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πN TWO-BODY SCATTERING DATA

I. A User's Guide to the Lovelace-Almehed Data Tape

Particle Data Group

and

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πN Kinematics

P(LAB) (MEV/C)	T(LAB) (MEV)	INV MASS (MEV)	P(CMS) (MEV/C)	4PILAMBARSQ (MB)
0	0	1076	0	
20	1	1079	17	16180.19
40	6	1082	35	4072.38
60	12	1085	52	1829.45
80	21	1056	68	1043.86
100	32	1102	85	679.23
120	44	1116	101	480.65
140	58	1127	117	360.38
160	73	1135	132	281.88
180	88	1152	147	227.69
200	104	1167	161	188.63
220	121	1178	175	159.48
240	138	1192	189	137.11
260	156	1206	202	119.92
280	173	1216	215	105.42
300	191	1223	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	63.86
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) (MEV/C)	T(LAB) (MEV)	INV MASS (MEV)	P(CMS) (MEV/C)	4PILAMBARSQ (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	2052	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	2116	843	6.89
1920	1785	2124	848	6.80
1940	1805	2133	853	6.72
1960	1825	2142	859	6.64
1980	1845	2151	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) (GEV/C)	T(LAB) (GEV)	INV MASS (GEV)	P(CMS) (GEV/C)	4PILAMBARSQ (MB)
3.0	2.86	2.56	1.10	4.04
3.2	3.06	2.62	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	3.02	1.36	2.63
4.6	4.46	3.08	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	3.85	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	6.76	3.32	.44
26.0	25.86	7.02	3.46	.41
28.0	27.86	7.21	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
300.0	299.86	23.65	15.31	.02

πN TWO-BODY SCATTERING DATA: I. A USER'S GUIDE TO THE LOVELACE-ALMEHED DATA TAPE

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ABSTRACT - Approximately 25 000 πN elastic and charge-exchange data compiled on the Lovelace-Almehed data tape are displayed graphically. The cutoff date of this compilation effort is September 1972.

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Section I.

INTRODUCTION

I. Introduction

This is the first in a series of reports on Stable 2-body (S2) scattering data compiled by the Particle Data Group (PDG). In this series we collect and display differential cross-section and polarization data on S2 reactions as well as data on some of the closely related channel cross sections (e.g., total cross sections). Each report will be accompanied by a BCD magnetic data tape in a simple standardized card-image format.

The system for producing these S2 reports and tapes consists of several fairly distinct parts which are not as yet completely developed. The first stage is the collection of existing data compilations into an "external tape library." Next, these will be updated and corrected where necessary, and the S2 data will be incorporated into a new computerized "data-and-documents system" (DDS) currently under conatruction by the PDG. Finally, the S2 tapes will be produced directly from the DDS data store.

The preparation of data for storage in DDS (and development of DDS itself) are being actively pursued by the PDG, and we have collected an external tape library whose contents are listed in Table I. Copies of the external tapes contributed so far are available to interested users, and we have decided that, rather than waiting for the completion of our whole vast system before producing any of the S2 series, it would be useful to produce some (perhaps only one) user's guides to existing external tapes. We have chosen the Lovelace-Almehed data tape for our first user's guide since it is quite up to date and covers the most extensively measured S2 reactions, πN elastic and charge-exchange scattering.

This book does not contain tables of the πN data on the Lovelace-Almehed tape. Users who want tables of the data will be sent a microfiche copy of a listing of tbe tape on request. Users who want a copy of the πN data tape itself should send a blank tape along with their request to the PDG. We can also provide the KN and $\bar{K}N$ data from the original Lovelace-Almehed tape (See Table I) to interested users.

Acknowledgment

Many of our colleagues in the PDG have provided much-appreciated advice and encouragement during the preparation of this book. We would particularly like to thank Professor A. H. Rosenfeld for useful comments, Dr. Alan Rittenberg for his careful reading of this book, Dr. David Richards for helping with the text, Ms. Marjorie Hutchinson for her programming assistance, and Betty Armstrong for handling the physical composition of the book.

Table I. Current holdings of the PDG external tape library.

Tape	Document	Beam	Momentum[a] (GeV/C)	Target	Final states[b]	Number of data (*in 1000's*)
WAGNER 72		π		p	$K\Sigma$	1
LOVELACE 71	LBL-63 (This book)	π	ALL	p, n	T, E, C, S2	25
		K	> 0.5	p	T, E, C, S2	4
		$\bar{K}$	> 2	p, n	T, E, C, S2	1.5
WAGNER 71		$\bar{K}$	< 2	p, n	T, E, C, S	17
		K	< 3.5	p, n	T, E, C	3
		π	> 1	p	Assoc. Prdtn.	2
HERA 70	CERN/HERA 70-6	K^-	ALL	p, n, d	All channel cross sections	3.0
	CERN/HERA 70-7	π^-	ALL	p, n, d, He		2.7
	CERN/HERA 70-5	π^+	ALL	p, n, d, He		1.5
	CERN/HERA 70-3	p	ALL	p, n, d		1.0
	CERN/HERA 70-2	p	ALL	p, n, d, He		0.9
	CERN/HERA 70-4	K^+	ALL	p, n, d		0.9
ROPER 70	VPUKNA - 2(70) (VPI and SU preprint)	$\bar{K}$	< 2.5	p, n	T, E, C, S2, Q2	8
SPILLANTINI 70	CERN/HERA 70-1	γ	< 1.5	p, n	πN	5
GIACOMELLI 69	CERN/HERA 69-1	π	ALL	p	πN	8

[a] ALL = coverage of all beam momenta available at time of compilation.

[b] T = total c. s., E = elastic, C = charge exchange, S2 = other S2, Q2 = quasi two-body.

Section II.

SELECTED FIGURES OF πN DATA

II. Selected Figures of πN Data

A. Introduction

The Lovelace-Almehed data tape contains data on πN elastic and charge-exchange scattering:

- differential cross section
- polarization
- total and elastic cross sections
- real parts of forward amplitudes.

The main body of the tape is complete through September 1971; we have added πN elastic and charge-exchange data published between September 1971 and approximately September 1972 at the back of the tape.

The figures in this section show a selected set of data from the tape. In the case of angular distribution data we have selected data for the graphs according to the following two rules:

1) Only data published in a journal or thesis are plotted. Our definition of "published" includes cases where actual tables of data are available only in unpublished form, but where there exists a journal article or thesis describing the experiment and the final results.

2) Experiments reporting only a few data points in regions where abundant data exist have been omitted, at our discretion, for reasons of composition.

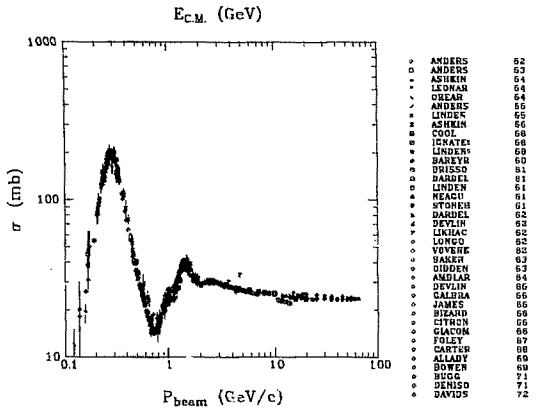
3) The small amount of data on $\pi^+ n$ and $\pi^- n$ reactions has been plotted as if it were on the corresponding charge symmetric $\pi^- p$ and $\pi^+ p$ reactions.

Concerning other types of data, we have plotted total cross sections but omitted the small amount of data on total elastic cross sections. Forward real parts calculated recently from dispersion relations by G. Höhler and H. Jakob (private communication) have been added to the back of the tape, and are plotted here.

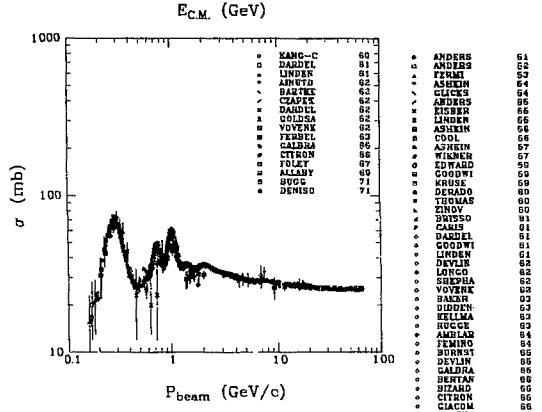
On the figures each data set is labeled with a Source ID specific to the reference from which the data was obtained. These ID's and the corresponding references are listed in the Source Index at the back of this book. Unplotted data are indicated on the figures by arrows between data sets at neighboring momenta. Their references can be tracked down by first consulting the Momentum Index at the back of this book to find the appropriate Source ID, and then finding the ID in the Source Index.

1. Total Cross Sections

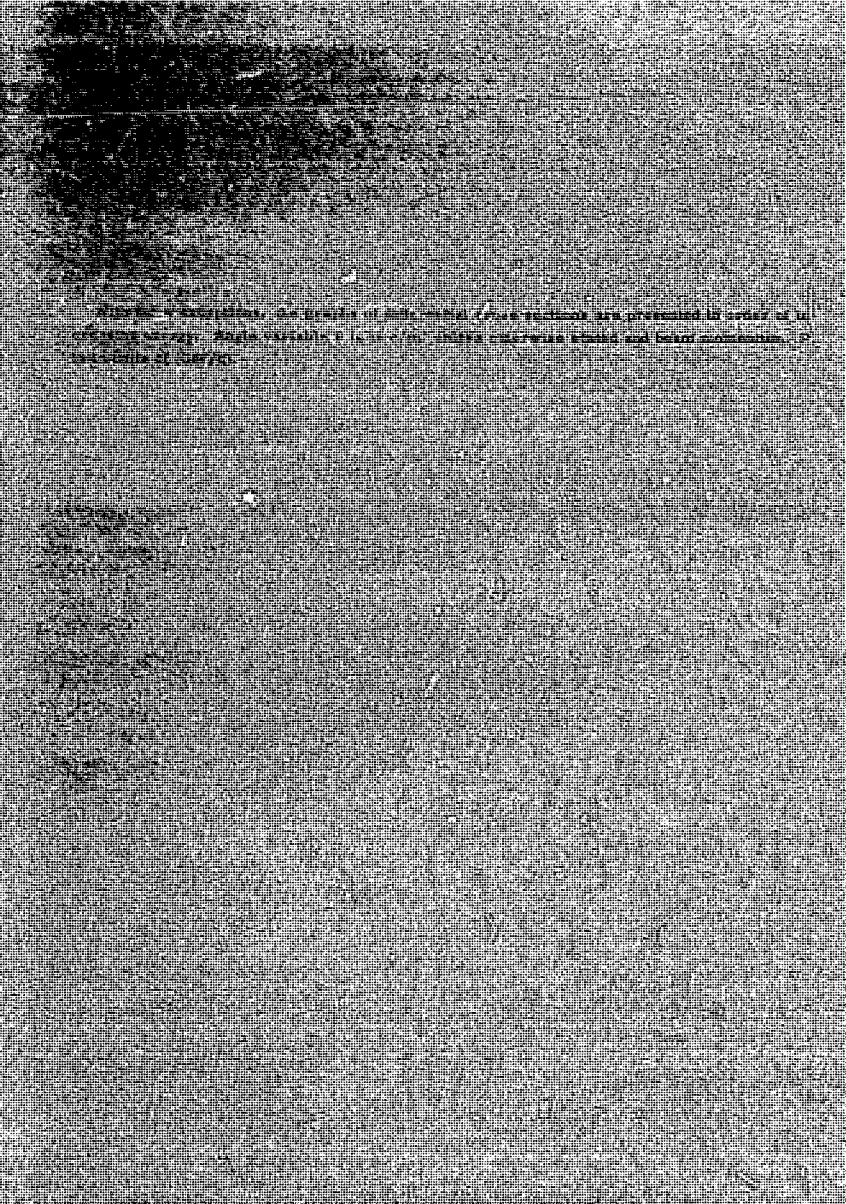
π^+p total cross section



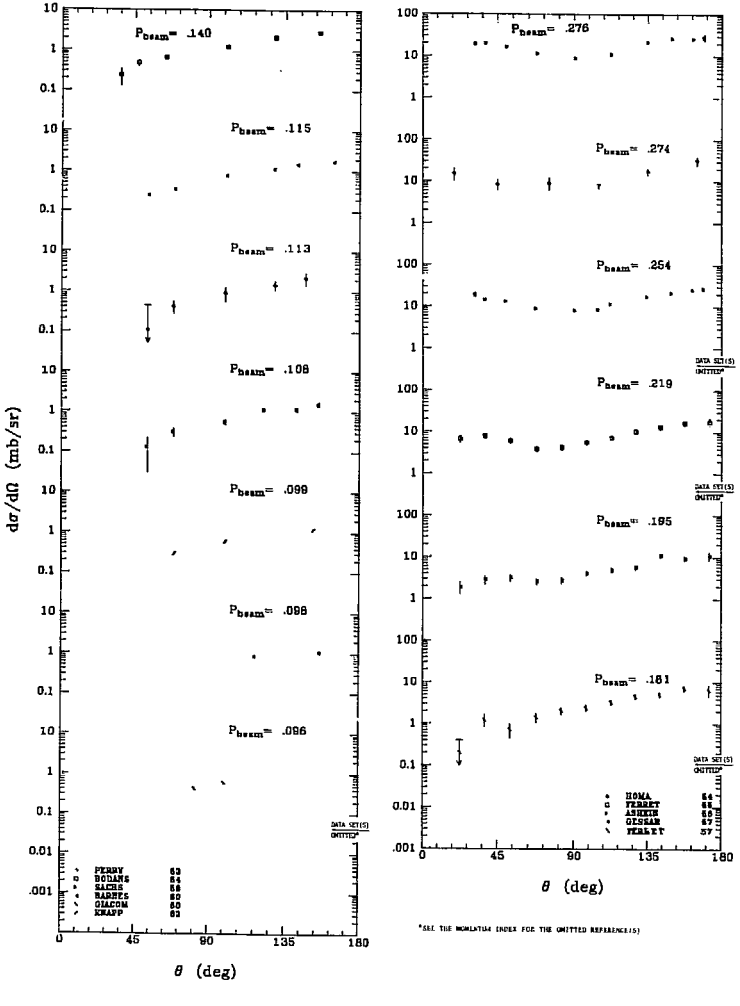
π^-p total cross section



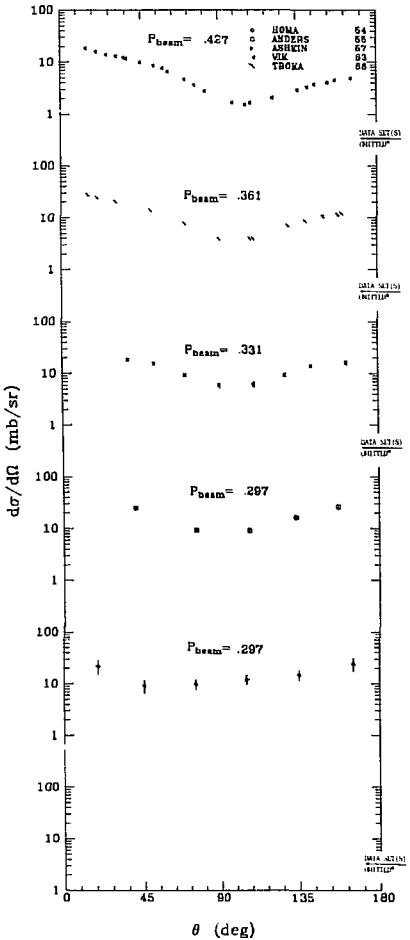
2. Differential Cross Sections



π^+p elastic differential cross section

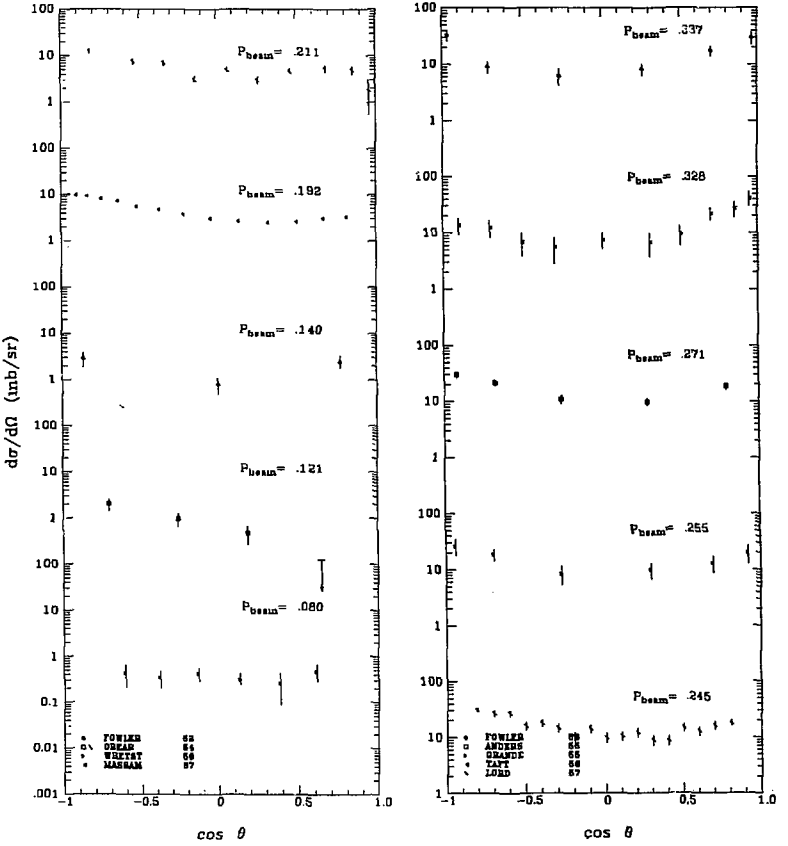


π^+p elastic differential cross section*

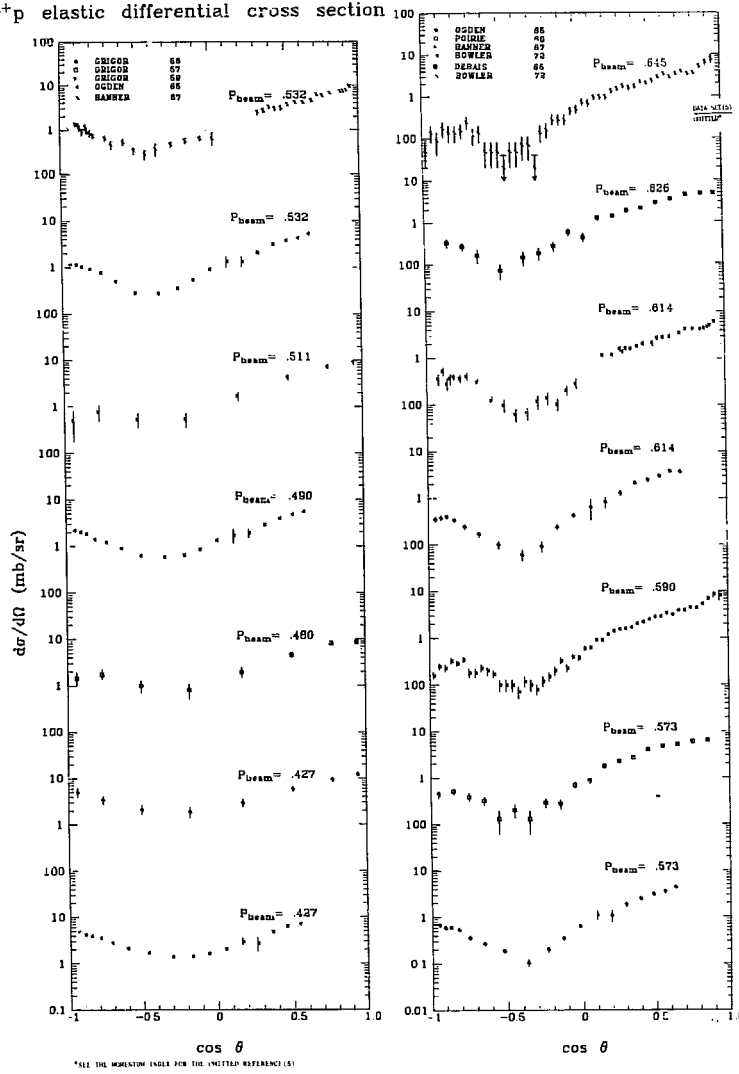


*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^+p elastic differential cross section

