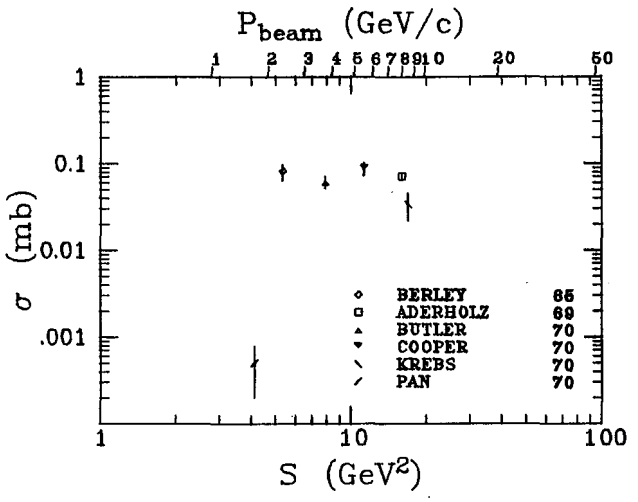
Reaction [248] $\pi^+p\to\Lambda K^0_L\pi^+\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
8.500	4.105	0.060 +- 0.010	KREBS 70

****

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.700	2.025	0.001 +- 0.000	PAN 70 PR D 2 449
2.350 + 2.620 - 2.900	2.306	0.081 0.017	BERLEY 65 PR 139B1097
3.700	2.801	0.062 0.009 †	BUTLER 70 UCRL 19845
5.500	3.350	0.088 0.014 †	COOPER 70 NP B23 605
8.000	3.989	0.071 0.006	ADERHOLZ 69 NP B11 259
8.500	4.105	0.034 0.012	KREBS 70



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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
2.350	2.306	0.064 +- 0.019	BERLEY 65 PR 139B1097
2.620	2.413	0.190 0.060	BERLEY 65 PR 139B1097
2.900	2.520	0.190 0.030	BERLEY 65 PR 139B1097

****

Reaction [251]
$\pi^+p\to\Lambda\pi^+\pi^+MM(>K^0) + \Lambda K^+\pi^+MM(>\pi^0)$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
8.000	3.989	0.141 +- 0.013	ADERHOLZ 69 NP B11 259

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π^+p cross sections

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

Reaction [252] $\pi^+p \to \Sigma^0K^0\pi^+\pi^+$

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] $\pi^+p \to \Lambda K^0\pi^+\pi^+ + \Sigma^0K^0\pi^+\pi^+$

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

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Reaction [254] $\pi^+p \to \Lambda K^+\rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

8.500	4.105	0.017 +- 0.008 †	KREBS	70	

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Reaction [255] $\pi^+p \to \Lambda K^*(890)^+\pi^+\pi^0$, $K^*(890)^+ \to K^0\pi^+$

8.000	3.989	0.015 +- 0.005 †	ADERHOLZ	69	NP B11 259

****

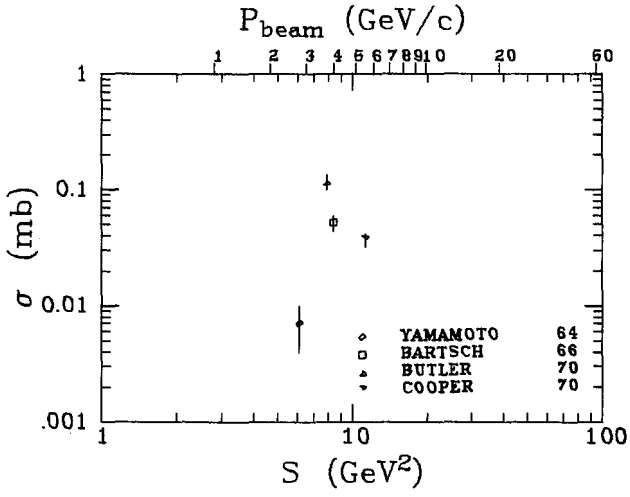
Reaction [256] $\pi^+p \to \Lambda K^*(890)^0\pi^+\pi^+$, $K^*(890)^0 \to K^+\pi^-$

8.500	4.105	0.017 +- 0.008 †	KREBS	70	

****

Reaction [257] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-$

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 B23 605



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

Reaction [258] $\pi^+p \to \Sigma^+K^0\pi^+\pi^0$

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

****

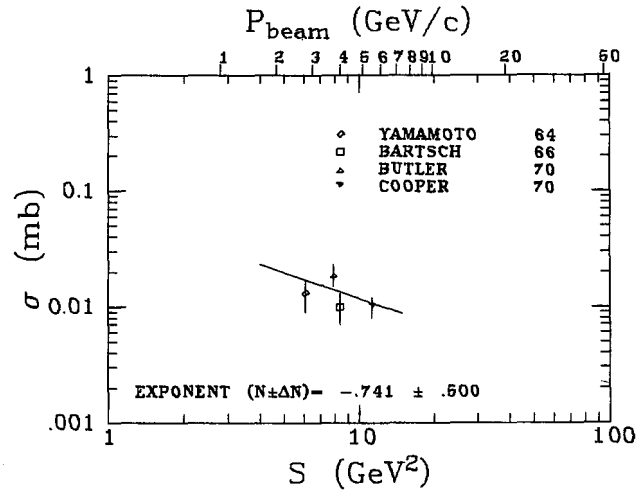
Reaction [259] $\pi^+p \to \Sigma^+K^0\pi^+MM(>\pi^0)$

4.000	2.900	0.029 +- 0.021	BARTSCH	66	NC 43A 1010

****

Reaction [260] $\pi^+p \to \Sigma^-K^+\pi^+\pi^+$

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 B23 605



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Reaction [261] $\pi^+p \to Y^*(1385)^+K^+\pi^+\pi^-$, $Y^*(1385)^+ \to \Lambda\pi^+$

8.500	4.105	0.008 +- 0.002 †	KREBS	70	

****

Reaction [262] $\pi^+p \to Y^*(1385)^+K^0\pi^+\pi^0$, $Y^*(1385)^+ \to \Lambda\pi^+$

8.000	3.989	0.012 +- 0.004 †	ADERHOLZ	69	NP B11 259

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Reaction [263] $\pi^+p \to Y^*(1385)^-K^+\pi^+\pi^+$, $Y^*(1385)^- \to \Lambda\pi^-$

8.500	4.105	0.002 +- 0.002 †	KREBS	70	

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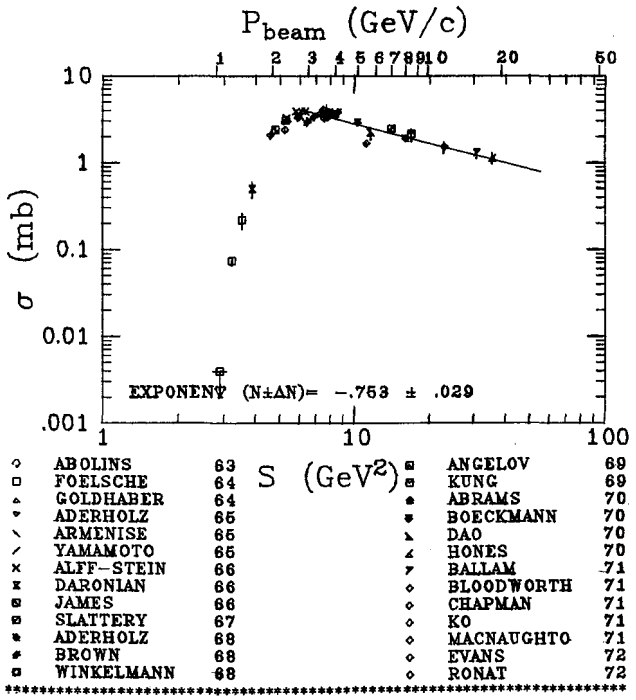
π^+p cross sections

Reaction [264] $\pi^+p \to p\pi^+\pi^+\pi^-\pi^0$

P_{beam} (GeV/c)		$E_{C.M.}$ (GeV)	σ (mb)				References		
1.040		1.694	<.004			†	FOELSCHE	64	PR 134B1138
1.222		1.791	0.074	+-	0.008		FOELSCHE	64	PR 134B1138
1.393		1.878	0.220		0.045		FOELSCHE	64	PR 134B1138
1.585	+- 0.015	1.971	0.500		0.100		DARONIAN	66	NC 41 503
1.950		2.137	2.070		0.150		CHAPMAN	71	PR D 3 38
2.080		2.194	2.410		0.090		JAMES	66	PR 142 896
2.300		2.286	2.400		0.180		KO	71	
2.340	0.060	2.302	3.070		0.100		ANGELOV	69	JINRP P1-461
2.350	0.015	2.306	3.260		0.160	†	ALFF-STEIN	66	PR 145 1072
2.620	0.015	2.413	3.860		0.250	†	ALFF-STEIN	66	PR 145 1072
2.670		2.432	3.290		0.170		KO	71	
2.750		2.463	3.350		0.100		ARMENISE	65	NC 40A 273
2.770	0.040	2.471	3.870		0.210		YAMAMOTO	65	PR 140 B730
2.900	0.015	2.520	3.870		0.170	†	ALFF-STEIN	66	PR 145 1072
2.950		2.538	2.980		0.310		BROWN	68	UCRL 18254
3.190		2.625	3.380		0.310		BROWN	68	UCRL 18254
3.430		2.710	3.700		0.300		ABOLINS	63	PRL 11 381
3.500		2.734	4.030		0.160		RONAT	72	NP B38 20
3.530		2.744	3.640		0.340		BROWN	68	UCRL 18254
3.540		2.747	3.600		0.200		ABOLINS	63	PRL 11 381
3.560		2.754	3.220		0.100		MACNAUGHTO	71	UCRL 20178
3.650		2.785	4.310		0.350		GOLDHABER	64	PRL 12 336
3.670		2.791	3.320		0.100		MACNAUGHTO	71	UCRL 20178
3.700		2.801	3.620		0.100		ABRAMS	70	PRL 25 617
3.740		2.815	3.790		0.350		BROWN	68	UCRL 18254
3.920		2.874	3.670		0.120	†	WINKELMANN	68	
4.000	0.040	2.900	3.430				ADERHOLZ	65	PR 138 B897
4.080		2.926	3.780		0.360		BROWN	68	UCRL 18254
5.000		3.207	2.890		0.034		BOECKMANN	70	NP B16 221
5.450		3.336	1.650		0.045		BLOODWORTH	71	NP B35 79
5.720		3.411	2.230		0.360		DAO	70	
7.000		3.747	2.450		0.270		SLATTERY	67	
8.040	0.040	3.999	1.910		0.080		ADERHOLZ	68	NP B8 45
8.490	0.060	4.103	2.120		0.327		KUNG	69	NP B8 45
11.700		4.781	1.500		0.220		EVANS	72	DESY 72/37
16.000		5.561	1.280		0.170		BALLAM	71	PR D3 2606
18.500		5.968	1.130		0.150	†	HONES	70	PR D2 827



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

2.340	+- 0.060	2.302	1.200	+-	0.090		ANGELOV	69	JINRP P1-46
2.950		2.538	[0.320		0.290]		BROWN	68	UCRL 18254
3.190		2.625	[1.060		0.160]		BROWN	68	UCRL 18254
3.500		2.734	0.730		0.190	†	RONAT	72	NP B38 20
3.530		2.744	[1.180		0.130]		BROWN	68	UCRL 18254
3.650		2.785	1.010		0.150		SHEN	65	UCRL 16170
3.740		2.815	[1.330		0.140]		BROWN	68	UCRL 18254
4.000	0.040	2.900	1.000				ADERHOLZ	65	PR 138 B897
4.080		2.926	[1.270		0.080]		BROWN	68	UCRL 18254
18.500		5.968	0.420		0.040		HONES	70	PR D2 827

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* DATA READ FROM GRAPH
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Reaction [266] $\pi^+p \to p\pi^+\pi^+\pi^-MM(>\pi^0)$

2.750		2.463	0.670	+-	0.040		ARMENISE	66	NC 41A 159
3.500		2.734	1.040		0.060		RONAT	72	NP B38 20
3.560		2.754	1.130		0.070		MACNAUGHTO	71	UCRL 20178
3.670		2.791	0.990		0.100		MACNAUGHTO	71	UCRL 20178
4.000	+- 0.040	2.900	1.330			†	ADERHOLZ	65	PR 138 B897
5.000		3.207	2.300		0.030		BOECKMANN	70	NP B16 221
8.040	0.040	3.999	2.470		0.120		ADERHOLZ	68	NP B8 45

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Reaction [267] $\pi^+p \to p\pi^+\pi^0\pi^0\pi^0$

2.050		2.181	0.680	+-	0.200		JACQUET	69	NC 63A 743

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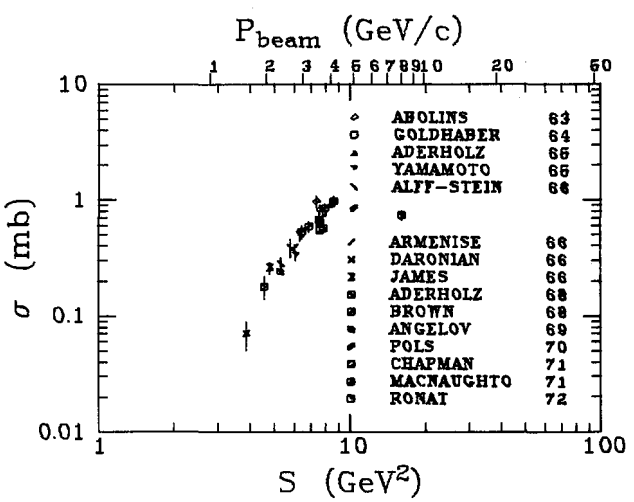
Reaction [268] $\pi^+p \to n\pi^+\pi^+\pi^+\pi^-$

1.585	+- 0.015	1.971	0.070	+-	0.020		DARONIAN	66	NC 41 503
1.950		2.137	0.180		0.040		CHAPMAN	71	PR D 3 38
2.080		2.194	0.260		0.030		JAMES	66	PR 142 896
2.340	0.060	2.302	0.240		0.010		ANGELOV	69	JINRP P1-4611
2.350	0.015	2.306	0.280		0.040	†	ALFF-STEIN	66	PR 145 1072
2.620	0.015	2.413	0.390		0.070		ALFF-STEIN	66	PR 145 1072
2.750		2.463	0.390		0.030		ARMENISE	66	NC 41A 159
2.770	0.040	2.471	0.330		0.030		YAMAMOTO	65	PR 140 B730
2.900	0.015	2.520	0.500		0.050	†	ALFF-STEIN	66	PR 145 1072
2.950		2.538	0.530		0.070		BROWN	68	UCRL 18254
3.190		2.625	0.590		0.060		BROWN	68	UCRL 18254
3.430		2.710	0.980		0.100		ABOLINS	63	PRL 11 381
3.500		2.734	0.670		0.050		RONAT	72	NP B38 20
3.530		2.744	0.630		0.060		BROWN	68	UCRL 18254
3.540		2.747	0.830		0.070		ABOLINS	63	PRL 11 381
3.560		2.754	0.550		0.030		MACNAUGHTO	71	UCRL 20178
3.650		2.785	0.760		0.070		GOLDHABER	64	PRL 12 336
3.670		2.791	0.570		0.040		MACNAUGHTO	71	UCRL 20178
3.740		2.815	0.840		0.090		BROWN	68	UCRL 18254
4.000	0.040	2.900	0.930				ADERHOLZ	65	PR 138 B897
4.080		2.926	0.970		0.100		BROWN	68	UCRL 18254
5.000		3.207	0.850		0.020		POLS	70	NP B25 109
8.040	0.040	3.999	0.740		0.070		ADERHOLZ	68	NP B8 45



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Reaction [269] $\pi^+p \to \pi^+\pi^+\pi^+\pi^-MM(>N)$

2.750		2.463	0.170	+-	0.020		ARMENISE	66	NC 41A 159
3.500		2.734	0.380		0.030		RONAT	72	NP B38 20
3.560		2.754	0.510		0.070		MACNAUGHTO	71	UCRL 20178
3.670		2.791	0.520		0.100		MACNAUGHTO	71	UCRL 20178
4.000	+- 0.040	2.900	0.870			†	ADERHOLZ	65	PR 138 B897
5.000		3.207	1.180		0.170		POLS	70	NP B25 109
8.040	0.040	3.999	2.480		0.120		ADERHOLZ	68	NP B8 45

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π^+p cross sections

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

Reaction [270] $\pi^+p\to p\pi^+\pi^+\pi^-MM(>\pi^0)$ + $\pi^+\pi^+\pi^+\pi^-MM(>N)$

2.770 +- 0.040	2.471	0.600 +- 0.050	YAMAMOTO 65	PR 140 B730

Reaction [271] $\pi^+p\to pe^+\pi^+e^-\gamma$

1.020	1.683	0.110 +- 0.040	METZGER 67	PR 164 1680

Reaction [272] $\pi^+p\to p\eta\pi^+\pi^+\pi^-$, $\eta\to\pi^+\pi^-\pi^0$ + <other mode>

4.000	2.900	0.106 +- 0.035 †	BONDAR 66	NC 44A 530
5.000 +- 0.025	3.207	0.100 0.020 †	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	0.090 0.035 †	BARDADIN-O 71	PR D4 2711

Reaction [273] $\pi^+p\to p\eta\pi^+\pi^+\pi^-$, $\eta\to$neutrals

5.450	3.336	[0.055 +- 0.005]†	BLOODWORTH 72	NP B39 525

Reaction [274] $\pi^+p\to p\eta\pi^+\pi^+\pi^-$, $\eta\to\pi^+\pi^-\pi^0$

5.000 +- 0.025	3.207	0.027 +- 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] $\pi^+p\to p\rho^0\pi^+\pi^+\pi^-$, $\rho^0\to\pi^+\pi^-$

5.000 +- 0.025	3.207	0.260 +- 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] $\pi^+p\to p\omega\pi^+\pi^+\pi^-$, $\omega\to\pi^+\pi^-\pi^0$ + <other mode>

4.000	2.900	0.028 +- 0.028 †	BONDAR 66	NC 44A 530
8.040 +- 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] $\pi^+p\to p\omega\pi^+\pi^+\pi^-$, $\omega\to\pi^+\pi^-\pi^0$

4.000	2.900	0.178 +- 0.026 †	BONDAR 66	NC 44A 530
5.000 +- 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] $\pi^+p\to pA_1{}^0\pi^+\pi^+\pi^-$, $A_1{}^0\to\pi^+\pi^-\pi^0$

5.000 +- 0.025	3.207	<.030 †	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	<.060 †	BARDADIN-O 71	PR D4 2711

Reaction [279] $\pi^+p\to pA_1{}^+\pi^+\pi^+\pi^-\pi^0$, $A_1{}^+\to\pi^+\pi^+\pi^-$

5.000 +- 0.025	3.207	<.030 †	DREVERMANN 67	PR 161 1356

Reaction [280] $\pi^+p\to pA_1{}^-\pi^+\pi^+\pi^0$, $A_1{}^-\to\pi^+\pi^-\pi^-$

5.000 +- 0.025	3.207	<.020 †	DREVERMANN 67	PR 161 1356

Reaction [281] $\pi^+p\to pA_1{}^+\pi^+\pi^-\pi^0$ + $pA_1{}^-\pi^+\pi^+\pi^0$, $A_1{}^+\to\rho^0\pi^+$, $A_1{}^-\to\rho^0\pi^-$

8.040 +- 0.060	3.999	<.050 †	BARDADIN-O 71	PR D4 2711

Reaction [282] $\pi^+p\to pf\pi^+\pi^+\pi^-$, $f\to\pi^+\pi^-$

5.000 +- 0.025	3.207	<.005 †	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	<.020 †	BARDADIN-O 71	PR D4 2711

Reaction [283] $\pi^+p\to pA_2^0\pi^+\pi^+\pi^-$, $A_2^0\to\pi^+\pi^-\pi^0$

5.000 +- 0.025	3.207	<.010 †	DREVERMANN 67	PR 161 1356
8.040 0.060	3.999	<.050 †	BARDADIN-O 71	PR D4 2711

Reaction [284] $\pi^+p\to pA_2^+\pi^+\pi^-\pi^0$, $A_2^+\to\pi^+\pi^+\pi^-$

5.000 +- 0.025	3.207	<.015 †	DREVERMANN 67	PR 161 1356

Reaction [285] $\pi^+p\to pA_2{}^-\pi^+\pi^+\pi^0$, $A_2{}^-\to\pi^+\pi^-\pi^-$

5.000 +- 0.025	3.207	<.010 †	DREVERMANN 67	PR 161 1356

Reaction [286] $\pi^+p\to pA_2^+\pi^+\pi^-\pi^0$ + $pA_2{}^-\pi^+\pi^+\pi^0$, $A_2^+\to\rho^0\pi^+$, $A_2{}^-\to\rho^0\pi^-$

8.040 +- 0.060	3.999	<.040 †	BARDADIN-O 71	PR D4 2711

Reaction [287] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^-$, $\Delta(1238)^{++}\to p\pi^+$

4.000	2.900	0.204 +- 0.039	BONDAR 66	NC 44A 530
5.000 +- 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] $\pi^+p\to\Delta(1238)^{++}\rho^0\pi^+\pi^-\pi^0$, $\Delta(1238)^{++}\to p\pi^+$, $\rho^0\to\pi^+\pi^-$

8.040 +- 0.060	3.999	0.100 +- 0.053 †	BARDADIN-O 71	PR D4 2711

* DATA READ FROM GRAPH
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[ ] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+p cross sections

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
Reaction [289]		$\pi^+p \to \Delta(1238)^0\pi^+\pi^+\pi^+\pi^-$, $\Delta \to p\pi^-$	
5.000 +- 0.025	3.207	<.020 †	DREVERMANN 67 PR 161 1356
7.000	3.747	0.037 +- 0.018 †	SLATTERY 67
8.040 0.060	3.999	0.046 0.018 †	BARDADIN-O 71 PR D4 2711
Reaction [290]		$\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-\pi^0$, $N \to p\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.058 †	BARDADIN-O 71 PR D4 2711
Reaction [291]		$\pi^+p \to N(1512)^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $N \to p\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.110 †	BARDADIN-O 71 PR D4 2711
Reaction [292]		$\pi^+p \to N(1512)^0\pi^+\pi^+\pi^+\pi^-$, $N \to p\pi^- + p\pi^-\pi^0 + n\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.072 †	BARDADIN-O 71 PR D4 2711
Reaction [293]		$\pi^+p \to N(1688)^+\pi^+\pi^+\pi^-\pi^0$, $N \to p\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.082 †	BARDADIN-O 71 PR D4 2711
Reaction [294]		$\pi^+p \to N(1688)^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $N \to p\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.120 †	BARDADIN-O 71 PR D4 2711
Reaction [295]		$\pi^+p \to N(1688)^0\pi^+\pi^+\pi^+\pi^-$, $N \to p\pi^- + p\pi^-\pi^0 + n\pi^+\pi^-$	
8.040 +- 0.060	3.999	<.088 †	BARDADIN-O 71 PR D4 2711
Reaction [296]		$\pi^+p \to pK^+K^-\pi^+\pi^0$	
4.000	2.900	0.054 +- 0.024	BARTSCH 66 NC 43A 1010
Reaction [297]		$\pi^+p \to pK^+\bar{K}^0\pi^+\pi^-$	
4.000	2.900	0.012 +- 0.006	BARTSCH 66 NC 43A 1010
5.500	3.350	0.023 0.005 †	COOPER 70 NP B23 605
Reaction [298]		$\pi^+p \to pK^+K^0_S\pi^+\pi^-$	
5.100	3.236	0.019 +- 0.005	METTEL 70
Reaction [299]		$\pi^+p \to pK^0_SK^0_S\pi^+\pi^0$	
8.000	3.989	0.004 +- 0.002	ADERHOLZ 69 NP B11 259
Reaction [300]		$\pi^+p \to pK^0\bar{K}^0\pi^+\pi^0$	
4.000	2.900	0.030 +- 0.017	BARTSCH 66 NC 43A 1010
8.500	4.105	0.043 0.015	KREBS 70
Reaction [301]		$\pi^+p \to pK^0\bar{K}^0\pi^+MM(>\pi^0)$	
4.000	2.900	0. +- 0.019	BARTSCH 66 NC 43A 1010
Reaction [302]		$\pi^+p \to pK^-K^0_S\pi^+\pi^+$	
5.100	3.236	0.010 +- 0.002	METTEL 70
Reaction [303]		$\pi^+p \to pK^-K^0\pi^+\pi^+$	
4.000	2.900	0.021 +- 0.008	BARTSCH 66 NC 43A 1010
5.500	3.350	0.021 0.005 †	COOPER 70 NP B23 605
Reaction [304]		$\pi^+p \to pK^+\bar{K}^0\pi^+\pi^- + pK^-K^0\pi^+\pi^+$	
8.040 +- 0.060	3.999	[0.170 +- 0.017]	SABAU 71 NCL 1 514
8.500	4.105	0.106 0.019	KREBS 70 NCL 1 514
Reaction [305]		$\pi^+p \to nK^+K^-\pi^+\pi^+$	
4.000	2.900	0.066 +- 0.038	BARTSCH 66 NC 43A 1010
Reaction [306]		$\pi^+p \to nK^0_SK^0_S\pi^+\pi^+$	
8.000	3.989	0.008 +- 0.002	ADERHOLZ 69 NP B11 259
Reaction [307]		$\pi^+p \to nK^0\bar{K}^0\pi^+\pi^+$	
4.000	2.900	0.038 +- 0.022	BARTSCH 66 NC 43A 1010
8.500	4.105	0.030 0.015	KREBS 70
Reaction [308]		$\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^-$	
5.500	3.350	0.020 +- 0.003 †	COOPER 70 NP B23 605
8.000	3.989	0.056 0.010	ADERHOLZ 69 NP B11 259
8.500	4.105	0.030 0.008	KREBS 70
Reaction [309]		$\pi^+p \to \Sigma^0K^+\pi^+\pi^+\pi^-$	
8.500	4.105	0.024 +- 0.007	KREBS 70

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π^+p cross sections

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

Reaction [310] $\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^- + \Sigma^0K^+\pi^+\pi^+\pi^-$

4.000	2.900	0.026 +- 0.007		BARTSCH	66	NC 43A 1010

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Reaction [311] $\pi^+p \to \Lambda K^0\pi^+\pi^+\pi^0$

4.000	2.900	0.020 +- 0.012	†	BARTSCH	66	NC 43A 1010
8.000	3.989	0.049 0.008		ADERHOLZ	69	NP B11 259
8.500	4.105	0.046 0.013		KREBS	70	

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Reaction [312] $\pi^+p \to \Lambda K^0\pi^+\pi^+MM(>\pi^0)$

4.000	2.900	0.017 + 0.020 - 0.017	†	BARTSCH	66	NC 43A 1010
8.000	3.989	0.036 +- 0.007		ADERHOLZ	69	NP B11 259

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Reaction [313] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-\pi^0$

4.000	2.900	0.030 +- 0.006		BARTSCH	66	NC 43A 1010

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Reaction [314] $\pi^+p \to \Sigma^+K^+\pi^+\pi^-MM(>\pi^0)$

4.000	2.900	0.014 +- 0.006		BARTSCH	66	NC 43A 1010

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Reaction [315] $\pi^+p \to \Sigma^+K^0\pi^+\pi^+\pi^-$

4.000	2.900	0.011 +- 0.004		BARTSCH	66	NC 43A 1010
5.500	3.350	0.011 0.003	†	COOPER	70	NP B23 605
8.500	4.105	0.005 0.003		KREBS	70	

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Reaction [316] $\pi^+p \to \Sigma^-K^+\pi^+\pi^+\pi^0$

4.000	2.900	0.008 +- 0.003		BARTSCH	66	NC 43A 1010

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Reaction [317] $\pi^+p \to \Sigma^-K^0\pi^+\pi^+\pi^+$

4.000	2.900	0.007 +- 0.003		BARTSCH	66	NC 43A 1010
8.500	4.105	0.005 0.003		KREBS	70	

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Reaction [318] $\pi^+p \to p\pi^+\pi^+\pi^+\pi^-\pi^-$

2.080	2.194	0.010		JAMES	66	PR 142 896
3.560	2.754	0.200 +- 0.020		MACNAUGHTO	71	UCRL 20178
3.670	2.791	0.220 0.020		MACNAUGHTO	71	UCRL 20178
4.000	2.900	0.249 0.036		BONDAR	66	NC 44A 530
5.000 +- 0.025	3.207	0.410 0.020		DREVERMANN	67	PR 161 1356
7.000	3.747	0.390 0.032		SLATTERY	67	
8.040 0.060	3.999	0.400 0.030		BARDADIN-O	71	PR D4 2711
8.490 0.060	4.103	0.447 0.031		KUNG	69	PR D4 2711

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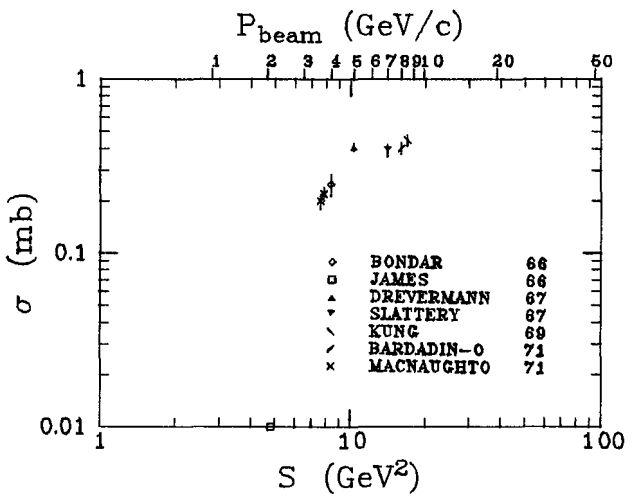
[] CALCULATED BY US FROM DATA IN THIS ARTICLE

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



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Reaction [319] $\pi^+p \to p\pi^+\pi^+\pi^-\pi^0\pi^0$

5.450	3.336	0.980 +- 0.140	†	BLOODWORTH	72	NP B39 525

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Reaction [320] $\pi^+p \to p\rho^+\pi^+\pi^+\pi^-\pi^-$, $\rho^+ \to \pi^+\pi^0$

5.000 +- 0.025	3.207	<.020		DREVERMANN	67	PR 161 1356
7.000	3.747	0.222 +- 0.061	†	SLATTERY	67	
8.040 0.060	3.999	0.086 0.029	†	BARDADIN-O	71	PR D4 2711

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Reaction [321] $\pi^+p \to p\rho^0\pi^+\pi^+\pi^-\pi^0$, $\rho^0 \to \pi^+\pi^-$

5.000 +- 0.025	3.207	<.030		DREVERMANN	67	PR 161 1356
7.000	3.747	0.325 +- 0.328	†	SLATTERY	67	
8.040 0.060	3.999	0.320 0.049	†	BARDADIN-O	71	PR D4 2711
8.040 0.060	3.999	0.143 0.057	†	BARDADIN-O	71	PR D4 2711

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Reaction [322] $\pi^+p \to p\rho^-\pi^+\pi^+\pi^+\pi^-$, $\rho^- \to \pi^-\pi^0$

5.000 +- 0.025	3.207	<.015		DREVERMANN	67	PR 161 1356
7.000	3.747	0.089 +- 0.026	†	SLATTERY	67	
8.040 0.060	3.999	0.053 0.023	†	BARDADIN-O	71	PR D4 2711

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Reaction [323] $\pi^+p \to pf\pi^+\pi^+\pi^-\pi^0$, $f \to \pi^+\pi^-$

5.000 +- 0.025	3.207	<.001	†	DREVERMANN	67	PR 161 1356
8.040 0.060	3.999	<.020	†	BARDADIN-O	71	PR D4 2711

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Reaction [324] $\pi^+p \to n\rho^0\pi^+\pi^+\pi^+\pi^-$, $\rho^0 \to \pi^+\pi^-$

8.040 +- 0.060	3.999	0.034 +- 0.031	†	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
Reaction [325]		$\pi^+p \to nf\pi^+\pi^+\pi^+\pi^-$, $\hookrightarrow \pi^+\pi^-$		
8.040 +- 0.060	3.999	<.015	†	BARDADIN-O 71 PR D4 2711
Reaction [326]		$\pi^+p \to \Delta(1238)^{++}\pi^+\pi^+\pi^-\pi^-\pi^0$, $\hookrightarrow p\pi^+$		
4.000	2.900	0.197	0.035	BONDAR 66 NC 44A 530
5.000 +- 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 0.060	3.999	0.330	0.056 †	BARDADIN-O 71 PR D4 2711
8.040 0.060	3.999	0.033	0.060 †	BARDADIN-O 71 PR D4 2711
8.490 0.060	4.103	0.283	0.090	KUNG 69 PR D4 2711
Reaction [327]		$\pi^+p \to \Delta(1238)^+\pi^+\pi^+\pi^+\pi^-\pi^-$, $\hookrightarrow p\pi^0$		
5.000 +- 0.025	3.207	<.020	†	DREVERMANN 67 PR 161 1356
7.000	3.747	0.030 +- 0.021	†	SLATTERY 67
8.040 0.060	3.999	0.026	0.020 †	BARDADIN-O 71 PR D4 2711
Reaction [328]		$\pi^+p \to \Delta(1238)^+\pi^+\pi^+\pi^+\pi^-\pi^-$, $\hookrightarrow n\pi^+$		
8.040 +- 0.060	3.999	<.016	†	BARDADIN-O 71 PR D4 2711
Reaction [329]		$\pi^+p \to \Delta(1238)^0\pi^+\pi^+\pi^+\pi^-\pi^0$, $\hookrightarrow p\pi^-$		
5.000 +- 0.025	3.207	<.030	†	DREVERMANN 67 PR 161 1356
7.000	3.747	0.050 +- 0.036	†	SLATTERY 67
8.040 0.060	3.999	0.045	0.028 †	BARDADIN-O 71 PR D4 2711
Reaction [330]		$\pi^+p \to \Delta(1238)^-\pi^+\pi^+\pi^+\pi^+\pi^-$, $\hookrightarrow n\pi^-$		
8.040 +- 0.060	3.999	0.175 +- 0.033	†	BARDADIN-O 71 PR D4 2711
Reaction [331]		$\pi^+p \to N(1512)^+\pi^+\pi^+\pi^+\pi^-\pi^-$, $\hookrightarrow p\pi^0 + n\pi^+$		
8.040 +- 0.060	3.999	<.056	†	BARDADIN-O 71 PR D4 2711
Reaction [332]		$\pi^+p \to N(1512)^0\pi^+\pi^+\pi^+\pi^-\pi^0$, $\hookrightarrow p\pi^-$		
8.040 +- 0.060	3.999	<.014	†	BARDADIN-O 71 PR D4 2711
Reaction [333]		$\pi^+p \to N(1512)^0\pi^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $\hookrightarrow p\pi^-$		
8.040 +- 0.060	3.999	<.044	†	BARDADIN-O 71 PR D4 2711
Reaction [334]		$\pi^+p \to N(1700)^+\pi^+\pi^+\pi^+\pi^-\pi^-$, $\hookrightarrow p\pi^0 + n\pi^+$		
8.040 +- 0.060	3.999	<.056	†	BARDADIN-O 71 PR D4 2711
Reaction [335]		$\pi^+p \to N(1700)^0\pi^+\pi^+\pi^+\pi^-\pi^0$, $\hookrightarrow p\pi^-$		
8.040 +- 0.060	3.999	<.024	†	BARDADIN-O 71 PR D4 2711
Reaction [336]		$\pi^+p \to N(1700)^0\pi^+\pi^+\pi^+\pi^-MM(>\pi^0)$, $\hookrightarrow p\pi^-$		
8.040 +- 0.060	3.999	<.028	†	BARDADIN-O 71 PR D4 2711
Reaction [337]		$\pi^+p \to pK^+\bar{K}^0\pi^+\pi^-\pi^0$		
4.000	2.900	0.003 +- 0.003		BARTSCH 66 NC 43A 1010
5.500	3.350	0.020	0.004 †	COOPER 70 NP B23 605
Reaction [338]		$\pi^+p \to pK^0\bar{K}^0\pi^+\pi^+\pi^-$		
8.500	4.105	0.049 +- 0.020		KREBS 70
Reaction [339]		$\pi^+p \to pK^-K^0\pi^+\pi^+\pi^0$		
4.000	2.900	0.003 +- 0.003		BARTSCH 66 NC 43A 1010
5.500	3.350	0.010	0.003 †	COOPER 70 NP B23 605
Reaction [340]		$\pi^+p \to nK^+\bar{K}^0\pi^+\pi^+\pi^-$		
4.000	2.900	0.003 +- 0.003		BARTSCH 66 NC 43A 1010
5.500	3.350	0.008	0.003 †	COOPER 70 NP B23 605
Reaction [341]		$\pi^+p \to nK^-K^0\pi^+\pi^+\pi^+$		
4.000	2.900	0.007 +- 0.005		BARTSCH 66 NC 43A 1010
5.500	3.350	0.002	0.002 †	COOPER 70 NP B23 605
Reaction [342]		$\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^-\pi^0$		
4.000	2.900	0.008 +- 0.004 †		BARTSCH 66 NC 43A 1010
8.000	3.989	0.088	0.012	ADERHOLZ 69 NP B11 259
Reaction [343]		$\pi^+p \to \Lambda K^+\pi^+\pi^+\pi^-MM(>\pi^0)$		
4.000	2.900	0.010 +- 0.005 †		BARTSCH 66 NC 43A 1010

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π^+p cross sections

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

Reaction [344] $\pi^+p \to \Lambda K^0\pi^+\pi^+\pi^+\pi^-$

8.000	3.989	0.054 +- 0.010	ADERHOLZ	69	NP B11	259
8.500	4.105	0.014 0.006	KREBS	70		

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Reaction [345]

$\pi^+p \to \Lambda K^0\pi^+\pi^+\pi^+\pi^- + \Sigma^0K^0\pi^+\pi^+\pi^+\pi^-$

4.000	2.900	0.002 +- 0.002	BARTSCH	66	NC 43A	1010

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Reaction [346] $\pi^+p \to \Sigma^+K^0\pi^+\pi^+\pi^-MM(>\pi^0)$

4.000	2.900	0.009 +- 0.005	BARTSCH	66	NC 43A	1010

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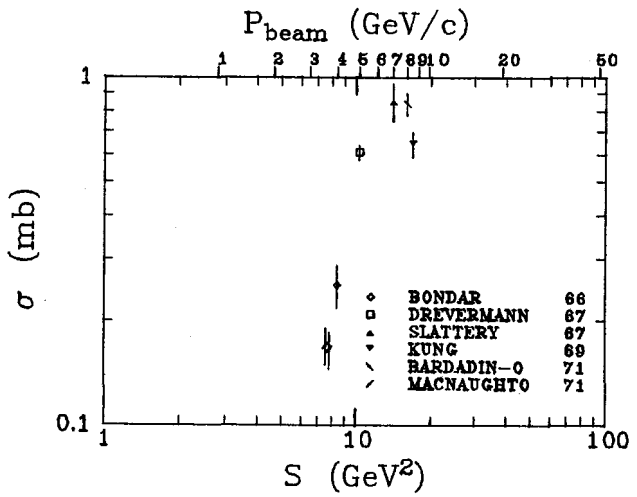
Reaction [347] $\pi^+p \to p\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$

3.560	2.754	0.170 +- 0.020	MACNAUGHTO	71	UCRL	20178
3.670	2.791	0.165 0.020	MACNAUGHTO	71	UCRL	20178
4.000	2.900	0.253 0.036	BONDAR	66	NC 44A	530
5.000 +- 0.025	3.207	0.610 0.030	DREVERMANN	67	PR 161	1356
7.000	3.747	0.856 0.106	SLATTERY	67		
8.040 0.060	3.999	0.840 0.060	BARDADIN-O	71	PR D4	2711
8.490 0.060	4.103	0.643 0.051	KUNG	69	PR D4	2711



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Reaction [348] $\pi^+p \to p\pi^+\pi^+\pi^-\pi^0\pi^0\pi^0$

5.450	3.336	0.290 +- 0.060 †	BLOODWORTH	72	NP B39	525

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Reaction [349] $\pi^+p \to p\eta\pi^+\pi^+\pi^+\pi^-\pi^-$
$\eta \to \pi^+\pi^-\pi^0$

8.490 +- 0.060	4.103	0.009 +- 0.008 †	KUNG	69	

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

Reaction [350] $\pi^+p \to p\omega\pi^+\pi^+\pi^+\pi^-\pi^-$
$\omega \to \pi^+\pi^-\pi^0$

8.490 +- 0.060	4.103	0.048 +- 0.017 †	KUNG	69	

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Reaction [351]

$\pi^+p \to p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-$

8.040 +- 0.060	3.999	0.119 +- 0.054 †	BARDADIN-O	71	PR D4	2711

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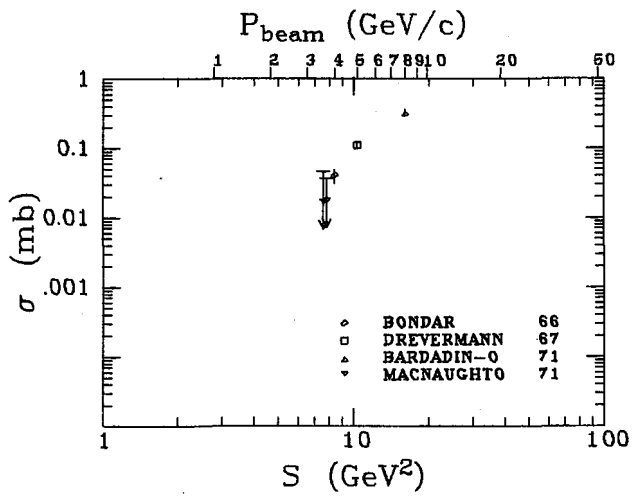
Reaction [352] $\pi^+p \to n\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-$

3.560	2.754	0.016 +- 0.030	MACNAUGHTO	71	UCRL	20178
3.670	2.791	0.017 0.020	MACNAUGHTO	71	UCRL	20178
4.000	2.900	0.040 0.009	BONDAR	66	NC 44A	530
5.000 +- 0.025	3.207	0.110 0.010	DREVERMANN	67	PR 161	1356
8.040 0.060	3.999	0.330 0.040	BARDADIN-O	71	PR D4	2711



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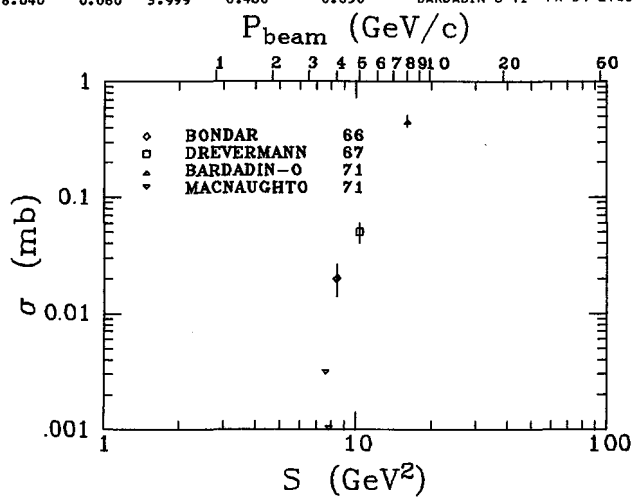
Reaction [353] $\pi^+p \to \pi^+\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

3.560	2.754	0.003	MACNAUGHTO	71	UCRL	20178
3.670	2.791	0.001	MACNAUGHTO	71	UCRL	20178
4.000	2.900	0.020 +- 0.006	BONDAR	66	NC 44A	530
5.000 +- 0.025	3.207	0.050 0.010	DREVERMANN	67	PR 161	1356
8.040 0.060	3.999	0.460 0.050	BARDADIN-O	71	PR D4	2711



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* DATA READ FROM GRAPH
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$ 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 [354] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$, $\Delta(1238)^{++}\to p\pi^+$			
8.490 +- 0.060	4.103	0.026 +- 0.009	KUNG 69
Reaction [355] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^+\pi^-\pi^-$			
8.000	3.989	0.009 +- 0.004	ADERHOLZ 69 NP B11 259
Reaction [356] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^-\pi^0$			
8.000	3.989	0.059 +- 0.015	ADERHOLZ 69 NP B11 259
Reaction [357] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$			
8.000	3.989	0.076 +- 0.007	COGHEN 71 NP B32 189
8.490 +- 0.060	4.103	0.058 0.008	KUNG 69
Reaction [358] $\pi^+p\to p$ at least 2 resonances $\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$			
8.040 +- 0.060	3.999	0.406 +- 0.087 †	BARDADIN-O 71 PR D4 2711
Reaction [359] $\pi^+p\to\Delta(1238)^{++}\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$, $\Delta(1238)^{++}\to p\pi^+$			
8.490 +- 0.060	4.103	0.011 +- 0.011	KUNG 69
Reaction [360] $\pi^+p\to\Lambda K^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^0$			
8.000	3.989	0.011 +- 0.005	ADERHOLZ 69 NP B11 259
Reaction [361] $\pi^+p\to\Lambda K^0\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-$			
8.000	3.989	0.006 +- 0.004	ADERHOLZ 69 NP B11 259
Reaction [362] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$			
8.000	3.989	0.108 +- 0.009	COGHEN 71 NP B32 189
8.490 +- 0.060	4.103	0.111 0.016	KUNG 69
11.000	4.641	0.154	YOST 71 PR D 3 642
Reaction [363] $\pi^+p\to n\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-$			
8.000	3.989	0.032 +- 0.004	COGHEN 71 NP B32 189
Reaction [364] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-MM(>\pi^0)$ + $\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-MM(>N)$			
8.040 +- 0.040	3.999	0.087 +- 0.023	ADERHOLZ 68 NP B8 45
Reaction [365] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$			
8.000	3.989	0.003 +- 0.001	COGHEN 71 NP B32 189
Reaction [366] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-\pi^0$			
8.000	3.989	0.005 +- 0.001	COGHEN 71 NP B32 189
Reaction [367] $\pi^+p\to p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>\pi^0)$			
8.040 +- 0.040	3.999	0.000 +- 0.000	ADERHOLZ 68 NP B8 45
Reaction [368] $\pi^+p\to n\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-$			
8.000	3.989	0.002 +- 0.001	COGHEN 71 NP B32 189
Reaction [369] $\pi^+p\to\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>N)$			
8.040 +- 0.040	3.999	0.002 +- 0.001	ADERHOLZ 68 NP B8 45
Reaction [370] $\pi^+p\to\pi^+\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>N)$ + $p\pi^+\pi^+\pi^+\pi^+\pi^+\pi^-\pi^-\pi^-\pi^-MM(>\pi^0)$			
8.000	3.989	0.003 +- 0.001	ESKREYS 68 APP 34 159

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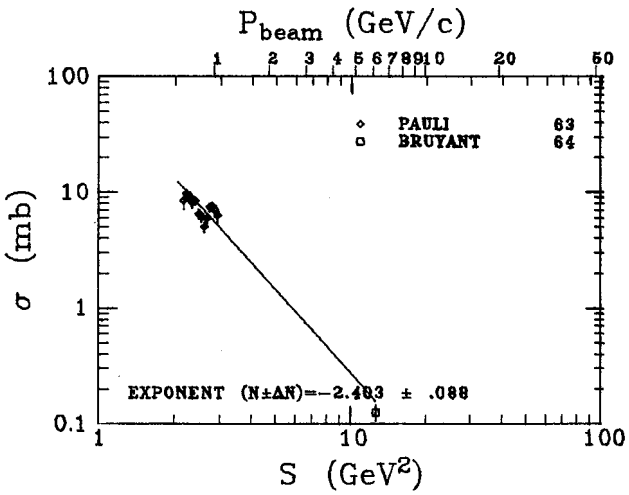
π^+n CROSS SECTIONS

Reaction [371] $\pi^+n\to\pi^0p$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
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	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	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	1.700	1.300 0.210 *+†	KRAEMER 64 PR 136 B496
1.122	1.740	1.130 0.210 *+†	KRAEMER 64 PR 136 B496
1.198	1.780	1.020 0.150 *+†	KRAEMER 64 PR 136 B496
1.275	1.820	0.850 0.150 *+†	KRAEMER 64 PR 136 B496
1.354	1.860	0.790 0.150 *+†	KRAEMER 64 PR 136 B496
6.000	3.490	0.126 0.020 $	BRUYANT 64 PL 12 278



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Reaction [372] $\pi^+n\to pMM(>\pi^0)$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	0.920 +- 0.100 +†	ARMENISE 70 NC 65A 637

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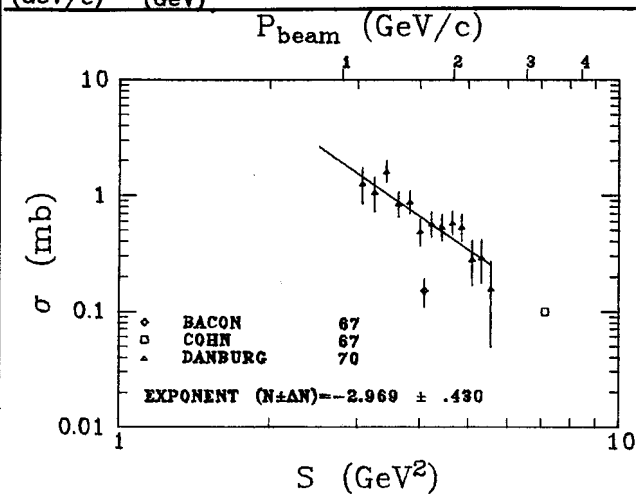
Reaction [373] $\pi^+n\to\eta p$, $\eta\to\pi^+\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
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 †	COHN 67 NP B1 57



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Reaction [374] $\pi^+n\to\eta p$, $\eta\to$ neutrals

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
6.000	3.490	0.035	BRUYANT 64 PL 12 278

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Reaction [375] $\pi^+n\to\eta p$, $\eta\to$ total

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.141 + 0.193 − 0.183	1.750	0.800 +- 0.200 +	KRAEMER 64 PR 136 B496

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Reaction [376] $\pi^+n\to\eta p$, $\eta\to\pi^+\pi^-\pi^0$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
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 B29 237

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Reaction [377] $\pi^+n\to\eta p$, $\eta\to\pi^+\pi^-\pi^0$ + $\pi^+\pi^-\gamma$ + <other mode>

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
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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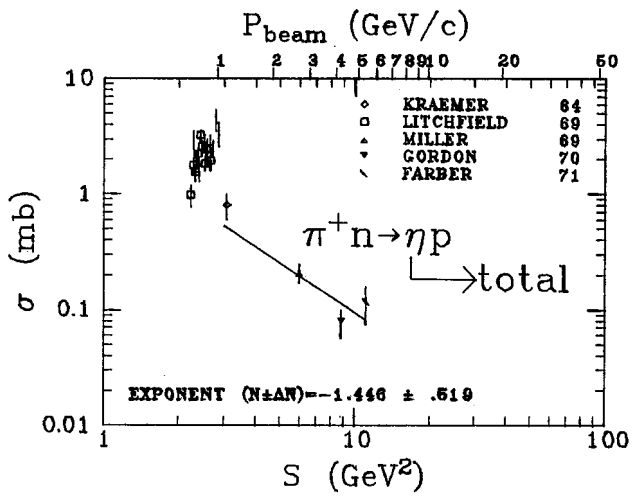
π^+n cross sections

Reaction [378]

$\pi^+n \to \eta p$
$\hookrightarrow$ neutrals + <other mode>

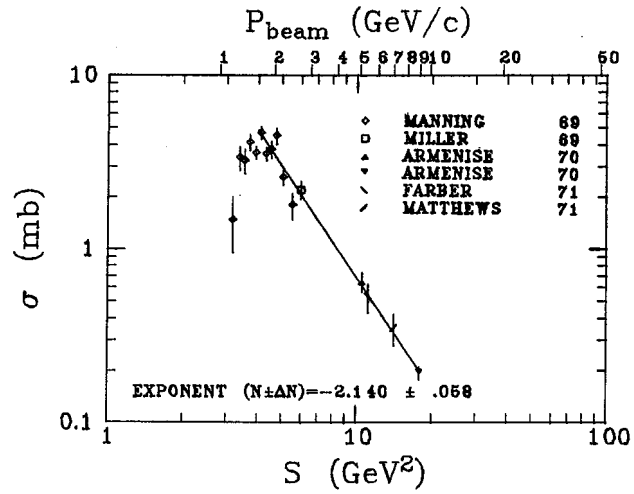
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
0.720 ± 0.016	1.510	2.980 ± 0.560 †	PAULI 63 SIENA CONF 1
0.753 0.017	1.530	1.970 0.420 †	PAULI 63 SIENA CONF 1
0.786 0.017	1.550	1.660 0.350 †	PAULI 63 SIENA CONF 1
0.820 0.017	1.570	2.620 0.420 †	PAULI 63 SIENA CONF 1
0.854 0.017	1.590	2.740 0.350 †	PAULI 63 SIENA CONF 1
0.888 0.017	1.610	2.570 0.420 †	PAULI 63 SIENA CONF 1
0.923 0.018	1.630	2.960 0.280 †	PAULI 63 SIENA CONF 1
0.959 0.018	1.650	2.520 0.420 †	PAULI 63 SIENA CONF 1
0.994 0.018	1.670	4.460 0.920 †	PAULI 63 SIENA CONF 1
1.030 0.018	1.690	3.380 0.780 †	PAULI 63 SIENA CONF 1



Reaction [379]

$\pi^+n \to \rho^0 p$
$\hookrightarrow \pi^+\pi^-$

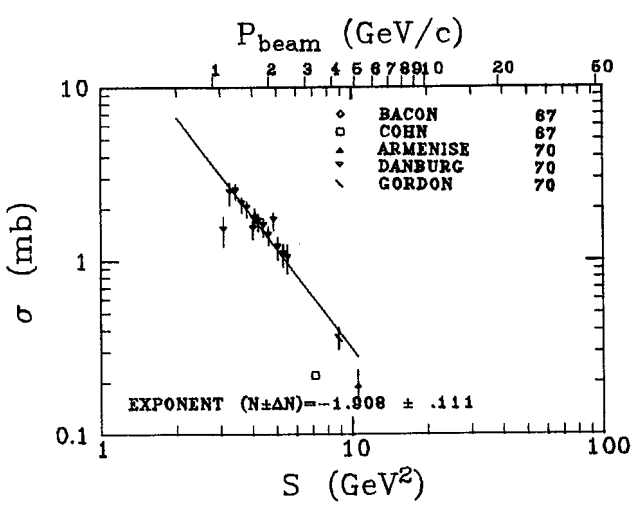
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.198 ± 0.038	1.780	1.476 ± 0.517 †	MANNING 69 UCRL 19339
1.299 + 0.064 − 0.063	1.832	3.376 0.526 †	MANNING 69 UCRL 19339
1.399 ± 0.035	1.882	3.241 0.515 †	MANNING 69 UCRL 19339
1.485 0.052	1.925	4.144 0.417 †	MANNING 69 UCRL 19339
1.590 0.053	1.975	3.587 0.288 †	MANNING 69 UCRL 19339
1.696 0.054	2.025	4.691 0.384 †	MANNING 69 UCRL 19339
1.806 0.056	2.075	3.550 0.317 †	MANNING 69 UCRL 19339
1.918 0.057	2.125	3.760 0.393 †	MANNING 69 UCRL 19339
2.033 0.058	2.175	4.493 0.451 †	MANNING 69 UCRL 19339
2.210 + 0.121 − 0.119	2.250	2.608 0.258 †	MANNING 69 UCRL 19339
2.455 + 0.127 − 0.124	2.350	1.793 0.306 †	MANNING 69 UCRL 19339
2.700	2.446	2.200 0.250 †	MILLER 69 PR 178 2061
5.100	3.239	0.650 0.083 †	ARMENISE 70 NC 65A 637
5.400	3.325	0.533 0.100 *†	FARBER 71 NP B29 237
7.000	3.749	0.350 0.070 †	MATTHEWS 71 NP B32 366
9.000	4.221	0.193 0.016 †	ARMENISE 70 NCL 4 199



Reaction [380]

$\pi^+n \to \omega p$
$\hookrightarrow \pi^+\pi^-\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.141	1.750	1.500 ± 0.290 †	DANBURG 70 PR D2 2564
1.236	1.800	2.460 0.350 †	DANBURG 70 PR D2 2564
1.334	1.850	2.510 0.250 †	DANBURG 70 PR D2 2564
1.434	1.900	2.110 0.200 †	DANBURG 70 PR D2 2564
1.537	1.950	1.990 0.190 †	DANBURG 70 PR D2 2564
1.643	2.000	1.520 0.170 †	DANBURG 70 PR D2 2564
1.680	2.017	1.800 0.200 *†	BACON 67 PR 157 1263
1.751	2.050	1.680 0.190 †	DANBURG 70 PR D2 2564
1.861	2.100	1.580 0.180 †	DANBURG 70 PR D2 2564
1.975	2.150	1.400 0.160 †	DANBURG 70 PR D2 2564
2.091	2.200	1.700 0.190 †	DANBURG 70 PR D2 2564
2.210	2.250	1.190 0.170 †	DANBURG 70 PR D2 2564
2.331	2.300	1.080 0.160 †	DANBURG 70 PR D2 2564
2.455	2.350	1.040 0.190 †	DANBURG 70 PR D2 2564
3.290	2.663	0.220 †	COHN 67 NP B1 57
4.190 ± 0.004	2.963	0.360 0.050 †	GORDON 70 ILL 1195
5.100	3.239	0.195 0.040 †	ARMENISE 70 NC 65A 637



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π^+n cross sections

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

Reaction [381] $\pi^+n\to\omega p$, $\omega\to\pi^+\pi^-\pi^0$ + <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

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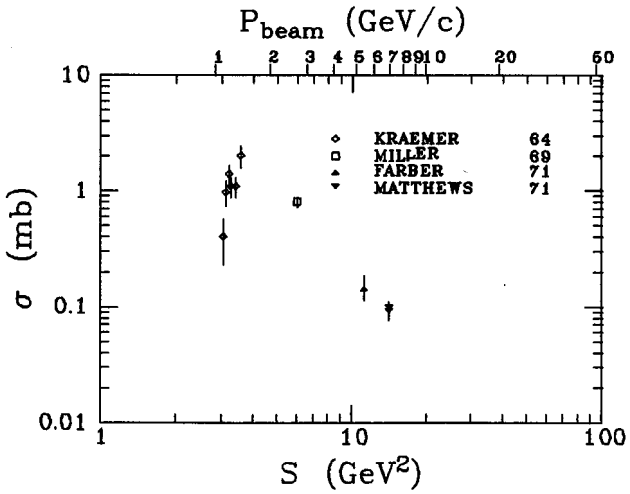
Reaction [382] $\pi^+n\to\omega p$, $\omega\to$total

1.109	1.733	0.400 +- 0.170	*+	KRAEMER	64	PR 136	B496
1.147	1.753	0.980 0.240	*+	KRAEMER	64	PR 136	B496
1.202	1.782	1.390 0.280	*+	KRAEMER	64	PR 136	B496
1.236	1.800	1.090 0.220	*+	KRAEMER	64	PR 136	B496
1.322	1.844	1.090 0.220	*+	KRAEMER	64	PR 136	B496
1.412	1.889	2.000 0.430	*+	KRAEMER	64	PR 136	B496



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

1.680	2.017	<.025	+†	BACON	67	PR 157	1263

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Reaction [384] $\pi^+n\to\eta'p$, $\eta'\to\gamma\gamma$

2.150	2.225	0.013 +- 0.008	†	BENSINGER	70	PL 33B	505

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Reaction [385] $\pi^+n\to\eta'p$, $\eta'\to\eta\pi^+\pi^-$, $\eta\to\pi^+\pi^-\pi^0$

3.100	2.595	[0.004 +- 0.001]†	MILLER	71			
5.100	3.239	0.004 0.001	†	PICCIARELL	70		

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

Reaction [386] $\pi^+n\to\eta'p$, $\eta'\to\eta\pi^0\pi^0$, $\eta\to\pi^0\pi^0\pi^0$

2.150	2.225	0.011 +- 0.006	†	BENSINGER	70	PL 33B	505

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Reaction [387] $\pi^+n\to\eta'p$, $\eta'\to\eta\pi^+\pi^-$, $\eta\to$neutrals

2.700	2.446	0.050 +- 0.020	†	MILLER	69	PR 178	2061

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Reaction [388] $\pi^+n\to\eta'p$, $\eta'\to$total

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

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Reaction [389] $\pi^+n\to\eta'p$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, $\eta\to\pi^+\pi^-\pi^0$ + $\pi^+\pi^-\gamma$

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

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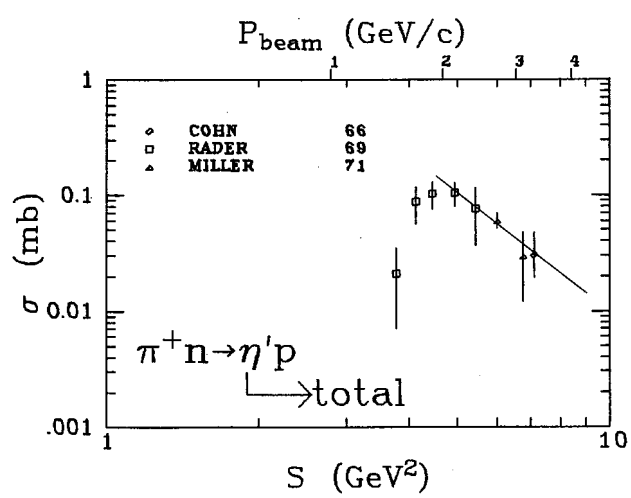
Reaction [390] $\pi^+n\to\eta'p$, $\eta'\to\eta\pi^+\pi^-$ + <other mode>, $\eta\to$neutrals+<other mode>

3.290	2.663	0.030 + 0.018 - 0.011	†	COHN	66	PL 21	347



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Reaction [391] $\pi^+n\to Hp$, $H\to\pi^+\pi^-\pi^0$

3.290	2.663	0.050	†	COHN	67	NP B1	57

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π^+n cross sections

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

Reaction [392] $\pi^+n \to S^*p$, $S^* \to K^+K^-$

5.400	3.325	<.008	FARBER	71	NP B29	237

Reaction [393] $\pi^+n \to S^*p$, $S^* \to K^0\bar{K}^0$

5.100	3.239	<.008 †	METTEL	70		

Reaction [394] $\pi^+n \to \phi p$, $\phi \to K^+K^-$

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] $\pi^+n \to \phi p$, $\phi \to$ 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] $\pi^+n \to \phi p$, $\phi \to K^0_SK^0_L + K^+K^-$

5.100	3.239	<.004 †	METTEL	70		

Reaction [397] $\pi^+n \to A_1{}^0p$, $A_1{}^0 \to \pi^+\pi^-\pi^0$

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] $\pi^+n \to fp$, $f \to \pi^+\pi^-$

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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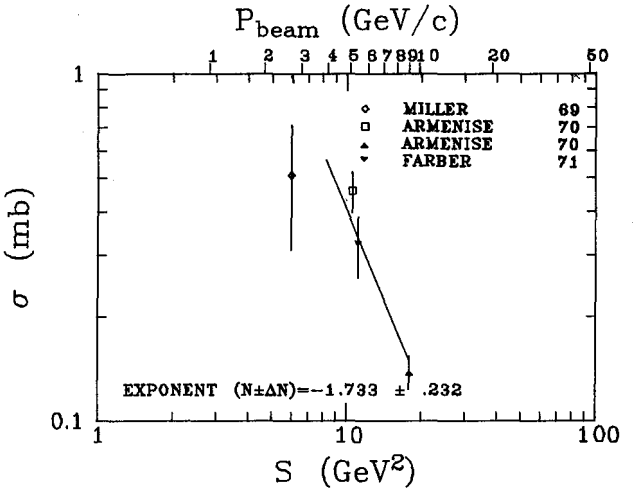


Reaction [399] $\pi^+n \to fp$, $f \to$ neutrals

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] $\pi^+n \to fp$, $f \to K^0\bar{K}^0$

5.100	3.239	<.012 †	METTEL	70		

Reaction [401] $\pi^+n \to fp$, $f \to \pi^+\pi^+\pi^-\pi^-$

5.100	3.239	0.009 +- 0.001 †	PICCIARELL	70		

Reaction [402] $\pi^+n \to D(1285)p$, $D \to \delta(970)^+\pi^- + \delta(970)^-\pi^+$, $\delta \to \eta\pi$, $\eta \to \pi^+\pi^-\pi^0$ + <All other mode>

2.700	2.446	44.000 +- 8.000 †	CAMPBELL	69	PRL 22	1204

Reaction [403] $\pi^+n \to D(1285)p$, $D \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

3.100	2.595	[0.012 +- 0.002]†	MILLER	71		

Reaction [404] $\pi^+n \to D(1285)p$, $D \to \eta\pi^+\pi^- + \eta\pi^0\pi^0$, $\eta \to$ All

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)	$E_{C.M.}$ (GeV)	σ (mb)		References

Reaction [405] $\pi^+n \to A_2^0 p$, $A_2^0 \to \pi^+\pi^-\pi^0$

5.100	3.239	0.147 +- 0.030	†	ARMENISE	70	NC 65A	637
5.400	3.325	0.050 0.020	†	FARBER	71	NP B29	237

Reaction [406] $\pi^+n \to A_2^0 p$, $A_2^0 \to \rho^{+/-}\pi^{-/+}$

2.700	2.446	0.140 +- 0.080	†	MILLER	69	PR 178	2061
3.290	2.663	0.180	†	COHN	67	NP B1	57
3.650	2.787	0.190 0.050	†	BENSON	66	PRL 16	1177

Reaction [407] $\pi^+n \to A_2^0 p$, $A_2^0 \to K^0\bar{K}^0$

5.100	3.239	0.014 +- 0.006	†	METTEL	70			

Reaction [408] $\pi^+n \to fp + A_2^0 p$, $f \to K^+K^-$, $A_2^0 \to K^+K^-$

5.400	3.325	0.024 +- 0.010	†	FARBER	71	NP B29	237

Reaction [409] $\pi^+n \to Ep$, $E \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

3.100	2.595	[0.010 +- 0.002]†		MILLER	71			

Reaction [410] $\pi^+n \to Ep$, $E \to \eta\pi^+\pi^- + \eta\pi^0\pi^0$, $\eta \to$ total

2.700	2.446	0.027 +- 0.015	†	MILLER	71			
3.100	2.595	0.058 0.020	†	MILLER	71			

Reaction [411] $\pi^+n \to f'p$, $f' \to K^*(890)\bar{K} + K\bar{K}^*(890)$

5.100	3.239	0.006 +- 0.002	†	METTEL	70			

Reaction [412] $\pi^+n \to f'p$, $f' \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

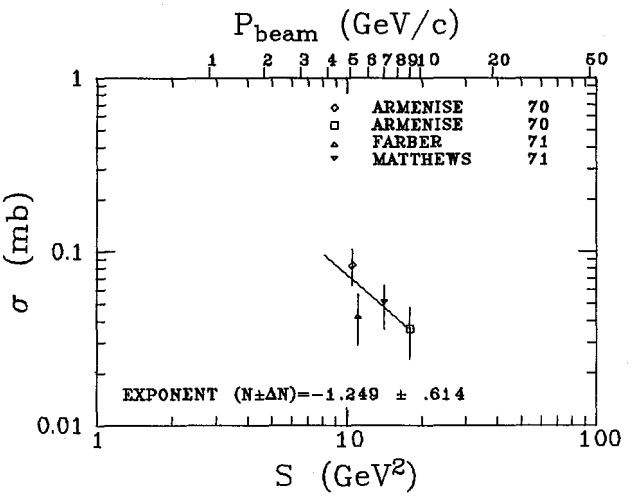
3.100	2.595	[0.010 +- 0.002]†		MILLER	71			

Reaction [413] $\pi^+n \to f'p$, $f' \to \eta\pi^+\pi^- + \eta\pi^0\pi^0$, $\eta \to$ total

3.100	2.595	0.049 +- 0.018	†	MILLER	71			

Reaction [414] $\pi^+n \to g^0 p$, $g^0 \to \pi^+\pi^-$

5.100	3.239	0.083 +- 0.019	†	ARMENISE	70	NC 65A	637
5.400	3.325	0.043 0.014	*†	FARBER	71	NP B29	237
7.000	3.749	0.050 0.014	†	MATTHEWS	71	NP B33	1
9.000	4.221	0.036 0.012	†	ARMENISE	70	NCL 4	199



Reaction [415] $\pi^+n \to g^0 p$, $g^0 \to K_S^0K_L^0 + K^+K^-$

5.100	3.239	<.007	†	METTEL	70			

Reaction [416] $\pi^+n \to g^0 p$, $g^0 \to K^*(890)\bar{K} + K\bar{K}^*(890)$

5.100	3.239	0.006 +- 0.002	†	METTEL	70			

Reaction [417] $\pi^+n \to g^0 p$, $g^0 \to \rho^0\pi^+\pi^-$

5.100	3.239	0.011 +- 0.001	†	PICCIARELL	70			

Reaction [418] $\pi^+n \to g^0 p$, $g^0 \to A_2^+\pi^- + A_2^-\pi^+$, $A_2^+ \to \pi^+\pi^+\pi^-$, $A_2^- \to \pi^+\pi^-\pi^-$

5.100	3.239	0.003 +- 0.001	†	PICCIARELL	70			

Reaction [419] $\pi^+n \to g^0 p$, $g^0 \to \pi^+\pi^+\pi^-\pi^-$

5.100	3.239	0.021 +- 0.002	†	PICCIARELL	70			

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$\pi^+ n$ cross sections

Reaction [420] $\pi^+ n \to \Phi(1675) p$, $\Phi \to \rho^0 \pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	0.053 +- 0.020 †	ARMENISE 68 PL 26B 336

Reaction [421] $\pi^+ n \to \Phi(1675) p$, $\Phi \to \pi^+ \pi^- \pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
6.950	3.737	0.033 +- 0.009 †	MATTHEWS 71 PR D3 2561

Reaction [422] $\pi^+ n \to A_2^+ n$, $A_2^+ \to K^+ \bar{K}^0$

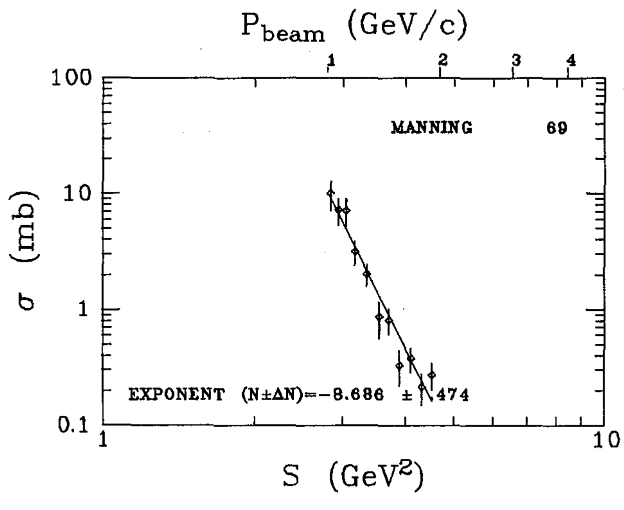
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	0.018 +- 0.004 †	METTEL 70

Reaction [423] $\pi^+ n \to g^+ n$, $g^+ \to K^+ K^0_S$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	<.001 †	METTEL 70

Reaction [424] $\pi^+ n \to \pi^- \Delta(1238)^{++}$, $\Delta^{++} \to p \pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
1.021 +- 0.027	1.685	10.001 +- 2.868 †	MANNING 69 UCRL 19339
1.076 0.028	1.715	7.231 1.899 †	MANNING 69 UCRL 19339
1.132 0.028	1.745	7.164 1.921 †	MANNING 69 UCRL 19339
1.198 0.038	1.780	3.137 0.730 †	MANNING 69 UCRL 19339
1.299 + 0.064 − 0.063	1.832	2.018 0.421 †	MANNING 69 UCRL 19339
1.399 +- 0.035	1.882	0.865 0.299 †	MANNING 69 UCRL 19339
1.485 0.052	1.925	0.812 0.194 †	MANNING 69 UCRL 19339
1.590 0.053	1.975	0.330 0.109 †	MANNING 69 UCRL 19339
1.696 0.054	2.025	0.377 0.091 †	MANNING 69 UCRL 19339
1.806 0.056	2.075	0.212 0.063 †	MANNING 69 UCRL 19339
1.918 0.057	2.125	0.273 0.071 †	MANNING 69 UCRL 19339



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Reaction [425] $\pi^+ n \to \rho^0 \Delta(1238)^+$, $\Delta^+ \to p \pi^0$, $\rho^0 \to \pi^+ \pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
4.190 +- 0.004	2.963	0.043 +- 0.030 †	GORDON 70 ILL 1195
5.400	3.325	0.060 0.022 †	FARBER 71 NP B29 237

Reaction [426] $\pi^+ n \to g^0 \Delta(1238)^+$, $\Delta^+ \to p \pi^0$, $g^0 \to \pi^+ \pi^+ \pi^- \pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	0.003 +- 0.001 †	PICCIARELL 70

Reaction [427] $\pi^+ n \to \pi^+ \Delta(1238)^0$, $\Delta^0 \to p \pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
2.700	2.446	1.800 +- 0.200 †	MILLER 69 PR 178 2061

Reaction [428] $\pi^+ n \to \rho^+ \Delta(1238)^0$, $\Delta^0 \to p \pi^-$, $\rho^+ \to \pi^+ \pi^0$

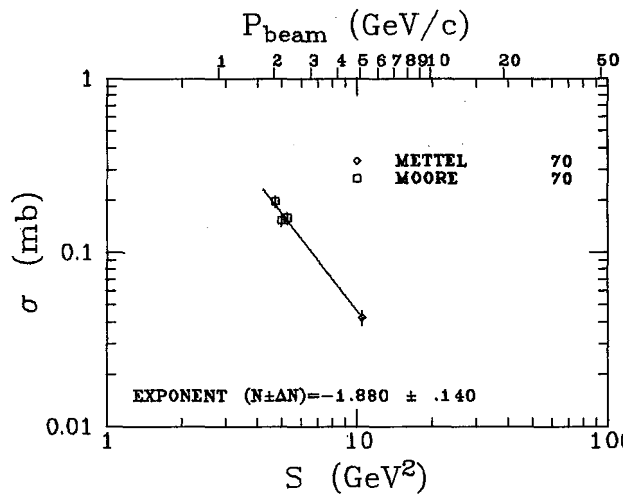
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
4.190 +- 0.004	2.963	0.069 +- 0.010 †	GORDON 70 ILL 1195
5.100	3.239	0.365 0.080 †	GHIDINI 68 NC 58A 524
5.400	3.325	0.055 0.020 †	FARBER 71 NP B29 237

Reaction [429] $\pi^+ n \to A_2^+ \Delta(1238)^0$, $\Delta^0 \to p \pi^-$, $A_2^+ \to \pi^+ \pi^+ \pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
5.100	3.239	0.010 +- 0.002 †	PICCIARELL 70

Reaction [430] $\pi^+ n \to K^+ \Lambda$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References
2.042	2.179	0.197 +- 0.015	MOORE 70
2.178	2.237	0.153 0.012	MOORE 70
2.330	2.300	0.158 0.012	MOORE 70
5.100	3.239	0.042 0.004	METTEL 70



π^+n cross sections

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

Reaction [431] $\pi^+n \to K^+\Sigma^0$

2.178	2.237	0.118	+-	0.011		MOORE	70
5.100	3.239	0.023		0.002		METTEL	70

****

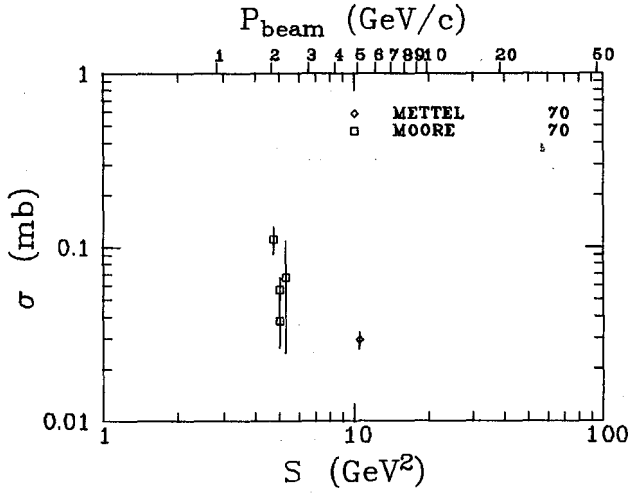
Reaction [432] $\pi^+n \to K^+\Lambda + K^+\Sigma^0$

5.100	3.239	0.065	+-	0.001		METTEL	70

****

Reaction [433] $\pi^+n \to K^*(890)^+\Lambda$, $K^*(890)^+ \to K^0\pi^+$

2.042	2.179	[0.110	+-	0.020]	†	MOORE	70
2.178	2.237	[0.038		0.011]	†	MOORE	70
2.184	2.239	[0.057		0.010]	†	MOORE	70
2.330	2.300	[0.067		0.042]	†	MOORE	70
5.100	3.239	0.029		0.003	†	METTEL	70



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

5.100	3.239	0.044	+-	0.005	†	METTEL	70

****

Reaction [435] $\pi^+n \to K^*(890)^+\Lambda$, $K^*(890)^+ \to K^+\pi^0$

2.042	2.179	[0.031	+-	0.019]	†	MOORE	70
2.178	2.237	[0.025		0.010]	†	MOORE	70
2.184	2.239	[0.043		0.007]	†	MOORE	70
2.330	2.300	[0.040		0.001]	†	MOORE	70
5.100	3.239	[0.015		0.003]	†	METTEL	70

****

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

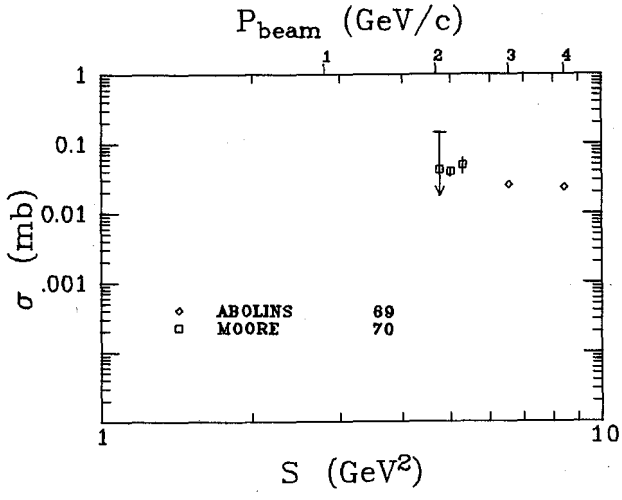
Reaction [436] $\pi^+n \to K^*(890)^+\Sigma^0$, $K^*(890)^+ \to K^0\pi^+$

2.184	2.239	[0.047	+-	0.004]	†	MOORE	70

****

Reaction [437] $\pi^+n \to K^+Y^*(1385)^0$, $Y^*(1385)^0 \to \Lambda\pi^0$

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



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

2.184	2.239	[0.047	+-	0.030]	†	MOORE	70

****

Reaction [439] $\pi^+n \to K^+Y^*(1405)$, $Y^*(1405) \to \Sigma^+\pi^- + \Sigma^-\pi^+$

2.184	2.239	[0.038	+-	0.011]	†	MOORE	70
5.100	3.239	0.018		0.004	†	METTEL	70

****

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

2.184	2.239	[0.026	+-	0.010]	†	MOORE	70

****

Reaction [441] $\pi^+n \to K^+Y^*(1405)$, $Y^*(1405) \to \Sigma^-\pi^+$

2.184	2.239	[0.012	+-	0.005]	†	MOORE	70

****

π^+n cross sections

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

Reaction [442] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to pK^-$

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] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to$ 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] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to pK^-$ +<other mode>

2.700	2.446	0.090 +- 0.020	†	GARFINKEL	69	PR 186	1400

****

Reaction [445] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to \Sigma^+\pi^- + \Sigma^-\pi^+$

2.184	2.239	[0.023 +- 0.009	]†	MOORE	70
5.100	3.239	0.018	0.005 †	METTEL	70

****

Reaction [446] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to \Sigma^-\pi^+$

2.184	2.239	[0.003 +- 0.002	]†	MOORE	70

****

Reaction [447] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to \Sigma^+\pi^-$

2.184	2.239	[0.020 +- 0.008	]†	MOORE	70

****

Reaction [448] $\pi^+n \to K^+Y^*(1520)$, $Y^* \to nK^0$

2.184	2.239	[0.018 +- 0.003	]†	MOORE	70

****

Reaction [449] $\pi^+n \to K^0\Sigma^+$

2.178	2.237	0.072 +- 0.016		MOORE	70
5.100	3.239	0.003	0.001	METTEL	70

****

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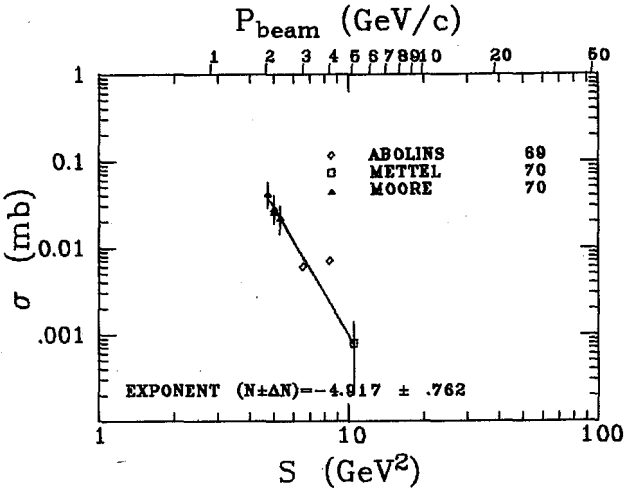
Reaction [450] $\pi^+n \to K^0Y^*(1385)^+$, $Y^* \to \Lambda\pi^+$

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		



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Reaction [451] $\pi^+n \to K^*(890)^0\Sigma^+$, $K^* \to K^+\pi^-$

2.184	2.239	[0.042 +- 0.011	]†	MOORE	70

****

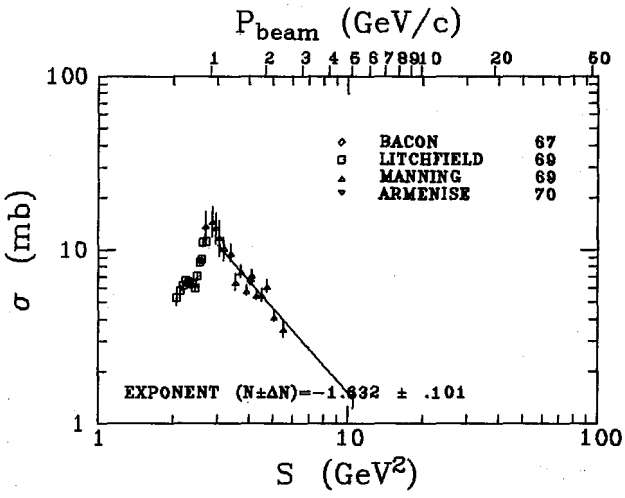
Reaction [452] $\pi^+n \to p\pi^+\pi^-$

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 − 0.061	1.635	13.950	2.850		MANNING	69	UCRL	19339
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 − 0.063	1.832	9.700	1.130		MANNING	69	UCRL	19339
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 − 0.119	2.250	4.180	0.290		MANNING	69	UCRL	19339
2.455	+ 0.127 − 0.124	2.350	3.550	0.380		MANNING	69	UCRL	19339
5.100		3.239	1.390	0.170	+	ARMENISE	70	NC 65A	637

See plot on the following page.