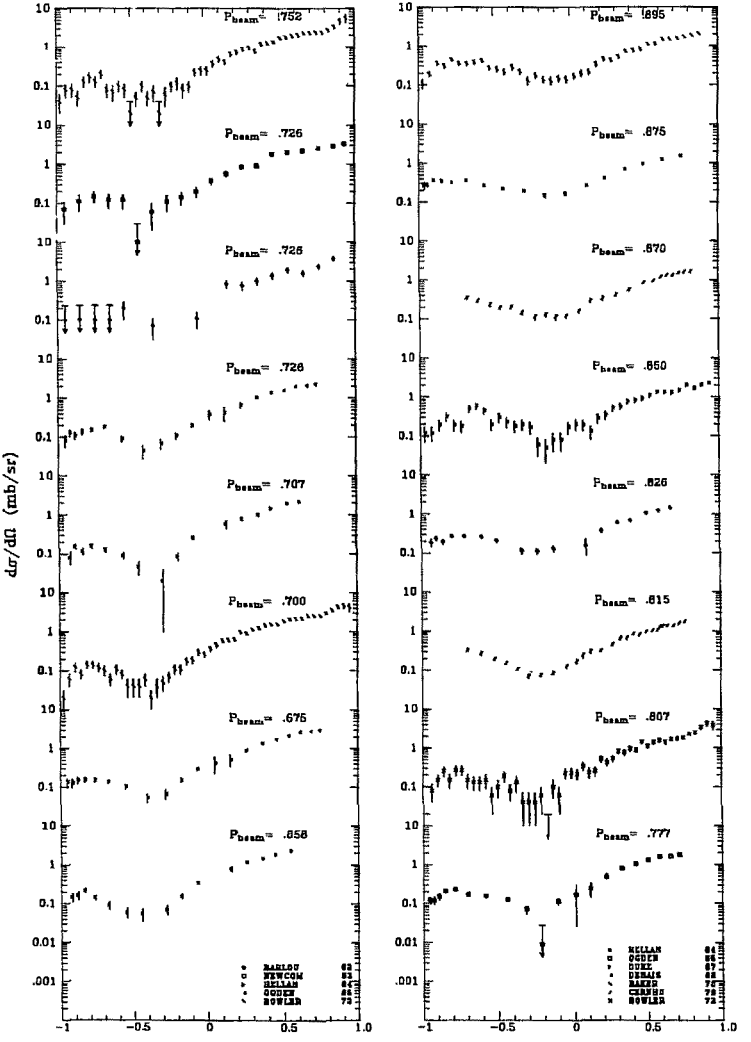


π^+p elastic differential cross section

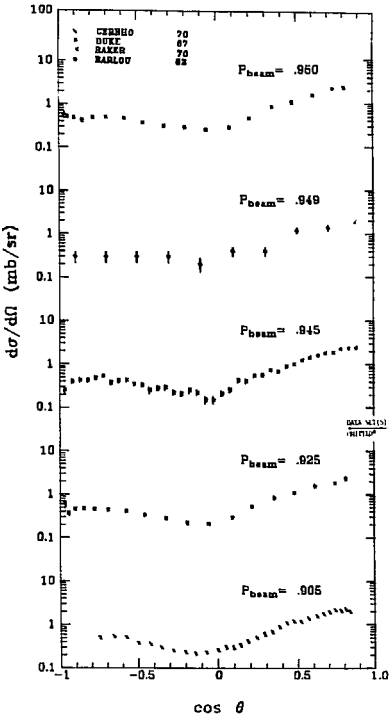


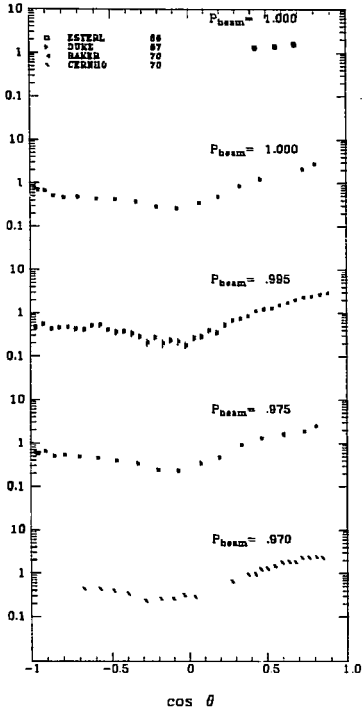
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^+p elastic differential cross section



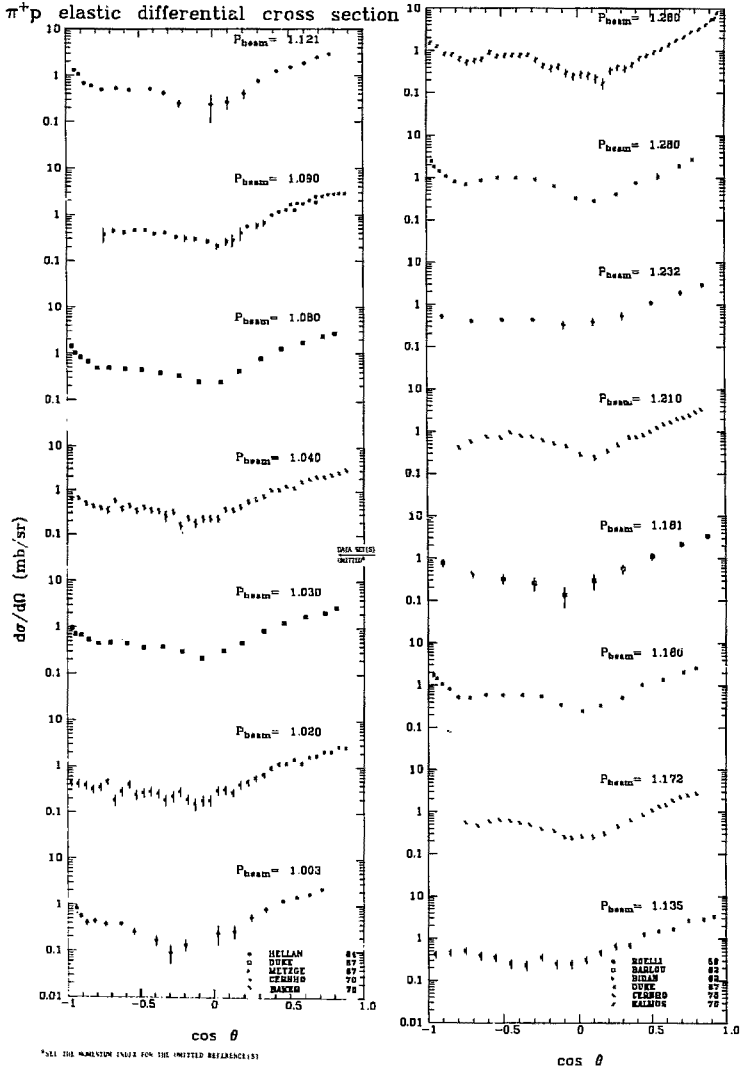
π^+p elastic differential cross section





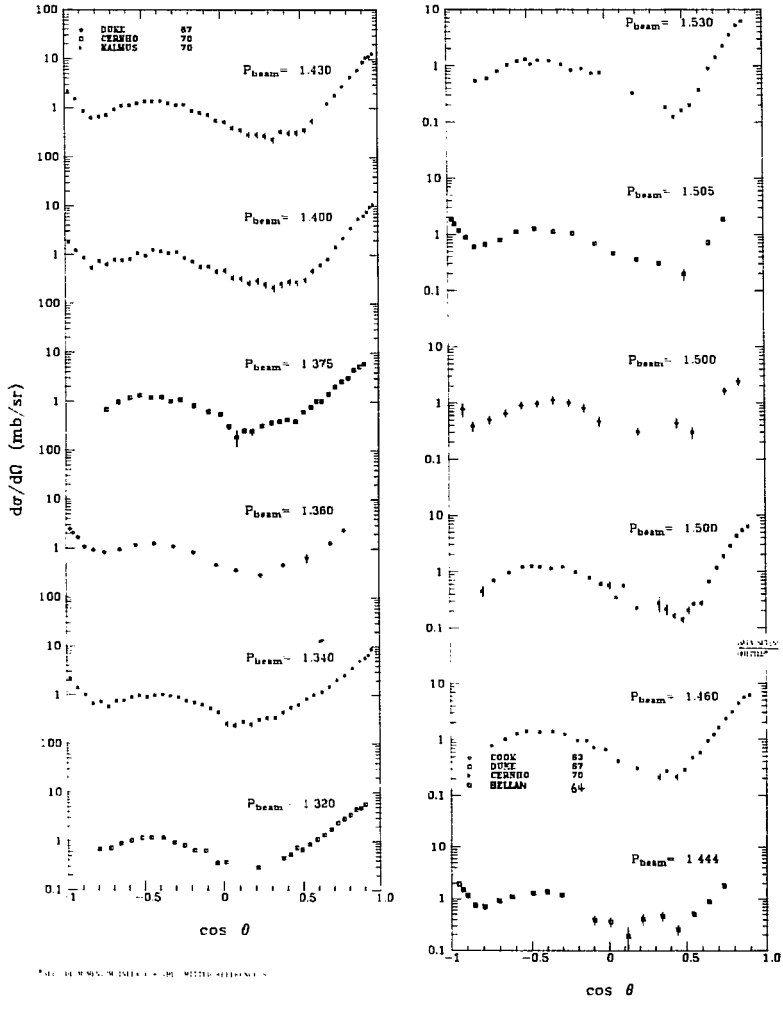
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCES!

π^+p elastic differential cross section

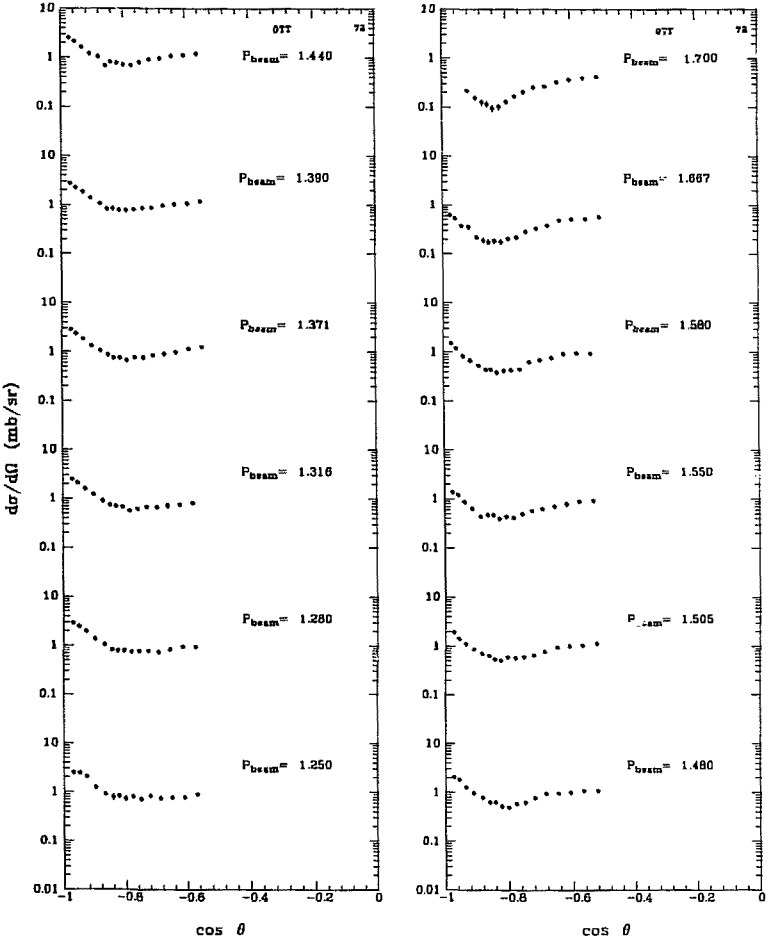


*SEE THE SOLUTION INDEX FOR THE OMITTED REFERENCE(S)

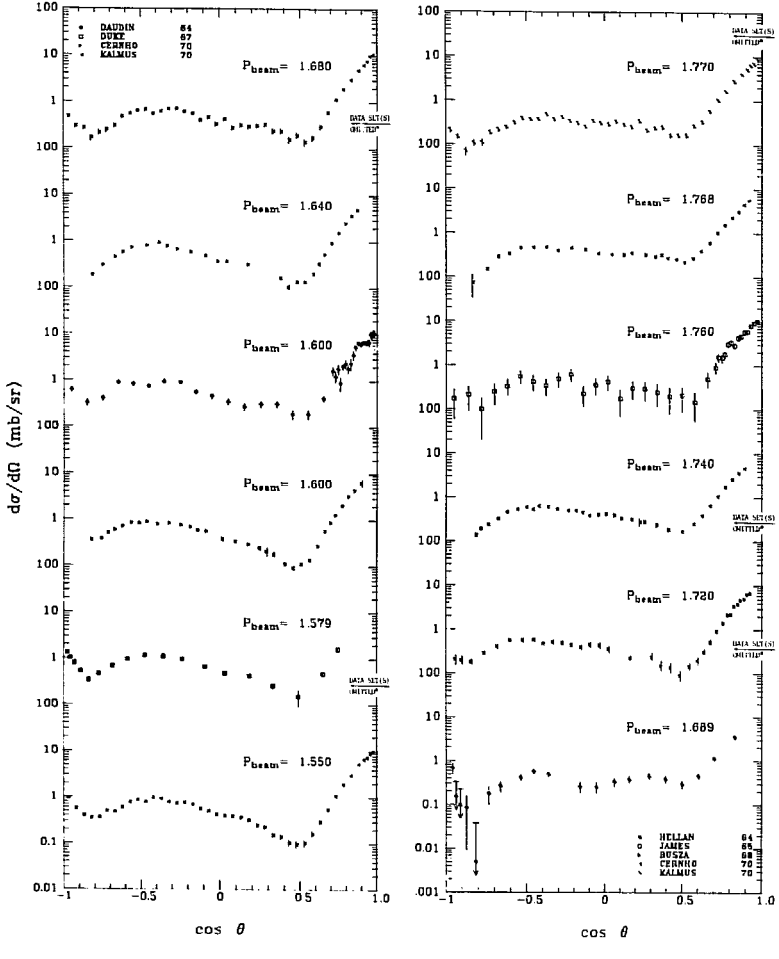
$\pi^+ p$ elastic differential cross section



π^+p Backward elastic differential cross section

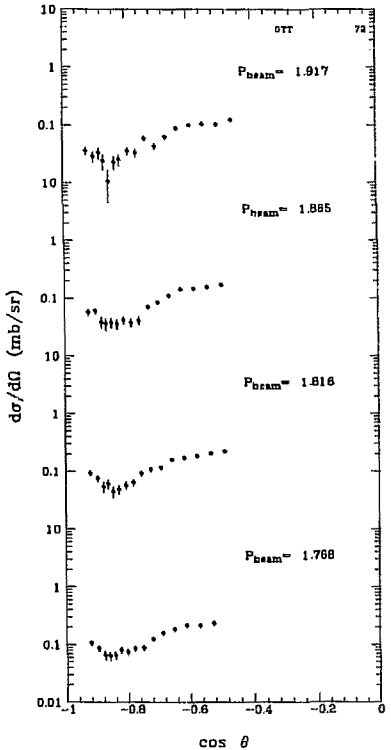


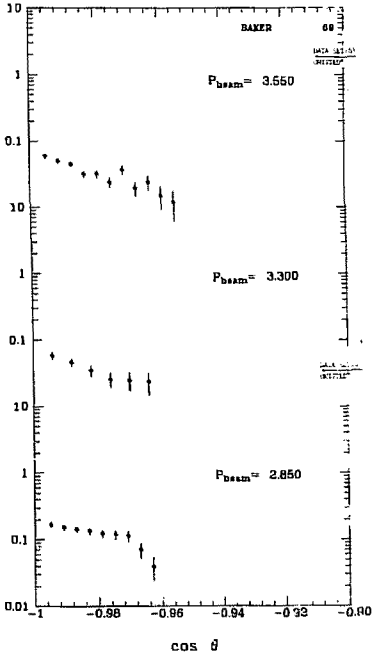
π^+p elastic differential cross section



*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

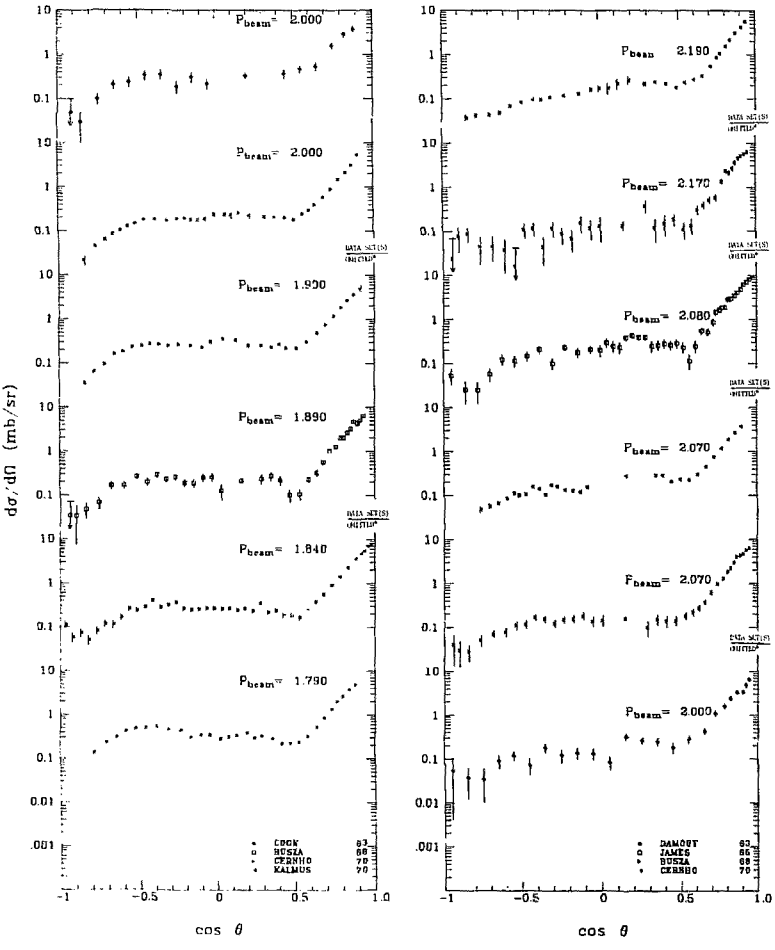
π^+p Backward elastic differential cross section





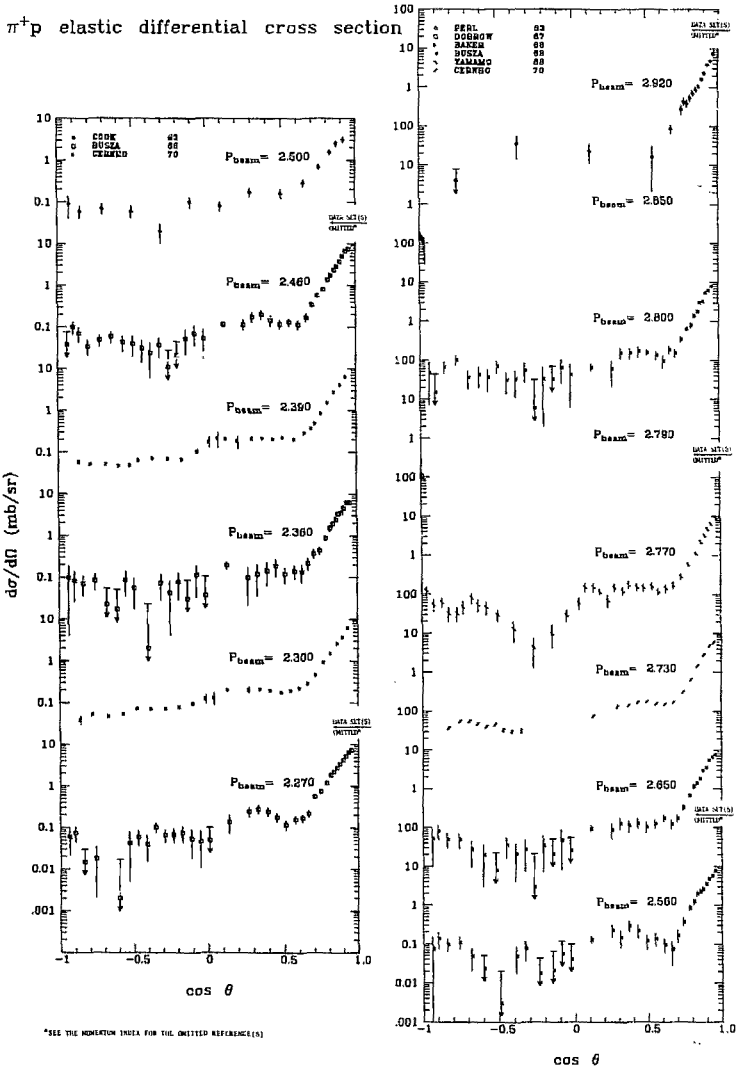
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^+p elastic differential cross section



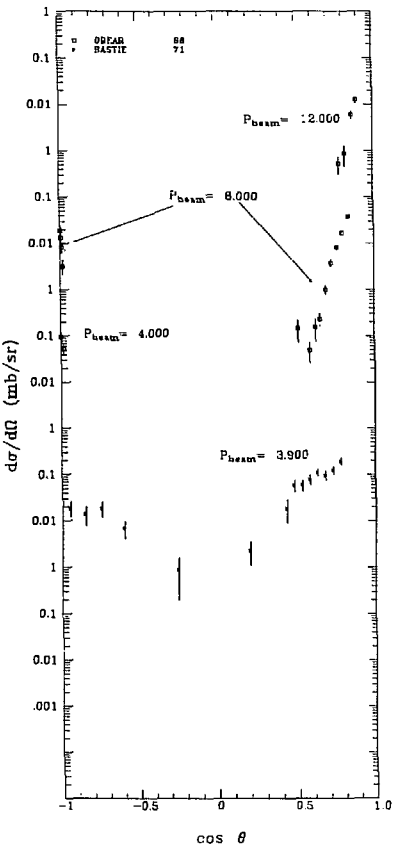
*SEE THE SUMMARY TABLE FOR THE OMITTED REFERENCES

π^+p elastic differential cross section

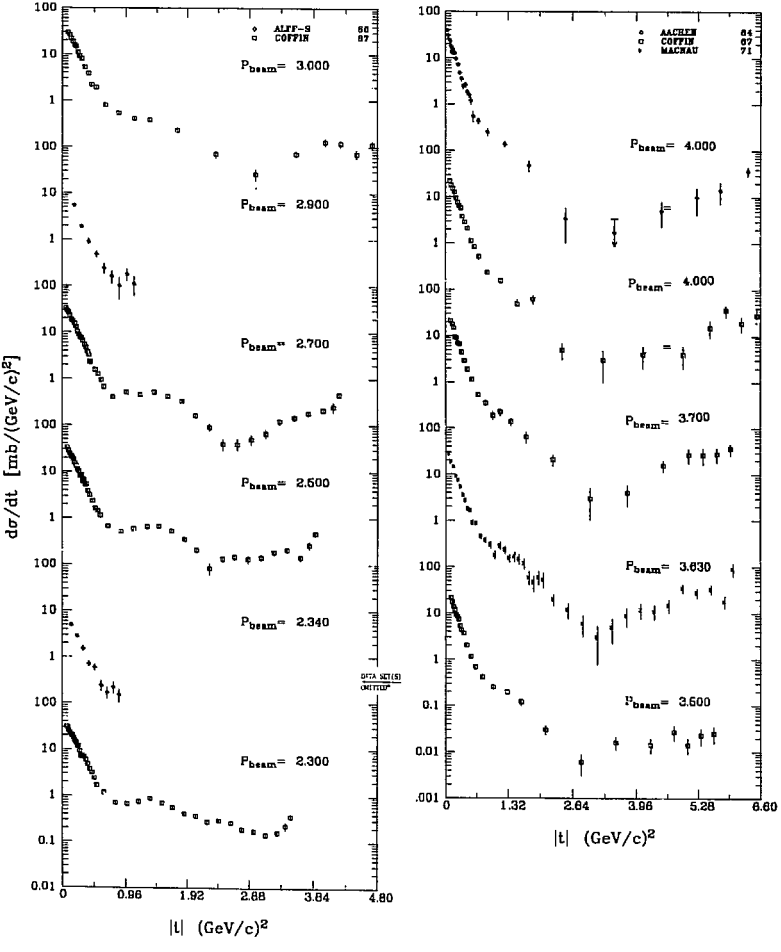


*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^+p elastic differential cross section

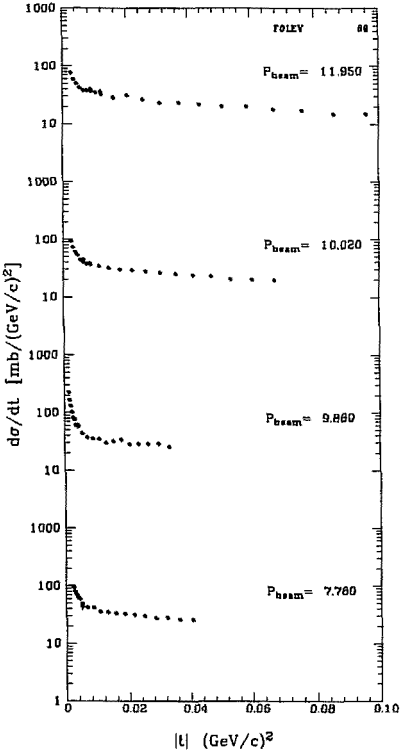


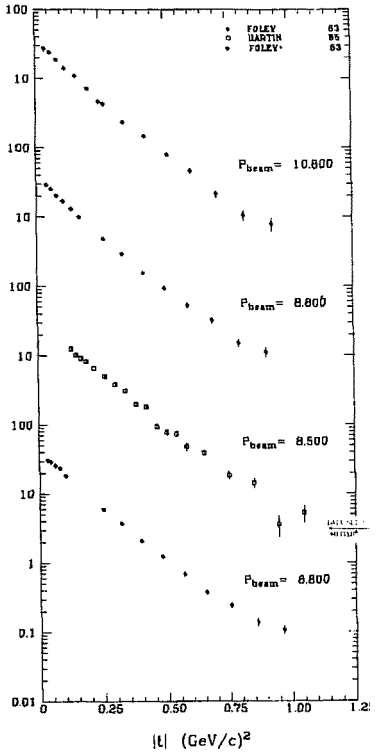
π^+p elastic differential cross section



*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

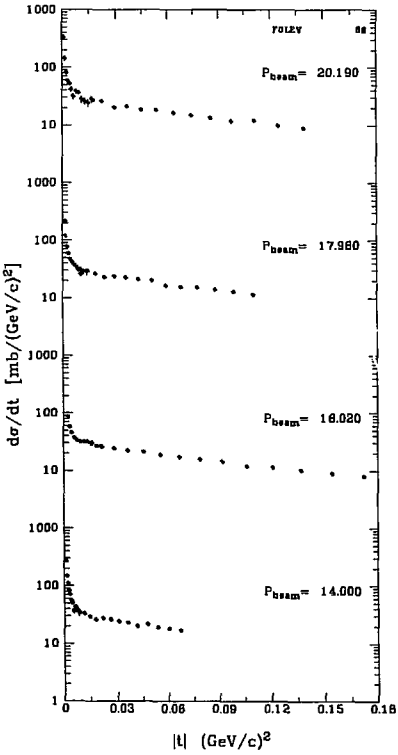
π^+p elastic differential cross section

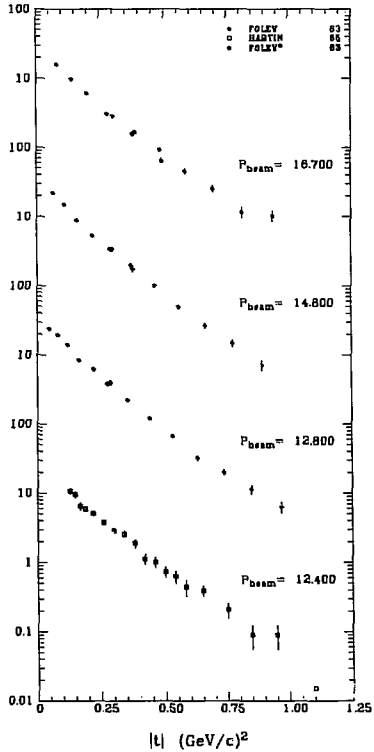




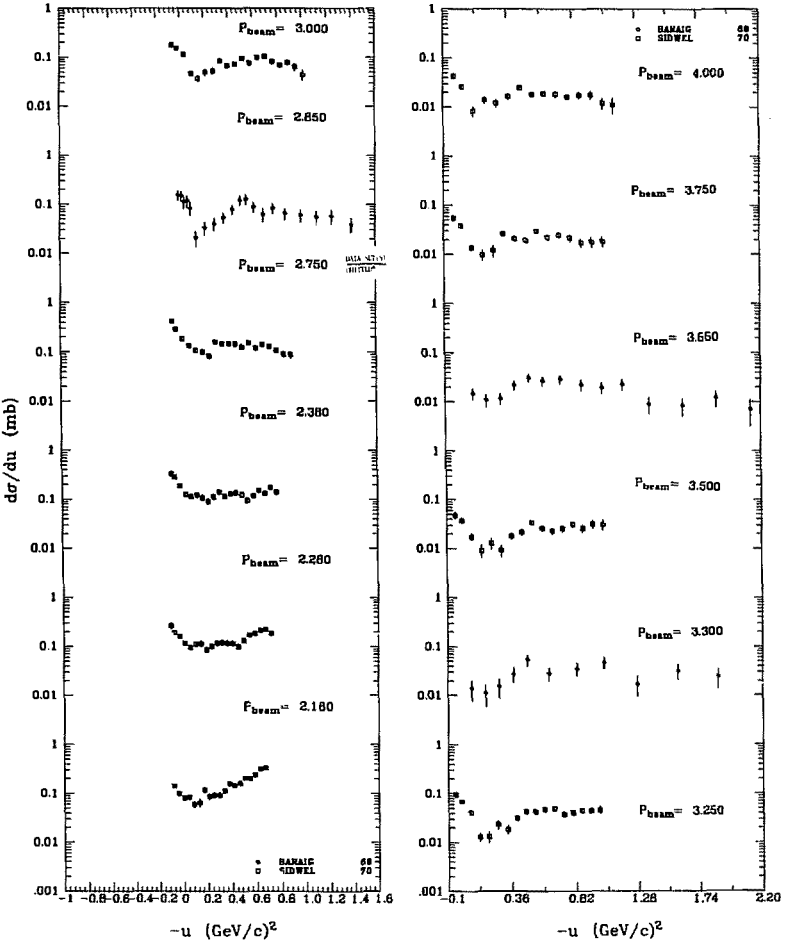
*SEE THE NOMENCLATURE INDEX FOR THE CITED REFERENCE(S)

π^+p elastic differential cross section

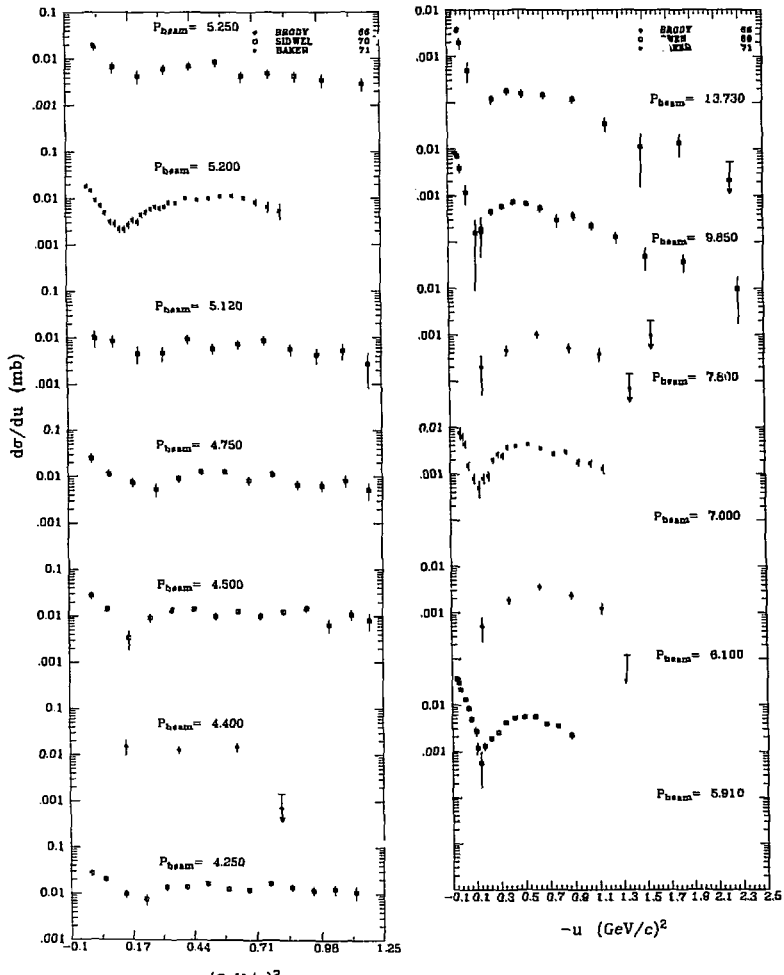




π^+p elastic differential cross section

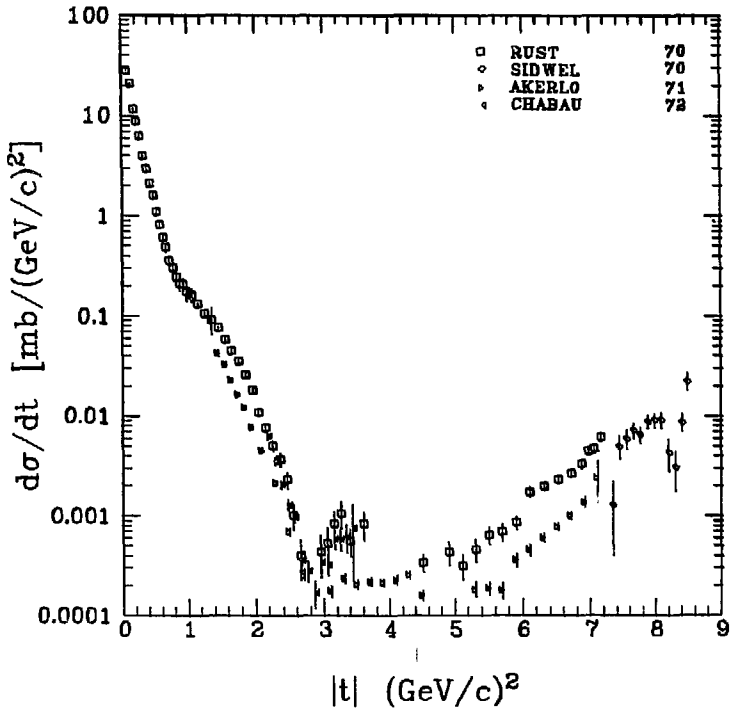


π^+p elastic differential cross section



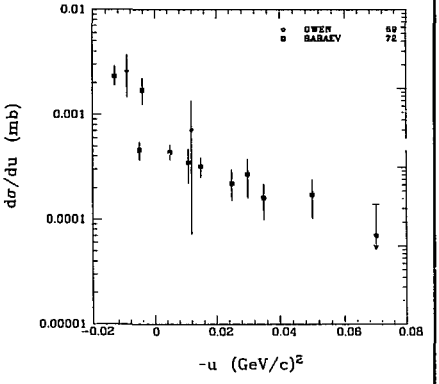
π^+p elastic differential cross section

P_{beam}= 5.GeV



π^+p cross section from four different experiments covering the full angular range at 5 GeV/c.

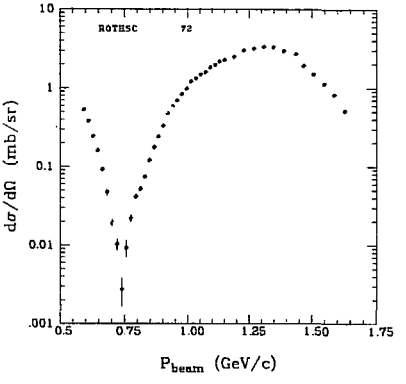
π^+p elastic differential cross section



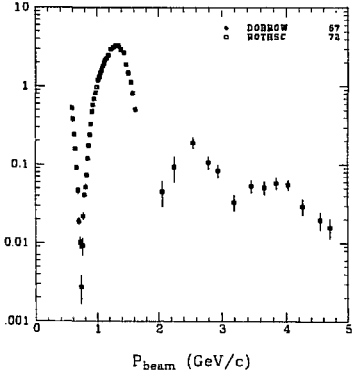
Differential cross sections from Owen et al. at 17.07 GeV/c and Babaev et al. at 23 and 40 GeV/c.

Backward elastic differential cross section

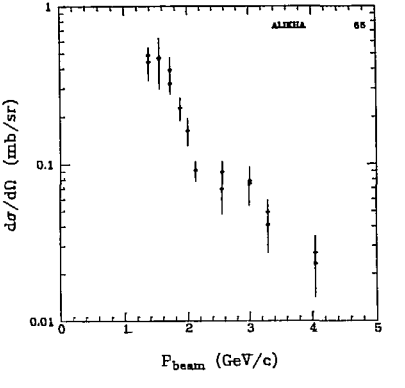
cos θ = -1.0



cos θ < -0.995

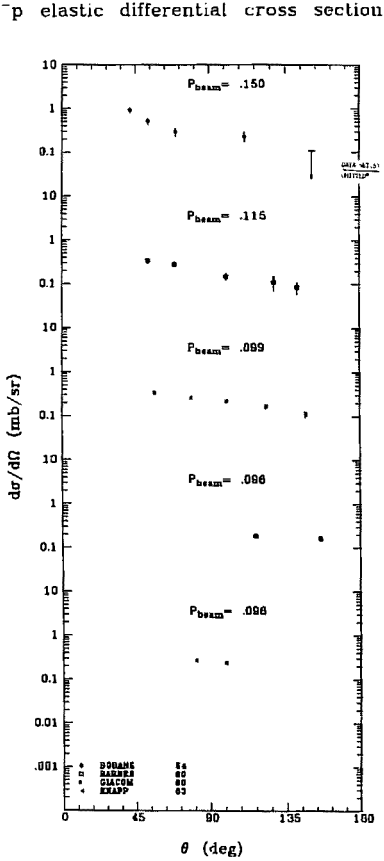


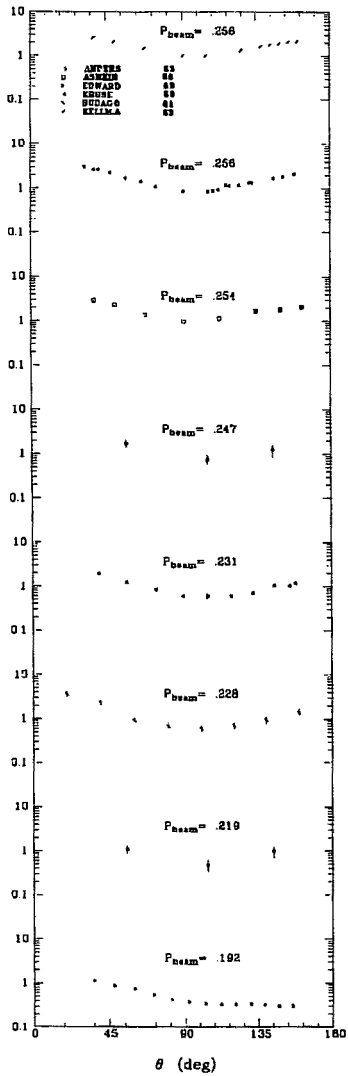
θ = 170°



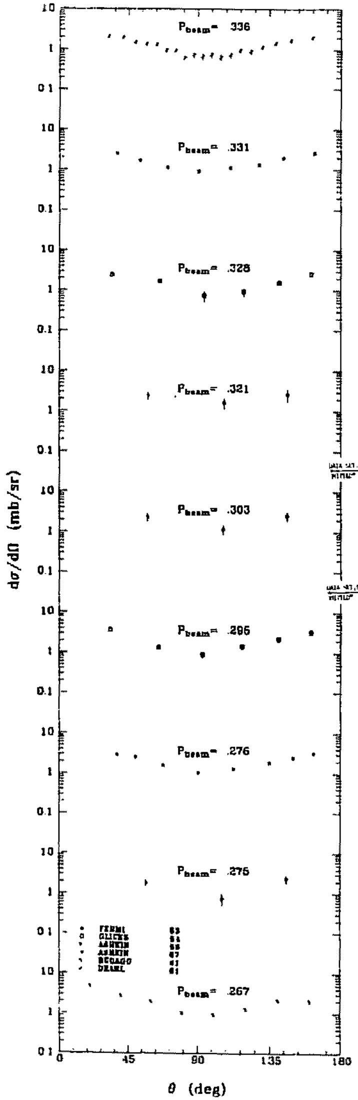
There are two data points at several energies. One is measured off a neutron in ^{16}O and the other is obtained from the difference between D_2O and H_2O cross sections.