π^+n cross sections

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



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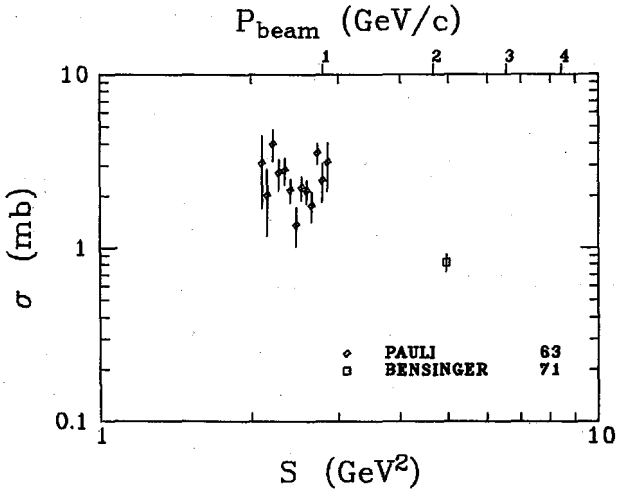
Reaction [453] $\pi^+n\to p\pi^0\pi^0$

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

Reaction [454] $\pi^+n\to p\rho^+\pi^-$, $\rho^+\to\pi^+\pi^0$

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 B29 237

****

Reaction [455] $\pi^+n\to p\rho^0\pi^0$, $\rho^0\to\pi^+\pi^-$

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 B29 237

****

Reaction [456] $\pi^+n\to p\rho^-\pi^+$, $\rho^-\to\pi^-\pi^0$

5.100	3.239	0.428	+-	0.015		MURRO	71	NC 3A 721
5.400	3.325	<.040			†	FARBER	71	NP B29 237

****

Reaction [457] $\pi^+n\to p\delta(970)^+\pi^- + p\delta(970)^-\pi^+$, $\delta\to\eta\pi$, $\eta\pi\to$ total

2.700	2.446	0.072	+-	0.015	†	MILLER	71	
3.100	2.595	0.030		0.025	†	MILLER	71	

****

Reaction [458] $\pi^+n\to pA_2^-\pi^+$, $A_2^-\to\pi^+\pi^-\pi^-$

3.100	2.595	0.013	+-	0.004	†	MILLER	71	

****

Reaction [459] $\pi^+n\to n\rho^0\pi^+$, $\rho^0\to\pi^+\pi^-$

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] $\pi^+n\to\Delta(1238)^{++}\pi^-\pi^0$, $\Delta^{++}\to p\pi^+$

5.400	3.325	<.050			†	FARBER	71	NP B29 237

****

Reaction [461] $\pi^+n\to\Delta(1238)^+\pi^+\pi^-$, $\Delta^+\to p\pi^0$

2.700	2.446	<.750			†	MILLER	69	PR 178 2061
5.400	3.325	0.349	+-	0.085	†	FARBER	71	NP B29 237

****

Reaction [462] $\pi^+n\to\Delta(1238)^0\pi^+\pi^0$, $\Delta^0\to p\pi^-$

2.700	2.446	<.750			†	MILLER	69	PR 178 2061
5.400	3.325	0.198	+-	0.038	†	FARBER	71	NP B29 237

****

π^+n cross sections

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

Reaction [463] $\pi^+n \to \Delta(1238)^-\pi^+\pi^+$, $\Delta(1238)^- \to n\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.700	2.446	0.650 +- 0.100 †	MILLER	69	PR 178 2061

****

Reaction [464] $\pi^+n \to pK^+K^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
1.696 + 0.165 − 0.159	2.025	0.038 +- 0.007 †	DAVIES	70	PR D 2 506
2.033 + 0.177 − 0.171	2.175	0.067 0.010 †	DAVIES	70	PR D 2 506
2.392 + 0.189 − 0.183	2.325	0.102 0.019 †	DAVIES	70	PR D 2 506
5.400	3.325	0.137 0.027	FARBER	71	NP B29 237

****

Reaction [465] $\pi^+n \to pK^0_SK^0_S$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.015 +- 0.003	MOORE	70	
2.178	2.237	0.011 0.003	MOORE	70	
2.330	2.300	0.018 0.004	MOORE	70	
5.100	3.239	0.028 0.009	METTEL	70	

****

Reaction [466] $\pi^+n \to pK^0_SK^0_L$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.011 +- 0.004	MOORE	70	
2.178	2.237	0.020 0.005	MOORE	70	
2.330	2.300	0.022 0.005	MOORE	70	
5.100	3.239	0.056 0.013	METTEL	70	

****

Reaction [467] $\pi^+n \to pK^0\bar{K}^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
5.100	3.239	0.112 +- 0.027	METTEL	70	

****

Reaction [468] $\pi^+n \to nK^+K^0_S$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
5.100	3.239	0.087 +- 0.018	METTEL	70	

****

Reaction [469] $\pi^+n \to nK^+\bar{K}^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.019 +- 0.006	MOORE	70	
2.178	2.237	0.030 0.007	MOORE	70	
2.330	2.300	0.056 0.010	MOORE	70	

****

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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.170 +- 0.013	MOORE	70	
2.178	2.237	0.131 0.011	MOORE	70	
2.330	2.300	0.156 0.013	MOORE	70	
5.100	3.239	0.070 0.006	METTEL	70	

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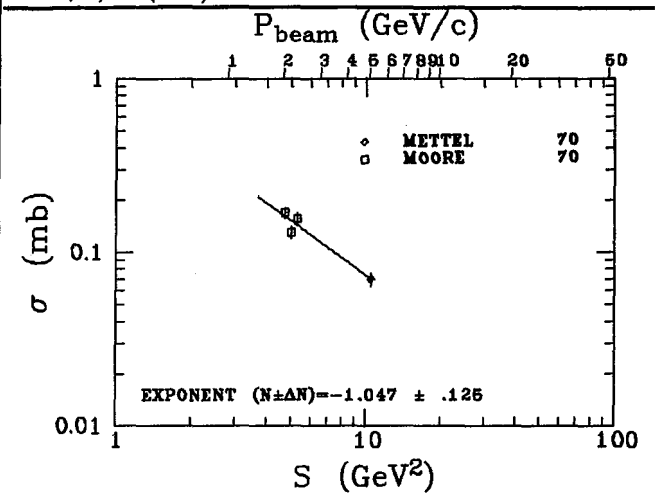

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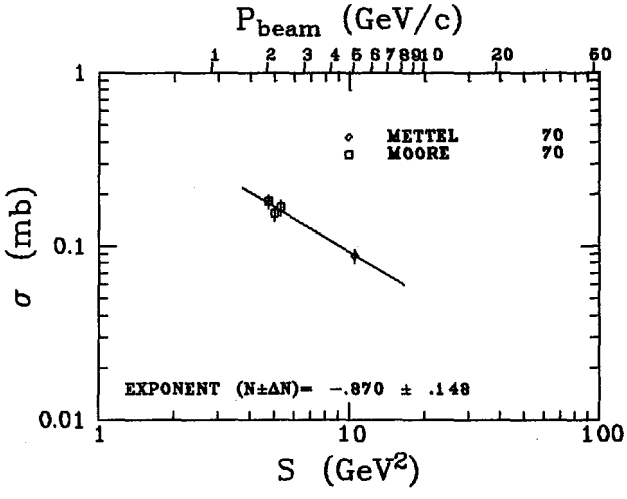
Reaction [471] $\pi^+n \to \Lambda K^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.181 +- 0.016	MOORE	70	
2.178	2.237	0.155 0.015	MOORE	70	
2.330	2.300	0.167 0.017	MOORE	70	
5.100	3.239	0.088 0.009	METTEL	70	



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

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References
2.042	2.179	0.060 +- 0.010	MOORE	70	
2.178	2.237	0.062 0.011	MOORE	70	
2.330	2.300	0.100 0.016	MOORE	70	

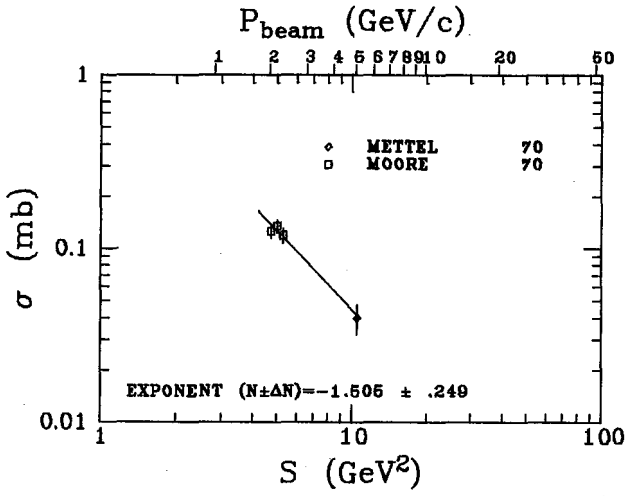
****

π^+n cross sections

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

Reaction [473] $\pi^+n\to\Sigma^+K^+\pi^-$

2.042	2.179	0.126 +- 0.011	MOORE	70
2.178	2.237	0.135 0.012	MOORE	70
2.330	2.300	0.119 0.012	MOORE	70
5.100	3.239	0.040 0.008	METTEL	70



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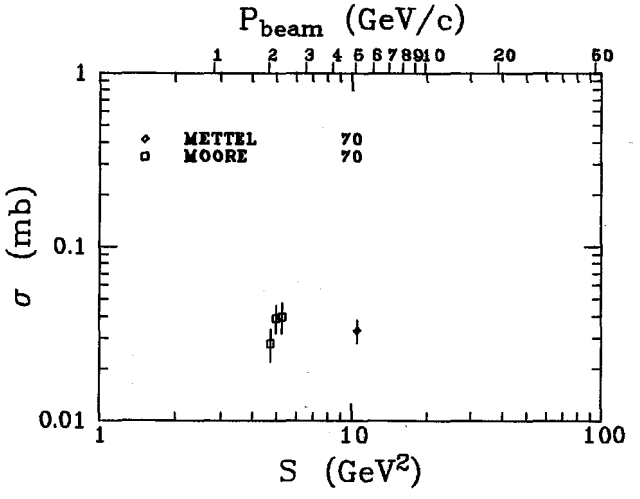
Reaction [474] $\pi^+n\to\Sigma^+K^0\pi^0$

2.178	2.237	0.049 +- 0.015	MOORE	70
5.100	3.239	0.027 0.009	METTEL	70

****

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

2.042	2.179	0.028 +- 0.006	MOORE	70
2.178	2.237	0.039 0.007	MOORE	70
2.330	2.300	0.040 0.008	MOORE	70
5.100	3.239	0.033 0.005	METTEL	70



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Reaction [476] $\pi^+n\to Y^*(1385)^+K^+\pi^-$, $Y^*(1385)^+\to\Lambda\pi^+$

2.184	2.239	[0.010 +- 0.004]†	MOORE	70

****

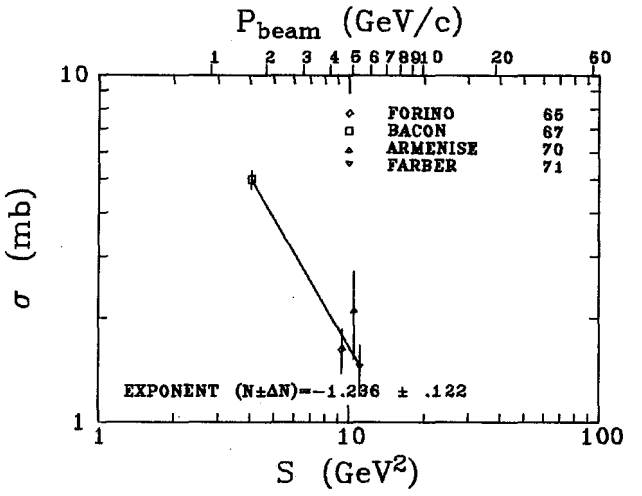
Reaction [477] $\pi^+n\to Y^*(1385)^-K^+\pi^+$, $Y^*(1385)^-\to\Lambda\pi^-$

2.184	2.239	[0.008 +- 0.001]†	MOORE	70

****

Reaction [478] $\pi^+n\to p\pi^+\pi^-\pi^0$

1.680	2.017	5.000 +- 0.300 +†	BACON	67	PR	157	1263
4.500	3.060	1.620 0.240 †	FORINO	65	PL	19	68
5.100	3.239	2.120 0.600 +†	ARMENISE	70	NC	65A	637
5.400	3.325	1.430 0.240	FARBER	71	NP	B29	237



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Reaction [479] $\pi^+n\to p\pi^+\pi^-MM(>\pi^0)$

1.680	2.017	0.700 +- 0.100 +†	BACON	67	PR	157	1263
4.500	3.060	0.650 0.100 †	FORINO	64	PL	11	347

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Reaction [480] $\pi^+n\to p\eta\pi^+\pi^-$, $\eta\to$total

2.700	2.446	0.250 +- 0.041 †	MILLER	71
3.100	2.595	0.137 0.024 †	MILLER	71

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

2.700	2.446	0.250 +- 0.040 †	MILLER	71
3.100	2.595	0.135 0.018 †	MILLER	71
5.100	3.239	0.040 0.002 †	PICCIARELL	70

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π^+n cross sections

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

Reaction [482] $\pi^+n \to p\omega\pi^+\pi^-$, $\omega \to \pi^+\pi^-\pi^0$

2.700	2.446	0.139 +- 0.021	†	MILLER	71	
3.100	2.595	0.377 0.046	†	MILLER	71	
5.100	3.239	0.020 0.001	†	PICCIARELL	70	

Reaction [483] $\pi^+n \to n\pi^+\pi^+\pi^-$

4.500	3.060	1.250 +- 0.200	†	FORINO	65	PL 19 68

Reaction [484] $\pi^+n \to \Delta(1238)^{++}\pi^+\pi^-\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

2.700	2.446	0.205 +- 0.034	†	MILLER	71	
3.100	2.595	0.218 0.048	†	MILLER	71	
5.100	3.239	0.039 0.003	†	PICCIARELL	70	

Reaction [485] $\pi^+n \to \Delta(1238)^0\pi^+\pi^+\pi^-$, $\Delta(1238)^0 \to p\pi^-$

5.100	3.239	0.022 +- 0.002	†	PICCIARELL	70	

Reaction [486] $\pi^+n \to pK^+K^0_S\pi^-$

5.100	3.239	0.092 +- 0.016		METTEL	70	

Reaction [487] $\pi^+n \to pK^0_SK^0_S\pi^0$

5.100	3.239	0.013 +- 0.005		METTEL	70	

Reaction [488] $\pi^+n \to pK^-K^0_S\pi^+$

5.100	3.239	0.065 +- 0.013		METTEL	70	

Reaction [489] $\pi^+n \to \Lambda K^+\pi^+\pi^-$

2.042	2.179	0.009 +- 0.003		MOORE	70	
2.178	2.237	0.034 0.006		MOORE	70	
2.330	2.300	0.048 0.008		MOORE	70	

Reaction [490] $\pi^+n \to \Lambda K^+\pi^+\pi^- + \Sigma^0K^+\pi^+\pi^-$

5.100	3.239	0.127 +- 0.011		METTEL	70	

Reaction [491] $\pi^+n \to \Lambda K^0\pi^+\pi^0$

2.042	2.179	0. +- 0.000		MOORE	70	
2.178	2.237	0.016 0.008		MOORE	70	
2.330	2.300	0.035 0.013		MOORE	70	
5.100	3.239	0.115 0.025		METTEL	70	

Reaction [492] $\pi^+n \to \Sigma^+K^+\pi^-\pi^0$

5.100	3.239	0.045 +- 0.007		METTEL	70	

Reaction [493] $\pi^+n \to \Sigma^+K^0\pi^+\pi^-$

5.100	3.239	0.060 +- 0.014		METTEL	70	

Reaction [494] $\pi^+n \to \Sigma^-K^+\pi^+\pi^0$

5.100	3.239	0.044 +- 0.006		METTEL	70	

Reaction [495] $\pi^+n \to \Sigma^-K^0\pi^+\pi^+$

5.100	3.239	0.058 +- 0.013		METTEL	70	

Reaction [496] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-$

1.104	1.730	0.013 +- 0.009		RADER	69	UCRL 19431
1.314	1.840	0.032 0.011		RADER	69	UCRL 19431
1.516	1.940	0.059 0.008		RADER	69	UCRL 19431
1.680	2.017	0.220 0.040	††	BACON	67	PR 157 1263
1.686	2.020	0.124 0.013		RADER	69	UCRL 19431
1.884	2.110	0.198 0.019		RADER	69	UCRL 19431
2.138	2.220	0.337 0.029		RADER	69	UCRL 19431
2.405	2.330	0.429 0.049		RADER	69	UCRL 19431

Reaction [497] $\pi^+n \to pK^+K^0_S\pi^-\pi^0$

5.100	3.239	0.018 +- 0.005		METTEL	70	

Reaction [498] $\pi^+n \to pK^0K^0_S\pi^+\pi^-$

5.100	3.239	0.093 +- 0.016		METTEL	70	

Reaction [499] $\pi^+n \to pK^0_SK^0_S\pi^+\pi^-$

5.100	3.239	0.023 +- 0.008		METTEL	70	

Reaction [500] $\pi^+n \to pK^-K^0_S\pi^+\pi^0$

5.100	3.239	0.013 +- 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] $\pi^+n \to nK^+K^0_S\pi^+\pi^-$			
5.100	3.239	0.103 +- 0.017	METTEL 70
Reaction [502] $\pi^+n \to nK^-K^0_S\pi^+\pi^+$			
5.100	3.239	0.046 +- 0.011	METTEL 70
Reaction [503] $\pi^+n \to \Lambda K^+\pi^+\pi^-\pi^0$			
5.100	3.239	0.140 +- 0.015	METTEL 70
Reaction [504] $\pi^+n \to \Lambda K^0\pi^+\pi^+\pi^-$			
5.100	3.239	0.123 +- 0.010	METTEL 70
Reaction [505] $\pi^+n \to \Sigma^+K^0\pi^+\pi^-\pi^0$			
5.100	3.239	0.030 +- 0.015	METTEL 70
Reaction [506] $\pi^+n \to \Sigma^-K^0\pi^+\pi^+\pi^0$			
5.100	3.239	0.025 +- 0.011	METTEL 70
Reaction [507] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-\pi^0$			
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] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-\pi^0 + p\pi^+\pi^+\pi^-\pi^-\gamma$			
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] $\pi^+n \to p\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$			
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] $\pi^+n \to pK^0_SK^0_S\pi^+\pi^-\pi^0$			
5.100	3.239	0.038 +- 0.017	METTEL 70
Reaction [511] $\pi^+n \to \Lambda K^0\pi^+\pi^+\pi^-\pi^0$			
5.100	3.239	0.038 +- 0.016	METTEL 70
Reaction [512] $\pi^+n \to$ Strange particles			
5.100	3.239	1.900	METTEL 70
Reaction [513] $\pi^+n \to K\bar{K}$ + Anything			
5.100	3.239	0.850	METTEL 70
Reaction [514] $\pi^+n \to$ Hyperon K + Anything			
5.100	3.239	1.050	METTEL 70

π^+d CROSS SECTIONS

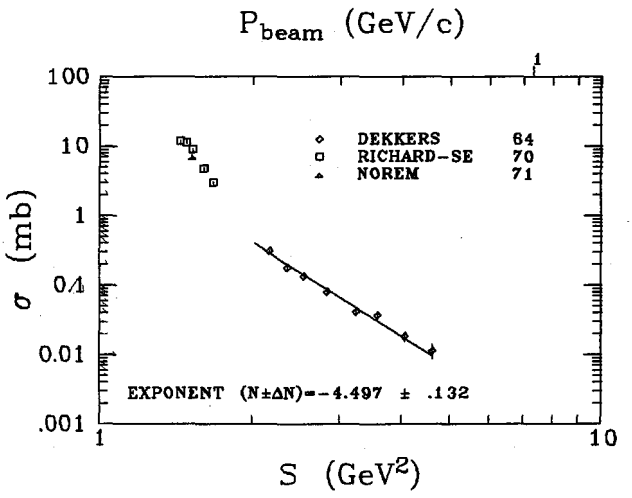
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)	References

Reaction [515] $\pi^+d \to$ 1 prong + 2 prongs

0.290		2.178	157.8	+- 7.000		NOREM	71	NP B33	512

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

0.245 +- 0.003		2.143	11.800	+- 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		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] $\pi^+d \to A_1^+d$, $A_1^+ \to \rho^0\pi^+$

8.000		5.792	0.150	+- 0.020	†	CNOPS	69	PL 29B	45

Reaction [518] $\pi^+d \to A_2^+d$, $A_2^+ \to \rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

6.950		5.441	0.010		†	HARRISON	72	PR D5	2730

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

5.400		4.878	0.306	+- 0.075	†	DEERY	71	PR D 3	635

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

Reaction [520] $\pi^+d \to (p_s)p\pi^0$

0.290		2.178	32.500	+- 3.000		NOREM	71	NP B33	512

Reaction [521] $\pi^+d \to (n_s)pA_1.5$, $A_1.5 \to \rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

5.100		4.761	0.027	+- 0.013	†	ARMENISE	69	NCL 2	501

Reaction [522] $\pi^+d \to (n_s)pA_2^+$, $A_2^+ \to \rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

5.100		4.761	0.164	+- 0.050	†	ARMENISE	69	NCL 2	501

Reaction [523] $\pi^+d \to (n_s)pA_3^+$, $A_3^+ \to \pi^+\pi^+\pi^-$

5.100		4.761	0.150	+- 0.045	†	ARMENISE	69	NCL 2	501

Reaction [524] $\pi^+d \to (n_s)pA_3^+$, $A_3^+ \to \pi^+$, $\to \pi^+\pi^-$

5.100		4.761	0.114	+- 0.034	†	ARMENISE	69	NCL 2	501

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

4.500		4.519	0.133	+- 0.014	†	FORINO	65	PL 19	65

Reaction [526] $\pi^+d \to (p_s)pMM(>\pi^0)$

9.000		6.107	0.735		†	ARMENISE	70	NCL 4	199

Reaction [527] $\pi^+d \to ppMM(>\pi^0)$

4.500		4.519	1.080	+- 0.060	†	FORINO	65	PL 19	65
6.070		5.129	0.810	0.080	†	BRUYANT	64	PL 10	232

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

4.500		4.519	0.062	+- 0.010	†	FORINO	65	PL 19	65

Reaction [529] $\pi^+d \to pp\epsilon$, $\epsilon \to \pi^0\pi^0$

4.500		4.519	0.032	+- 0.007	†	FORINO	65	PL 19	65

π^+d cross sections

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

Reaction [530] $\pi^+d \to pp\rho^0$, $\rho^0 \to \pi^+\pi^-$

4.500	4.519	0.544 +- 0.030 †	FORINO	65	PL	19	65

Reaction [531] $\pi^+d \to (p_s)p\eta'$, $\eta' \to \eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

3.290	3.986	0.030	BUGG	68	NP	B6	246

Reaction [532] $\pi^+d \to ppf$, $f \to \pi^0\pi^0$

4.500	4.519	0.149 +- 0.015 †	FORINO	65	PL	19	65
6.070	5.129	0.115 0.020 †	BRUYANT	64	PL	10	232

Reaction [533] $\pi^+d \to ppf$, $f \to \pi^+\pi^-$

4.500	4.519	0.285 +- 0.021 †	FORINO	65	PL	19	65

Reaction [534] $\pi^+d \to (p_s)pg^0$, $g^0 \to \pi^+\pi^-$

7.000	5.458	0.042 +- 0.012 †	MATTHEWS	71	NP	B33	1

Reaction [535] $\pi^+d \to ppg^0$, $g^0 \to \pi^+\pi^-$

6.000	5.103	0.061 +- 0.008 †	GOLDBERG	65	PL	17	354
6.000	5.103	0.035 0.009 †	GOLDBERG	65	PL	17	354

Reaction [536] $\pi^+d \to pp\Phi(1675)$, $\Phi \to \rho^0\pi^0 + \rho^+\pi^- + \rho^-\pi^+$

8.000	5.792	0.019 +- 0.005 †	KENYON	69	PRL	23	146

Reaction [537] $\pi^+d \to p\Lambda K^+$

1.120	2.787	0.368 +- 0.055 †	DAVIES	70	PR D	2	506
1.300	2.905	0.475 0.055 †	DAVIES	70	PR D	2	506
1.530	3.049	0.292 0.020 †	DAVIES	70	PR D	2	506
1.580	3.080	0.248 0.050 †	DAVIES	70	PR D	2	506
1.700	3.152	0.246 0.020 †	DAVIES	70	PR D	2	506
1.860	3.245	0.167 0.025 †	DAVIES	70	PR D	2	506
2.150	3.408	0.121 0.025 †	DAVIES	70	PR D	2	506
2.370	3.527	0.101 0.030 †	DAVIES	70	PR D	2	506

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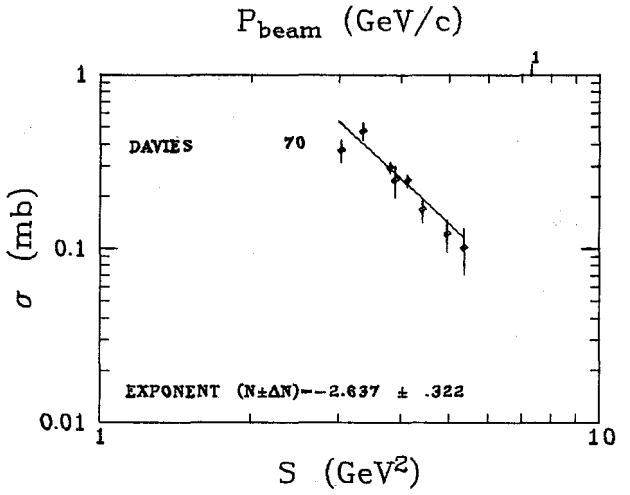
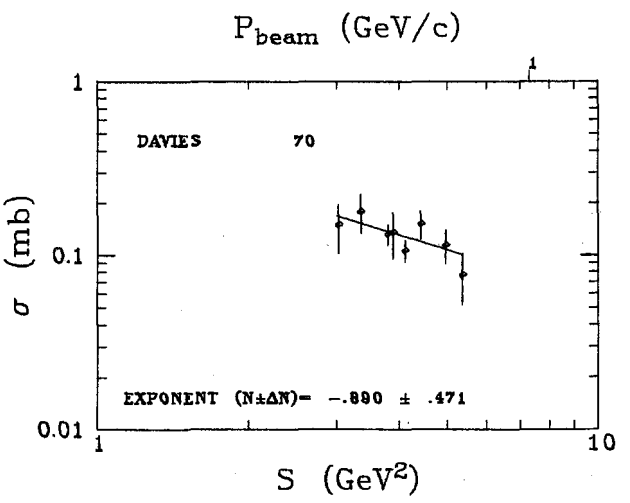


Reaction [538] $\pi^+d \to p\Sigma^0K^+$

1.120	2.787	0.149 +- 0.045 †	DAVIES	70	PR D	2	506
1.300	2.905	0.178 0.045 †	DAVIES	70	PR D	2	506
1.530	3.049	0.132 0.018 †	DAVIES	70	PR D	2	506
1.580	3.080	0.135 0.040 †	DAVIES	70	PR D	2	506
1.700	3.152	0.106 0.015 †	DAVIES	70	PR D	2	506
1.860	3.245	0.152 0.027 †	DAVIES	70	PR D	2	506
2.150	3.408	0.114 0.025 †	DAVIES	70	PR D	2	506
2.370	3.527	0.077 0.025 †	DAVIES	70	PR D	2	506



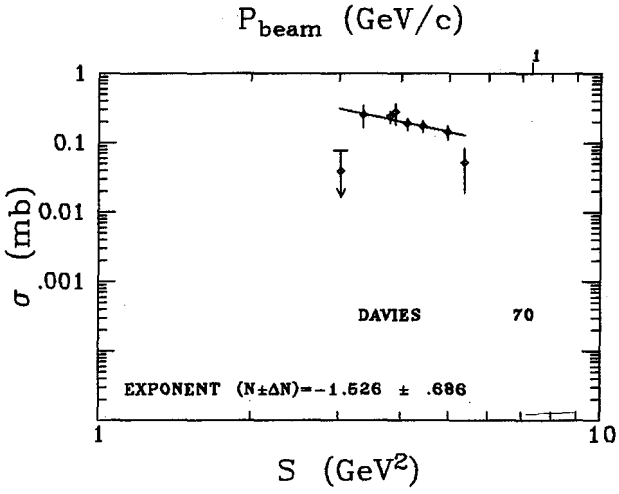
Reaction [539] $\pi^+d \to p\Sigma^+K^0$

1.120	2.787	0.039 +- 0.039 †	DAVIES	70	PR D	2	506
1.300	2.905	0.254 0.090 †	DAVIES	70	PR D	2	506
1.530	3.049	0.234 0.045 †	DAVIES	70	PR D	2	506
1.580	3.080	0.270 0.090 †	DAVIES	70	PR D	2	506
1.700	3.152	0.188 0.039 †	DAVIES	70	PR D	2	506
1.860	3.245	0.174 0.033 †	DAVIES	70	PR D	2	506
2.150	3.408	0.142 0.033 †	DAVIES	70	PR D	2	506
2.370	3.527	0.052 0.033 †	DAVIES	70	PR D	2	506

See plot on the following page.

π^+d cross sections

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



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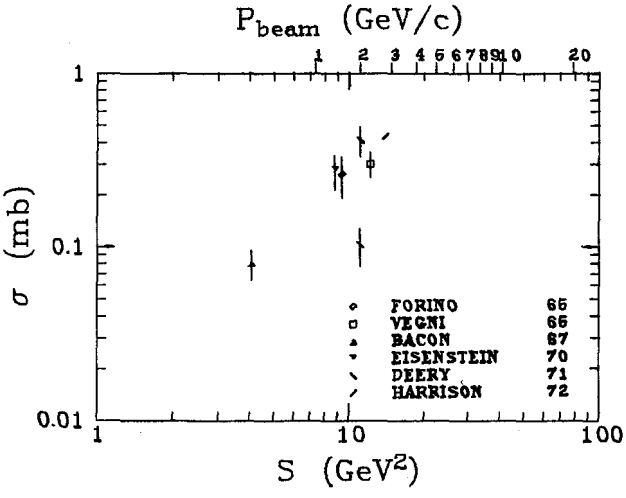
Reaction [540] $\pi^+d\to d\pi^+\pi^+\pi^-$

1.680	3.140	0.080	+-	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	4.878	0.102		0.025	†	DEERY	71	PR D 3	635
6.000	5.103	0.300		0.050		VEGNI	65	PL 19	526
6.950	5.441	0.430			†	HARRISON	72	PR D5	2730



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Reaction [541] $\pi^+d\to(p_s)p\pi^+\pi^-$

2.700	3.698	3.420	+-	0.300	†	MILLER	69	PR 178	2061
9.000	6.107	0.660			†	ARMENISE	70	NCL 4	199

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Reaction [542] $\pi^+d\to pp\pi^+\pi^-$

4.500	4.519	1.560	+-	0.040	†	FORINO	65	PL 19	65

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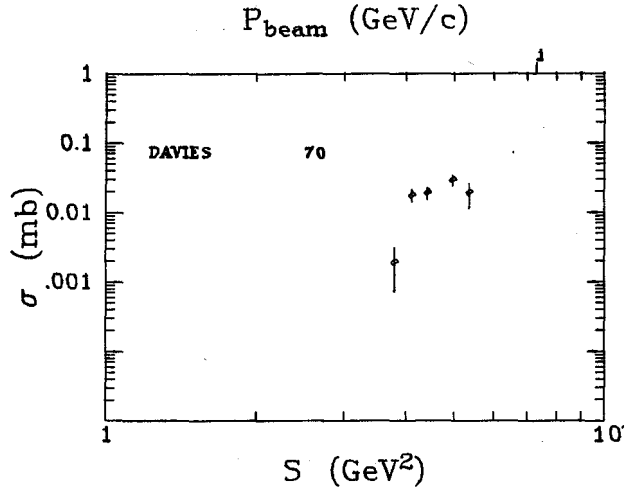
P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References

Reaction [543] $\pi^+d\to ppK^0_SK^0_L$

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
1.860	3.245	0.019		0.004	†	DAVIES	70	PR D 2	506
2.150	3.408	0.029		0.005	†	DAVIES	70	PR D 2	506
2.370	3.527	0.019		0.008	†	DAVIES	70	PR D 2	506



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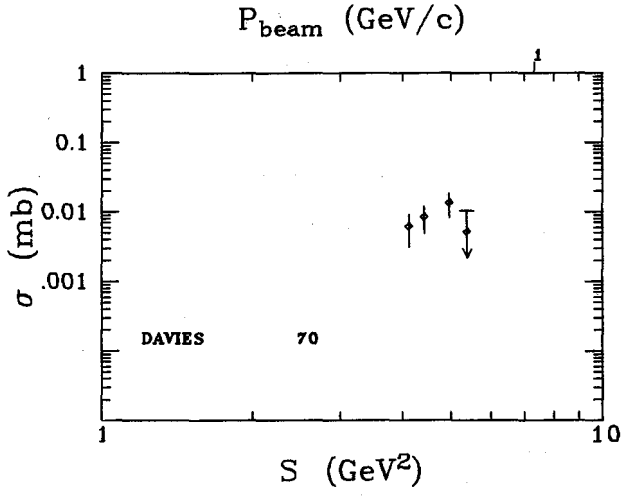
Reaction [544] $\pi^+d\to ppK^0_SK^0_S$

1.700	3.152	0.006	+-	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



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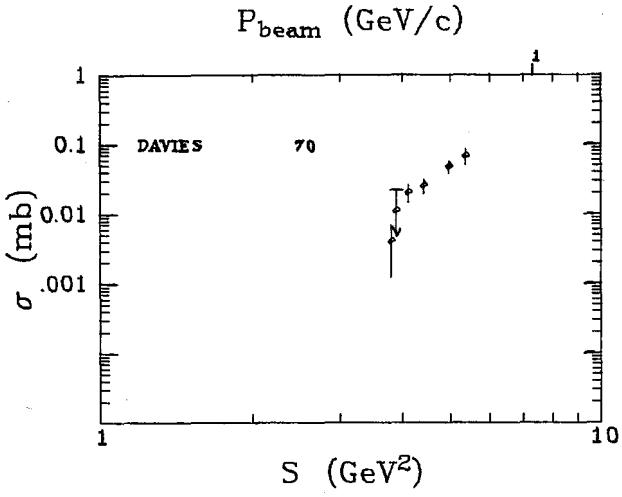
π^+d cross sections

Reaction [545] $\pi^+d \to pnK^+\bar{K}^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References				
1.530	3.049	0.004	+-	0.003	†	DAVIES	70	PR D 2	506
1.580	3.080	0.011		0.011	†	DAVIES	70	PR D 2	506
1.700	3.152	0.020		0.006	†	DAVIES	70	PR D 2	506
1.860	3.245	0.025		0.006	†	DAVIES	70	PR D 2	506
2.150	3.408	0.048		0.009	†	DAVIES	70	PR D 2	506
2.370	3.527	0.067		0.018	†	DAVIES	70	PR D 2	506



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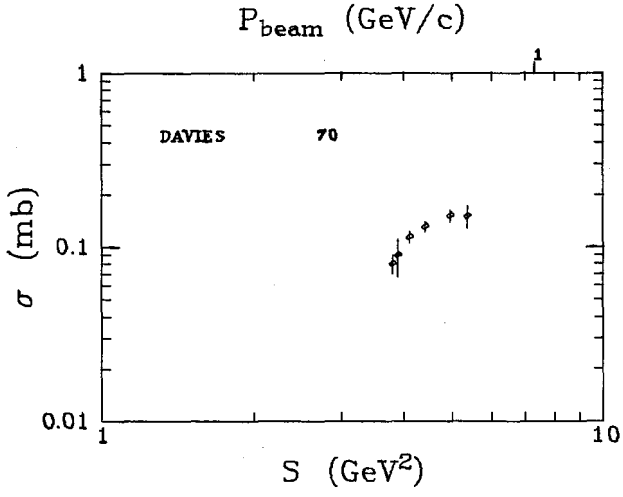
Reaction [546] $\pi^+d \to p\Lambda K^+\pi^0$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References				
1.530	3.049	0.079	+-	0.010	†	DAVIES	70	PR D 2	506
1.580	3.080	0.089		0.022	†	DAVIES	70	PR D 2	506
1.700	3.152	0.114		0.009	†	DAVIES	70	PR D 2	506
1.860	3.245	0.131		0.009	†	DAVIES	70	PR D 2	506
2.150	3.408	0.151		0.012	†	DAVIES	70	PR D 2	506
2.370	3.527	0.150		0.022	†	DAVIES	70	PR D 2	506



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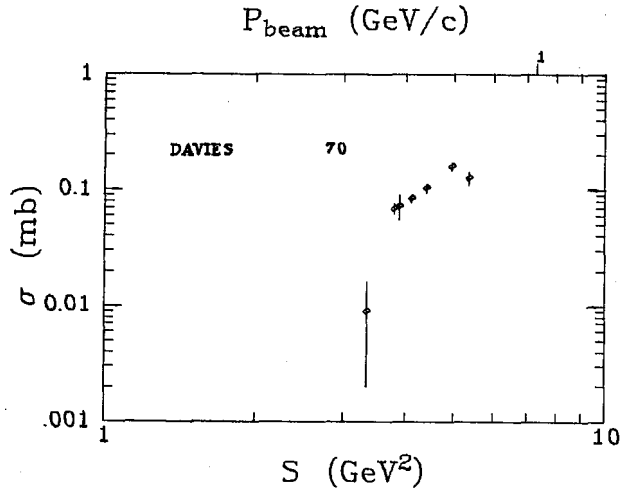
Reaction [547] $\pi^+d \to p\Lambda K^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References				
1.300	2.905	0.009	+-	0.007	†	DAVIES	70	PR D 2	506
1.530	3.049	0.069		0.007	†	DAVIES	70	PR D 2	506
1.580	3.080	0.073		0.018	†	DAVIES	70	PR D 2	506
1.700	3.152	0.084		0.007	†	DAVIES	70	PR D 2	506
1.860	3.245	0.104		0.008	†	DAVIES	70	PR D 2	506
2.150	3.408	0.160		0.010	†	DAVIES	70	PR D 2	506
2.370	3.527	0.126		0.017	†	DAVIES	70	PR D 2	506



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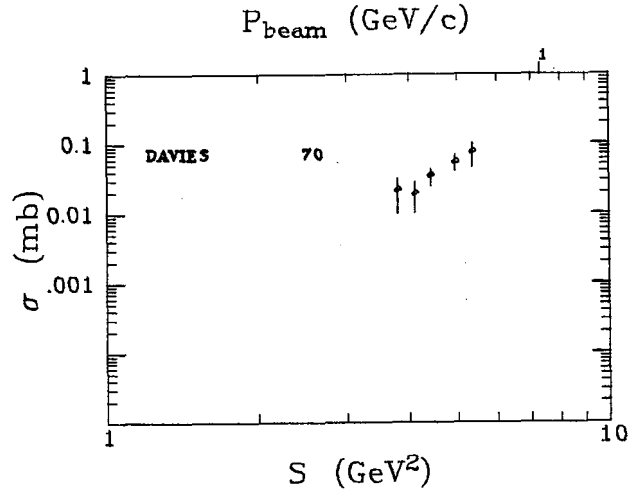
Reaction [548] $\pi^+d \to p\Sigma^0K^0\pi^+$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)				References				
1.530	3.049	0.021	+-	0.011	†	DAVIES	70	PR D 2	506
1.580	3.080	0.		0.018	†	DAVIES	70	PR D 2	506
1.700	3.152	0.019		0.009	†	DAVIES	70	PR D 2	506
1.860	3.245	0.034		0.010	†	DAVIES	70	PR D 2	506
2.150	3.408	0.055		0.015	†	DAVIES	70	PR D 2	506
2.370	3.527	0.074		0.029	†	DAVIES	70	PR D 2	506



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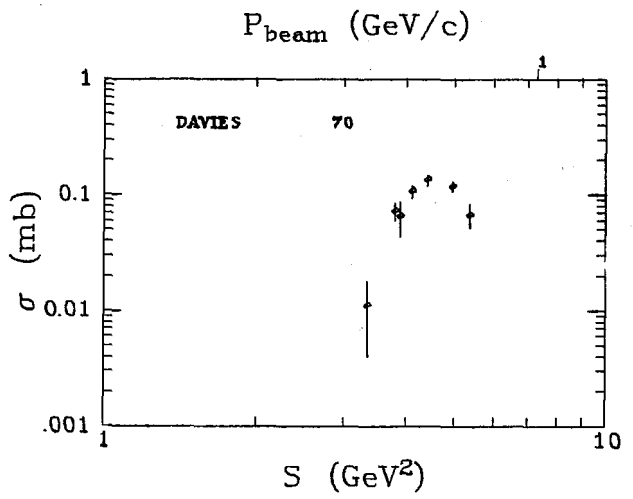
* DATA READ FROM GRAPH
\+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
[ ] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+d cross sections

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

Reaction [549] $\pi^+d \to n\Lambda K^+\pi^+$

1.300	2.905	0.011	+-	0.007	†	DAVIES	70	PR D 2	506
1.530	3.049	0.072		0.012	†	DAVIES	70	PR D 2	506
1.580	3.080	0.065		0.022	†	DAVIES	70	PR D 2	506
1.700	3.152	0.108		0.012	†	DAVIES	70	PR D 2	506
1.860	3.245	0.134		0.014	†	DAVIES	70	PR D 2	506
2.150	3.408	0.118		0.012	†	DAVIES	70	PR D 2	506
2.370	3.527	0.067		0.016	†	DAVIES	70	PR D 2	506



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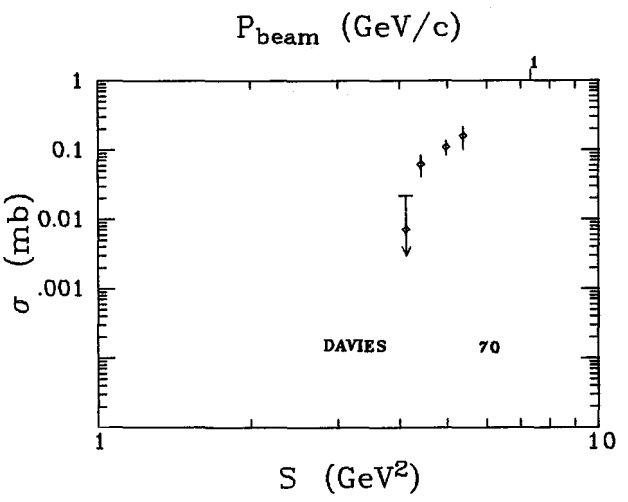
Reaction [550] $\pi^+d \to n\Sigma^+K^0\pi^+$

1.700	3.152	0.007	+-	0.015	†	DAVIES	70	PR D 2	506
1.860	3.245	0.062		0.021	†	DAVIES	70	PR D 2	506
2.150	3.408	0.110		0.026	†	DAVIES	70	PR D 2	506
2.370	3.527	0.160		0.060	†	DAVIES	70	PR D 2	506



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Reaction [551] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^-$

2.700	3.698	1.860	+-	0.180	†	MILLER	69	PR 178	2061

****

Reaction [552] $\pi^+d \to pn\pi^+\pi^+\pi^-$

1.680	3.140	3.270	+-	0.140		BACON	67	PR 157	1263

****

Reaction [553] $\pi^+d \to (p_s)p\pi^+\pi^-\pi^0$

2.700	3.698	4.220	+-	0.370	†	MILLER	69	PR 178	2061
4.190 +- 0.004	4.388	2.090		0.110		GORDON	70	ILL 1195	
9.000	6.107	0.994			†	ARMENISE	70	NCL 4	199

****

Reaction [554] $\pi^+d \to (p_s)p\pi^+\pi^-MM(>\pi^0)$

2.700	3.698	1.610	+-	0.210	†	MILLER	69	PR 178	2061

****

Reaction [555] $\pi^+d \to (p_s)p\eta\pi^+\pi^-$, $\eta \to \pi^+\pi^-\pi^0$

2.700	3.698	0.070	+-	0.005	†	MILLER	71		
3.100	3.895	0.038		0.003	†	MILLER	71		

****

Reaction [556] $\pi^+d \to (p_s)nK^0_SK^0_S\pi^+ + (n_s)pK^0_SK^0_S\pi^+$

5.100	4.761	0.018	+-	0.006		METTEL	70		

****

Reaction [557] $\pi^+d \to p\Lambda K^+\pi^+\pi^-$

1.700	3.152	0.010	+-	0.003	†	DAVIES	70	PR D 2	506
1.860	3.245	0.018		0.004	†	DAVIES	70	PR D 2	506
2.150	3.408	0.047		0.007	†	DAVIES	70	PR D 2	506
2.370	3.527	0.058		0.015	†	DAVIES	70	PR D 2	506

****

Reaction [558] $\pi^+d \to p\Lambda K^0\pi^+\pi^0$

1.700	3.152	0.003	+-	0.003	†	DAVIES	70	PR D 2	506
1.860	3.245	0.010		0.006	†	DAVIES	70	PR D 2	506
2.150	3.408	0.028		0.010	†	DAVIES	70	PR D 2	506
2.370	3.527	0.063		0.024	†	DAVIES	70	PR D 2	506

****

Reaction [559] $\pi^+d \to (p_s)p\pi^+\pi^+\pi^-\pi^-$

2.700	3.698	[0.388	+-	0.012	]	MILLER	71		
3.100	3.895	[0.376		0.010	]	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

****

* DATA READ FROM GRAPH
\+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
[ ] CALCULATED BY US FROM DATA IN THIS ARTICLE

π^+d cross sections

Reaction [560] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-$

P_{beam} (GeV/c)	$E_{C.M.}$ (GeV)	σ (mb)			References		
1.100	2.774	0.007	+-	0.005 †	RADER	69	UCRL 19431
1.300	2.905	0.026		0.008 †	RADER	69	UCRL 19431
1.530	3.049	0.060		0.007 †	RADER	69	UCRL 19431
1.580	3.080	0.101		0.020 †	RADER	69	UCRL 19431
1.700	3.152	0.132		0.012 †	RADER	69	UCRL 19431
1.860	3.245	0.194		0.017 †	RADER	69	UCRL 19431
2.150	3.408	0.339		0.027 †	RADER	69	UCRL 19431
2.370	3.527	0.443		0.055 †	RADER	69	UCRL 19431

****

Reaction [561] $\pi^+d \to (p_s)\Delta(1238)^{++}\pi^+\pi^-\pi^-\pi^0$, $\Delta(1238)^{++} \to p\pi^+$

3.290	3.986	0.040			BUGG	68	NP B6 246

****

Reaction [562] $\pi^+d \to (p_s)p\pi^+\pi^+\pi^-\pi^-\pi^0$

2.700	3.698	[0.359	+-	0.011]	MILLER	71	
3.100	3.895	[0.520		0.011]	MILLER	71	
3.290	3.986	0.220			BUGG	68	NP B6 246
5.100	4.761	0.588		0.013	PICCIARELL	70	NP B6 246

****

Reaction [563] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-MM(>\pi^0)$

1.530	3.049	0.001	+-	0.001 †	RADER	69	UCRL 19431
1.700	3.152	0.001		0.001 †	RADER	69	UCRL 19431
1.860	3.245	0.004		0.001 †	RADER	69	UCRL 19431
2.150	3.408	0.009		0.002 †	RADER	69	UCRL 19431
2.370	3.527	0.008		0.004 †	RADER	69	UCRL 19431

****

Reaction [564] $\pi^+d \to pp\pi^+\pi^+\pi^-\pi^-\pi^0 + pp\pi^+\pi^+\pi^-\pi^-\gamma$

1.530	3.049	0.009	+-	0.002 †	RADER	69	UCRL 19431
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

****

Reaction [565] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^-$

2.700	3.698	[0.030	+-	0.003]	MILLER	71	
3.100	3.895	[0.070		0.004]	MILLER	71	

****

Reaction [566] $\pi^+d \to pn\pi^+\pi^+\pi^+\pi^-\pi^-$

1.530	3.049	0.002	+-	0.001 †	RADER	69	UCRL 19431
1.700	3.152	0.006		0.002 †	RADER	69	UCRL 19431
1.860	3.245	0.011		0.002 †	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 [567] $\pi^+d \to (p_s)\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

2.700	3.698	[0.003	+-	0.001]	MILLER	71	
3.100	3.895	[0.003		0.001]	MILLER	71	

****

Reaction [568] $\pi^+d \to p\pi^+\pi^+\pi^+\pi^-\pi^-MM(>N)$

1.700	3.152	0.001	+-	0.001	RADER	69	UCRL 19431
1.860	3.245	0.002		0.001	RADER	69	UCRL 19431
2.150	3.408	0.009		0.002	RADER	69	UCRL 19431
2.370	3.527	0.018		0.006	RADER	69	UCRL 19431

****

Reaction [569] $\pi^+d \to (p_s)n\pi^+\pi^+\pi^+\pi^-\pi^- + (n_s)p\pi^+\pi^+\pi^+\pi^-\pi^-$

0.	2.015	0.001	+-	0.001 †	RADER	69	UCRL 19431
0.040	2.020	0.004		0.002 †	RADER	69	UCRL 19431
0.201	2.110	0.012		0.004 †	RADER	69	UCRL 19431
0.344	2.220	0.039		0.007 †	RADER	69	UCRL 19431
0.485	2.330	0.086		0.018 †	RADER	69	UCRL 19431

****

Reaction [570] $\pi^+d \to (p_s)nK^0_SK^0_S\pi^+\pi^+\pi^- + (n_s)pK^0_SK^0_S\pi^+\pi^+\pi^-$

5.100	4.761	0.046	+-	0.019	METTEL	70

****

* DATA READ FROM GRAPH
\+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
$ SEE DATA LISTING FOR POSSIBLE SYSTEMATIC ERRORS
[ ] CALCULATED BY US FROM DATA IN THIS ARTICLE

Section B2.

DIFFERENTIAL CROSS SECTIONS

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

1. $\pi^+ p$ Interactions

Differential cross section for $\pi^+ p \to \rho^+ p$, $\rho^+ \to \pi^+ \pi^0$

BEAM MOMENTUM= 2.077 +- .030

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	*†

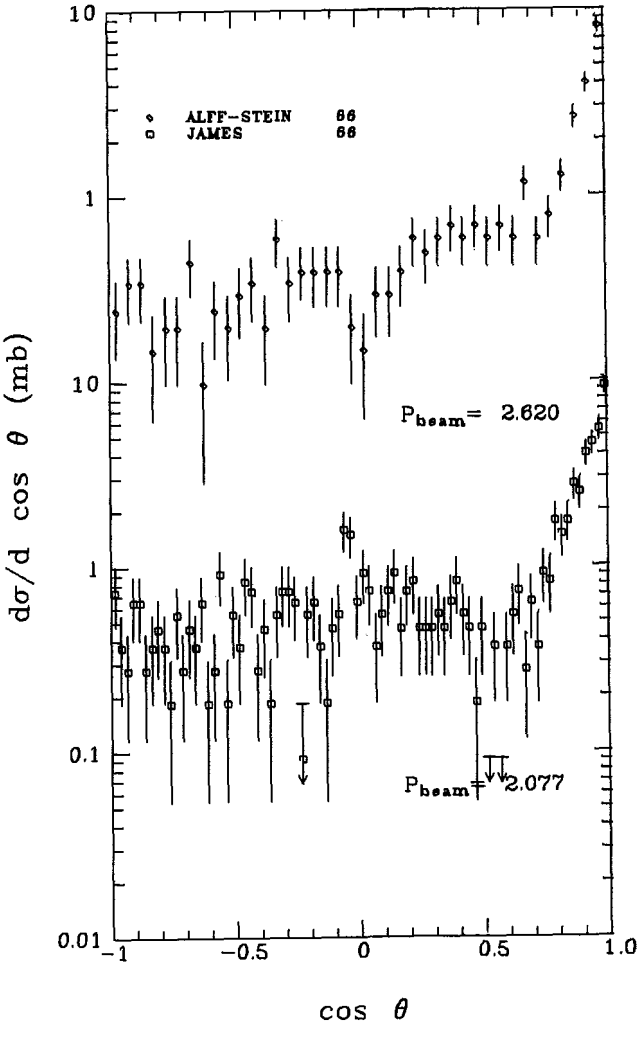
JAMES 66.....PR 142 896 HBC 20

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

BEAM MOMENTUM= 2.62 + .28 , - .27

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+ p \to \eta \Delta(1238)^{++}$

$\eta \to p\pi^+$

$\eta \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.95

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	*†

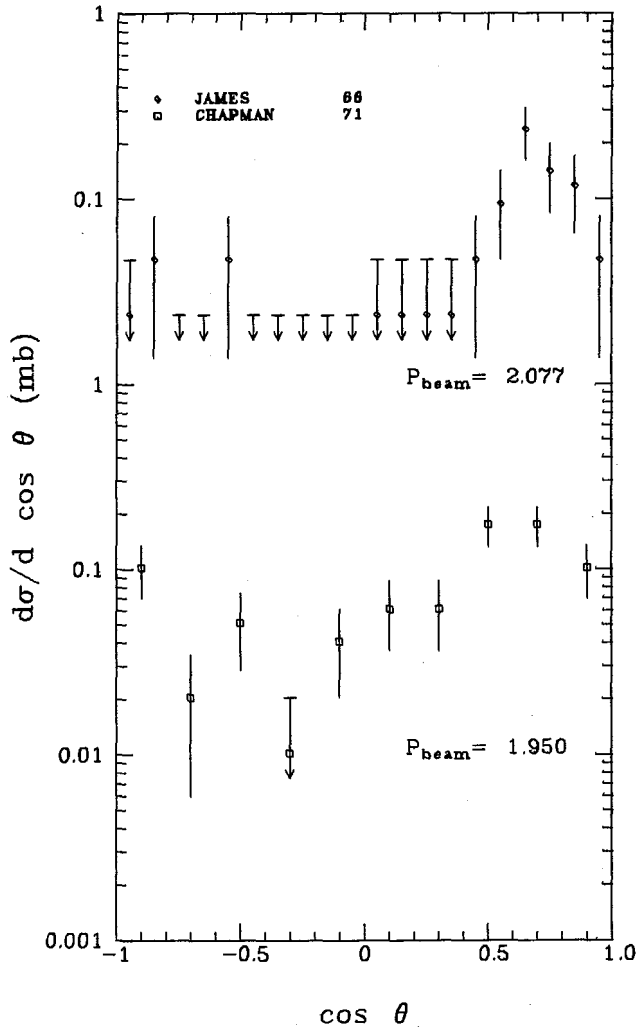
CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.077 +- .030

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+p \to \rho^0\Delta(1238)^{++}$

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

BEAM MOMENTUM= 2.077 +- .030

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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= 2.34 +- .06

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	*†
0.100	0.200	0.356		0.062	*†
0.200	0.300	0.496		0.073	*†
0.300	0.400	0.528		0.075	*†
0.400	0.500	0.539		0.076	*†
0.	1.000	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= 2.77 +- .04

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.950	0.041	+-	0.041	*†
-0.950	-0.900	0.249		0.102	*†
-0.900	-0.850	0.083		0.059	*†
-0.850	-0.800	0.083		0.059	*†
-0.800	-0.750	0.166		0.083	*†
-0.750	-0.700	0.166		0.083	*†
-0.700	-0.650	0.		0.041	*†
-0.650	-0.600	0.124		0.072	*†
-0.600	-0.550	0.083		0.059	*†
-0.550	-0.500	0.041		0.041	*†
-0.500	-0.450	0.083		0.059	*†
-0.450	-0.400	0.124		0.072	*†
-0.400	-0.350	0.124		0.072	*†
-0.350	-0.300	0.124		0.072	*†
-0.300	-0.250	0.166		0.083	*†
-0.250	-0.200	0.083		0.059	*†
-0.200	-0.150	0.124		0.072	*†
-0.150	-0.100	0.124		0.072	*†
-0.100	-0.050	0.124		0.072	*†
-0.050	0.	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	0.788		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= 2.95

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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= 3.19

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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= 3.53

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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

BEAM MOMENTUM= 3.74

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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= 4.08

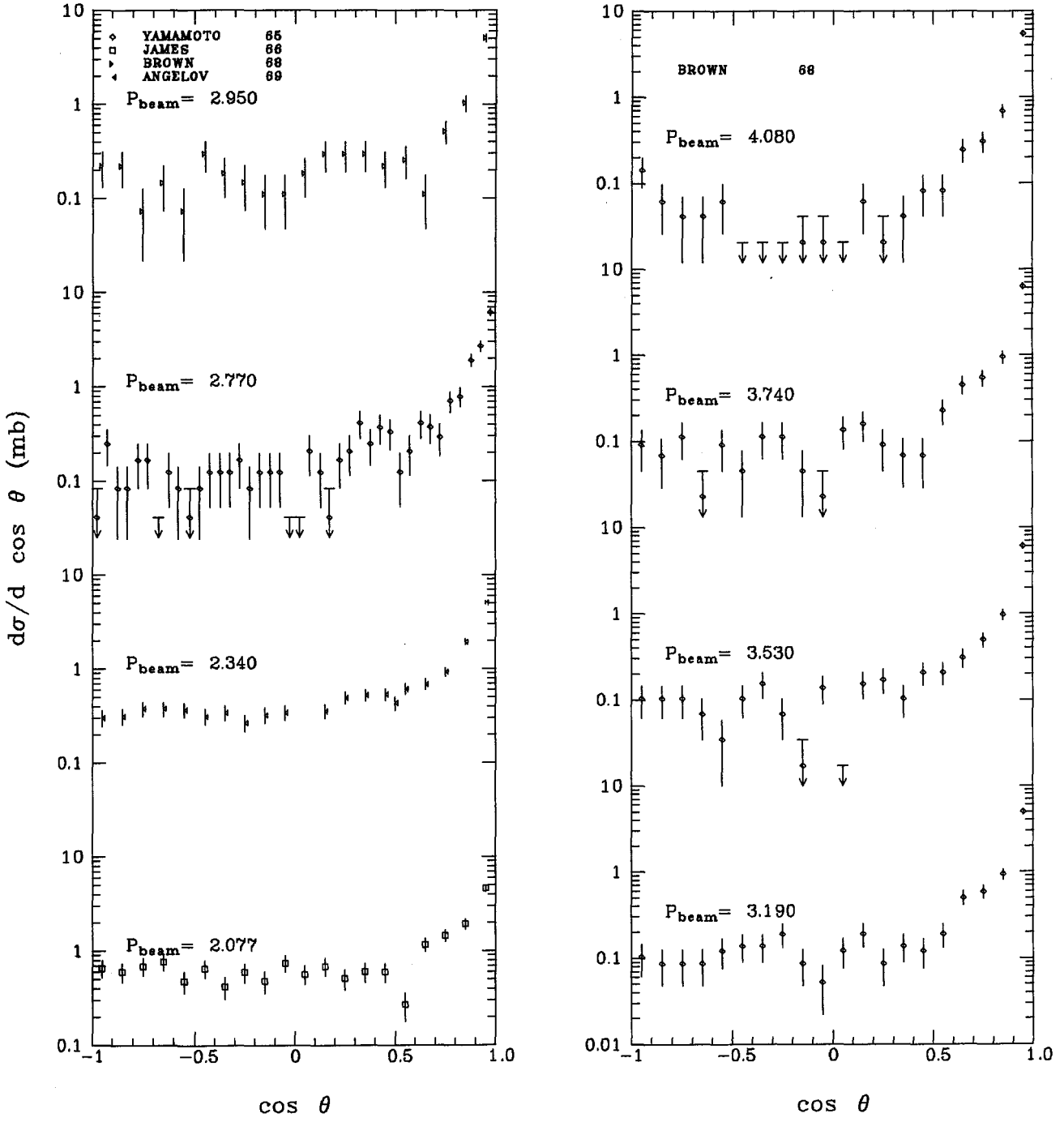
COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.143	+-	0.054	*†
-0.900	-0.800	0.061		0.035	*†
-0.800	-0.700	0.041		0.029	*†
-0.700	-0.600	0.041		0.029	*†
-0.600	-0.500	0.061		0.035	*†
-0.500	-0.400	0.		0.020	*†
-0.400	-0.300	0.		0.020	*†
-0.300	-0.200	0.		0.020	*†
-0.200	-0.100	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

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

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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$



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

$\omega \to p\pi^+$

$\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 2.077 +- .030

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.212	+-	0.071	*†
-0.900	-0.800	0.212		0.071	*†
-0.800	-0.700	0.142		0.058	*†
-0.700	-0.600	0.142		0.058	*†
-0.600	-0.500	0.330		0.088	*†
-0.500	-0.400	0.236		0.075	*†
-0.400	-0.300	0.330		0.088	*†
-0.300	-0.200	0.260		0.078	*†
-0.200	-0.100	0.189		0.067	*†
-0.100	0.	0.330		0.088	*†
0.	0.100	0.661		0.125	*†
0.100	0.200	0.425		0.100	*†
0.200	0.300	0.590		0.118	*†
0.300	0.400	0.873		0.144	*†
0.400	0.500	0.708		0.129	*†
0.500	0.600	1.038		0.157	*†
0.600	0.700	0.968		0.151	*†
0.700	0.800	1.274		0.173	*†
0.800	0.900	0.944		0.149	*†
0.900	1.000	0.873		0.144	*†

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

BEAM MOMENTUM= 2.34 +- .06

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.169	+-	0.042	*†
-0.900	-0.800	0.222		0.048	*†
-0.800	-0.700	0.127		0.037	*†
-0.700	-0.600	0.169		0.042	*†
-0.600	-0.500	0.137		0.038	*†
-0.500	-0.400	0.243		0.051	*†
-0.400	-0.300	0.275		0.054	*†
-0.300	-0.200	0.327		0.059	*†
-0.200	-0.100	0.243		0.051	*†
-0.100	0.	0.275		0.054	*†
0.	0.100	0.201		0.046	*†
0.100	0.200	0.317		0.058	*†
0.200	0.300	0.401		0.065	*†
0.300	0.400	0.496		0.072	*†
0.400	0.500	0.634		0.082	*†
0.500	0.600	0.750		0.089	*†
0.600	0.700	1.056		0.106	*†
0.700	0.800	1.236		0.114	*†
0.800	0.900	1.690		0.134	*†
0.900	1.000	2.682		0.168	*†

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

BEAM MOMENTUM= 2.77 +- .04

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.950	0.206	+-	0.092	*†
-0.950	-0.900	0.247		0.101	*†
-0.900	-0.850	0.041		0.041	*†
-0.850	-0.800	0.330		0.117	*†
-0.800	-0.750	0.041		0.041	*†
-0.750	-0.700	0.082		0.058	*†
-0.700	-0.650	0.041		0.041	*†
-0.650	-0.600	0.082		0.058	*†
-0.600	-0.550	0.124		0.071	*†
-0.550	-0.500	0.289		0.109	*†
-0.500	-0.450	0.041		0.041	*†
-0.450	-0.400	0.165		0.082	*†
-0.400	-0.350	0.247		0.101	*†
-0.350	-0.300	0.247		0.101	*†
-0.300	-0.250	0.165		0.082	*†
-0.250	-0.200	0.082		0.058	*†
-0.200	-0.150	0.165		0.082	*†
-0.150	-0.100	0.289		0.109	*†
-0.100	-0.050	0.082		0.058	*†
-0.050	0.	0.		0.041	*†
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	0.619		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

BEAM MOMENTUM= 2.95

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.175	+-	0.078	*†
-0.900	-0.800	0.175		0.078	*†
-0.800	-0.700	0.140		0.070	*†
-0.700	-0.600	0.105		0.061	*†
-0.600	-0.500	0.070		0.050	*†
-0.500	-0.400	0.105		0.061	*†
-0.400	-0.300	0.140		0.070	*†
-0.300	-0.200	0.105		0.061	*†
-0.200	-0.100	0.		0.035	*†
-0.100	0.	0.035		0.035	*†
0.	0.100	0.140		0.070	*†
0.100	0.200	0.035		0.035	*†
0.200	0.300	0.140		0.070	*†
0.300	0.400	0.140		0.070	*†
0.400	0.500	0.210		0.086	*†
0.500	0.600	0.245		0.093	*†
0.600	0.700	0.841		0.172	*†
0.700	0.800	0.947		0.182	*†
0.800	0.900	1.473		0.227	*†
0.900	1.000	2.174		0.276	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.19

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.077	+-	0.034	*†
-0.900	-0.800	0.031		0.022	*†
-0.800	-0.700	0.031		0.022	*†
-0.700	-0.600	0.123		0.044	*†
-0.600	-0.500	0.062		0.031	*†
-0.500	-0.400	0.108		0.041	*†
-0.400	-0.300	0.092		0.038	*†
-0.300	-0.200	0.154		0.049	*†
-0.200	-0.100	0.077		0.034	*†
-0.100	0.	0.139		0.046	*†
0.	0.100	0.077		0.034	*†
0.100	0.200	0.108		0.041	*†
0.200	0.300	0.046		0.027	*†
0.300	0.400	0.154		0.049	*†
0.400	0.500	0.108		0.041	*†
0.500	0.600	0.339		0.072	*†
0.600	0.700	0.570		0.094	*†
0.700	0.800	0.785		0.110	*†
0.800	0.900	0.939		0.120	*†
0.900	1.000	1.925		0.172	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.53

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.128	+-	0.045	*†
-0.900	-0.800	0.080		0.036	*†
-0.800	-0.700	0.096		0.039	*†
-0.700	-0.600	0.080		0.036	*†
-0.600	-0.500	0.064		0.032	*†
-0.500	-0.400	0.032		0.023	*†
-0.400	-0.300	0.048		0.028	*†
-0.300	-0.200	0.048		0.028	*†
-0.200	-0.100	0.032		0.023	*†
-0.100	0.	0.048		0.028	*†
0.	0.100	0.032		0.023	*†
0.100	0.200	0.032		0.023	*†
0.200	0.300	0.032		0.023	*†
0.300	0.400	0.048		0.028	*†
0.400	0.500	0.144		0.048	*†
0.500	0.600	0.367		0.077	*†
0.600	0.700	0.271		0.066	*†
0.700	0.800	0.734		0.108	*†
0.800	0.900	1.357		0.147	*†
0.900	1.000	1.724		0.166	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.74

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.143	+-	0.054	*†
-0.900	-0.800	0.082		0.041	*†
-0.800	-0.700	0.082		0.041	*†
-0.700	-0.600	0.082		0.041	*†
-0.600	-0.500	0.061		0.035	*†
-0.500	-0.400	0.041		0.029	*†
-0.400	-0.300	0.082		0.041	*†
-0.300	-0.200	0.041		0.029	*†
-0.200	-0.100	0.082		0.041	*†
-0.100	0.	0.041		0.029	*†
0.	0.100	0.061		0.035	*†
0.100	0.200	0.041		0.029	*†
0.200	0.300	0.041		0.029	*†
0.300	0.400	0.102		0.046	*†
0.400	0.500	0.061		0.035	*†
0.500	0.600	0.123		0.050	*†
0.600	0.700	0.246		0.071	*†
0.700	0.800	0.655		0.116	*†
0.800	0.900	1.208		0.157	*†
0.900	1.000	1.740		0.189	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 4.08

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.089	+-	0.040	*†
-0.900	-0.800	0.107		0.044	*†
-0.800	-0.700	0.071		0.036	*†
-0.700	-0.600	0.018		0.018	*†
-0.600	-0.500	0.036		0.025	*†
-0.500	-0.400	0.036		0.025	*†
-0.400	-0.300	0.018		0.018	*†
-0.300	-0.200	0.036		0.025	*†
-0.200	-0.100	0.018		0.018	*†
-0.100	0.	0.053		0.031	*†
0.	0.100	0.036		0.025	*†
0.100	0.200	0.053		0.031	*†
0.200	0.300	0.053		0.031	*†
0.300	0.400	0.071		0.036	*†
0.400	0.500	0.036		0.025	*†
0.500	0.600	0.071		0.036	*†
0.600	0.700	0.213		0.062	*†
0.700	0.800	0.409		0.085	*†
0.800	0.900	0.961		0.131	*†
0.900	1.000	1.761		0.177	*†

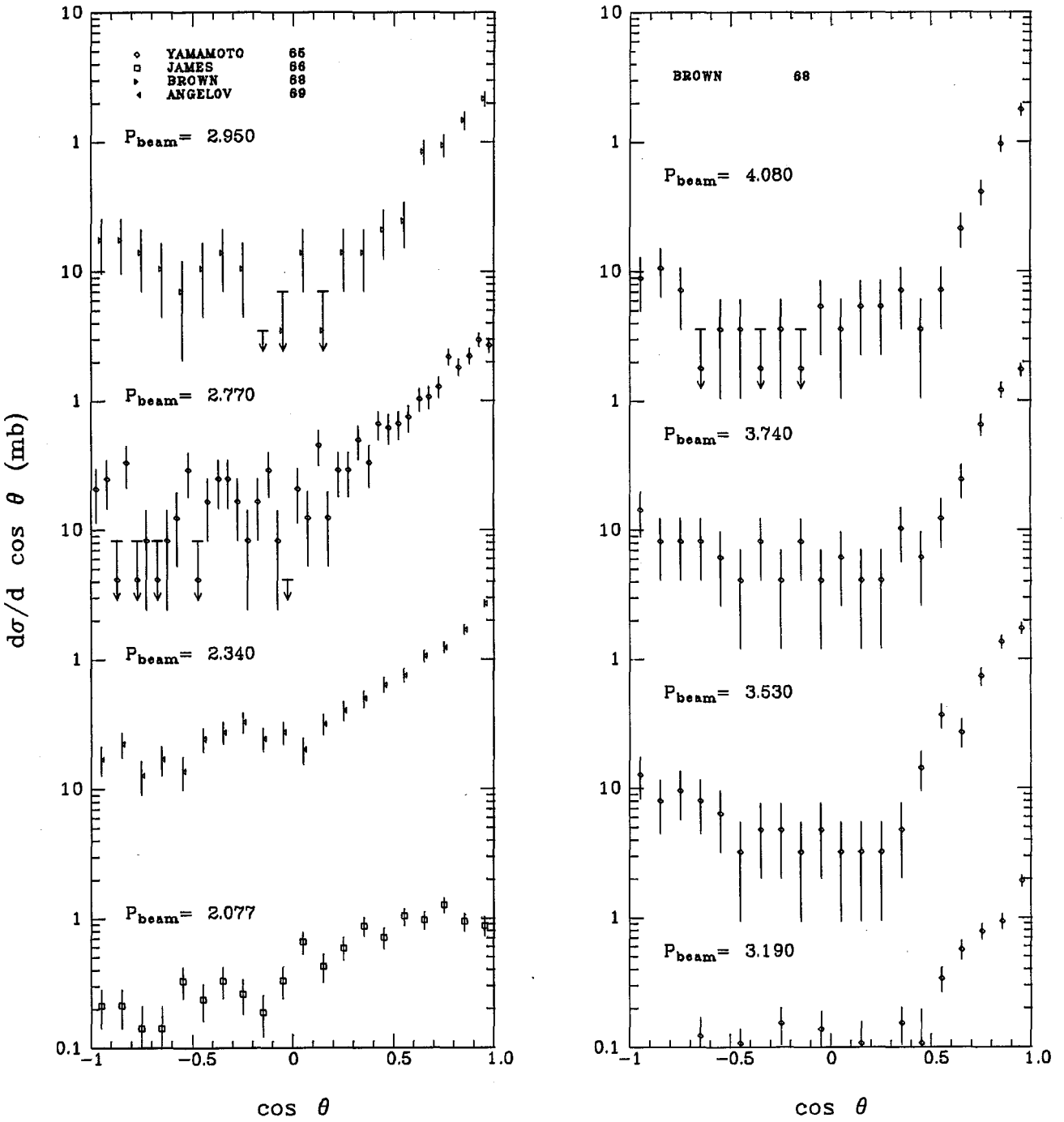
BROWN 68.....UCRL 18254 HBC 72

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

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

$\omega \to p\pi^+$

$\omega \to \pi^+\pi^-\pi^0$



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

BEAM MOMENTUM= 1.044 +- .007

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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)			
-0.900	0.027	+-	0.008	*†
-0.700	0.029		0.008	*†
-0.500	0.047		0.010	*†
-0.300	0.038		0.009	*†
-0.100	0.045		0.010	*†
0.100	0.056		0.011	*†
0.300	0.092		0.014	*†
0.500	0.101		0.015	*†
0.700	0.130		0.017	*†
0.900	0.155		0.019	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

BEAM MOMENTUM= 1.155 +- .025

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

CRAWFORD 62.....PR 128 368 HBC 72

BEAM MOMENTUM= 1.206

COS(THETA)	DSIGMA/D COS(THETA) (MB)			
-0.900	0.074	+-	0.015	*†
-0.700	0.071		0.014	*†
-0.500	0.028		0.009	*†
-0.300	0.043		0.011	*†
-0.100	0.088		0.016	*†
0.100	0.108		0.018	*†
0.300	0.154		0.021	*†
0.500	0.196		0.024	*†
0.700	0.148		0.021	*†
0.900	0.159		0.021	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

BEAM MOMENTUM= 1.252

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.660	0.	+-	0.019	
-0.660	-0.330	0.013	+	0.020	
			-	0.011	
-0.330	0.	0.031	+	0.031	
			-	0.013	
0.	0.330	0.057	+	0.035	
			-	0.021	
0.330	0.660	0.075	+	0.038	
			-	0.025	
0.660	1.000	0.088	+	0.044	
			-	0.031	

BALTAY 61.....RMP 33 374 HBC 20

BEAM MOMENTUM= 1.265

COS(THETA)	DSIGMA/D COS(THETA) (MB)			
-0.900	0.090	+-	0.019	*†
-0.700	0.090		0.019	*†
-0.500	0.031		0.011	*†
-0.300	0.109		0.021	*†
-0.100	0.128		0.022	*†
0.100	0.171		0.026	*†
0.300	0.214		0.029	*†
0.500	0.214		0.029	*†
0.700	0.241		0.031	*†
0.900	0.101		0.020	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

BEAM MOMENTUM= 1.362

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-1.000	-0.800	0.214	+	0.126
			-	0.075
-0.800	-0.600	0.126	+	0.088
			-	0.050
-0.600	-0.400	0.	+-	0.063
-0.400	-0.200	0.075	+	0.075
			-	0.031
-0.200	0.	0.157	+	0.094
			-	0.057
0.	0.200	0.151	+	0.094
			-	0.057
0.200	0.400	0.484	+-	0.132
0.400	0.600	0.509		0.138
0.600	0.800	0.188	+	0.101
			-	0.063
0.800	1.000	0.220	+	0.101
			-	0.069