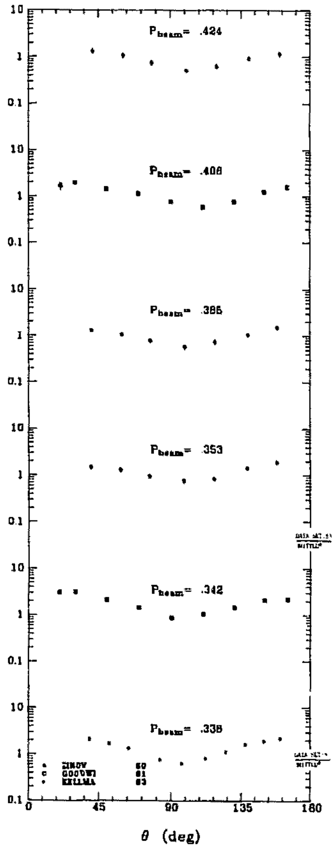
π^-p elastic differential cross section



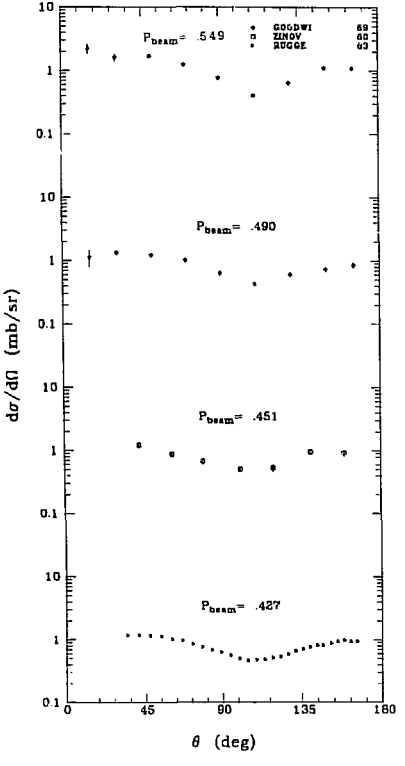


$\pi^{-}p$ elastic differential cross section

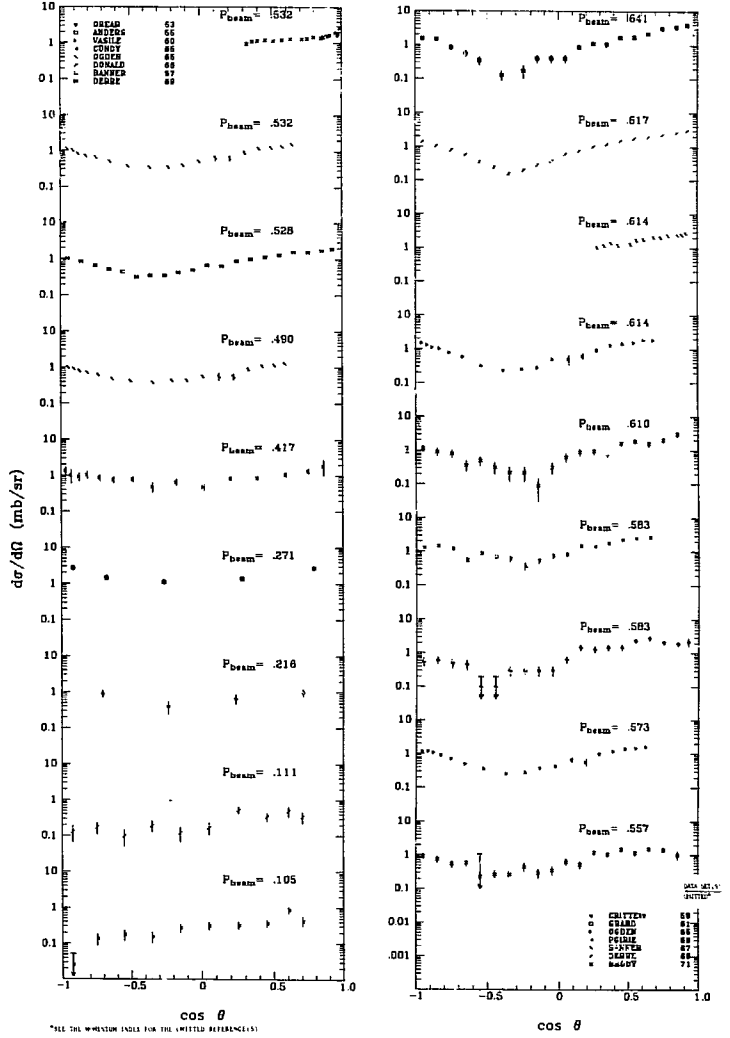




π^-p elastic differential cross section

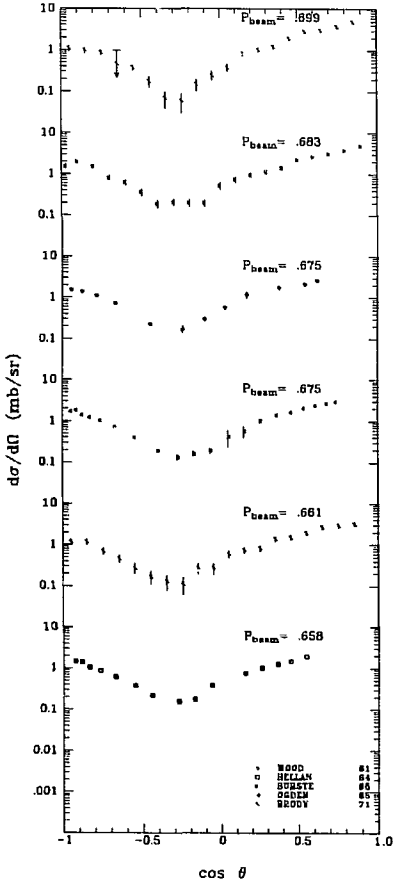


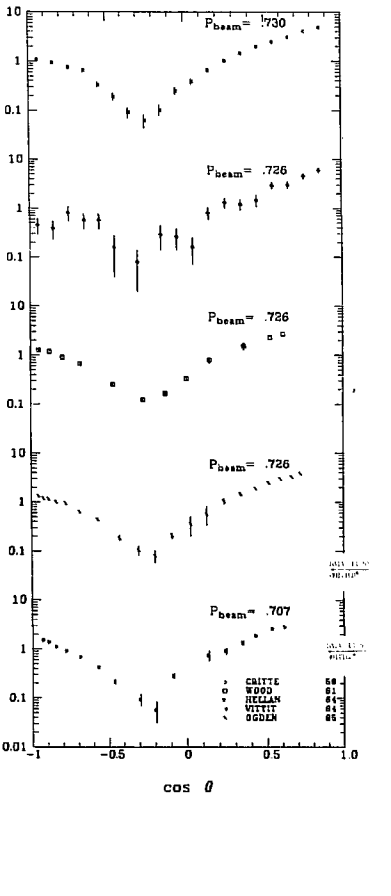
π^-p elastic differential cross section



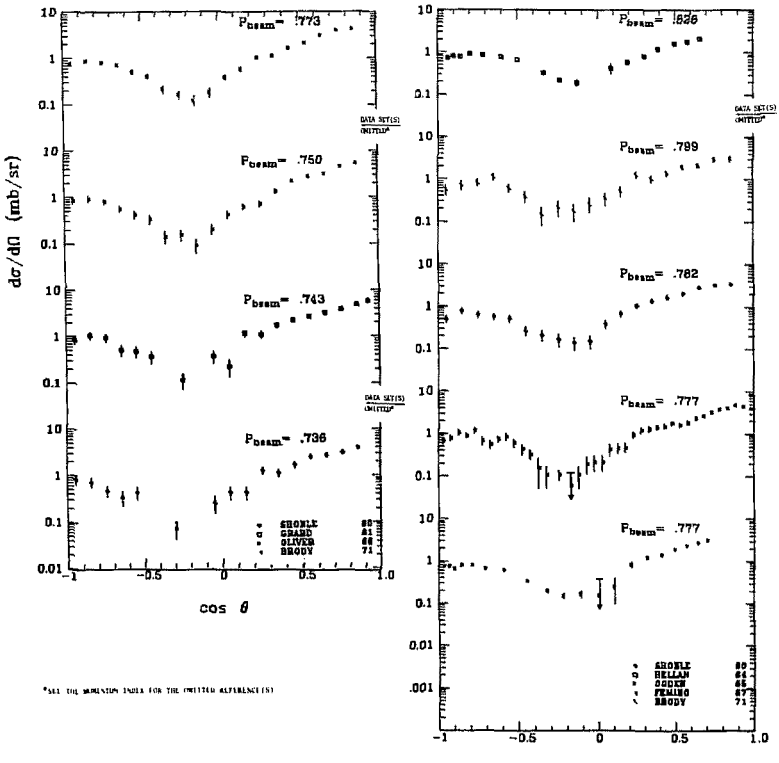
*SEE THE MOMENTUM TABLE FOR THE UNSTABLE REFERENCE(S)

$\pi^- p$ elastic differential cross section



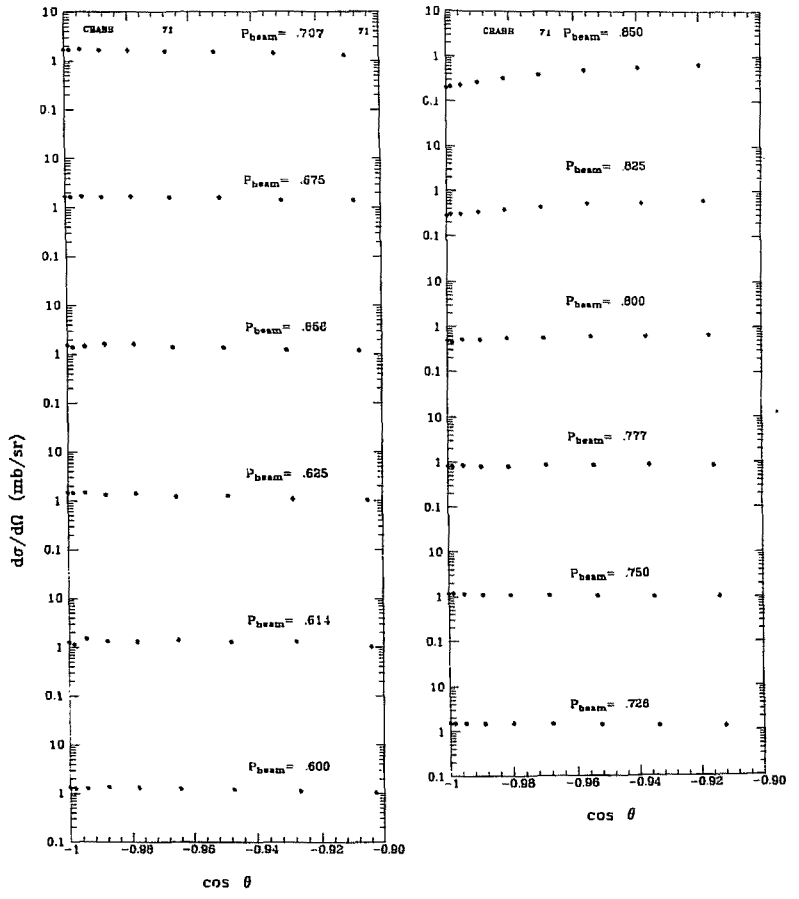


π^-p elastic differential cross section

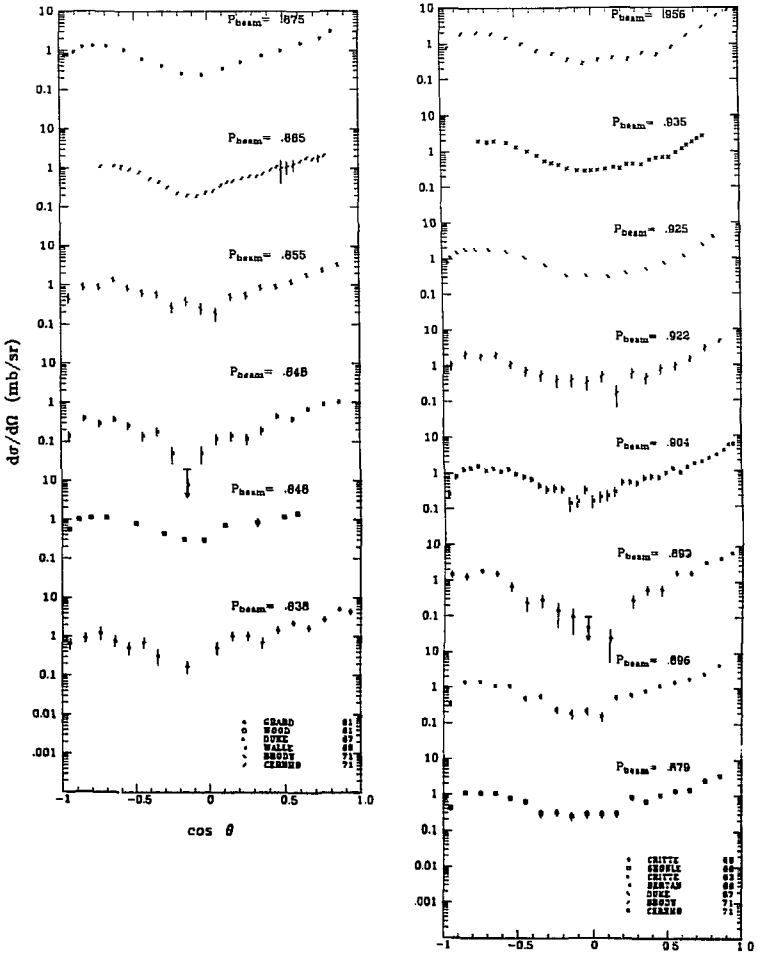


*SEE THE MOMENTUM TABLE FOR THE OMITTED REFERENCE(S)