BALTAY 61.....RMP 33 374 HBC 20

BEAM MOMENTUM= 1.7

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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

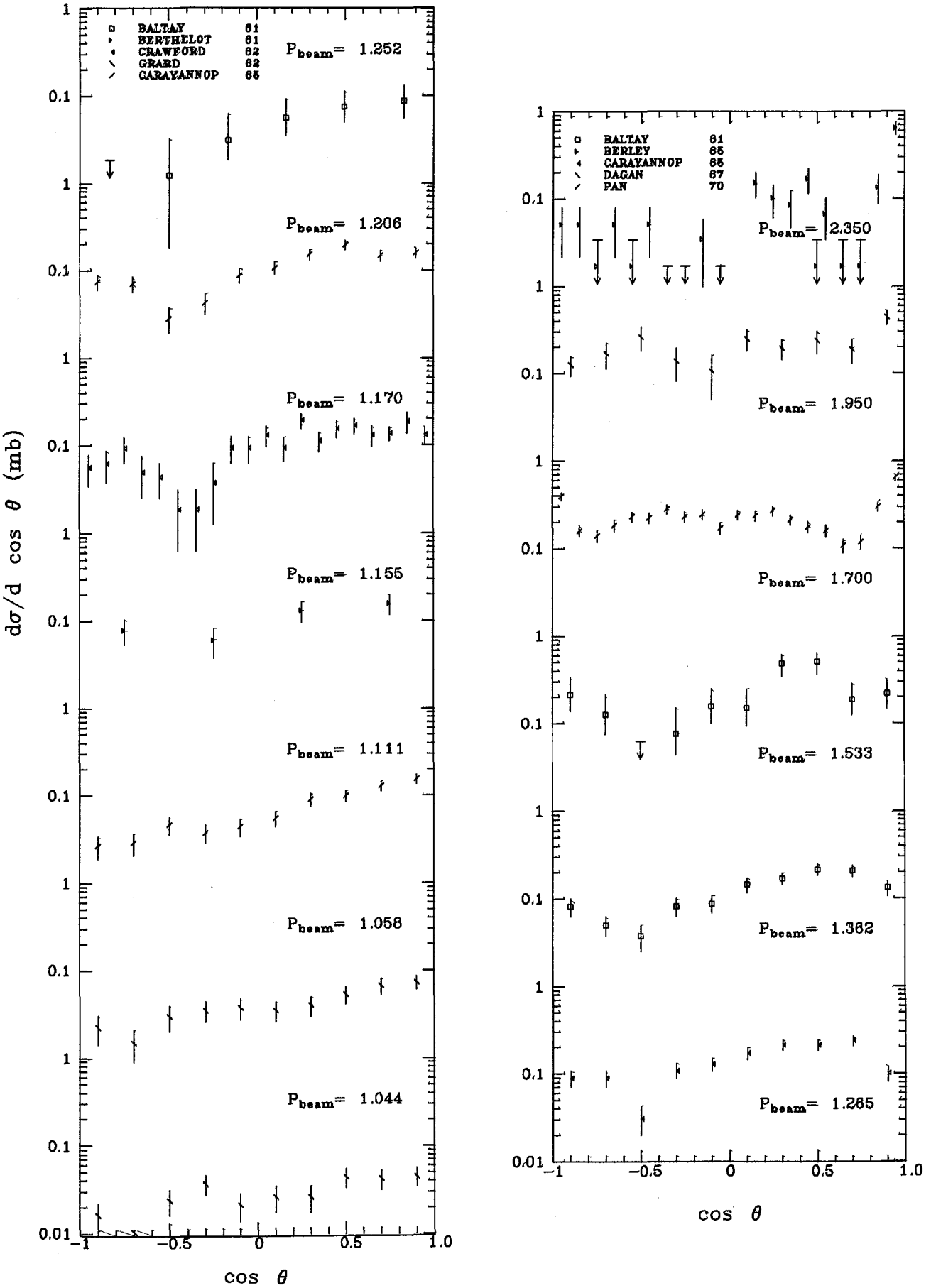
BEAM MOMENTUM= 2.35 + 2.62 , - 2.90

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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.		0.017	*†
0.100	0.200	0.153		0.051	*†
0.200	0.300	0.102		0.042	*†
0.300	0.400	0.085		0.038	*†
0.400	0.500	0.170		0.054	*†
0.	1.000	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 $\pi^+p \to K^+\Sigma^+$



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

BEAM MOMENTUM= 1.28

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.058	+-	0.019	*†
-0.900	-0.800	0.046		0.017	*†
-0.800	-0.700	0.089		0.023	*†
-0.700	-0.600	0.125		0.027	*†
-0.600	-0.500	0.080		0.022	*†
-0.500	-0.400	0.144		0.029	*†
-0.400	-0.300	0.069		0.020	*†
-0.300	-0.200	0.077		0.022	*†
-0.200	-0.100	0.077		0.022	*†
-0.100	0.	0.093		0.024	*†
0.	0.100	0.048		0.017	*†
0.100	0.200	0.074		0.021	*†
0.200	0.300	0.049		0.017	*†
0.300	0.400	0.025		0.012	*†
0.400	0.500	0.017		0.010	*†
0.500	0.600	0.018		0.010	*†
0.600	0.700	0.026		0.012	*†
0.700	0.800	0.041		0.016	*†
0.800	0.900	0.035		0.014	*†
0.900	1.000	0.096		0.024	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.34

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.029	+-	0.011	*†
-0.900	-0.800	0.071		0.017	*†
-0.800	-0.700	0.130		0.023	*†
-0.700	-0.600	0.058		0.015	*†
-0.600	-0.500	0.096		0.020	*†
-0.500	-0.400	0.140		0.024	*†
-0.400	-0.300	0.135		0.023	*†
-0.300	-0.200	0.121		0.022	*†
-0.200	-0.100	0.098		0.020	*†
-0.100	0.	0.036		0.012	*†
0.	0.100	0.074		0.017	*†
0.100	0.200	0.086		0.019	*†
0.200	0.300	0.049		0.014	*†
0.300	0.400	0.059		0.015	*†
0.400	0.500	0.025		0.010	*†
0.500	0.600	0.018		0.009	*†
0.600	0.700	0.040		0.013	*†
0.700	0.800	0.043		0.013	*†
0.800	0.900	0.064		0.016	*†
0.900	1.000	0.152		0.025	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.41

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.044	+-	0.016	*†
-0.900	-0.800	0.160		0.031	*†
-0.800	-0.700	0.101		0.025	*†
-0.700	-0.600	0.143		0.029	*†
-0.600	-0.500	0.110		0.026	*†
-0.500	-0.400	0.164		0.031	*†
-0.400	-0.300	0.096		0.024	*†
-0.300	-0.200	0.133		0.028	*†
-0.200	-0.100	0.136		0.029	*†
-0.100	0.	0.070		0.020	*†
0.	0.100	0.089		0.023	*†
0.100	0.200	0.058		0.019	*†
0.200	0.300	0.046		0.017	*†
0.300	0.400	0.050		0.017	*†
0.400	0.500	0.068		0.020	*†
0.500	0.600	0.038		0.015	*†
0.600	0.700	0.059		0.019	*†
0.700	0.800	0.042		0.016	*†
0.800	0.900	0.047		0.017	*†
0.900	1.000	0.191		0.034	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.43

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.039	+-	0.014	*†
-0.900	-0.800	0.107		0.023	*†
-0.800	-0.700	0.127		0.025	*†
-0.700	-0.600	0.134		0.026	*†
-0.600	-0.500	0.127		0.025	*†
-0.500	-0.400	0.158		0.028	*†
-0.400	-0.300	0.128		0.025	*†
-0.300	-0.200	0.103		0.023	*†
-0.200	-0.100	0.079		0.020	*†
-0.100	0.	0.073		0.019	*†
0.	0.100	0.058		0.017	*†
0.100	0.200	0.090		0.021	*†
0.200	0.300	0.063		0.018	*†
0.300	0.400	0.044		0.015	*†
0.400	0.500	0.018		0.009	*†
0.500	0.600	0.033		0.013	*†
0.600	0.700	0.011		0.008	*†
0.700	0.800	0.068		0.018	*†
0.800	0.900	0.114		0.024	*†
0.900	1.000	0.290		0.038	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.55

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.082	+-	0.026	*†
-0.900	-0.800	0.059		0.022	*†
-0.800	-0.700	0.047		0.019	*†
-0.700	-0.600	0.136		0.033	*†
-0.600	-0.500	0.166		0.036	*†
-0.500	-0.400	0.166		0.036	*†
-0.400	-0.300	0.148		0.034	*†
-0.300	-0.200	0.160		0.036	*†
-0.200	-0.100	0.160		0.036	*†
-0.100	0.	0.080		0.025	*†
0.	0.100	0.080		0.025	*†
0.100	0.200	0.062		0.022	*†
0.200	0.300	0.154		0.035	*†
0.300	0.400	0.059		0.022	*†
0.400	0.500	0.059		0.022	*†
0.500	0.600	0.066		0.023	*†
0.600	0.700	0.022		0.013	*†
0.700	0.800	0.045		0.019	*†
0.800	0.900	0.148		0.034	*†
0.900	1.000	0.356		0.053	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.63

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.138	+-	0.026	*†
-0.900	-0.800	0.109		0.023	*†
-0.800	-0.700	0.109		0.023	*†
-0.700	-0.600	0.098		0.022	*†
-0.600	-0.500	0.109		0.023	*†
-0.500	-0.400	0.166		0.029	*†
-0.400	-0.300	0.148		0.027	*†
-0.300	-0.200	0.096		0.022	*†
-0.200	-0.100	0.052		0.016	*†
-0.100	0.	0.046		0.015	*†
0.	0.100	0.097		0.022	*†
0.100	0.200	0.039		0.014	*†
0.200	0.300	0.056		0.017	*†
0.300	0.400	0.069		0.019	*†
0.400	0.500	0.114		0.024	*†
0.500	0.600	0.020		0.010	*†
0.600	0.700	0.028		0.012	*†
0.700	0.800	0.077		0.020	*†
0.800	0.900	0.073		0.019	*†
0.900	1.000	0.223		0.033	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.68

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.137	+-	0.026	*†
-0.900	-0.800	0.076		0.019	*†
-0.800	-0.700	0.092		0.022	*†
-0.700	-0.600	0.083		0.020	*†
-0.600	-0.500	0.122		0.025	*†
-0.500	-0.400	0.137		0.026	*†
-0.400	-0.300	0.132		0.026	*†
-0.300	-0.200	0.105		0.023	*†
-0.200	-0.100	0.048		0.016	*†
-0.100	0.	0.096		0.022	*†
0.	0.100	0.061		0.018	*†
0.100	0.200	0.072		0.019	*†
0.200	0.300	0.111		0.024	*†
0.300	0.400	0.039		0.014	*†
0.400	0.500	0.067		0.018	*†
0.500	0.600	0.041		0.014	*†
0.600	0.700	0.034		0.013	*†
0.700	0.800	0.029		0.012	*†
0.800	0.900	0.072		0.019	*†
0.900	1.000	0.299		0.039	*†

KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.77

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.195	+-	0.037	*†
-0.900	-0.800	0.088		0.025	*†
-0.800	-0.700	0.045		0.018	*†
-0.700	-0.600	0.088		0.025	*†
-0.600	-0.500	0.139		0.031	*†
-0.500	-0.400	0.081		0.024	*†
-0.400	-0.300	0.038		0.016	*†
-0.300	-0.200	0.095		0.026	*†
-0.200	-0.100	0.064		0.021	*†
-0.100	0.	0.129		0.030	*†
0.	0.100	0.052		0.019	*†
0.100	0.200	0.090		0.025	*†
0.200	0.300	0.045		0.018	*†
0.300	0.400	0.081		0.024	*†
0.400	0.500	0.113		0.028	*†
0.500	0.600	0.070		0.022	*†
0.600	0.700	0.029		0.014	*†
0.700	0.800	0.070		0.022	*†
0.800	0.900	0.119		0.029	*†
0.900	1.000	0.285		0.045	*†

KALMUS 70.....PR D2 1824 HBCS

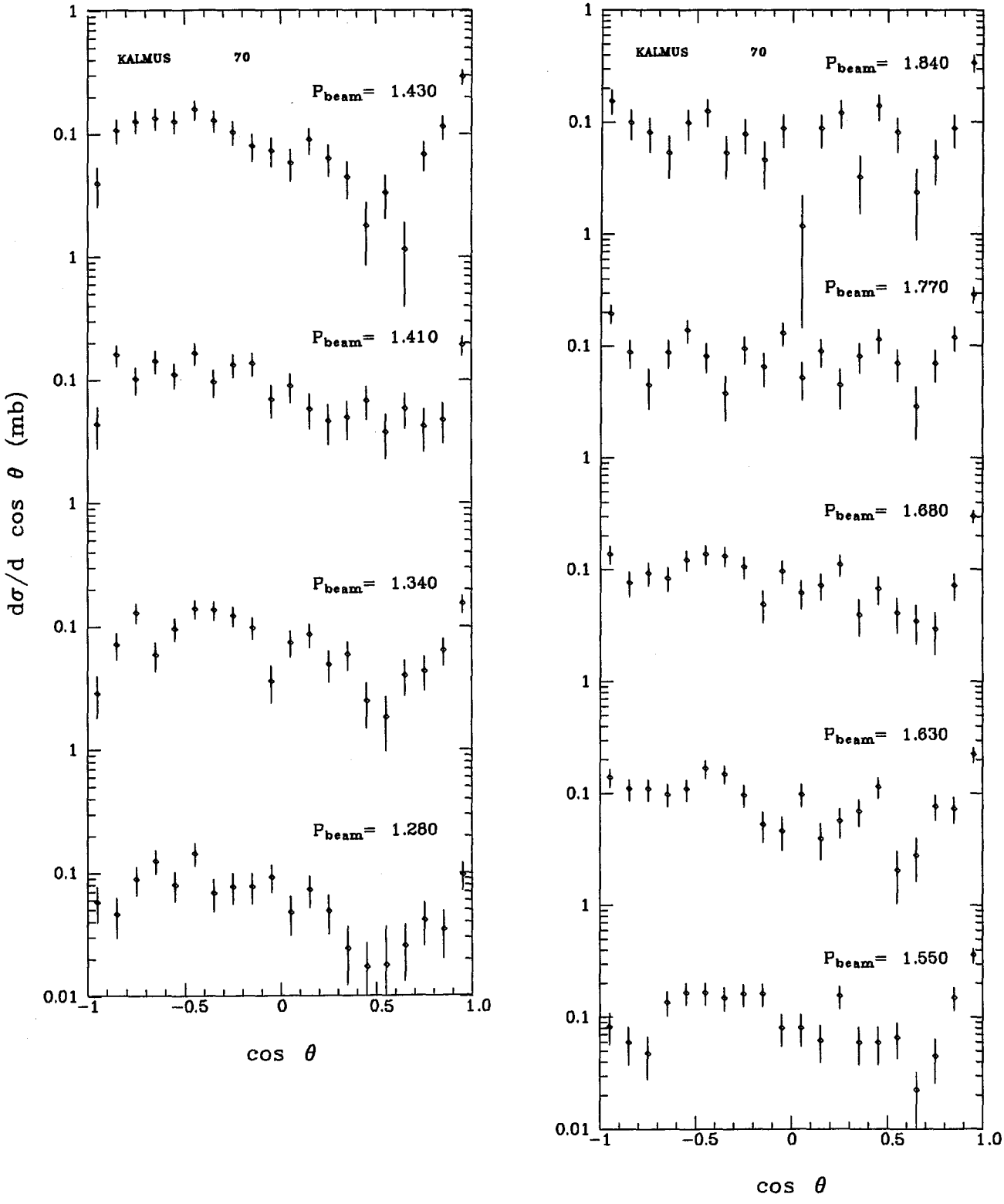
BEAM MOMENTUM= 1.84

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.155	+-	0.037	*†
-0.900	-0.800	0.099		0.030	*†
-0.800	-0.700	0.081		0.027	*†
-0.700	-0.600	0.053		0.022	*†
-0.600	-0.500	0.099		0.030	*†
-0.500	-0.400	0.125		0.034	*†
-0.400	-0.300	0.053		0.022	*†
-0.300	-0.200	0.078		0.027	*†
-0.200	-0.100	0.046		0.020	*†
-0.100	0.	0.087		0.028	*†
0.	0.100	0.012		0.010	*†
0.100	0.200	0.087		0.028	*†
0.200	0.300	0.121		0.033	*†
0.300	0.400	0.032		0.017	*†
0.400	0.500	0.139		0.035	*†
0.500	0.600	0.081		0.027	*†
0.600	0.700	0.023		0.015	*†
0.700	0.800	0.049		0.021	*†
0.800	0.900	0.087		0.028	*†
0.900	1.000	0.336		0.055	*†

KALMUS 70.....PR D2 1824 HBCS

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

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



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

BEAM MOMENTUM= 1.42 +- .01

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.458 + .146 , - .141

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.62

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.68

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.689 + .087 , - .086

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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		0.009	*†
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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.84

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 HBCS

BEAM MOMENTUM= 1.888 + .114 , - .111

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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

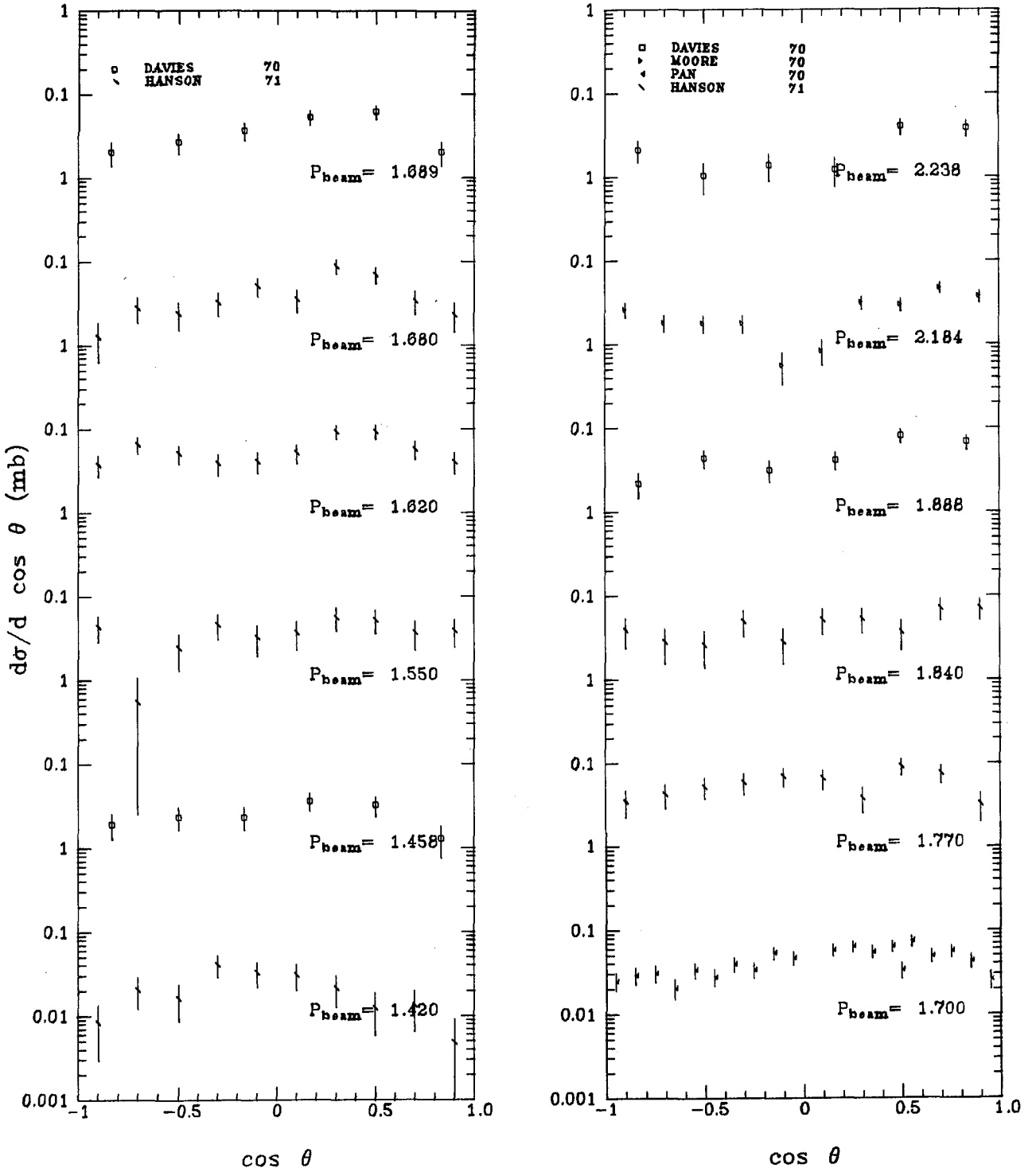
BEAM MOMENTUM= 5.5

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	
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

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



Differential cross section

for $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^0\pi^+$

BEAM MOMENTUM= 2.34 +- .155

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-1.000	-0.666	0.043	+- 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	†

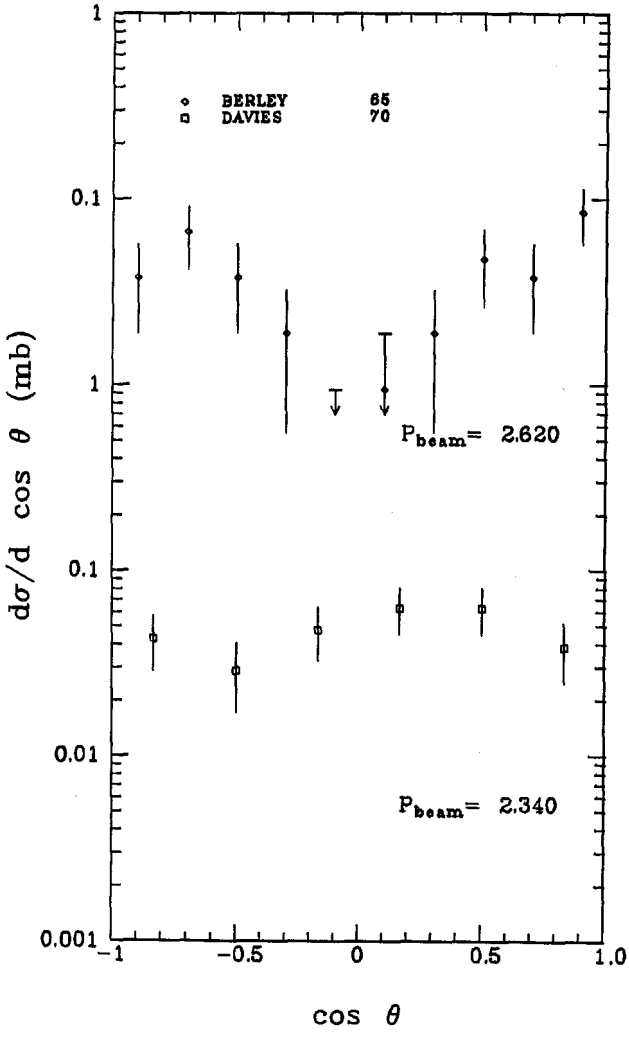
DAVIES 70.....PR D 2 506 DBC 72

BEAM MOMENTUM= 2.62 +.28 -.27

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-1.000	-0.800	0.038	+- 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 $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^+\pi^0 + K^0\pi^+$

BEAM MOMENTUM= 2.77 +- .04

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
-1.000	-0.800	0.051	+- 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	*†

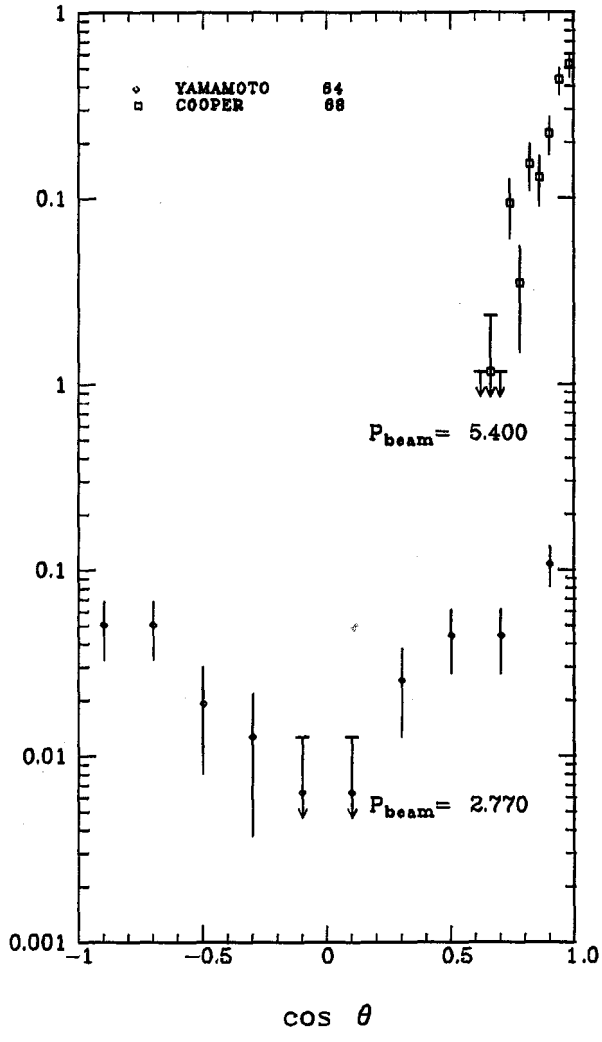
YAMAMOTO 64.....PR 134 B383 HBC 20

BEAM MOMENTUM= 5.4

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)		
0.600	0.640	0.	+- 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



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

2. $\pi^+ n$ Interactions

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

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	3.456		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			*
0.050	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	*

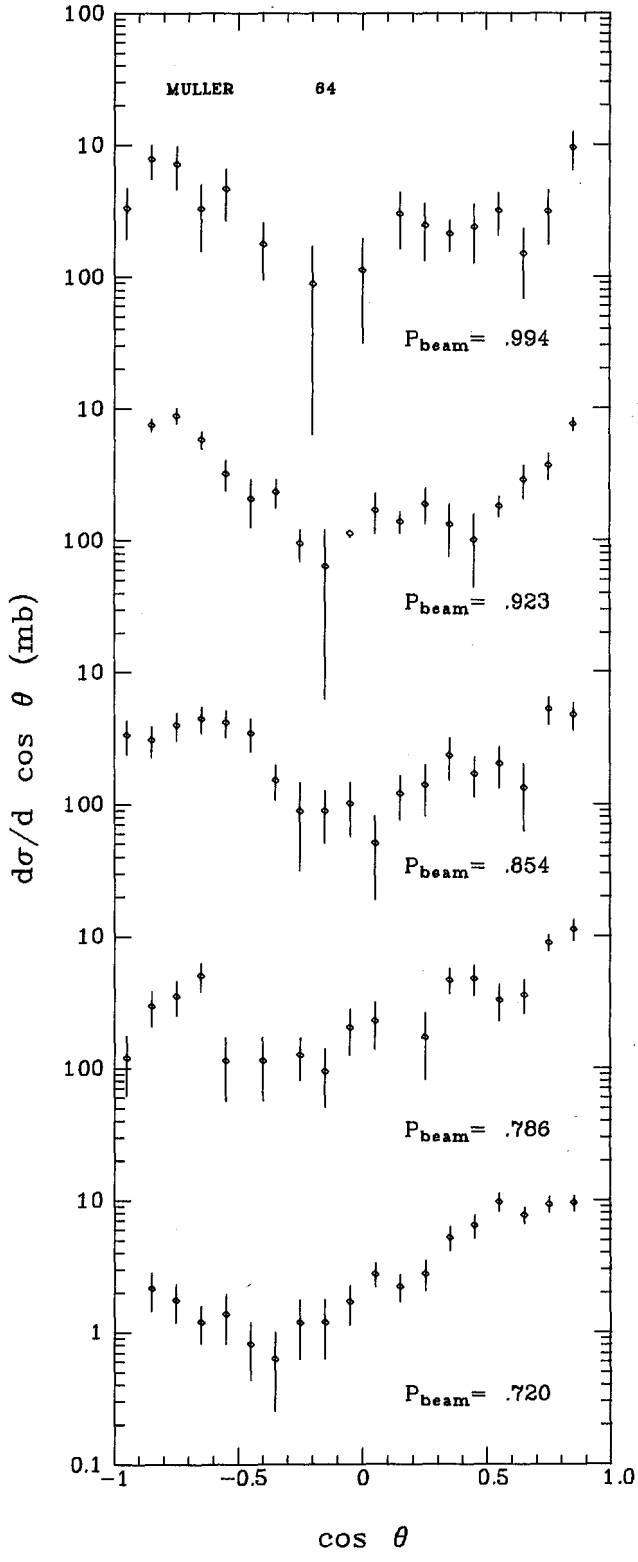
MULLER 64.....PL 10 349 HBC,DBC

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



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

$\hookrightarrow \pi^+\pi^-\pi^0 + \pi^+\pi^-\gamma +$ <other mode>

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

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	+-	
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	+-	
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	+-	
-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	0.264	*†
-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	*†

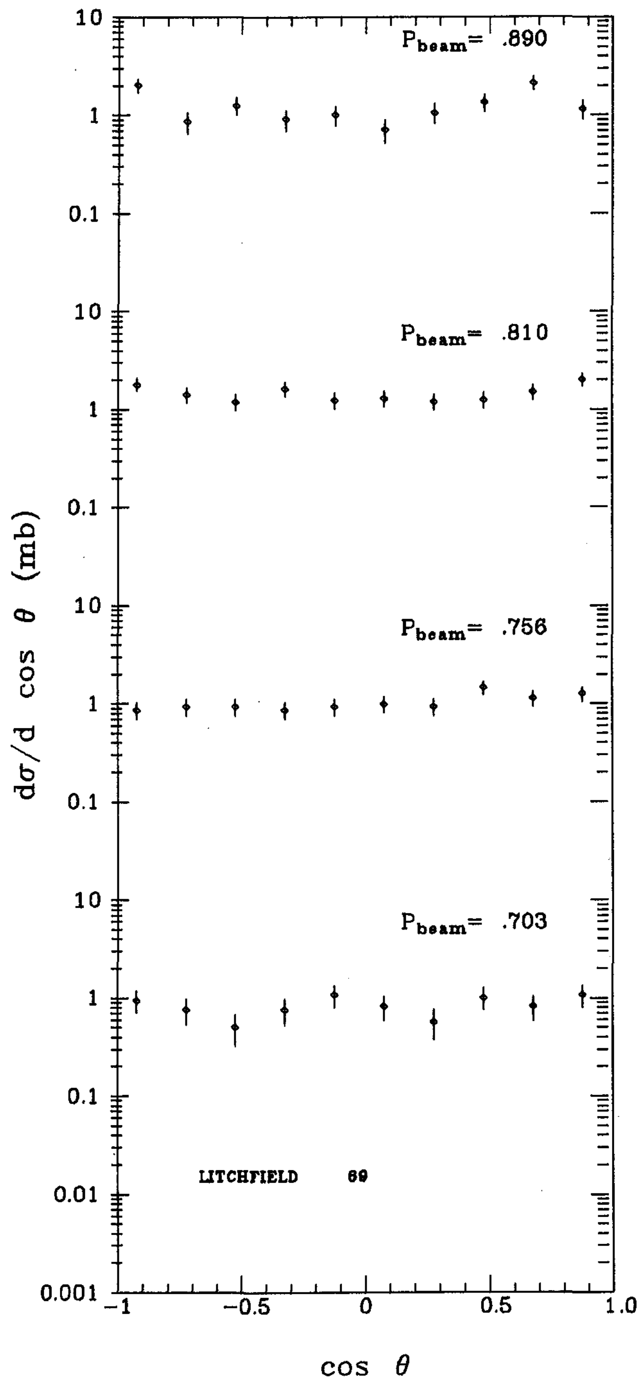
LITCHFIELD 69.....PR 183 1152 DBC 180

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

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	+-	
-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 $\pi^+ n \to \eta p$, $\eta \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.049

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	0.882		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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	0.185		0.119	*†
0.300	0.400	0.485		0.193	*†
0.400	0.500	0.570		0.209	*†
0.500	0.600	0.716		0.235	*†
0.600	0.700	0.639		0.222	*†
0.700	0.800	0.570		0.209	*†
0.800	0.900	1.132		0.295	*†
0.900	1.000	0.200		0.124	*†

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

BEAM MOMENTUM= 1.861

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+ n \to \eta p$, $\eta \to$ Neutrals

BEAM MOMENTUM= .906 + .088 , - .086

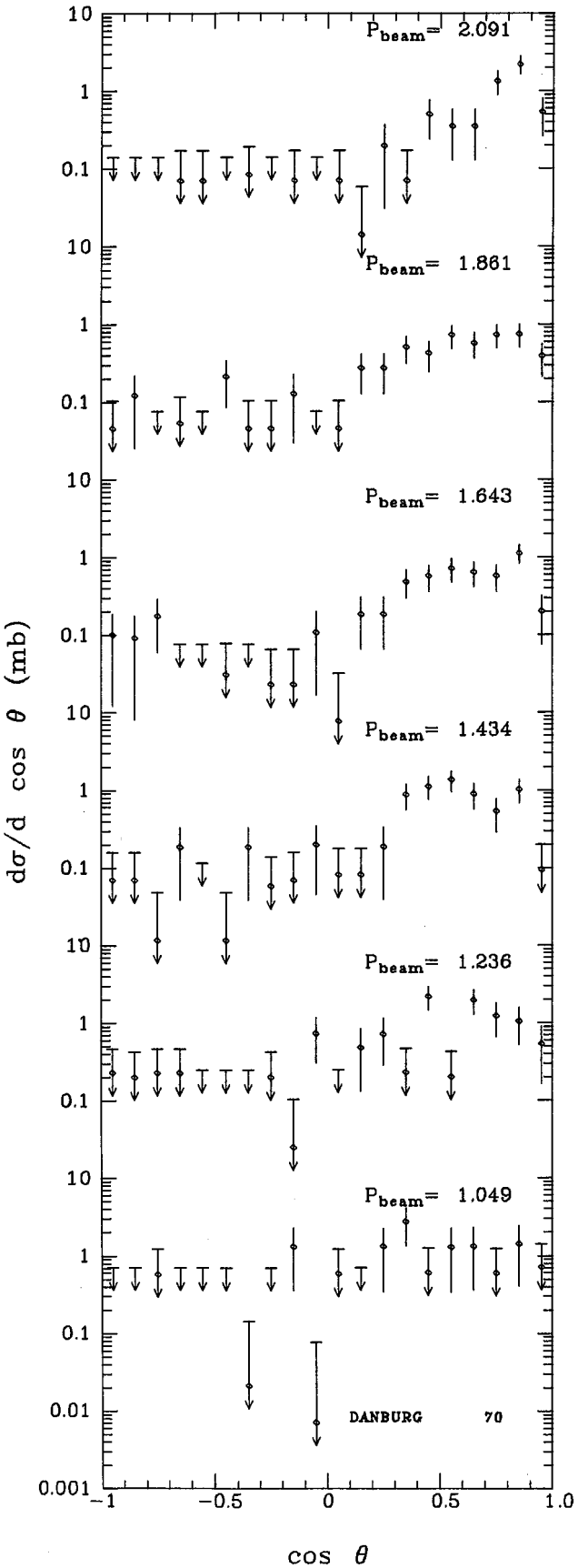
COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.800	1.514	+-	0.297	*†
-0.800	-0.600	1.573		0.303	*†
-0.600	-0.400	1.165		0.261	*†
-0.400	-0.200	1.340		0.279	*†
-0.200	0.	0.816		0.218	*†
0.	0.200	1.806		0.324	*†
0.200	0.400	0.699		0.202	*†
0.400	0.600	1.340		0.279	*†
0.600	0.800	1.514		0.297	*†
0.800	1.000	1.631		0.308	*†

PAULI 63.....SIENA CONF 1 92 DBC

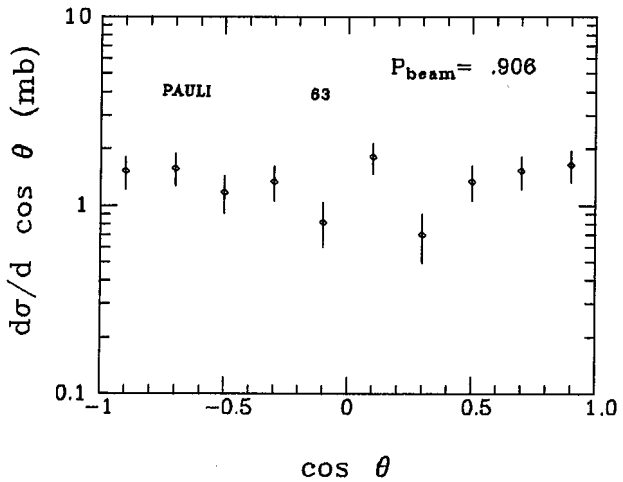
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section

for $\pi^+ n \to \eta p$
$\hookrightarrow \pi^+\pi^-\pi^0$



for $\pi^+ n \to \eta p$
$\hookrightarrow$ Neutrals



Differential cross section for $\pi^+ n \to \omega p$, $\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.236

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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	0.657		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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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		0.067	*†
-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	2.995		0.340	*†
0.900	1.000	3.084		0.345	*†

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

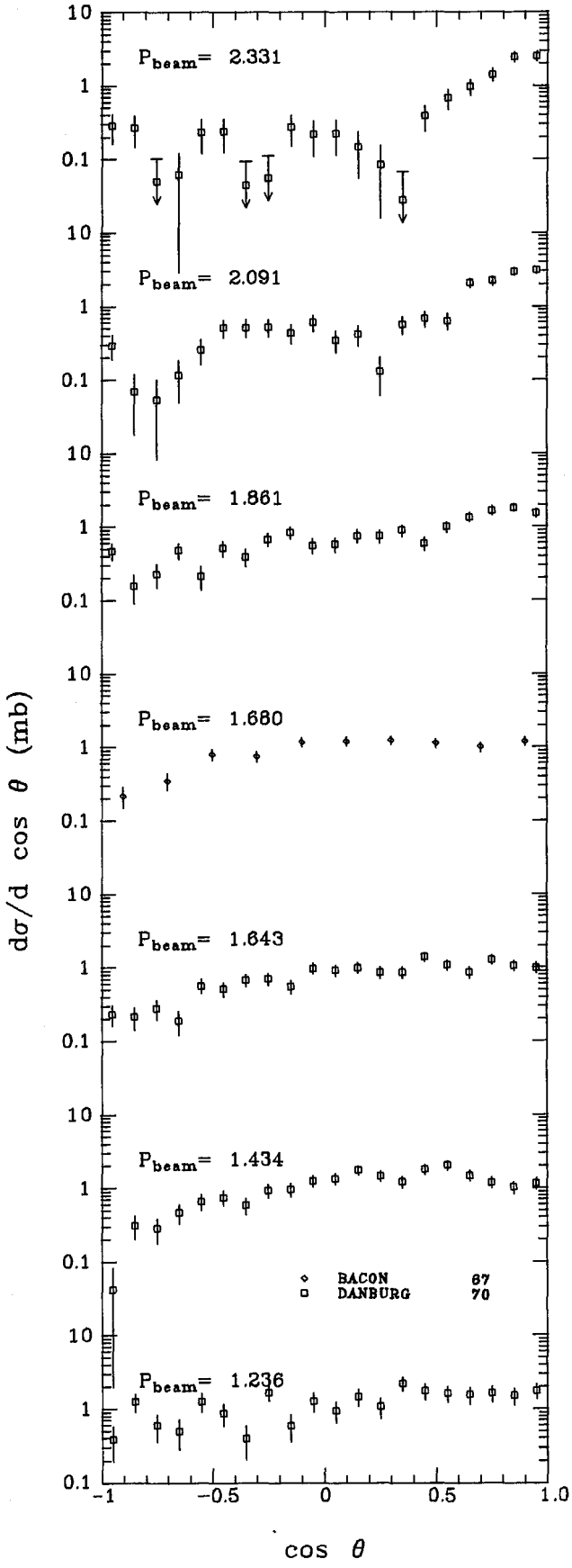
BEAM MOMENTUM= 2.331

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+ n \to \omega p$, $\omega \to \pi^+\pi^-\pi^0$



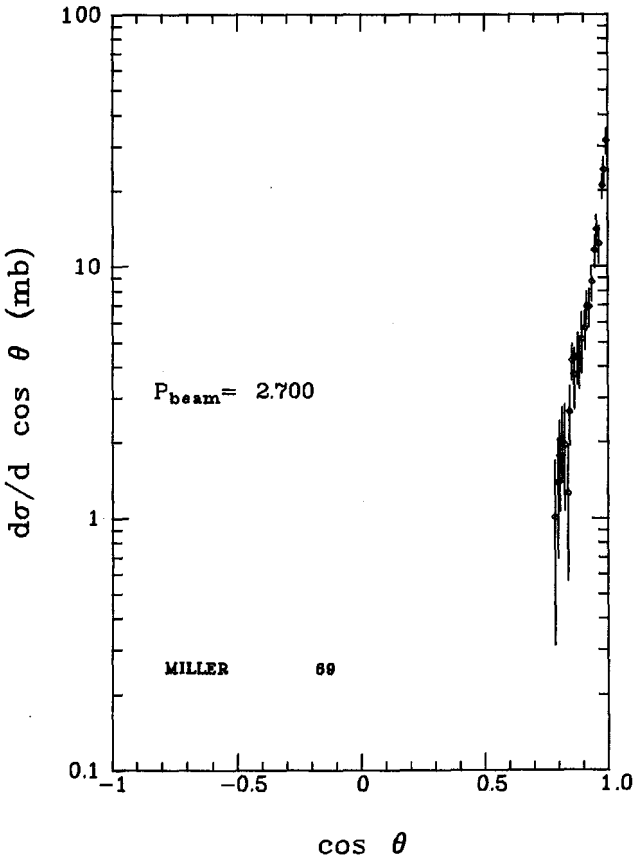
Differential cross section

for $\pi^+ n \to \rho^0 p$, $\rho^0 \to \pi^+\pi^-$

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

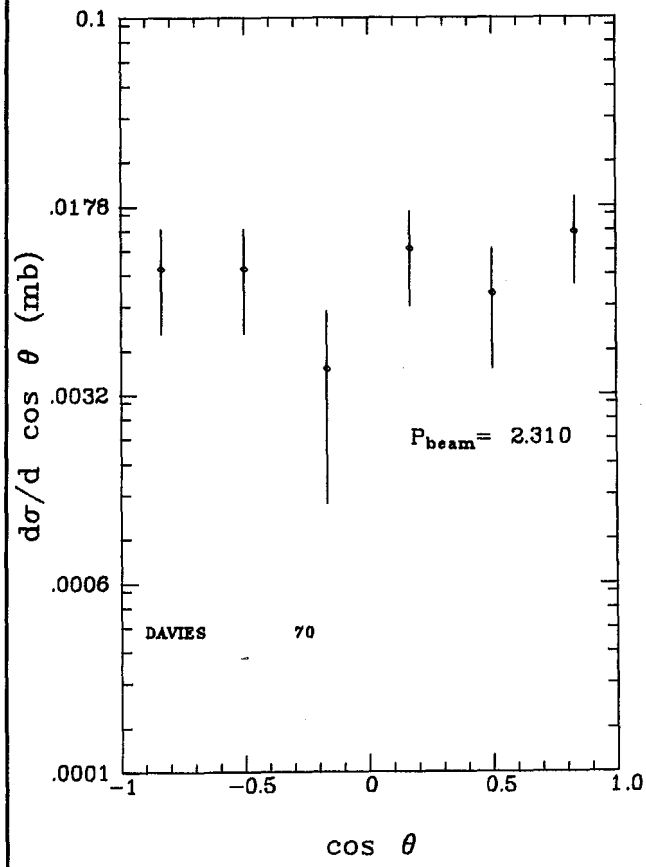


for $\pi^+ n \to \phi p$, $\phi \to K^+K^-$

BEAM MOMENTUM= 2.31 +- .225

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+ n \to K^+ \Lambda$

BEAM MOMENTUM= 2.042

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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.		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

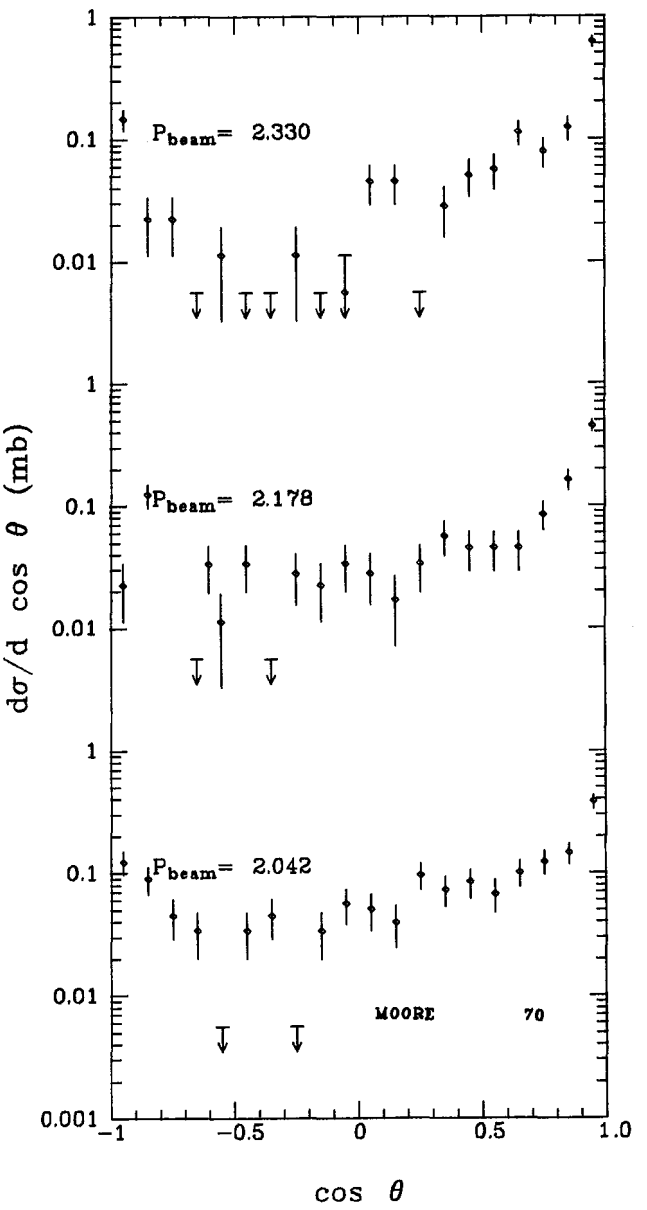
COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-1.000	-0.900	0.022	+-	0.011	*†
-0.900	-0.800	0.124		0.026	*†
-0.700	-0.600	0.		0.006	*†
-0.800	-0.400	0.034		0.014	*†
-0.600	-0.500	0.011		0.008	*†
-0.500	-0.400	0.034		0.014	*†
-0.400	-0.300	0.		0.006	*†
-0.300	-0.200	0.028		0.013	*†
-0.200	-0.100	0.022		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) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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

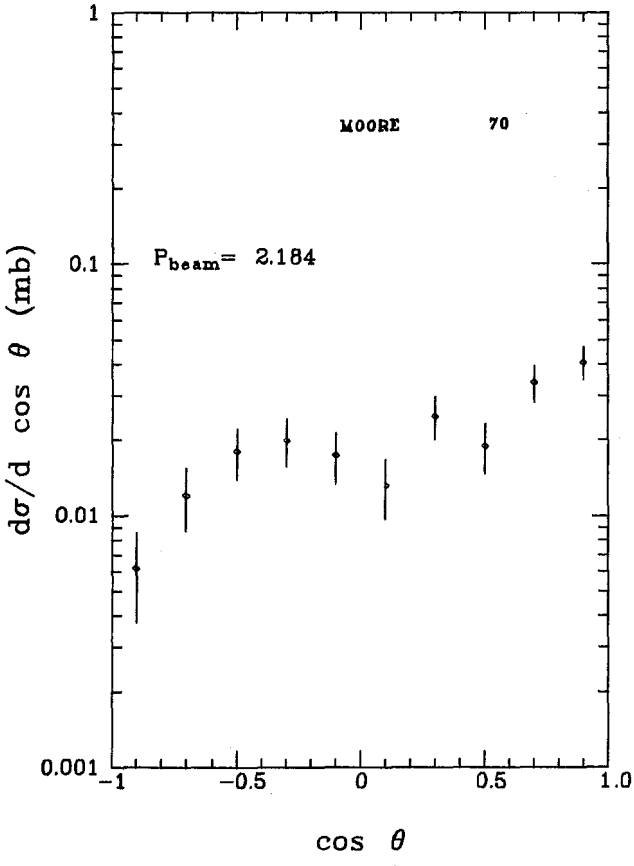
Differential cross section

for $\pi^+ n \to K^*(890)^+ \Lambda$, $K^*(890)^+ \to K^0 \pi^+$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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

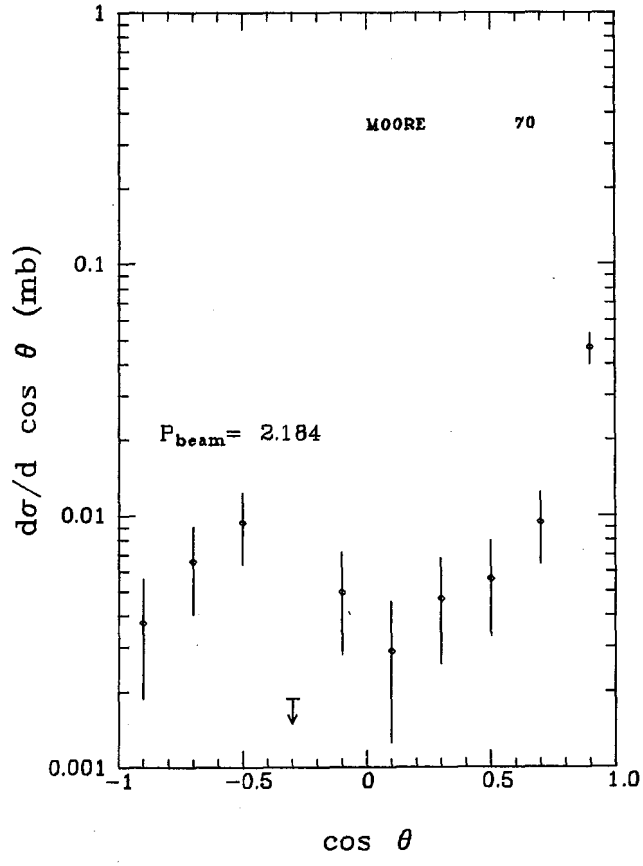


for $\pi^+ n \to K^+ Y^*(1405)$, $Y^*(1405) \to \Sigma^+\pi^- + \Sigma^-\pi^+$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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

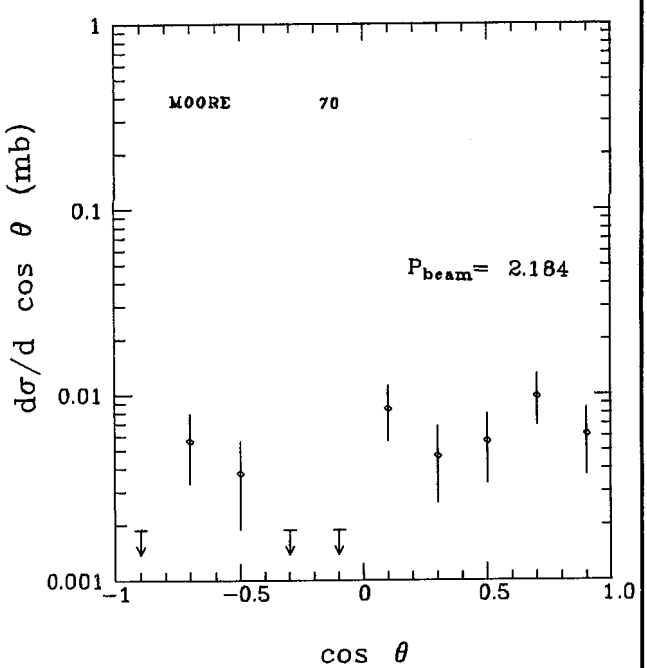
Differential cross section

for $\pi^+ n \to K^+ Y^*(1520)$ $\hookrightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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

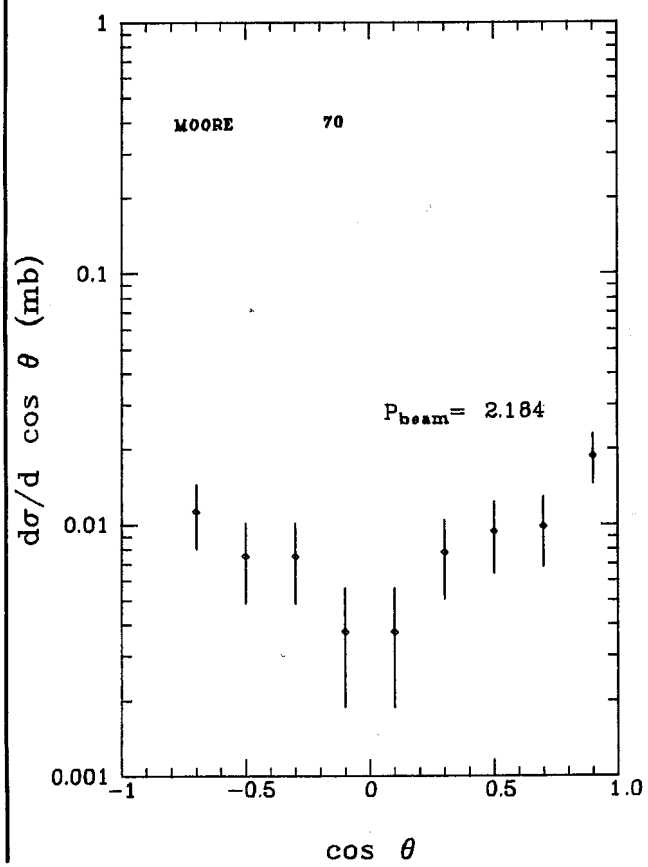


for $\pi^+ n \to K^+ Y^*(1520)$ $\hookrightarrow nK^0$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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

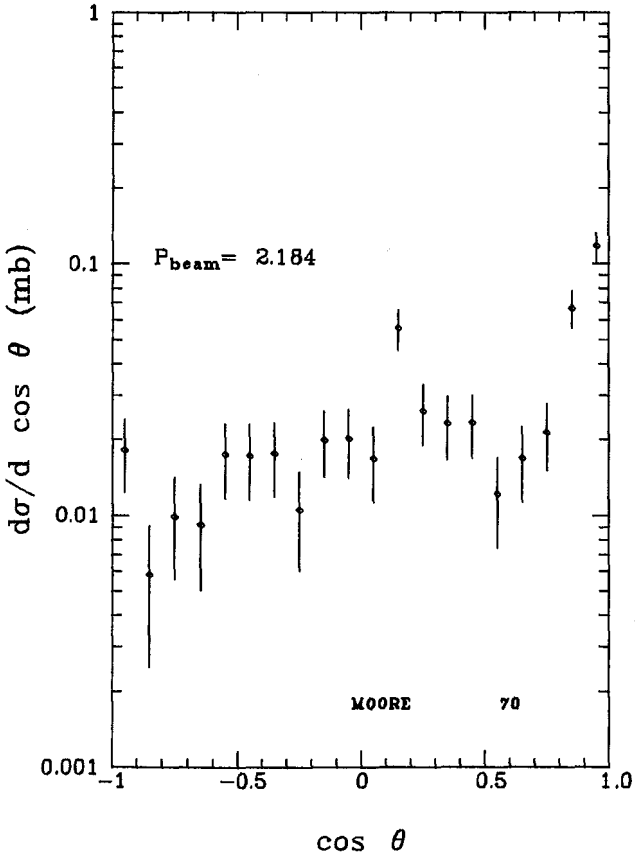
Differential cross section

for $\pi^+ n \to K^+ \Sigma^0$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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



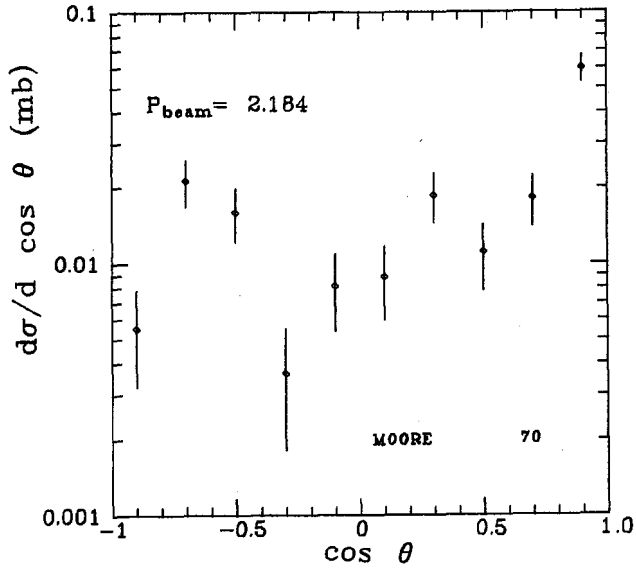
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+ n \to K^*(890)^+ \Sigma^0$, $K^*(890)^+ \to K^0 \pi^+$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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

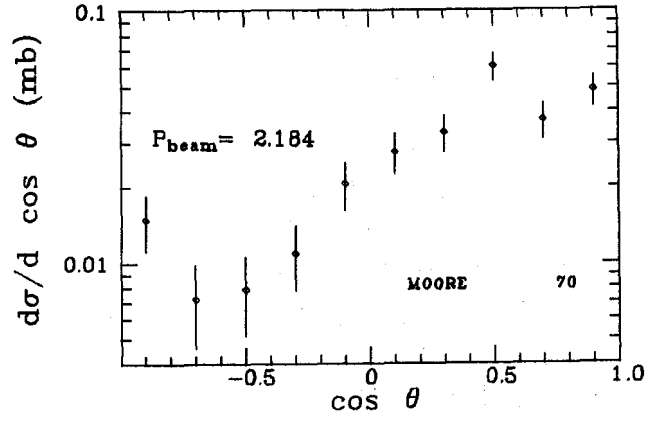


for $\pi^+ n \to K^+ Y^*(1385)^0$, $Y^*(1385)^0 \to \Lambda \pi^0$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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



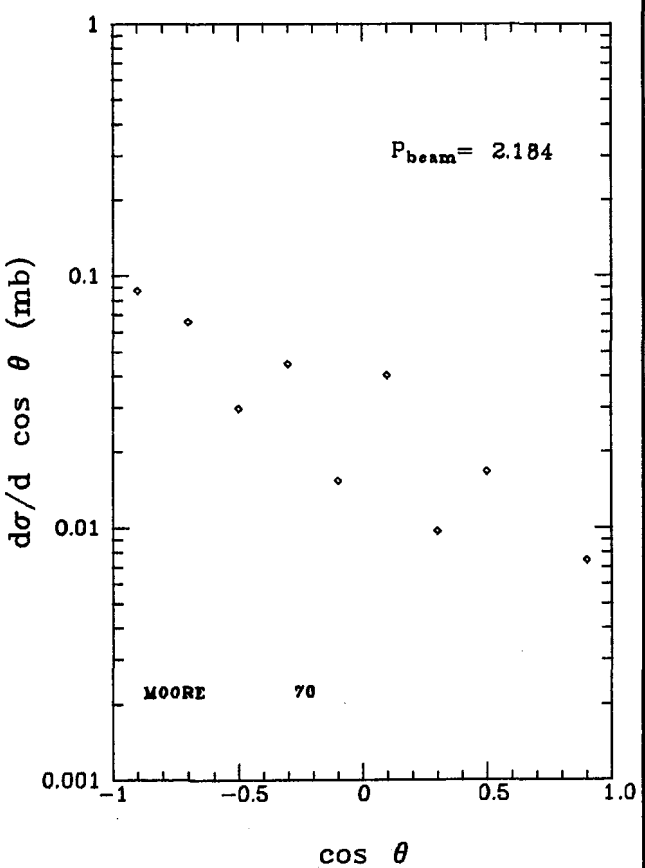
Differential cross section

for $\pi^+ n \to K^0 \Sigma^+$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)	
-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

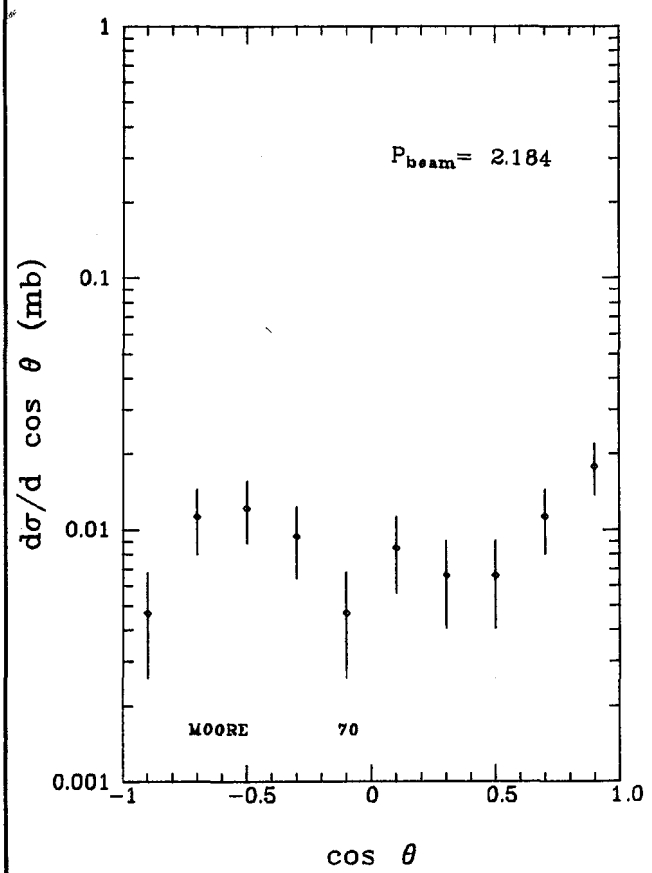


for $\pi^+ n \to K^*(890)^0 \Sigma^+$, $K^*(890)^0 \to K^+ \pi^-$

BEAM MOMENTUM= 2.184

COS(THETA) MIN	COS(THETA) MAX	DSIGMA/D COS(THETA) (MB)			
-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 $\pi^+ n \to K^0 Y^*(1385)^+$, $Y^* \to \Lambda\pi^+$

BEAM MOMENTUM= 2.11 +- .068

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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	*†

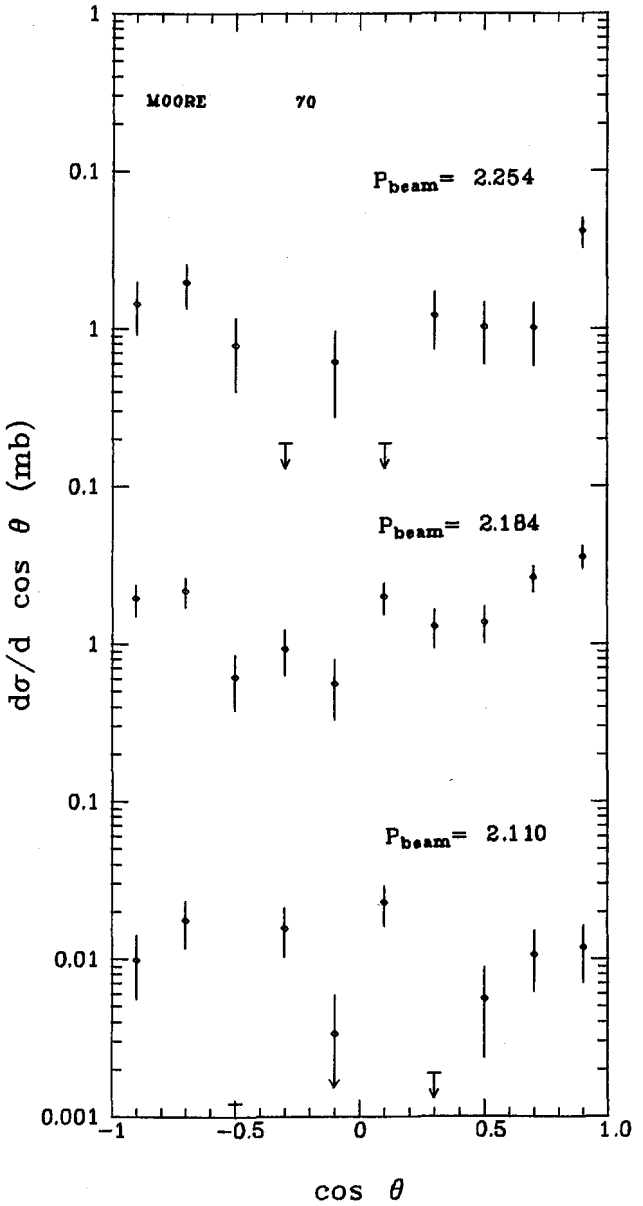
MOORE 70.....THESIS DBC. 33

BEAM MOMENTUM= 2.254 +- .076

COS(THETA) MIN	MAX	DSIGMA/D COS(THETA) (MB)			
-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 Sections

3. $\pi^+ d$ 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		0.026	*
0.600	0.342		0.036	*
0.800	0.386		0.046	*
0.860	0.480		0.057	*
0.930	0.455		0.062	*
0.960	0.373		0.057	*
0.980	0.217		0.046	*

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		0.011	*
0.590	0.215		0.026	*
0.800	0.303		0.031	*
0.930	0.246		0.026	*
0.980	0.146		0.036	*

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		0.016	*
0.600	0.116		0.021	*
0.820	0.229		0.021	*
0.860	0.240		0.036	*
0.920	0.287		0.031	*
0.950	0.246		0.021	*
0.970	0.169		0.036	*

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		0.010	*
0.590	0.066		0.020	*
0.790	0.142		0.015	*
0.860	0.142		0.020	*
0.930	0.193		0.025	*
0.960	0.168		0.015	*
0.980	0.198		0.025	*

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		0.004	*
0.450	0.030		0.008	*
0.600	0.026		0.006	*
0.690	0.046		0.010	*
0.790	0.047		0.002	*
0.870	0.053		0.010	*
0.950	0.112		0.010	*
0.990	0.163		0.014	*

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		0.004	*
0.590	0.021		0.004	*
0.790	0.053		0.008	*
0.880	0.081		0.011	*
0.950	0.109		0.011	*
0.970	0.216		0.019	*

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		0.003	*
0.600	0.013		0.004	*
0.790	0.020		0.008	*
0.870	0.035		0.017	*
0.960	0.054		0.011	*
0.990	0.107		0.017	*

DEKKERS 64.....PL 11 161 CNTR

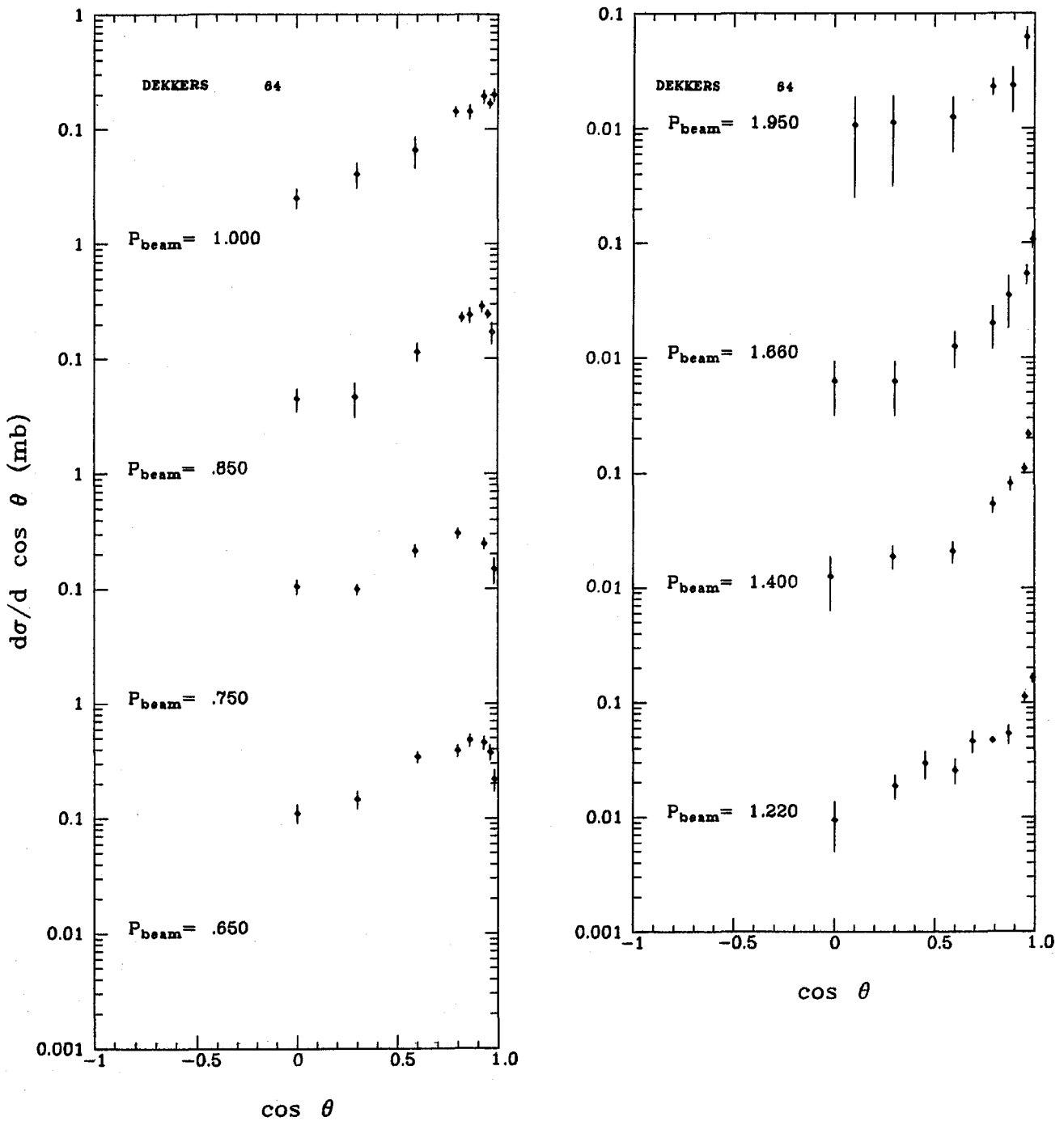
BEAM MOMENTUM= 1.95

COS(THETA)	DSIGMA/D COS(THETA) (MB)			
0.100	0.011	+-	0.008	*
0.290	0.011		0.008	*
0.590	0.013		0.006	*
0.790	0.023		0.004	*
0.890	0.024		0.010	*
0.960	0.063		0.014	*

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. $\pi^+ p$ Interactions

Differential cross section for $\pi^+p \to \rho^+p$, $\rho^+ \to \pi^+\pi^0$

BEAM MOMENTUM= 1.55

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.050	0.100	11.000	+-	1.220	†
0.100	0.150	9.700		1.120	†
0.150	0.200	6.910		0.880	†
0.200	0.250	4.840		0.730	†
0.250	0.300	3.840		0.640	†
0.300	0.400	2.630		0.390	†
0.400	0.550	1.080		0.220	†
0.550	0.700	1.180		0.240	†
0.700	0.850	1.260		0.240	†
0.850	0.950	1.400		0.310	†
0.950	1.050	1.590		0.320	†
1.050	1.150	1.350		0.320	†
1.150	1.250	1.650		0.300	†
1.250	1.350	1.500		0.300	†
1.350	1.500	1.490		0.220	†

WILLIAMSON 72.....PRL 29 1353 HBC

BEAM MOMENTUM= 1.67

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.050	0.100	9.580	+-	1.130	†
0.100	0.150	7.530		0.950	†
0.150	0.200	7.050		0.920	†
0.200	0.300	3.520		0.460	†
0.300	0.400	2.110		0.350	†
0.400	0.550	1.090		0.240	†
0.550	0.700	1.060		0.260	†
0.700	0.850	1.620		0.270	†
0.850	1.000	1.900		0.280	†
1.000	1.150	1.580		0.270	†
1.150	1.300	1.030		0.230	†
1.300	1.450	1.460		0.250	†
1.450	1.600	1.080		0.240	†

WILLIAMSON 72.....PRL 29 1353 HBC

BEAM MOMENTUM= 1.77

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.050	0.100	11.640	+-	1.250	†
0.100	0.150	6.380		0.840	†
0.150	0.200	4.870		0.700	†
0.200	0.300	2.760		0.380	†
0.300	0.400	1.270		0.250	†
0.400	0.550	0.950		0.190	†
0.550	0.700	0.980		0.190	†
0.700	0.850	1.140		0.210	†
0.850	1.000	1.790		0.250	†
1.000	1.150	1.700		0.230	†
1.150	1.300	1.220		0.200	†
1.300	1.500	1.050		0.160	†

WILLIAMSON 72.....PRL 29 1353 HBC

BEAM MOMENTUM= 1.84

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.050	0.100	8.870	+-	1.000	†
0.100	0.150	6.320		0.780	†
0.150	0.250	3.280		0.420	†
0.250	0.400	1.590		0.240	†
0.400	0.650	0.800		0.140	†
0.650	0.900	1.340		0.170	†
0.900	1.100	1.830		0.210	†
1.100	1.350	1.200		0.160	†
1.350	1.650	0.740		0.130	†

WILLIAMSON 72.....PRL 29 1353 HBC

→ BEAM MOMENTUM= 2.077 +- .030

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.024	0.055	7.637	+-	0.760	*†
0.055	0.085	4.461		0.581	*†
0.085	0.116	3.781		0.535	*†
0.116	0.146	3.327		0.502	*†
0.146	0.177	2.042		0.393	*†
0.177	0.207	2.268		0.414	*†
0.207	0.238	1.437		0.330	*†
0.238	0.268	1.210		0.302	*†
0.268	0.298	1.437		0.330	*†
0.298	0.329	0.681		0.227	*†
0.329	0.359	0.756		0.239	*†
0.359	0.390	0.302		0.151	*†
0.390	0.420	0.529		0.200	*†
0.420	0.451	0.227		0.131	*†
0.451	0.481	0.605		0.214	*†
0.481	0.512	0.454		0.185	*†
0.512	0.542	0.302		0.151	*†
0.542	0.572	0.		0.076	*†
0.572	0.603	0.302		0.151	*†
0.603	0.633	0.		0.076	*†
0.633	0.664	0.378		0.169	*†
0.664	0.694	0.151		0.107	*†
0.694	0.725	0.378		0.169	*†
0.725	0.755	0.454		0.185	*†
0.755	0.786	0.681		0.227	*†
0.786	0.816	0.529		0.200	*†
0.816	0.846	0.378		0.169	*†
0.846	0.877	0.454		0.185	*†
0.877	0.907	0.378		0.169	*†
0.907	0.938	0.378		0.169	*†
0.938	0.968	0.378		0.169	*†
0.968	0.999	0.681		0.227	*†
0.999	1.029	0.605		0.214	*†
1.029	1.060	0.378		0.169	*†
1.060	1.090	0.756		0.239	*†
1.090	1.120	0.605		0.214	*†
1.120	1.151	0.454		0.185	*†
1.151	1.181	0.302		0.151	*†
1.181	1.212	0.605		0.214	*†
1.212	1.242	0.756		0.239	*†
1.242	1.273	0.529		0.200	*†
1.273	1.303	1.210		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	0.529		0.200	*†
2.369	2.399	0.227		0.131	*†
2.399	2.430	0.302		0.151	*†
2.430	2.460	0.605		0.214	*†

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

BEAM MOMENTUM= 2.34

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.016	0.050	5.900	+-	0.700	*†
0.050	0.100	7.500		0.700	*†
0.100	0.150	2.900		0.400	*†
0.150	0.200	1.800		0.300	*†
0.200	0.250	2.100		0.400	*†
0.250	0.300	0.400		0.100	*†
0.300	0.350	0.600		0.100	*†

GRAMENITSK 66.....NAUK 31 1519 HLBC 24

→ BEAM MOMENTUM= 2.62 + .28 , - .27

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.014	0.101	4.714	+-	0.364	*†
0.101	0.187	2.301		0.254	*†
0.187	0.274	1.515		0.206	*†
0.274	0.361	0.730		0.143	*†
0.361	0.447	0.449		0.112	*†
0.447	0.534	0.337		0.097	*†
0.534	0.621	0.673		0.137	*†
0.621	0.707	0.337		0.097	*†
0.707	0.794	0.393		0.105	*†
0.794	0.880	0.337		0.097	*†
0.880	0.967	0.393		0.105	*†
0.967	1.054	0.337		0.097	*†
1.054	1.140	0.281		0.089	*†
1.140	1.227	0.337		0.097	*†
1.227	1.313	0.224		0.079	*†
1.313	1.400	0.168		0.069	*†
1.400	1.487	0.168		0.069	*†
1.487	1.573	0.084		0.049	*†
1.573	1.660	0.112		0.056	*†
1.660	1.746	0.224		0.079	*†
1.746	1.833	0.224		0.079	*†
1.833	1.920	0.224		0.079	*†
1.920	2.006	0.224		0.079	*†
2.006	2.093	0.196		0.074	*†
2.093	2.179	0.337		0.097	*†
2.179	2.266	0.112		0.056	*†
2.266	2.353	0.196		0.074	*†
2.353	2.439	0.168		0.069	*†
2.439	2.526	0.112		0.056	*†
2.526	2.612	0.140		0.063	*†
2.612	2.699	0.056		0.040	*†
2.699	2.786	0.253		0.084	*†
2.786	2.872	0.112		0.056	*†
2.872	2.959	0.112		0.056	*†
2.959	3.045	0.084		0.049	*†
3.045	3.132	0.196		0.074	*†
3.132	3.219	0.196		0.074	*†
3.219	3.305	0.140		0.063	*†
3.305	3.392				
3.392	3.478				

ALFF-STEIN 66.....PR 145 1072 HBC 20

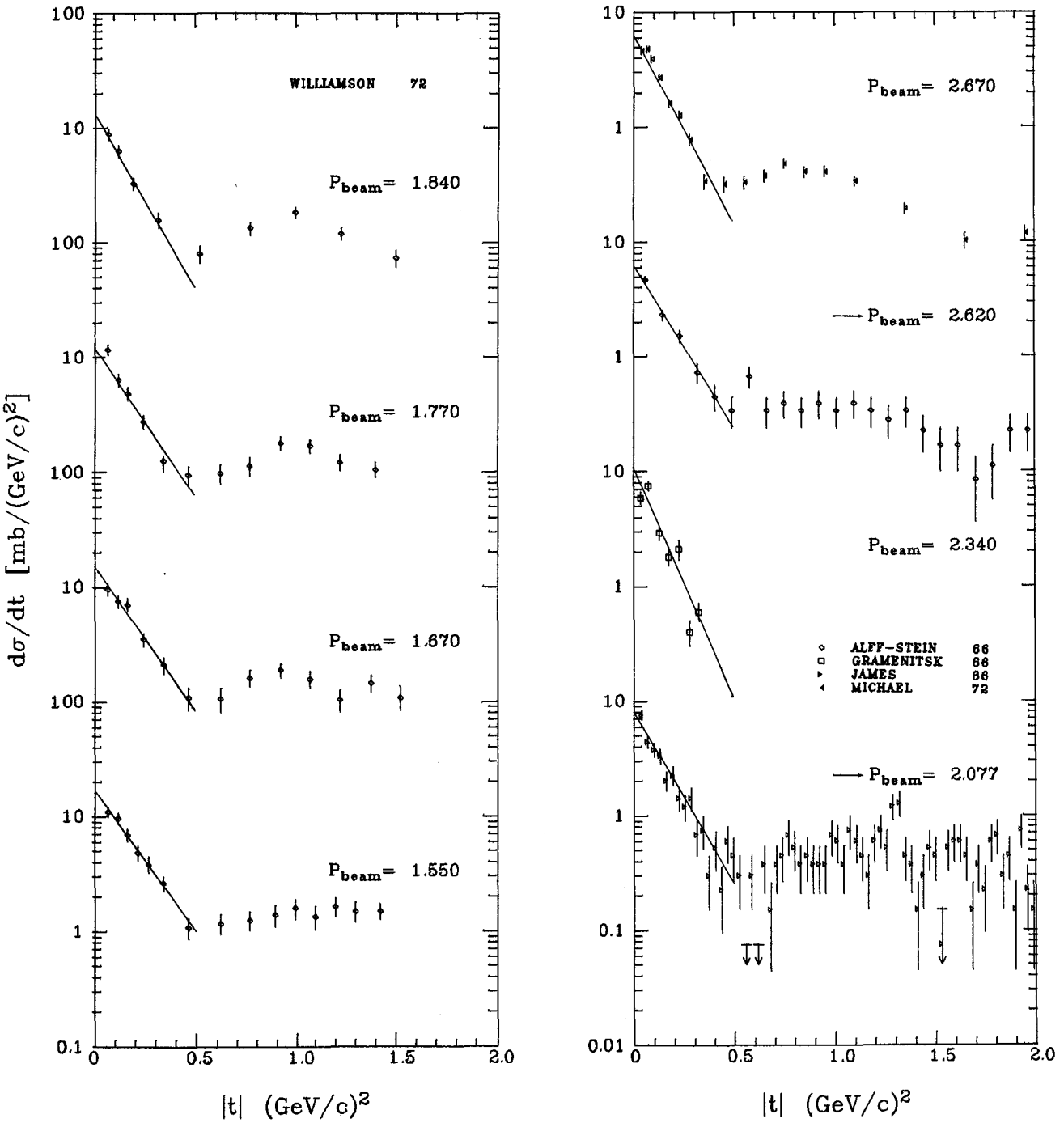
BEAM MOMENTUM= 2.67

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.038	4.673	+-	0.354	†
0.063	4.803		0.330	†
0.087	3.929		0.295	†
0.125	2.726		0.165	†
0.175	1.623		0.130	†
0.225	1.274		0.106	†
0.275	0.785		0.089	†
0.350	0.339		0.050	†
0.450	0.322		0.047	†
0.550	0.330		0.044	†
0.650	0.378		0.044	†
0.750	0.487		0.047	†
0.850	0.410		0.044	†
0.950	0.413		0.044	†
1.100	0.339		0.031	†
1.350	0.196		0.021	†
1.650	0.103		0.017	†
1.950	0.120		0.016	†
2.250	0.133		0.017	†
2.550	0.146		0.018	†
2.850	0.184		0.019	†
3.150	0.159		0.018	†
3.450	0.128		0.016	†

MICHAEL 72.....PRL 28 1475 HBC 25

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+ p \to \rho^+ p$, $\rho^+ \to \pi^+ \pi^0$



* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

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

BEAM MOMENTUM= 3.9

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	0.004		0.030	†
4.500	5.000	0.015		0.010	†
5.000	5.500	0.011		0.010	†
5.500	6.000	0.051		0.010	†
6.000	6.700	0.018		0.010	†

ADERHOLZ 65.....PR 138 B897 HBC 81

BEAM MOMENTUM= 5.2

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	†
8.232	8.282	0.030		0.007	†

CARLSON 70.....PL 338 502 SPRK

BEAM MOMENTUM= 6.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
-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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.003	0.023	1.590	+-	0.330	*†
0.022	0.042	2.420		0.470	*†
0.038	0.058	1.780		0.350	*†
0.066	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

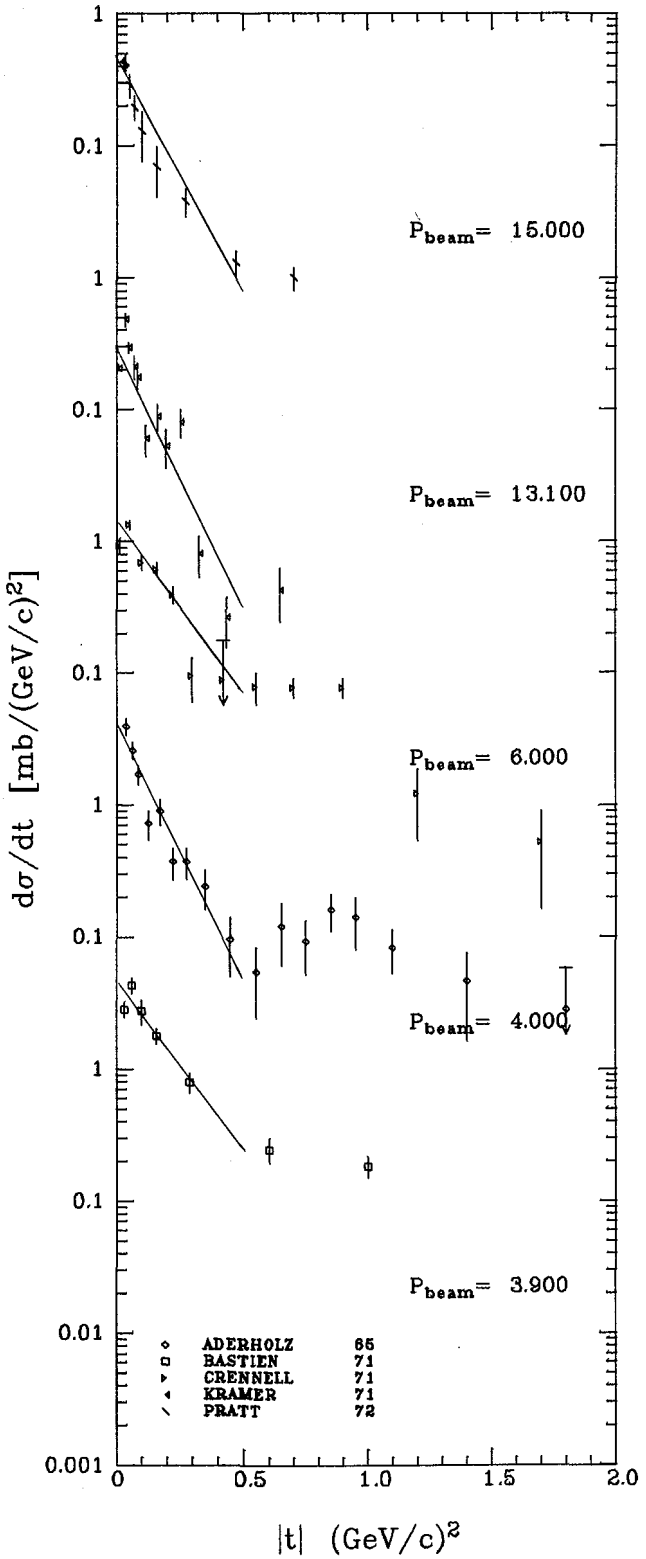
BEAM MOMENTUM= 8.04

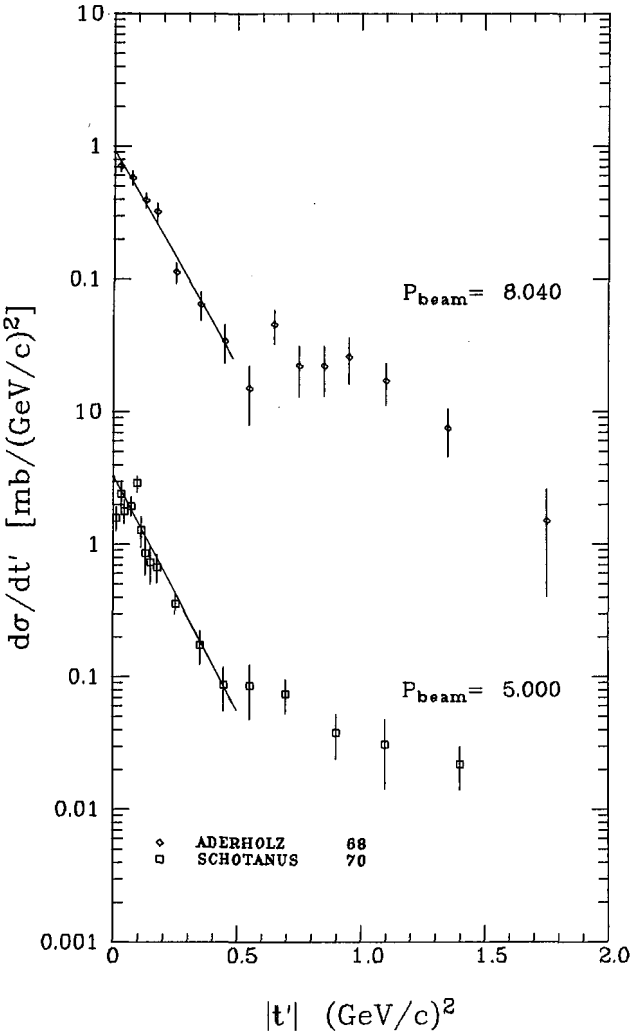
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.050	0.710	+-	0.070	†
0.050	0.100	0.580		0.070	†
0.100	0.150	0.390		0.050	†
0.150	0.200	0.320		0.050	†
0.200	0.300	0.112		0.020	†
0.300	0.400	0.064		0.015	†
0.400	0.500	0.034		0.011	†
0.500	0.600	0.015		0.007	†
0.600	0.700	0.045		0.013	†
0.700	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 $\pi^+ p \to \rho^+ p$, $\rho^+ \to \pi^+ \pi^0$





Differential cross section for $\pi^+ p \to A_2^+ p$

$A_2^+ \to \rho^0 \pi^+$, $\rho^0 \to \pi^+\pi^-$ or $A_2^+ \to \pi^+\pi^+\pi^-$

A2(1300)+ → RHO(765)0 PI+

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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		0.010	†
2.500	3.000	0.011			†
3.000	3.500	0.007			†
3.500	4.000	0.018			†
4.000	4.500	0.013			†
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	†

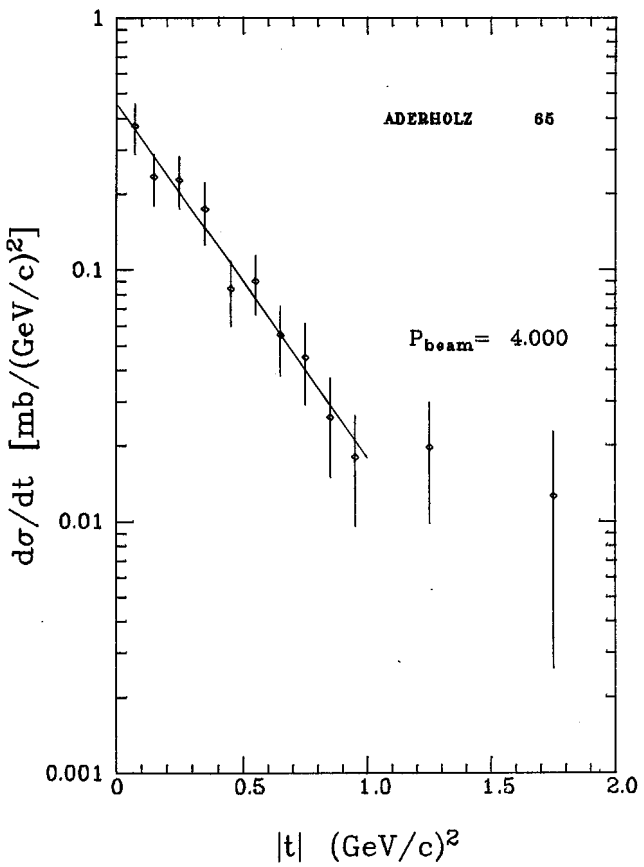
ADERHOLZ 68.....NP B8 45 HBC

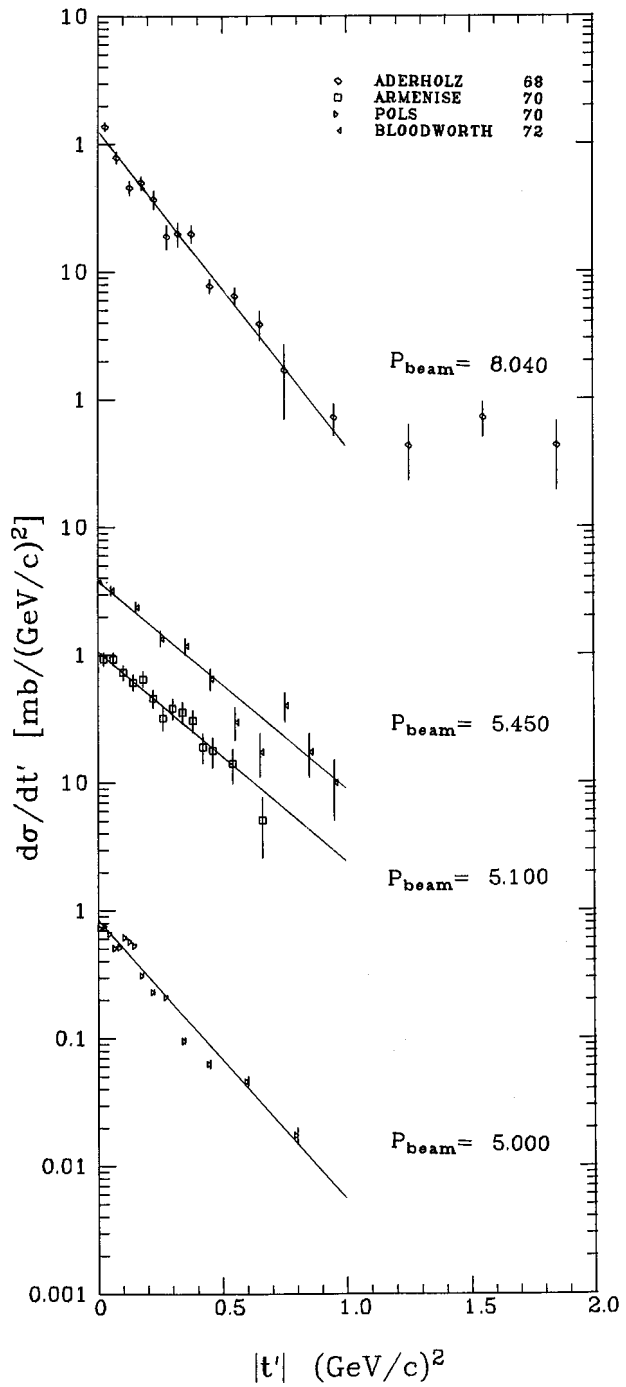
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+ p \to A_2^+ p$

$\rho^0 \pi^+ \leftarrow$ or $\rightarrow \pi^+\pi^+\pi^-$

$\pi^+\pi^- \leftarrow$





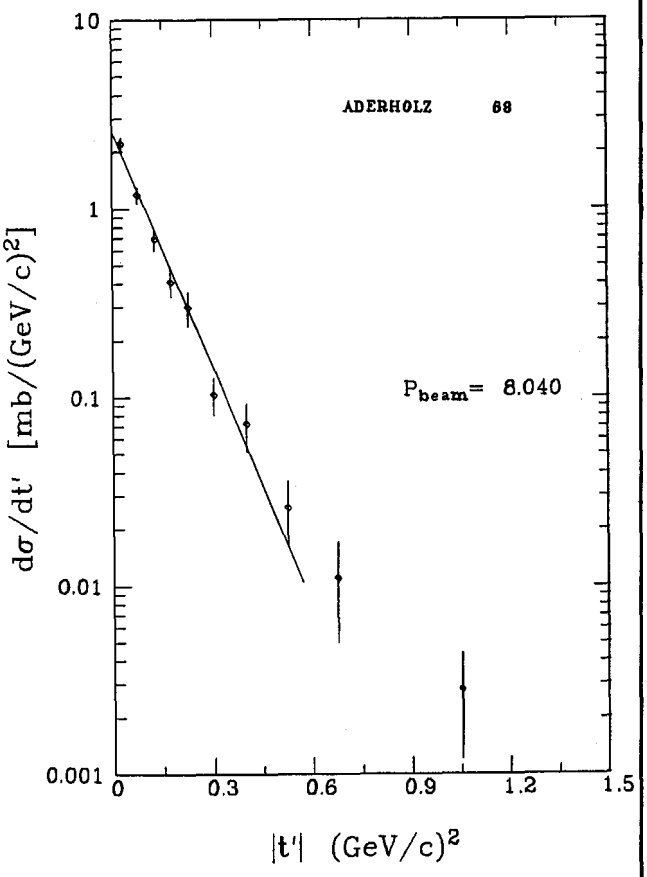
Differential cross section

for $\pi^+p \to A_1{}^+p$, $A_1{}^+ \to \pi^+\pi^+\pi^-$

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	0.350	0.103		0.023	†
0.350	0.450	0.072		0.020	†
0.450	0.600	0.026		0.010	†
0.600	0.750	0.011		0.006	†
0.750	1.350	0.003		0.002	†
1.350	2.000	0.002		0.001	†

ADERHOLZ 68.....NP 88 45 HBC



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

for $\pi^+p \to B^+p$, $B^+ \to \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 5.

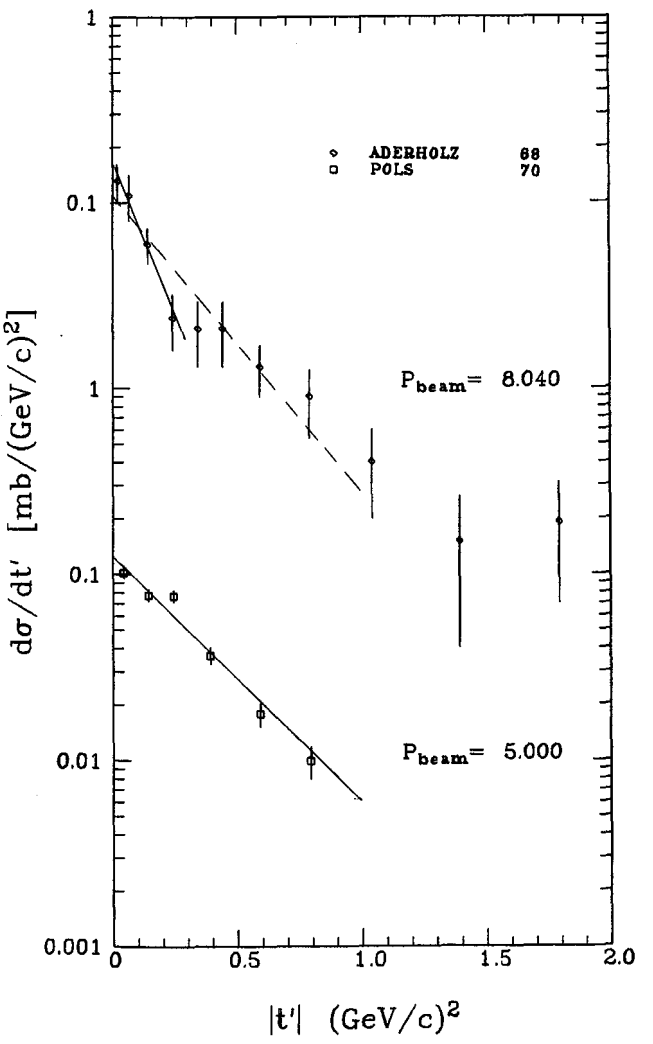
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.102	+-	0.006	*†
0.100	0.200	0.078		0.006	*†
0.200	0.300	0.077		0.005	*†
0.300	0.500	0.037		0.004	*†
0.500	0.700	0.018		0.003	*†
0.700	0.900	0.010		0.002	*†

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	0.700	0.013		0.004	†
0.700	0.900	0.009		0.004	†
0.900	1.200	0.004		0.002	†
1.200	1.600	0.002		0.001	†
1.600	2.000	0.002		0.001	†

ADERHOLZ 68.....NP 88 45 HBC



Differential cross section for $\pi^+p \to A_3^+p$

$$A_3^+ \to f\pi^+ \to \pi^+\pi^-, \quad A_3^+ \to \pi^+\pi^+\pi^- \quad \text{or}$$

A3(1640)+ → PI+ PI+ PI-

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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)+ → F(1260) PI+
F(1260) → PI+ PI-

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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

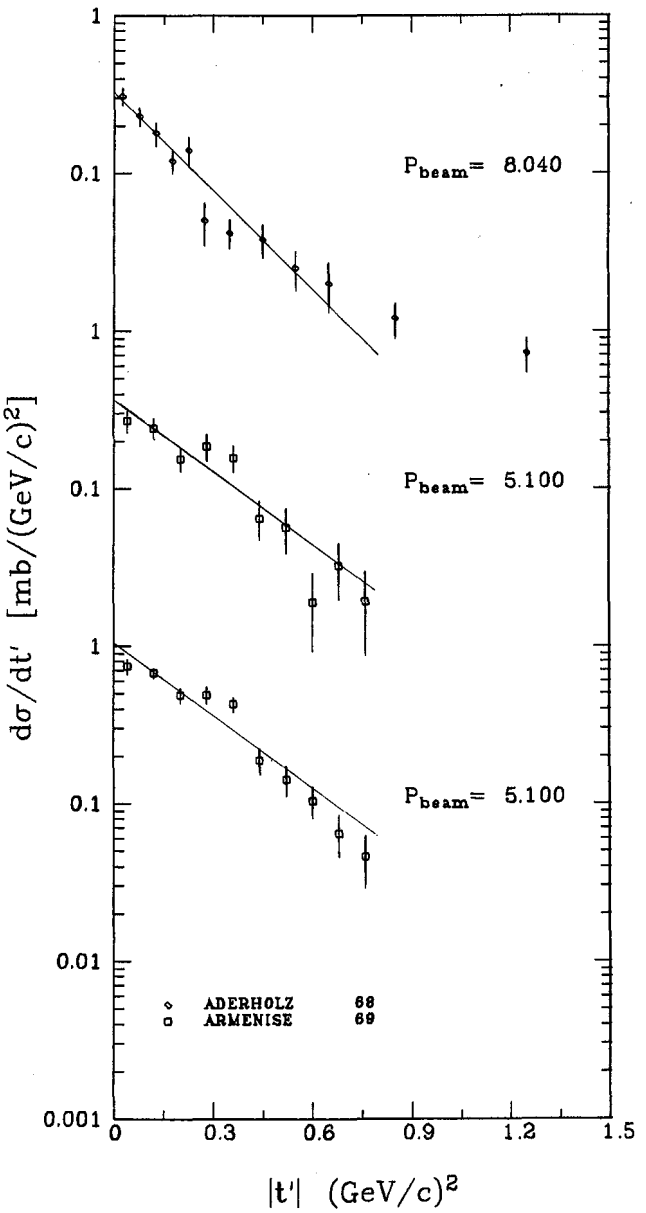
A3(1640)+ → PI+ PI+ PI-

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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

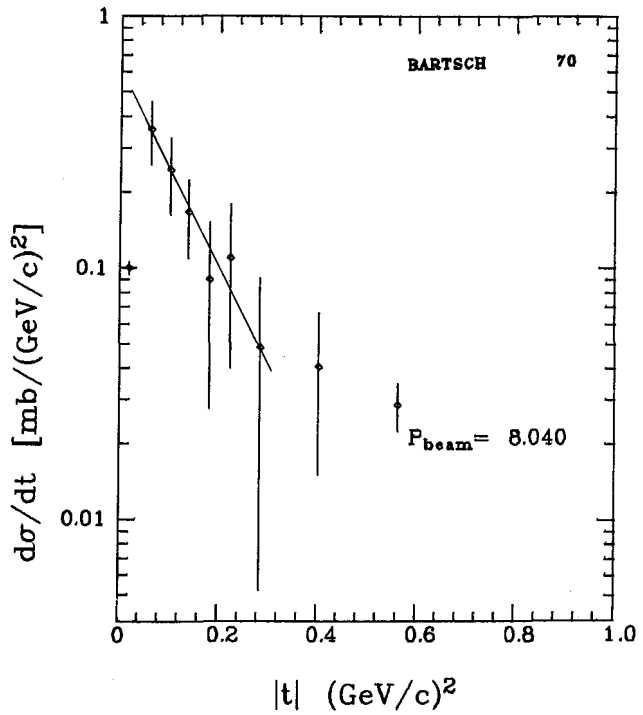


Differential cross section for $\pi^+p \to g^+p$, $g^+ \to \pi^+\pi^0$

BEAM MOMENTUM= 8.04 +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)			
-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

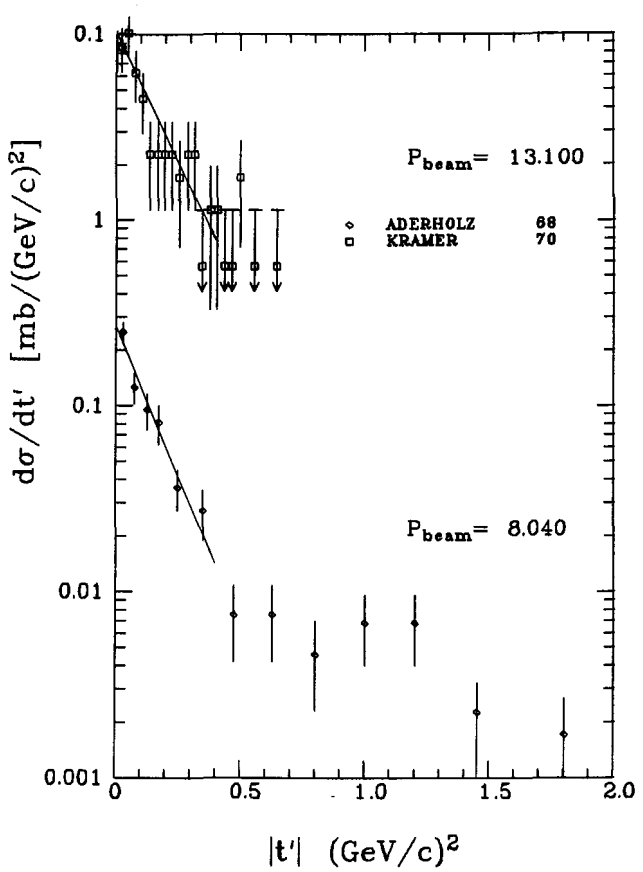
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' ((MB/(GEV/C)**2)			
0.	0.050	0.250	+-	0.030	†
0.050	0.100	0.126		0.024	†
0.100	0.150	0.095		0.021	†
0.150	0.200	0.081		0.019	†
0.200	0.300	0.036		0.009	†
0.300	0.400	0.027		0.008	†
0.400	0.550	0.008		0.003	†
0.550	0.700	0.008		0.003	†
0.700	0.900	0.005		0.002	†
0.900	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 MIN	MAX	D SIGMA/D T' ((MB/(GEV/C)**2)			
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 $\pi^+p \to S^+p$, $S^+ \to \pi^+\pi^0$

BEAM MOMENTUM= 8.04

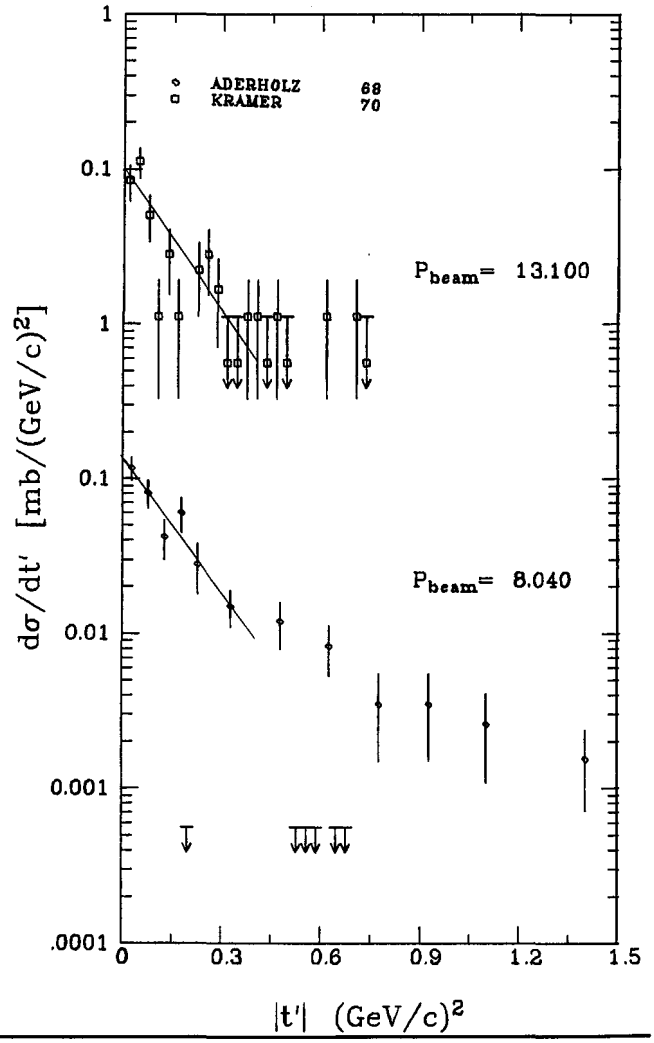
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.050	0.117	+-	0.020	†
0.050	0.100	0.081		0.017	†
0.100	0.150	0.042		0.012	†
0.150	0.200	0.060		0.015	†
0.200	0.250	0.028		0.010	†
0.250	0.400	0.015		0.004	†
0.400	0.550	0.012		0.004	†
0.550	0.700	0.008		0.003	†
0.700	0.850	0.004		0.002	†
0.850	1.000	0.004		0.002	†
1.000	1.200	0.003		0.002	†
1.200	1.600	0.002		0.001	†
1.600	2.000	0.001		0.001	†

ADERHOLZ 68.....NP B8 45 HBC

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	0.011		0.008	*†
0.420	0.450	0.006		0.006	*†
0.450	0.480	0.011		0.008	*†
0.480	0.510	0.006		0.006	*†
0.510	0.540	0.		0.000	*†
0.540	0.570	0.		0.000	*†
0.570	0.600	0.		0.000	*†
0.600	0.630	0.011		0.008	*†
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

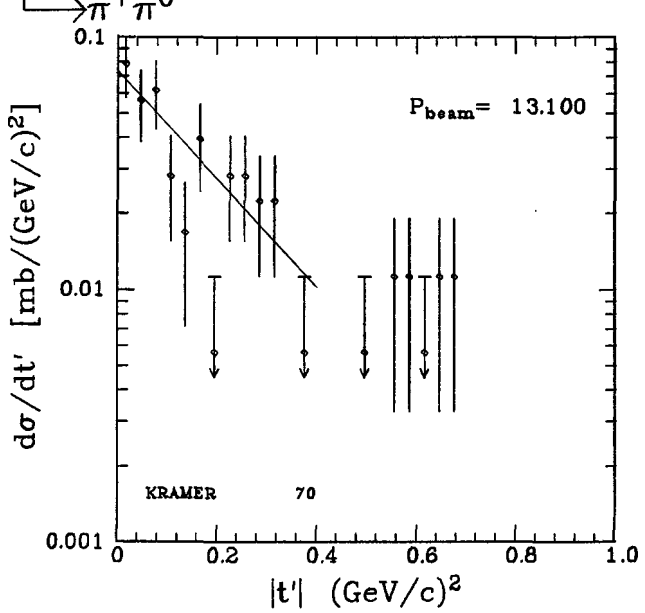


for $\pi^+p \to T^+p$, $T^+ \to \pi^+\pi^0$

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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



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

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

BEAM MOMENTUM= 2.67

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.050	1.610	+-	0.290	*†
0.050	0.100	1.440		0.260	*†
0.100	0.200	0.990		0.110	*†
0.200	0.300	0.490		0.150	*†
0.300	0.400	0.148		0.057	*†
0.400	0.500	0.069		0.038	*†
0.500	0.700	0.019		0.017	*†
0.700	0.900	0.097		0.037	*†
0.900	1.100	0.190		0.030	*†
1.100	1.300	0.103		0.032	*†
1.300	1.500	0.136		0.033	*†
1.500	1.700	0.067		0.031	*†
1.700	1.900	0.064		0.025	*†
1.900	2.300	0.042		0.013	*†
2.300	2.700	0.040		0.016	*†
2.671	2.871	0.040		0.026	*†
2.700	3.100	0.041		0.013	*†
2.871	3.071	0.073		0.041	*†
3.071	3.271	0.052		0.029	*†
3.100	3.300	0.067		0.026	*†
3.271	3.471	0.095		0.037	*†
3.300	3.500	0.116		0.028	*†
3.471	3.671	0.180		0.040	*†
3.500	3.700	0.075		0.035	*†
3.700	3.900	0.024		0.020	*†

GIDAL 69.....PRL 23 994 HBC

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.050	0.950	+-	0.160	*†
0.050	0.100	1.120		0.130	*†
0.100	0.200	0.730		0.080	*†
0.200	0.300	0.290		0.070	*†
0.300	0.400	0.173		0.042	*†
0.400	0.500	0.063		0.029	*†
0.500	0.700	0.046		0.025	*†
0.700	0.900	0.135		0.023	*†
0.900	1.100	0.104		0.025	*†
1.100	1.300	0.117		0.028	*†
1.300	1.500	0.085		0.020	*†
1.500	1.700	0.059		0.018	*†
1.700	2.000	0.031		0.010	*†
4.455	4.655	0.011		0.009	*†
4.655	4.855	0.030		0.014	*†
4.855	5.055	0.044		0.017	*†
5.055	5.255	0.090		0.023	*†

GIDAL 69.....PRL 23 994 HBC

BEAM MOMENTUM= 3.54

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.050	0.373	+-	0.118	*†
0.050	0.100	1.046		0.198	*†
0.100	0.150	0.523		0.140	*†
0.150	0.200	0.373		0.118	*†
0.200	0.250	0.299		0.106	*†
0.250	0.300	0.112		0.065	*†
0.300	0.350	0.075		0.053	*†
0.350	0.400	0.037		0.037	*†
0.400	0.450	0.037		0.037	*†
0.450	0.500	0.		0.037	*†
0.500	0.550	0.		0.037	*†
0.550	0.600	0.		0.037	*†
0.600	0.650	0.075		0.053	*†
0.650	0.700	0.112		0.065	*†
0.700	0.750	0.112		0.065	*†
0.750	0.800	0.		0.037	*†
0.800	0.850	0.112		0.065	*†
0.850	0.900	0.037		0.037	*†
0.900	0.950	0.		0.037	*†
0.950	1.000	0.037		0.037	*†
1.000	1.050	0.037		0.037	*†
1.050	1.100	0.037		0.037	*†
1.100	1.150	0.112		0.065	*†
1.150	1.200	0.112		0.065	*†
1.200	1.250	0.112		0.065	*†

ABOLINS 64.....PR 136 B195 HBC 20

BEAM MOMENTUM= 3.9

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
-0.070	0.070	0.937	+-	0.096	*†
0.010	0.070	1.627		0.286	*†
0.050	0.110	1.524		0.268	*†
0.110	0.190	0.576		0.147	*†
0.190	0.390	0.292		0.063	*†
0.420	0.780	0.031		0.012	*†
0.760	1.180	0.080		0.017	*†
1.190	1.550	0.072		0.018	*†

BASTIEN 71.....PR D3 2047 HBC 33

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.025	0.050	1.190	+-	0.250	†
0.050	0.075	2.040		0.510	†
0.075	0.100	0.750		0.200	†
0.100	0.150	1.020		0.250	†
0.150	0.200	0.740		0.140	†
0.200	0.250	0.530		0.140	†
0.250	0.300	0.485		0.127	†
0.300	0.400	0.047		0.038	†
0.400	0.500	0.061		0.031	†
0.500	0.600	0.031		0.022	†
0.600	0.700	0.102		0.051	†
0.700	0.800	0.061		0.030	†
0.800	0.900	0.061		0.030	†
0.900	1.000	0.077		0.034	†
1.000	1.200	0.046		0.030	†
1.200	1.600	0.027		0.030	†
1.600	2.000	0.015		0.030	†
2.000	2.500	0.009		0.030	†
2.500	3.000	0.009		0.010	†
3.000	3.500	0.010		0.010	†
3.500	4.000	0.		0.010	†
4.000	4.500	0.		0.010	†
4.500	5.000	0.		0.010	†
5.000	5.500	0.		0.010	†
5.500	6.000	0.018		0.010	†
6.000	6.200	0.015		0.010	†

ADERHOLZ 65.....PR 138 B897 HBC 81

BEAM MOMENTUM= 13.1

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.005	0.013	0.079	+-	0.040	*†
-0.001	0.037	0.224		0.025	*†
0.048	0.078	0.181		0.026	*†
0.074	0.120	0.169		0.021	*†
0.123	0.177	0.148		0.021	*†
0.183	0.237	0.090		0.010	*†
0.243	0.297	0.068		0.013	*†
0.305	0.373	0.018		0.005	*†
0.383	0.497	0.011		0.002	*†
0.497	0.657	0.002		0.001	*†
0.657	1.005	0.003		0.001	*†

KRAMER 71.....THESIS HBC 82

BEAM MOMENTUM= 5.

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.016	0.626	+-	0.153	*†
0.021	0.037	0.710		0.150	*†
0.042	0.058	0.710		0.150	*†
0.064	0.072	1.320		0.180	*†
0.072	0.098	0.800		0.140	*†
0.102	0.118	0.670		0.140	*†
0.119	0.135	0.740		0.150	*†
0.140	0.156	0.700		0.120	*†
0.164	0.198	0.436		0.066	*†
0.206	0.290	0.241		0.024	*†
0.296	0.492	0.035		0.009	*†
0.506	0.692	0.006		0.004	*†
0.694	0.898	0.017		0.008	*†
0.924	1.074	0.018		0.008	*†
1.098	1.294	0.033		0.009	*†
1.296	1.594	0.014		0.005	*†

SCHOTANUS 70.....NP B22 45 HBC 151

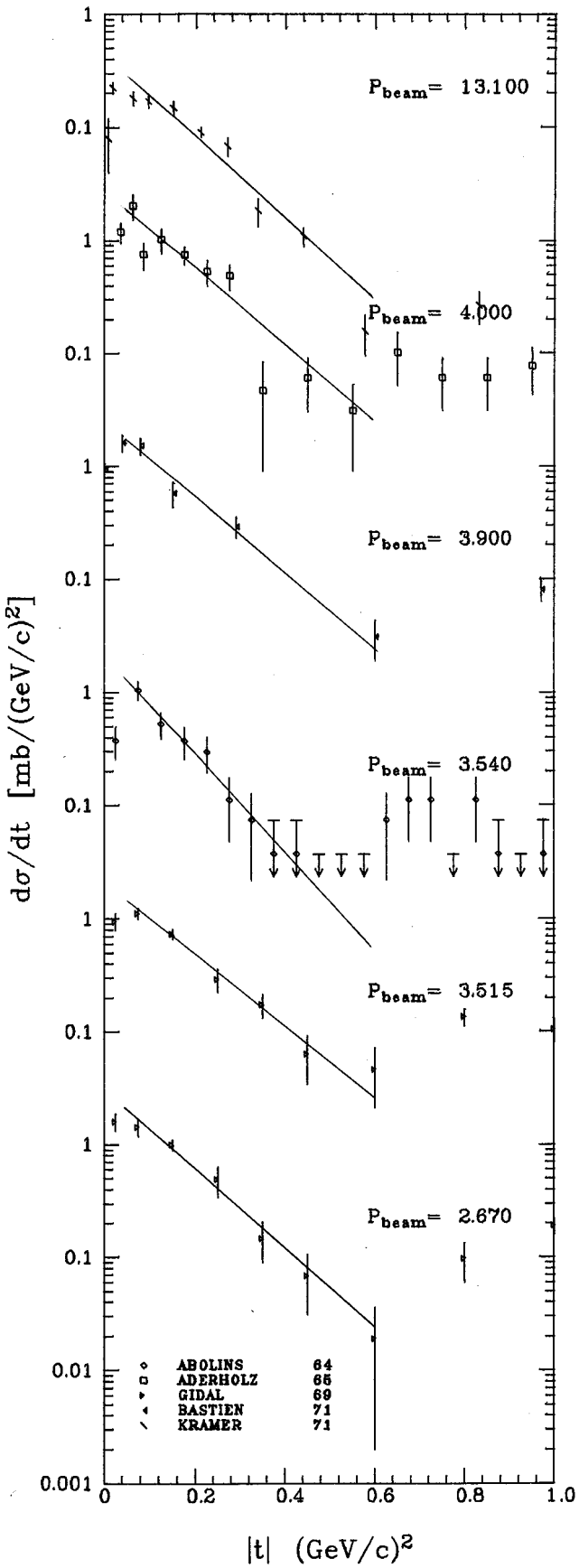
BEAM MOMENTUM= 8.04

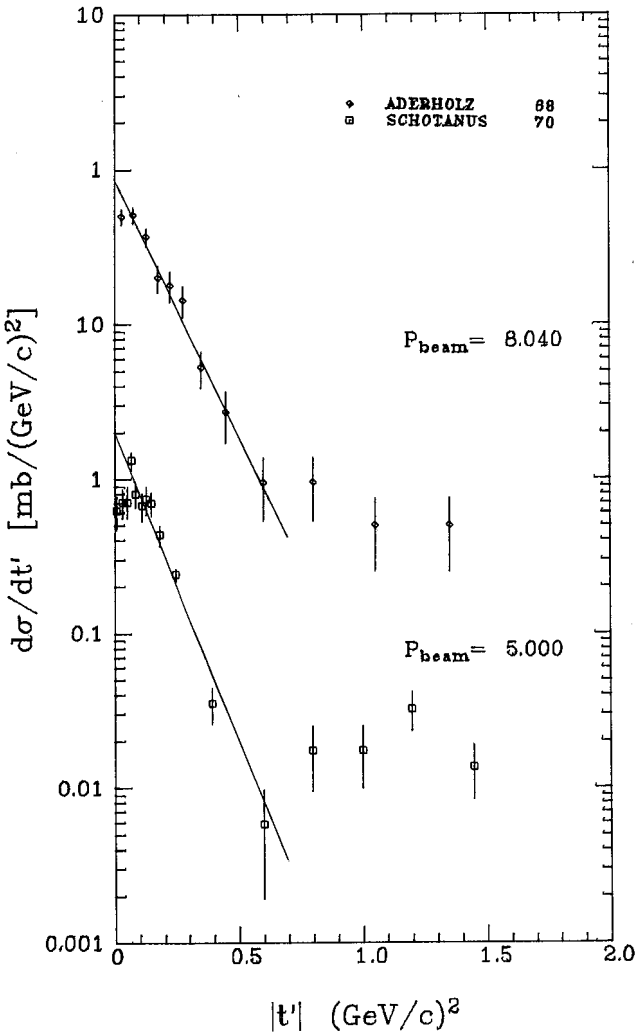
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.050	0.500	+-	0.060	†
0.050	0.100	0.510		0.060	†
0.100	0.150	0.370		0.050	†
0.150	0.200	0.200		0.040	†
0.200	0.250	0.180		0.040	†
0.250	0.300	0.144		0.033	†
0.300	0.400	0.053		0.014	†
0.400	0.500	0.027		0.010	†
0.500	0.700	0.010		0.004	†
0.700	0.900	0.010		0.004	†
0.900	1.200	0.005		0.003	†
1.200	1.500	0.005		0.003	†

ADERHOLZ 68.....NP B8 45 HBC

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

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





Differential cross section for $\pi^+p \to \eta\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $\eta \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.95

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.082	0.273	0.107	+-	0.034	*†
0.273	0.463	0.182		0.044	*†
0.463	0.654	0.182		0.044	*†
0.654	0.845	0.064		0.026	*†
0.845	1.035	0.064		0.026	*†
1.035	1.226	0.043		0.021	*†
1.226	1.417	0.011		0.011	*†
1.417	1.607	0.054		0.024	*†
1.607	1.798	0.021		0.015	*†
1.798	1.989	0.107		0.034	*†

CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.077 +- .030

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.074	0.181	0.044	+-	0.031	*†
0.181	0.289	0.110		0.049	*†
0.289	0.396	0.132		0.054	*†
0.396	0.504	0.220		0.069	*†
0.504	0.611	0.088		0.044	*†
0.611	0.719	0.044		0.031	*†
0.719	0.826	0.022		0.022	*†
0.826	0.934	0.022		0.022	*†
0.934	1.041	0.022		0.022	*†
1.041	1.149	0.022		0.022	*†
1.149	1.256	0.		0.022	*†
1.256	1.363	0.		0.022	*†
1.363	1.471	0.		0.022	*†
1.471	1.578	0.		0.022	*†
1.578	1.686	0.		0.022	*†
1.686	1.793	0.044		0.031	*†
1.793	1.901	0.		0.022	*†
1.901	2.008	0.		0.022	*†
2.008	2.116	0.044		0.031	*†
2.116	2.223	0.022		0.022	*†

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

BEAM MOMENTUM= 3.00

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.071	+-	0.015	*†
0.100	0.150	0.109		0.019	*†
0.150	0.200	0.157		0.022	*†
0.200	0.250	0.138		0.021	*†
0.250	0.300	0.157		0.022	*†
0.300	0.350	0.157		0.022	*†
0.350	0.400	0.141		0.021	*†
0.400	0.450	0.119		0.020	*†
0.450	0.500	0.132		0.021	*†
0.500	0.550	0.119		0.020	*†
0.550	0.600	0.087		0.017	*†
0.600	0.650	0.083		0.016	*†
0.650	0.700	0.087		0.017	*†
0.700	0.800	0.048		0.012	*†
0.800	0.900	0.028		0.010	*†
0.900	1.000	0.027		0.009	*†
1.000	1.100	0.013		0.006	*†
1.100	1.300	0.004		0.003	*†
1.300	1.500	0.003		0.003	*†
1.500	1.700	0.003		0.003	*†
1.700	1.900	0.010		0.006	*†
1.900	2.100	0.005		0.004	*†
2.100	2.300	0.007		0.005	*†
2.300	2.500	0.011		0.006	*†
2.500	2.700	0.005		0.004	*†
2.700	2.900	0.007		0.005	*†
2.900	3.100	0.003		0.003	*†
3.100	3.300	0.022		0.008	*†
3.300	3.500	0.005		0.004	*†

GRETHER 71.....PRL 26 792 HBC 25

BEAM MOMENTUM= 3.00

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.150	0.087	+-	0.017	*†
0.150	0.200	0.125		0.020	*†
0.200	0.250	0.176		0.024	*†
0.250	0.300	0.016		0.007	*†
0.300	0.350	0.189		0.025	*†
0.350	0.400	0.176		0.024	*†
0.400	0.450	0.148		0.022	*†
0.450	0.500	0.122		0.020	*†
0.500	0.550	0.148		0.022	*†
0.550	0.600	0.125		0.020	*†
0.600	0.650	0.093		0.017	*†
0.650	0.700	0.087		0.017	*†
0.700	0.750	0.093		0.017	*†
0.750	0.800	0.051		0.013	*†
0.800	0.900	0.030		0.010	*†
0.900	1.000	0.027		0.009	*†
1.000	1.100	0.012		0.006	*†
1.100	1.300	0.002		0.002	*†
1.300	1.500	0.001		0.002	*†
1.500	1.700	0.001		0.002	*†
1.700	1.900	0.007		0.005	*†
1.900	2.100	0.003		0.003	*†
2.100	2.300	0.005		0.004	*†
2.300	2.500	0.009		0.005	*†
2.500	2.700	0.003		0.003	*†
2.700	2.900	0.005		0.004	*†
2.900	3.100	0.001		0.002	*†
3.100	3.300	0.001		0.002	*†
3.300	3.500	0.003		0.003	*†

GRETHER 71.....PRL 26 792 HBC 25

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.011	+-	0.007	*†
0.100	0.200	0.076		0.017	*†
0.200	0.300	0.068		0.016	*†
0.300	0.400	0.074		0.017	*†
0.400	0.500	0.068		0.016	*†
0.500	0.600	0.034		0.012	*†
0.600	0.800	0.013		0.007	*†
0.800	1.000	0.009		0.006	*†
1.000	2.000	0.004		0.004	*†
2.000	3.000	0.003		0.004	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.515 +- .565

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.019	+-	0.009	*†
0.100	0.200	0.090		0.019	*†
0.200	0.300	0.072		0.017	*†
0.300	0.400	0.078		0.018	*†
0.400	0.500	0.072		0.017	*†
0.500	0.750	0.015		0.008	*†
0.750	1.000	0.008		0.006	*†
1.000	2.000	0.004		0.004	*†
2.000	3.000	0.003		0.004	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 5.

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.050	0.036	+-	0.036	*†
0.050	0.100	0.294		0.096	*†
0.100	0.150	0.272		0.079	*†
0.150	0.200	0.251		0.102	*†
0.200	0.400	0.148		0.043	*†
0.400	0.600	0.077		0.022	*†
0.600	0.800	0.029		0.016	*†

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.100	+-	0.030	†
0.100	0.200	0.110		0.040	†
0.200	0.300	0.120		0.040	†
0.300	0.400	0.068		0.028	†
0.400	0.500	0.045		0.023	†
0.500	0.600	0.023		0.016	†
0.600	2.000	0.002		0.001	†

ADERHOLZ 68.....NP B8 45 HBC

BEAM MOMENTUM= 18.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.105	+-	0.053	*†
0.100	0.200	0.079		0.046	*†
0.200	0.300	0.053		0.037	*†
0.300	0.500	0.026		0.026	*†

BISWAS 70.....PR D2 2529 HBC 80

for $\pi^+p \to \eta\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $\eta \to$ Neutrals

BEAM MOMENTUM= 5.

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.001	0.041	0.037	+-	0.037	*†
0.037	0.099	0.289		0.100	*†
0.094	0.148	0.271		0.077	*†
0.140	0.202	0.253		0.088	*†
0.198	0.394	0.150		0.034	*†
0.391	0.597	0.080		0.020	*†
0.606	0.794	0.029		0.017	*†

SCHOTANUS 70.....NP B22 45 HBC 151

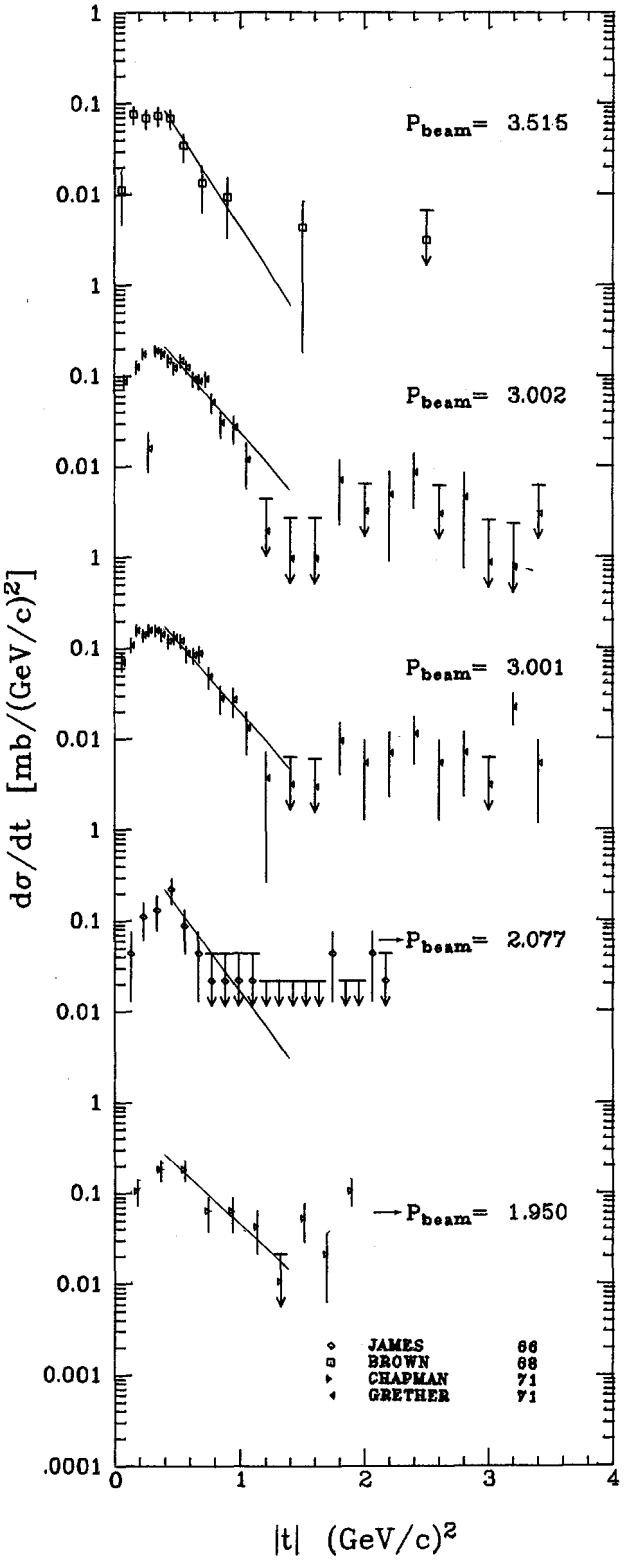
BEAM MOMENTUM= 13.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.010	0.197	+-	0.028	*†
0.004	0.018	0.236		0.068	*†
0.023	0.045	0.121		0.027	*†
0.049	0.079	0.106		0.020	*†
0.083	0.139	0.071		0.015	*†
0.139	0.197	0.055		0.009	*†
0.205	0.297	0.033		0.007	*†
0.306	0.398	0.010		0.005	*†

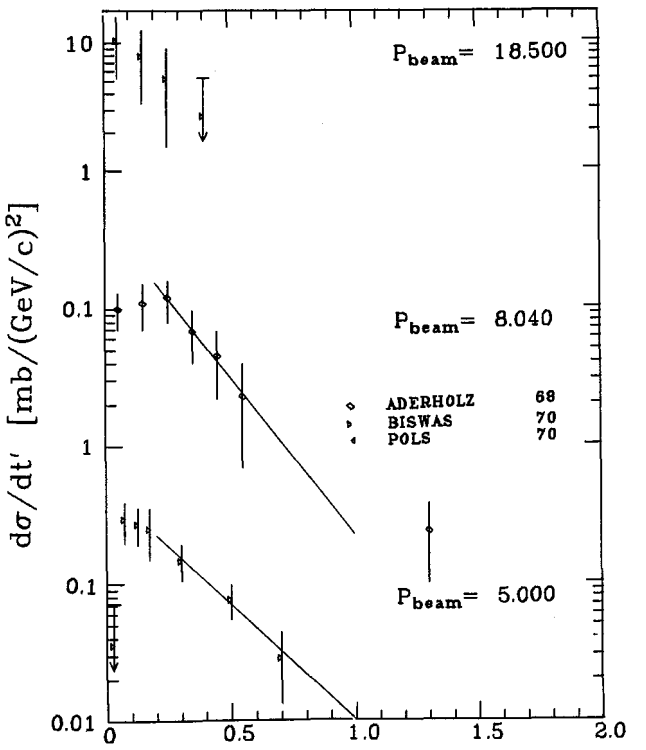
KRAMER 71.....THESIS HBC 82

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

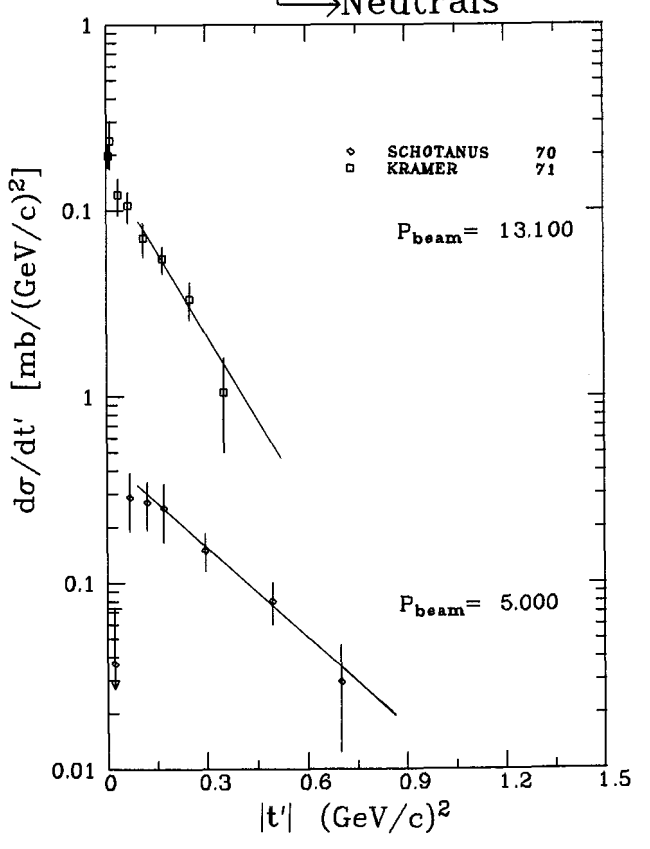
Differential cross section for $\pi^+p \to \eta\Delta(1238)^{++}$
$\Delta \to p\pi^+$
$\eta \to \pi^+\pi^-\pi^0$



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T



for $\pi^+p \to \eta\Delta(1238)^{++}$
$\Delta \to p\pi^+$
$\eta \to$ Neutrals



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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

→ BEAM MOMENTUM= 2.077 +- .030

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.208	0.285	5.974	+-	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		0.182	*†
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	*†

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

→ BEAM MOMENTUM= 2.34 +- .06

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.161	0.266	4.784	+-	0.221	*†
0.266	0.371	1.840		0.137	*†
0.371	0.477	0.889		0.095	*†
0.477	0.582	0.654		0.082	*†
0.582	0.688	0.583		0.077	*†
0.161	1.215	0.409		0.065	*†
0.688	0.793	0.511		0.072	*†
0.793	0.899	0.501		0.072	*†
0.899	1.004	0.470		0.069	*†
1.004	1.110	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	0.358		0.060	*†
1.953	2.059	0.358		0.060	*†
2.059	2.164	0.296		0.055	*†
2.164	2.270	0.286		0.054	*†

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

BEAM MOMENTUM= 2.62 + .28 , - .27

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.117	+-	0.052	*†
0.100	0.200	1.824		0.207	*†
0.200	0.300	2.012		0.217	*†
0.300	0.400	0.748		0.132	*†
0.400	0.500	0.304		0.084	*†
0.500	0.600	0.281		0.081	*†
0.600	0.700	0.140		0.057	*†
0.700	0.800	0.164		0.062	*†
0.800	0.900	0.140		0.057	*†
0.900	1.000	0.187		0.066	*†
1.000	1.100	0.211		0.070	*†
1.100	1.200	0.117		0.052	*†
1.200	1.300	0.140		0.057	*†
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.		0.023	*†
2.500	2.600	0.		0.023	*†
2.600	2.700	0.047		0.033	*†
2.700	2.800	0.070		0.041	*†

ALFF-STEIN 66.....PR 145 1072 HBC 20

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

BEAM MOMENTUM= 2.75

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.040	0.	+-	0.028	*†
0.040	0.080	0.084		0.049	*†
0.080	0.120	2.222		0.250	*†
0.120	0.160	4.107		0.340	*†
0.160	0.200	2.729		0.277	*†
0.200	0.240	2.391		0.259	*†
0.240	0.280	1.913		0.232	*†
0.280	0.320	1.406		0.199	*†
0.320	0.360	0.956		0.164	*†
0.360	0.400	0.675		0.138	*†
0.400	0.440	0.647		0.135	*†
0.440	0.480	0.394		0.105	*†
0.480	0.520	0.506		0.119	*†
0.520	0.560	0.169		0.069	*†
0.560	0.600	0.113		0.056	*†
0.600	0.640	0.338		0.097	*†
0.640	0.680	0.422		0.109	*†
0.680	0.720	0.169		0.069	*†
0.720	0.760	0.366		0.101	*†
0.760	0.800	0.197		0.074	*†
0.800	0.840	0.197		0.074	*†
0.840	0.880	0.225		0.080	*†
0.880	0.920	0.281		0.089	*†
0.920	0.960	0.309		0.093	*†
0.960	1.000	0.225		0.080	*†
1.000	1.040	0.169		0.069	*†
1.040	1.080	0.169		0.069	*†
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.		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.		0.028	*†
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	*†

ARMENISE 66.....NC 41A 159 HBC 81

→ BEAM MOMENTUM= 2.77 +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.118	0.192	4.117	+-	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.		0.028	*†
1.608	1.682	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.		0.028	*†
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.106	0.273	3.040	+-	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	0.176		0.062	*†
1.606	1.773	0.110		0.049	*†
1.773	1.940	0.066		0.038	*†
1.940	2.106	0.066		0.038	*†
2.106	2.273	0.088		0.044	*†
2.273	2.440	0.110		0.049	*†
2.440	2.607	0.176		0.062	*†
2.607	2.773	0.044		0.031	*†
2.773	2.940	0.088		0.044	*†
2.940	3.107	0.044		0.031	*†
3.107	3.273	0.132		0.054	*†
3.273	3.440	0.132		0.054	*†

BROWN 68.....UCRL 18254 HBC 72

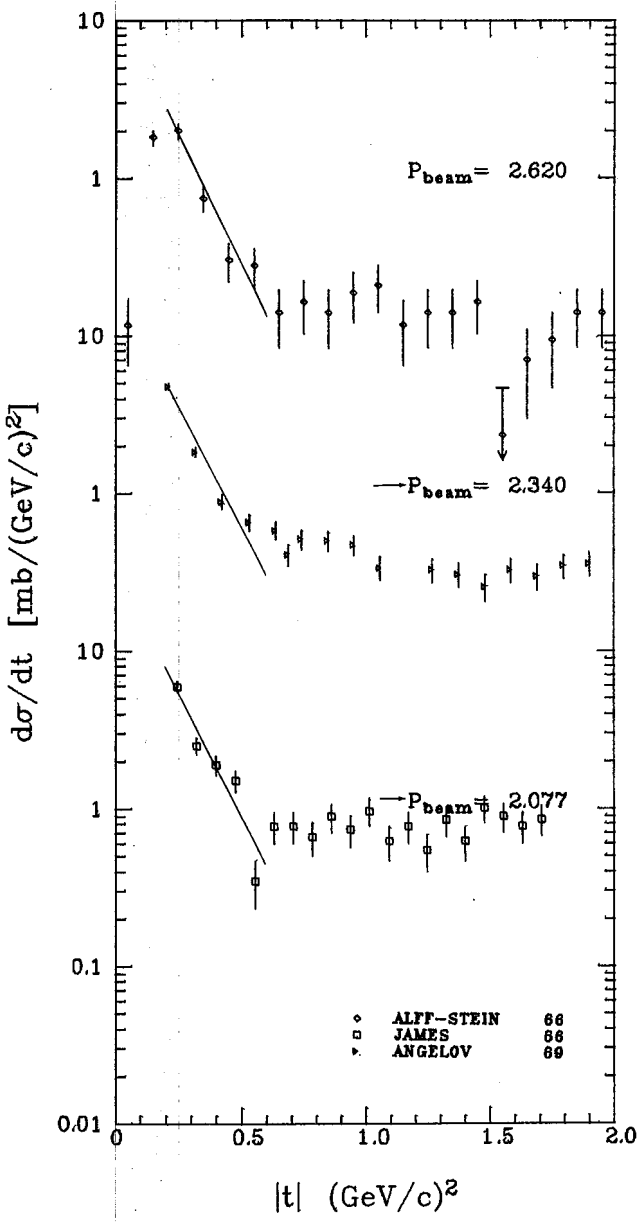
→ BEAM MOMENTUM= 3.19

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.094	0.284	2.621	+-	0.154	*†
0.284	0.474	0.491		0.067	*†
0.474	0.664	0.309		0.053	*†
0.664	0.854	0.264		0.049	*†
0.854	1.044	0.100		0.030	*†
1.044	1.234	0.064		0.024	*†
1.234	1.424	0.073		0.026	*†
1.424	1.614	0.045		0.020	*†
1.614	1.804	0.100		0.030	*†
1.804	1.994	0.064		0.024	*†
1.994	2.184	0.027		0.016	*†
2.184	2.374	0.045		0.020	*†
2.374	2.564	0.100		0.030	*†
2.564	2.754	0.073		0.026	*†
2.754	2.944	0.073		0.026	*†
2.944	3.134	0.064		0.024	*†
3.134	3.324	0.045		0.020	*†
3.324	3.514	0.045		0.020	*†
3.514	3.704	0.045		0.020	*†
3.704	3.894	0.055		0.022	*†

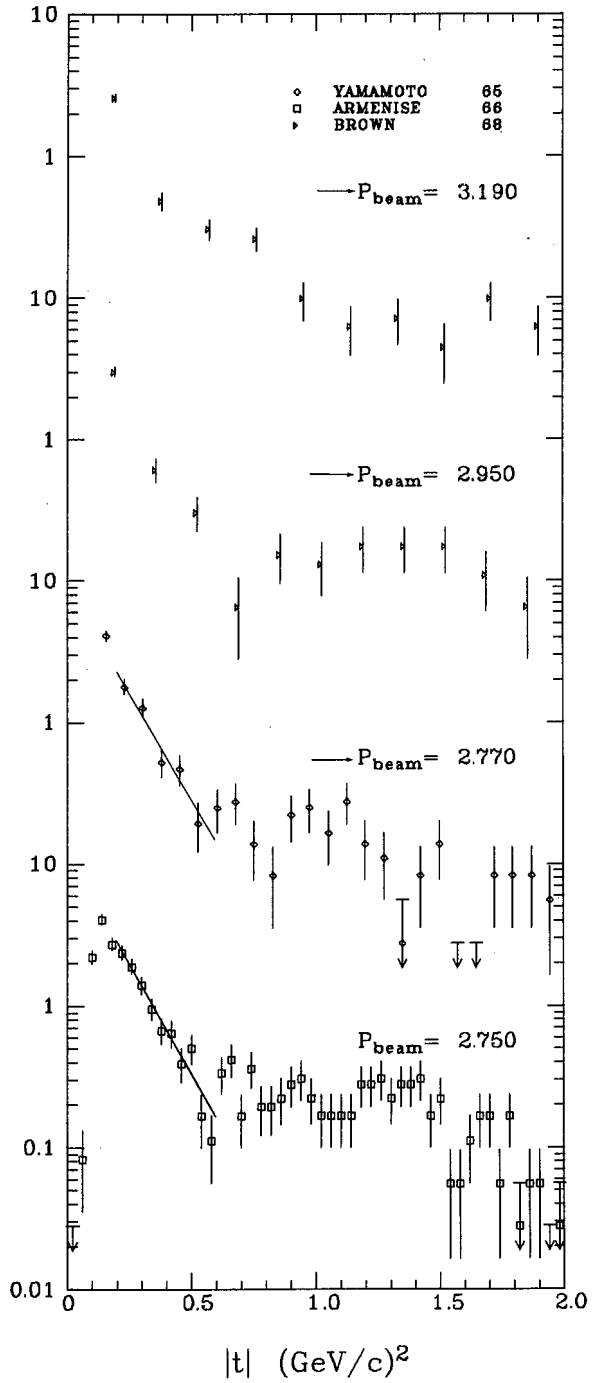
BROWN 68.....UCRL 18254 HBC 72

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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T



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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	4.330		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	0.598	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	0.045		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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	4.100		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	0.647		0.264	*†
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 HBCS

→ BEAM MOMENTUM= 3.74

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	1.820		0.390	†
0.250	0.300	1.230		0.220	†
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			†
2.500	3.000	0.012			†
3.000	3.500	0.010			†
3.500	4.000	0.010			†
4.000	4.500	0.004			†
4.500	5.000	0.004			†
5.000	5.350	0.039			†

ADERHOLZ 65.....PR 138 B897 HBC 81

→ BEAM MOMENTUM= 4.08

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

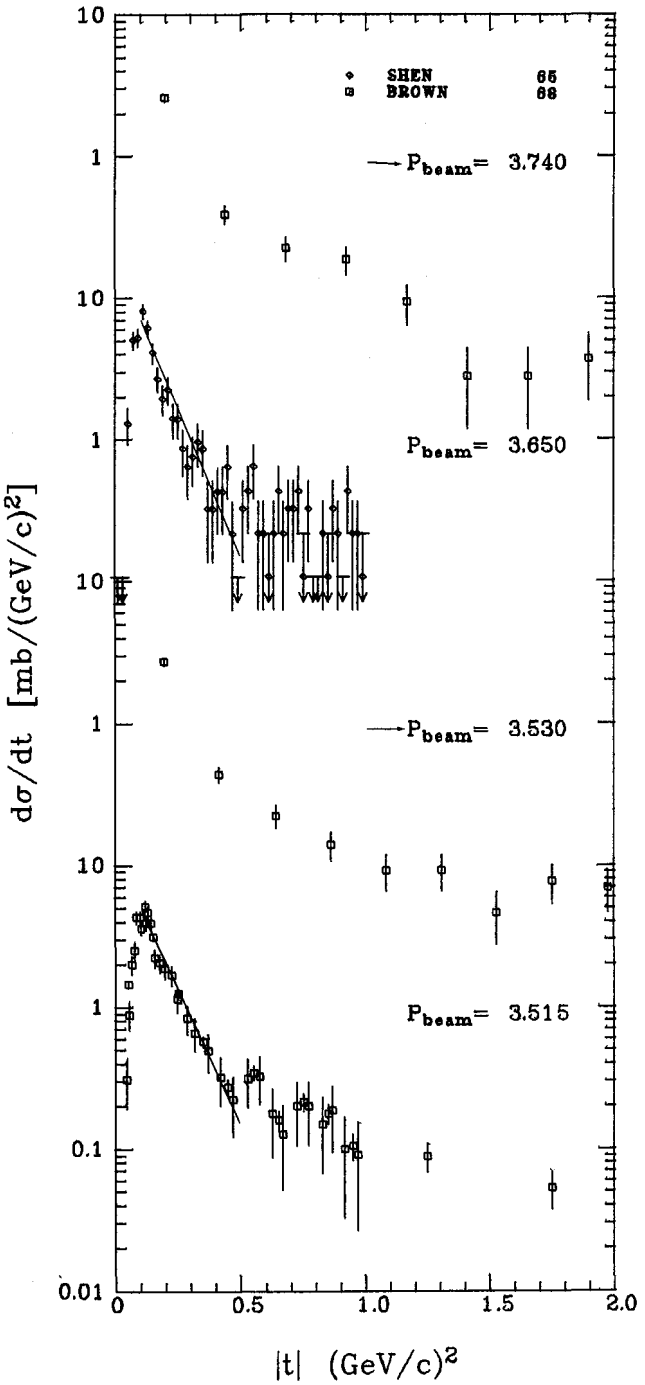
-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.020	0.040	0.750	+-	0.137	†
0.040	0.060	6.175		0.393	†
0.060	0.080	5.850		0.382	†
0.080	0.100	4.350		0.330	†
0.100	0.120	2.675		0.259	†
0.120	0.140	2.350		0.242	†
0.140	0.160	1.725		0.208	†
0.160	0.180	1.525		0.195	†
0.180	0.200	1.100		0.166	†
0.200	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	†

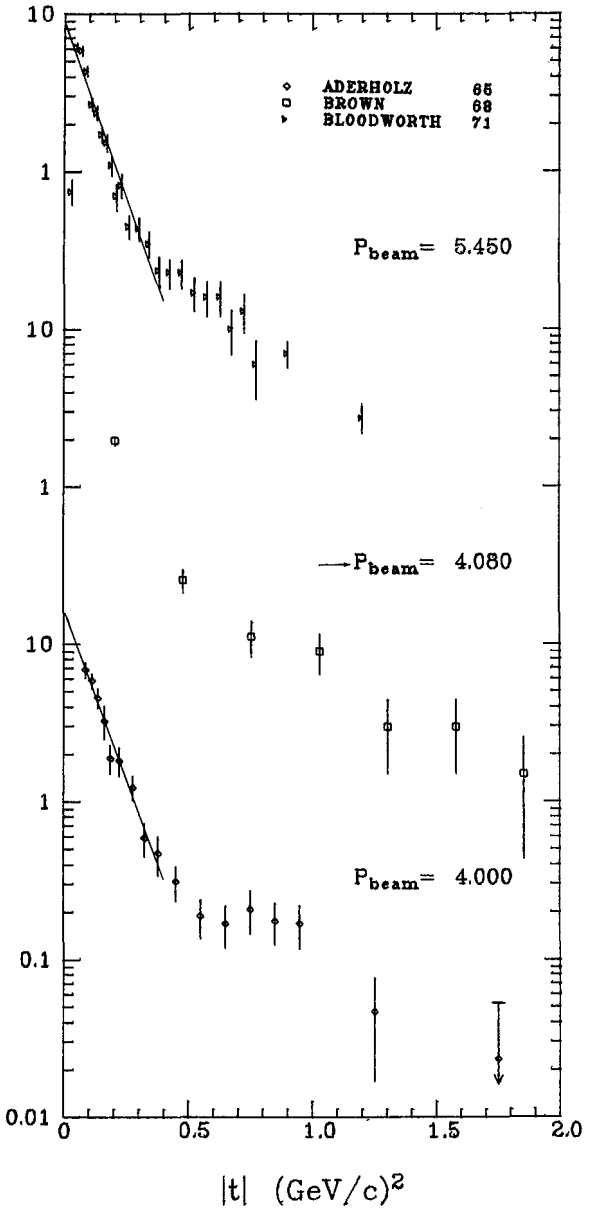
BLOODWORTH 71.....NP B35 79 HBC 33

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
\- OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$





* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

BEAM MOMENTUM= 1.95

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]		
0.	0.050	4.100		*†
0.050	0.100	2.370		*†
0.100	0.150	1.320		*†
0.150	0.200	1.720		*†
0.200	0.250	0.810		*†
0.250	0.300	0.870		*†
0.300	0.350	0.530		*†
0.350	0.400	0.790		*†
0.400	0.450	0.680		*†
0.450	0.500	0.630		*†
0.500	0.550	0.890		*†
0.550	0.600	0.630		*†
0.600	0.650	0.890		*†
0.650	0.700	0.380		*†
0.700	0.750	0.720		*†
0.750	0.800	0.680		*†
0.800	0.850	0.720		*†
0.850	0.900	0.550		*†
0.900	0.950	0.680		*†
0.950	1.000	0.680		*†
1.000	1.050	0.740		*†
1.050	1.100	0.630		*†
1.100	1.150	0.630		*†
1.150	1.200	0.740		*†
1.200	1.250	0.470		*†
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	0.220		*†
1.500	1.550	0.320		*†
1.550	1.600	0.110		*†
1.600	1.650	0.050		*†
1.650	1.700	0.110		*†

CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.34 +- .06

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.020	8.800	+-	0.400	*†
0.020	0.040	6.900		0.100	*†
0.040	0.060	7.900		0.400	*†
0.060	0.080	4.800		0.800	*†
0.080	0.100	4.300		0.700	*†
0.100	0.120	2.250		0.480	*†
0.120	0.140	3.800		0.500	*†
0.140	0.160	2.700		0.500	*†
0.160	0.180	1.980		0.320	*†
0.180	0.200	1.290		0.330	*†
0.200	0.220	1.790		0.370	*†
0.220	0.240	1.400		0.360	*†
0.240	0.260	1.280		0.330	*†
0.260	0.280	1.210		0.310	*†
0.280	0.300	1.110		0.280	*†
0.300	0.320	1.180		0.360	*†
0.320	0.340	0.800		0.240	*†
0.340	0.360	0.580		0.200	*†
0.360	0.380	1.010		0.260	*†
0.380	0.400	0.680		0.210	*†
0.400	0.420	0.940		0.340	*†
0.420	0.440	0.800		0.240	*†
0.440	0.460	0.760		0.230	*†
0.460	0.480	0.670		0.210	*†
0.480	0.500	0.610		0.220	*†
0.500	0.520	0.680		0.210	*†
0.520	0.540	0.258		0.148	*†
0.540	0.560	0.450		0.200	*†
0.560	0.580	0.910		0.240	*†
0.580	0.600	0.930		0.280	*†
0.600	0.620	0.820		0.250	*†
0.620	0.640	0.750		0.230	*†
0.640	0.660	0.660		0.230	*†
0.660	0.680	0.580		0.210	*†
0.680	0.700	0.930		0.290	*†
0.700	0.720	0.680		0.210	*†
0.720	0.740	0.340		0.150	*†
0.740	0.760	0.530		0.210	*†
0.760	0.780	0.480		0.170	*†
0.780	0.800	0.190		0.114	*†
0.800	0.820	0.540		0.170	*†
0.820	0.840	0.720		0.190	*†
0.840	0.860	0.770		0.240	*†
0.860	0.880	0.580		0.180	*†
0.880	0.900	0.780		0.240	*†
0.900	0.920	0.660		0.200	*†
0.920	0.940	0.330		0.170	*†
0.940	0.960	0.720		0.260	*†
0.960	0.980	0.400		0.190	*†
0.980	1.000	0.191		0.114	*†
1.000	1.020	0.500		0.220	*†
1.020	1.040	0.760		0.190	*†
1.040	1.060	0.197		0.127	*†
1.060	1.080	0.330		0.150	*†
1.080	1.100	0.141		0.091	*†
1.100	1.120	0.330		0.140	*†
1.120	1.140	0.330		0.170	*†
1.140	1.160	0.410		0.170	*†
1.160	1.180	0.540		0.190	*†
1.180	1.200	0.330		0.170	*†
1.200	1.220	0.660		0.240	*†
1.220	1.240	0.730		0.220	*†
1.240	1.260	0.205		0.120	*†
1.260	1.280	0.330		0.170	*†
1.280	1.300	0.480		0.200	*†
1.300	1.320	0.320		0.170	*†
1.320	1.340	0.480		0.200	*†
1.340	1.360	0.530		0.220	*†
1.360	1.380	0.530		0.210	*†