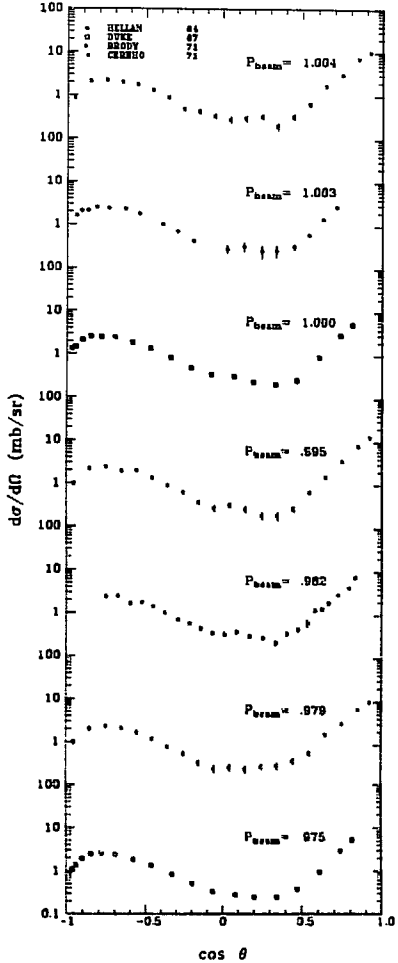
π^-p elastic differential cross section

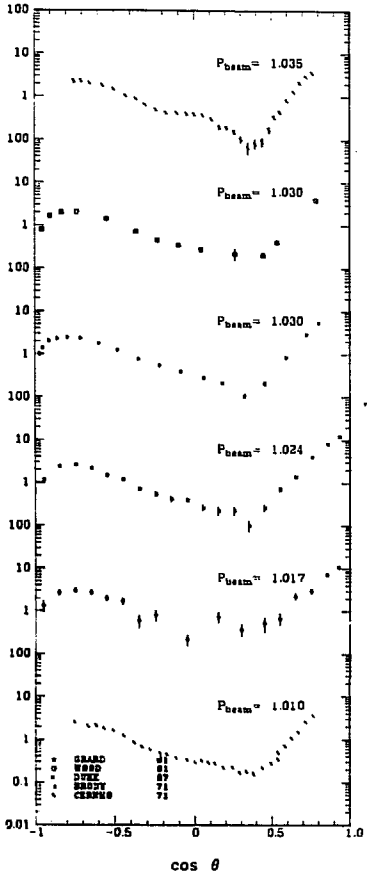


π^-p elastic differential cross section

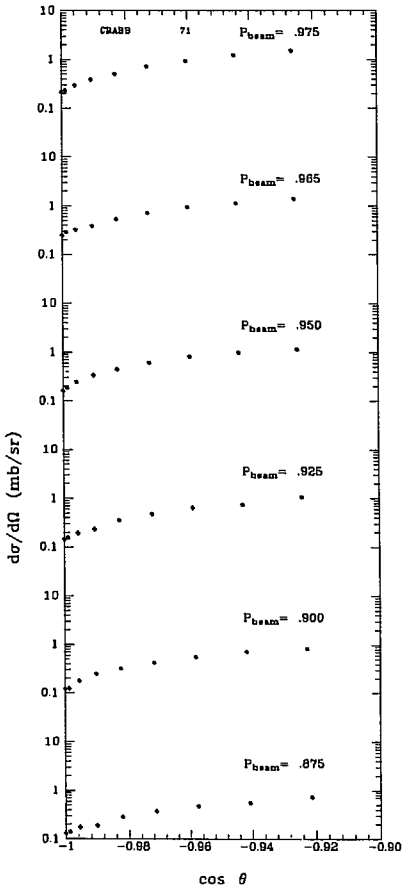


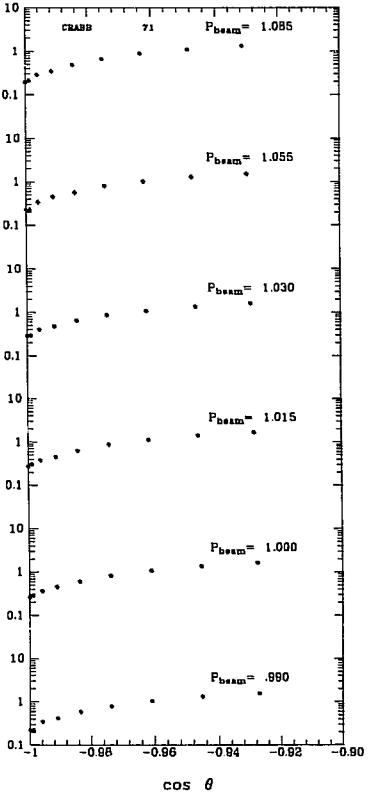
π^-p elastic differential cross section



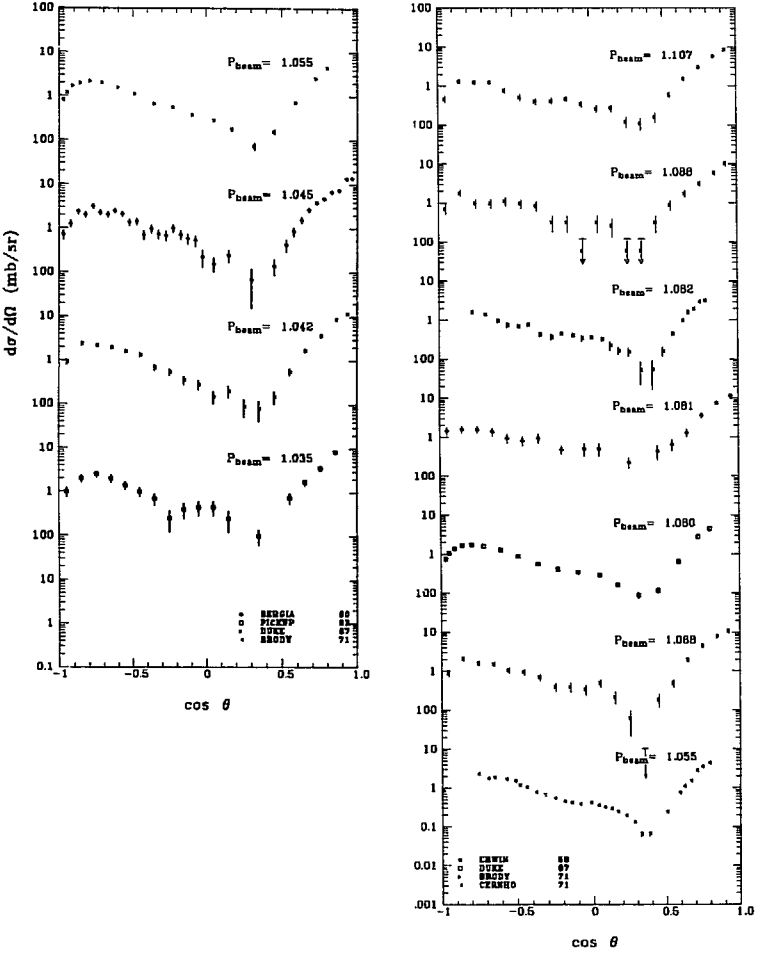


π^-p elastic differential cross section

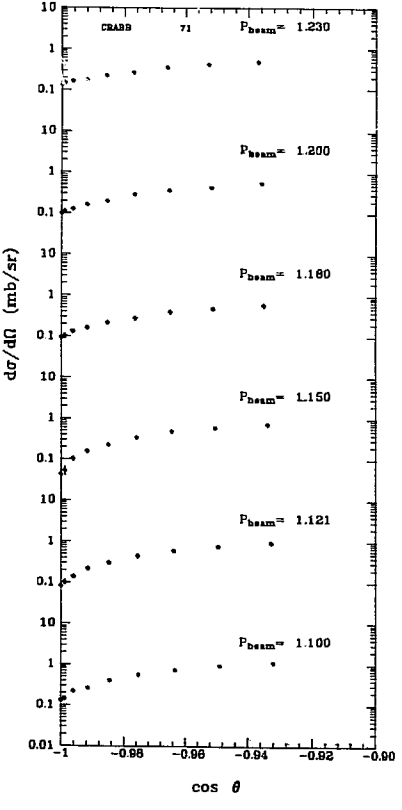


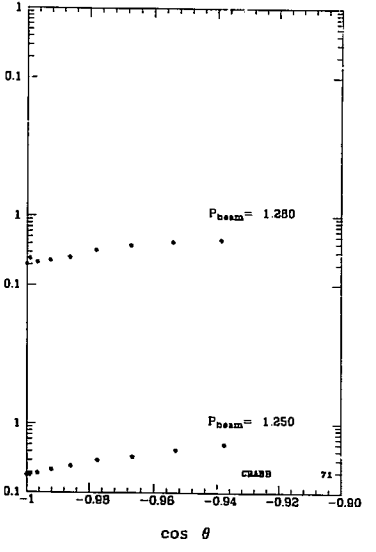


π^-p elastic differential cross section

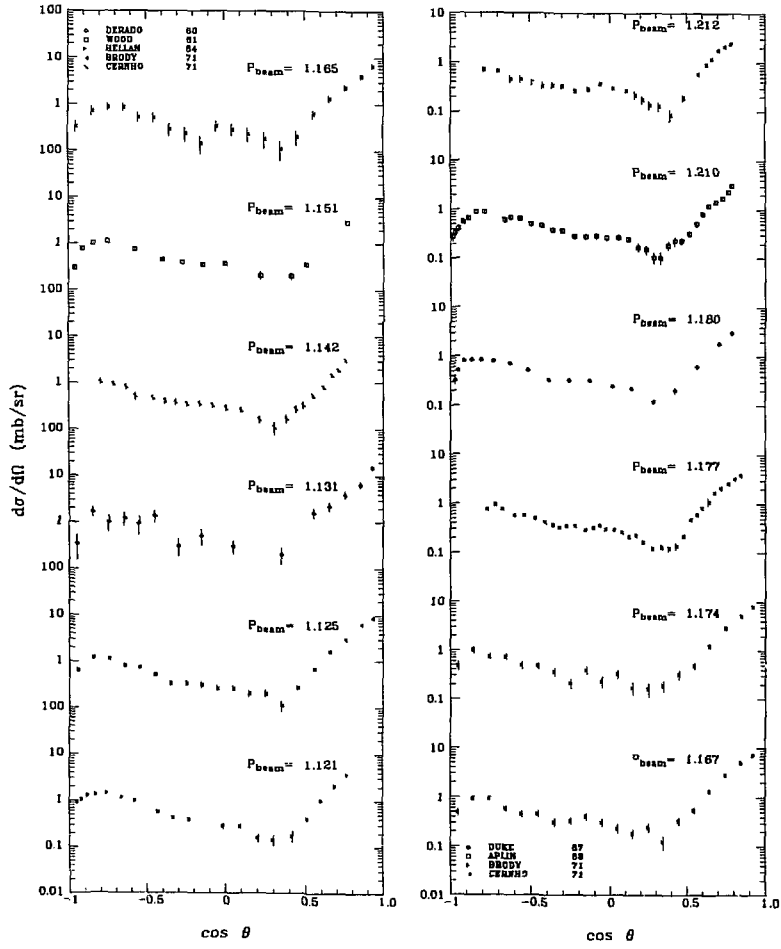


π^-p elastic differential cross section

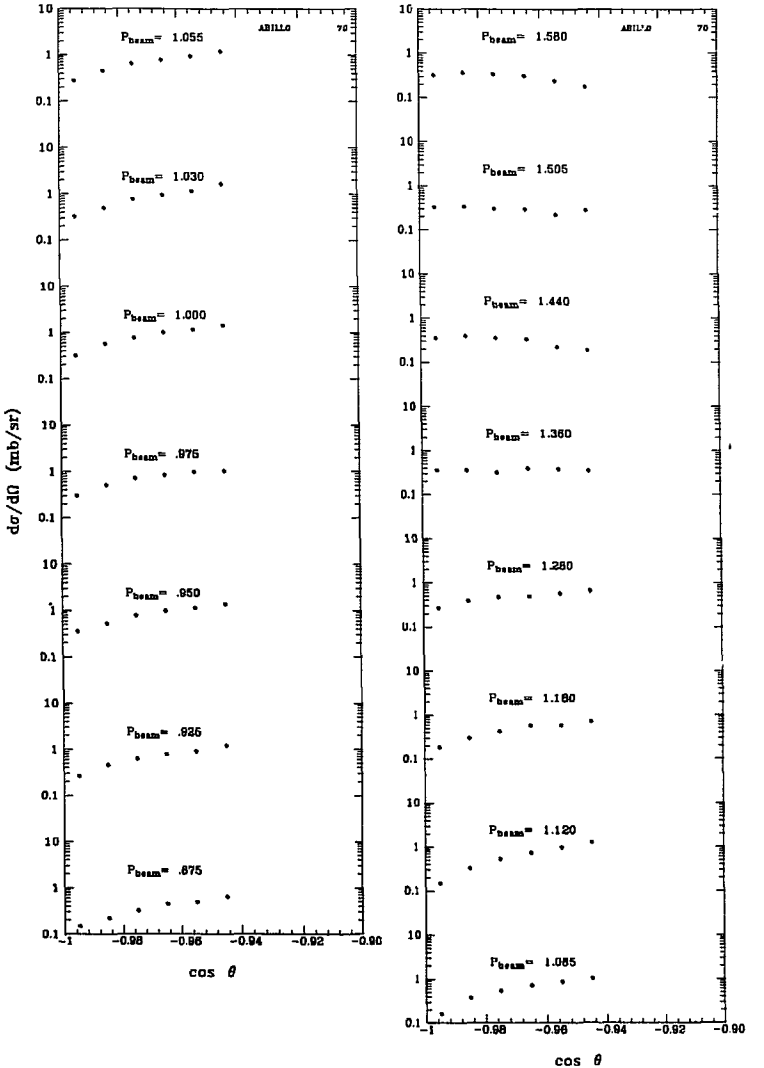




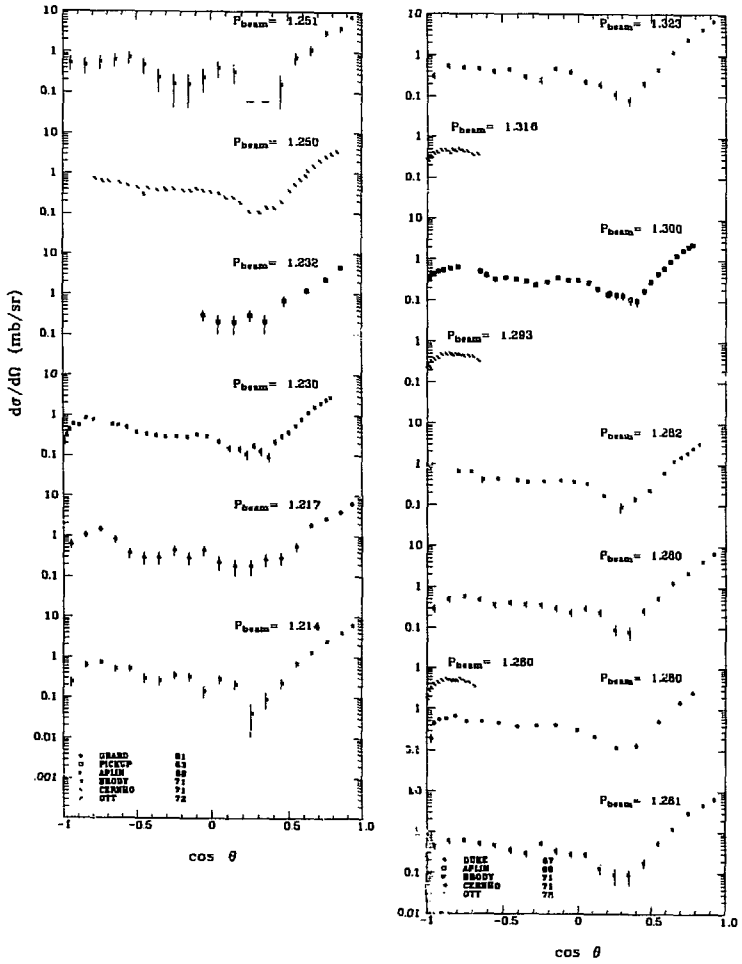
π^-p elastic differential cross section



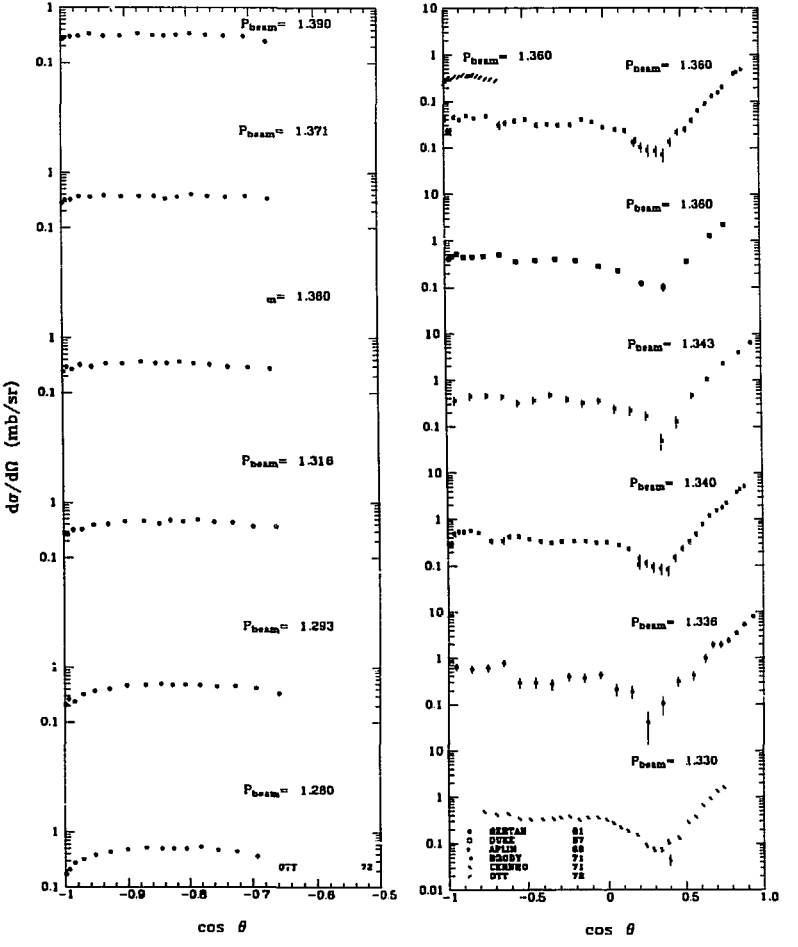
π^-p elastic differential cross section



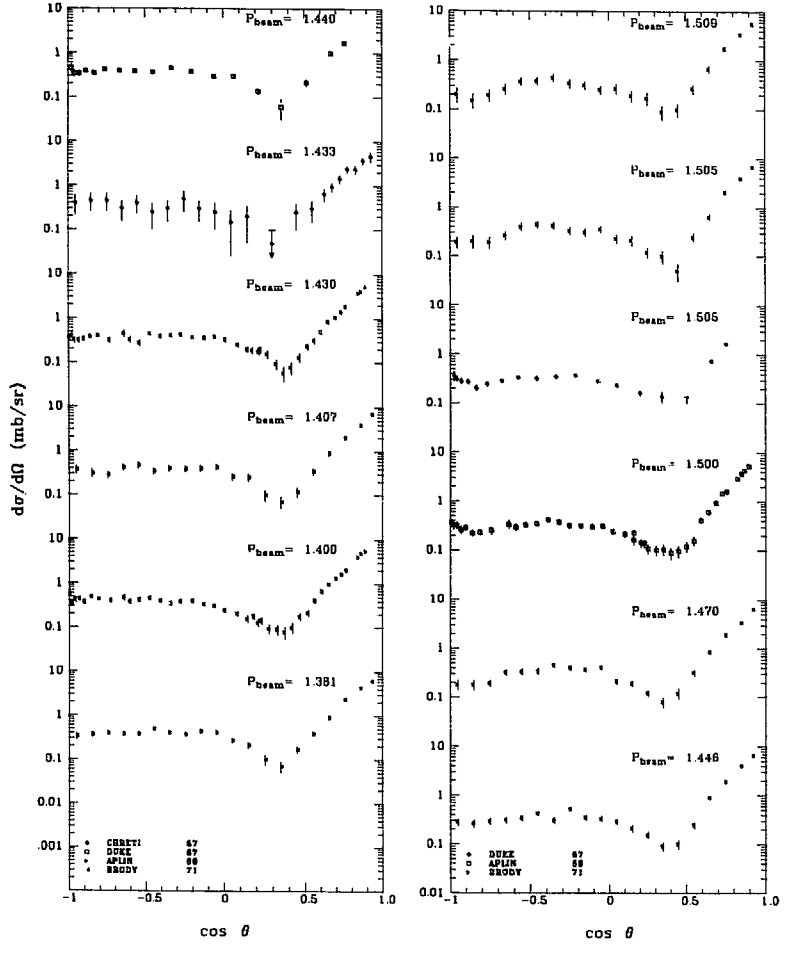
π^-p elastic differential cross section



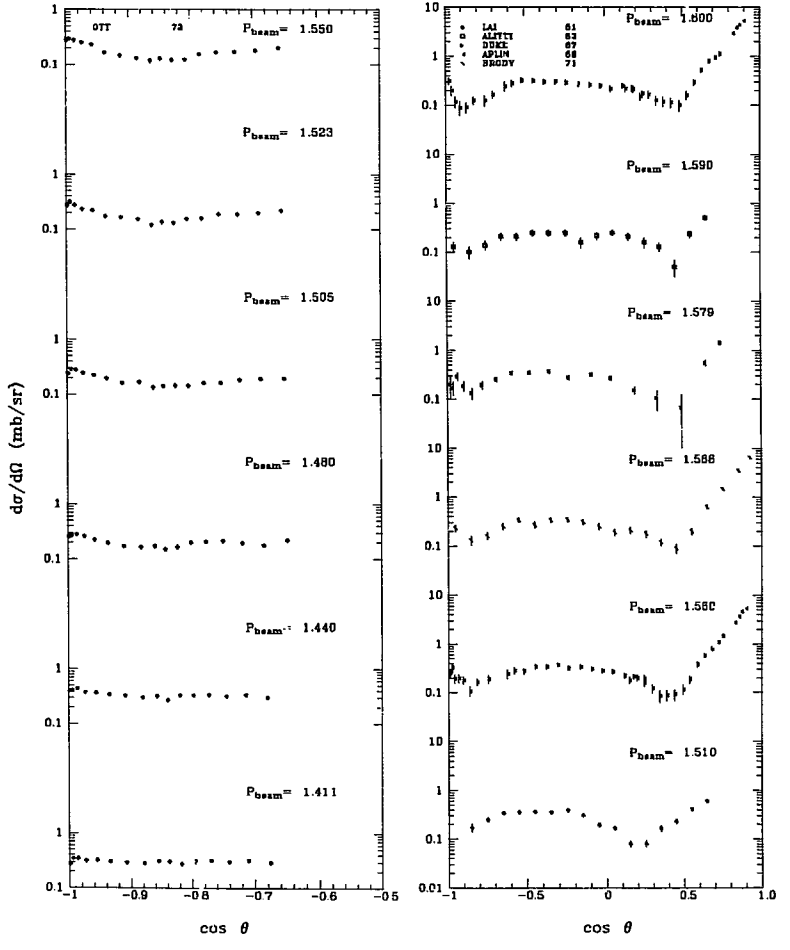
π^-p elastic differential cross section



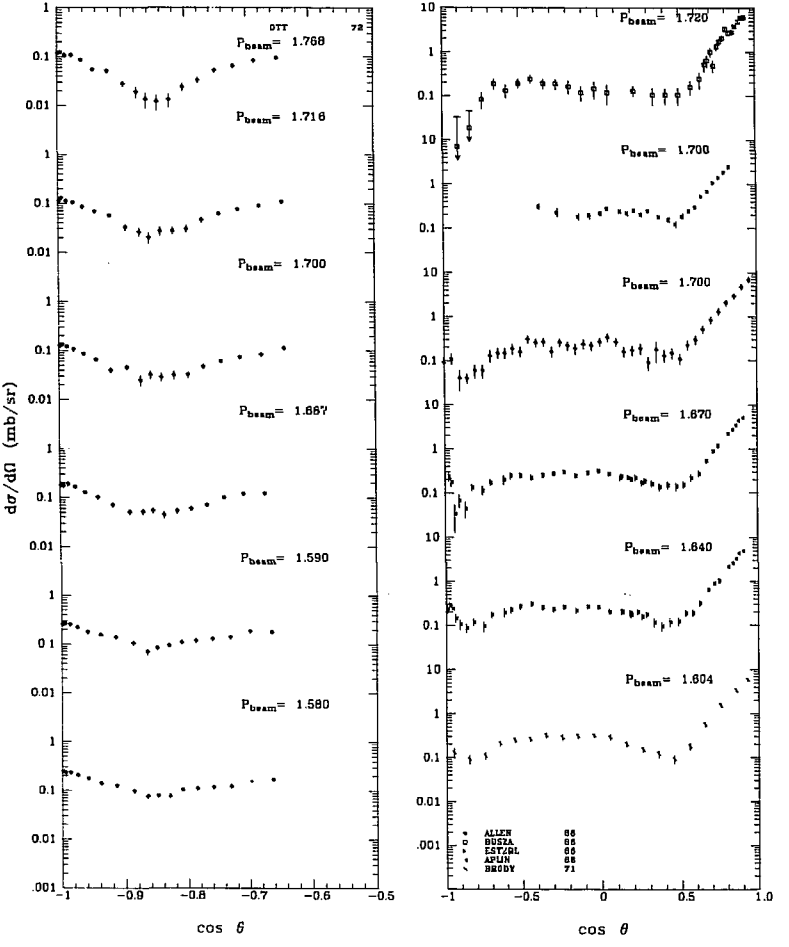
π^-p elastic differential cross section



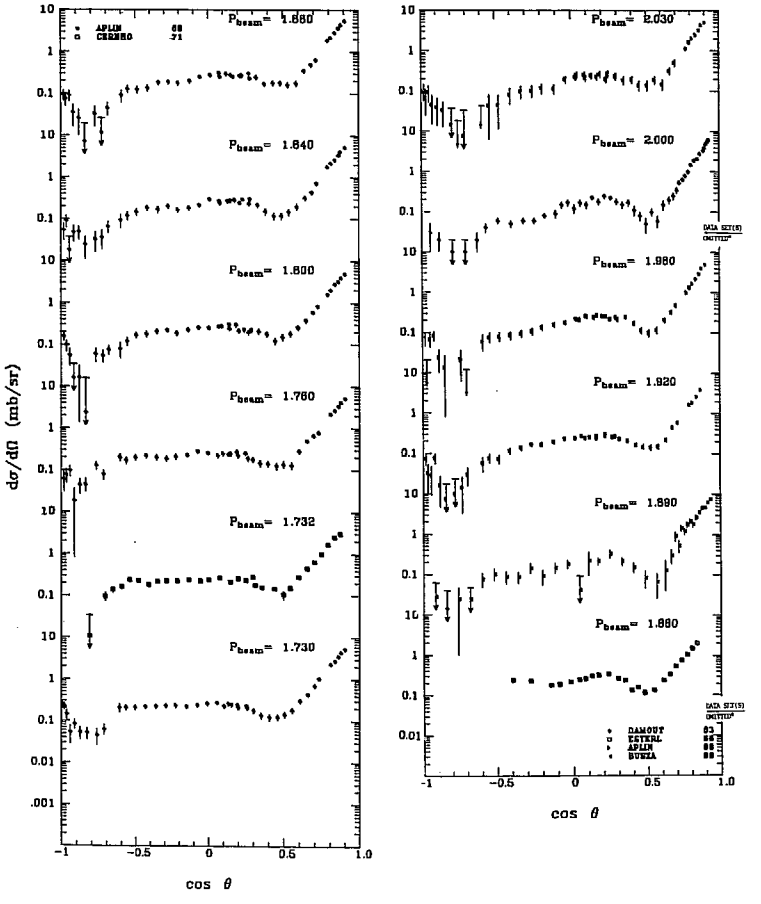
π^-p elastic differential cross section



π^-p elastic differential cross section

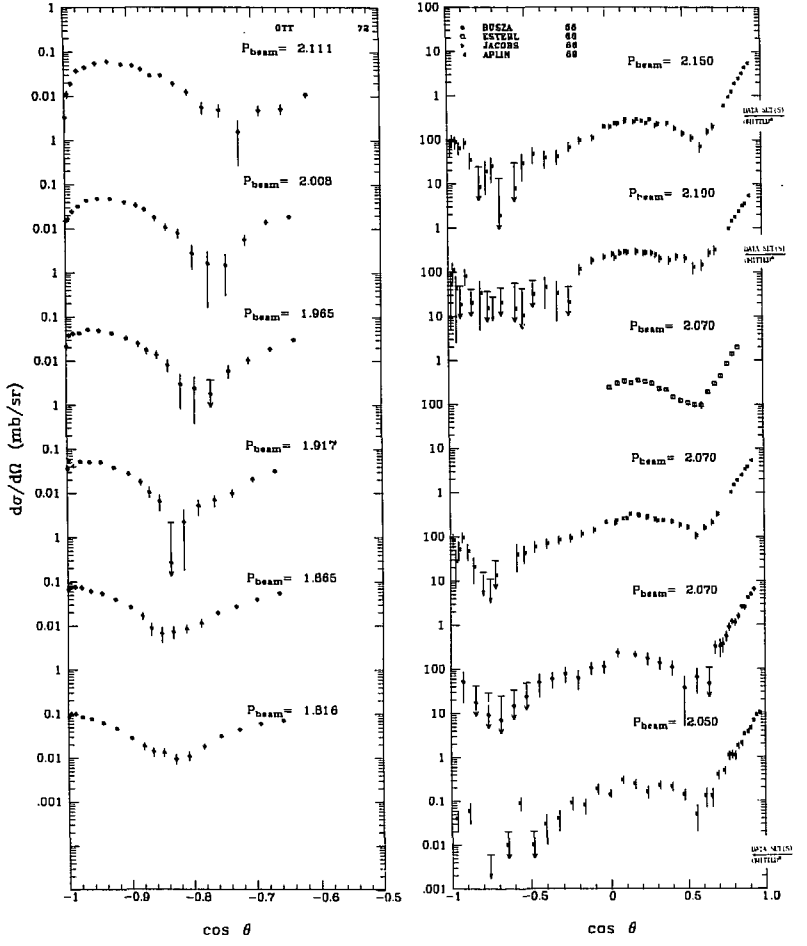


π^-p elastic differential cross section