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

BEAM MOMENTUM= 3.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.002	0.018	9.600	+-	1.400	*†
0.041	0.057	6.900		1.000	*†
0.057	0.079	4.400		0.900	*†
0.079	0.095	2.900		0.700	*†
0.095	0.117	3.500		0.900	*†
0.110	0.140	2.120		0.670	*†
0.136	0.158	1.290		0.480	*†
0.155	0.177	1.290		0.480	*†
0.174	0.196	1.690		0.430	*†
0.197	0.219	1.020		0.380	*†
0.215	0.237	0.980		0.430	*†
0.241	0.257	1.170		0.440	*†
0.260	0.276	0.980		0.370	*†
0.279	0.339	0.380		0.170	*†
0.344	0.396	0.390		0.150	*†
0.392	0.460	0.217		0.082	*†
0.445	0.521	0.380		0.170	*†
0.513	0.581	0.260		0.130	*†
0.592	0.698	0.165		0.062	*†
0.510	0.990	0.610		0.080	*†
0.990	1.470	0.350		0.080	*†
1.500	1.940	0.190		0.037	*†
2.010	2.450	0.200		0.047	*†

RONAT 72.....NP 838 20 HBC 33

BEAM MOMENTUM= 3.515 +- .565

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.001		8.205	+-	1.368	*†
0.003		7.522		1.309	*†
0.005		8.205		1.368	*†
0.007		10.485		1.546	*†
0.009		4.353		0.996	*†
0.010	0.010	7.864		0.423	*†
0.011		7.157		1.277	*†
0.013		8.889		1.423	*†
0.015		7.294		1.289	*†
0.016		6.086		1.178	*†
0.019		5.356		1.105	*†
0.021		6.268		1.195	*†
0.023		7.294		1.289	*†
0.025		5.174		1.086	*†
0.026		5.493		1.119	*†
0.029		4.285		0.988	*†
0.030	0.010	5.448		0.352	*†
0.031		4.285		0.988	*†
0.033		3.875		0.940	*†
0.035		6.587		1.225	*†
0.037		5.128		1.081	*†
0.039		5.288		1.098	*†
0.041		5.607		1.130	*†
0.042		5.265		1.095	*†
0.044		4.946		1.062	*†
0.046		4.787		1.045	*†
0.048		2.895		0.812	*†
0.050	0.010	4.536		0.322	*†
0.051		4.627		1.027	*†
0.053		2.393		0.739	*†
0.054		6.496		1.217	*†
0.056		5.197		1.088	*†
0.058		3.920		0.945	*†
0.061		3.259		0.862	*†
0.062		4.718		1.037	*†
0.064		5.334		1.103	*†
0.066		3.237		0.859	*†
0.068		3.442		0.886	*†
0.070	0.010	3.601		0.287	*†
0.071		3.442		0.886	*†
0.072		3.761		0.926	*†
0.074		2.439		0.746	*†
0.076		3.761		0.926	*†
0.078		3.761		0.926	*†
0.081		3.214		0.856	*†
0.082		4.103		0.967	*†
0.084		2.484		0.753	*†
0.087		1.755		0.632	*†
0.088		2.644		0.776	*†
0.090	0.010	2.484		0.238	*†
0.091		2.484		0.753	*†
0.092		2.257		0.717	*†
0.094		1.755		0.632	*†
0.096		2.257		0.717	*†
0.099		3.054		0.834	*†
0.110	0.010	2.074		0.217	*†
0.130	0.010	1.664		0.195	*†
0.150	0.010	1.504		0.185	*†
0.170	0.010	1.140		0.161	*†
0.190	0.010	0.912		0.144	*†
0.225	0.025	0.661		0.123	*†
0.275	0.025	0.661		0.123	*†
0.325	0.025	0.385		0.094	*†
0.375	0.025	0.372		0.092	*†
0.450	0.050	0.271		0.079	*†
0.550	0.050	0.217		0.070	*†
0.650	0.050	0.176		0.063	*†
0.750	0.050	0.223		0.071	*†
0.850	0.050	0.107		0.049	*†
0.950	0.050	0.166		0.062	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.7

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.020	11.350	+-	0.516	†
0.020	0.040	8.789		0.454	†
0.040	0.060	6.157		0.380	†
0.060	0.080	5.170		0.349	†
0.080	0.100	4.206		0.314	†
0.100	0.120	3.172		0.273	†
0.120	0.140	1.950		0.214	†
0.140	0.160	2.303		0.233	†
0.160	0.180	1.809		0.206	†
0.180	0.200	1.104		0.161	†
0.200	0.240	1.2690		0.244	†
0.240	0.280	0.9753		0.214	†
0.280	0.320	0.6580		0.176	†
0.320	0.360	0.6463		0.174	†
0.360	0.400	0.4465		0.145	†
0.400	0.460	0.3361		0.156	†
0.460	0.520	0.3055		0.145	†
0.520	0.580	0.2585		0.133	†
0.580	0.640	0.2350		0.127	†
0.640	0.700	0.2585		0.135	†
0.700	0.800	0.1645		0.139	†
0.800	0.900	0.141		0.127	†
0.900	1.000	0.1175		0.117	†
1.000	1.200	0.1081		0.159	†
1.200	1.400	0.0635		0.122	†

ABRAMS 70.....PRL 25 617 HBC 72

BEAM MOMENTUM= 5.00

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.020	6.578	+-	0.051	*†
0.020	0.060	3.796		0.039	*†
0.060	0.100	3.045		0.035	*†
0.100	0.150	1.308		0.023	*†
0.150	0.200	0.652		0.016	*†
0.200	0.300	0.418		0.013	*†
0.300	0.400	0.155		0.008	*†
0.400	0.500	0.149		0.008	*†
0.500	0.600	0.114		0.007	*†
0.600	0.800	0.098		0.006	*†
0.800	1.000	0.045		0.004	*†
1.000	1.250	0.021		0.003	*†
1.250	1.500	0.006		0.002	*†

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 5.00

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.024	0.044	11.100	+-	0.800	*†
0.029	0.069	4.100		0.800	*†
0.059	0.099	4.500		0.700	*†
0.085	0.125	2.300		0.670	*†
0.104	0.164	1.840		0.370	*†
0.167	0.207	0.610		0.150	*†
0.207	0.307	0.590		0.090	*†
0.308	0.408	0.146		0.089	*†
0.407	0.507	0.134		0.098	*†
0.503	0.603	0.077		0.072	*†
0.585	0.803	0.110		0.049	*†

POLS 70.....NP B25 109 HBC 151

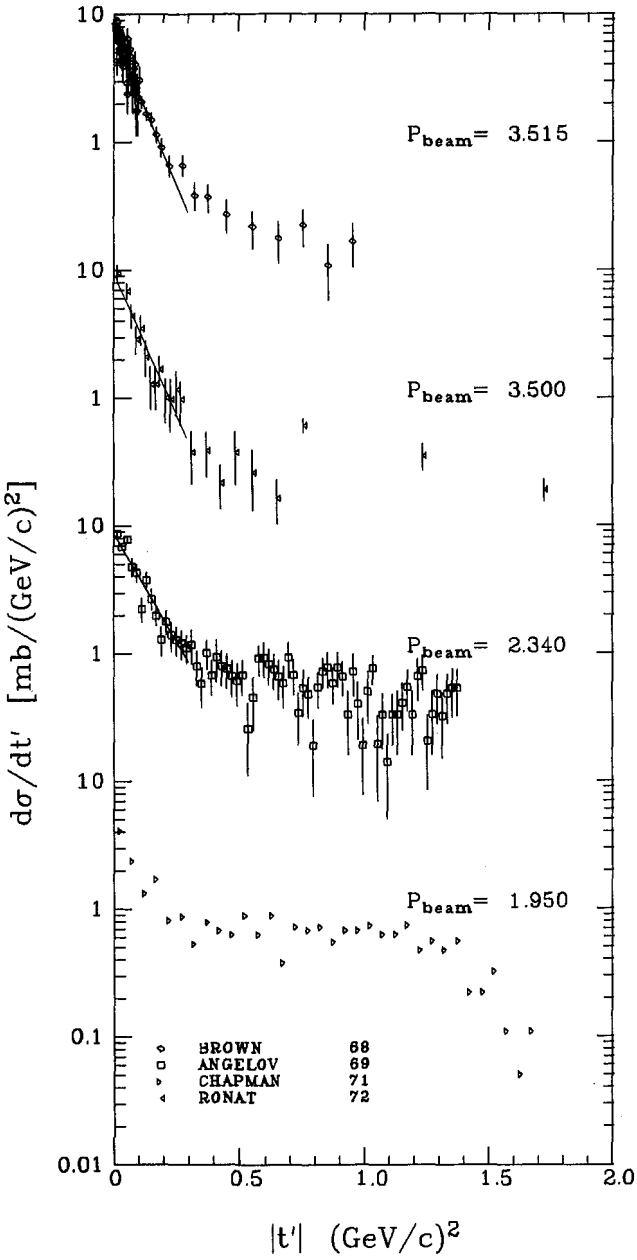
BEAM MOMENTUM= 5.1

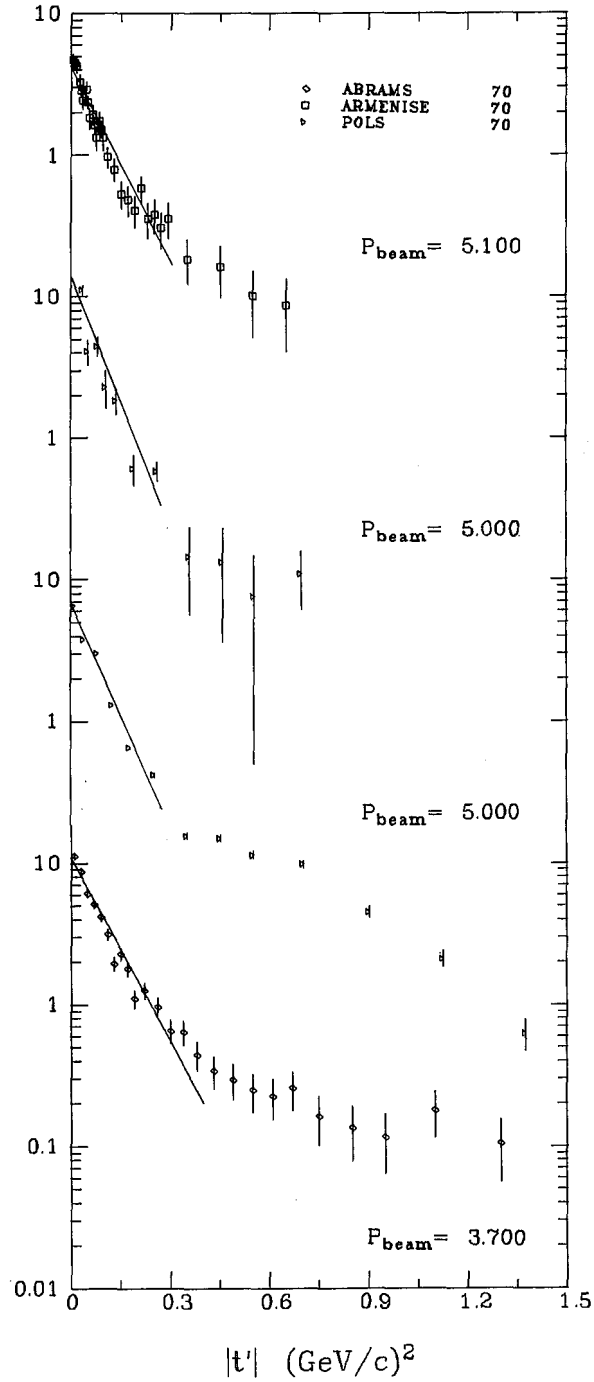
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.010	4.692	+-	0.490	*†
0.	0.020	4.488		0.357	*†
0.010	0.020	4.284		0.464	*†
0.020	0.030	3.264		0.408	*†
0.020	0.040	2.856		0.270	*†
0.030	0.040	2.448		0.352	*†
0.040	0.050	2.907		0.388	*†
0.040	0.060	2.371		0.245	*†
0.050	0.060	1.836		0.306	*†
0.060	0.070	1.938		0.316	*†
0.060	0.080	1.632		0.204	*†
0.070	0.080	1.326		0.260	*†
0.080	0.090	1.734		0.296	*†
0.080	0.100	1.530		0.199	*†
0.090	0.100	1.326		0.260	*†
0.100	0.120	0.969		0.158	*†
0.120	0.140	0.790		0.140	*†
0.140	0.160	0.535		0.117	*†
0.160	0.180	0.484		0.112	*†
0.180	0.200	0.408		0.102	*†
0.200	0.220	0.586		0.122	*†
0.220	0.240	0.357		0.099	*†
0.240	0.260	0.382		0.102	*†
0.260	0.280	0.306		0.087	*†
0.280	0.300	0.357		0.099	*†
0.300	0.400	0.184		0.069	*†
0.400	0.500	0.163		0.064	*†
0.500	0.600	0.102		0.051	*†
0.600	0.700	0.087		0.046	*†

ARMENISE 70.....NC 65A 637 DBC 86

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

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





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

$\rho^0 \to \pi^+\pi^-$, $\Delta(1238)^{++} \to p\pi^+$

BEAM MOMENTUM= 5.45

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 B35 79 HBC 33

BEAM MOMENTUM= 5.72

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	0.320	0.294		0.159	*†
0.320	0.380	0.259		0.188	*†
0.380	0.440	0.129		0.153	*†
0.440	0.500	0.329		0.176	*†

SHENG 70.....THESIS HBC 33

BEAM MOMENTUM= 5.72

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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		0.335	*†
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	0.340	0.270		0.206	*†
0.340	0.400	0.312		0.241	*†
0.400	0.460	0.235		0.176	*†
0.460	0.520	0.253		0.229	*†
0.520	0.580	0.059		0.182	*†

SHENG 70.....THESIS HBC 33

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 B8 45 HBC

BEAM MOMENTUM= 11.7 +- .117

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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]			
0.005	4.320	+-	0.320	*†
0.020	2.400		0.220	*†
0.045	1.200		0.100	*†
0.080	0.625		0.051	*†
0.125	0.298		0.030	*†
0.175	0.174		0.025	*†
0.250	0.096		0.013	*†
0.350	0.054		0.009	*†
0.450	0.041		0.009	*†
0.550	0.033		0.009	*†
0.650	0.015		0.005	*†

GAIDOS 70.....PR D1 3190 HBC 82

BEAM MOMENTUM= 18.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	*†

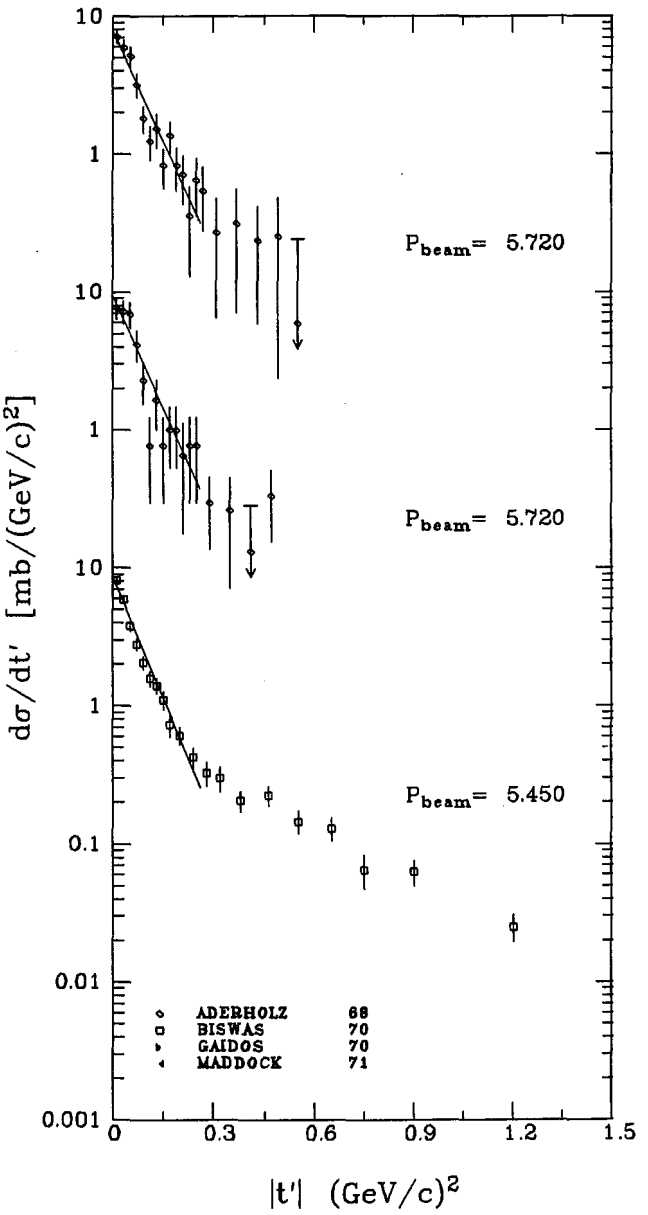
BISWAS 70.....PR D2 2529 HBC 80

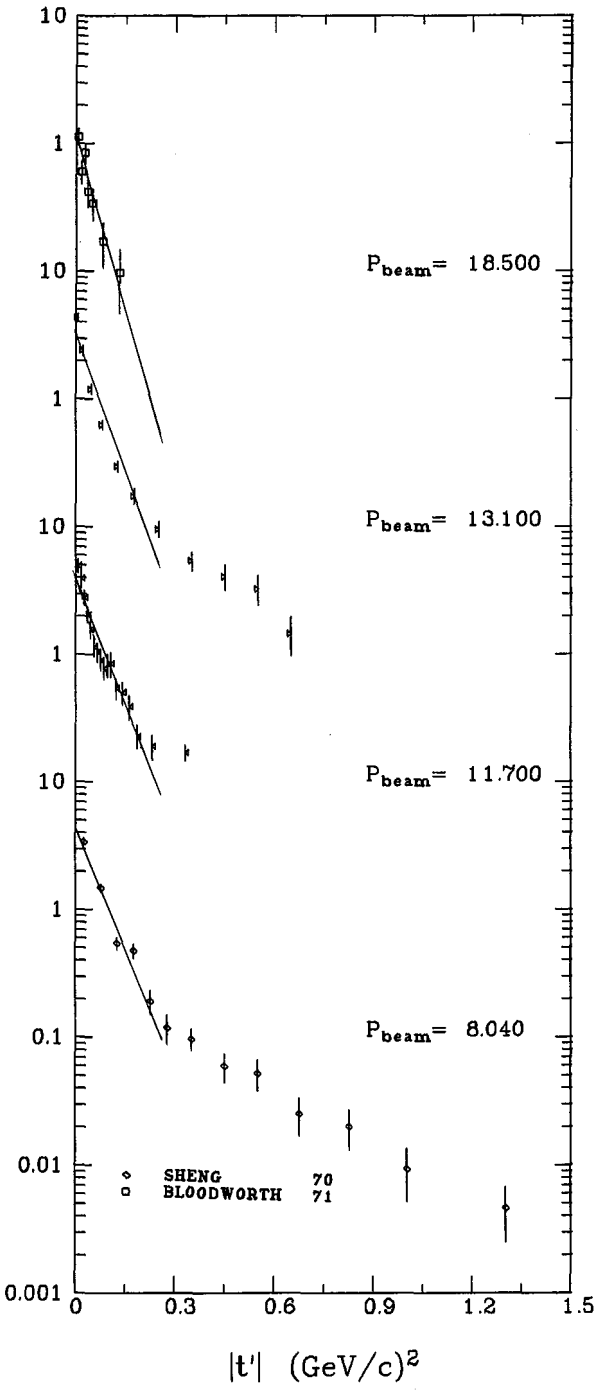
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

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

$\Delta \to p\pi^+$

$\rho^0 \to \pi^+\pi^-$





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

$\omega \to p\pi^+$

$\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 2.077 +- .030

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.223	0.297	1.178	+-	0.194	*†
0.297	0.371	1.274		0.201	*†
0.371	0.445	1.720		0.234	*†
0.445	0.519	1.306		0.204	*†
0.519	0.593	1.401		0.211	*†
0.593	0.667	0.955		0.174	*†
0.667	0.741	1.178		0.194	*†
0.741	0.816	0.796		0.159	*†
0.816	0.890	0.573		0.135	*†
0.890	0.964	0.892		0.169	*†
0.964	1.038	0.446		0.119	*†
1.038	1.112	0.255		0.090	*†
1.112	1.186	0.350		0.106	*†
1.186	1.260	0.446		0.119	*†
1.260	1.334	0.318		0.101	*†
1.334	1.408	0.446		0.119	*†
1.408	1.482	0.191		0.078	*†
1.482	1.557	0.191		0.078	*†
1.557	1.631	0.287		0.096	*†
1.631	1.705	0.287		0.096	*†

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

BEAM MOMENTUM= 2.3

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.125	0.175	0.420	+-	0.080	†
0.175	0.225	1.330		0.150	†
0.225	0.275	1.400		0.160	†
0.275	0.325	1.110		0.140	†
0.325	0.375	1.580		0.170	†
0.375	0.425	1.140		0.140	†
0.425	0.475	0.820		0.110	†
0.475	0.525	0.930		0.120	†
0.525	0.575	0.760		0.110	†
0.575	0.625	0.710		0.100	†
0.625	0.675	0.660		0.100	†
0.675	0.725	0.630		0.090	†
0.725	0.775	0.550		0.090	†
0.775	0.825	0.530		0.080	†
0.825	0.875	0.420		0.070	†
0.875	0.925	0.360		0.060	†
0.950	1.050	0.380		0.050	†
1.050	1.150	0.300		0.050	†
1.150	1.250	0.210		0.040	†
1.250	1.350	0.200		0.040	†
1.350	1.450	0.100		0.030	†
1.450	1.550	0.190		0.040	†

KO 71.....THESIS HBC 25

BEAM MOMENTUM= 2.34 +- .06

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.170	0.273	2.598	+-	0.163	*†
0.273	0.377	1.637		0.129	*†
0.377	0.480	1.197		0.111	*†
0.480	0.583	1.023		0.102	*†
0.583	0.686	0.726		0.086	*†
0.686	0.790	0.614		0.079	*†
0.790	0.893	0.481		0.070	*†
0.893	0.996	0.389		0.063	*†
0.996	1.099	0.307		0.056	*†
1.099	1.202	0.194		0.045	*†
1.202	1.306	0.266		0.052	*†
1.306	1.409	0.235		0.049	*†
1.409	1.512	0.317		0.057	*†
1.512	1.615	0.266		0.052	*†
1.615	1.719	0.235		0.049	*†
1.719	1.822	0.133		0.037	*†
1.822	1.925	0.164		0.041	*†
1.925	2.028	0.123		0.035	*†
2.028	2.131	0.215		0.047	*†
2.131	2.235	0.164		0.041	*†

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

BEAM MOMENTUM= 2.62 + .28 , - .27

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.080	0.	+-	0.031	*†
0.080	0.160	0.431		0.115	*†
0.160	0.240	1.660		0.226	*†
0.240	0.320	1.291		0.199	*†
0.320	0.400	1.230		0.194	*†
0.400	0.480	1.199		0.192	*†
0.480	0.560	1.076		0.182	*†
0.560	0.640	0.799		0.157	*†
0.640	0.720	0.676		0.144	*†
0.720	0.800	0.246		0.087	*†
0.800	0.880	0.338		0.102	*†
0.880	0.960	0.338		0.102	*†
0.960	1.040	0.154		0.069	*†
1.040	1.120	0.338		0.102	*†
1.120	1.200	0.246		0.087	*†
1.200	1.280	0.307		0.097	*†
1.280	1.360	0.123		0.061	*†
1.360	1.440	0.123		0.061	*†
1.440	1.520	0.092		0.053	*†
1.520	1.600	0.123		0.061	*†
1.600	1.680	0.031		0.031	*†
1.680	1.760	0.061		0.043	*†
1.760	1.840	0.061		0.043	*†
1.840	1.920	0.092		0.053	*†
1.920	2.000	0.092		0.053	*†
2.000	2.080	0.123		0.061	*†
2.080	2.160	0.061		0.043	*†
2.160	2.240	0.184		0.075	*†
2.240	2.320	0.		0.031	*†
2.320	2.400	0.092		0.053	*†
2.400	2.480	0.031		0.031	*†
2.480	2.560	0.061		0.043	*†
2.560	2.640	0.092		0.053	*†
2.640	2.720	0.031		0.031	*†
2.720	2.800	0.		0.031	*†
2.800	2.880	0.031		0.031	*†
2.880	2.960	0.031		0.031	*†
2.960	3.040	0.061		0.043	*†
3.040	3.120	0.031		0.031	*†
3.120	3.200	0.		0.031	*†

ALFF-STEIN 66.....PR 145 1072 HBC 20

BEAM MOMENTUM= 2.67

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.103	0.175	1.390	+-	0.120	†
0.175	0.225	1.820		0.160	†
0.225	0.275	1.750		0.150	†
0.275	0.325	1.520		0.140	†
0.325	0.375	1.390		0.130	†
0.375	0.425	1.330		0.120	†
0.425	0.475	1.080		0.100	†
0.475	0.525	1.050		0.100	†
0.525	0.575	0.790		0.080	†
0.575	0.625	0.710		0.080	†
0.525	0.675	0.540		0.060	†
0.675	0.725	0.520		0.060	†
0.725	0.775	0.310		0.050	†
0.775	0.825	0.440		0.060	†
0.825	0.875	0.330		0.050	†
0.875	0.925	0.200		0.030	†
0.950	1.050	0.140		0.030	†
1.050	1.150	0.100		0.020	†
1.150	1.250	0.080		0.020	†
1.250	1.350	0.050		0.020	†
1.350	1.450	0.080		0.020	†
1.450	1.550	0.		0.020	†

KO 71.....THESIS HBC 25

BEAM MOMENTUM= 2.75

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.080	0.	+-	0.080	*†
0.080	0.160	0.908		0.088	*†
0.160	0.240	1.468		0.140	*†
0.240	0.320	1.248		0.128	*†
0.320	0.400	1.500		0.140	*†
0.400	0.480	1.088		0.096	*†
0.480	0.560	0.992		0.104	*†
0.560	0.640	0.672		0.088	*†
0.640	0.720	0.748		0.080	*†
0.720	0.800	0.504		0.080	*†

ARMENISE 65.....NC 40A 273 HBC 81

BEAM MOMENTUM= 2.77 +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†
1.743	1.816	0.196		0.074	*†
1.816	1.890	0.112		0.056	*†
1.890	1.963	0.056		0.040	*†
1.963	2.037	0.112		0.056	*†
2.037	2.110	0.168		0.069	*†
2.110	2.184	0.168		0.069	*†
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

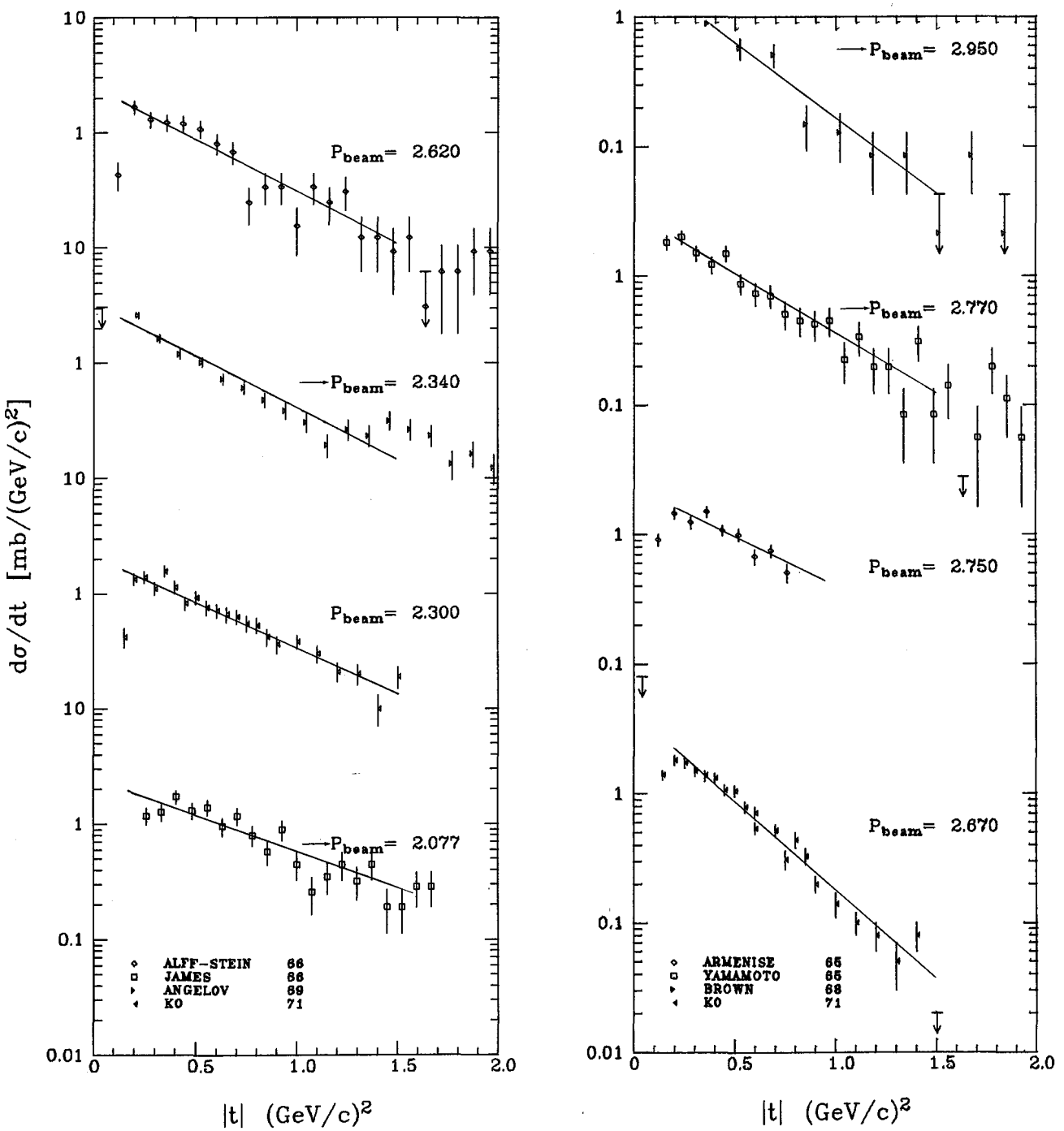
BEAM MOMENTUM= 2.95

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†
0.771	0.936	0.149		0.056	*†
0.936	1.101	0.128		0.052	*†
1.101	1.266	0.085		0.043	*†
1.266	1.431	0.085		0.043	*†
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 18254 HBC 72

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
+ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+ p \to \omega \Delta(1238)^{++}$
$\omega \to p\pi^+$
$\omega \to \pi^+\pi^-\pi^0$



* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

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

$\omega \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 3.19

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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		0.012	*†
3.677	3.865	0.041		0.018	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.515 +- .565

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	0.685		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	0.500	0.440		0.039	*†
0.500	0.600	0.401		0.039	*†
0.600	0.700	0.367		0.029	*†
0.700	0.800	0.262		0.028	*†
0.800	0.900	0.100		0.020	*†
0.900	1.000	0.153		0.022	*†
1.000	1.200	0.109		0.020	*†
1.200	1.400	0.059		0.010	*†
1.400	1.600	0.030		0.007	*†
1.600	1.800	0.019		0.006	*†
1.800	2.000	0.027		0.007	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.53

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 HBCS

BEAM MOMENTUM= 3.74

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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		0.021	*†
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	0.800	0.110		0.060	†
0.800	1.000	0.060		0.020	†
1.000	1.200	0.030		0.010	†
1.200	1.400	0.060		0.020	†

WINKELMANN 68.....THESIS HBC 33

BEAM MOMENTUM= 4. +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	0.240		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			†

ADERHOLZ 65.....PR 138 8897 HBC 81

BEAM MOMENTUM= 4.08

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.069	0.343	0.644	+-	0.065	*†
0.343	0.616	0.351		0.048	*†
0.616	0.890	0.150		0.031	*†
0.890	1.163	0.078		0.023	*†
1.163	1.437	0.026		0.013	*†
1.437	1.711	0.013		0.009	*†
1.711	1.984	0.026		0.013	*†
1.984	2.258	0.020		0.011	*†
2.258	2.531	0.020		0.011	*†
2.531	2.805	0.013		0.009	*†
2.805	3.079	0.020		0.011	*†
3.079	3.352	0.007		0.007	*†
3.352	3.626	0.013		0.009	*†
3.626	3.899	0.007		0.007	*†
3.899	4.173	0.013		0.009	*†
4.173	4.447	0.013		0.009	*†
4.447	4.720	0.007		0.007	*†
4.720	4.994	0.026		0.013	*†
4.994	5.268	0.039		0.016	*†
5.268	5.541	0.033		0.015	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 5.45

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.040	0.050	0.114	+-	0.081	†
0.050	0.100	0.456		0.072	†
0.100	0.150	0.650		0.086	†
0.150	0.200	0.718		0.091	†
0.200	0.250	0.570		0.081	†
0.250	0.300	0.513		0.076	†
0.300	0.350	0.524		0.077	†
0.350	0.400	0.376		0.066	†
0.400	0.450	0.399		0.067	†
0.450	0.500	0.239		0.052	†
0.500	0.550	0.251		0.054	†
0.550	0.600	0.171		0.044	†
0.600	0.650	0.228		0.051	†
0.650	0.700	0.114		0.036	†
0.700	0.800	0.120		0.026	†
0.800	1.000	0.037		0.010	†
1.000	1.400	0.014		0.005	†

BLOODWORTH 71.....NP B35 79 HBC 33

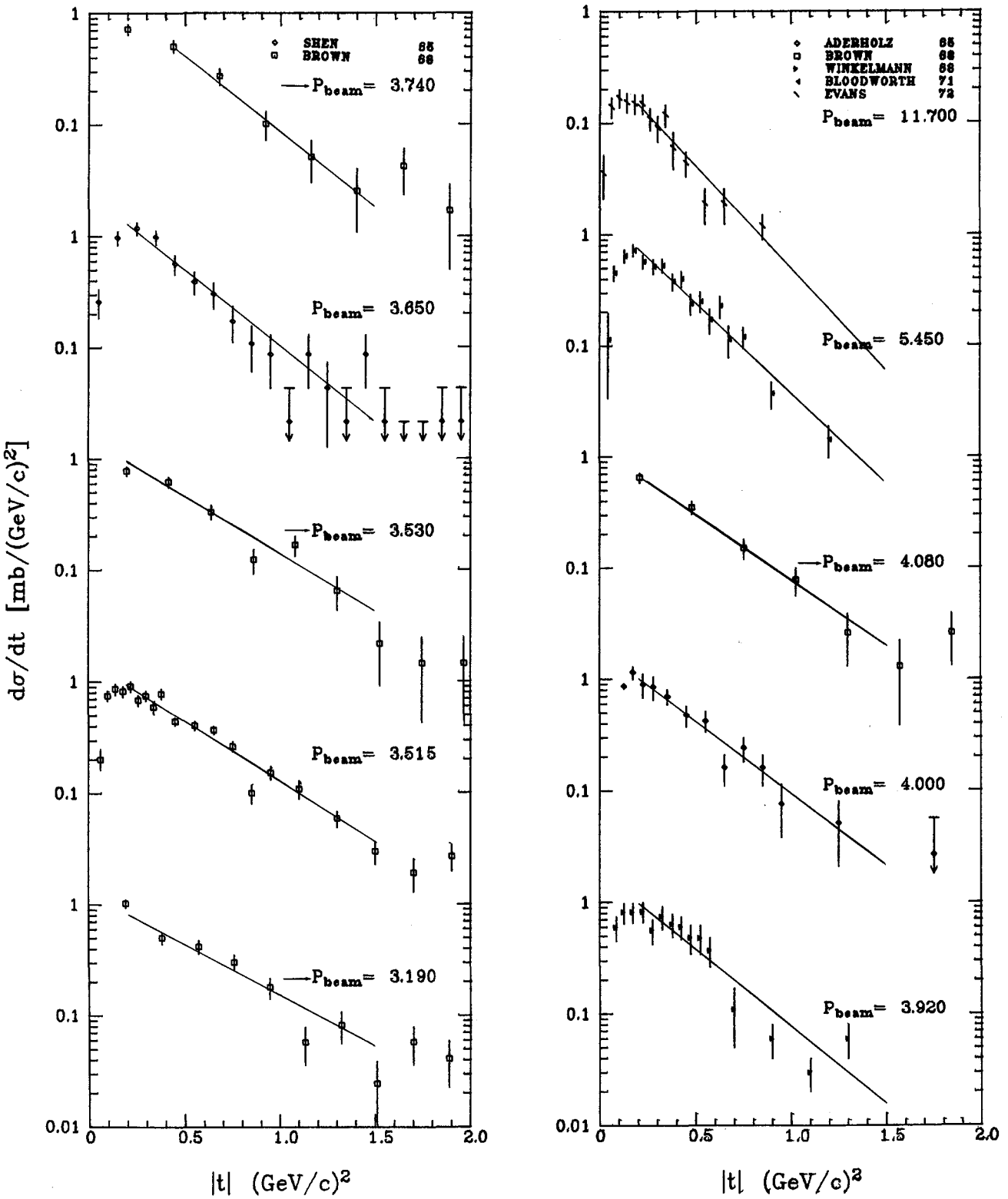
BEAM MOMENTUM= 11.7

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.040	0.036	+-	0.015	†
0.040	0.080	0.140		0.029	†
0.080	0.120	0.170		0.032	†
0.120	0.160	0.155		0.031	†
0.160	0.200	0.150		0.030	†
0.200	0.240	0.150		0.030	†
0.240	0.280	0.110		0.025	†
0.280	0.320	0.091		0.024	†
0.320	0.360	0.120		0.027	†
0.360	0.400	0.061		0.022	†
0.400	0.500	0.044		0.011	†
0.500	0.600	0.019		0.007	†
0.600	0.700	0.019		0.007	†
0.700	1.000	0.012		0.003	†

EVANS 72.....DESY 72/37 HBC 200

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+p \to \omega\Delta(1238)^{++}$
$\omega \to p\pi^+$
$\omega \to \pi^+\pi^-\pi^0$



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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

$\omega \to p\pi^+$

$\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.95

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]	
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	0.470	*†
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	0.210	*†
1.250	1.300	0.160	*†
1.300	1.350	0.110	*†
1.350	1.400	0.110	*†
1.400	1.450	0.050	*†

CHAPMAN 71.....PR D 3 38 HBC 20

BEAM MOMENTUM= 2.34 +- .06

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.020	3.170	+-	0.650	*†
0.020	0.040	2.400		0.600	*†
0.040	0.060	3.080		0.630	*†
0.060	0.080	2.990		0.180	*†
0.080	0.100	2.910		0.600	*†
0.100	0.120	3.200		0.540	*†
0.120	0.140	2.420		0.500	*†
0.140	0.160	1.950		0.330	*†
0.160	0.180	2.510		0.520	*†
0.180	0.200	1.680		0.290	*†
0.200	0.220	1.740		0.490	*†
0.220	0.240	1.630		0.400	*†
0.240	0.260	1.640		0.280	*†
0.260	0.280	2.040		0.340	*†
0.280	0.300	1.410		0.340	*†
0.300	0.320	1.450		0.410	*†
0.320	0.340	1.870		0.038	*†
0.340	0.360	1.330		0.032	*†
0.360	0.380	1.180		0.029	*†
0.380	0.400	1.040		0.034	*†
0.400	0.420	1.010		0.250	*†
0.420	0.440	0.810		0.230	*†
0.440	0.460	1.260		0.310	*†
0.460	0.480	1.020		0.330	*†
0.480	0.500	0.990		0.320	*†
0.500	0.520	0.930		0.300	*†
0.520	0.540	0.750		0.210	*†
0.540	0.560	0.800		0.230	*†
0.560	0.580	0.850		0.240	*†
0.580	0.600	1.280		0.040	*†
0.600	0.620	0.780		0.250	*†
0.620	0.640	0.450		0.018	*†
0.640	0.660	0.520		0.200	*†
0.660	0.680	0.480		0.150	*†
0.680	0.700	0.670		0.190	*†
0.700	0.720	0.680		0.250	*†
0.720	0.740	0.530		0.190	*†
0.740	0.760	0.321		0.160	*†
0.760	0.780	0.470		0.220	*†
0.780	0.800	0.390		0.160	*†
0.800	0.820	0.460		0.190	*†
0.820	0.840	0.185		0.090	*†
0.840	0.860	0.238		0.129	*†
0.860	0.880	0.470		0.170	*†
0.880	0.900	0.540		0.200	*†
0.900	0.940	0.390		0.200	*†
0.940	0.960	0.520		0.170	*†
0.960	0.980	0.610		0.220	*†
0.980	1.000	0.111		0.019	*†
1.000	1.020	0.610		0.200	*†
1.020	1.040	0.242		0.132	*†
1.040	1.060	0.470		0.210	*†
1.060	1.080	0.173		0.111	*†
1.080	1.100	0.530		0.220	*†
1.100	1.120	0.109		0.014	*†
1.120	1.140	0.600		0.040	*†
1.140	1.160	0.315		0.200	*†
1.160	1.180	0.400		0.160	*†
1.180	1.200	0.460		0.200	*†
1.200	1.220	0.470		0.190	*†
1.220	1.240	0.460		0.210	*†
1.240	1.260	0.690		0.250	*†
1.260	1.280	0.241		0.154	*†
1.280	1.300	0.171		0.119	*†
1.300	1.320	0.249		0.042	*†
1.320	1.340	0.321		0.175	*†
1.340	1.360	0.620		0.170	*†
1.360	1.380	0.320		0.160	*†
1.380	1.400	0.085		0.037	*†

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

BEAM MOMENTUM= 3.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.870	+-	0.160	*†
0.140	0.200	0.840		0.150	*†
0.190	0.310	0.790		0.140	*†
0.300	0.420	0.550		0.120	*†
0.380	0.500	0.560		0.100	*†
0.490	0.610	0.330		0.090	*†
0.570	0.690	0.280		0.085	*†
0.680	0.800	0.144		0.050	*†
0.790	0.910	0.118		0.052	*†
0.870	0.990	0.143		0.050	*†
0.950	1.070	0.093		0.046	*†
1.070	1.190	0.113		0.086	*†
1.200	1.540	0.035		0.014	*†
1.590	2.430	0.023		0.007	*†
2.450	3.410	0.008		0.004	*†
3.380	4.460	0.017		0.006	*†

RONAT 72.....NP B38 20 HBC 33

BEAM MOMENTUM= 3.515 +- .565

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.040	1.057	+-	0.088	*†
0.040	0.080	0.910		0.068	*†
0.080	0.120	0.841		0.088	*†
0.120	0.160	0.841		0.088	*†
0.160	0.200	0.587		0.078	*†
0.200	0.240	0.753		0.078	*†
0.240	0.280	0.616		0.088	*†
0.280	0.320	0.489		0.078	*†
0.320	0.360	0.450		0.059	*†
0.360	0.400	0.479		0.068	*†
0.400	0.500	0.421		0.029	*†
0.500	0.600	0.333		0.036	*†
0.600	0.700	0.271		0.029	*†
0.700	0.800	0.128		0.029	*†
0.800	0.900	0.125		0.024	*†
0.900	1.000	0.135		0.023	*†
1.000	1.200	0.076		0.013	*†
1.200	1.400	0.046		0.009	*†
1.400	1.600	0.015		0.005	*†
1.600	1.800	0.037		0.007	*†
1.800	2.000	0.025		0.006	*†

BROWN 68.....UCRL 18254 HBC 72

BEAM MOMENTUM= 3.7

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.020	1.325	+-	0.182	†
0.020	0.040	1.275		0.179	†
0.040	0.060	1.575		0.198	†
0.060	0.080	1.825		0.214	†
0.080	0.100	1.375		0.185	†
0.100	0.120	1.325		0.182	†
0.120	0.140	1.600		0.200	†
0.140	0.160	0.975		0.156	†
0.160	0.180	1.275		0.179	†
0.180	0.200	1.300		0.180	†
0.200	0.240	1.1625		0.241	†
0.240	0.280	1.2875		0.254	†
0.280	0.320	1.05		0.229	†
0.320	0.360	0.925		0.215	†
0.360	0.400	0.5625		0.168	†
0.400	0.460	0.6575		0.222	†
0.460	0.520	0.4750		0.189	†
0.520	0.580	0.4075		0.175	†
0.580	0.640	0.2750		0.141	†
0.640	0.700	0.2		0.120	†
0.700	0.800	0.16		0.141	†
0.800	0.900	0.15		0.137	†
0.900	1.000	0.16		0.141	†
1.000	1.200	0.0775		0.139	†
1.200	1.400	0.0625		0.125	†

ABRAMS 70.....PRL 25 617 HBC 72

BEAM MOMENTUM= 5.0

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.025	0.529	+-	0.014	*†
0.025	0.050	0.473		0.014	*†
0.050	0.075	0.547		0.015	*†
0.075	0.100	0.588		0.015	*†
0.100	0.150	0.379		0.012	*†
0.150	0.200	0.489		0.014	*†
0.200	0.300	0.351		0.012	*†
0.300	0.400	0.261		0.010	*†
0.400	0.500	0.168		0.008	*†
0.500	0.600	0.135		0.007	*†
0.600	0.800	0.060		0.005	*†
0.800	1.000	0.029		0.003	*†
1.000	1.250	0.013		0.002	*†
1.250	1.500	0.011		0.002	*†

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 5.0

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.040	0.350	+-	0.120	*†
0.050	0.090	0.540		0.110	*†
0.079	0.139	0.370		0.090	*†
0.139	0.199	0.460		0.090	*†
0.187	0.287	0.310		0.080	*†
0.276	0.396	0.300		0.050	*†
0.394	0.494	0.146		0.043	*†
0.493	0.593	0.136		0.040	*†
0.571	0.789	0.045		0.018	*†
0.777	0.995	0.013		0.012	*†
1.214	1.492	0.018		0.008	*†

POLS 70.....NP B25 109 HBC 151

BEAM MOMENTUM= 5.45

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.050	0.433	+-	0.070	†
0.050	0.100	0.695		0.089	†
0.100	0.150	0.707		0.090	†
0.150	0.200	0.502		0.076	†
0.200	0.250	0.581		0.081	†
0.250	0.300	0.502		0.076	†
0.300	0.350	0.388		0.067	†
0.350	0.400	0.410		0.068	†
0.400	0.450	0.228		0.051	†
0.450	0.500	0.262		0.055	†
0.500	0.550	0.194		0.047	†
0.550	0.600	0.194		0.047	†
0.600	0.650	0.137		0.040	†
0.650	0.700	0.125		0.038	†
0.700	0.800	0.068		0.020	†
0.800	0.900	0.046		0.016	†
0.900	1.000	0.028		0.013	†
1.000	1.400	0.013		0.004	†

BLOODWORTH 71.....NP B35 79 HBC 33

BEAM MOMENTUM= 5.72

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.205	+-	0.098	*†
0.100	0.200	0.221		0.106	*†
0.200	0.300	0.274		0.107	*†
0.300	0.400	0.341		0.124	*†
0.400	0.500	0.085		0.046	*†
0.500	0.600	0.085		0.045	*†
0.600	0.700	0.126		0.062	*†
0.700	0.800	0.078		0.045	*†
0.800	0.900	0.032		0.030	*†
0.900	1.000	0.021		0.011	*†

DAO 70.....THESIS HBC 33

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.040	0.143	+-	0.032	*†
0.040	0.080	0.280		0.060	*†
0.080	0.120	0.250		0.060	*†
0.120	0.160	0.280		0.060	*†
0.160	0.200	0.158		0.044	*†
0.200	0.240	0.226		0.051	*†
0.240	0.300	0.123		0.028	*†
0.300	0.350	0.117		0.037	*†
0.350	0.400	0.109		0.025	*†
0.400	0.500	0.067		0.016	*†
0.500	0.600	0.004		0.014	*†
0.600	0.700	0.019		0.010	*†
0.700	0.900	0.011		0.004	*†
0.900	1.100	0.008		0.004	*†
1.100	1.300	0.008		0.003	*†
1.300	2.000	0.002		0.001	*†

ADERHOLZ 68.....NP B8 45 HBC

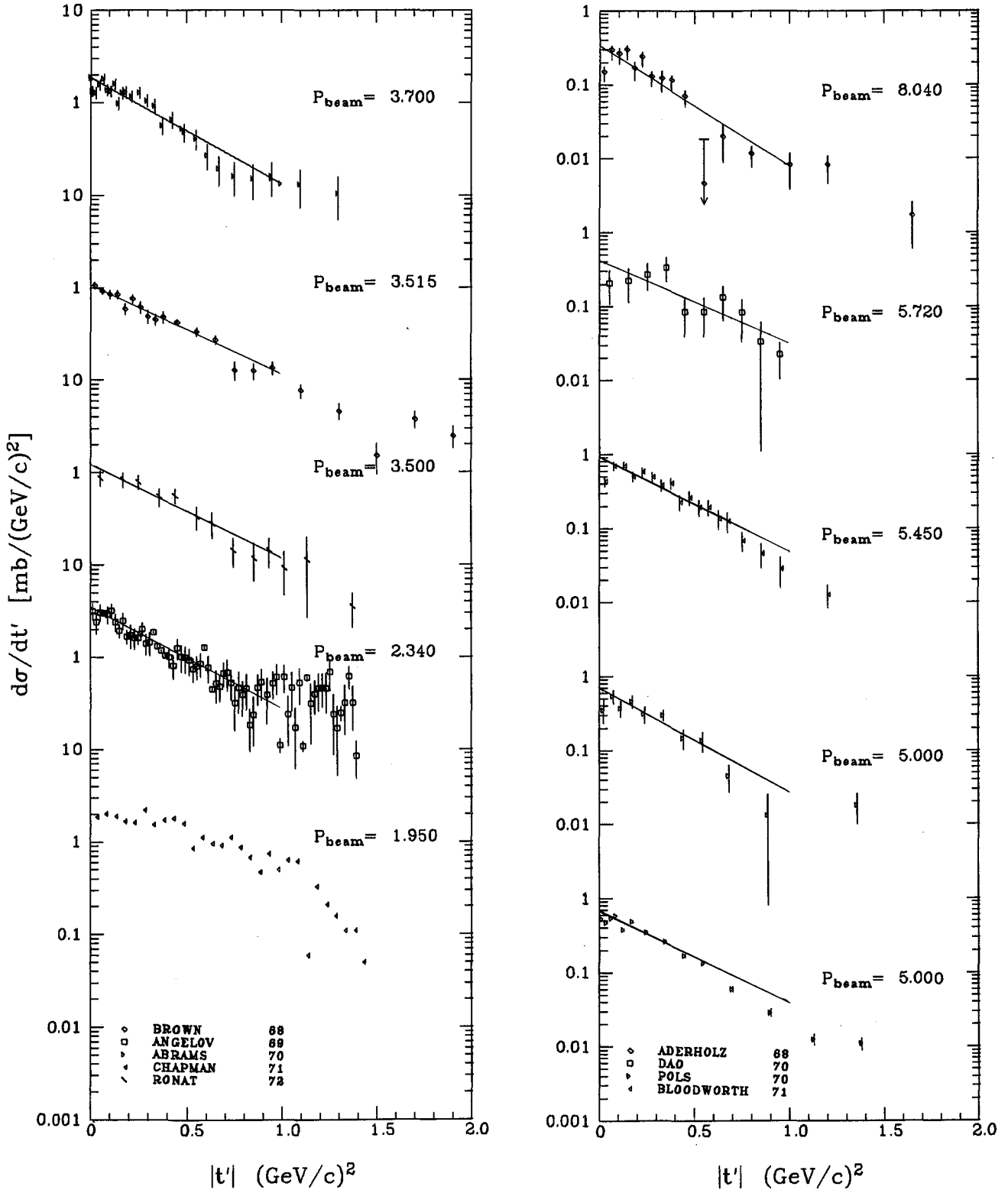
BEAM MOMENTUM= 18.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.263	+-	0.083	*†
0.100	0.200	0.342		0.095	*†
0.200	0.300	0.369		0.099	*†
0.300	0.500	0.158		0.064	*†
0.500	1.000	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 $\pi^+ p \to \omega \Delta(1238)^{++}$
$\omega \to p\pi^+$
$\omega \to \pi^+\pi^-\pi^0$



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

$\Delta \to p\pi^+$

$\Delta \to \pi^+\pi^-$

BEAM MOMENTUM= 3.65

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.	+-	0.022	*†
0.100	0.200	0.		0.022	*†
0.200	0.300	0.194		0.065	*†
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 B25 109 HBC 151

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	1.550	0.003		0.002	†
1.550	2.000	0.003		0.002	†

ADERHOLZ 68.....NP B8 45 HBC

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 B26 225 HBC 82

BEAM MOMENTUM= 13.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
-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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	*†

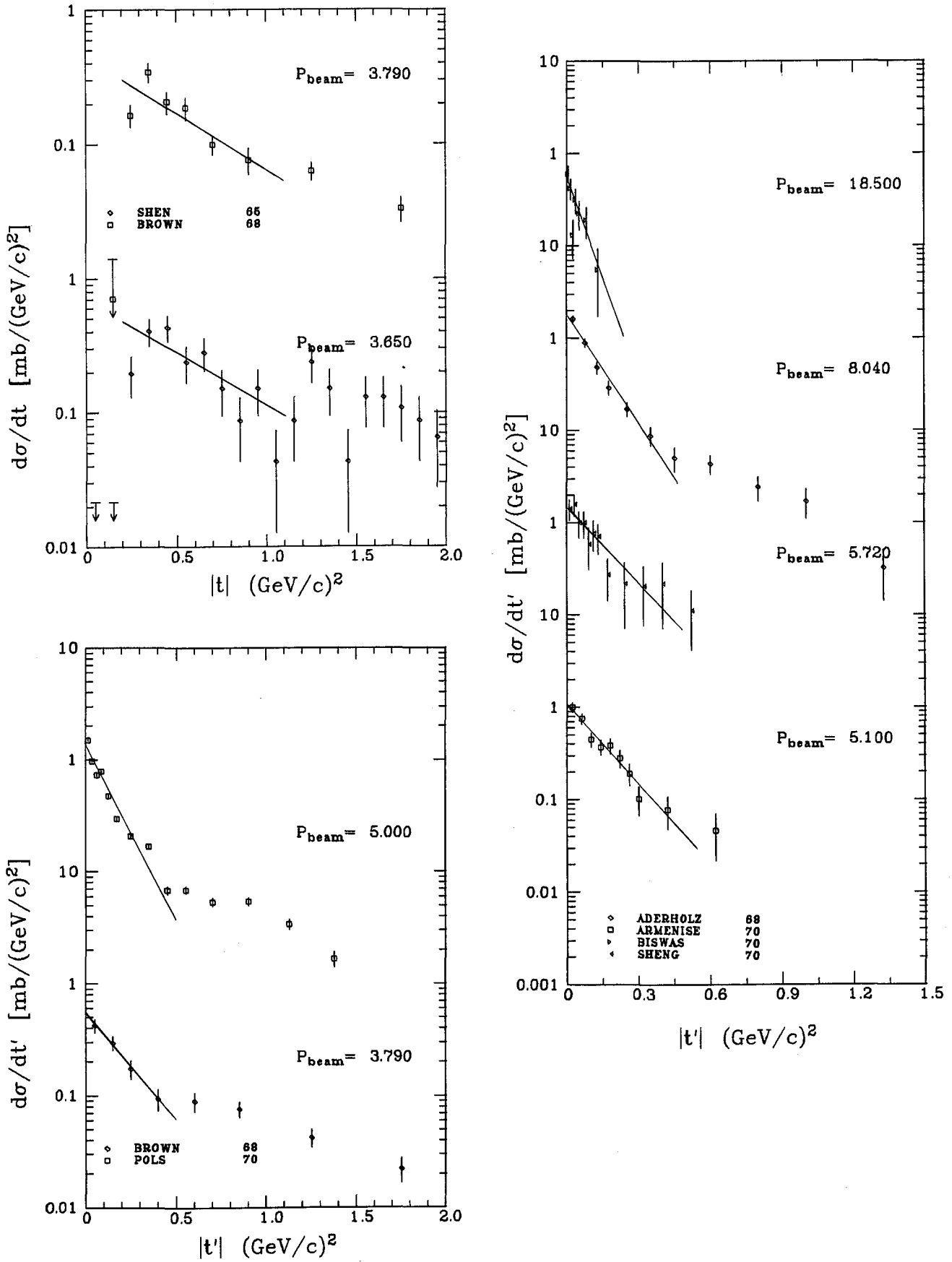
BISWAS 70.....PR D2 2529 HBC 80

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

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

$\Delta \to p\pi^+$

$\Delta \to \pi^+\pi^-$



Differential cross section

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

$\pi^+\pi^-\pi^0 \leftarrow$ or $\to \rho^{+/-}\pi^{-/+}$, $\Delta \to p\pi^+$

A2(1300)0 + RHO+/- PI-/+

BEAM MOMENTUM= 5.

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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

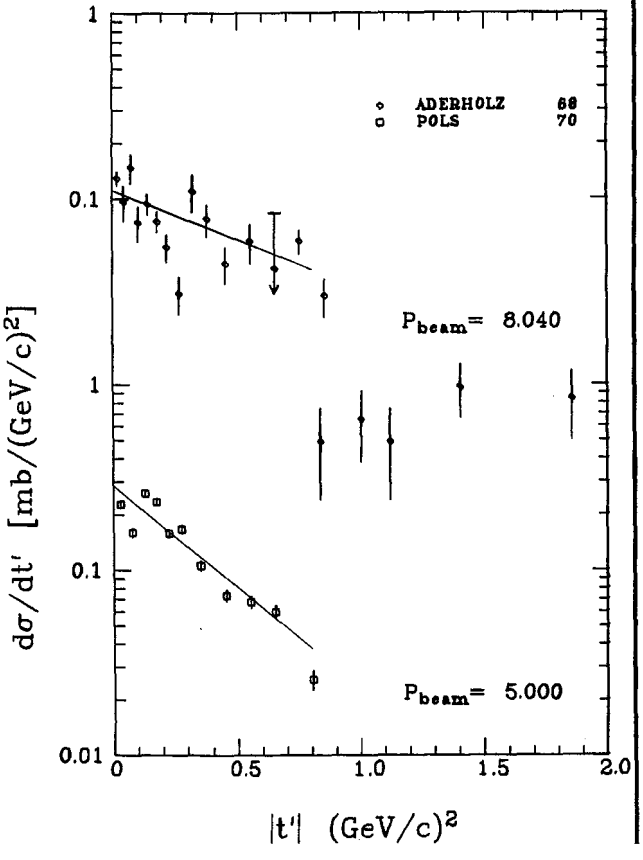
A2(1300)0 + PI+ PI- PI0

BEAM MOMENTUM= 8.04

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	*†
0.170	1.500	0.005		0.003	*†
0.800	0.900	0.030		0.007	*†
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



for $\pi^+p \to g^0\Delta(1238)^{++}$

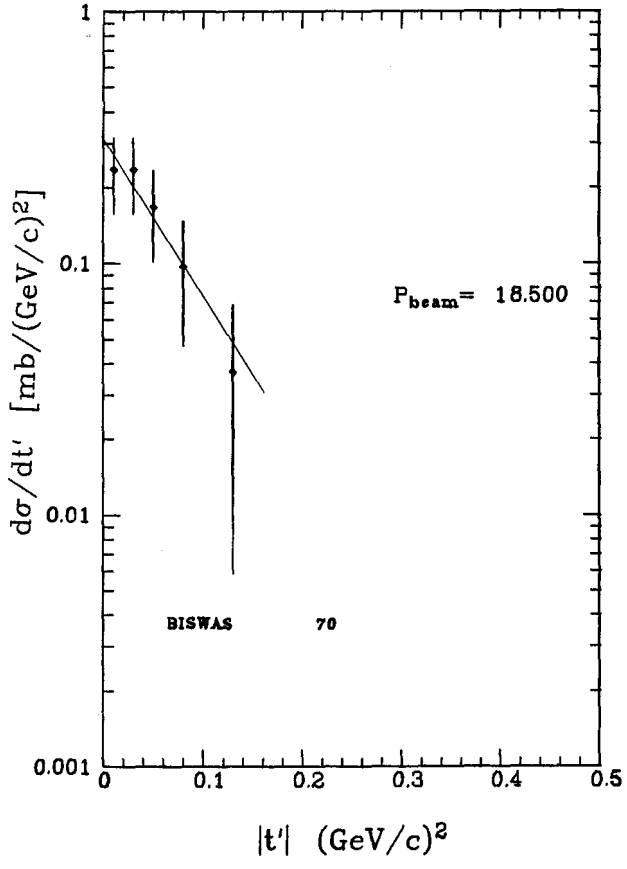
$g^0 \to \pi^+\pi^-$, $\Delta \to p\pi^+$

BEAM MOMENTUM= 18.5

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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



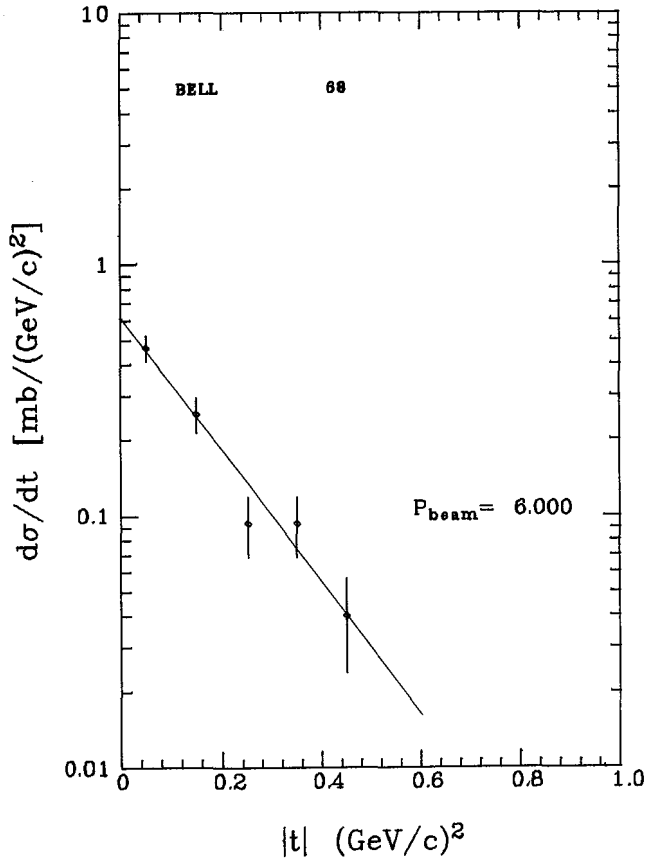
Differential cross section

for $\pi^+p \to \pi^+ N(1470)^+$, $N(1470)^+ \to n\pi^+$

BEAM MOMENTUM= 6.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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



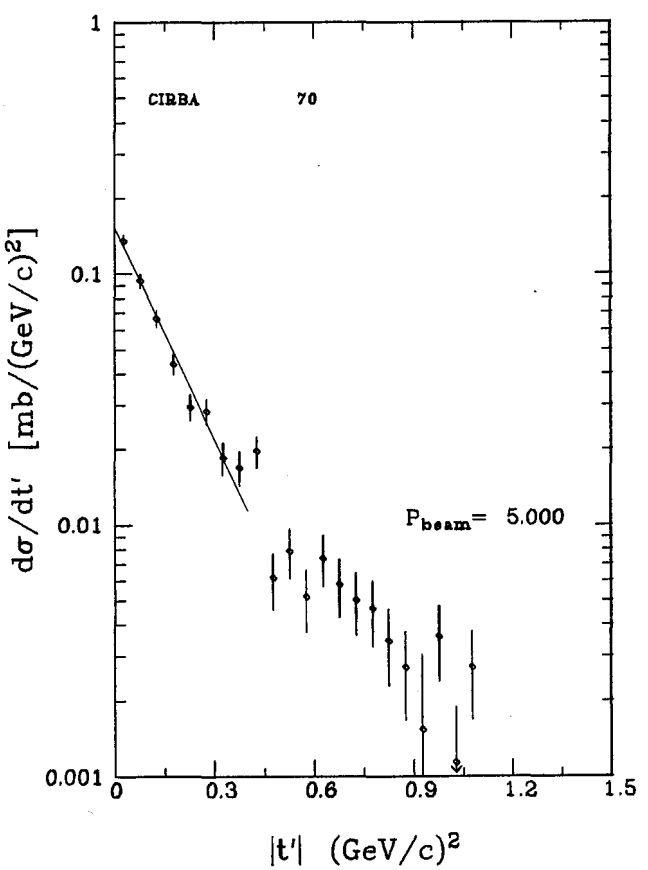
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

for $\pi^+p \to \pi^+ N(1700)^+$, $N(1700)^+ \to p\pi^+\pi^-$

BEAM MOMENTUM= 5.

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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 B23 533 HBC 151



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

→ BEAM MOMENTUM= 1.044 +- .007

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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]				
0.186	0.686	+-	0.083	*†
0.231	0.576		0.076	*†
0.276	0.447		0.067	*†
0.322	0.407		0.064	*†
0.367	0.248		0.050	*†
0.412	0.199		0.044	*†
0.457	0.169		0.041	*†
0.502	0.209		0.046	*†
0.547	0.129		0.036	*†
0.592	0.119		0.034	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

→ BEAM MOMENTUM= 1.155 +- .025

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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]		
0.152	0.438	+-	0.104
0.182	0.625		0.167
0.212	0.459		0.083
0.242	0.438		0.115
0.273	0.563		0.115
0.303	0.521		0.115
0.333	0.375		0.094
0.363	0.646		0.125
0.393	0.313		0.094
0.423	0.438		0.115
0.453	0.313		0.104
0.483	0.313		0.104
0.514	0.125		0.083
0.544	0.063		0.042
0.574	0.063		0.042
0.604	0.146		0.063
0.634	0.167		0.083
0.664	0.313		0.104
0.694	0.208		0.083
0.725	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]			
0.160	0.464	+-	0.062	*†
0.228	0.431		0.060	*†
0.297	0.572		0.069	*†
0.365	0.448		0.061	*†
0.434	0.315		0.051	*†
0.503	0.257		0.046	*†
0.571	0.124		0.032	*†
0.640	0.083		0.026	*†
0.709	0.207		0.041	*†
0.777	0.216		0.042	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

→ BEAM MOMENTUM= 1.252

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]		
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

BALTAY 61.....RMP 33 374 HBC 20

→ BEAM MOMENTUM= 1.265

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.151	0.248	+-	0.049	*†
0.233	0.592		0.075	*†
0.314	0.525		0.071	*†
0.396	0.525		0.071	*†
0.477	0.420		0.063	*†
0.559	0.315		0.055	*†
0.640	0.267		0.051	*†
0.722	0.076		0.027	*†
0.803	0.220		0.046	*†
0.885	0.220		0.046	*†

CARAYANNOP 65.....PR 138 B433 HBC 72

→ BEAM MOMENTUM= 1.362

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]		
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]		
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]		
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

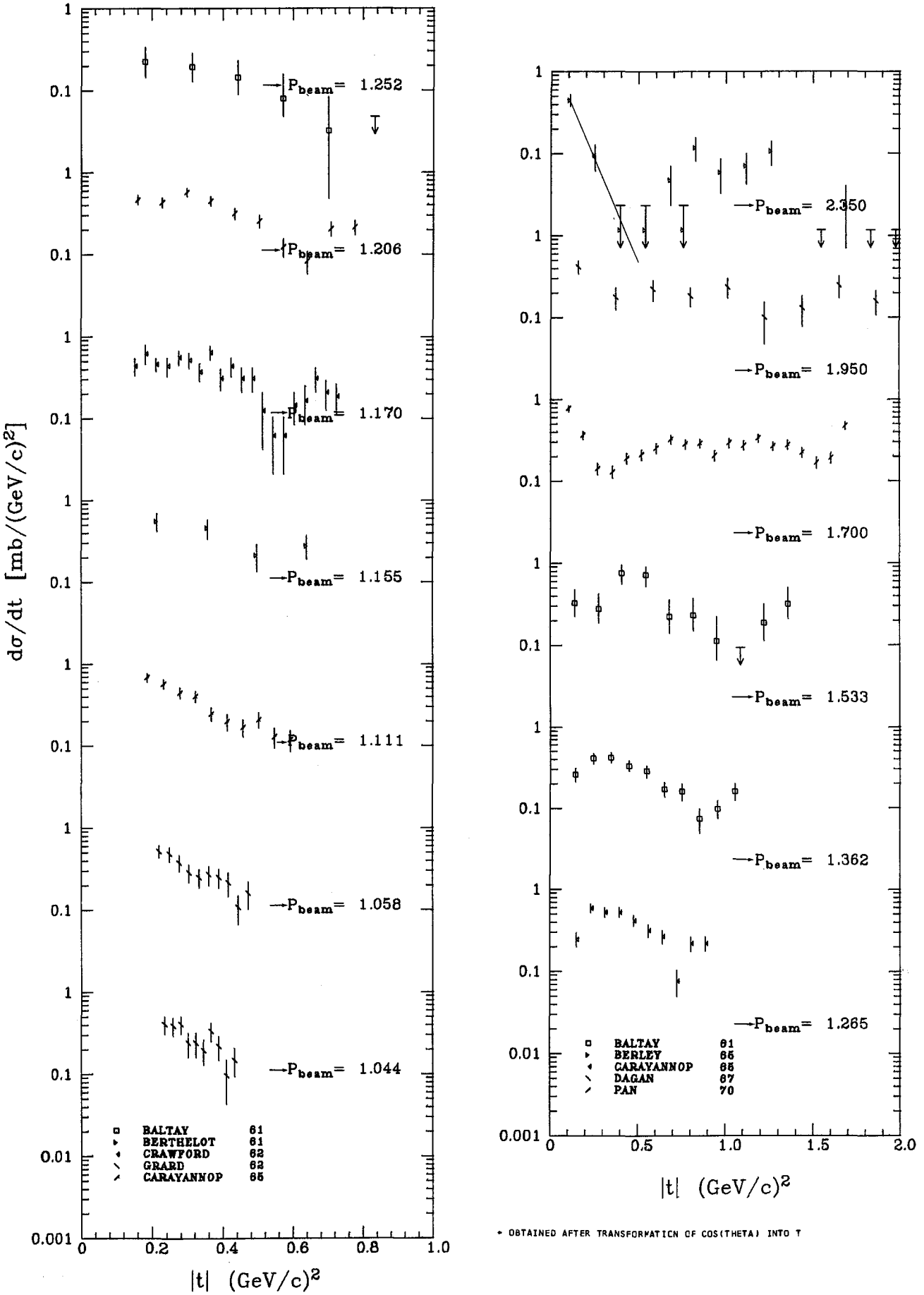
→ BEAM MOMENTUM= 2.35 + 2.62 , - 2.90

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†
0.037	1.474	0.012		0.012	*†
0.756	0.900	0.118		0.037	*†
0.900	1.043	0.059		0.026	*†
1.043	1.187	0.071		0.029	*†
1.187	1.331	0.106		0.035	*†
1.474	1.618	0.		0.012	*†
1.618	1.762	0.024		0.017	*†
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 139B1097 HBC 20

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

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



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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

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	*

KOFLER 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 MIN	MAX	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 MIN	MAX	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 MIN	MAX	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 MIN	MAX	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

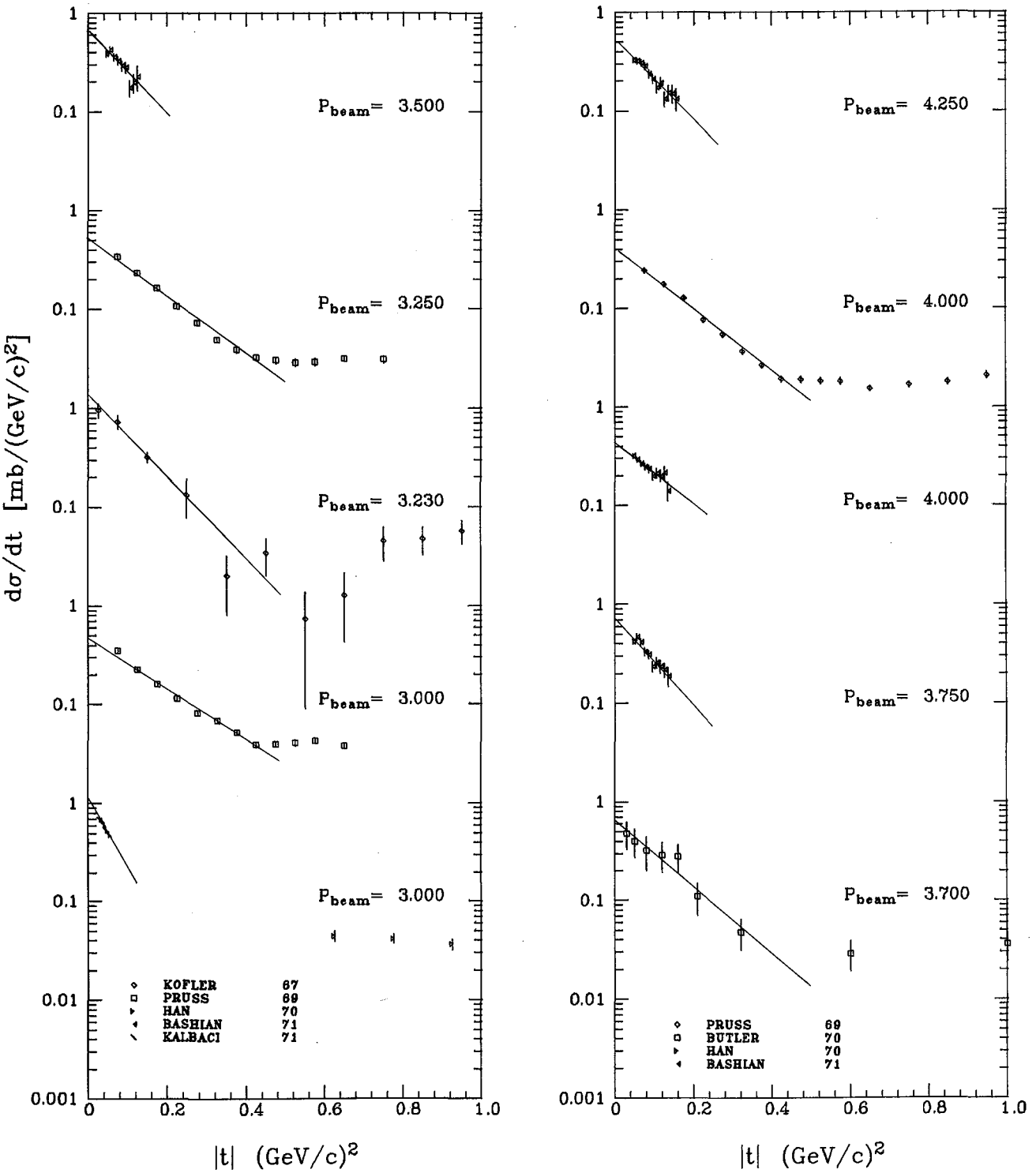
BEAM MOMENTUM= 4.25

-T (GEV/C)**2 MIN	MAX	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

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

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



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

BEAM MOMENTUM= 4.5

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

BEAM MOMENTUM= 4.75

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	D SIGMA/D T [MB/(GEV/C)**2]			
2.300	0.001	+-	0.000	†
2.500	0.001		0.000	†
2.700	0.000		0.000	†
2.900	0.000		0.000	†
3.100	0.000		0.000	†
3.350	0.000		0.000	†

AKERLOF 71.....PRL 27 219 SPRK+CNTR

BEAM MOMENTUM= 5.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	†

HAN 70.....PRL 24 1353 CNTR

BEAM MOMENTUM= 5.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.025	0.405	+-	0.017	†
0.045	0.312		0.018	†
0.065	0.305		0.020	†
0.085	0.220		0.020	†
0.105	0.183		0.018	†
0.125	0.170		0.018	†

KALBACI 71.....PRL 27 74 SPRK,CNTR

BEAM MOMENTUM= 5.05

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
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
0.660	0.010		0.001
0.780	0.011		0.001
0.900	0.011		0.001
1.020	0.010		0.001
1.140	0.009		0.001
1.260	0.008		0.001
1.380	0.007		0.001
1.500	0.006		0.001
1.620	0.005		0.001
1.740	0.007		0.001

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 5.4

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*
0.320	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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

BEAM MOMENTUM= 7.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.030	0.229	+-	0.012	†
0.070	0.153		0.011	†
0.110	0.112		0.010	†
0.150	0.067		0.008	†

KALBACI 71.....PRL 27 74 SPRK,CNTR

BEAM MOMENTUM= 7.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]		
0.145	0.099	+-	0.001
0.190	0.053		0.002
0.250	0.032		0.002
0.310	0.019		0.001
0.370	0.010		0.001
0.430	0.008		0.001
0.520	0.006		0.001
0.640	0.005		0.001
0.760	0.004		0.000
0.880	0.004		0.000
1.000	0.003		0.000
1.120	0.003		0.000
1.270	0.002		0.000
1.480	0.001		0.000
1.750	0.001		0.000

PRUSS 69.....PRL 23 189 SPRK+CNTR

BEAM MOMENTUM= 10.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

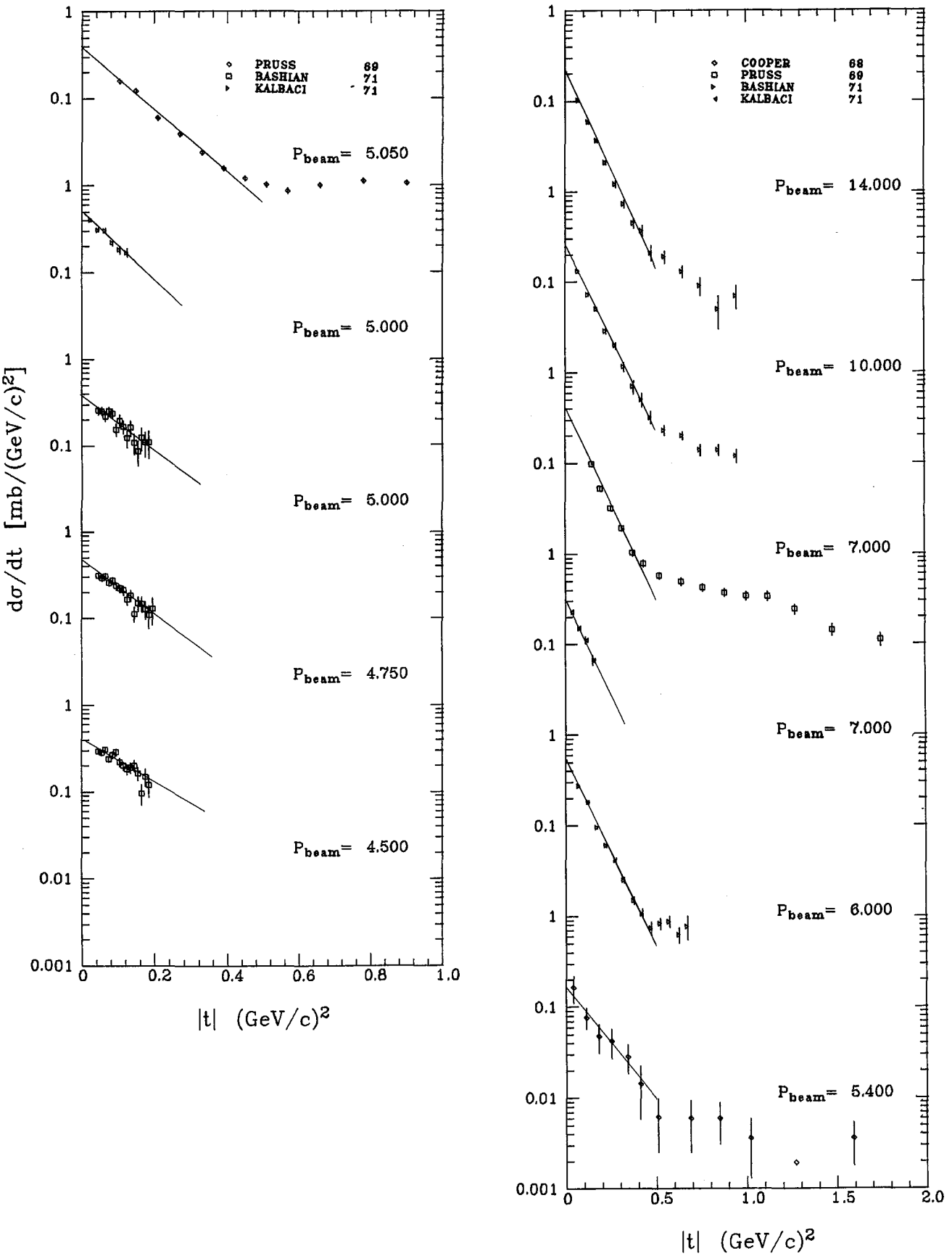
BEAM MOMENTUM= 14.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	†

BASHIAN 71.....PR D4 2667 CNTR

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

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



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

→ BEAM MOMENTUM= 1.28

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.107	0.150	0.227	+-	0.057	*†
0.150	0.192	0.082		0.034	*†
0.192	0.234	0.098		0.037	*†
0.234	0.277	0.061		0.029	*†
0.277	0.319	0.043		0.025	*†
0.319	0.361	0.041		0.024	*†
0.361	0.404	0.058		0.029	*†
0.404	0.446	0.116		0.041	*†
0.446	0.488	0.174		0.050	*†
0.488	0.531	0.113		0.040	*†
0.531	0.573	0.220		0.056	*†
0.573	0.616	0.183		0.051	*†
0.616	0.658	0.183		0.051	*†
0.658	0.700	0.163		0.048	*†
0.700	0.743	0.340		0.069	*†
0.743	0.785	0.190		0.052	*†
0.785	0.827	0.296		0.065	*†
0.827	0.870	0.211		0.055	*†
0.870	0.912	0.109		0.039	*†
0.912	0.954	0.137		0.044	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.34

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.096	0.145	0.313	+-	0.051	*†
0.145	0.194	0.131		0.033	*†
0.194	0.242	0.089		0.027	*†
0.242	0.291	0.082		0.026	*†
0.291	0.339	0.038		0.018	*†
0.339	0.388	0.051		0.021	*†
0.388	0.436	0.122		0.032	*†
0.436	0.485	0.101		0.029	*†
0.485	0.533	0.176		0.038	*†
0.533	0.582	0.152		0.035	*†
0.582	0.630	0.074		0.025	*†
0.630	0.679	0.201		0.041	*†
0.679	0.727	0.250		0.045	*†
0.727	0.776	0.279		0.048	*†
0.776	0.824	0.288		0.049	*†
0.824	0.873	0.198		0.040	*†
0.873	0.922	0.120		0.031	*†
0.922	0.970	0.267		0.047	*†
0.970	1.019	0.147		0.035	*†
1.019	1.067	0.059		0.022	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.41

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.087	0.142	0.345	+-	0.061	*†
0.142	0.198	0.085		0.030	*†
0.198	0.253	0.076		0.029	*†
0.253	0.309	0.106		0.034	*†
0.309	0.364	0.068		0.027	*†
0.364	0.420	0.122		0.036	*†
0.420	0.475	0.090		0.031	*†
0.475	0.531	0.083		0.030	*†
0.531	0.586	0.105		0.034	*†
0.586	0.642	0.160		0.042	*†
0.642	0.697	0.125		0.037	*†
0.697	0.753	0.244		0.051	*†
0.753	0.808	0.239		0.051	*†
0.808	0.864	0.173		0.043	*†
0.864	0.919	0.296		0.057	*†
0.919	0.975	0.199		0.046	*†
0.975	1.030	0.257		0.053	*†
1.030	1.086	0.183		0.044	*†
1.086	1.141	0.287		0.056	*†
1.141	1.197	0.079		0.029	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.43

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.084	0.142	0.504	+-	0.066	*†
0.142	0.199	0.199		0.042	*†
0.199	0.257	0.118		0.032	*†
0.257	0.314	0.020		0.013	*†
0.314	0.372	0.058		0.023	*†
0.372	0.429	0.031		0.017	*†
0.429	0.487	0.077		0.026	*†
0.487	0.544	0.110		0.031	*†
0.544	0.601	0.157		0.037	*†
0.601	0.659	0.101		0.030	*†
0.659	0.716	0.127		0.033	*†
0.716	0.774	0.138		0.035	*†
0.774	0.831	0.180		0.040	*†
0.831	0.889	0.223		0.044	*†
0.889	0.946	0.275		0.049	*†
0.946	1.004	0.221		0.044	*†
1.004	1.061	0.234		0.045	*†
1.061	1.119	0.221		0.044	*†
1.119	1.176	0.186		0.040	*†
1.176	1.234	0.069		0.024	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.55

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.072	0.141	0.515	+-	0.077	*†
0.141	0.210	0.214		0.050	*†
0.210	0.279	0.065		0.027	*†
0.279	0.348	0.032		0.019	*†
0.348	0.417	0.095		0.033	*†
0.417	0.487	0.086		0.032	*†
0.487	0.556	0.086		0.032	*†
0.556	0.625	0.222		0.051	*†
0.625	0.694	0.089		0.032	*†
0.694	0.763	0.116		0.037	*†
0.763	0.832	0.116		0.037	*†
0.832	0.901	0.232		0.052	*†
0.901	0.970	0.232		0.052	*†
0.970	1.039	0.214		0.050	*†
1.039	1.108	0.240		0.053	*†
1.108	1.177	0.240		0.053	*†
1.177	1.246	0.197		0.048	*†
1.246	1.315	0.068		0.028	*†
1.315	1.385	0.086		0.032	*†
1.385	1.454	0.119		0.037	*†

KALMUS 70.....PR D2 1824 HBC

→ BEAM MOMENTUM= 1.63

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.066	0.143	0.290	+-	0.043	*†
0.143	0.219	0.095		0.025	*†
0.219	0.296	0.100		0.026	*†
0.296	0.373	0.037		0.015	*†
0.373	0.449	0.027		0.013	*†
0.449	0.526	0.149		0.031	*†
0.526	0.603	0.090		0.024	*†
0.603	0.679	0.074		0.022	*†
0.679	0.756	0.052		0.018	*†
0.756	0.833	0.127		0.029	*†
0.833	0.909	0.060		0.020	*†
0.909	0.986	0.068		0.021	*†
0.986	1.063	0.126		0.029	*†
1.063	1.139	0.194		0.036	*†
1.139	1.216	0.217		0.038	*†
1.216	1.293	0.142		0.030	*†
1.293	1.369	0.128		0.029	*†
1.369	1.446	0.142		0.030	*†
1.446	1.523	0.142		0.030	*†
1.523	1.599	0.181		0.034	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.68

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.062	0.144	0.367	+-	0.048	*†
0.144	0.225	0.088		0.023	*†
0.225	0.307	0.036		0.015	*†
0.307	0.388	0.042		0.016	*†
0.388	0.469	0.050		0.018	*†
0.469	0.551	0.082		0.022	*†
0.551	0.632	0.049		0.017	*†
0.632	0.714	0.136		0.029	*†
0.714	0.795	0.088		0.023	*†
0.795	0.876	0.076		0.022	*†
0.876	0.958	0.119		0.027	*†
0.958	1.039	0.060		0.019	*†
1.039	1.121	0.129		0.028	*†
1.121	1.202	0.162		0.032	*†
1.202	1.283	0.168		0.032	*†
1.283	1.365	0.150		0.030	*†
1.365	1.446	0.103		0.025	*†
1.446	1.528	0.114		0.026	*†
1.528	1.609	0.093		0.024	*†
1.609	1.690	0.168		0.032	*†

KALMUS 70.....PR D2 1824 HBCS

→ BEAM MOMENTUM= 1.77

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.057	0.147	0.317	+-	0.050	*†
0.147	0.237	0.132		0.032	*†
0.237	0.327	0.078		0.025	*†
0.327	0.417	0.032		0.016	*†
0.417	0.506	0.078		0.025	*†
0.506	0.596	0.126		0.031	*†
0.596	0.686	0.090		0.027	*†
0.686	0.776	0.050		0.020	*†
0.776	0.866	0.100		0.028	*†
0.866	0.956	0.058		0.021	*†
0.956	1.046	0.144		0.034	*†
1.046	1.135	0.072		0.024	*†
1.135	1.225	0.106		0.029	*†
1.225	1.315	0.042		0.018	*†
1.315	1.405	0.090		0.027	*†
1.405	1.495	0.154		0.035	*†
1.495	1.585	0.098		0.028	*†
1.585	1.674	0.050		0.020	*†
1.674	1.764	0.098		0.028	*†
1.764	1.854	0.217		0.041	*†

KALMUS 70.....PR D2 1824 HBCS

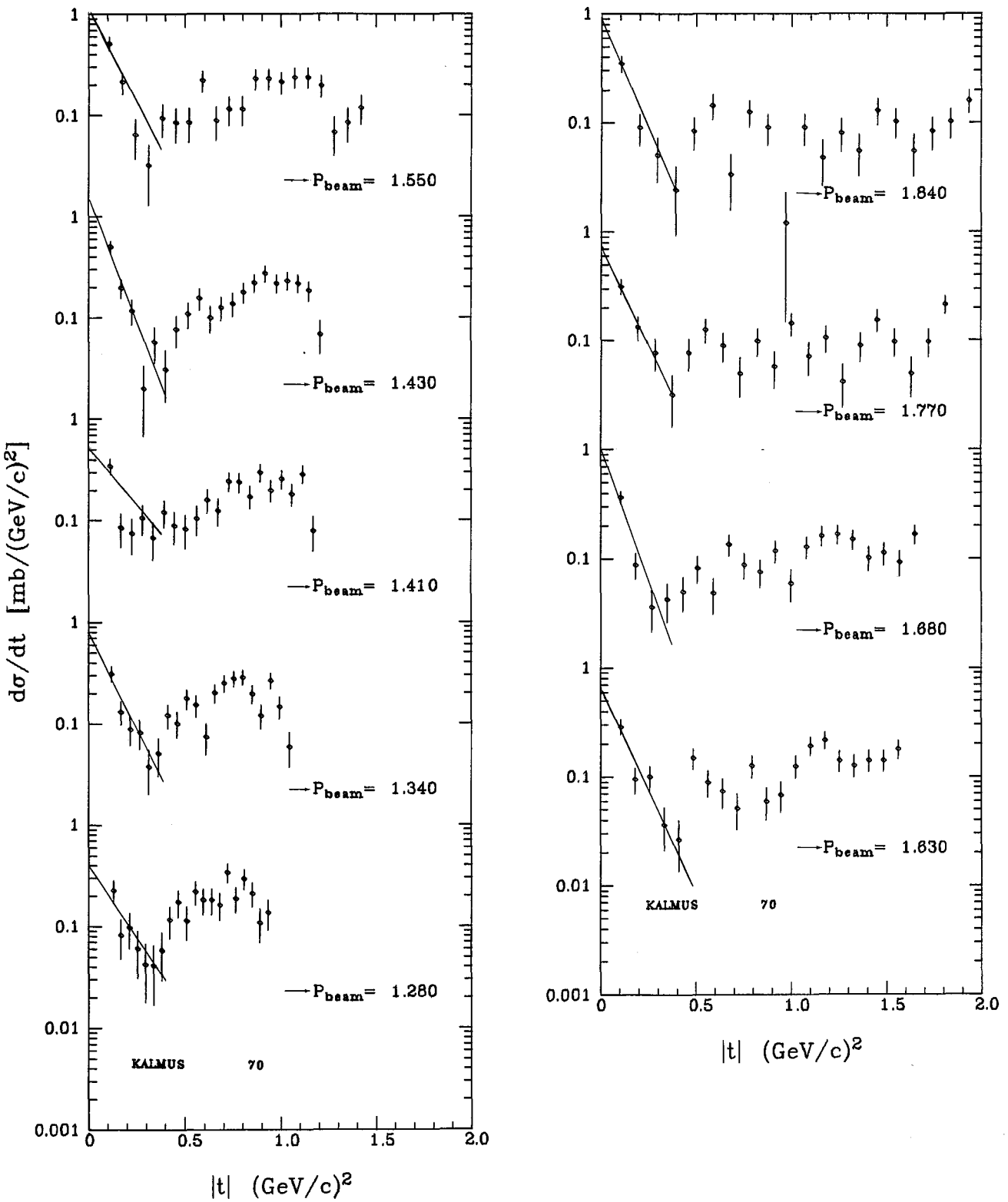
→ BEAM MOMENTUM= 1.84

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.054	0.150	0.348	+-	0.057	*†
0.150	0.247	0.091		0.029	*†
0.247	0.343	0.050		0.022	*†
0.343	0.439	0.024		0.015	*†
0.439	0.536	0.084		0.028	*†
0.536	0.632	0.144		0.037	*†
0.632	0.728	0.034		0.018	*†
0.728	0.825	0.125		0.034	*†
0.825	0.921	0.091		0.029	*†
0.921	1.018	0.012		0.011	*†
1.018	1.114	0.091		0.029	*†
1.114	1.210	0.048		0.021	*†
1.210	1.307	0.081		0.028	*†
1.307	1.403	0.055		0.023	*†
1.403	1.500	0.130		0.035	*†
1.500	1.596	0.103		0.031	*†
1.596	1.692	0.055		0.023	*†
1.692	1.789	0.084		0.028	*†
1.789	1.885	0.103		0.031	*†
1.885	1.981	0.161		0.039	*†

KALMUS 70.....PR D2 1824 HBCS

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

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



* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

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

→ BEAM MOMENTUM= 1.42 +- .01

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

HANSON 71.....PR D4 1296 HBCS

→ BEAM MOMENTUM= 1.458 + .146 , - .141

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

DAVIES 70.....PR D 2 506 DBC 72

→ BEAM MOMENTUM= 1.55

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 HBCS

→ BEAM MOMENTUM= 1.62

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 HBCS

→ BEAM MOMENTUM= 1.68

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 HBCS

→ BEAM MOMENTUM= 1.689 + .087 , - .086

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†
0.159	0.697	0.064		0.013	*†
0.428	0.482	0.123		0.018	*†
0.482	0.536	0.106		0.017	*†
0.536	0.590	0.123		0.018	*†
0.590	0.643	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

→ BEAM MOMENTUM= 1.77

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

HANSON 71.....PR D4 1296 HBCS

→ BEAM MOMENTUM= 1.84

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 HBCS

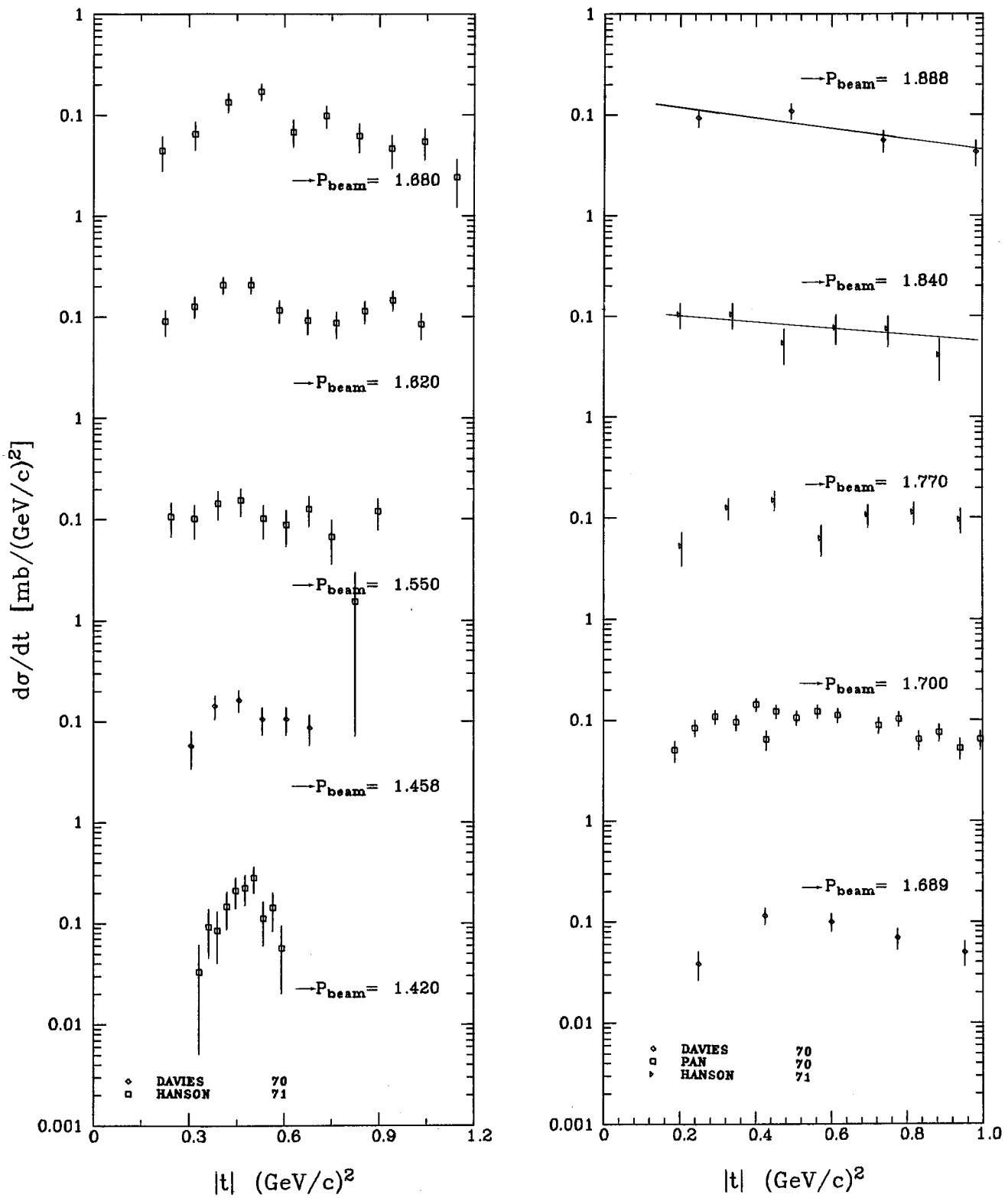
→ BEAM MOMENTUM= 1.888 + .114 , - .111

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

DAVIES 70.....PR D 2 506 DBC 72

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
\+ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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



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

BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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

BEAM MOMENTUM= 4.

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.200	0.040	+-	0.009	*
0.300	0.032		0.005	*
0.390	0.025		0.005	*
0.500	0.021		0.004	*
0.610	0.015		0.003	*
0.820	0.010		0.003	*

YING 69.....PL 30B 289 SPRK

BEAM MOMENTUM= 5.05

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.110	0.023	+-	0.004	*
0.220	0.023		0.002	*
0.320	0.015		0.003	*
0.430	0.014		0.002	*
0.530	0.006		0.002	*
0.620	0.008		0.002	*
0.770	0.005		0.002	*
0.980	0.003		0.001	*

YING 69.....PL 30B 289 SPRK

BEAM MOMENTUM= 5.5

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]	
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

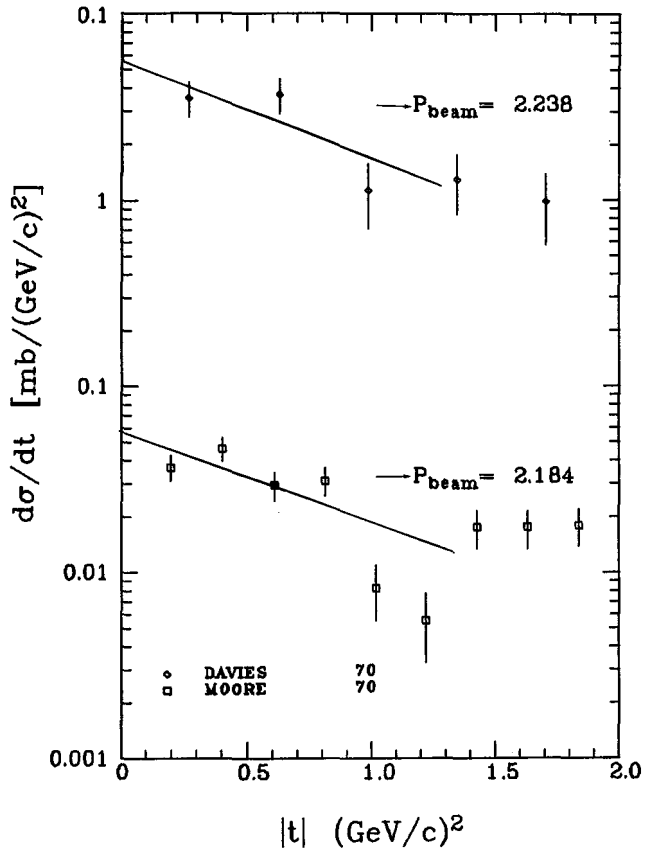
BEAM MOMENTUM= 8.

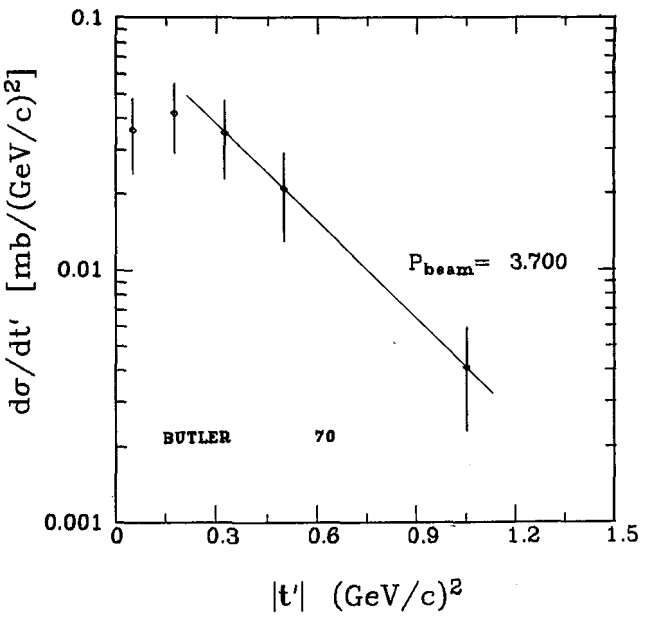
-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.300	0.012	+-	0.003	*
0.300	0.600	0.009		0.003	*
0.600	0.900	0.003		0.002	*
0.900	1.200	0.002		0.002	*

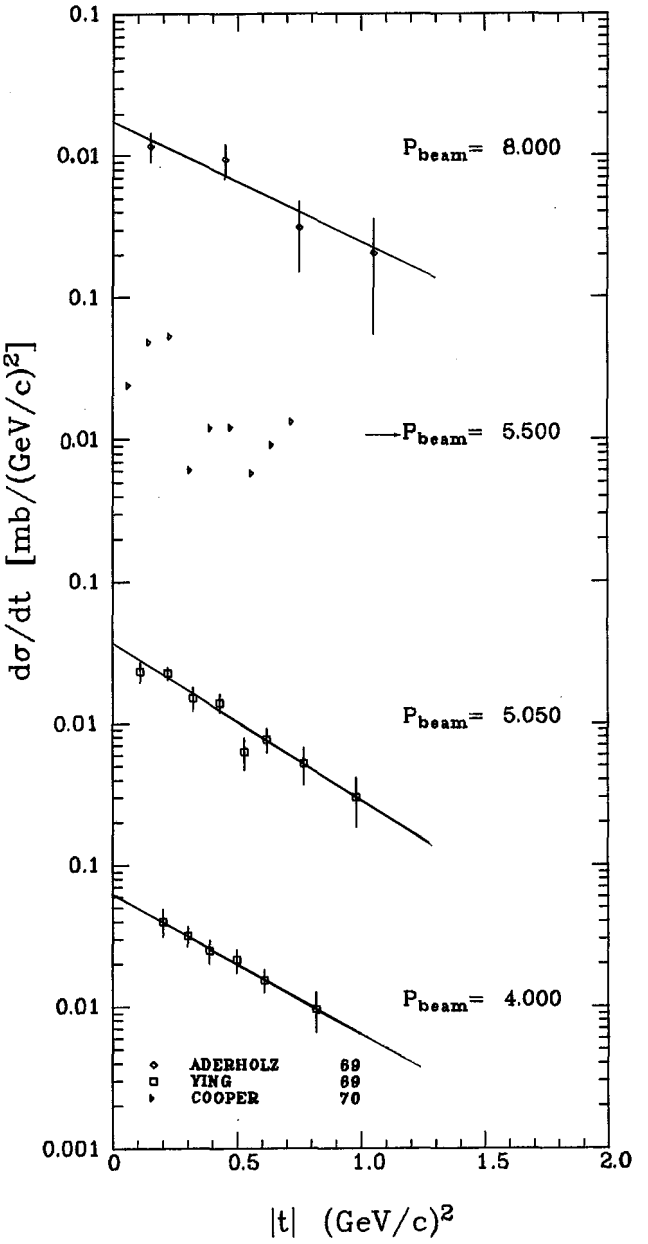
ADERHOLZ 69.....NP B11 259 HBCS

* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
→ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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







* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

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

BEAM MOMENTUM= 3.5

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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]			
0.036	0.008	+-	0.006	†
0.052	0.011		0.006	†
0.072	0.029		0.007	†
0.099	0.027		0.007	†
0.132	0.025		0.006	†

KALBACI 71.....PRL 27 74 SPRK,CNTR

BEAM MOMENTUM= 6.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

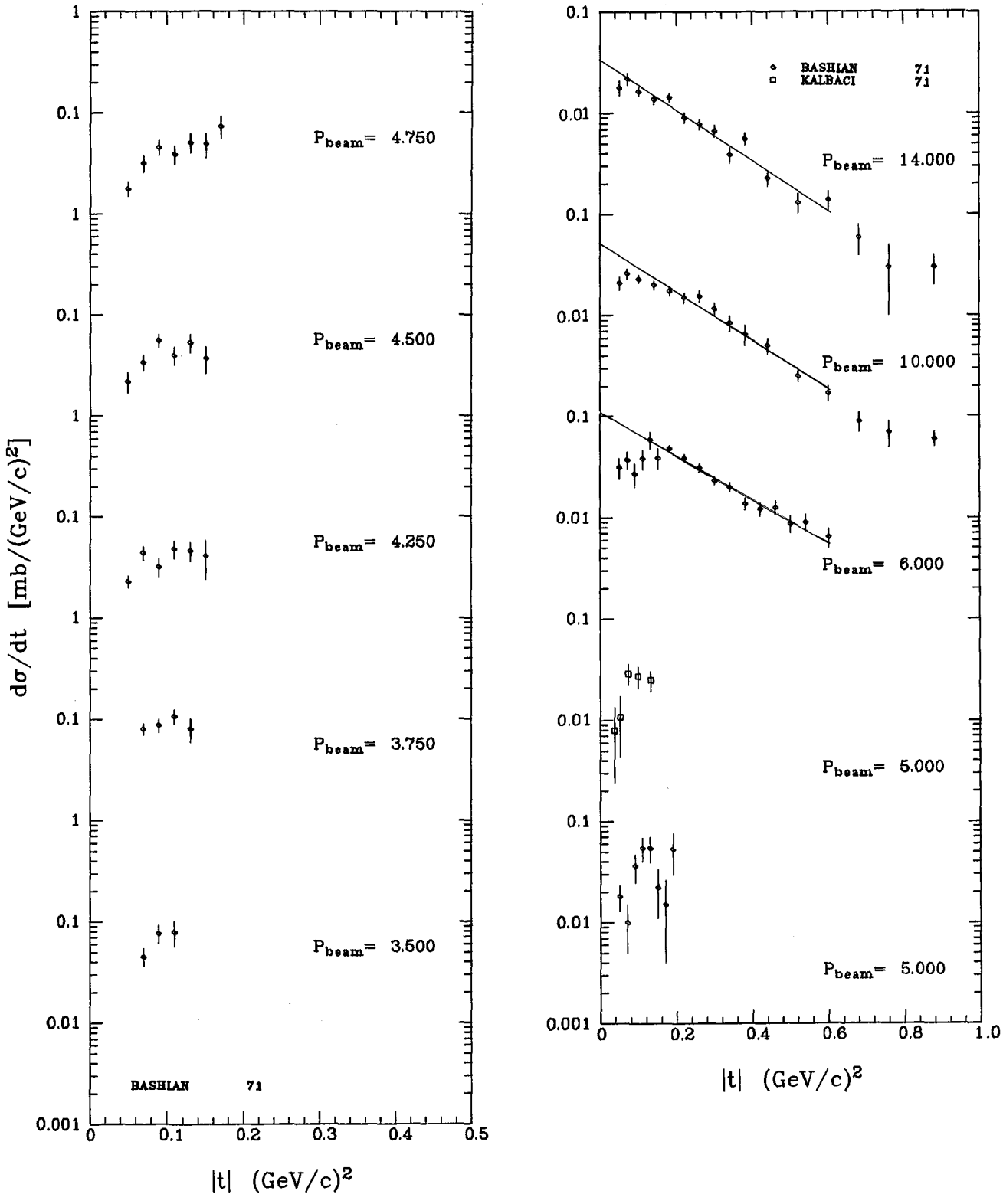
BEAM MOMENTUM= 14.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

† SEE DATA LISTING FOR ADDITIONAL COMMENTS

Differential cross section for $\pi^+p \to K^+Y^*(1385)^+$ $\hookrightarrow$ All



Differential cross section

for $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^0\pi^+$

→ BEAM MOMENTUM= 2.34 +- .155

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	†

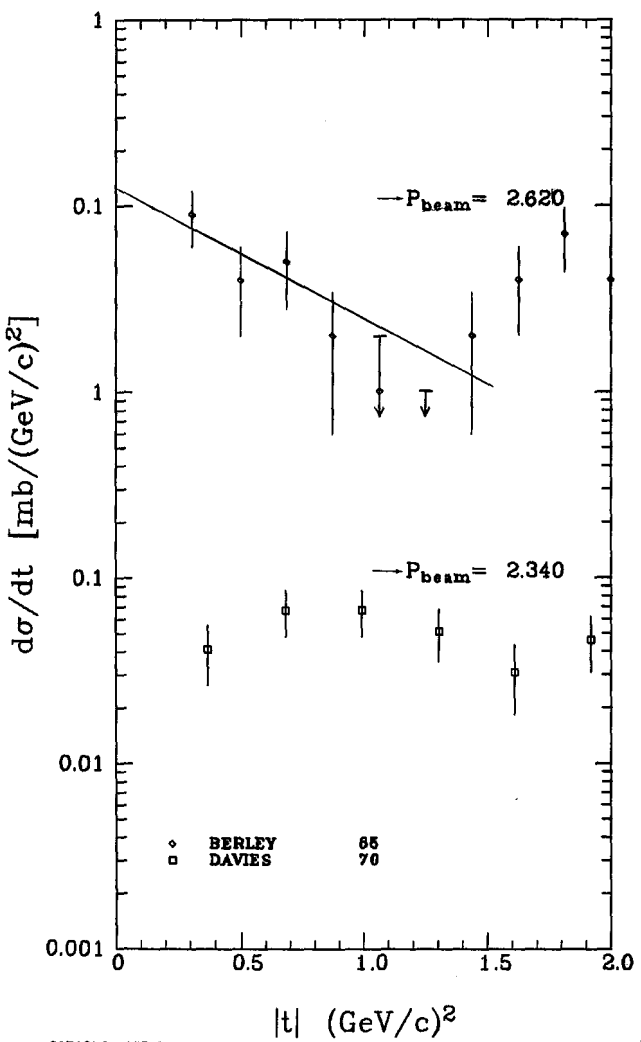
DAVIES 70.....PR D 2 506 DBC 72

→ BEAM MOMENTUM= 2.62 + .28 -.27

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 $\pi^+p \to K^*(890)^+\Sigma^+$, $K^*(890)^+ \to K^+\pi^0 + K^0\pi^+$

→ BEAM MOMENTUM= 2.77 +- .04

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

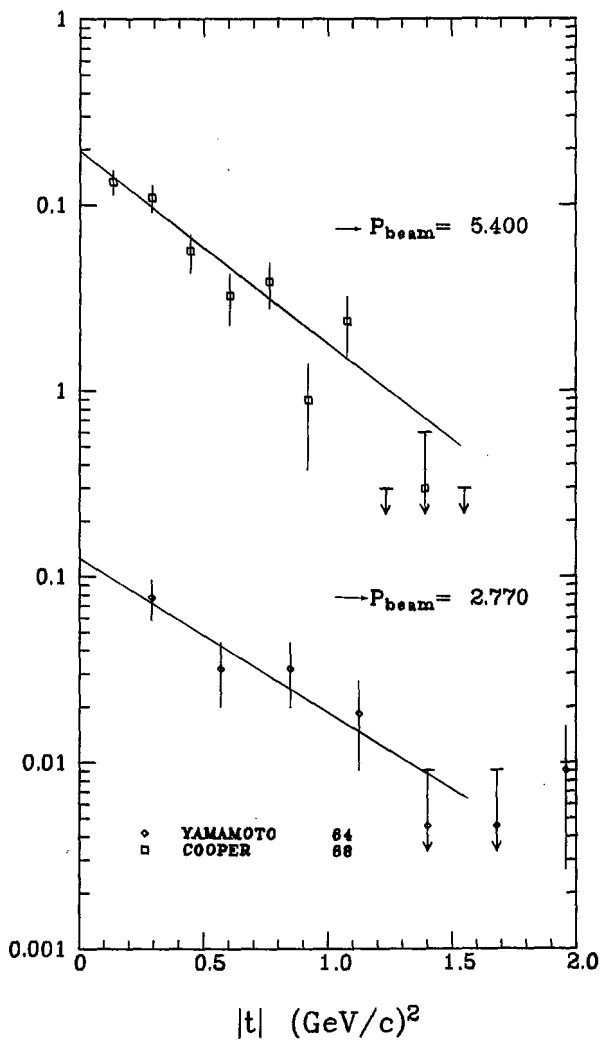
YAMAMOTO 64.....PR 134 B383 HBC 20

→ BEAM MOMENTUM= 5.4

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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. $\pi^+ n$ Interactions

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

→ 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= .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	3.722		1.930	*
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= .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= 1.232 +- .015

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	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.		0.123	*††
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.		0.123	*††
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.		0.123	*††
1.480	1.520	0.247		0.174	*††
1.520	1.560	0.		0.123	*††
1.560	1.600	0.		0.123	*††
1.600	1.640	0.		0.123	*††
1.640	1.680	0.247		0.174	*††
1.680	1.720	0.370		0.213	*††
1.720	1.760	0.		0.123	*††
1.760	1.800	0.247		0.174	*††
1.800	1.840	0.123		0.123	*††

KRAEMER 64.....PR 136 B496 DBC 72

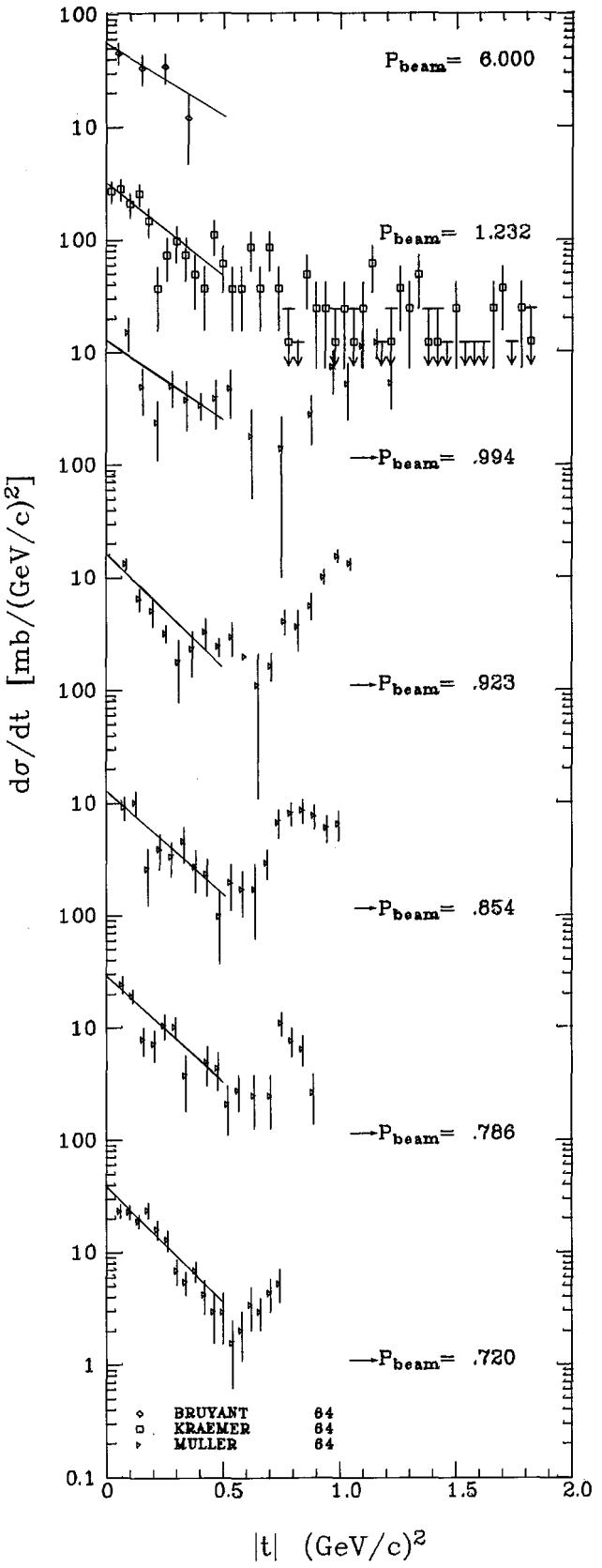
BEAM MOMENTUM= 6.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.457	+-	0.102	*
0.100	0.200	0.337		0.101	*
0.200	0.300	0.344		0.100	*
0.300	0.400	0.121		0.074	*

BRUYANT 64.....PL 12 278 DBC 81

- OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T
* DATA READ FROM GRAPH
+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

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



* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

Differential cross section for $\pi^+ n \to \eta p$, $\eta \to \pi^+\pi^-\pi^0$

→ BEAM MOMENTUM= 1.049

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.025	0.071	1.514	+-	1.521	*†
0.071	0.118	3.027		2.151	*†
0.118	0.164	1.284		1.401	*†
0.164	0.211	2.874		2.096	*†
0.211	0.257	2.798		2.068	*†
0.257	0.304	1.300		1.410	*†
0.304	0.350	5.917		3.008	*†
0.350	0.397	2.828		2.080	*†
0.397	0.443	-0.		1.529	*†
0.443	0.490	1.269		1.393	*†
0.490	0.536	0.015		0.153	*†
0.536	0.583	2.874		2.096	*†
0.583	0.629	0.		1.529	*†
0.629	0.676	0.046		0.265	*†
0.676	0.722	0.		1.529	*†
0.722	0.768	0.		1.529	*†
0.768	0.815	0.		1.529	*†
0.815	0.861	1.254		1.384	*†
0.861	0.908	0.		1.529	*†
0.908	0.954	0.		1.529	*†

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

→ BEAM MOMENTUM= 1.236

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.016	0.080	0.833	+-	0.575	*†
0.080	0.144	1.627		0.803	*†
0.144	0.208	1.904		0.869	*†
0.208	0.272	3.094		1.108	*†
0.272	0.336	0.317		0.355	*†
0.336	0.400	3.452		1.170	*†
0.400	0.464	0.357		0.376	*†
0.464	0.527	1.111		0.664	*†
0.527	0.591	0.754		0.547	*†
0.591	0.655	0.		0.397	*†
0.655	0.719	1.151		0.676	*†
0.719	0.783	0.040		0.125	*†
0.783	0.847	0.317		0.355	*†
0.847	0.911	0.		0.397	*†
0.911	0.975	0.		0.397	*†
0.975	1.039	0.		0.397	*†
1.039	1.103	0.357		0.376	*†
1.103	1.166	0.357		0.376	*†
1.166	1.230	0.317		0.355	*†
1.230	1.294	0.357		0.376	*†

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

→ BEAM MOMENTUM= 1.434

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.011	0.094	0.113	+-	0.126	*†
0.094	0.176	1.243		0.419	*†
0.176	0.258	0.650		0.303	*†
0.258	0.340	1.074		0.390	*†
0.340	0.422	1.639		0.481	*†
0.422	0.504	1.356		0.438	*†
0.504	0.586	1.060		0.387	*†
0.586	0.668	0.226		0.179	*†
0.668	0.750	0.099		0.118	*†
0.750	0.832	0.099		0.118	*†
0.832	0.914	0.240		0.184	*†
0.914	0.997	0.085		0.109	*†
0.997	1.079	0.071		0.100	*†
1.079	1.161	0.226		0.179	*†
1.161	1.243	0.014		0.045	*†
1.243	1.325	0.		0.141	*†
1.325	1.407	0.226		0.179	*†
1.407	1.489	0.014		0.045	*†
1.489	1.571	0.085		0.109	*†
1.571	1.653	0.085		0.109	*†

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

→ BEAM MOMENTUM= 1.643

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.008	0.110	0.198	+-	0.123	*†
0.110	0.211	1.118		0.292	*†
0.211	0.312	0.563		0.207	*†
0.312	0.413	0.631		0.219	*†
0.413	0.514	0.707		0.232	*†
0.514	0.616	0.563		0.207	*†
0.616	0.717	0.479		0.191	*†
0.717	0.818	0.183		0.118	*†
0.818	0.919	0.183		0.118	*†
0.919	1.021	0.008		0.024	*†
1.021	1.122	0.106		0.090	*†
1.122	1.223	0.023		0.042	*†
1.223	1.324	0.023		0.042	*†
1.324	1.426	0.		0.076	*†
1.426	1.527	0.030		0.048	*†
1.527	1.628	0.		0.076	*†
1.628	1.729	0.		0.076	*†
1.729	1.830	0.175		0.115	*†
1.830	1.932	0.091		0.083	*†
1.932	2.033	0.099		0.087	*†

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

→ BEAM MOMENTUM= 1.861

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.006	0.128	0.317	+-	0.140	*†
0.128	0.249	0.615		0.195	*†
0.249	0.370	0.602		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 D2 2564 DBC 72

→ BEAM MOMENTUM= 2.091

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

MILLER 69.....PR 178 2061 DBC 72

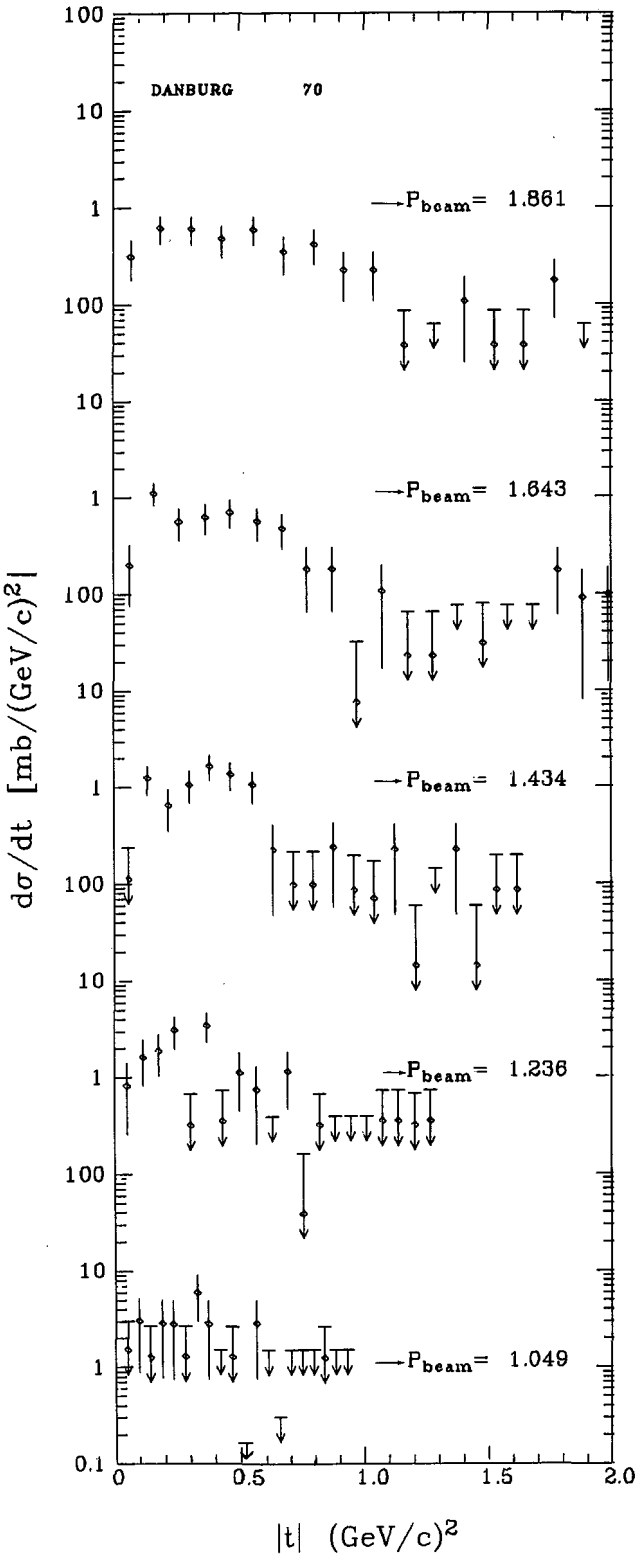
BEAM MOMENTUM= 3.65

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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	*†

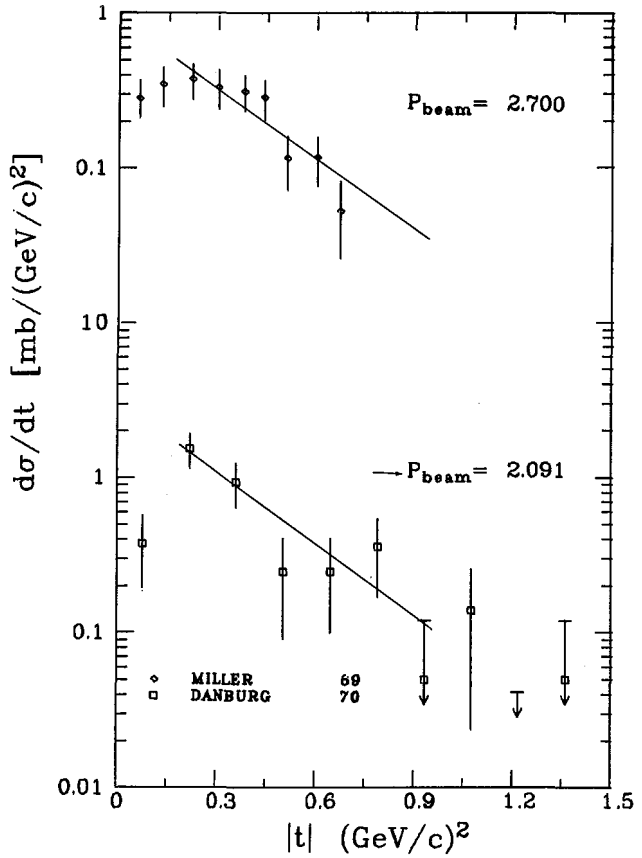
BENSON 69.....PRL 22 1074 DBC 20

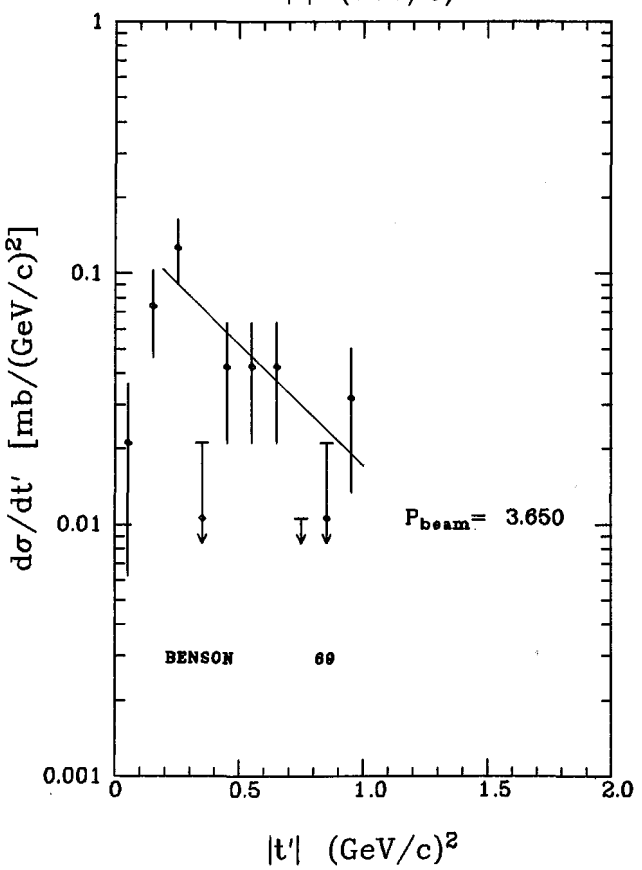
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
· OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+ n \to \eta p$, $\eta \to \pi^+\pi^-\pi^0$



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T





Differential cross section

for $\pi^+ n \to \eta p$ → All

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

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.112	0.128	12.964	+-	3.144	*†
0.128	0.144	9.914		2.750	*†
0.144	0.161	12.202		3.050	*†
0.161	0.177	6.863		2.288	*†
0.177	0.194	9.914		2.750	*†
0.194	0.210	12.964		3.144	*†
0.210	0.226	9.151		2.642	*†
0.226	0.243	6.101		2.157	*†
0.243	0.259	9.151		2.642	*†
0.259	0.276	11.439		2.954	*†

LITCHFIELD 69.....PR 183 1152 DBC 180

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

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.073	0.106	7.605	+-	1.234	*†
0.106	0.139	6.805		1.167	*†
0.139	0.172	8.806		1.328	*†
0.172	0.205	5.604		1.059	*†
0.205	0.238	6.004		1.096	*†
0.238	0.271	5.604		1.059	*†
0.271	0.304	5.203		1.020	*†
0.304	0.337	5.604		1.059	*†
0.337	0.370	5.604		1.059	*†
0.370	0.403	5.203		1.020	*†

LITCHFIELD 69.....PR 183 1152 DBC 180

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

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.055	0.101	8.808	+-	1.285	*†
0.101	0.146	6.559		1.109	*†
0.146	0.192	5.434		1.009	*†
0.192	0.238	5.247		0.992	*†
0.238	0.283	5.622		1.026	*†
0.283	0.329	5.434		1.009	*†
0.329	0.375	7.121		1.155	*†
0.375	0.420	5.247		0.992	*†
0.420	0.466	6.184		1.076	*†
0.466	0.512	7.871		1.214	*†

LITCHFIELD 69.....PR 183 1152 DBC 180

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

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.040	0.102	3.714	+-	0.775	*†
0.102	0.165	6.783		1.047	*†
0.165	0.227	4.360		0.839	*†
0.227	0.290	3.391		0.740	*†
0.290	0.352	2.261		0.604	*†
0.352	0.415	3.230		0.722	*†
0.415	0.477	2.907		0.685	*†
0.477	0.539	4.037		0.807	*†
0.539	0.602	2.745		0.666	*†
0.602	0.664	6.460		1.021	*†

LITCHFIELD 69.....PR 183 1152 DBC 180

BEAM MOMENTUM= 1.232 +- .015

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.040	0.333	+-	0.192	*+†
0.040	0.080	1.332		0.385	*+†
0.080	0.120	1.443		0.400	*+†
0.120	0.160	1.443		0.400	*+†
0.160	0.200	2.109		0.484	*+†
0.200	0.240	1.887		0.458	*+†
0.240	0.280	2.220		0.496	*+†
0.280	0.320	2.109		0.484	*+†
0.320	0.360	1.887		0.458	*+†
0.360	0.400	1.998		0.471	*+†
0.400	0.440	1.776		0.444	*+†
0.440	0.480	0.555		0.248	*+†
0.480	0.520	0.444		0.222	*+†
0.520	0.560	0.555		0.248	*+†
0.560	0.600	1.110		0.351	*+†
0.600	0.640	0.888		0.314	*+†
0.640	0.680	0.222		0.157	*+†
0.680	0.720	0.222		0.157	*+†
0.720	0.760	0.444		0.222	*+†
0.760	0.800	0.222		0.157	*+†
0.800	0.840	0.444		0.222	*+†
0.840	0.880	0.111		0.111	*+†
0.880	0.920	0.333		0.192	*+†
0.920	0.960	0.111		0.111	*+†
0.960	1.000	0.111		0.111	*+†
1.000	1.040	0.222		0.157	*+†
1.040	1.080	0.111		0.111	*+†
1.080	1.120	0.111		0.111	*+†
1.120	1.160	0.		0.111	*+†
1.160	1.200	0.111		0.111	*+†
1.200	1.240	0.111		0.111	*+†
1.240	1.280	0.		0.111	*+†

KRAEMER 64.....PR 136 B496 DBC 72

for $\pi^+ n \to \eta p$ → Neutrals

BEAM MOMENTUM= .906 + .088 , - .086

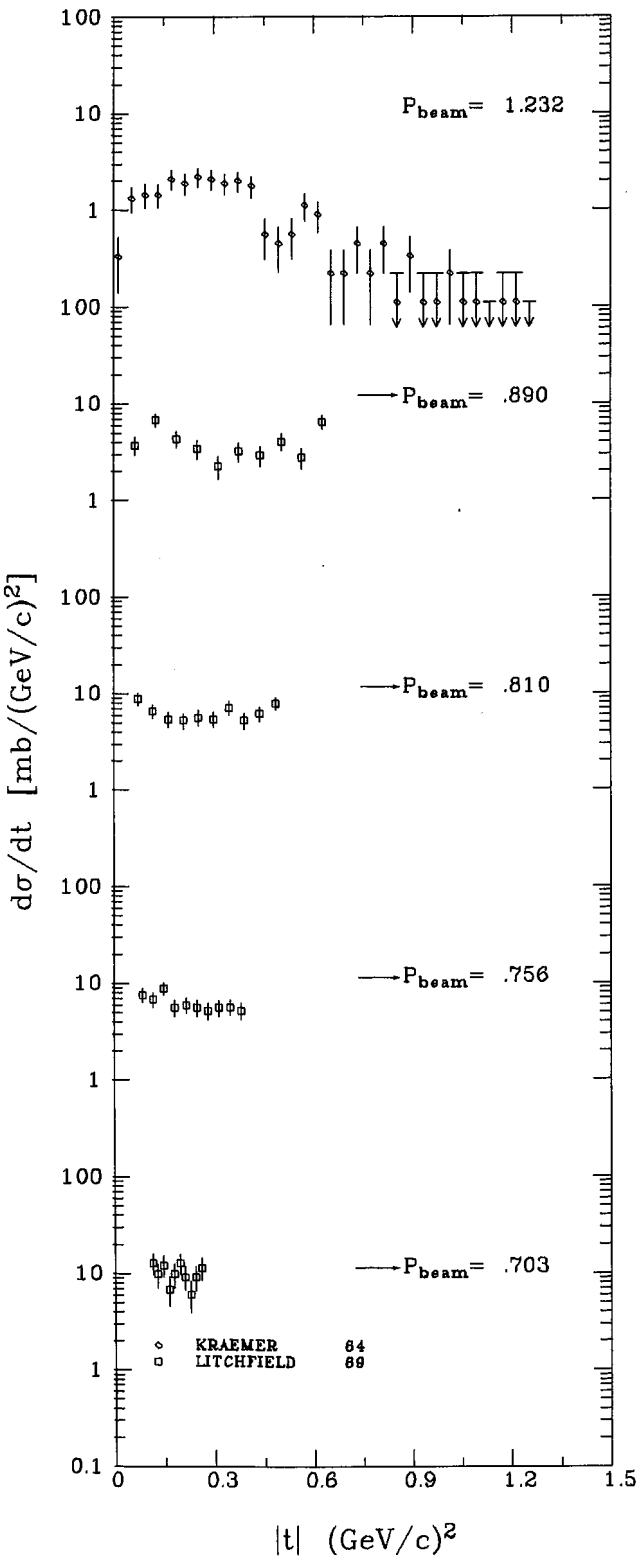
-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.038	0.103	4.977	+-	0.941	*†
0.103	0.169	4.621		0.906	*†
0.169	0.234	4.088		0.852	*†
0.234	0.300	2.133		0.616	*†
0.300	0.366	5.510		0.990	*†
0.366	0.431	2.488		0.665	*†
0.431	0.497	4.088		0.852	*†
0.497	0.562	3.555		0.795	*†
0.562	0.628	4.799		0.924	*†
0.628	0.693	4.621		0.906	*†

PAULI 63.....SIENA CONF 1 92 DBC

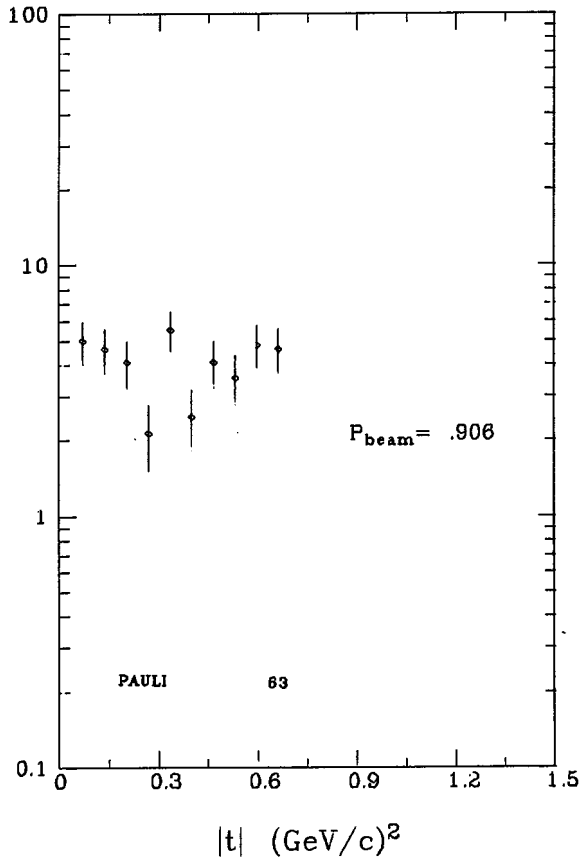
* DATA READ FROM GRAPH
\+ GLAUBER CORRECTION APPLIED.
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section

for $\pi^+ n \to \eta p$ → All



for $\pi^+ n \to \eta p$ → Neutrals



* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

Differential cross section for $\pi^+ n \to \rho^0 p$, $\rho^0 \to \pi^+\pi^-$

→ 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	5.610		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 MIN	MAX	D SIGMA/D'T [MB/(GEV/C)**2]			
0.019	0.061	3.524	+-	0.554	*†
0.063	0.091	2.336		0.317	*†
0.093	0.135	1.782		0.277	*†
0.131	0.173	1.137		0.147	*†
0.168	0.210	0.851		0.158	*†
0.202	0.286	0.317		0.079	*†
0.293	0.363	0.337		0.083	*†
0.362	0.516	0.116		0.043	*†
0.520	0.798	0.071		0.019	*†

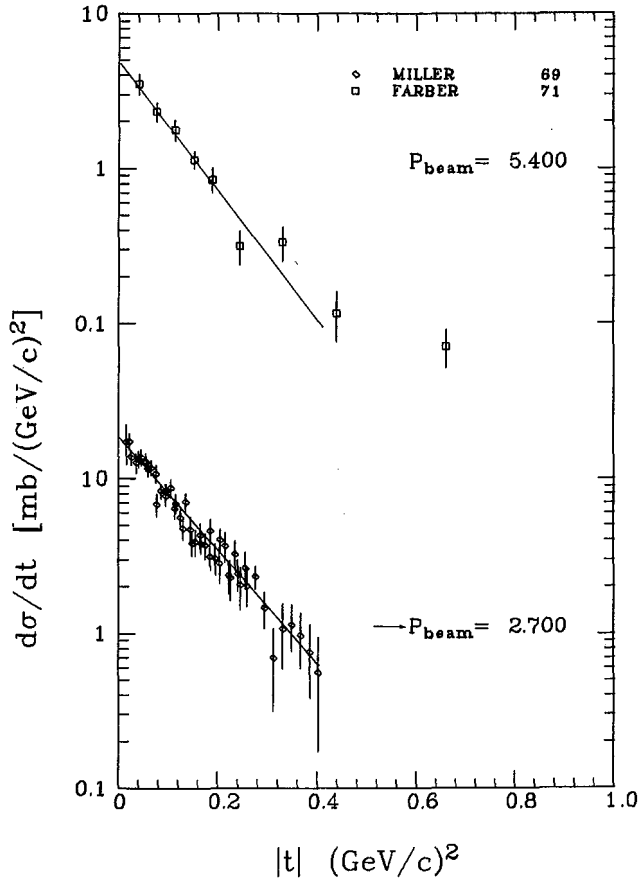
FARBER 71.....NP B29 237 DBC 33

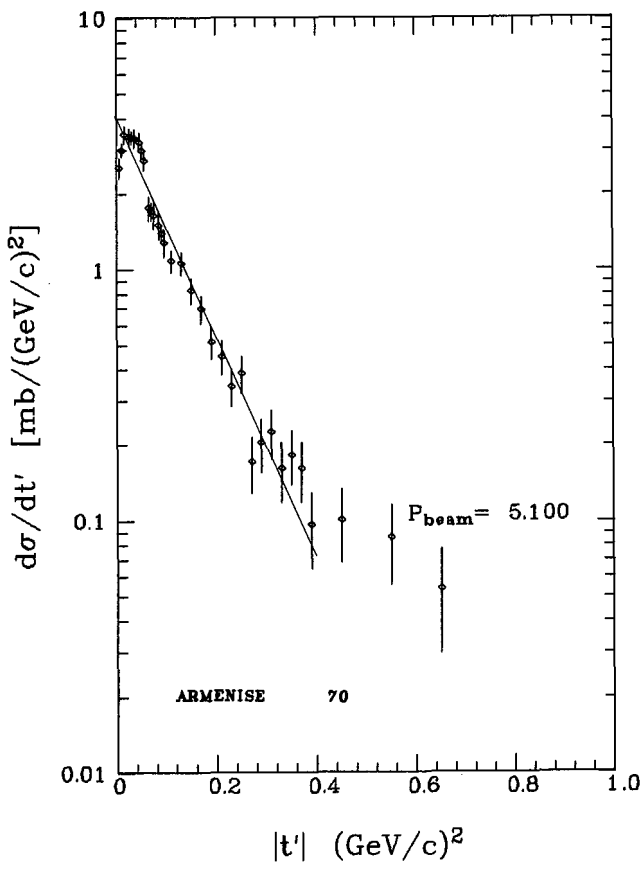
BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.010	2.543	+-	0.237	*†
0.	0.020	2.995		0.183	*†
0.010	0.020	3.448		0.274	*†
0.020	0.030	3.383		0.274	*†
0.020	0.040	3.362		0.194	*†
0.030	0.040	3.340		0.274	*†
0.040	0.050	3.232		0.263	*†
0.040	0.060	2.985		0.183	*†
0.050	0.060	2.736		0.243	*†
0.060	0.070	1.767		0.194	*†
0.060	0.080	1.713		0.136	*†
0.070	0.080	1.659		0.190	*†
0.080	0.090	1.508		0.179	*†
0.080	0.100	1.401		0.124	*†
0.090	0.100	1.293		0.166	*†
0.100	0.120	1.088		0.108	*†
0.120	0.140	1.067		0.108	*†
0.140	0.160	0.830		0.095	*†
0.160	0.180	0.700		0.086	*†
0.180	0.200	0.517		0.075	*†
0.200	0.220	0.453		0.070	*†
0.220	0.240	0.345		0.059	*†
0.240	0.260	0.388		0.065	*†
0.260	0.280	0.172		0.043	*†
0.280	0.300	0.205		0.048	*†
0.300	0.320	0.226		0.050	*†
0.320	0.340	0.162		0.043	*†
0.340	0.360	0.183		0.044	*†
0.360	0.380	0.162		0.043	*†
0.380	0.400	0.097		0.032	*†
0.400	0.500	0.101		0.032	*†
0.500	0.600	0.086		0.030	*†
0.600	0.700	0.054		0.024	*†

ARMENISE 70.....NC 65A 637 DBC 86

+ OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS





Differential cross section for $\pi^+ n \to \omega p$ $\hookrightarrow$ All

BEAM MOMENTUM= 1.232 +- .015

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 B496 DBC 72

BEAM MOMENTUM= 6.95

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
-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

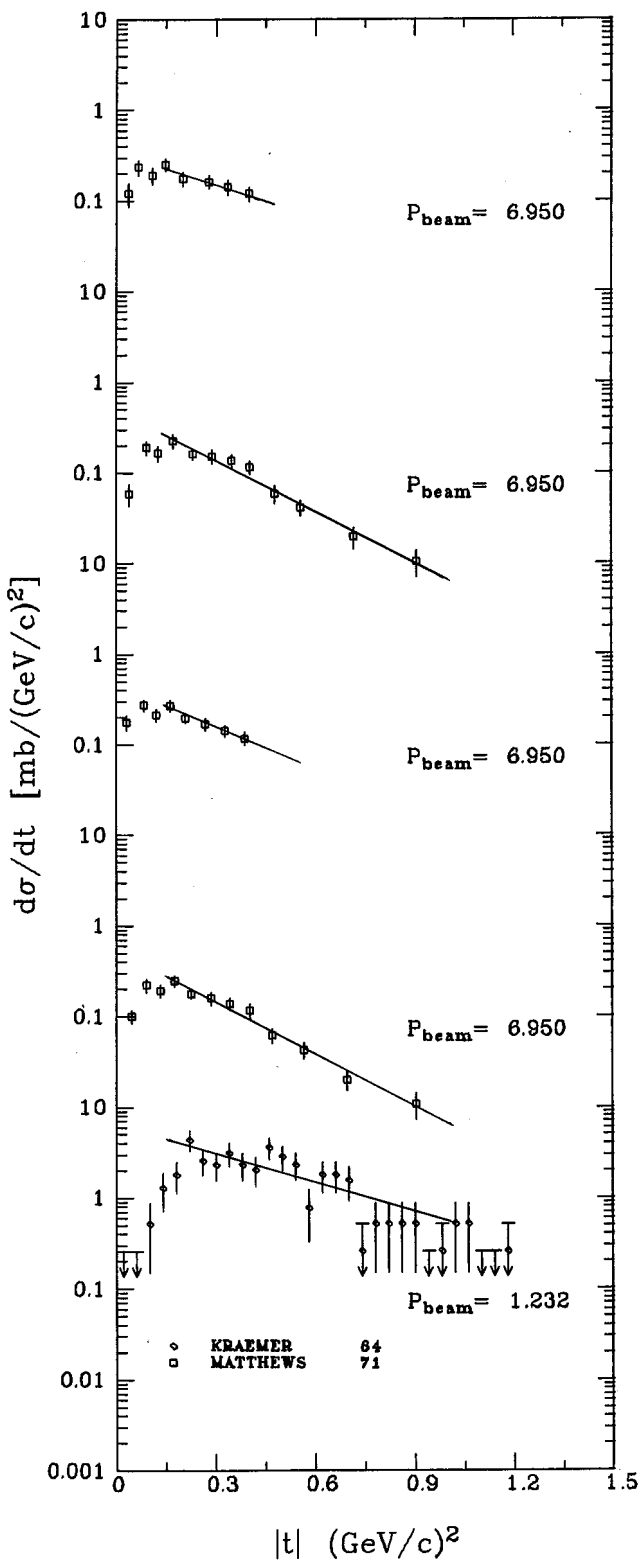
-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.011	0.065	0.058	+-	0.016	*†
0.070	0.110	0.190		0.033	*†
0.098	0.154	0.164		0.031	*†
0.150	0.192	0.227		0.039	*†
0.194	0.264	0.161		0.021	*†
0.253	0.323	0.152		0.026	*†
0.327	0.367	0.137		0.023	*†
0.375	0.429	0.115		0.019	*†
0.436	0.518	0.059		0.013	*†
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 $\pi^+ n \to \omega p$, $\omega \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 1.236

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.120	0.154	5.256	+-	1.225	*†
0.154	0.188	4.513		1.135	*†
0.188	0.221	4.885		1.181	*†
0.221	0.255	4.599		1.146	*†
0.255	0.289	4.885		1.181	*†
0.289	0.322	5.170		1.215	*†
0.322	0.356	6.570		1.370	*†
0.356	0.389	3.171		0.952	*†
0.389	0.423	4.342		1.114	*†
0.423	0.457	2.799		0.894	*†
0.457	0.490	3.771		1.038	*†
0.490	0.524	1.743		0.706	*†
0.524	0.558	4.913		1.185	*†
0.558	0.591	1.171		0.578	*†
0.591	0.625	2.599		0.862	*†
0.625	0.659	3.771		1.038	*†
0.659	0.692	1.485		0.651	*†
0.692	0.726	1.771		0.711	*†
0.726	0.760	3.742		1.034	*†
0.760	0.793	1.143		0.571	*†

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

BEAM MOMENTUM= 1.434

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.071	0.128	2.049	+-	0.372	*†
0.128	0.184	1.806		0.349	*†
0.184	0.241	2.089		0.375	*†
0.241	0.298	2.601		0.419	*†
0.298	0.355	3.619		0.494	*†
0.355	0.411	3.174		0.462	*†
0.411	0.468	2.129		0.379	*†
0.468	0.525	2.547		0.414	*†
0.525	0.581	3.066		0.455	*†
0.581	0.638	2.352		0.398	*†
0.638	0.695	2.203		0.385	*†
0.695	0.752	1.685		0.337	*†
0.752	0.808	1.637		0.332	*†
0.808	0.865	1.024		0.263	*†
0.865	0.922	1.307		0.297	*†
0.922	0.978	1.159		0.279	*†
0.978	1.035	0.815		0.234	*†
1.035	1.092	0.499		0.183	*†
1.092	1.149	0.553		0.193	*†
1.149	1.205	0.074		0.071	*†

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

BEAM MOMENTUM= 1.643

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.048	0.126	1.265	+-	0.199	*†
0.126	0.204	1.337		0.205	*†
0.204	0.282	1.626		0.226	*†
0.282	0.361	1.093		0.185	*†
0.361	0.439	1.366		0.207	*†
0.439	0.517	1.780		0.236	*†
0.517	0.595	1.093		0.185	*†
0.595	0.674	1.099		0.186	*†
0.674	0.752	1.265		0.199	*†
0.752	0.830	1.165		0.191	*†
0.830	0.908	1.234		0.197	*†
0.908	0.987	0.703		0.149	*†
0.987	1.065	0.898		0.168	*†
1.065	1.143	0.860		0.164	*†
1.143	1.221	0.653		0.143	*†
1.221	1.299	0.725		0.151	*†
1.299	1.378	0.239		0.087	*†
1.378	1.456	0.355		0.106	*†
1.456	1.534	0.273		0.093	*†
1.534	1.612	0.298		0.097	*†

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

BEAM MOMENTUM= 1.68

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.045	0.209	1.455	+-	0.196	*††
0.209	0.373	1.217		0.179	*††
0.373	0.537	1.375		0.191	*††
0.537	0.701	1.508		0.200	*††
0.701	0.865	1.455		0.196	*††
0.865	1.028	1.428		0.194	*††
1.028	1.192	0.899		0.154	*††
1.192	1.356	0.979		0.161	*††
1.356	1.520	0.423		0.106	*††
1.520	1.684	0.264		0.084	*††

BACON 67.....PR 157 1263 DBC 20

BEAM MOMENTUM= 1.861

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.034	0.134	1.533	+-	0.207	*†
0.134	0.234	1.835		0.226	*†
0.234	0.334	1.664		0.216	*†
0.334	0.434	1.349		0.194	*†
0.434	0.533	1.003		0.167	*†
0.533	0.633	0.592		0.129	*†
0.633	0.733	0.891		0.158	*†
0.733	0.833	0.740		0.144	*†
0.833	0.933	0.748		0.145	*†
0.933	1.032	0.578		0.127	*†
1.032	1.132	0.553		0.124	*†
1.132	1.232	0.838		0.153	*†
1.232	1.332	0.670		0.137	*†
1.332	1.432	0.388		0.104	*†
1.432	1.531	0.511		0.119	*†
1.531	1.631	0.212		0.077	*†
1.631	1.731	0.478		0.115	*†
1.731	1.831	0.229		0.080	*†
1.831	1.931	0.156		0.066	*†
1.931	2.030	0.472		0.115	*†

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

BEAM MOMENTUM= 2.091

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.026	0.148	2.529	+-	0.283	*†
0.148	0.270	2.457		0.279	*†
0.270	0.392	1.818		0.240	*†
0.392	0.513	1.701		0.232	*†
0.513	0.635	0.525		0.129	*†
0.635	0.757	0.560		0.133	*†
0.757	0.879	0.465		0.121	*†
0.879	1.001	0.107		0.058	*†
1.001	1.123	0.338		0.103	*†
1.123	1.245	0.285		0.095	*†
1.245	1.367	0.493		0.125	*†
1.367	1.489	0.357		0.106	*†
1.489	1.611	0.433		0.117	*†
1.611	1.733	0.427		0.116	*†
1.733	1.855	0.417		0.115	*†
1.855	1.977	0.212		0.082	*†
1.977	2.099	0.095		0.055	*†
2.099	2.221	0.044		0.037	*†
2.221	2.342	0.057		0.042	*†
2.342	2.464	0.243		0.088	*†

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

BEAM MOMENTUM= 2.331

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.020	0.165	1.752	+-	0.260	*†
0.165	0.310	1.698		0.256	*†
0.310	0.454	0.982		0.195	*†
0.454	0.599	0.669		0.161	*†
0.599	0.744	0.468		0.135	*†
0.744	0.889	0.267		0.102	*†
0.889	1.034	0.019		0.027	*†
1.034	1.178	0.058		0.047	*†
1.178	1.323	0.101		0.062	*†
1.323	1.468	0.155		0.077	*†
1.468	1.613	0.151		0.076	*†
1.613	1.758	0.189		0.086	*†
1.758	1.903	0.039		0.039	*†
1.903	2.047	0.031		0.035	*†
2.047	2.192	0.166		0.080	*†
2.192	2.337	0.162		0.079	*†
2.337	2.482	0.043		0.041	*†
2.482	2.627	0.035		0.037	*†
2.627	2.771	0.186		0.085	*†
2.771	2.916	0.197		0.087	*†

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

BEAM MOMENTUM= 2.7

-T (GEV/C)**2	D SIGMA/D T [MB/(GEV/C)**2]			
0.070	1.120	+-	0.230	*†
0.160	1.120		0.230	*†
0.220	0.950		0.170	*†
0.300	0.820		0.170	*†
0.360	0.750		0.150	*†
0.440	0.690		0.140	*†
0.520	0.540		0.090	*†
0.600	0.600		0.110	*†
0.660	0.359		0.073	*†
0.720	0.358		0.094	*†
0.800	0.290		0.076	*†
0.860	0.195		0.051	*†
0.950	0.144		0.055	*†
1.030	0.146		0.043	*†
1.110	0.121		0.043	*†

MILLER 69.....PR 178 2061 DBC 72

BEAM MOMENTUM= 3.25

-T (GEV/C)**2 MIN	MAX	NUMBER OF EVENTS			
0.	0.060	12.000	+-	3.464	*†
0.060	0.120	22.000		4.690	*†
0.120	0.180	20.000		4.472	*†
0.180	0.240	27.000		5.196	*†
0.240	0.300	17.000		4.123	*†
0.300	0.360	20.000		4.472	*†
0.360	0.420	19.000		4.359	*†
0.420	0.480	13.000		3.606	*†
0.480	0.540	17.000		4.123	*†
0.540	0.600	12.000		3.464	*†
0.600	0.660	9.000		3.000	*†
0.660	0.720	7.000		2.646	*†
0.720	0.780	6.000		2.449	*†

COHN 65.....PL 15 344 DBC 20

BEAM MOMENTUM= 4.19 +- .004

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.	0.100	0.560	+-	0.150	†
0.100	0.200	0.590		0.090	†
0.200	0.300	0.610		0.090	†
0.300	0.400	0.470		0.090	†
0.400	0.500	0.320		0.060	†
0.500	0.600	0.220		0.050	†
0.600	0.700	0.150		0.050	†
0.700	0.800	0.110		0.040	†
0.800	0.900	0.040		0.020	†
0.900	1.000	0.010		0.010	†

GORDON 70.....ILL 1195 DBC 72

BEAM MOMENTUM= 5.4

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.005	0.107	0.380	+-	0.074	*†
0.106	0.208	0.345		0.076	*†
0.208	0.310	0.350		0.068	*†
0.310	0.400	0.109		0.043	*†
0.405	0.507	0.095		0.038	*†
0.511	0.703	0.069		0.032	*†
0.697	1.003	0.027		0.012	*†

FARBER 71.....NP B29 237 DBC 33

BEAM MOMENTUM= 3.65

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.100	0.711	+-	0.087	*†
0.100	0.200	0.775		0.091	*†
0.200	0.300	0.424		0.067	*†
0.300	0.400	0.414		0.066	*†
0.400	0.500	0.403		0.065	*†
0.500	0.600	0.212		0.047	*†
0.600	0.700	0.180		0.044	*†
0.700	0.800	0.095		0.032	*†
0.800	0.900	0.085		0.030	*†
0.900	1.000	0.064		0.026	*†