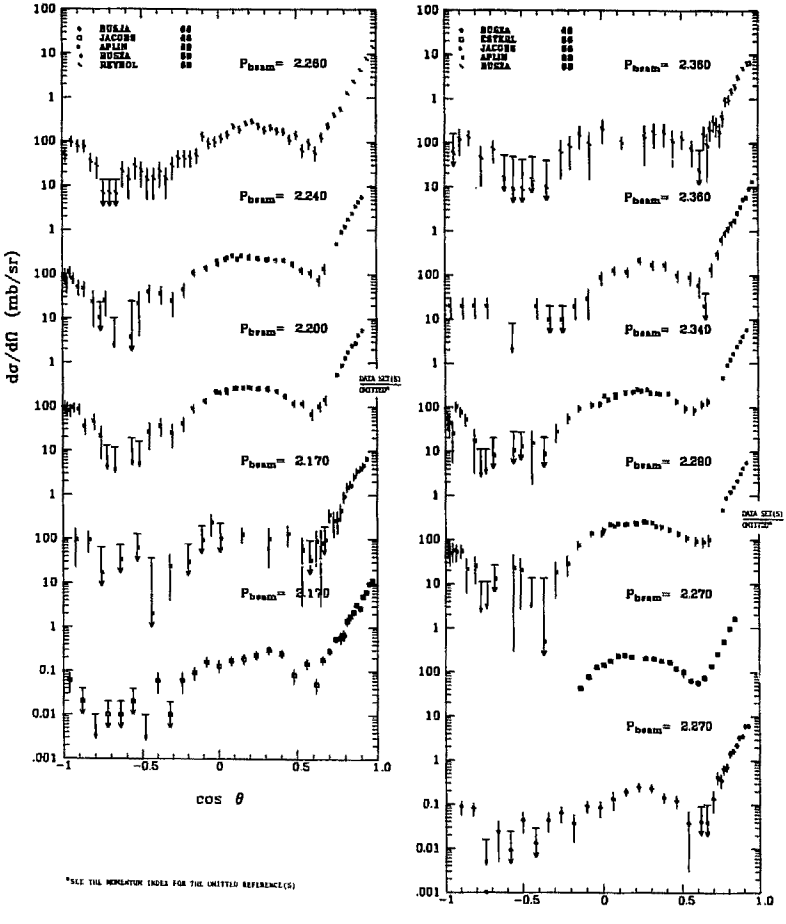
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^-p elastic differential cross section



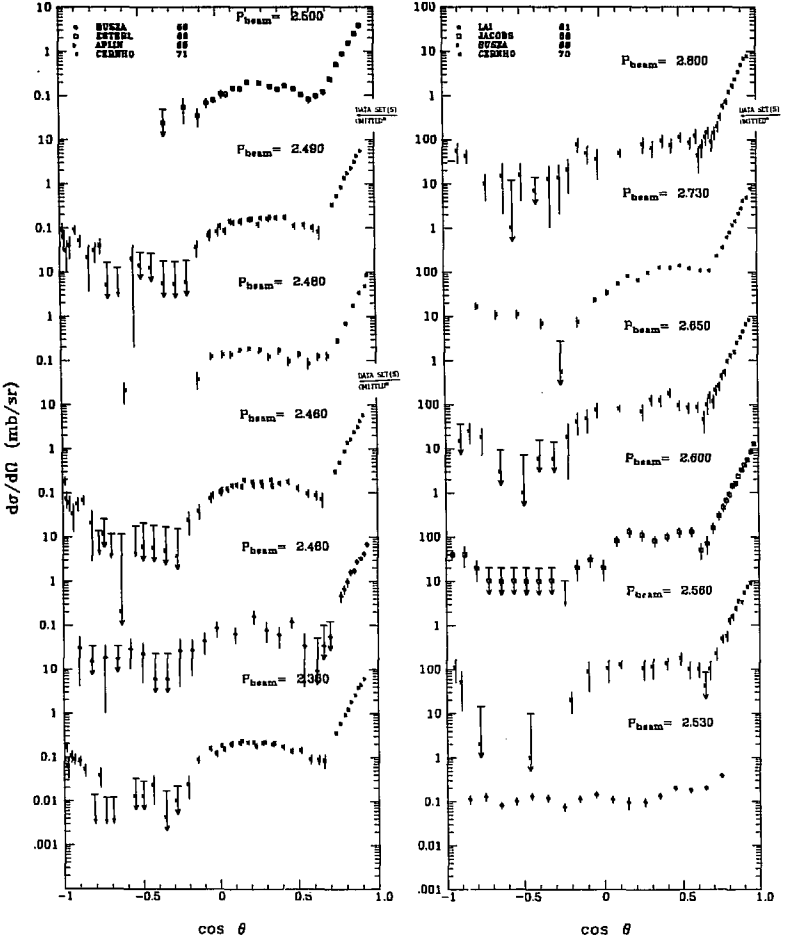
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

$\pi^- p$ elastic differential cross section



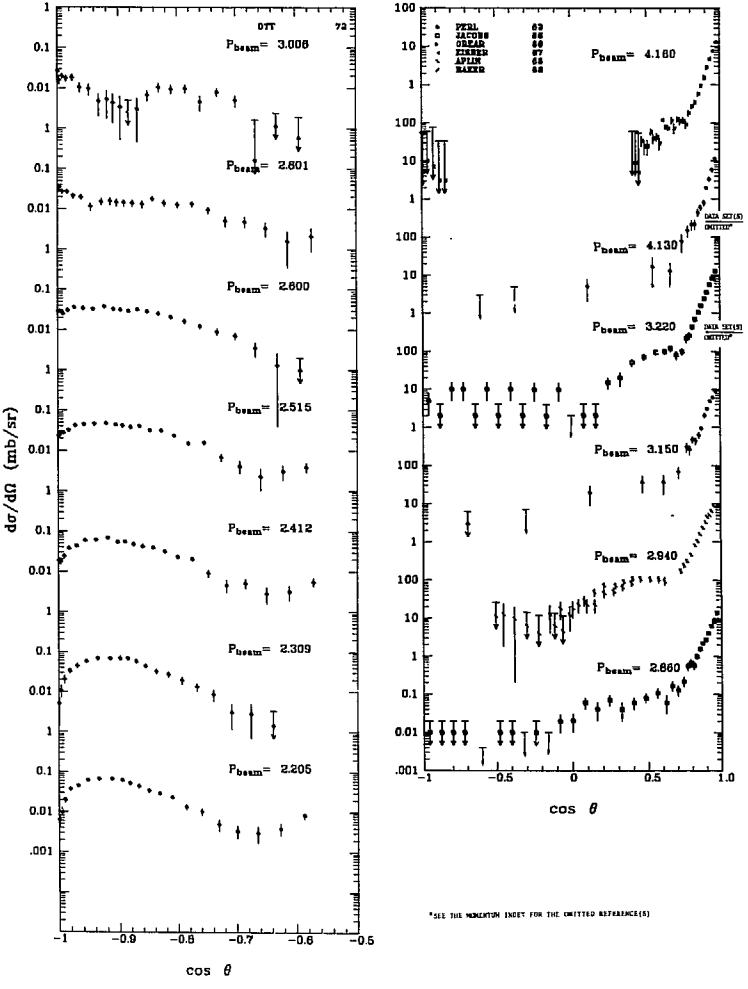
*SEE THE NUMERATOR INDEX FOR THE OMITTED REFERENCE(S)

π^-p elastic differential cross section



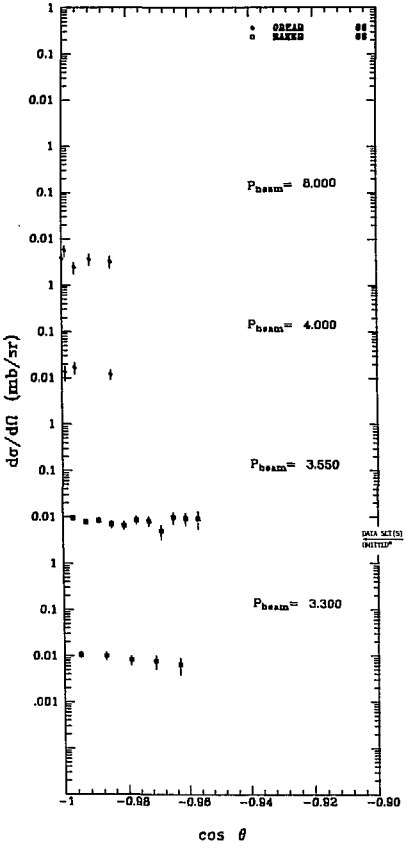
*SEE THE SUMMATION INDEX FOR THE OMITTED REFERENCE(S)

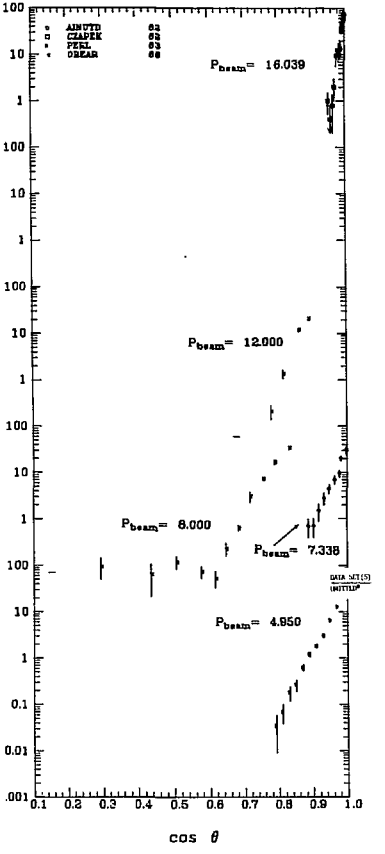
π^-p elastic differential cross section



*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

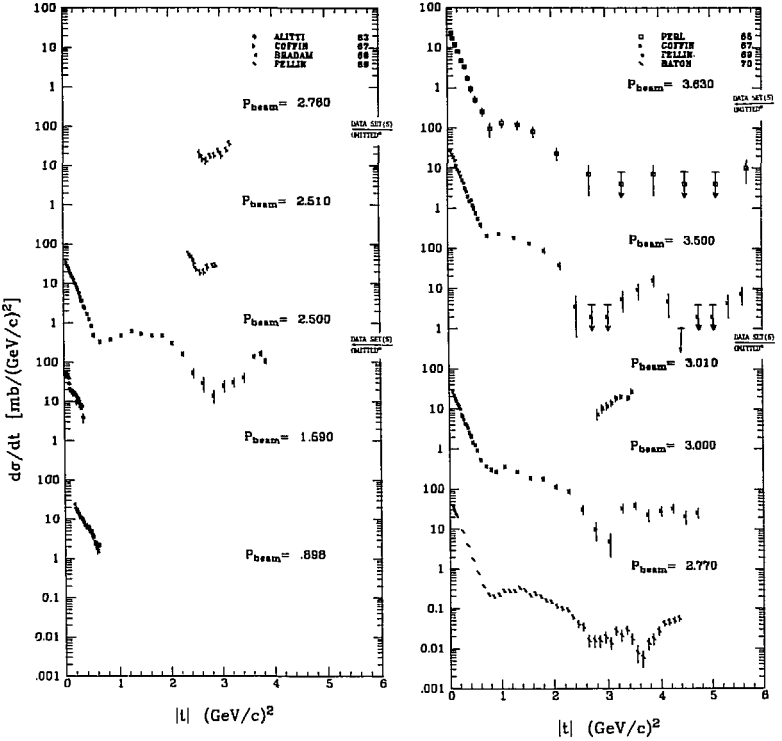
π^-p elastic differential cross section





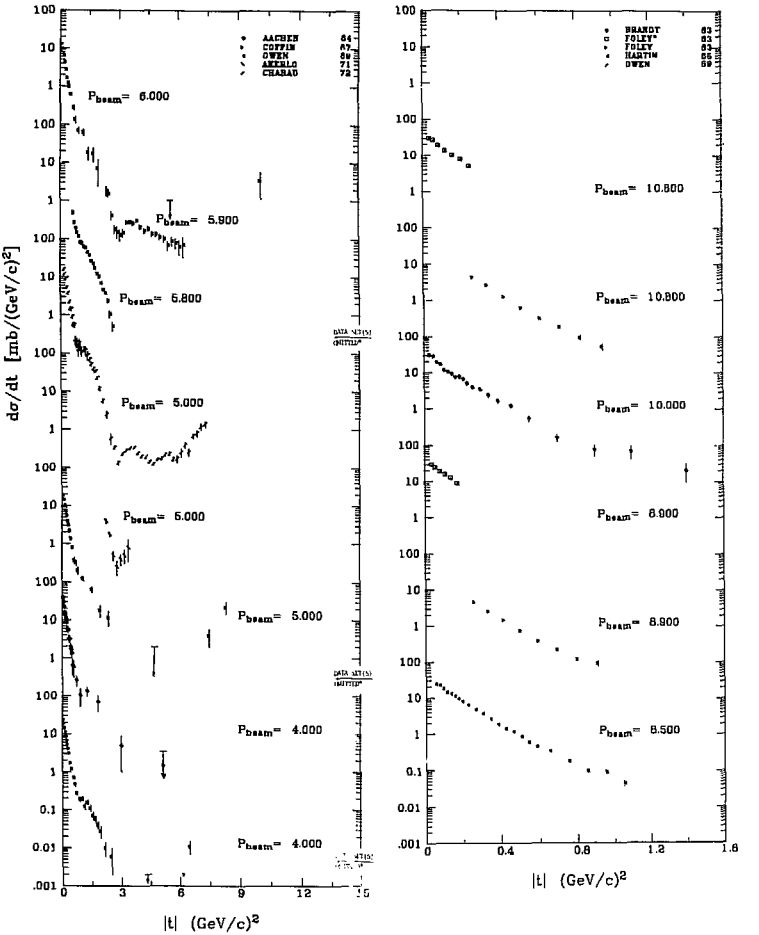
*SEE THE MOMENTUM INDEX FOR THE (WITTLEP) REFERENCE(S)

π^-p elastic differential cross section



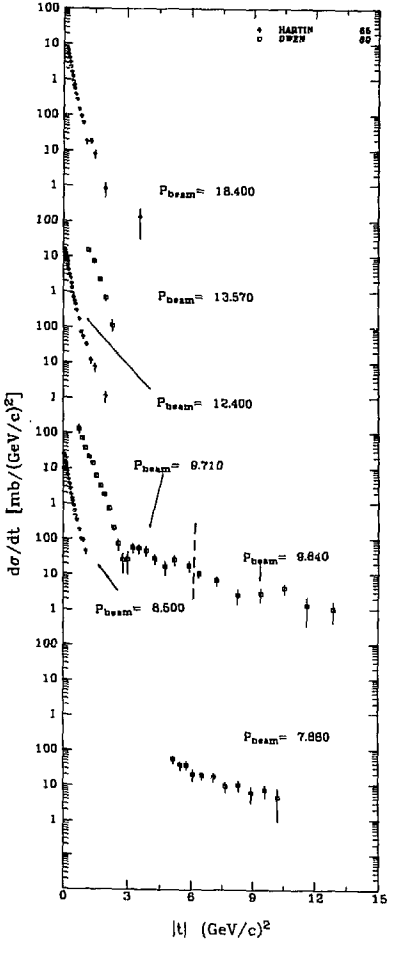
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

$\pi^- p$ elastic differential cross section

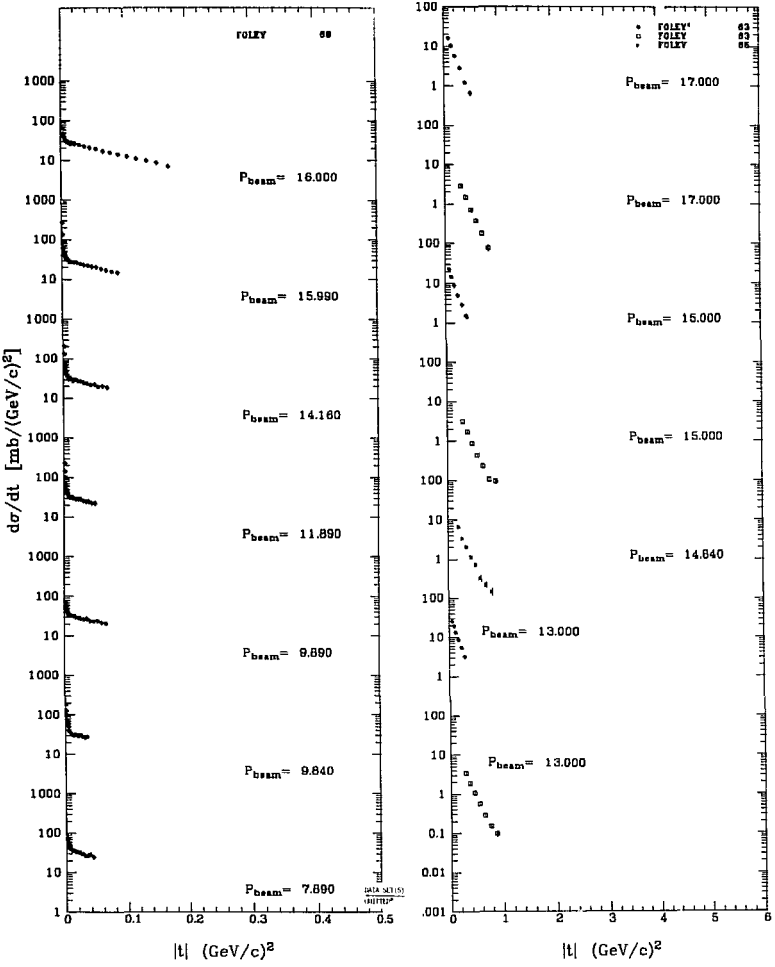


*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^-p elastic differential cross section

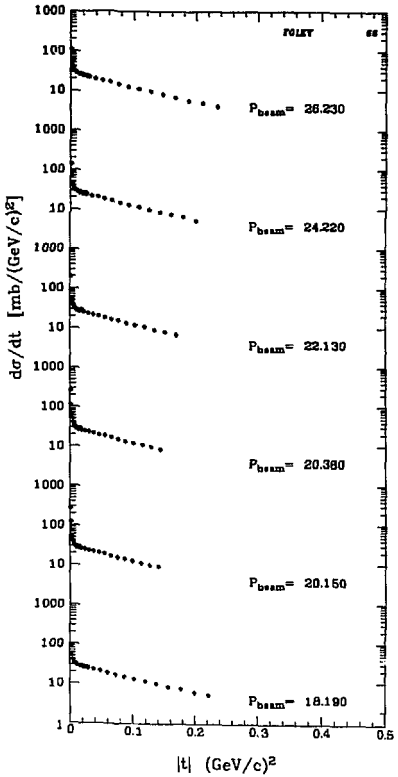


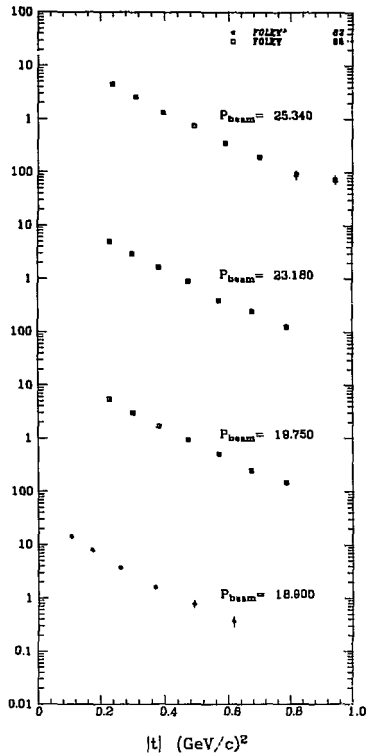
$\pi^- p$ elastic differential cross section



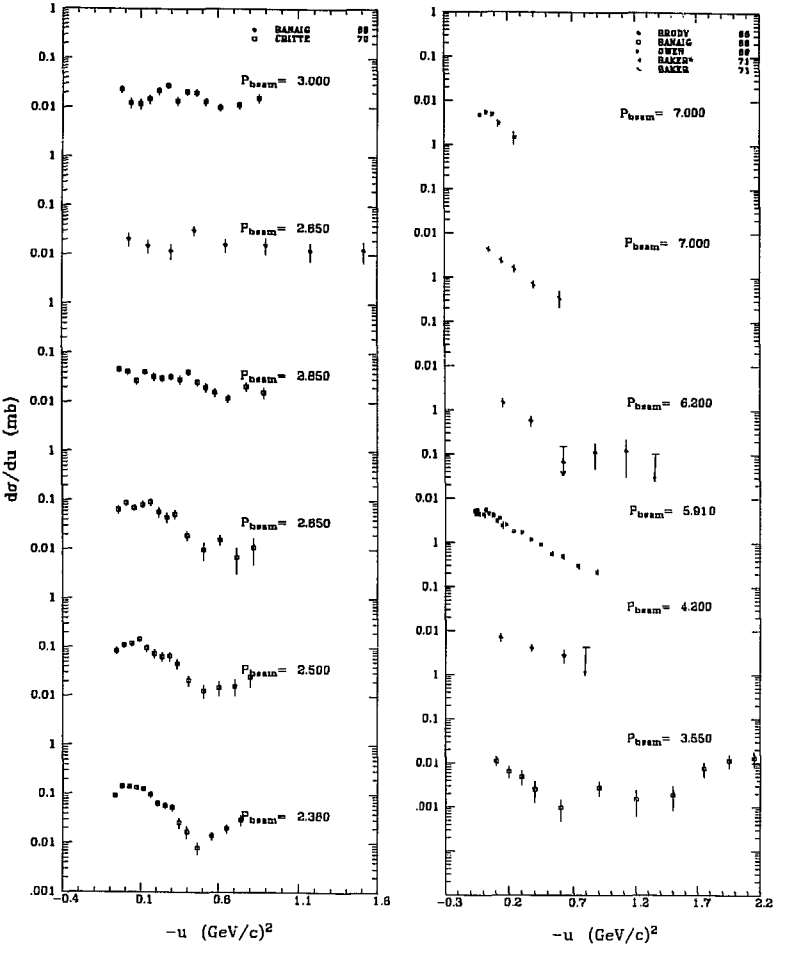
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

π^-p elastic differential cross section

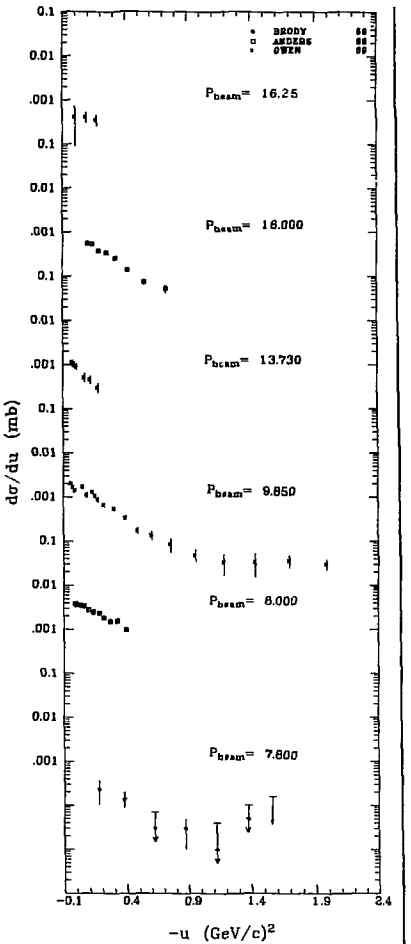


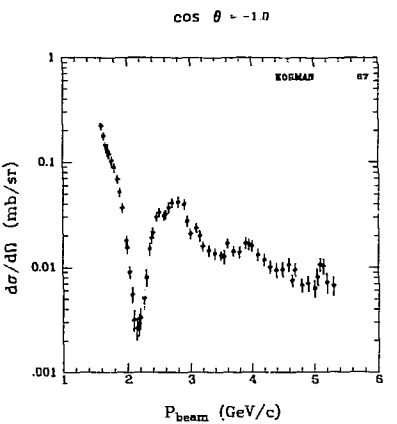


$\pi^- p$ elastic differential cross section

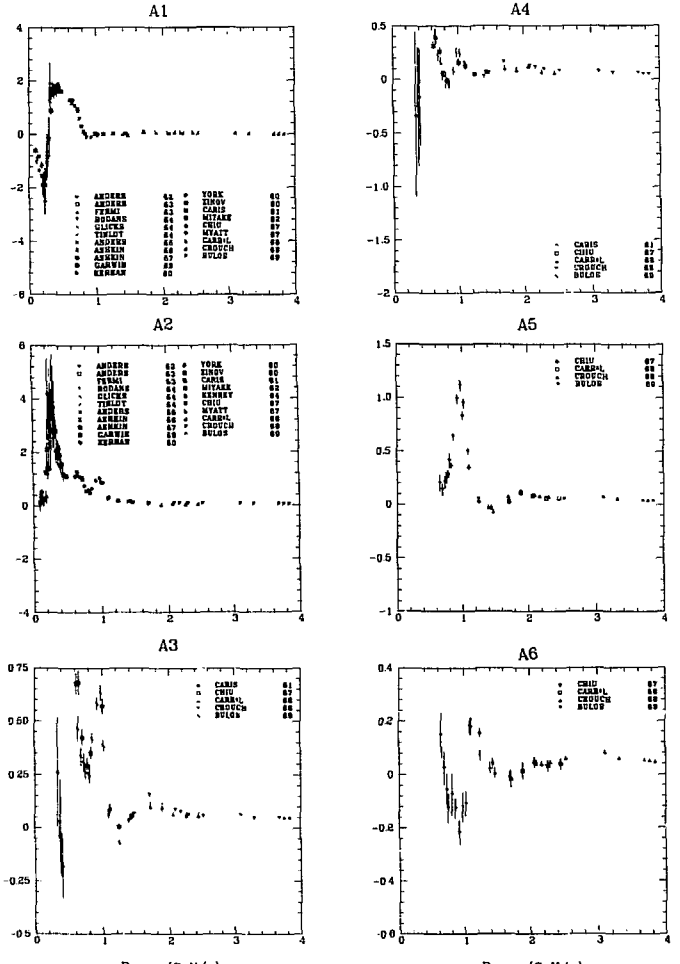


π^-p elastic differential cross section



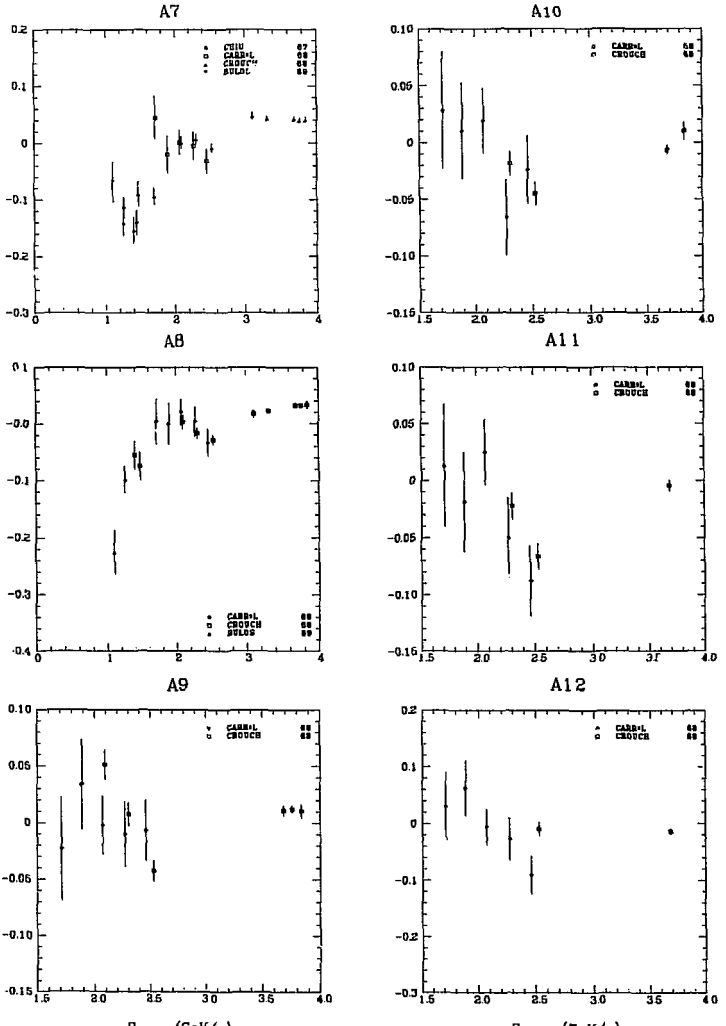


$\pi^- p \to n\pi^0$ Legendre coefficient

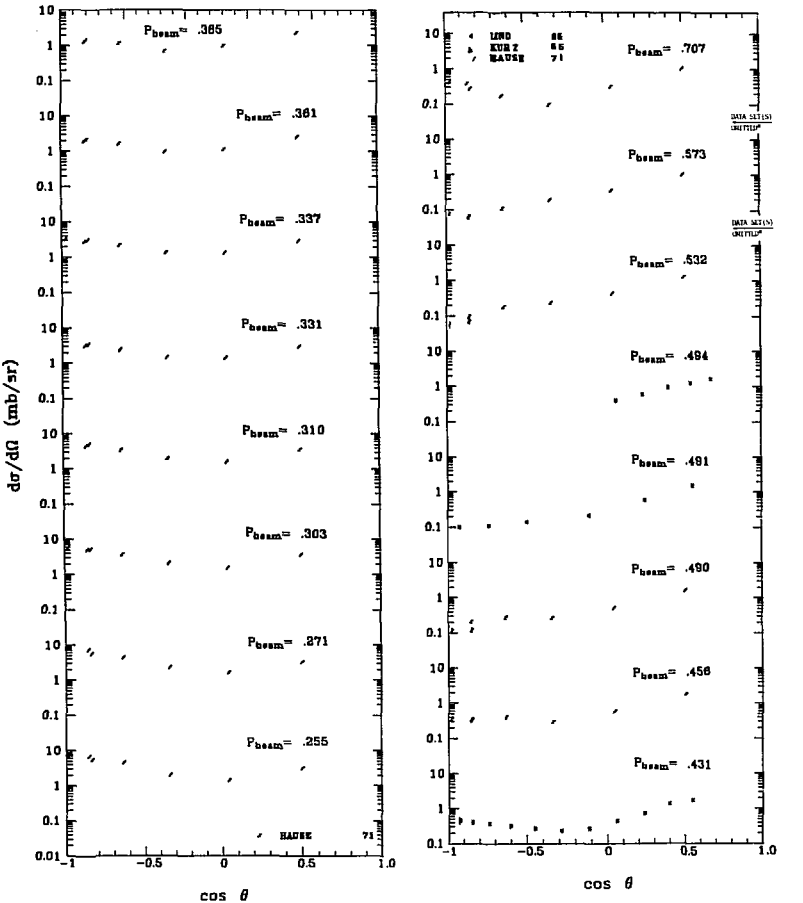


Dimensionless Legendre coefficients A_n plotted here are defined by $\frac{d\sigma}{d\Omega} = \lambda^2 \sum_{n=0}^{N} A_n P_n(\cos\theta)$.

$\pi^- p \to n\pi^0$ Legendre coefficient



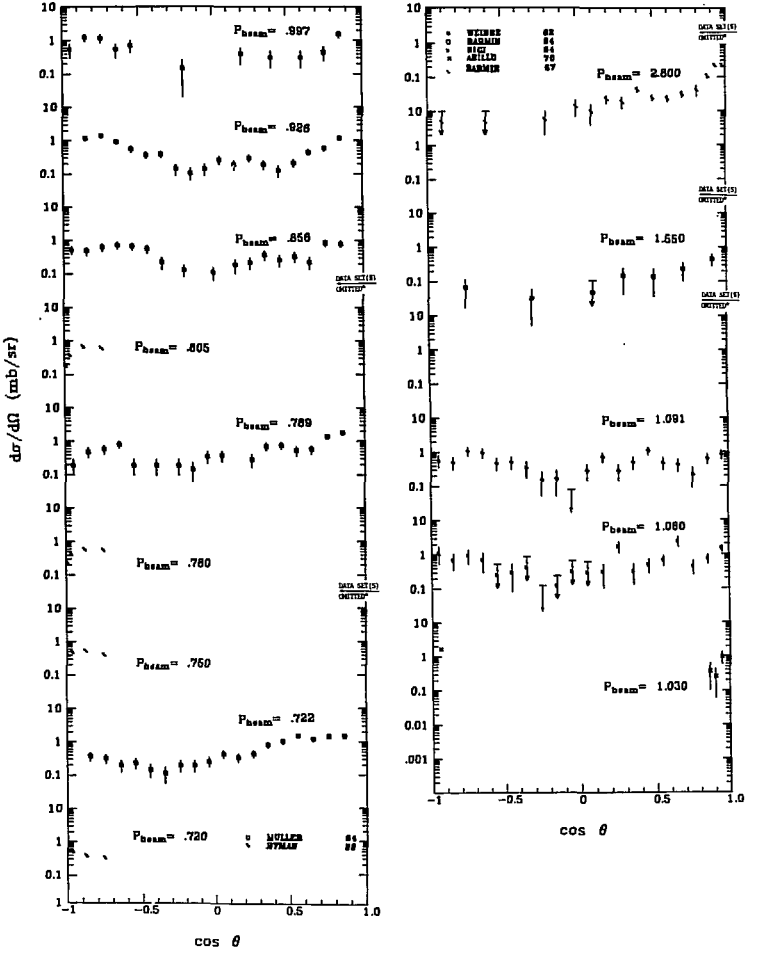
Differential cross section for $\pi^- p \to n\pi^0$



Data of Hause 71 were extracted from the fixed-angle data shown elsewhere in this section.

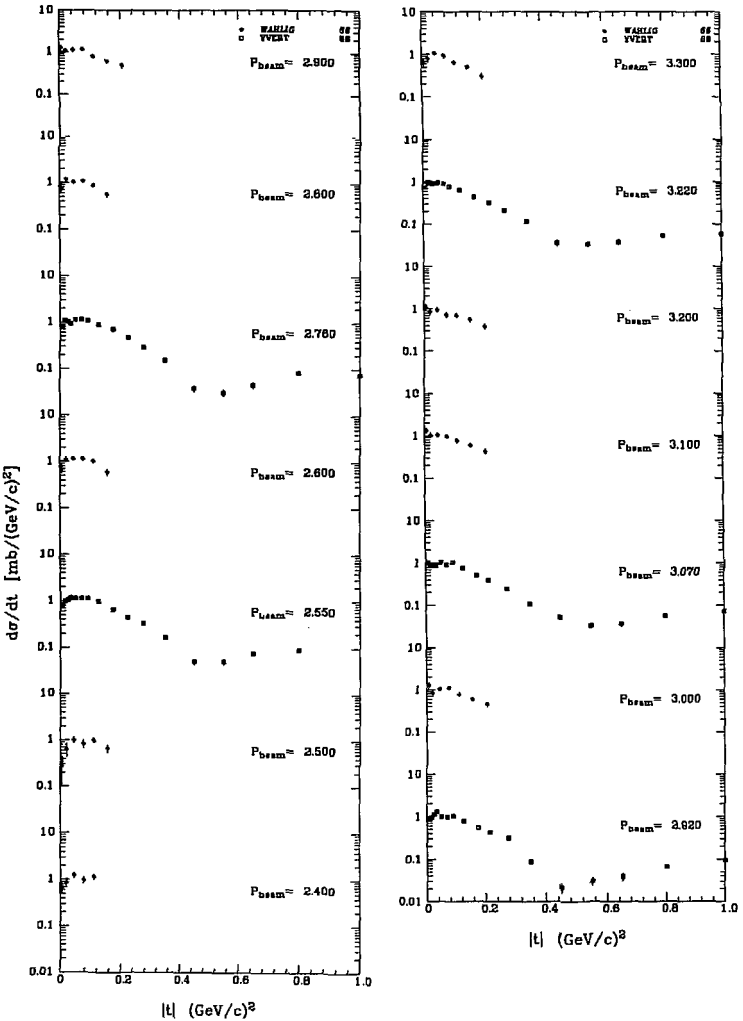
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

Differential cross section for $\pi^- p \to n\pi^0$

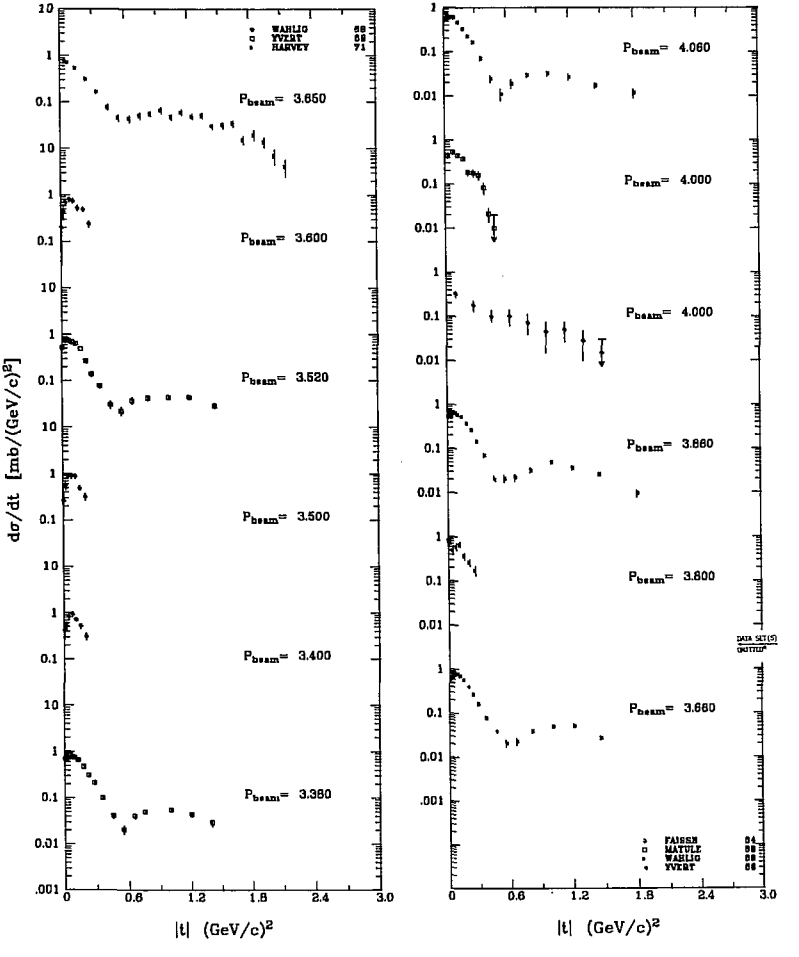


*SEE THE NOMENCLATURE INDEX FOR THE OMITTED REFERENCE(S)