BENSON 69.....PRL 22 1074 DBC 20

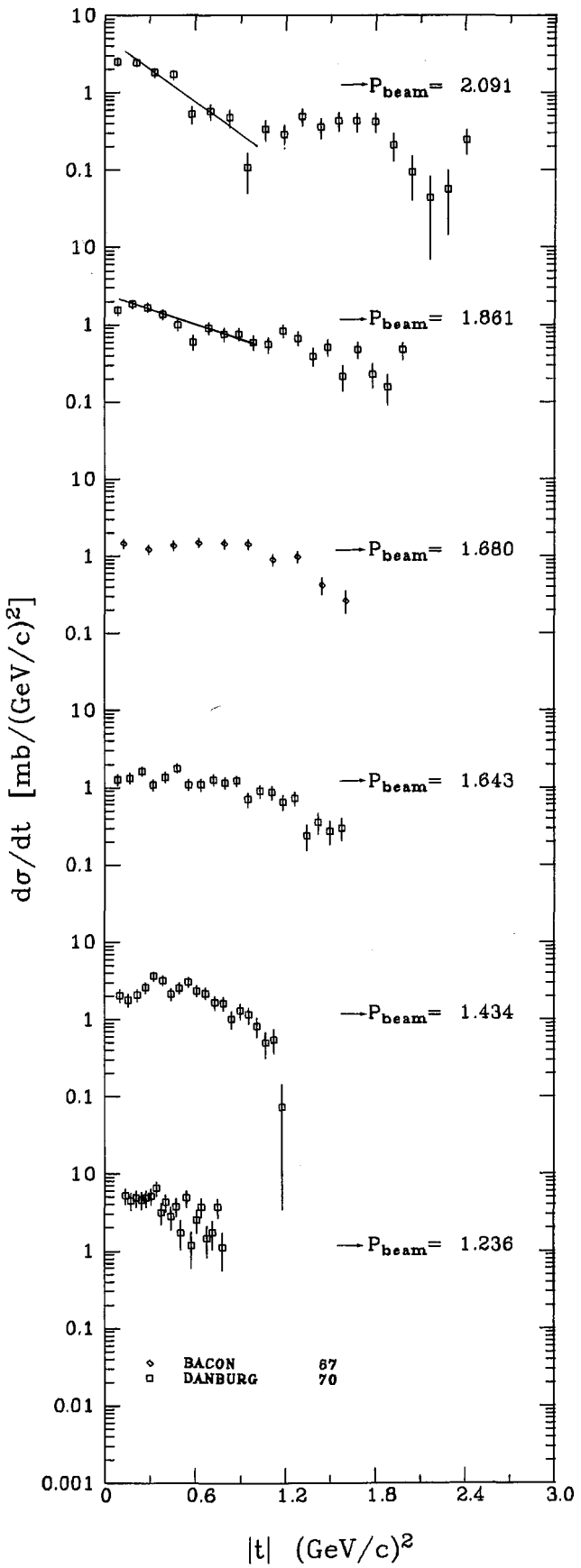
BEAM MOMENTUM= 5.1

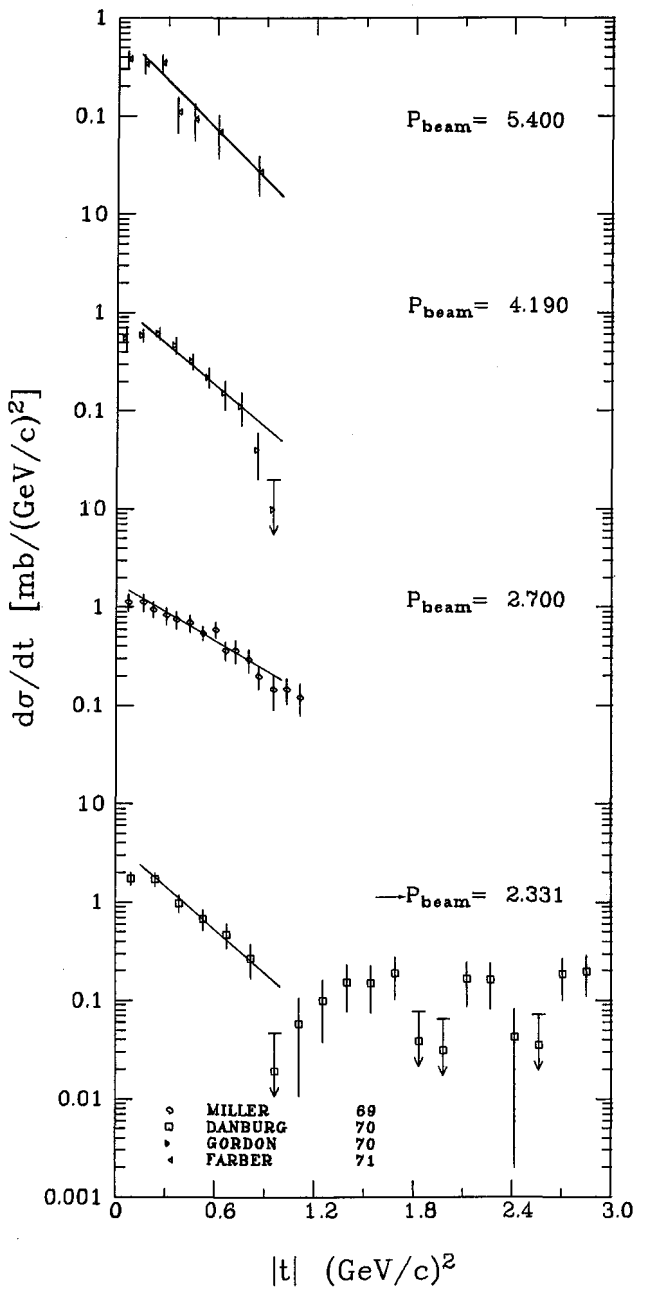
-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
0.	0.040	0.392	+-	0.074	*†
0.040	0.080	0.869		0.109	*†
0.080	0.120	0.911		0.112	*†
0.120	0.160	0.589		0.091	*†
0.160	0.200	0.547		0.088	*†
0.200	0.240	0.687		0.098	*†
0.240	0.280	0.561		0.088	*†
0.280	0.320	0.462		0.080	*†
0.320	0.360	0.476		0.081	*†
0.360	0.400	0.350		0.070	*†
0.400	0.440	0.294		0.064	*†
0.440	0.480	0.364		0.071	*†
0.480	0.520	0.224		0.056	*†
0.520	0.600	0.196		0.053	*†
0.600	0.700	0.070		0.031	*†
0.700	0.800	0.091		0.035	*†

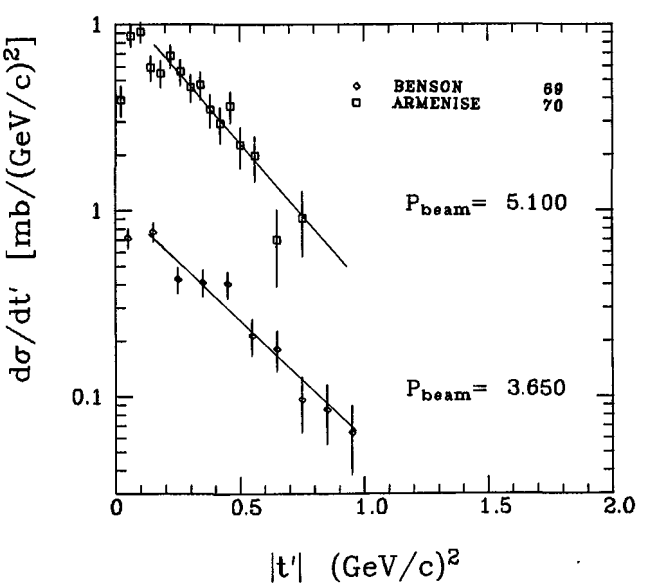
ARMENISE 70.....NC 65A 637 DBC 86

* DATA READ FROM GRAPH
\+ GLAUBER CORRECTION APPLIED
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
* OBTAINED AFTER TRANSFORMATICN CF COS(THETA) INTO T

Differential cross section for $\pi^+ n \to \omega p$, $\omega \to \pi^+\pi^-\pi^0$







* OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

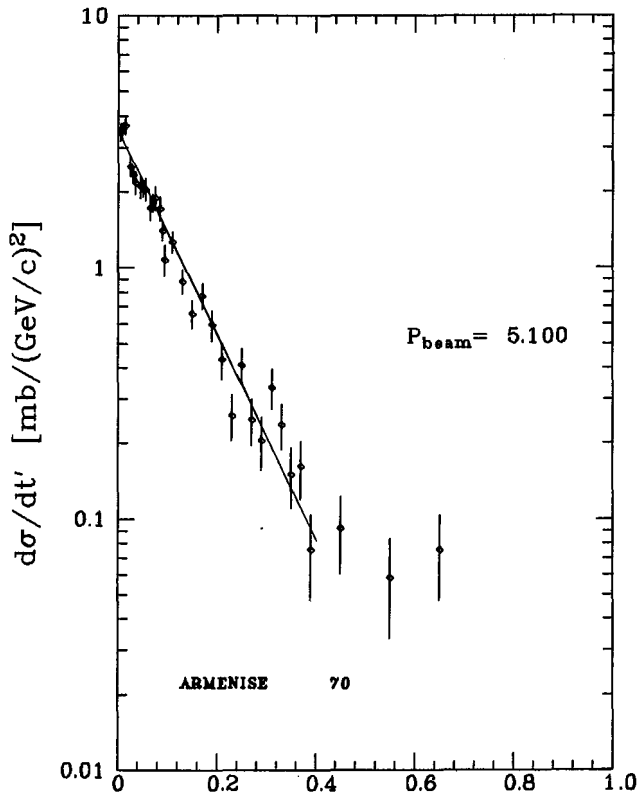
Differential cross section

for $\pi^+ n \to f p$, $f \to \pi^+\pi^-$

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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



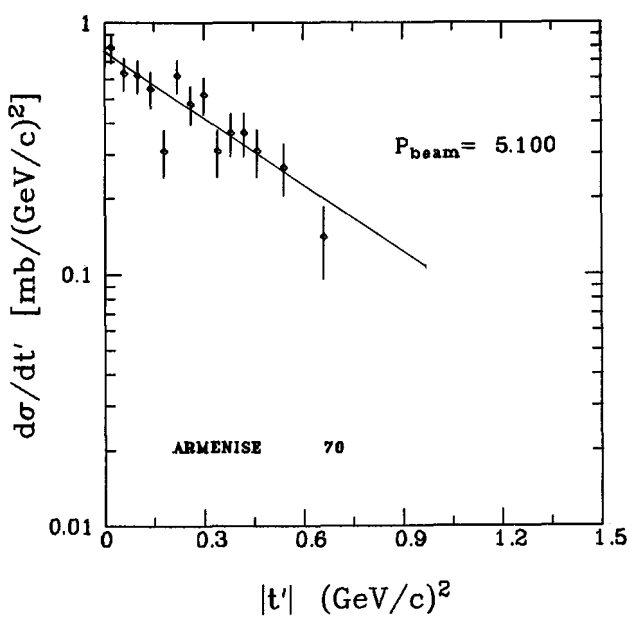
for $\pi^+ n \to A_2^0 p$, $A_2^0 \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]			
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

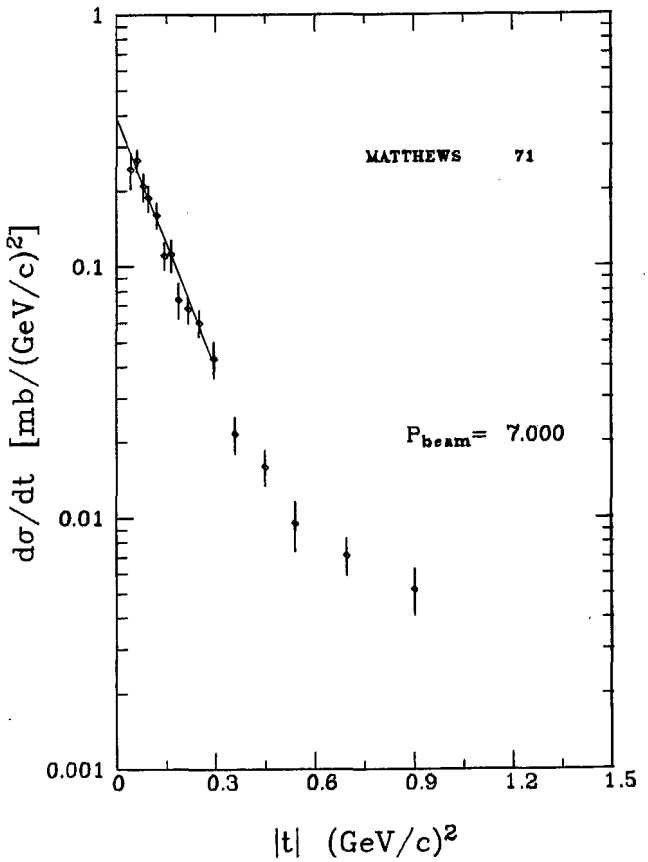


Differential cross section for $\pi^+ n \to g^0 p$, $g^0 \to \pi^+\pi^-$

BEAM MOMENTUM= 7.

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)			
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	*†

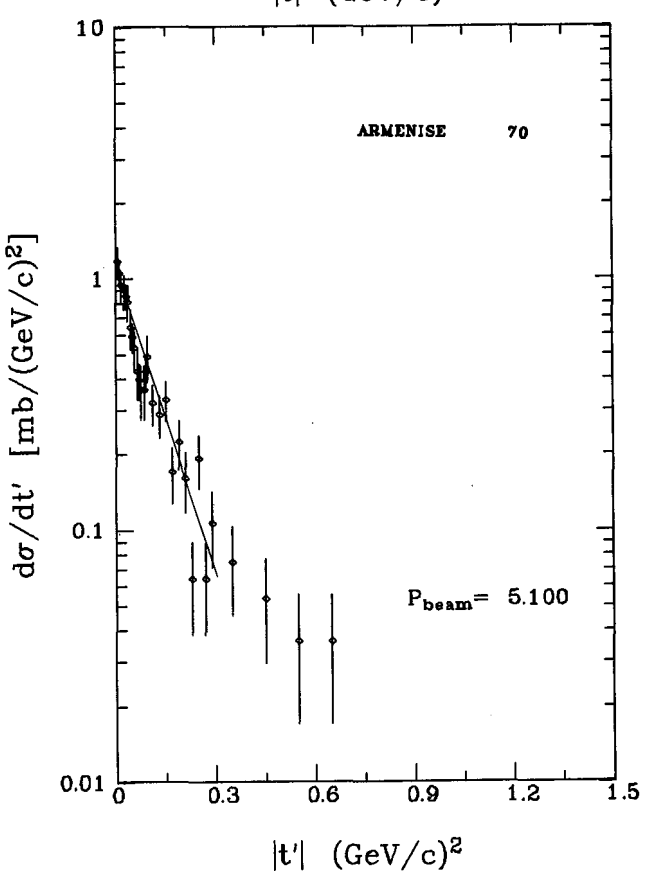
MATTHEWS 71.....NP B33 1 DBC,HBC



BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' ((MB/(GEV/C)**2)			
0.	0.010	1.185	+-	0.159	*†
0.	0.020	1.067		0.108	*†
0.010	0.020	0.948		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 $\pi^+ n \to \Phi(1675) p$, $\Phi(1675) \to \pi^+\pi^-\pi^0$

BEAM MOMENTUM= 6.95

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

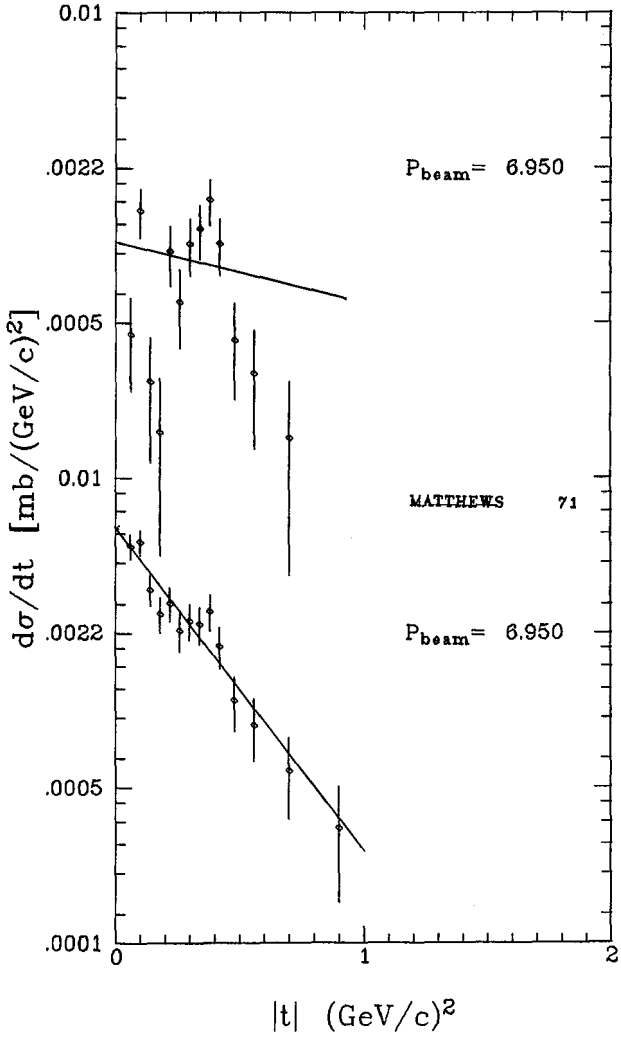
MATTHEWS 71.....PR D3 2561 DBC 33

BEAM MOMENTUM= 6.95

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 $\pi^+ n \to \rho^+ \Delta(1238)^0$

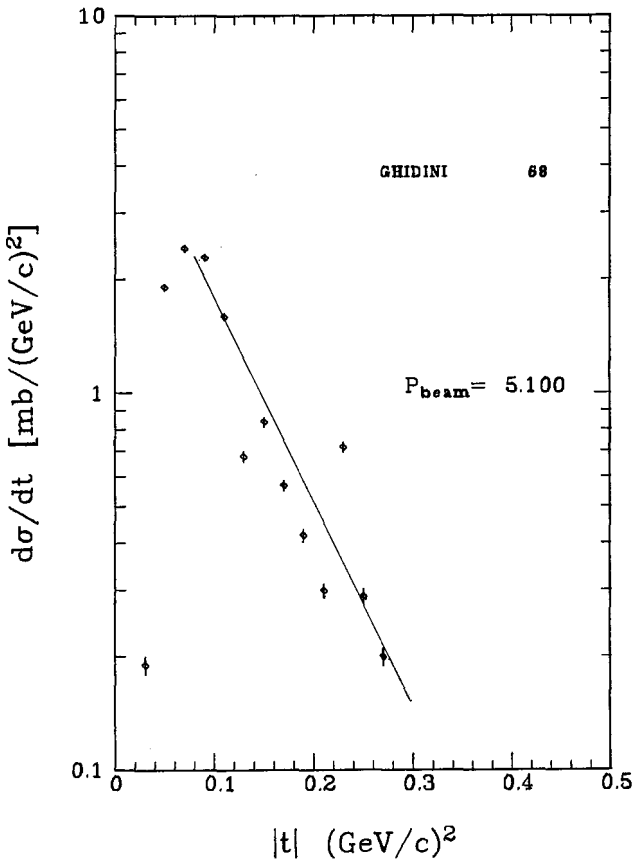
$\rho^+ \to \pi^+ \pi^0$, $\Delta(1238)^0 \to p\pi^-$

BEAM MOMENTUM= 5.1

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T (MB/(GEV/C)**2)			
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 DBC 81

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



Differential cross section for $\pi^+ n \to K^+ \Lambda$

→ BEAM MOMENTUM= 2.042

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.030	0.154	0.308	+-	0.037	†
0.154	0.278	0.118		0.023	†
0.278	0.402	0.100		0.021	†
0.402	0.526	0.082		0.019	†
0.526	0.650	0.054		0.016	†
0.650	0.774	0.068		0.018	†
0.774	0.898	0.059		0.016	†
0.898	1.022	0.077		0.019	†
1.022	1.146	0.032		0.012	†
1.146	1.270	0.041		0.014	†
1.270	1.394	0.045		0.014	†
1.394	1.518	0.027		0.011	†
1.518	1.642	0.		0.005	†
1.642	1.766	0.036		0.013	†
1.766	1.890	0.027		0.011	†
1.890	2.014	0.		0.005	†
2.014	2.138	0.027		0.011	†
2.138	2.262	0.036		0.013	†
2.262	2.386	0.073		0.018	†
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	0.164	0.329	+-	0.037	*†
0.164	0.301	0.119		0.022	*†
0.301	0.437	0.062		0.016	*†
0.437	0.574	0.033		0.012	*†
0.574	0.710	0.033		0.012	*†
0.710	0.847	0.033		0.012	*†
0.847	0.983	0.041		0.013	*†
0.983	1.120	0.025		0.010	*†
1.120	1.256	0.012		0.007	*†
1.256	1.393	0.021		0.009	*†
1.393	1.529	0.025		0.010	*†
1.529	1.666	0.016		0.008	*†
1.666	1.802	0.021		0.009	*†
1.802	1.939	0.		0.004	*†
1.939	2.075	0.025		0.010	*†
2.075	2.212	0.008		0.006	*†
1.939	2.485	0.025		0.010	*†
2.212	2.348	0.		0.004	*†
2.485	2.621	0.091		0.019	*†
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	0.176	0.411	+-	0.039	*†
0.176	0.326	0.082		0.018	*†
0.326	0.477	0.052		0.014	*†
0.477	0.627	0.075		0.017	*†
0.627	0.778	0.037		0.012	*†
0.778	0.928	0.034		0.011	*†
0.928	1.079	0.019		0.008	*†
1.079	1.229	0.		0.004	*†
1.229	1.380	0.030		0.011	*†
1.380	1.531	0.030		0.011	*†
1.531	1.681	0.004		0.004	*†
1.681	1.832	0.		0.004	*†
1.832	1.982	0.007		0.005	*†
1.982	2.133	0.		0.004	*†
2.133	2.283	0.		0.004	*†
2.283	2.434	0.007		0.005	*†
2.434	2.584	0.		0.004	*†
2.584	2.735	0.015		0.007	*†
2.735	2.885	0.015		0.007	*†
2.885	3.036	0.097		0.019	*†

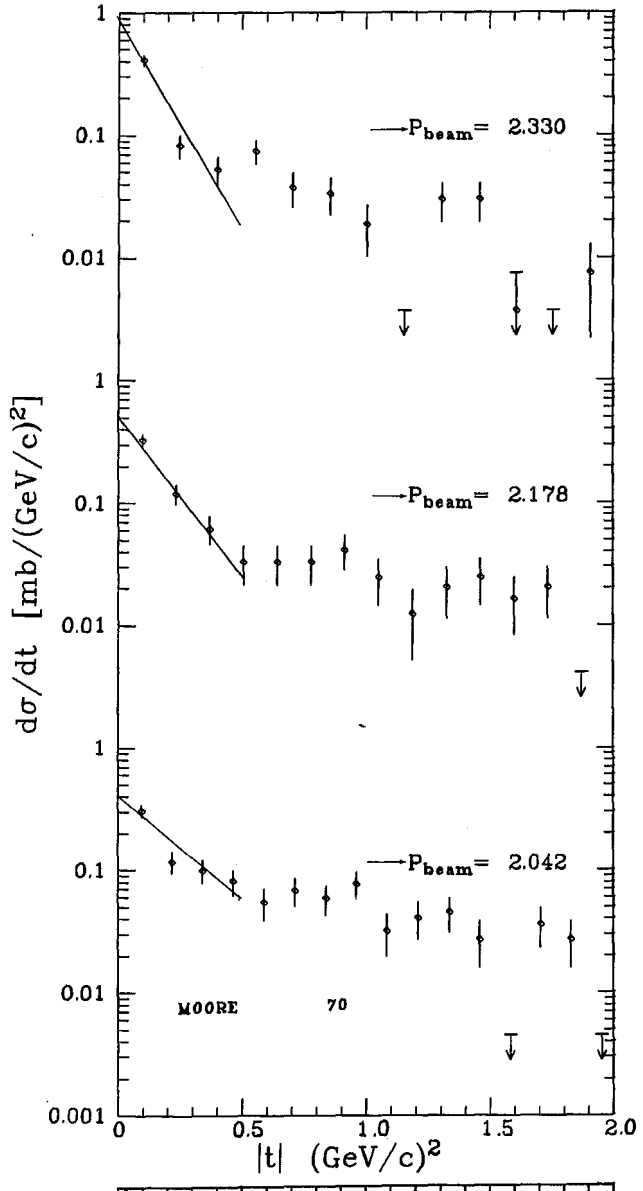
MOORE 70.....THESIS DBC 33

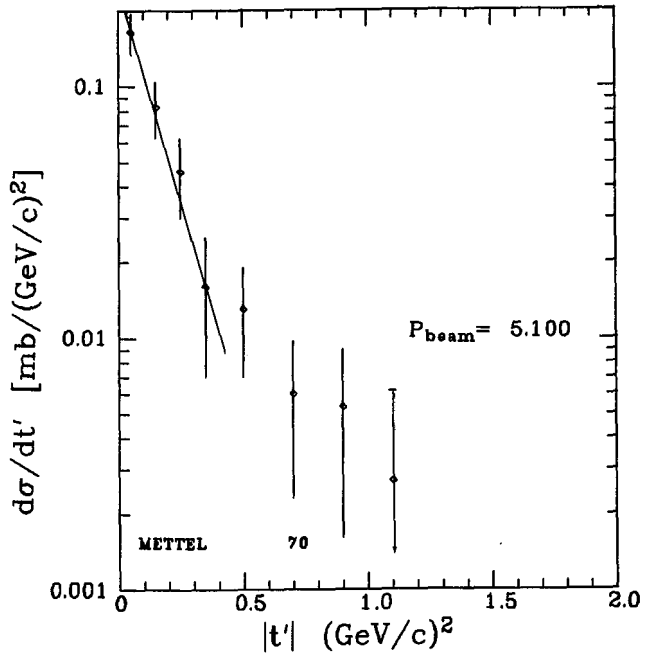
BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]		
0.	0.100	0.164	+-	0.030
0.100	0.200	0.083		0.021
0.200	0.300	0.046		0.016
0.300	0.400	0.016		0.009
0.400	0.600	0.013		0.006
0.600	0.800	0.006		0.004
0.800	1.000	0.005		0.004
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



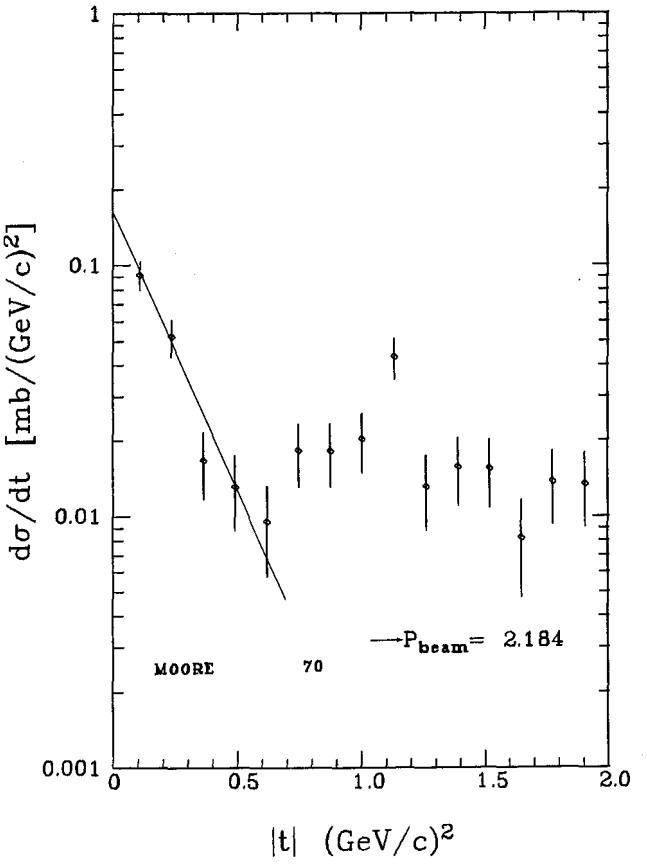


Differential cross section for $\pi^+ n \to K^+ \Sigma^0$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

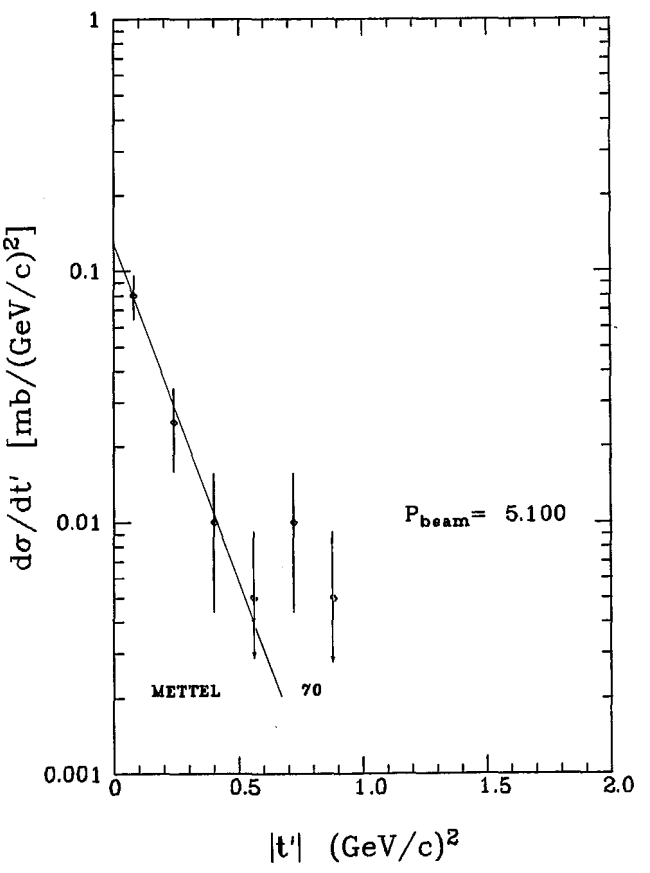
MOORE 70.....THESIS DBC 33



BEAM MOMENTUM= 5.1

-T' (GEV/C)**2 MIN	MAX	D SIGMA/D T' [(MB/(GEV/C)**2]		
0.	0.160	0.080	+-	0.016
0.160	0.320	0.025		0.009
0.320	0.480	0.010		0.006
0.480	0.640	0.005		0.005
0.640	0.800	0.010		0.006
0.800	0.960	0.005		0.005

METTEL 70.....THESIS DBC 81



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

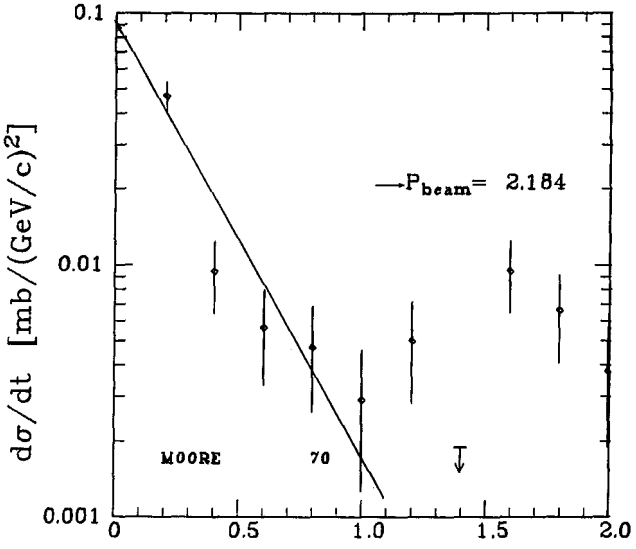
Differential cross section

for $\pi^+ n \to K^+ Y^*(1405)$
$\hookrightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

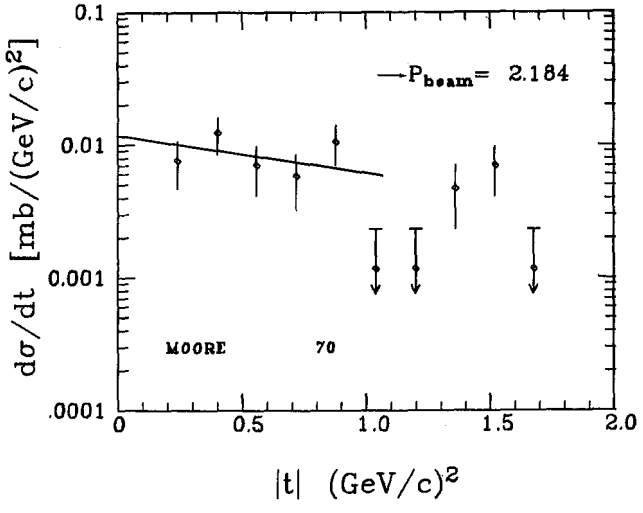


for $\pi^+ n \to K^+ Y^*(1520)$
$\hookrightarrow \Sigma^+\pi^- + \Sigma^-\pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

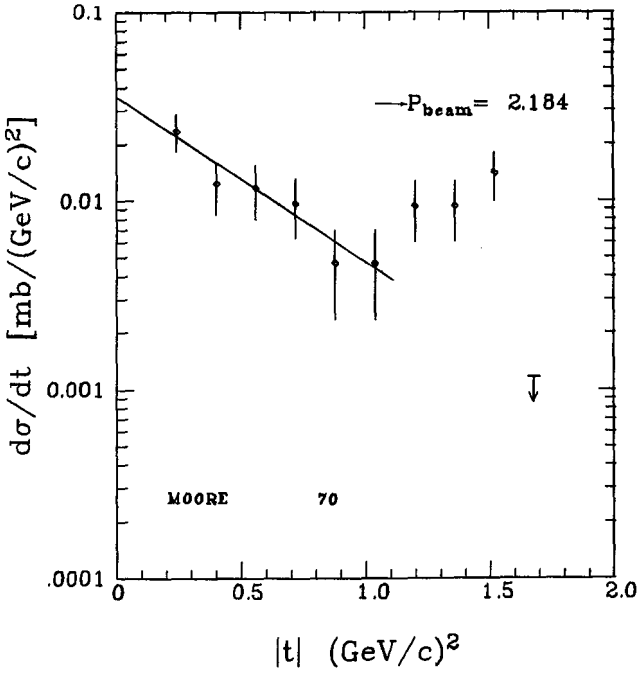


for $\pi^+ n \to K^+ Y^*(1520)$
$\hookrightarrow nK^0$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 $\pi^+ n \to K^*(890)^+ \Lambda$, $K^*(890)^+ \to K^0 \pi^+$

→ BEAM MOMENTUM= 2.184

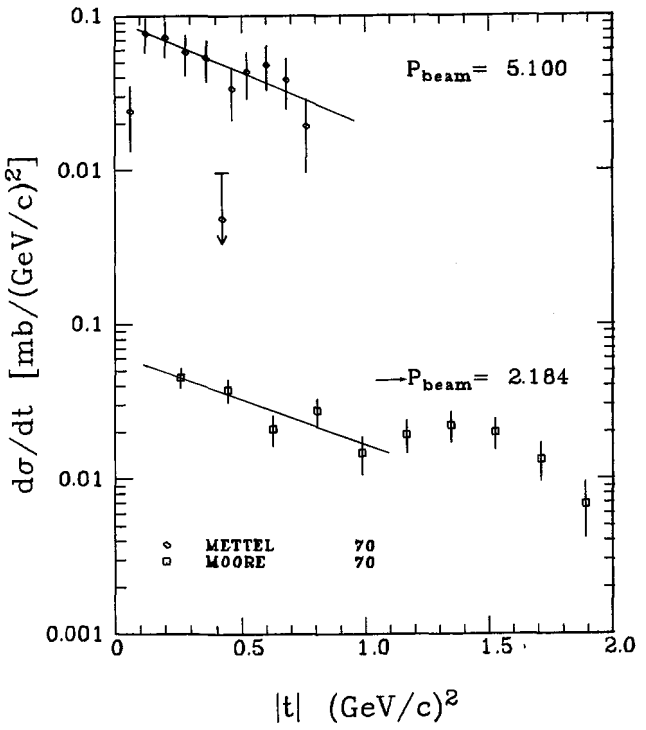
-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.171	0.352	0.045	+-	0.007	*†
0.352	0.532	0.038		0.006	*†
0.532	0.713	0.021		0.005	*†
0.713	0.893	0.028		0.005	*†
0.893	1.074	0.015		0.004	*†
1.074	1.254	0.019		0.004	*†
1.254	1.435	0.022		0.005	*†
1.435	1.615	0.020		0.005	*†
1.615	1.796	0.013		0.004	*†
1.796	1.976	0.007		0.003	*†

MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	0.440	0.005		0.005	*†
0.440	0.480	0.034		0.013	*†
0.480	0.560	0.043		0.014	*†
0.560	0.640	0.048		0.015	*†
0.640	0.720	0.039		0.014	*†
0.720	0.800	0.019		0.010	*†

METTEL 70.....THESIS DBC 81



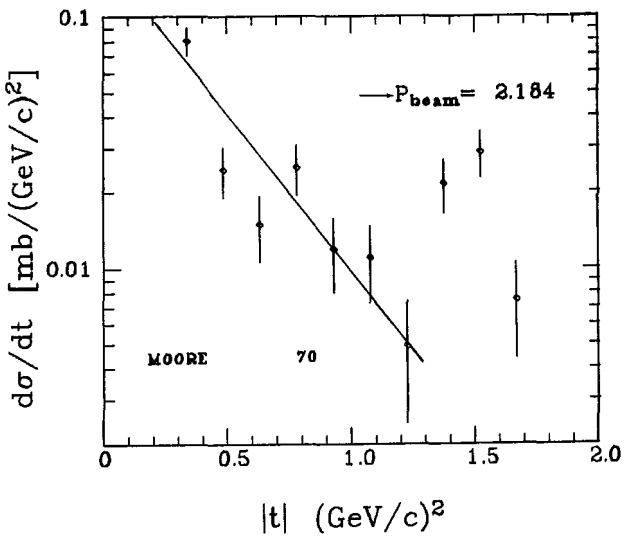
* DATA READ FROM GRAPH
† SEE DATA LISTING FOR ADDITIONAL COMMENTS
• OBTAINED AFTER TRANSFORMATION OF COS(THETA) INTO T

for $\pi^+ n \to K^*(890)^+ \Sigma^0$, $K^*(890)^+ \to K^0 \pi^+$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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

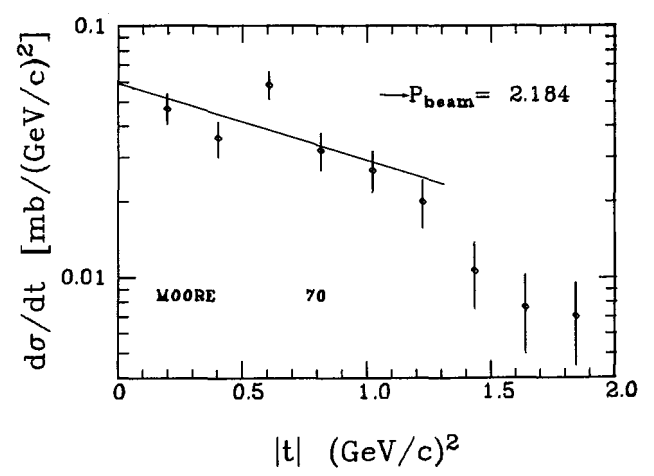


for $\pi^+ n \to K^+ Y^*(1385)^0$, $Y^*(1385)^0 \to \Lambda \pi^0$

→ BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
0.094	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



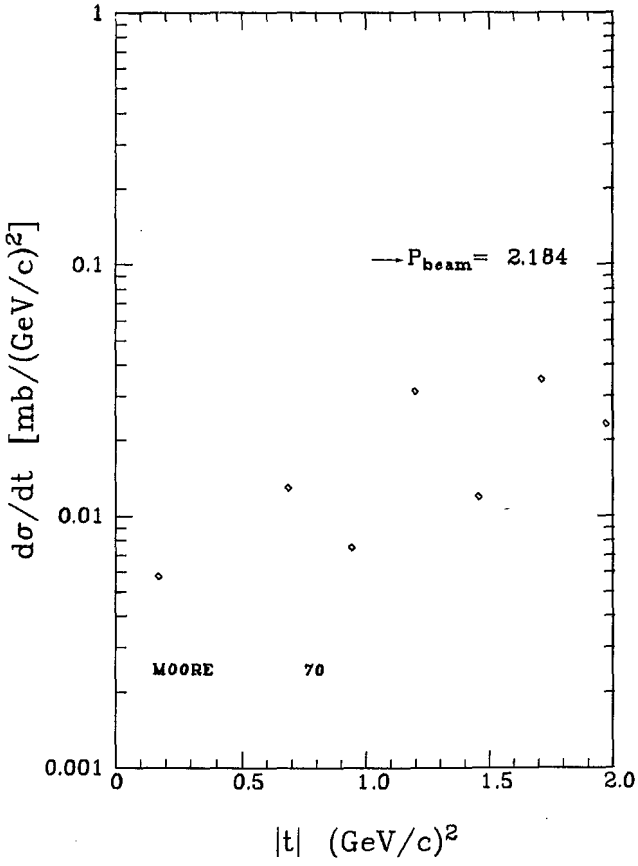
Differential cross section

for $\pi^+ n \to K^0 \Sigma^+$

→BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]	
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

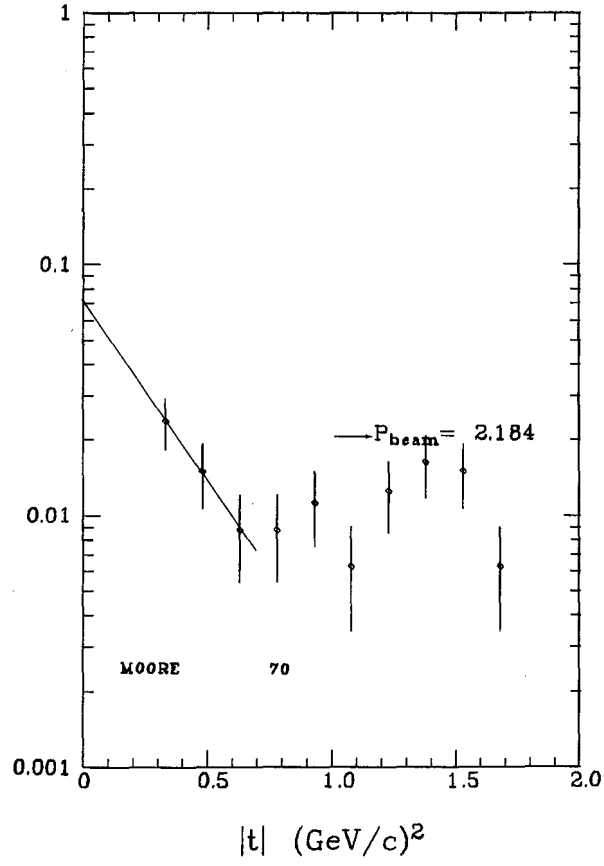


for $\pi^+ n \to K^*(890)^0 \Sigma^+$, $K^* \to K^+ \pi^-$

→BEAM MOMENTUM= 2.184

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 $\pi^+ n \to K^0 Y^*(1385)^+$, $Y^* \to \Lambda\pi^+$

→ BEAM MOMENTUM= 2.11 +- .068

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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	*†

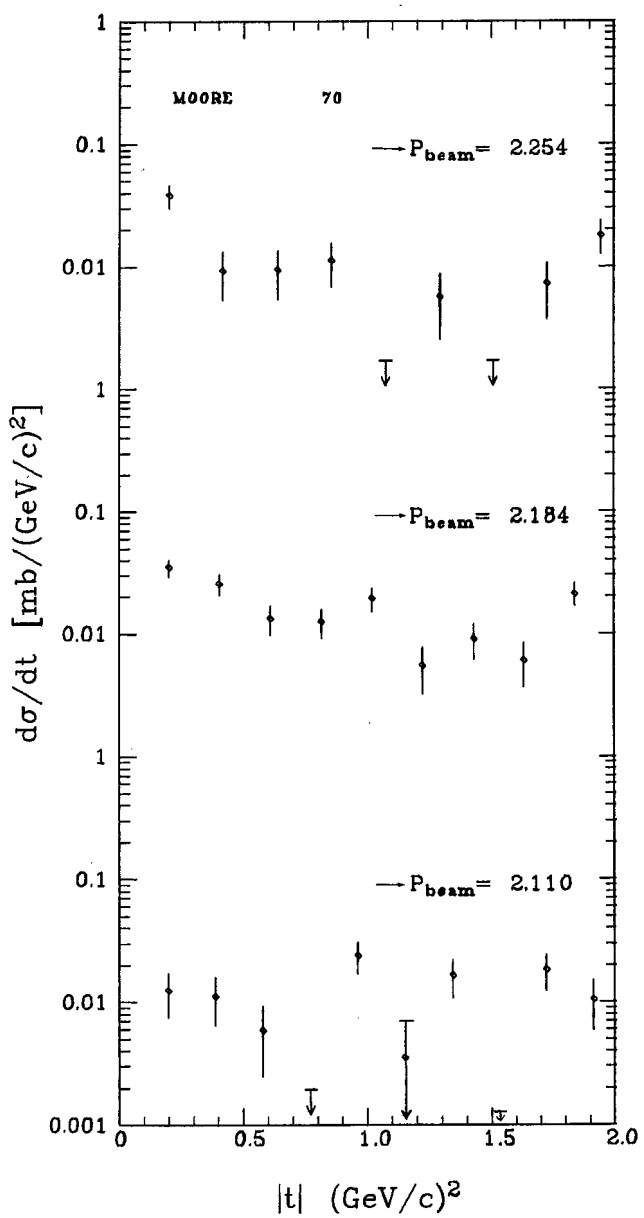
MOORE 70.....THESIS DBC 33

→ BEAM MOMENTUM= 2.254 +- .076

-T (GEV/C)**2 MIN	MAX	D SIGMA/D T [MB/(GEV/C)**2]			
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 min	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ or SLOPE mb/(GeV/c)^2		(GeV/c)$^{-2}$		References
Reaction $\pi^+p\to\rho^+p$, $\rho^+\to\pi^+\pi^0$								
5.000	0.1	.40	Y=A*EXP(-B*ABS(T'))	B	9.70	1.10	†	SCHOTANUS 70 NP B22 45
5.000	0.0	1.00	Y=A1*EXP(-B1*ABS(T'))+*	B1	11.10	1.50	B2	2.10 0.40 † SCHOTANUS 70 NP B22 45
5.200	0.0	.80	Y=A*EXP(-B*ABS(U))	A	32.00	6.00	B	2.90 0.60 † CARLSON 70 PL 33B 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 B8 45
13.100	0.1	.40	Y=A*EXP(-B*ABS(T))	B	13.60	1.50	†	KRAMER 71 NP B8 45

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Reaction $\pi^+p\to A_1^+p$, $A_1^+\to\pi^+\pi^+\pi^-$								
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	10.30	0.50	†	ADERHOLZ 68 NP B8 45

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Reaction $\pi^+p\to B^+p$, $B^+\to\omega\pi^+$, $\omega\to\pi^+\pi^-\pi^0$								
5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	2.90	1.00	†	POLS 70 NP B25 109
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	6.40	0.80	†	ADERHOLZ 68 NP B8 45

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Reaction $\pi^+p\to A_2^+p$, $A_2^+\to\rho^0\pi^+$, $\rho^0\to\pi^+\pi^-$								
5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	6.10	1.00	†	POLS 70 NP B25 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 B37 203
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	6.10	0.70	†	ADERHOLZ 68 NP B8 45

****

Reaction $\pi^+p\to A_3^+p$, $A_3^+\to\pi^+\pi^+\pi^-$								
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 B8 45

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Reaction $\pi^+p\to g^+p$, $g^+\to\pi^+\pi^0$								
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	7.20	0.80	†	ADERHOLZ 68 NP B8 45
13.100	0.0	.30	Y=A*EXP(-B*ABS(T'))	B	6.20	0.60	†	KRAMER 70 PRL 25 396

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Reaction $\pi^+p\to S^+p$, $S^+\to\pi^+\pi^0$								
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	6.60	0.90	†	ADERHOLZ 68 NP B8 45
13.100	0.0	.30	Y=A*EXP(-B*ABS(T'))	B	8.10	1.40	†	KRAMER 70 PRL 25 396

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Reaction $\pi^+p\to T^+p$, $T^+\to\pi^+\pi^0$								
13.100	0.0	.30	Y=A*EXP(-B*ABS(T'))	B	5.80	0.70	†	KRAMER 70 PRL 25 396

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† 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

Reaction $\pi^+p \to \pi^0\Delta(1238)^{++}$
$\hookrightarrow p\pi^+$

P_{beam} (GeV/c)	|t| (GeV/c)^2 min	|t| (GeV/c)^2 max	FORMULA		$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$			References		
2.630	0.1	.60	Y=A*EXP(-B*ABS(T))	B	8.80	1.00	†				GIDAL	69	PRL 23 994
3.500	0.1	.60	Y=A*EXP(-B*ABS(T))	B	8.80	0.90	†				GIDAL	69	PRL 23 994
5.000	0.06	.40	Y=A*EXP(-B*ABS(T'))	B	10.20	0.80	†				SCHOTANUS	70	NP B22 45
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	7.50	0.70	†				ADERHOLZ	68	NP B8 45

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Reaction $\pi^+p \to \eta\Delta(1238)^{++}$
$\hookrightarrow p\pi^+$
$\hookrightarrow \pi^+\pi^-\pi^0$

5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	3.70	2.00	†				POLS	70	NP B25 109
5.000	0.1	.40	Y=A*EXP(-B*ABS(T'))	B	3.70	2.00	†				SCHOTANUS	70	NP B22 45
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	10.40	1.70	†				ADERHOLZ	68	NP B8 45

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Reaction $\pi^+p \to \rho^0\Delta(1238)^{++}$
$\hookrightarrow p\pi^+$
$\hookrightarrow \pi^+\pi^-$

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'))+*	B1	14.50	1.20	B2	1.50	0.20	†	RONAT	72	NP B38 20
3.500	0.0	0.30	Y=A*EXP(-B*ABS(T'))	B	11.80	0.80	†				RONAT	72	NP B38 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'))+*	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	†				BROWN	68	UCRL 18254
3.740	0.0	0.20	Y=A*EXP(-B*ABS(T'))	B	11.30	0.80	†				BROWN	68	UCRL 18254
4.080	0.2	0.50	Y=A*EXP(-B*ABS(T))	B	7.80	1.00	†				BROWN	68	UCRL 18254
4.080	0.0	0.20	Y=A*EXP(-B*ABS(T'))	B	12.60	1.10	†				BROWN	68	UCRL 18254
5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	12.20	0.40	†				POLS	70	NP B25 109
5.000	0.0	1.00	Y=A1*EXP(-B1*ABS(T'))+*	B1	11.90	1.90	B2	1.60	0.30	†	POLS	70	NP B25 109
5.100	0.0	.70	Y=A1*EXP(-B1*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))+A†	B1	13.61	0.67	B2	2.77	0.30	†	BLOODWORTH	71	NP B35 79
5.450	0.0	1.40	Y=A1*EXP(-B1*ABS(T'))+*	B1	15.49	0.73	B2	2.74	0.30	†	BLOODWORTH	71	NP B35 79
8.040	0.0	.40	Y=A1*EXP(-B1*ABS(T'))+*	B1	19.10	2.00	B2	3.20	0.70	†	ADERHOLZ	68	NP B8 45
8.040	0.0	2.00	Y=A1*EXP(-B1*ABS(T'))+*	B1	17.80	2.50	B2	3.10	0.50	†	ADERHOLZ	68	NP B8 45
8.040	0.4	2.00	Y=A*EXP(-B*ABS(T'))	B	26.00	4.40	†				ADERHOLZ	68	NP B8 45
8.040	0.0	0.40	Y=A*EXP(-B*ABS(T'))	B	36.00	11.00	†				ADERHOLZ	68	NP B8 45
8.040	0.0	0.02	Y=A*EXP(-B*ABS(T'))	B	12.80	1.20	†				ADERHOLZ	68	NP B8 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'))+*	B1	20.00		B2	3.80		†	GAIDOS	70	PR D1 3190
18.500	0.0	.15	Y=A*EXP(-B*ABS(T'))	B	20.00	1.80	†				BISWAS	70	PR D2 2529

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Reaction $\pi^+p \to \omega\Delta(1238)^{++}$
$\hookrightarrow p\pi^+$
$\hookrightarrow \pi^+\pi^-\pi^0$

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	†				BROWN	68	UCRL 18254
3.190	0.0	2.50	Y=A*EXP(-B*ABS(T'))	B	2.05	0.19	†				BROWN	68	UCRL 18254
3.500	0.2	1.20	Y=A*EXP(-B*ABS(T'))	B	2.25	0.16	†				RONAT	72	NP B38 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	†				BROWN	68	UCRL 18254
3.530	0.0	1.00	Y=A*EXP(-B*ABS(T'))	B	2.06	0.15	†				BROWN	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	†				BROWN	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 B25 109
5.450	0.0	1.40	Y=A*EXP(-B*ABS(T'))	B	3.96	0.31	†				BLOODWORTH	71	NP B35 79
5.450	0.0	1.40	Y=A*EXP(-B*ABS(T))	B	3.88	0.23	†				BLOODWORTH	71	NP B35 79
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	3.20	1.70	†				ADERHOLZ	68	NP B8 45

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† 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		$d\sigma/dt[t=0]$ or mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$			References		

Reaction $\pi^+p \to f\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $f \to \pi^+\pi^-$

5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	8.10	0.80	†				POLS	70	NP B25 109
5.000	0.0	1.00	Y=A1*EXP(-B1*ABS(T'))+*B1		16.70	0.90	B2	2.70	0.20	†	POLS	70	NP B25 109
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	9.70	0.70	†				ADERHOLZ	68	NP B8 45
8.040	0.0	2.00	Y=A1*EXP(-B1*ABS(T'))+*B1		14.10	2.00	B2	2.80	0.50	†	ADERHOLZ	68	NP B8 45
13.100	0.0	.70	Y=A1*EXP(-B1*ABS(T'))+*B1		20.00		B2	5.50		†	GAIDOS	71	NP B26 225
13.100	0.0	.30	Y=A1*EXP(-B1*ABS(T'))+*B1		32.30	15.20	B2	5.50	2.30	†	KRAMER	71	
18.500	0.0	.15	Y=A*EXP(-B*ABS(T'))	B	16.20	2.40	†				BISWAS	70	PR D2 2529

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Reaction $\pi^+p \to A_2^0\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A_2^0 \to \rho^{+/-}\pi^{-/+}$

5.000	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	4.30	1.10	†				POLS	70	NP B25 109
8.040	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	5.50	1.10	†				ADERHOLZ	68	NP B8 45

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Reaction $\pi^+p \to g^0\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $g^0 \to \pi^+\pi^-$

18.500	0.0	.15	Y=A*EXP(-B*ABS(T'))	B	14.10	3.00	†				BISWAS	70	PR D2 2529

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Reaction $\pi^+p \to \pi^+\Delta(1238)^+$, $\Delta \to n\pi^+$

6.000	0.0	.50	Y=A*EXP(-B*ABS(T))	B	6.10	0.70	†				BELL	68	PRL 20 164

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Reaction $\pi^+p \to \pi^+N(1470)^+$, $N \to p\pi^+\pi^-$

5.000	0.0	1.00	Y=A1*EXP(-B1*ABS(T'))+*B1		11.00	1.00	B2	3.00	0.30	†	CIRBA	70	NP B23 533

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Reaction $\pi^+p \to K^+\Sigma^+$

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

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Reaction $\pi^+p \to K^+Y^*(1385)^+$, $Y^* \to \Lambda\pi^+$

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 30B 289
5.050	0.1	1.10	Y=A*EXP(-B*ABS(T))	B	2.60	0.40	†				YING	69	PL 30B 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 B11 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

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Reaction $\pi^+p \to K^*(890)^+Y^*(1385)^+$, $Y^* \to \Lambda\pi^+$, $K^* \to K^0\pi^+ + K^+\pi^0$

8.000	0.0	1.20	Y=A*EXP(-B*ABS(T))	B	1.60	0.80	†				ADERHOLZ	69	NP B11 259

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† 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	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$			References		
Reaction $\pi^+n\to\rho^0p$, $\rho^0\to\pi^+\pi^-$												
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))	B	8.30	0.70	†				FARBER 71	NP B29 237
Reaction $\pi^+n\to\omega p$, $\omega\to\pi^+\pi^-\pi^0$												
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 $\pi^+n\to fp$, $f\to\pi^+\pi^-$												
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 B29 237
Reaction $\pi^+n\to A_2^0p$, $A_2^0\to\pi^+\pi^-\pi^0$												
5.100	0.0	0.72	Y=A*EXP(-B*ABS(T'))	B	2.00	0.30	†				ARMENISE 70	NC 65A 637
Reaction $\pi^+n\to g^0p$, $g^0\to\pi^+\pi^-$												
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 B33 1
Reaction $\pi^+n\to\rho^+\Delta(1238)^0$, $\Delta\to p\pi^-$, $\rho^+\to\pi^+\pi^0$												
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 $\pi^+n\to K^+\Lambda$												
5.100	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	7.80	0.80	†				METTEL 70	
Reaction $\pi^+n\to K^+\Sigma^0$												
5.100	0.0	.40	Y=A*EXP(-B*ABS(T'))	B	6.60	1.20	†				METTEL 70	
Reaction $\pi^+n\to K^+\Lambda + K^+\Sigma^0$												
5.100	0.08	.40	Y=A*EXP(-B*ABS(T))	B	8.30	0.70	†				METTEL 70	
Reaction $\pi^+n\to K^*(890)^+\Lambda$, $K^*\to K^0\pi^+$												
5.100	0.08	.40	Y=A*EXP(-B*ABS(T))	B	1.70	0.50	†				METTEL 70	
Reaction $\pi^+d\to A_1^+d$, $A_1^+\to\rho^0\pi^+$												
8.000	NOT PRECISED		Y=A*EXP(-B*ABS(T))	B	39.50	2.50	†				CNOPS 69	PL 29B 45

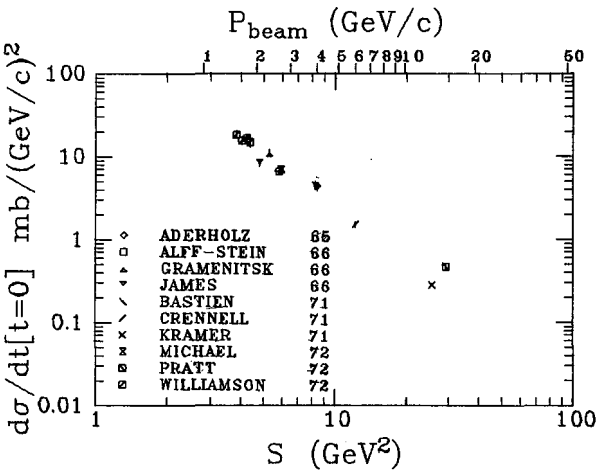
† SEE DATA LISTING FOR ADDITIONAL COMMENTS

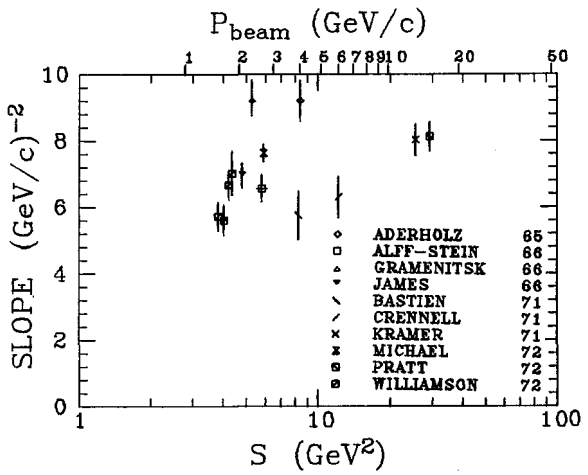
C****'KRAMER71',BEING IDENTICAL TO'KRAMER70',HAS BEEN OMMITTED********

OUR FITS TO DIFFERENTIAL CROSS SECTIONS

Reaction $\pi^+p \to \rho^+p$, $\rho^+ \to \pi^+\pi^0$

P_{beam} (GeV/c)	|t| (GeV/c)^2 min	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$		Nbr Pts	χ^2/ND	References		
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	3.598	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 B897
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

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Reaction $\pi^+p \to A_1^+p$, $A_1^+ \to \pi^+\pi^+\pi^-$

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 $\pi^+p \to B^+p$, $B^+ \to \omega\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

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

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Reaction $\pi^+p \to A_2^+p$, $A_2^+ \to \rho^0\pi^+$, $\rho^0 \to \pi^+\pi^-$

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 B897
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

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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			

Reaction $\pi^+p \to A_3^+p$, $A_3^+ \to \pi^+\pi^+\pi^-$

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 B8 45

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Reaction $\pi^+p \to g^+p$, $g^+ \to \pi^+\pi^0$

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 B8 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

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Reaction $\pi^+p \to S^+p$, $S^+ \to \pi^+\pi^0$

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 B8 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

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Reaction $\pi^+p \to T^+p$, $T^+ \to \pi^+\pi^0$

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

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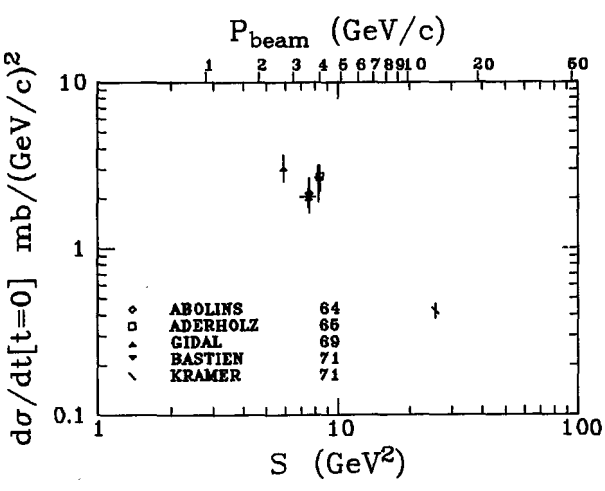
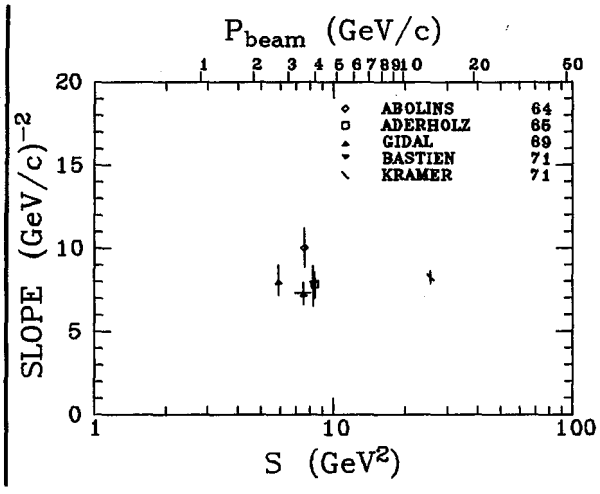
Reaction $\pi^+p \to \pi^0\Delta(1238)^{++}$, $\Delta^{++} \to p\pi^+$

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 B195
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 B897
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 B195
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 B897
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*EXP(B*T')	A	2.85	0.49	B	10.35	0.70	7	1.235	SCHOTANUS	70	NP B22 45
8.040	0.10	0.60	Y = A*EXP(B*T')	A	0.95	0.17	B	7.75	0.62	7	0.690	ADERHOLZ	68	NP B8 45
5.000	0.0	0.60	Y = A*EXP(B*T')	A	1.57	0.14	B	7.88	0.46	12	5.672	SCHOTANUS	70	NP B22 45
8.040	0.0	0.60	Y = A*EXP(B*T')	A	0.75	0.07	B	6.94	0.43	9	1.605	ADERHOLZ	68	NP B8 45

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Our Fits to Differential Cross Sections

P_{beam} (GeV/c)	|t| (GeV/c)^2 min	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$		Nbr Pts	χ^2/ND	References		

Reaction $\pi^+p \to \eta\Delta(1238)^{++}$
$\Delta \to p\pi^+$, $\eta \to \pi^+\pi^-\pi^0$

1.950	0.40	1.50	Y = A*EXP(B*T)	A	0.87	0.56	B	2.92	0.62	5	0.955	CHAPMAN	71	PR D 3 38
2.077	0.40	1.50	Y = A*EXP(B*T)	A	1.22	0.93	B	4.31	0.86	10	0.841	JAMES	66	PR 142 896
3.000	0.40	1.50	Y = A*EXP(B*T)	A	0.72	0.17	B	3.61	0.34	12	1.030	GRETHER	71	PRL 26 792
3.000	0.40	1.50	Y = A*EXP(B*T)	A	0.88	0.21	B	3.66	0.34	13	2.088	GRETHER	71	PRL 26 792
3.500	0.40	1.50	Y = A*EXP(B*T)	A	0.22	0.11	B	3.11	0.61	5	1.713	BROWN	68	UCRL 18254
3.500	0.20	1.00	Y = A*EXP(B*T)	A	0.23	0.09	B	3.47	0.76	5	2.721	BROWN	68	UCRL 18254
5.000	0.20	1.00	Y = A*EXP(B*T)	A	0.49	0.36	B	3.87	1.17	3	0.200	POLS	70	NP B25 109
5.000	0.20	1.00	Y = A*EXP(B*T)	A	0.47	0.28	B	3.73	1.08	3	0.266	SCHOTANUS	70	NP B22 45
8.040	0.20	1.00	Y = A*EXP(B*T)	A	0.45	0.41	B	5.29	1.76	4	0.031	ADERHOLZ	68	NP B8 45

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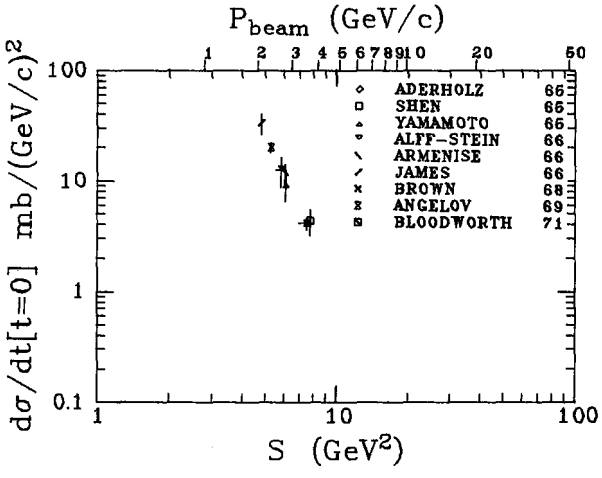
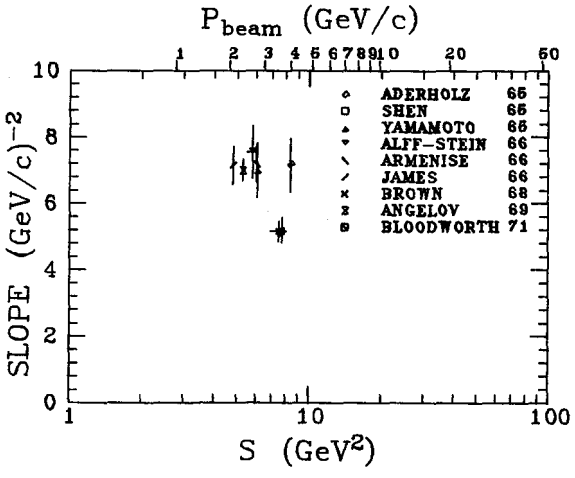
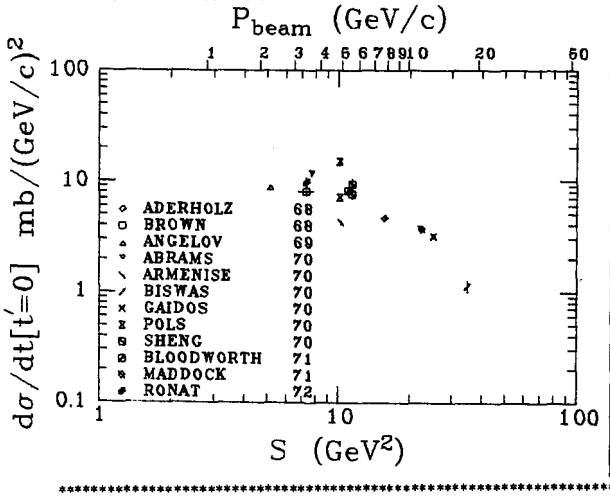
Reaction $\pi^+p \to \rho^0\Delta(1238)^{++}$
$\Delta \to p\pi^+$, $\rho^0 \to \pi^+\pi^-$

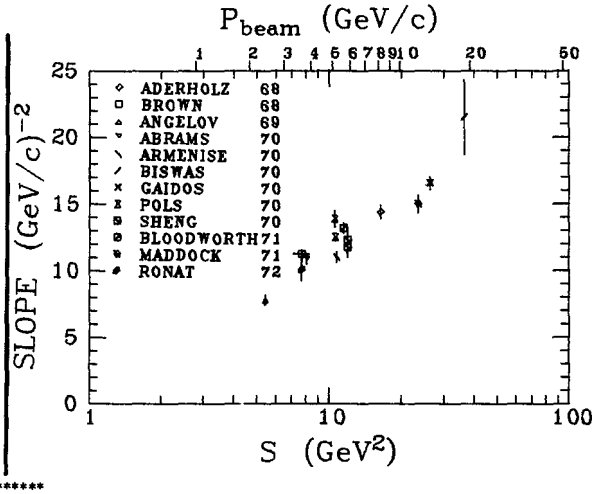
2.077	0.20	0.60	Y = A*EXP(B*T)	A	32.91	7.11	B	7.15	0.58	5	4.824	JAMES	66	PR 142 896
2.340	0.20	0.60	Y = A*EXP(B*T)	A	20.23	2.18	B	7.01	0.34	4	7.216	ANGELOV	69	JINR P1-4657
2.620	0.20	0.60	Y = A*EXP(B*T)	A	12.51	3.80	B	7.56	0.79	4	2.573	ALFF-STEIN	66	PR 145 1072
2.750	0.20	0.60	Y = A*EXP(B*T)	A	11.86	2.31	B	7.18	0.53	10	1.053	ARMENISE	66	NC 41A 159
2.770	0.20	0.60	Y = A*EXP(B*T)	A	9.46	2.91	B	7.00	0.82	5	1.110	YAMAMOTO	65	PR 140 B730
3.515	0.20	0.60	Y = A*EXP(B*T)	A	4.17	0.52	B	5.15	0.33	13	3.413	BROWN	68	UCRL 18254
3.650	0.20	0.60	Y = A*EXP(B*T)	A	4.41	1.19	B	4.92	0.67	20	1.288	SHEN	65	UCRL 16170
4.000	0.00	0.40	Y = A*EXP(B*T)	A	16.74	2.01	B	9.88	0.61	9	0.688	ADERHOLZ	65	PR 138 B897
5.450	0.00	0.40	Y = A*EXP(B*T)	A	9.25	0.46	B	10.33	0.33	15	18.711	BLOODWORTH	71	NP B35 79





2.340	0.00	0.30	Y = A*EXP(B*T)	A	8.94	0.17	B	7.81	0.35	15	3.819	ANGELOV	69	JINR P1-4657
3.500	0.00	0.30	Y = A*EXP(B*T)	A	9.70	1.02	B	10.07	0.80	13	1.186	RONAT	72	NP B38 20
3.500	0.00	0.30	Y = A*EXP(B*T)	A	7.99	0.23	B	11.22	0.35	62	1.359	BROWN	68	UCRL 18254
3.700	0.00	0.30	Y = A*EXP(B*T)	A	11.55	0.37	B	10.84	0.31	13	3.570	ABRAMS	70	PRL 25 617
5.000	0.00	0.30	Y = A*EXP(B*T)	A	7.15	0.05	B	12.47	0.09	6	148.257	POLS	70	NP B25 109
5.000	0.00	0.30	Y = A*EXP(B*T)	A	15.04	1.18	B	13.88	0.65	7	7.197	POLS	70	NP B25 109
5.100	0.00	0.30	Y = A*EXP(B*T)	A	4.24	0.17	B	11.02	0.42	25	2.217	ARMENISE	70	NC 65A 637
5.450	0.00	0.30	Y = A*EXP(B*T)	A	8.23	0.33	B	13.20	0.40	12	2.806	BLOODWORTH	71	NP B35 79
5.720	0.00	0.30	Y = A*EXP(B*T)	A	9.44	1.09	B	12.30	1.00	14	1.208	SHENG	70	
5.720	0.00	0.30	Y = A*EXP(B*T)	A	7.66	0.63	B	11.78	0.76	14	1.560	SHENG	70	
8.040	0.00	0.30	Y = A*EXP(B*T)	A	4.65	0.24	B	14.40	0.54	6	4.748	ADERHOLZ	68	NP B8 45
11.700	0.00	0.30	Y = A*EXP(B*T)	A	3.70	0.24	B	14.99	0.68	16	2.653	MADDOCK	71	NC 5A 433
13.100	0.00	0.30	Y = A*EXP(B*T)	A	3.19	0.16	B	16.57	0.49	7	17.248	GAIDOS	70	PR D1 3190
18.500	0.00	0.30	Y = A*EXP(B*T)	A	1.13	0.13	B	21.50	2.84	7	1.528	BISWAS	70	PR D2 2529





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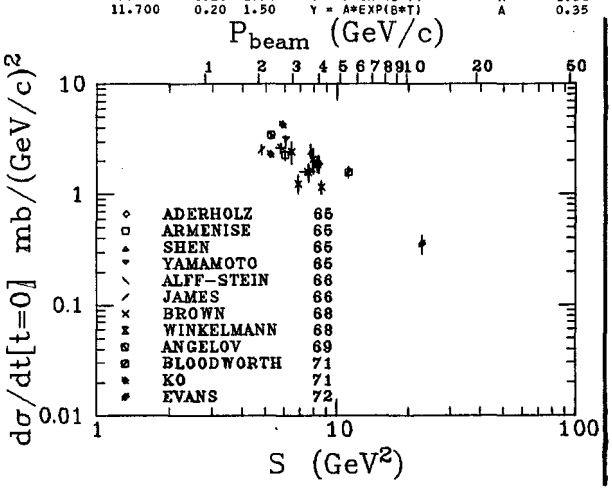
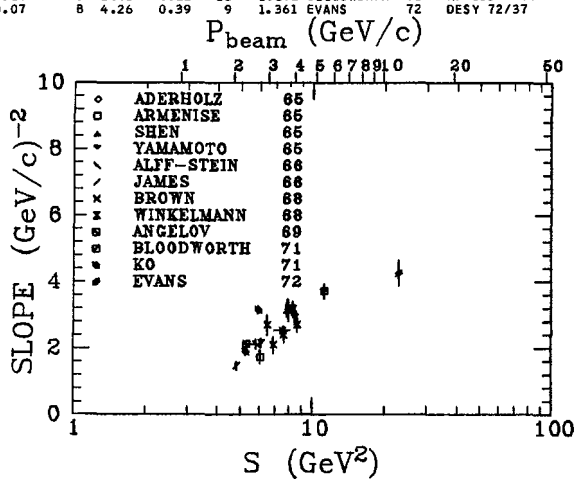
Our Fits to Differential Cross Sections

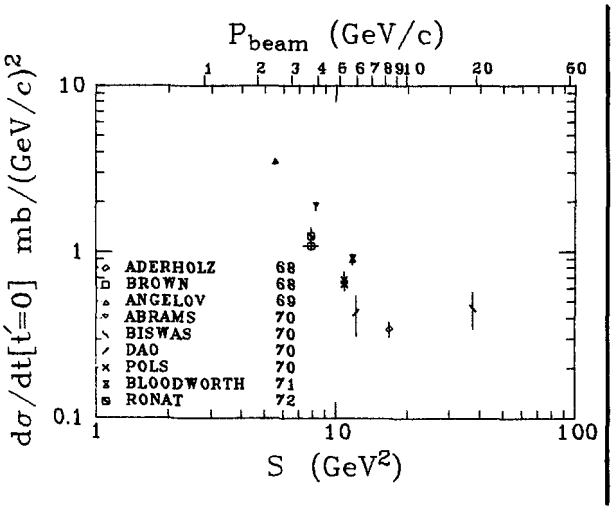
Reaction $\pi^+p \to \omega\Delta(1238)^{++}$
$\omega \to p\pi^+$, $\omega \to \pi^+\pi^-\pi^0$

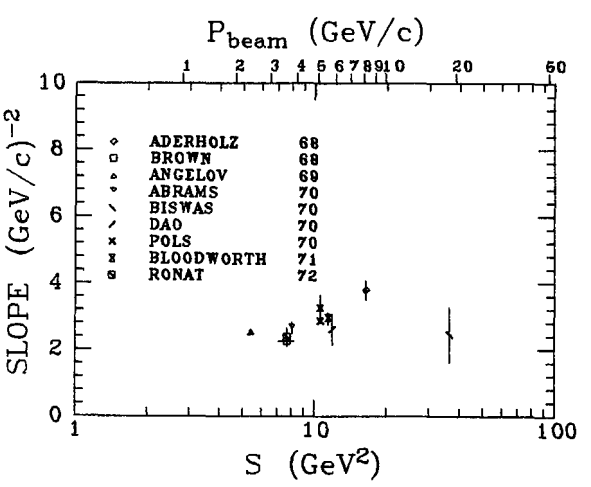
P_{beam} (GeV/c) min	$\lvert t\rvert$ (GeV/c)^2 min	max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$		Nbr Pts	χ^2/ND	References		
2.077	0.20	1.50	Y = A*EXP(B*T)	A	2.53	0.27	B	1.47	0.14	17	2.207	JAMES	66	PR 142 896
2.300	0.20	1.50	Y = A*EXP(B*T)	A	2.31	0.17	B	1.90	0.09	20	1.211	KO	71	
2.340	0.20	1.50	Y = A*EXP(B*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*EXP(B*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*EXP(B*T)	A	4.29	0.28	B	3.16	0.10	20	1.862	KO	71	
2.750	0.20	1.50	Y = A*EXP(B*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*EXP(B*T)	A	3.09	0.30	B	2.16	0.13	18	1.355	YAMAMOTO	65	PR 140 B730
2.950	0.20	1.50	Y = A*EXP(B*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*EXP(B*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*EXP(B*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*EXP(B*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*EXP(B*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*EXP(B*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*EXP(B*T)	A	1.86	0.28	B	3.17	0.23	12	2.320	WINKELMANN	68	
4.000	0.20	1.50	Y = A*EXP(B*T)	A	1.88	0.34	B	2.99	0.30	10	0.768	ADERHOLZ	65	PR 138 B897
4.080	0.20	1.50	Y = A*EXP(B*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*EXP(B*T)	A	1.58	0.19	B	3.73	0.22	13	1.292	BLOODWORTH	71	NP B35 79
11.700	0.20	1.50	Y = A*EXP(B*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*EXP(B*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*EXP(B*T)	A	1.25	0.16	B	2.38	0.27	10	0.963	RONAT	72	NP B38 20
3.500	0.	1.00	Y = A*EXP(B*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*EXP(B*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*EXP(B*T)	A	0.64	0.01	B	2.85	0.06	12	28.374	POLS	70	NP B25 109
5.000	0.	1.00	Y = A*EXP(B*T)	A	0.67	0.09	B	3.26	0.38	10	1.843	POLS	70	NP B25 109
5.450	0.	1.00	Y = A*EXP(B*T)	A	0.91	0.07	B	2.95	0.19	17	2.690	BLOODWORTH	71	NP B35 79
5.720	0.	1.00	Y = A*EXP(B*T)	A	0.43	0.12	B	2.61	0.46	10	1.635	DAO	70	
8.040	0.	1.00	Y = A*EXP(B*T)	A	0.34	0.04	B	3.78	0.28	14	2.568	ADERHOLZ	68	NP B8 45
18.500	0.	1.00	Y = A*EXP(B*T)	A	0.46	0.11	B	2.45	0.82	5	2.215	BISWAS	70	PR D2 2529





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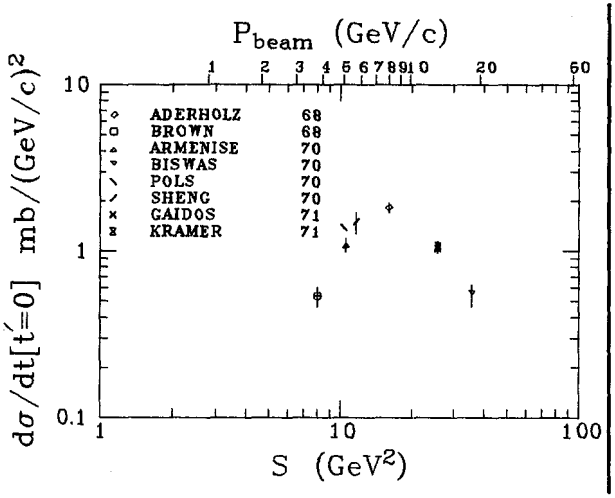
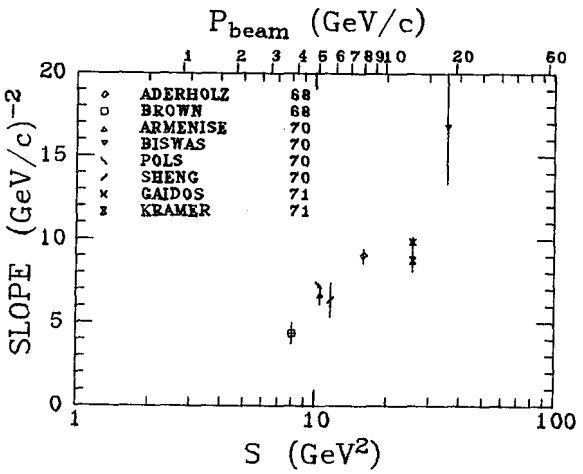
Our Fits to Differential Cross Sections

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		

Reaction $\pi^+p \to f\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $f \to \pi^+\pi^-$

3.650	0.20	1.10	Y = A*EXP(B*T)	A	0.68	0.19	B	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	B	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	B	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	B	7.23	0.10	9	56.338	POLS	70	NP B25 109
5.100	0.	0.50	Y = A*EXP(B*T')	A	1.09	0.10	B	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	B	6.37	1.02	11	0.761	SHENG	70	
8.040	0.	0.50	Y = A*EXP(B*T')	A	1.83	0.12	B	9.04	0.43	7	2.286	ADERHOLZ	68	NP B8 45
13.100	0.	0.50	Y = A*EXP(B*T')	A	1.03	0.06	B	9.83	0.33	10	6.528	GAIDOS	71	NP B26 225
13.100	0.	0.50	Y = A*EXP(B*T')	A	1.07	0.08	B	8.73	0.60	11	2.509	KRAMER	71	
18.500	0.	0.50	Y = A*EXP(B*T')	A	0.55	0.09	B	16.72	3.37	7	1.859	BISWAS	70	PR D2 2529





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Reaction $\pi^+p \to A_2^0\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $A_2^0 \to \rho^{+/-}\pi^{-/+}$

5.000	0.00	0.80	Y = A*EXP(B*T')	A	0.29	0.01	B	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	B	1.21	0.19	14	4.526	ADERHOLZ	68	NP B8 45

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Reaction $\pi^+p \to g^0\Delta(1238)^{++}$, $\Delta \to p\pi^+$, $g^0 \to \pi^+\pi^-$

18.500	0.00	0.30	Y = A*EXP(B*T')	A	0.32	0.09	B	15.03	4.79	5	0.252	BISWAS	70	PR D2 2529

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Reaction $\pi^+p \to \pi^+N(1470)^+$, $N \to n\pi^+$

6.000	0.00	0.60	Y = A*EXP(B*T)	A	0.62	0.08	B	6.08	0.64	5	1.170	BELL	68	PPL 20 164

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Reaction $\pi^+p \to N(1700)^+\pi^+$, $N \to p\pi^+\pi^-$

5.000	0.00	0.40	Y = A*EXP(B*T')	A	0.15	0.01	B	6.47	0.28	8	1.461	CIRBA	70	NP B23 533

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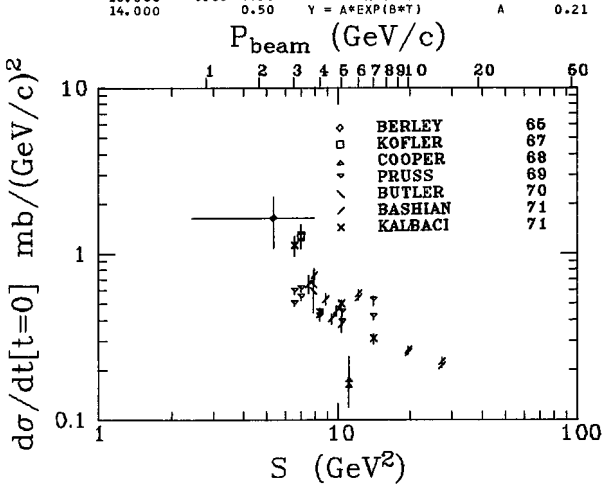
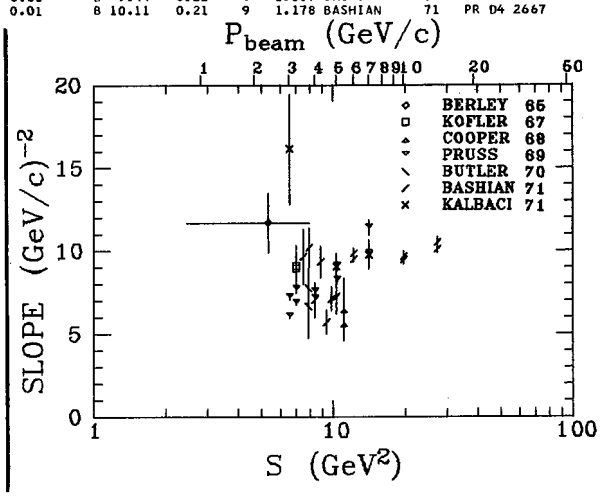
Our Fits to Differential Cross Sections

P_{beam} (GeV/c)	|t| (GeV/c)^2 min	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$		Nbr Pts	χ^2/ND	References		

Reaction $\pi^+p\to K^+\Sigma^+$

1.280	0.00	0.30	Y = A*EXP(B*T)	A	0.69	0.42	B 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	B 10.24	1.95	4	1.597	KALMUS	70	PR D2 1824
1.410	0.00	0.30	Y = A*EXP(B*T)	A	0.76	0.29	B 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	B 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	B 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	B 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	B 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	B 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	B 8.18	1.64	3	0.411	KALMUS	70	PR D2 1824
1.840	0.00	0.30	Y = A*EXP(B*T)	A	1.02	0.35	B 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	B 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	B 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	B 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	B 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	B 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	B 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	B 7.76	1.19	7	0.575	BUTLER	70	UCRL 19845
3.750	0.00	0.50	Y = A*EXP(B*T)	A	0.74	0.07	B 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	B 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	B 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	B 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	B 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	B 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	B 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	B 9.04	0.82	6	1.151	KALBACI	71	PRL 27 74
5.050	0.00	0.50	Y = A*EXP(B*T)	A	0.38	0.01	B 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	B 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	B 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	B 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	B 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	B 9.44	0.22	9	1.007	BASHIAN	71	PR D4 2667
14.000		0.50	Y = A*EXP(B*T)	A	0.21	0.01	B 10.11	0.21	9	1.178	BASHIAN	71	PR D4 2667





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Reaction $\pi^+p\to K^+Y^*(1385)^+$

1.840	0.20	1.00	Y = A*EXP(B*T)	A	0.13	0.04	B 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	B 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	B 1.03	0.50	3	1.786	MOORE	70	
2.238	0.20	1.00	Y = A*EXP(B*T)	A	0.06	0.02	B 1.20	0.49	3	5.275	DAVIES	70	PR D 2 506
4.000	0.20	1.00	Y = A*EXP(B*T)	A	0.06	0.01	B 2.27	0.43	6	0.049	YING	69	PL 30B 289
5.050	0.20	1.00	Y = A*EXP(B*T)	A	0.04	0.01	B 2.73	0.30	7	0.895	YING	69	PL 30B 289
6.000	0.20	1.00	Y = A*EXP(B*T)	A	0.11	0.01	B 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	B 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	B 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	B 1.92	0.53	4	0.910	ADERHOLZ	69	NP B11 259
10.000	0.00	1.30	Y = A*EXP(B*T)	A	0.04	0.00	B 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	B 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	B 2.96	0.64	3	0.000	BUTLER	70	UCRL 19845

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Reaction $\pi^+p\to K^*(890)^+\Sigma^+$

2.350	0.00	1.20	Y = A*EXP(B*T)	A	0.19	0.11	B 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	B 1.68	0.48	4	0.712	YAMAMOTO	64	PR 134 B383
5.400	0.00	1.20	Y = A*EXP(B*T)	A	0.18	0.03	B 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	B 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	B 1.94	0.42	5	0.863	YAMAMOTO	64	PR 134 B383
5.400	0.00	1.50	Y = A*EXP(B*T)	A	0.19	0.03	B 2.40	0.26	9	1.788	COOPER	68	PRL 20 472

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Reaction $\pi^+p\to K^*(890)^+Y^*(1385)^+$
$\hookrightarrow K^0\pi^+ + K^+\pi^0$, $\hookrightarrow \Lambda\pi^+$

5.500	0.20	1.00	Y = A*EXP(B*T)	A	0.04	0.01	B 2.11	0.43	3	1.148	COOPER	70	NP B23 605

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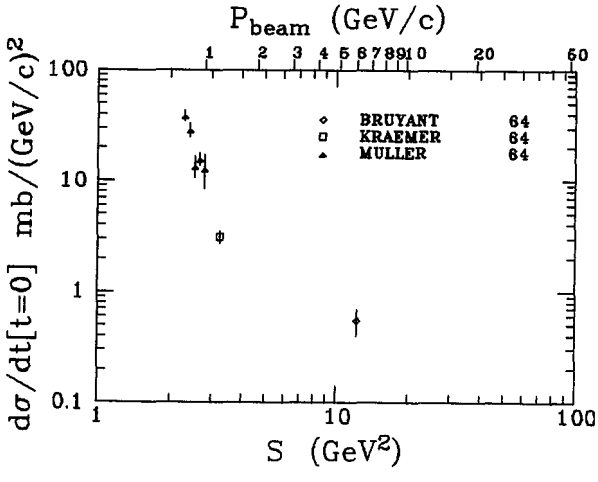
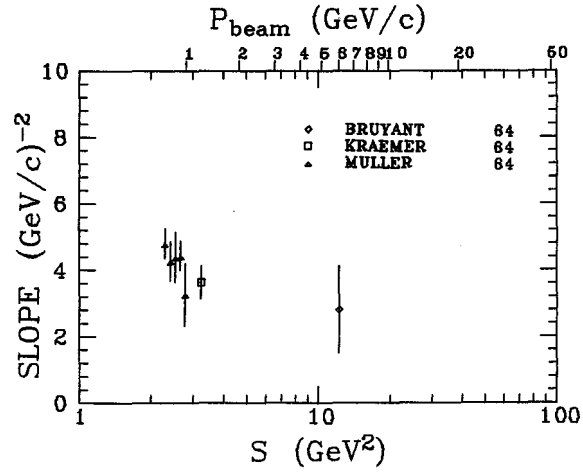
Our Fits to Differential Cross Sections

Reaction $\pi^+ n \to \pi^0 p$

P_{beam} (GeV/c) min	$\lvert t\rvert$ (GeV/c)^2 min	max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$		Nbr Pts	$\chi^2/\overline{ND}$	References		
0.720	0.	0.50	Y = A*EXP(B*T)	A	38.62	4.12	B 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	B 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	B 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	B 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	B 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	B 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	B 2.81	1.32	4	1.088	BRUYANT	64	PL 12 278





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Reaction $\pi^+ n \to \eta p$, $\eta \to \pi^+\pi^-\pi^0$

1.049	0.20	1.00	Y = A*EXP(B*T)	A	6.12	4.70	B 2.12	1.28	16	1.453	DANBURG	70	PR D2 2564
1.236	0.20	1.00	Y = A*EXP(B*T)	A	7.15	3.78	B 3.53	0.93	12	2.368	DANBURG	70	PR D2 2564
1.434	0.20	1.00	Y = A*EXP(B*T)	A	3.53	1.43	B 3.09	0.69	10	2.956	DANBURG	70	PR D2 2564
1.643	0.20	1.00	Y = A*EXP(B*T)	A	1.44	0.66	B 2.12	0.70	8	1.665	DANBURG	70	PR D2 2564
1.861	0.20	1.00	Y = A*EXP(B*T)	A	0.92	0.45	B 1.23	0.66	6	0.484	DANBURG	70	PR D2 2564
2.091	0.20	1.00	Y = A*EXP(B*T)	A	3.24	1.18	B 3.60	0.68	6	1.467	DANBURG	70	PR D2 2564
2.700	0.20	1.00	Y = A*EXP(B*T)	A	1.07	0.40	B 3.76	0.76	7	1.097	MILLER	69	PR 178 2061
3.650	0.20	1.00	Y = A*EXP(B*T)	A	0.16	0.07	B 2.23	0.64	8	2.319	BENSON	69	PRL 22 1074

****

Reaction $\pi^+ n \to \eta p$, $\eta \to$ All

0.703	0.20	1.00	Y = A*EXP(B*T)	A	15.52	28.21	B 1.89	4.41	5	1.499	LITCHFIELD	69	PR 183 1152
0.756	0.20	1.00	Y = A*EXP(B*T)	A	6.57	3.10	B 0.56	1.25	6	0.071	LITCHFIELD	69	PR 183 1152
1.232	0.20	1.00	Y = A*EXP(B*T)	A	5.90	1.10	B 3.64	0.35	20	1.593	KRAEMER	64	PR 136 B496

****

Reaction $\pi^+ n \to \rho^0 p$, $\rho^0 \to \pi^+\pi^-$

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

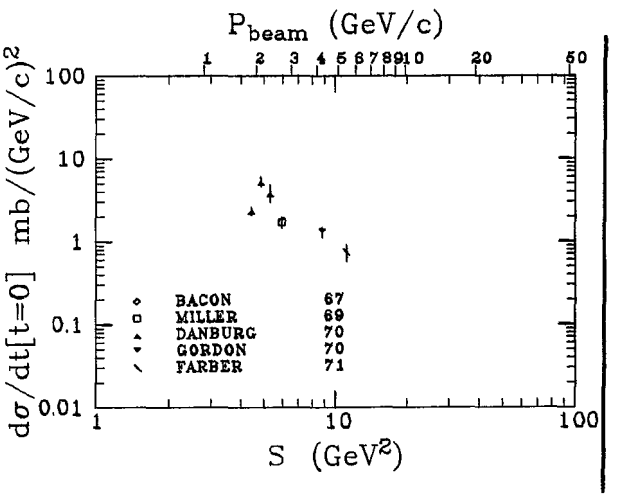
****

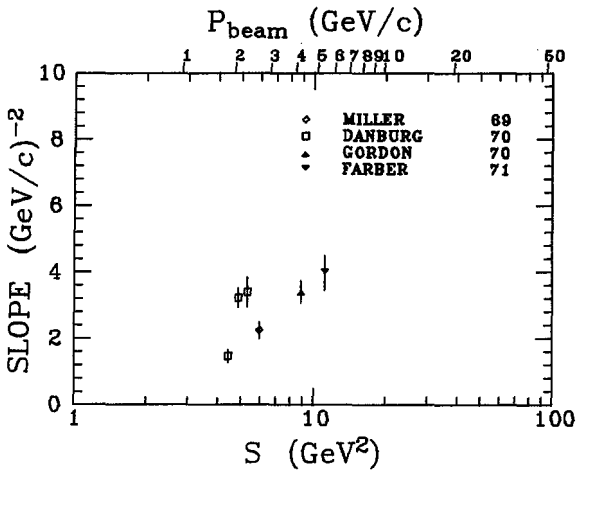
Our Fits to Differential Cross Sections

P_{beam} (GeV/c)	|t| (GeV/c)^2 min	|t| (GeV/c)^2 max	FORMULA	$d\sigma/dt[t=0]$ mb/(GeV/c)^2			SLOPE (GeV/c)$^{-2}$			Nbr Pts	χ^2/ND	References		

Reaction $\pi^+ n \to \omega p$, $\omega \to \pi^+\pi^-\pi^0$

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
2.331	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 B29 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 $\pi^+ n \to \omega p$, $\omega \to$ 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 B496
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

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Reaction $\pi^+ n \to f p$, $f \to \pi^+\pi^-$

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

****

Reaction $\pi^+ n \to A_2^0 p$, $A_2^0 \to \pi^+\pi^-\pi^0$

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

****

Reaction $\pi^+ n \to g^0 p$, $g^0 \to \pi^+\pi^-$

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 B33 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 $\pi^+ n \to \Phi(1675) p$, $\Phi(1675) \to \pi^+\pi^-\pi^0$

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

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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	
Reaction $\pi^+n\to\rho^0\Delta(1238)^+$												
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 $\pi^+n\to K^+\Lambda$												
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	3	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 $\pi^+n\to K^+\Sigma^0$												
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 $\pi^+n\to K^*(890)^+\Lambda$, $K^*\to K^0\pi^+$												
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 $\pi^+n\to K^*(890)^+\Sigma^0$, $K^*\to K^0\pi^+$												
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 $\pi^+n\to K^+Y^*(1385)^0$, $Y^*\to\Lambda\pi^0$												
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 $\pi^+n\to K^+Y^*(1405)$												
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 $\pi^+n\to K^+Y^*(1520)$												
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 $\pi^+n\to K^*(890)^0\Sigma^+$, $K^*\to K^+\pi^-$												
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	

Section B3.

POLARIZATION

Polarization for $\pi^+p \to K^+\Sigma^+$, $\Sigma^+ \to p\pi^0$

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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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 MIN	MAX	ALPHA P	
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

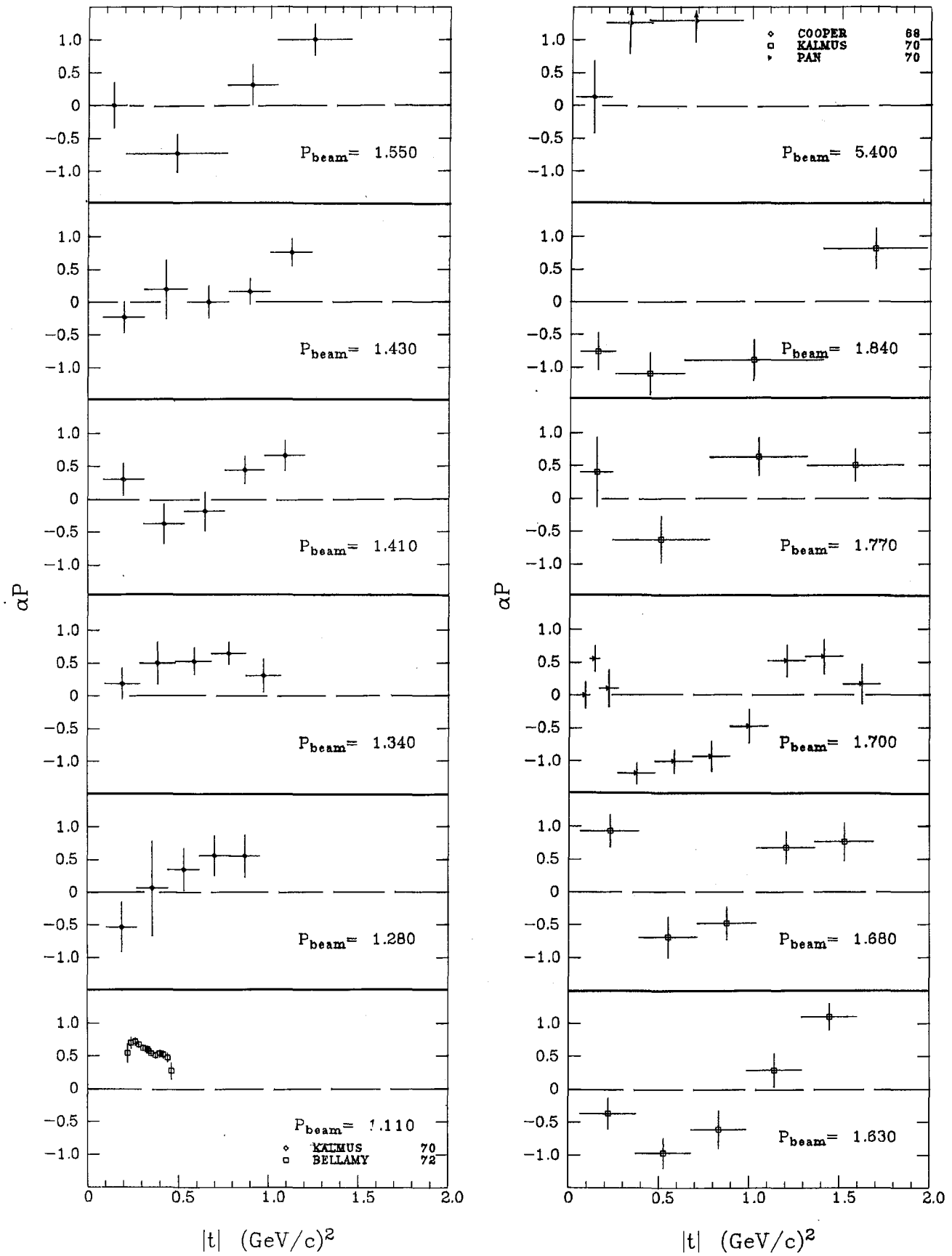
BEAM MOMENTUM= 5.4

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 $\pi^+ p \to K^+ \Sigma^+$, $\Sigma^+ \to p\pi^0$



Polarization for $\pi^+ p \to K^+ \Sigma^+$, $\Sigma^+ \to p\pi^0$

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

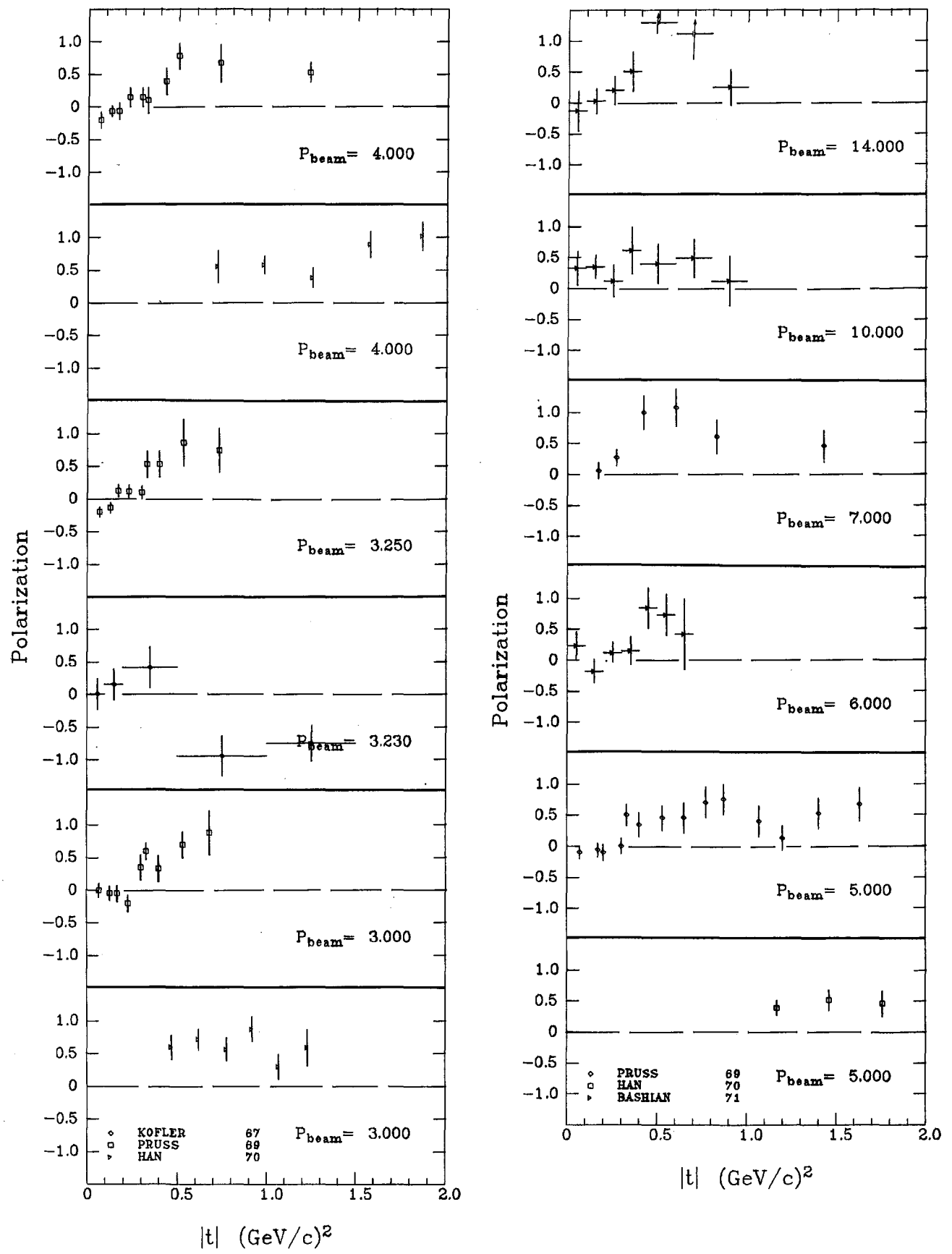
BEAM MOMENTUM= 14.

-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 $\pi^+ p \to K^+ \Sigma^+$, $\Sigma^+ \to p\pi^0$



Polarization for $\pi^+ p \to K^+ \Sigma^+$, $\Sigma^+ \to n\pi^+$

BEAM MOMENTUM= 1.34

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 HBCS

BEAM MOMENTUM= 1.43

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 HBCS

BEAM MOMENTUM= 1.55

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 HBCS

* DATA READ FROM GRAPH

BEAM MOMENTUM= 1.63

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 HBCS

BEAM MOMENTUM= 1.68

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 HBCS

BEAM MOMENTUM= 1.77

-T (GEV/C)**2 MIN	MAX	ALPHA P	
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 *

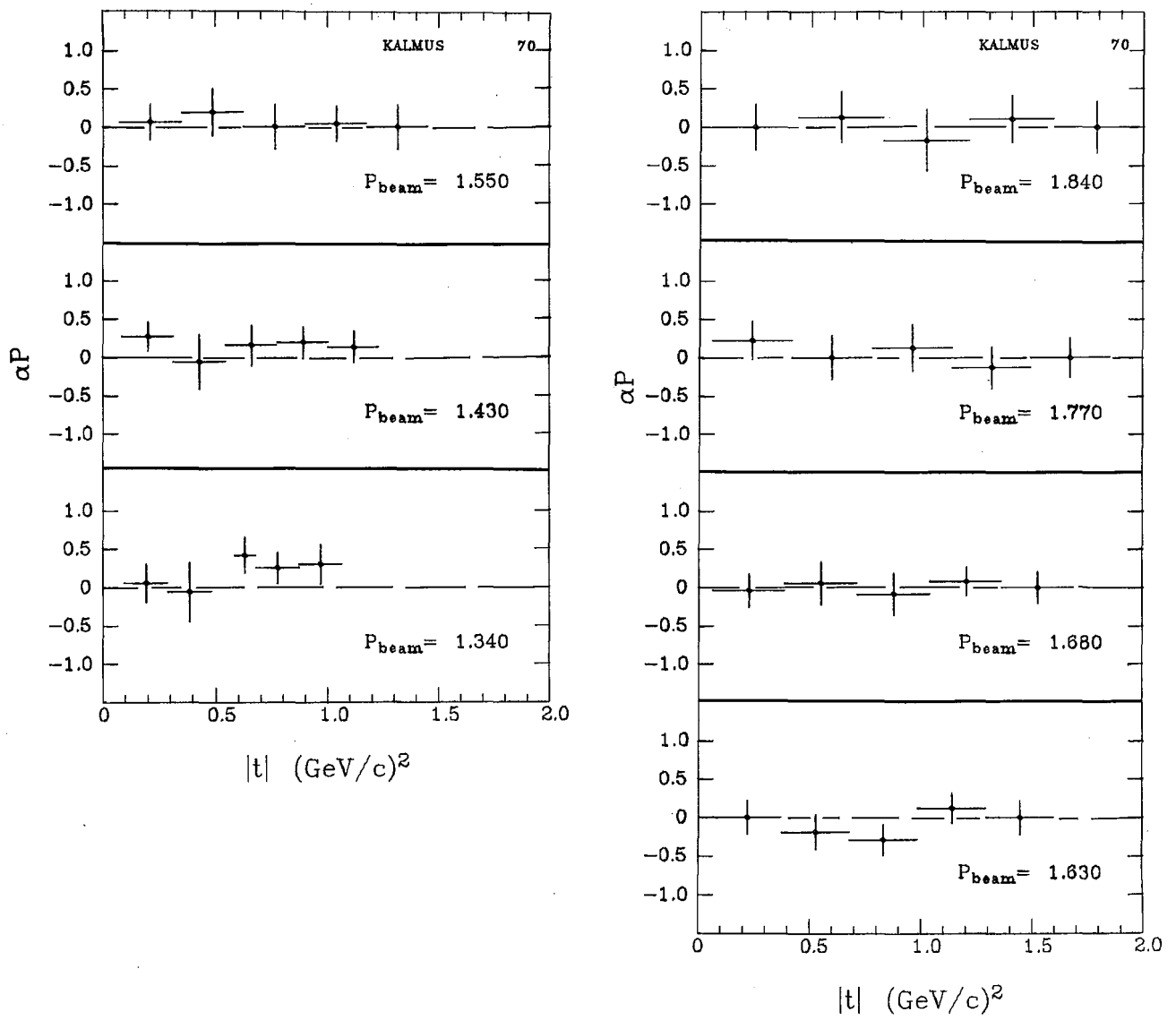
KALMUS 70.....PR D2 1824 HBCS

BEAM MOMENTUM= 1.84

-T (GEV/C)**2 MIN	MAX	ALPHA P	
0.054	0.439	0.	0.300 *
0.439	0.825	0.130	0.330 *
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 HBCS

Polarization for $\pi^+ p \to K^+ \Sigma^+$, $\Sigma^+ \to n\pi^+$



Polarization

for $\pi^+ n \to K^+ \Lambda$

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

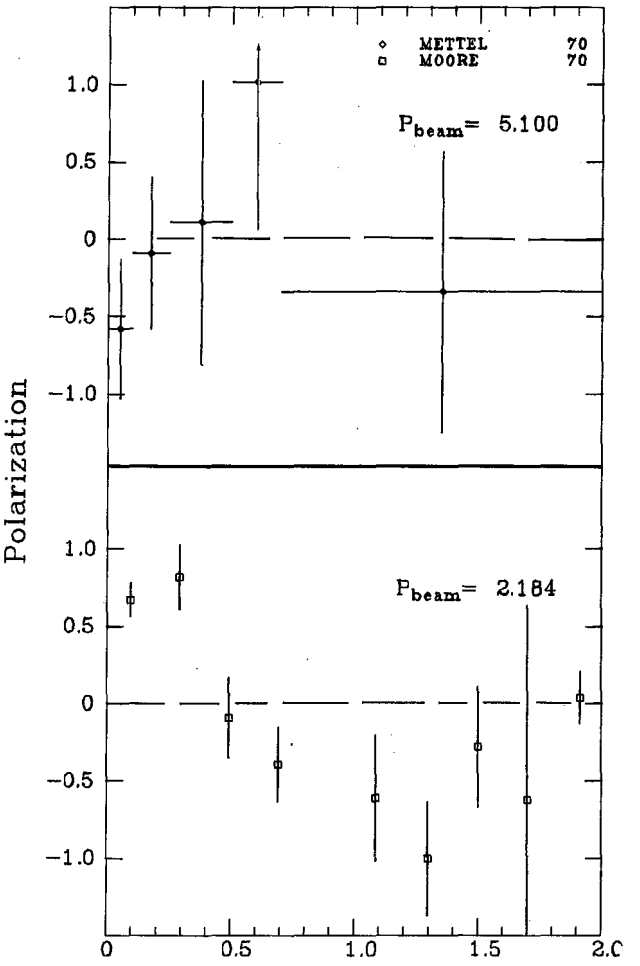
MOORE 70.....THESIS DBC 33

BEAM MOMENTUM= 5.1

-T (GEV/C)**2 MIN	MAX	POLARIZATION	
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

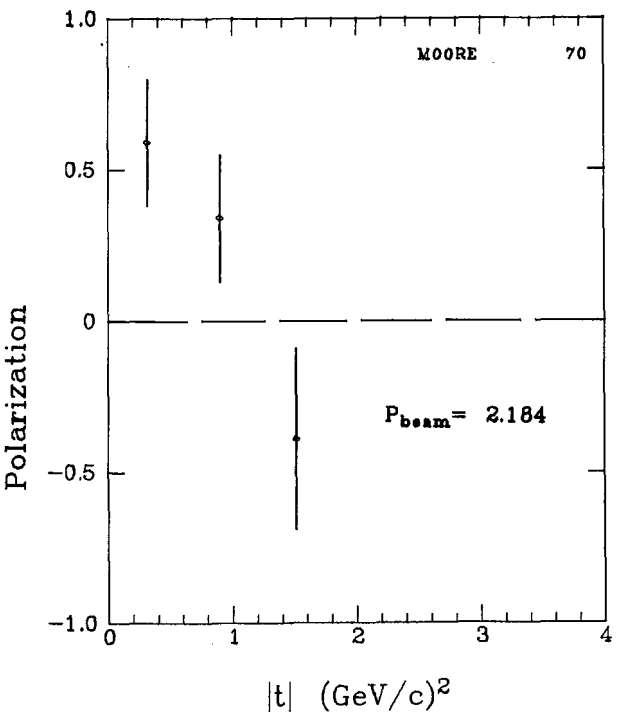


for $\pi^+ n \to K^*(890)^+ \Lambda$, $K^*(890)^+ \to K^0 \pi^+$

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	28B 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	28B 296	CDEF	CNTR	68	113
.838	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
.850	DEBAISIEUX	NP	B5 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	28B 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	28B 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	FOELSCHE	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	28B 296	CDEF	CNTR	68	113
1.090	CARTER	PR	168 1457	CAVE RHEL BIRM	CNTR	68	106
1.110	BELLAMY	PL	39B 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	FOELSCHE	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	28B 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	D2 1824	LRL	HBCS	70	204
1.280	GRETHER	PRL	26 792	LRL	HBC	71	192
1.280	HANSON	PR	D4 1296	LRL	HBCS	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

1.330	CHAVANON	PL	28B	296	CDEF	CNTR	68	113
1.337	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.340	KALMUS	PR	D2	1824	LRL	HBCS	70	204
1.340	HANSON	PR	D4	1296	LRL	HBCS	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	FOELSCHE	PR	134B	1138	YALE	HBC	64	166
1.403	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.410	KALMUS	PR	D2	1824	LRL	HBCS	70	204
1.410	HANSON	PR	D4	1296	LRL	HBCS	71	196
1.420	HANSON	PR	D4	1296	LRL	HBCS	71	196
1.420	WILLIAMSON	PRL	29	1353	UCR LBL	HBC	72	287
1.430	DETOEUF	PR	134	B228	SACL	CNTR	64	149
1.430	KALMUS	PR	D2	1824	LRL	HBCS	70	204
1.430	HANSON	PR	D4	1296	LRL	HBCS	71	196
1.434	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.450	CHAVANON	PL	28B	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	B228	SACL	CNTR	64	149
1.533	BALTAY	RMP	33	374	YALE BNL	HBC	61	41
1.550	KALMUS	PR	D2	1824	LRL	HBCS	70	204
1.550	GRETHER	PRL	26	792	LRL	HBC	71	192
1.550	HANSON	PR	D4	1296	LRL	HBCS	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	HBCS	71	196
1.630	KALMUS	PR	D2	1824	LRL	HBCS	70	204
1.630	HANSON	PR	D4	1296	LRL	HBCS	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	HBCS	70	204
1.680	HANSON	PR	D4	1296	LRL	HBCS	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	HBCS	70	204
1.770	HANSON	PR	D4	1296	LRL	HBCS	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	HBCS	70	204
1.840	HANSON	PR	D4	1296	LRL	HBCS	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	139B	1097	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	139B	1097	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	B383	BNL	HBC	64	293
2.770	YAMAMOTO	PR	140	B730	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	139B	1097	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	KOFLER	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	B38	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	B195	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	B897	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	B5	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	30B	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	B7	681	BONN	DURH	NIJM EPOL	HBC	68	79
5.000	BOECKMANN	PL	28B	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	30B	289	ANNA	ANL		SPRK	69	296
5.150	ESTERLING	PRL	21	1410	EFIN	ANL		CNTR	68	160
5.200	BAKER	PL	28B	291	CERN			SPRK	68	37
5.200	CARLSON	PL	33B	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	B913	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	28B 136	BNL	HBC	68	128
6.000	BASHIAN	PR	D4 2667	STON WISC	CNTR	71	60
6.000	CRENNELL	PRL	27 1674	BNL	HBC	71	129
6.900	BAKER	PL	28B 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	34B 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	B32 19	ROCH	HBC	71	277
7.100	ALSTON-GAR	PL	33B 607	LRL	HBC	70	18
7.100	ALSTON-GAR	PL	36B 152	LBL BERK	HBC	71	20
7.100	FLATTE	PL	34B 551	LRL	HBC	71	165
8.000	DEUTSCHMAN	PL	18 351	AACH BERL CERN	HBC	65	152
8.000	GALBRAITH	PR	138 B913	BNL CORN	CNTR	65	178
8.000	BRANDT	PL	22 109	CERN INRC WARS INRW	HBC	66	88
8.000	BARTKE	PL	24B 118	INRC AMMC IPN	HBC	67	51
8.000	FOLEY	PRL	19 193	BNL	CNTR	67	167
8.000	ADERHOLZ	PL	27B 174	PITH BERL CERN	HBCS	68	10
8.000	BARTKE	NP	B5 582	INRC	HBC	68	52
8.000	BARTSCH	PL	27B 336	AACH BERL CERN LOIC	HBCS	68	56
8.000	ESKREYS	APP	34 159	INRC	HBC	68	159
8.000	HOFMOKL	NP	B4 573	WARS INRW	HBC	68	198
8.000	ADERHOLZ	NP	B11 259	AACH BERL CERN INRC	HBCS	69	12
8.000	OTWINOWSKI	PL	29B 529	INRW	HBC	69	248
8.000	ADERHOLZ	NP	B24 509	AACH BERL CERN	HBCS	70	14
8.000	BARTSCH	NP	B19 381	AACH BERL BONN CERN	HBC	70	58
8.000	BEAUPRE	NP	B28 77	AACH BERL CERN	HBCS	71	63
8.000	BOESEBECK	NP	B28 381	AACH BERL BONN CERN	HBC	71	83
8.000	BOESEBECK	NP	B33 445	AACH BERL BONN CERN	HBCS	71	84
8.000	COGHEN	NP	B32 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	24B 118	INRC AMMC IPN	HBC	67	51
8.040	ADERHOLZ	NP	B8 45	AACH BERL CERN	HBC	68	11
8.040	BARTSCH	NP	B7 345	AACH BERL CERN	HBCS	68	57
8.040	BOESEBECK	NP	B4 501	PITH BERL CERN	HBC	68	82
8.040	ADERHOLZ	NP	B14 255	AACH BERL CERN LOIC	HBC	69	13
8.040	BARTSCH	NP	B22 109	AACH BERL CERN	HBCS	70	59
8.040	BARDADIN-O	PR	D4 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	25B 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 B913	BNL CORN	CNTR	65	178
10.000	BASHIAN	PR	D4 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	B36 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 B913	BNL CORN	CNTR	65	178
13.000	PALER	NCL	2 1063	PURD	DBC,	71	251
13.100	GAIDOS	NP	B23 84	PURD	HBC	70	172
13.100	GAIDOS	PR	D1 3190	PURD IUPU	HBC	70	173
13.100	GAIDOS	PR	D2 1226	PURD	HBC	70	174
13.100	KRAMER	PRL	25 396	PURD	HBC	70	214
13.100	LAMSA	PR	D1 3091	PURD	HBC	70	218
13.100	WILLMANN	PRL	24 1260	PURD	HBC	70	288
13.100	GAIDOS	NP	B26 109	PURD	HBC	71	175
13.100	GAIDOS	NP	B26 225	PURD	HBC	71	176
13.100	GAIDOS	NP	B32 10	PURD	HBC	71	177
13.100	KRAMER	THESIS		PURD	HBC	71	215
13.100	SCHARENGUI	NP	B36 363	PURD IUPU	HBC	72	269
14.000	GALBRAITH	PR	138 B913	BNL CORN	CNTR	65	178
14.000	FISCHER	THESIS		WISC	SPRK	70	164
14.000	BASHIAN	PR	D4 2667	STON WISC	CNTR	71	60
15.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
15.000	PRATT	SLAC	PUB-1071	SLAC	SPRK	72	261
16.000	GALBRAITH	PR	138 B913	BNL CORN	CNTR	65	178
16.000	BALLAM	PR	D3 2606	SLAC	HBC	71	39
16.000	BALLAM	PR	D4 1946	SLAC	HBC	71	40
16.000	BOESEBECK	NP	B28 381	AACH BERL BONN CERN	HBC	71	83
16.000	BOESEBECK	PL	34B 659	AACH BERL BONN CERN	HBC	71	85
18.000	GALBRAITH	PR	138 B913	BNL CORN	CNTR	65	178
18.500	BISWAS	PR	D2 2529	NDAM	HBC	70	74
18.500	HONES	PR	D2 827	NDAM	HBC	70	199
20.000	GALBRAITH	PR	138 B913	BNL CORN	CNTR	65	178
20.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
25.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
26.000	FOLEY	PRL	19 193	BNL	CNTR	67	167
30.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
35.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
40.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
45.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
50.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
55.000	DENISOV	PL	36B 415	SERP	HBC,	71	147
60.000	DENISOV	PL	36B 415	SERP	HBC,	71	147

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BEAM MOMENTUM	1ST AUTHOR	JOURNAL	VOLUME,PAGE	INSTITUTIONS	DETECTOR	YEAR PUBLISHED	REF.NR.
.245	RICHARD-SE	NP	B20 413	CERN	CNTR	70	264
.271	RICHARD-SE	NP	B20 413	CERN	CNTR	70	264
.290	NOREM	NP	B33 512	RUTG	DBC	71	246
.295	RICHARD-SE	NP	B20 413	CERN	CNTR	70	264
.342	RICHARD-SE	NP	B20 413	CERN	CNTR	70	264
.377	RICHARD-SE	NP	B20 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	24B 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	30B	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	B496	JHOP NWES WOOD	DBC	64	213
1.120	DAVIES	PR D	2	506	LRL	DBC	70	141
1.122	KRAEMER	PR	136	B496	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	B496	JHOP NWES WOOD	DBC	64	213
1.141	DANBURG	PR	D2	2564	LRL BERK	DBC	70	135
1.147	KRAEMER	PR	136	B496	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	B496	JHOP NWES WOOD	DBC	64	213
1.200	CARTER	PR	168	1457	CAVE RHEL BIRM	CNTR	68	106
1.202	KRAEMER	PR	136	B496	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	B496	JHOP NWES WOOD	DBC	64	213
1.236	KRAEMER	PR	136	B496	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	B496	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	B496	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	B496	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	B496	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	29B	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	33B	505	WISC	DBC	70	66
2.150	DAVIES	PR D	2	506	LRL	DBC	70	141
2.150	BENSINGER	PL	36B	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	30B	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	29B	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	B13	329	EPOL BARI BGNA IPNP	DBC	69	283
5.100	ARMENISE	PL	25B	53	BARI BGNA FIRZ ORSA	HBC	67	29
5.100	ARMENISE	PL	26B	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	31B	82	NDAM	DBC	70	144
5.400	STUNTEBECK	PL	32B	391	NDAM	HBC,	70	279
5.400	DEERY	PR D	3	635	NDAM	DBC	71	145
5.400	FARBER	NP	B29	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			TNTO	DBC	71	227
6.950	MATTHEWS	NCL	1	361	TNTO WISC	DBC	71	228
6.950	MATTHEWS	PR	D3	2561	TNTO WISC	DBC	71	229
6.950	MATTHEWS	PRL	26	400	TNTO WISC	DBC	71	232
6.950	HARRISON	PR	D5	2730	TNTO WISC	DBC	72	197
7.000	OH	PRL	23	331	WISC TNTO	DBC	69	247
7.000	CARROLL	PRL	25	1393	WISC TNTO	HBCS	70	103
7.000	CARROLL	PRL	27	1025	WISC TNTO	HBC	71	104
7.000	MATTHEWS	NP	B32	366	TNTO WISC	HBC	71	230
7.000	MATTHEWS	NP	B33	1	TNTO WISC	DBC,	71	231
7.000	MORSE	PR	D4	133	WISC TNTO	HBCS	71	240
7.000	CARROLL	PRL	28	318	WISC TNTO	HBC	72	105

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	29B	45	BNL	ORNL	ORUC 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	B33	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	36B	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	36B	415	SERP			HBC,	71	147
25.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
30.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
35.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
40.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
45.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
50.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
55.000	DENISOV	PL	36B	415	SERP			HBC,	71	147
60.000	DENISOV	PL	36B	415	SERP			HBC,	71	147

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[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 → K+ SIGMA+ AT 1.11 GEV/C. [PHYS. LETTERS 39B, 299 (1972)]
[66] A BUBBLE CHAMBER MEASUREMENT OF ETA'(960) → GAMMA GAMMA AND ETA'(960) → PIO PIO ETA (ETA → 3PIO) DECAY RATES. [PHYS. LETTERS 33B, 505 (1970)]
[67] A STUDY OF S-WAVE PI PI SCATTERING IN THE REACTION PI+ N → PIO PIO P AT 2.15 GEV/C. [PHYS. LETTERS 36B, 134 (1971)]
[68] EVIDENCE THAT THE FO HAS ISOTOPIC SPIN ZERO. [PHYS. REV. LETTERS 12, 600 (1964)]
[69] OBSERVATION AND PROPERTIES OF THE NEUTRAL A2 MESON [PHYS. REV. LETTERS 16, 1177 (1966)]
[70] FURTHER EVIDENCE FOR THE H MESON [PHYS. REV. LETTERS 17, 1234 (1966)]
[71] OMEGA AND ETA PRODUCTION IN PI+ D → P P PI+ PI- PIO AT 3.65 BEV/C. [PHYS. REV. LETTERS 22, 1074 (1969)]
[72] STRANGE-PARTICLE PRODUCTION IN PI+ - P COLLISIONS. [PHYS. REV. 139, B1097 (1965)]
[73] ETUDE A 1.15 GEV/C DE LA CREATION ASSOCIEE PI+ + P→ SIGMA+ + K+ (STUDY AT 1.15 GEV/C OF ASSOCIATED PRODUCTION PI+ P → 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] DELTA++ RHOO AND DELTA++ OMEGAO FINAL STATES AT 5.45 GEV/C. [NUC. PHYS. B35, 79 (1971)]
[76] RHO-OMEGA 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] DELTA++ ETA AND DELTA++ XO PRODUCTION IN PI+ P INTERACTIONS AT 5.45 GEV/C AND ETA-XO MIXING. [NUC. PHYS. B39, 525 (1972)]
[79] TEST OF ABSORPTION-MODEL PREDICTIONS IN DOUBLE RESONANCE PRODUCTION BY 5 GEV/C PI+ MESONS ON PROTONS. [NUC. PHYS. B7, 681 (1968)]
[80] TEST OF QUARK-MODEL PREDICTIONS IN DOUBLE RESONANCE PRODUCTION BY 5 GEV/C PI+ MESONS ON PROTONS. [PHYS. LETTERS 28B, 72 (1968)]
[81] DECAY-PROPERTIES OF THE 'A2(1300)'-MESON. [NUC. PHYS. B16, 221 (1970)]
[82] RESONANCE PRODUCTION IN 8 GEV/C PI+ 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] (P PI+ PI-) MASS ENHANCEMENTS IN THE INTERACTIONS OF 8 GEV/C PI+, 16 GEV/C PI+, 16 GEV/C PI- 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 34B, 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 PI+ PROTON INTERACTIONS. [PHYS. LETTERS 22, 109 (1966)]
[89] PRODUCTION OF STRANGE PARTICLES IN 8 GEV/C PI+ PROTON INTERACTIONS. II. K KBAR PRODUCTION AND LAMBDA K AND K KBAR 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 → PIO PIO P AT 2.15 BEV/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 I-SPIN OF FO. [PHYS. LETTERS 10, 232 (1964)]
[95] CROSS SECTION FOR THE CHARGE EXCHANGE REACTION PI+ + N → P + PIO 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 → 3 PI-ZERO)/(ETA → PI+ PI- PI-ZERO) [PHYS. LETTERS 27B, 402 (1968)]
[98] STRANGE PARTICLE PRODUCTION IN PI+ P INTERACTIONS NEAR 3.7 GEV/C [UCRL 19845 (1970)]
[99] STUDY OF DO → PI+/- DELTA-/+ AND DELTA-/+ → PI-/+ ETA IN THE REACTION PI+ D → P(SPECT) P DO 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, B433 (1965)]
[101] BACKWARD RHO+ PRODUCTION IN PI+ P REACTIONS AT 5.2 GEV/C. [PHYS. LETTERS 33B, 502 (1970)]
[102] PI+- P BACKWARD SCATTERING BETWEEN 1.5 AND 3.0 BEV/C. [PHYS. REV. LETTERS 20, 607 (1968)]
[103] DIFFERENCE IN ENERGY DEPENDENCE FOR A2- AND A20 PRODUCTION. [PHYS. REV. LETTERS 25, 1393 (1970)]
[104] OBSERVATION OF NATURAL-PARITY EXCHANGE IN RHOO PRODUCTION. [PHYS. REV. LETTERS 27, 1025 (1971)]
[105] OBSERVATION OF AN S-WAVE RESONANCE IN THE FO 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 A3(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 → RHOO DELTA++ A 11.7 GEV/C. [THESIS(3/CYCLE) (1970)]
[112] PRINCIPALES CARACTERISTIQUES DES REACTIONS PI+ P → PI+ P, PI+ P → PI+ P PIO, PI+ P → PI+ P ETAO A 5 GEV/C. ANALYSE DES PRODUCTIONS DE DELTA PI, DELTA++ ETAO ET P RHO+. [THESIS(3/CYCLE) (1970)]
[113] DETERMINATION OF THE ANGULAR DISTRIBUTION OF PIO IN THE REACTION PI+ P → PI+ P PIO BETWEEN 600 AND 1300 MEV. [PHYS. LETTERS 28B, 296 (1968)]
[114] ANALYSIS OF P PI+ PI- ENHANCEMENTS PRODUCED IN THE REACTION PI+ P- → PI+ P PI+ PI- AT 5 GEV/C. [NUC. PHYS. B23, 533 (1970)]
[115] OBSERVATION OF 'PERIPHERAL' BACKWARD MULTIPION PRODUCTION AT 2.15 BEV/C [PHYS. REV. LETTERS 23, 491 (1969)]
[116] COHERENT PRODUCTION OF PI+ PI+ PI- IN DEUTERIUM BY 8 GEV/C PI+ [PHYS. REV. LETTERS 21, 1609 (1968)]
[117] A1 PRODUCTION IN 8 GEV/C PI+ D INTERACTIONS [PHYS. LETTERS 29B, 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-ORODUCTION IN PI+ N INTERACTIONS. [PHYS. LETTERS 15, 344 (1965)]
[121] OBSERVATION OF XO PRODUCTION IN PI+ N INTERACTIONS. [PHYS. LETTERS 21, 347 (1966)]
[122] PRODUCTION AND DECAY OF THE F-ZERO MESON. [NUC. PHYS. 82, 690 (1966)]
[123] PROPERTIES OF THE NEUTRAL A-MESONS [NUC. PHYS. B1, 57 (1967)]
[124] SIGMA 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 (PI+,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 28B, 136 (1968)]
[129] STUDY OF OMEGA EXCHANGE ISOLATED IN THE REACTIONS PI P → RHO 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-BEV/C PI+ 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 → ETA P. A REGGE PARAMETRIZATION OVER A LARGE ENERGY RANGE USING VENEZIANO-TYPE RESIDUE FUNCTIONS. [PHYS. LETTERS 30B, 270 (1969)]
[134] A STUDY OF THE REACTION PI+ D → (P) P PI+ PI- PIO AT INCIDENT PION MOMENTA BETWEEN 1.1 AND 2.4 BEV/C. [UCRL 19275 (1969)]
[135] PRODUCTION AND DECAY OF ETA AND OMEGA MESONS IN THE REACTION PI+ D → (P) P PI+ PI- PIO BETWEEN 1.1 AND 2.4 GEV/C. [PHYS. REV. D2, 2564 (1970)]
[136] AN ANALYSIS OF THE REACTION PI+ P → P PI+ PI+ PI- PIO 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 29B, 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 → 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 → D PI+ PI- PI+ AT 5.4 GEV/C. [PHYS. LETTERS 31B, 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 → P P REACTION BETWEEN 0.65 AND 1.95 GEV/C. [PHYS. LETTERS 11, 161 (1964)]
[147] TOTAL CROSS SECTIONS OF PI+, K+ AND P ON PROTONS AND DEUTERONS IN THE MOMENTUM RANGE 15-60 GEV/C. [PHYS. LETTERS 36B, 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 → PI+ P PIO CROSS SECTION FROM 0.5 TO 1.5 GEV/C [PHYS. REV. 134, B228 (1964)]
[150] ANGULAR DISTRIBUTION OF THE PI-ZERO IN THE REACTION PI+ + P → PI+ + P + PI-ZERO 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 PIO PRODUCTION BY 8 GEV/C POSITIVE PIONS AND POSSIBLE ENHANCEMENTS IN THE (PI+ PIO) 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 A1 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 → PI+ PPPBAR AT 8.4 BEV/C. [PHYS. REV. LETTERS 20, 686 (1968)]
[158] FEATURES OF THE REACTION PI+D → 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 PI+ 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 → 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 → DELTA++ + A + PI. [PHYS. REV. LETTERS 26, 344 (1971)]
[164] DIFFERENTIAL CROSS SECTION AND POLARIZATION OF THE REACTION PI+ P → K+ SIGMA+ FROM 2.75 TO 14 GEV/C. [THESIS (1970)]
[165] FO MASS SPECTRUM IN 7-GEV/C PI+ P INTERACTIONS. [PHYS. LETTERS 34B, 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 → PI+ PI- DELTA++ AT 13.1 GEV/C. [NUC. PHYS. B23, 84 (1970)]
[173] REACTION PI+ P → RHOO DELTA++ AT 13.1 GEV/C. [PHYS. REV. D1, 3190 (1970)]
[174] DOUBLE-REGGE-POLE ANALYSIS OF PI+ P → PI+ RHOO P AT 13.1 GEV/C. [PHYS. REV. D2, 1226 (1970)]
[175] DOUBLE-REGGE-POLE ANALYSIS OF PI+ P → PI+ FO P AT 13.1 GEV/C. [NUC. PHYS. B26, 109 (1971)]
[176] THE REACTION PI+ P → FO DELTA++ AT 13.1 GEV/C. [NUC. PHYS. B26, 225 (1971)]
[177] PRODUCTION OF K+ K- AND P PBAR PAIRS IN FOUR-BODY REACTIONS AT 13.1 GEV/C. [NUC. PHYS. B32, 10 (1971)]
[178] TOTAL CROSS SECTIONS OF PROTONS, ANTIPROTONS, AND PI 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 26B, 334 (1968)]
[180] REACTION PI+ N → 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 O MESON [NUOVO CIMENTO 53A, 213 (1968)]
[184] CHARGED RHO PRODUCTION IN ASSOCIATION WITH DELTA ZERO IN PI+/- D INTERACTIONS AT 5 GEV/C. [NUOVO CIMENTO 58A, 524 (1968)]
[185] OBSERVATION OF REGGE EFFECTS IN THE REACTION PI+ P → PIO 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 INTERACTION PRODUCED IN THE PI+P REACTION AT 3.65 BEV [PHYS. REV. LETTERS 12, 336 (1964)]
[188] OMEGA RHOO INTERFERENCE EFFECT IN THE PI+ P → PI+ PI- DELTA++ INTERACTION. [PHYS. REV. LETTERS 23, 1351 (1969)]
[189] MESON AND BARYON PRODUCTION IN THE REACTION PI+ DEUTERON GOES TO PROTON PI+ PI- PIO AT 4.19 GEV/C. [UNIV. OF ILLINOIS 1195 (1970)]
[190] INVESTIGATION OF THE RHO+ AND N*++ RESONANCES IN THE PI+ P → PI+ P PIO REACTION FOR 2.34 GEV/C PI+ MESONS. [AKAD.NAUK SSR BULL.PHYSICAL SCIENCES 31, 1519 (1966)]
[191] STUDY OF THE REACTION PI+ + P → SIGMA+ + K+ NEAR THRESHOLD [PHYS. REV. 127, 607 (1962)]
[192] REACTION PI+ P → ETAO DELTA++. A TEST OF A2 REGGE-POLE EXCHANGE. [PHYS. REV. LETTERS 26, 792 (1971)]
[193] ETA PRODUCTION IN THE REACTION PI P → PI P ETA AT 1050 AND 1170 MEV/C. [PHYS. REV. 178, 2109 (1969)]
[194] MEASUREMENT OF THE REACTION PI+ P → K+ SIGMA+ AT LARGE MOMENTUM TRANSFERS. [PHYS. REV. LETTERS 24, 1353 (1970)]
[195] A MEASUREMENT OF THE REACTION PI+ + P → 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 A2 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 → P PI+ PI+ PI- PIO 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 ETAO AND OMEGAO MESONS. [NUOVO CIMENTO 63A, 743 (1969)]
[202] INTERACTIONS OF PI+ MESONS WITH PROTONS AT 2.08 BEV/C. [PHYS. REV. 142, 896 (1966)]
[203] MEASUREMENT OF THE REACTIONS PI+ P → K+ SIGMA+ AND PI+ P → K+ Y*+ NEAR ZERO DEGREES. [PHYS. REV. LETTERS 27, 74 (1971)]
[204] STUDY OF THE REACTION PI+ P → SIGMA+ K+ BETWEEN 1850- AND 2090-MEV C.M. ENERGY. [PHYS. REV. D2, 1824 (1970)]
[205] PIONIC FINAL STATES PRODUCED BY PI+ D COLLISIONS AT 1.5 GEV/C. [THESIS (1970)]
[206] EXPERIMENTAL INVESTIGATION ON HELICITY CONSERVATION. [NUOVO CIMENTO LETTERS 2, 471 (1971)]
[207] IS THERE STRUCTURE IN THE FO MASS REGION? [NUOVO CIMENTO 8A, 611 (1972)]
[208] NEUTRAL PI RHO ENHANCEMENTS PRODUCED IN 8-GEV/C PI+ D INTERACTIONS. [PHYS. REV. LETTERS 23, 146 (1969)]
[209] I=2 S-WAVE PI-PI SCATTERING LENGTH. [PHYS. REV. 126, 763 (1962)]
[210] OMEGA PRODUCTION IN PI+ P INTERACTIONS AT 2.67 AND 2.30 BEV/C. [THESIS (1971)]
[211] REACTION PI+ P → SIGMA+ K+ AT 3.23 GEV/C. [PHYS. REV. 163, 1479 (1967)]
[212] PI+ PROTON SCATTERING AT 990 MEV. [PHYS. REV. 123, 301 (1961)]
[213] MESON RESONANCE PRODUCTION IN PI+ D INTERACTIONS AT 1.23 BEV/C. [PHYS. REV. 136, B496 (1964)]
[214] DECAY OF SOME HIGH-MASS BOSONS TO PI+ PIO. [PHYS. REV. LETTERS 25, 396 (1970)]
[215] A STUDY OF THE REACTIONS WITH TWO CHARGED FINAL STATE PARTICLES IN PI+ PROTON INTERACTIONS AT 13.1 GEV/C. [THESIS (1971)]
[216] STRANGE PARTICLE PRODUCTION IN PI+ P INTERACTIONS AT 8.5 GEV/C. [THESIS (1970)]
[217] PI+ P INTERACTION AT 8.5 BEV/C [THESIS (1969)]
[218] DOUBLE-REGGE ANALYSIS OF THE REACTION PI+ P → PI+ RHOO P AT 13.1 GEV/C. [PHYS. REV. D1, 3091 (1970)]
[219] TEST OF C INVARIANCE IN THE 3 PI DECAY MODE OF THE ETA MESON. [PHYS. LETTERS 23, 600 (1966)]
[220] STUDY OF THE DECAY MODE ETA → PI+ PI- GAMMA. [PHYS. LETTERS 24B, 486 (1967)]

[221] THE DECAY ETA → PI+ PI- PIO AND THE S-WAVE PI PI PHASE SHIFT. [NUOVO CIMENTO 48A, 468 (1968)]
[222] INELASTIC PI+N INTERACTIONS IN THE CENTER-OF-MASS ENERGY RANGE 1.40-1.65 GEV [PHYS. REV. 183, 1152 (1969)]
[223] STUDIES OF TWO-PRONG INTERACTIONS IN K+P AT 4.6 GEV/C AND PI+P AT 3.6 GEV/C. [UCRL 20178 (1971)]
[224] ANALYSIS OF THE REACTION PI+ P → RHOO DELTA++ AT 11.7 GEV/C INCIDENT MOMENTUM. [NUOVO CIMENTO 5A, 433 (1971)]
[225] ANALYSIS OF THE REACTION PI+ P → RHOO DELTA++ AT 11.7 GEV/C INCIDENT MOMENTUM. II. AN INTERPRETATION IN TERMS OF REGGE-POLE EXCHANGE. [NUOVO CIMENTO 5A, 457 (1971)]
[226] RESONANCE PRODUCTION IN THE REACTION PI+ D → P P PI PI FROM 1.1 TO 2.3 GEV/C. [UCRL 19339 (1969)]
[227] QUASI-2-BODY PROCESSES IN THE REACTIONS PI+ D → P P PI+ PI- AND PI+ D → P P PI+ PI- PIO. [THESIS (1971)]
[228] A NEW SPIN-PARITY ANALYSIS OF THE PHI(1680) MESON. [NUOVO CIMENTO LETTERS 1, 361 (1971)]
[229] PRODUCTION AND DECAY OF THE PHI(1680) IN PI+ D → P P PI+ PI- PIO AT 6.95 GEV/C. [PHYS. REV. D3, 2561 (1971)]
[230] REGGE ANALYSES OF RHOO PRODUCTION IN PI N CHARGE EXCHANGE CHANNELS AT 7 GEV/C. [NUC. PHYS. B32, 366 (1971)]
[231] PRODUCTION OF THE G-MESON IN PI N → GO N CHARGE EXCHANGE CHANNELS AT 7 GEV/C. [NUC. PHYS. B33, 1 (1971)]
[232] OMEGA PRODUCTION IN PI+ D → P P PI+ PI- PIO AT 6.95 GEV/C. [PHYS. REV. LETTERS 26, 400 (1971)]
[233] PRODUCTION DE PARTICULES ETRANGES DANS DES INTERACTIONS PI+ D A 5.1 GEV/C: REACTIONS A 2-CORPS ET A QUASI-2 CORPS. [THESIS (1970)]
[234] PI+ P INTERACTIONS AT 900 MEV [PHYS. REV. 164, 1680 (1967)]
[235] REACTION PI+ P → RHO+ P AT 2.67 GEV/C. A STUDY OF ISOSCALAR EXCHANGES. [PHYS. REV. LETTERS 28, 1475 (1972)]
[236] CONFIRMATION OF AN ENHANCEMENT IN THE PI- PI+ SYSTEM AT M = 1.05 GEV. [PHYS. LETTERS 28B, 51 (1968)]
[237] FOUR-CHARGED-PARTICLE FINAL STATES FROM THE INTERACTION OF 2.7-GEV/C PI+ ON DEUTERIUM [PHYS. REV. 178, 2061 (1969)]
[238] MANY BODY FINAL STATES FROM PI+ D INTERACTIONS NEAR 3 GEV/C. [THESIS (1971)]
[239] STRANGE PARTICLE PRODUCTION IN PI+ DEUTERON INTERACTIONS AT 2.05, 2.19, AND2.35 GEV/C. [THESIS (1970)]
[240] ANALYSIS OF THE N*(1500) AND N*(1700) BARYON RESONANCES PRODUCED VIA DIFFRACTION DISSOCIATION. [PHYS. REV. D4, 133 (1971)]
[241] A COMPARISON OF K- P → PI- Y(1)*(1385)+ AND PI+ P → K+ Y(1)*(1385)+ AT 5.5 GEV/C. [NUC. PHYS. B13, 565 (1969)]
[242] PI-NUCLEON CHARGE EXCHANGE ANGULAR DISTRIBUTIONS BETWEEN 600 AND 900 MEV. (TRANSLATION OF DISTRIBUTIONS ANGULAIRES D'ECHANGE DE CHARGE PI-NUCLEON ENTRE 600 ET 900 MEV.) [PHYS. LETTERS 10, 349 (1964)]
[243] STUDY OF SOME THREE-BODY REACTIONS IN PI+ D INTERACTIONS AT 5.1 AND 9.0 GEV/C. [NUOVO CIMENTO 2A, 514 (1971)]
[244] THE PI B → B RHO PI REACTION IN PI+- D INTERACTION AT 5.1 GEV/C. [NUOVO CIMENTO 3A, 721 (1971)]
[245] INTERACTION OF POSITIVE PIONS WITH HYDROGEN AT 600 MEV. [PHYS. REV. 132, 1283 (1963)]
[246] INTERACTIONS OF 290 MEV/C POSITIVE PIONS WITH DEUTERIUM. [NUC. PHYS. B33, 512 (1971)]
[247] PI-PI PHASE SHIFTS IN THE REGION 1.0-1.4 GEV/C SQUARED. [PHYS. REV. LETTERS 23, 331 (1969)]
[248] OBSERVATION OF DO MESON IN REACTION PI+ P → P PI+ PI+ PI+ PI- PI- PIO AT 8 GEV/C. [PHYS. LETTERS 29B, 529 (1969)]
[249] COHERENT PRODUCTION OF HIGH-MASS MESON STATES IN PI+ D COLLISIONS AT 13 GEV/C. [PHYS. REV. LETTERS 26, 1675 (1971)]
[250] APPLICATION OF A DUAL DIFFRACTIVE MODEL TO THE REACTION PI+ D → D PI+ PI+ PI- AT 13 GEV/C. [NUC. PHYS. B33, 13 (1971)]
[251] NONCONSERVATION OF S-CHANNEL HELICITY IN A3 PRODUCTION AT 13 GEV/C. [NUOVO CIMENTO LETTERS 2, 1063 (1971)]
[252] EVIDENCE FOR A LAMBDA PI+ RESONANCE AT 1480 MEV. [PHYS. REV. LETTERS 23, 806 (1969)]
[253] STRANGE-PARTICLE PRODUCTION BY 1.7-GEV/C PI+ ON PROTONS [PHYSICAL REVIEW D 2, 449 (1970)]
[254] A STUDY OF THE REACTION PI+ P → SIGMA+ K+ AT 1.7 GEV/C. [NUC. PHYS. B16, 61 (1970)]
[255] A STUDY OF THE REACTION PI+ P → Y*(1)(1385)+ K+ AT 1.7 GEV/C. [NUC. PHYS. B21, 395 (1970)]
[256] PI+ + D COLLISIONS AT 650, 750, 850 MEV. [SIENNA CONFERENCE 1, 92 (1963)]
[257] RAPPORTS DE BRANCHEMENT DANS LA DESINTEGRATION DU MESON ETA [PHYS. LETTERS 13, 351 (1964)]
[258] EVIDENCE FOR A THREE-PION RESONANCE NEAR 550 MEV. [PHYS. REV. LETTERS 7, 421 (1961)]
[259] STUDY OF THE 5 AND 6 PRONGS IN PI+D INTERACTIONS AT 5.1 GEV/C. [ANN.INT.CONF.ON HIGH EN.PHYSICS, KIEV (1970)]
[260] STUDY OF CROSS SECTIONS AND SPIN-DENSITY MATRIX ELEMENTS IN 5 GEV/C PI+ P FOUR-PRONGED INTERACTIONS. [NUC. PHYS. B25, 109 (1970)]
[261] A SPARK CHAMBER MEASUREMENT OF THE REACTIONS PI+- + P → RHO+- + P AT 15 GEV/C. [STANF.LIN.ACCEL.CNTR., REPORT NO.SLAC- PUB-1071 (1972)]
[262] DIFFERENTIAL CROSS SECTION AND POLARIZATION IN THE REACTION PI+ + P → K+ + SIGMA+ FROM 3 TO 7 GEV/C. [PHYS. REV. LETTERS 23, 189 (1969)]
[263] ETA PRIME PRODUCTION IN PI+ D INTERACTIONS FROM THRESHOLD TO 2.4 GEV/C. [UCRL 19431 (1969)]
[264] A STUDY OF THE REACTION PI+ D → P P FOR PION ENERGIES BETWEEN 142 AND 262 262 MEV. [NUC. PHYS. B20, 413 (1970)]
[265] ANALYSIS OF THE A1 AND A2 REGIONS IN THE REACTION PI+ P → PI+ PI+ PI- P AT 5 GEV/C. [NUOVO CIMENTO 5A, 239 (1971)]
[266] EVIDENCE FOR DOUBLE DIFFRACTIVE DISSOCIATION IN PI+ P REACTIONS AT 5 GEV/C. [NUOVO CIMENTO 10A, 1 (1972)]
[267] STUDY OF FOUR-PRONG EVENTS IN PI+ P INTERACTIONS AT 3.5 GEV/C. [NUC. PHYS. B38, 20 (1972)]
[268] EVIDENCE FOR A POSSIBLE BOSON RESONANCE OF MASS 2820 MEV. [NUOVO CIMENTO LETTERS 1, 514 (1971)]
[269] STUDY OF DELTA++ PRODUCTION IN THE REACTION PI+ P → PI+ PIO AT 13.1 GEV/C. [NUC. PHYS. B36, 363 (1972)]
[270] STUDY OF CROSS SECTIONS AND SPIN-DENSITY MATRIX ELEMENTS FOR TWO-BODY REACTIONS IN 5 GEV/C PI+ P TWO-PRONGED INTERACTIONS. [NUC. PHYS. B22, 45 (1970)]
[271] RESONANCE PRODUCTION IN PION-PROTON INTERACTIONS AT 3.65 BEV/C AND 3.7 BEV/C. [UCRL 16170 (1965)]
[272] AN ANALYSIS OF THE REACTION PI+ P → P PI+ PI+ PI- AT 5.72 GEV/C [THESIS (1970)]
[273] RESONANCE PRODUCTION IN PI+P COLLISIONS AT 7 BEV/C [THESIS (1967)]
[274] A STUDY OF RESONANCE PRODUCTION IN 7 GEV/C PI+ P INTERACTIONS. [NUOVO CIMENTO 50, 377 (1967)]
[275] SEARCH FOR A 2 PIO RESONANCE NEAR 730 MEV IN PI+ D INTERACTIONS. [PHYS. REV. 171, 1399 (1968)]
[276] PIO PIO MASS SPECTRUM AND DELTAOO BELOW 1 GEV. [PHYS. REV. LETTERS 23, 335 (1969)]
[277] LONGITUDINAL MOMENTUM DISTRIBUTIONS OF PI- MESONS PRODUCED IN 12.7 GEV/C K+ P AND 7 GEV/C PI+ P INTERACTIONS. [NUC. PHYS. B32, 19 (1971)]
[278] PION-PION INTERACTION IN PION PRODUCTION BY PI+ P COLLISIONS [PHYS. REV. LETTERS 6, 624 (1961)]
[279] EVIDENCE FOR STRUCTURE IN THE FO AND GO DIPION MASS REGIONS. [PHYS. LETTERS 32B, 391 (1970)]
[280] PI+ P INTERACTIONS AT T(SUB PI) = 781 MEV. [PHYS. REV. 142, 972 (1966)]
[281] LONGITUDINAL PHASE-SPACE ANALYSIS OF THE REACTION PI+ P → PI+ P PI+ PI- AT 11.7 GEV/C AND COMPARISON OF THE REACTIONS PI+- P → PI+- PI+ PI- P AT THE SAME ENERGY. [NUOVO CIMENTO 7A, 651 (1972)]
[282] SEARCH FOR XO AND PHI PRODUCED IN PI+P INTERACTIONS [PHYS. LETTERS 19, 427 (1965)]
[283] ANALYSIS OF THE REACTION PI+/- D → D PI+/- PI+ PI- AT 5 GEV/C. INTERPRETATION WITH A REGGEISED PI-EXCHANGE MODEL [NUC. PHYS. B13, 329 (1969)]
[284] COHERENT 6 GEV/C PI+ INTERACTIONS ON DEUTERON. [PHYS. LETTERS 19, 526 (1965)]
[285] TOTAL CROSS SECTIONS FOR P, P-BAR, CHARGED K, AND CHARGED PI ON HYDROGEN BETWEEN 3 AND 10 GEV/C. [PHYS. REV. LETTERS 5, 333 (1960)]
[286] TOTAL CROSS SECTIONS FOR PIONS ON PROTONS IN THE MOMENTUM RANGE 4.5 TO 10 G [PHYS. REV. LETTERS 7, 127 (1961)]
[287] DIP STRUCTURES IN PI+ + P → RHO+ + P AT 1.55 - 1.84 GEV/C. [PHYS. REV. LETTERS 29, 1353 (1972)]
[288] OBSERVATION OF N*(1720) DECAY TO DELTA(1236)PI FROM PI+ P INTERACTIONS AT 13.1 GEV. [PHYS. REV. LETTERS 24, 1260 (1970)]
[289] PI+ P INTERACTIONS AT 500 MEV. [PHYS. REV. 116, 753 (1959)]
[290] RESONANCE PRODUCTION IN THE REACTION PI+ P → P PI+ PI+ PI- PIO AT 3.9 BEV/C [THESIS (1968)]
[291] TWO PRONG FINAL STATES IN PI+ P INTERACTIONS AT 3.9 GEV/C. [THESIS MIT (1968)]
[292] REACTION PI+ P → PI+ P OMEGA AT 3.5 BEV/C. [PHYS. REV. LETTERS 11, 227 (1963)]
[293] PRODUCTION OF STRANGE PARTICLES BY 2.77-BEV/C PI+ MESONS ON HYDROGEN. [PHYS. REV. 134, B383 (1964)]
[294] DOUBLE RESONANCE PRODUCTION BY 2.77 BEV/C PI+ MESONS ON HYDROGEN. [PHYS. REV. 140, B730 (1965)]
[295] TWO-PRONG INTERACTION BY PI+ P COLLISIONS AT 2.77 BEV/C. [PHYS. REV. 173, 1302 (1968)]
[296] DIFFERENTIAL CROSS SECTION OF THE REACTION PI+ + P → K+ + Y*(1385) AT 4.0 AND 5.05 GEV/C. [PHYS. LETTERS 30B, 289 (1969)]
[297] OBSERVATION OF A 7 PI ENHANCEMENT AT 3.01 GEV. [PHYSICAL REVIEW D 3, 642 (1971)]

D. LIST OF COMPILATIONS

June 1973

CERN/HERA 69-1 (1969)
G. GIACOMELLI, P. PINI, S. STAGNI
A compilation of Pion-Nucleon Scattering Data.

CERN/HERA 69-2 (April 1969)
B. SADOULET
Data Compilation of Anti-proton Reactions into Antihyperon-Hyperon.

CERN/HERA 69-3 (Dec. 1969)
G. GIACOMELLI
A Compilation of Total and Total Elastic Cross Sections.

CERN/HERA 70-1 (June 1970)
P. SPILLANTINI, V. VALENTE
A Collection of Pion Photoproduction Data.

CERN/HERA 70-2 (Oct. 1970)
J. D. HANSEN, D. R. O. MORRISON, N. TOVEY, E. FLAMINIO
Compilation of Cross Sections.
I– Proton Induced Reactions.

CERN/HERA 70-3 (Oct. 1970)
E. FLAMINIO, J. D. HANSEN, D. R. O. MORRISON, N. TOVEY
Compilation of Cross Sections.
II-Antiproton Induced Reactions.

CERN/HERA 71-1 (Sept. 1971)
L. D. JACOBS, M. ROOS, S. SANTIAGO
Selective Compilation of $\pi^- p \rightarrow \pi\pi N$ Events from Hydrogen Bubble Chambers.

CERN/HERA 72-1 (May 1972)
E. BRACCI, J. P. DROULEZ, E. FLAMINIO, J. D. HANSEN, D. R. O. MORRISON
Compilation of Cross Sections.
I– π^- and π^+ Induced Reactions.

CERN/HERA 72-2 (Oct. 1972)
E. BRACCI, J. P. DROULEZ, E. FLAMINIO, J. D. HANSEN, D. R. O. MORRISON
Compilation of Cross Sections.
II– K^- and K^+ Induced Reactions.

*UCRL-20000 K^+N (Sept. 1969)
L. R. PRICE, N. BARASH-SCHMIDT, O. BENARY, R. W. BLAND, A. H. ROSENFELD, C. G. WOHL
A Compilation of K^+N Reactions.

UCRL-20000 YN (Jan. 1970)
O. BENARY, N. BARASH-SCHMIDT, 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 (Above 0.5 GeV/c)– A Compilation.

LBL-55 (March 1972)
F. UCHIYAMA, J. S. LOOS
K^0_L N Interactions– A Compilation.

LBL-58 (May 1972)
J. E. ENSTROM, T. FERBEL, P. F. SLATTERY, B. L. WERNER, Z. G. T. GUIRAGOSSIAN, Y. SUMI, T. YOSHIDA
$\bar{N}N$ and $\bar{N}D$ Interactions– A Compilation.

LBL-80 (Aug. 1972)
M. E. LAW, J. KASMAN, R. S. PANVINI, W. H. SIMS, T. LUDLAM
A Compilation of Data on Inclusive Reactions.

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C. LOVELACE, S. ALMEHED, F. UCHIYAMA, R. L. KELLY, V. P. HENRI
πN Two-Body Scattering Data:
I. A User's Guide to the Lovelace-Almehed Data Tape.

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D. M. CHEW, V. P. HENRI, T. A. LASINSKI, T. G. TRIPPE, F. UCHIYAMA, F. C. WINKELMANN
π^+p, π^+n, and π^+d Interactions —
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pi+p, pi+n, AND pi+d INTERACTIONS - A COMPILATION: **PART II**

Part II of this work is available in microfiche form only. The fiche film is included with Part I and is available through the Archives and Records Office.

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