Differential cross section for $\pi^- p \to n\pi^0$

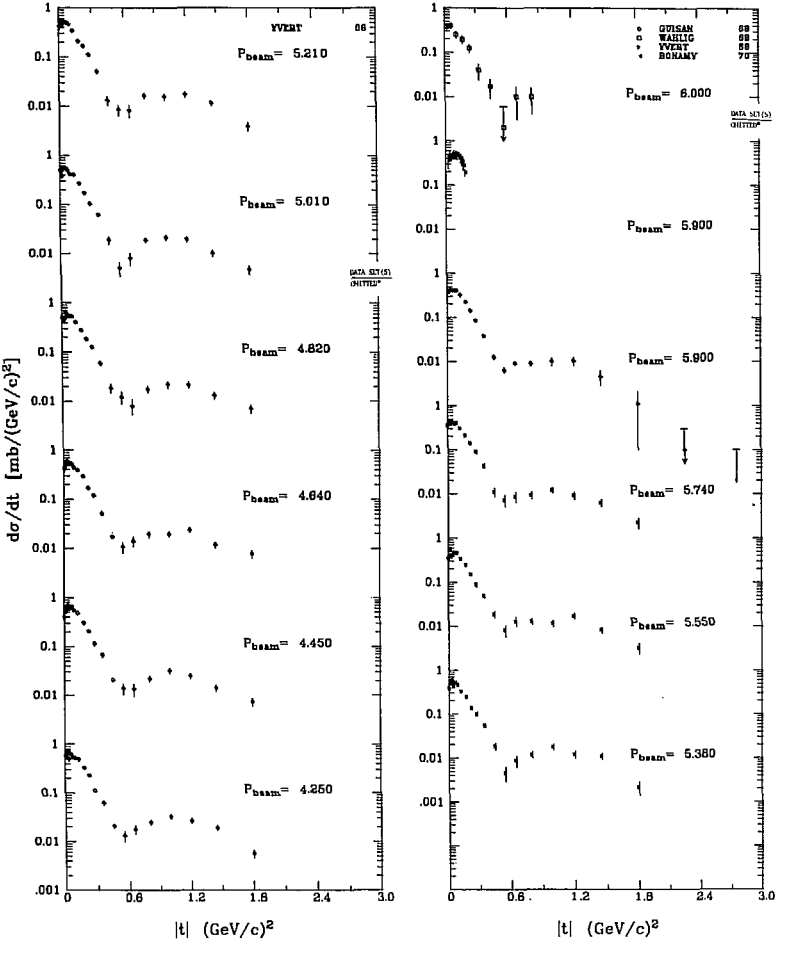


Differential cross section for $\pi^- p \to n\pi^0$



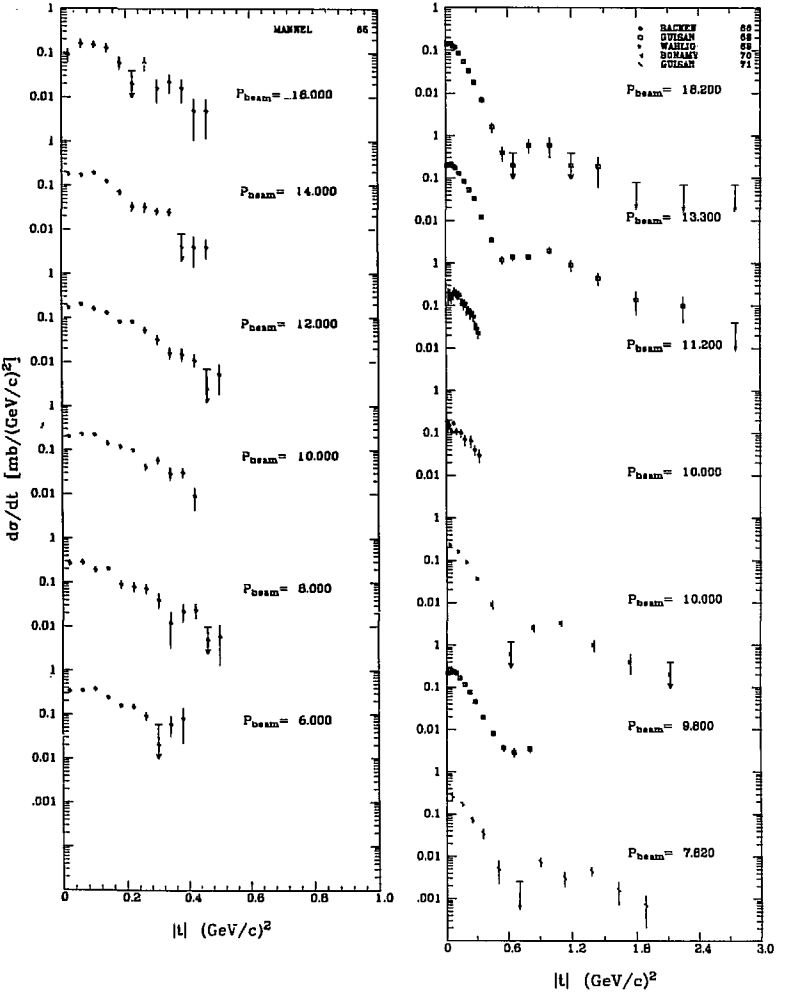
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

Differential cross section for $\pi^- p \to n\pi^0$

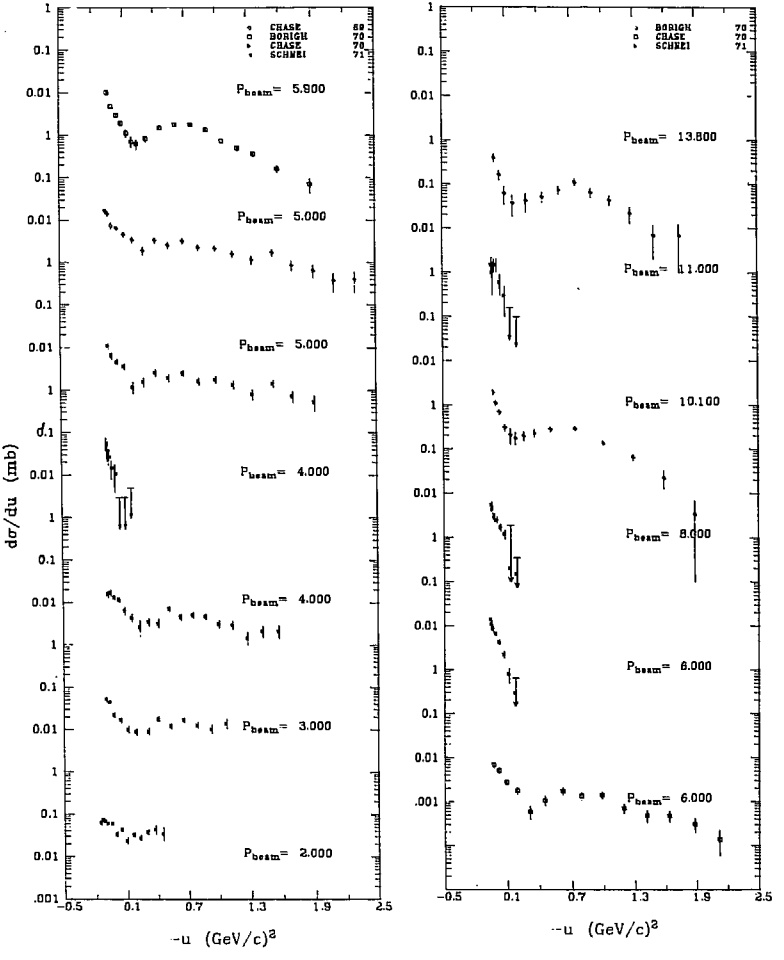


*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

Differential cross section for $\pi^- p \to n\pi^0$

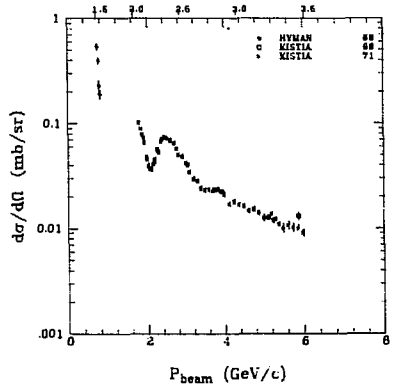


Differential cross section for $\pi^- p \to n\pi^0$



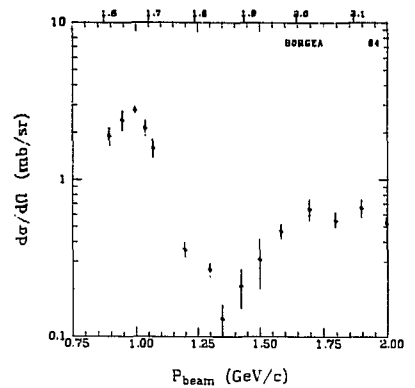
Backward differential cross section for

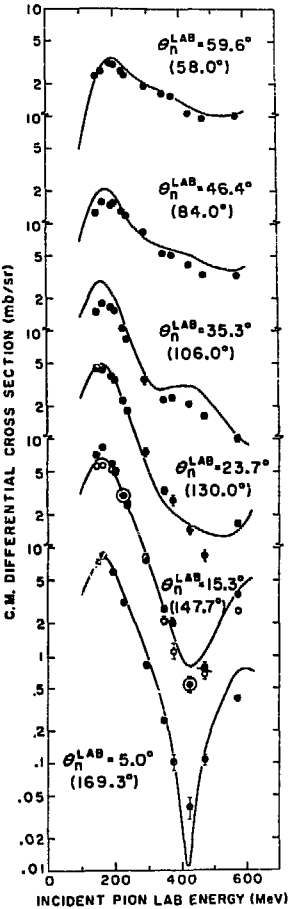
$\pi^- p \to n\pi^0$ cos θ < -.99



Forward differential cross section for

$\pi^- p \to n\pi^0$ cos θ > .99



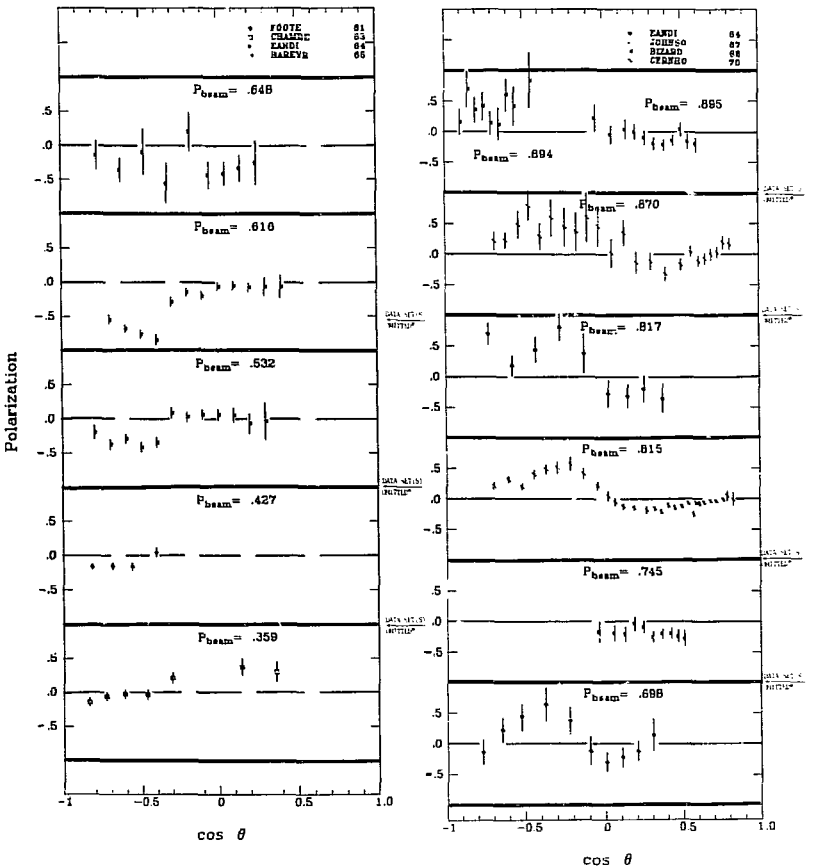


Angular distributions at fixed energy extracted from these data appear elsewhere in this section (HAUSE 71).

3. Polarizations

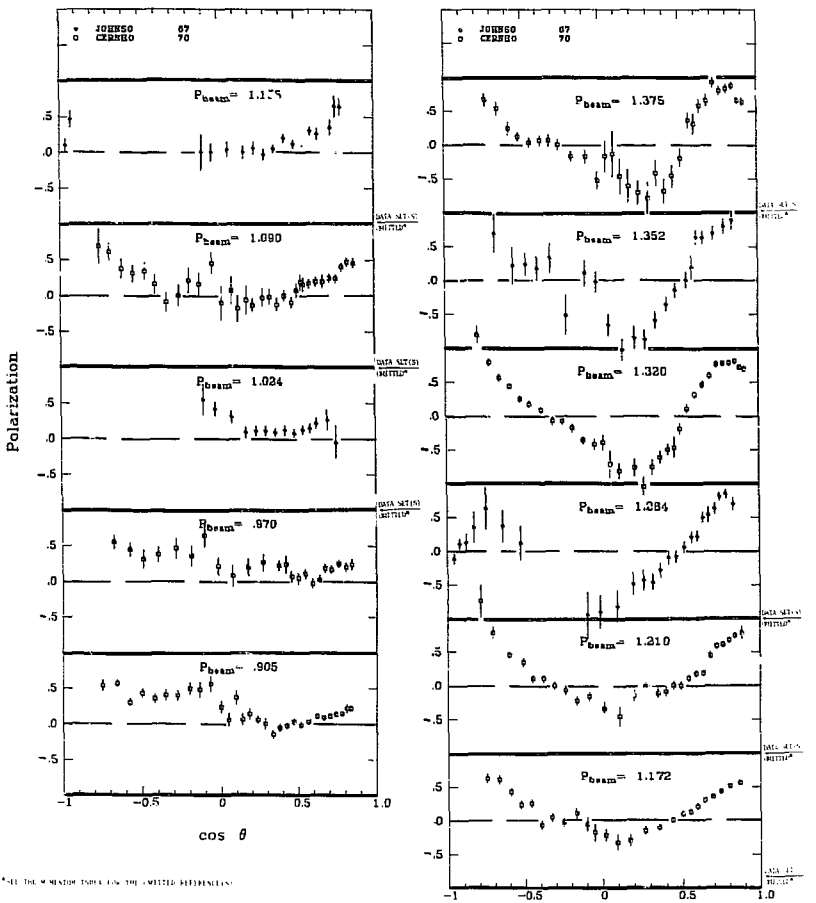
With a few exceptions, the graphs of polarizations are presented in order of increasing energy. Angle variables is in degrees, unless otherwise stated and beam momentum, P, is in units of [GeV/c].

π^+p elastic polarization



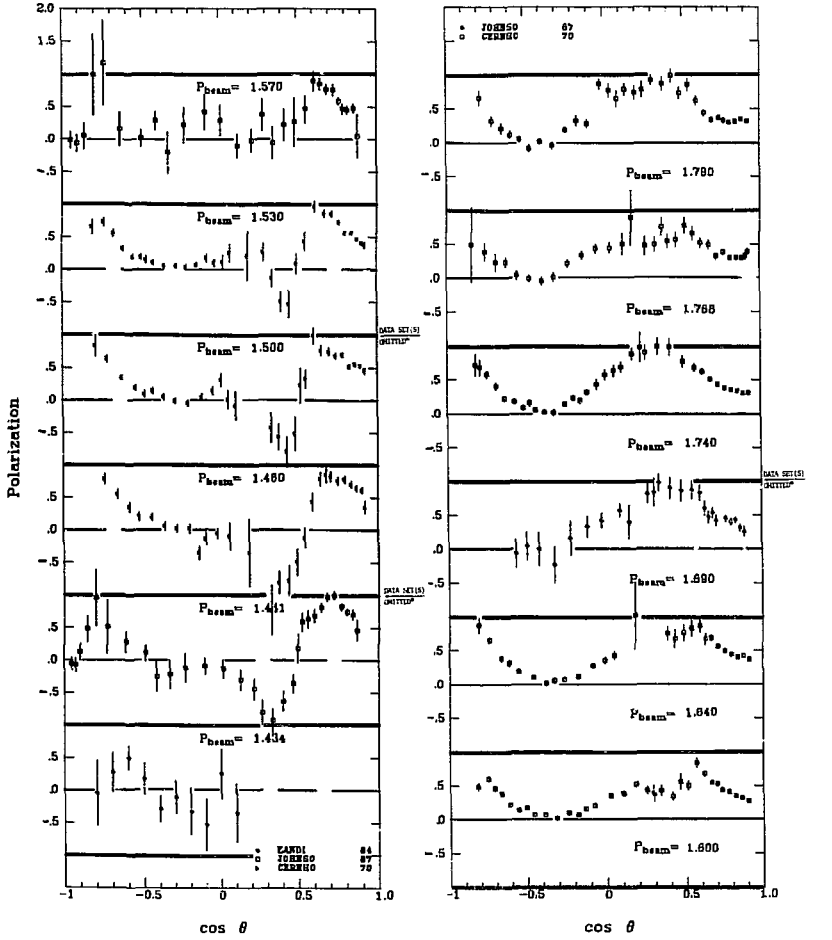
*SEE THE MNEMONIC INDEX FOR THE OMITTED REFERENCE(S)

π^+p elastic polarization



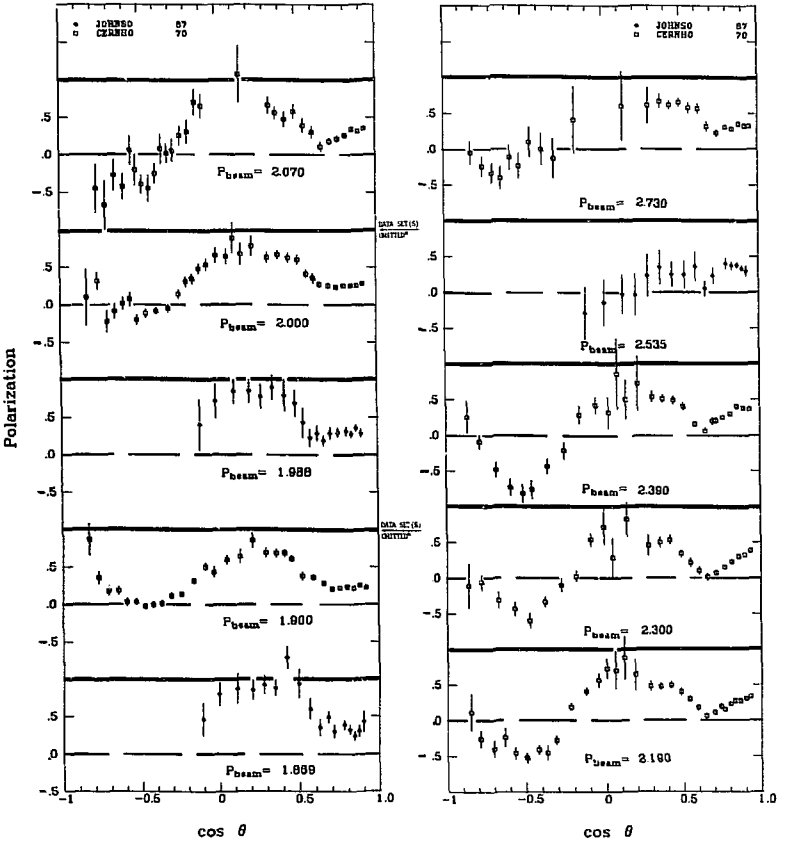
*SEE THE SUMMARY TABLE FOR THE ARTICLE REFERENCE(S)

π^+p elastic polarization



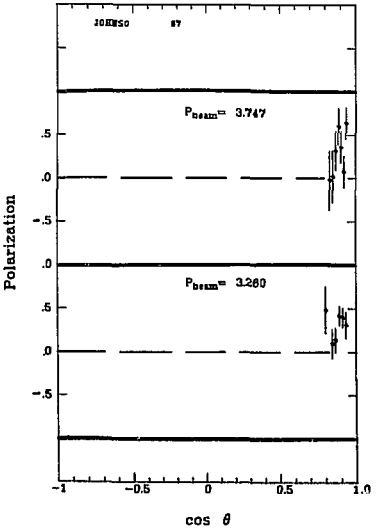
*SEE THE MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

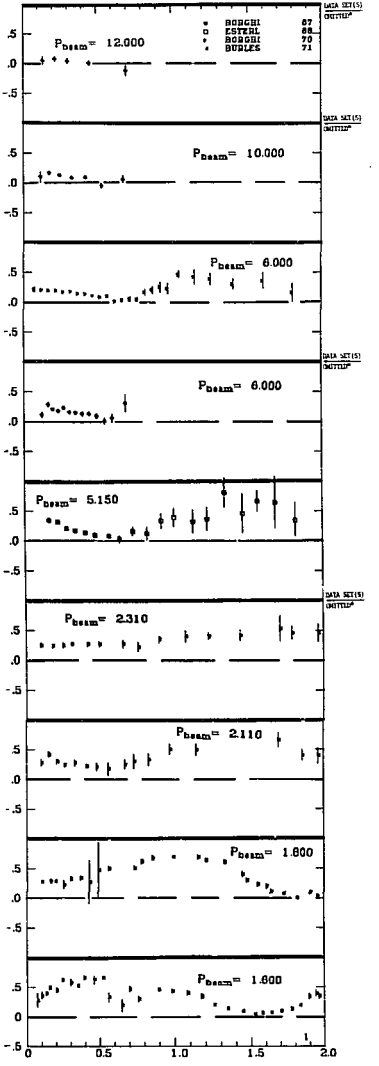
π^+p elastic polarization



*SEE THE MOMENTUM INDEX FOR THE SHIFTED REFERENCE(S)

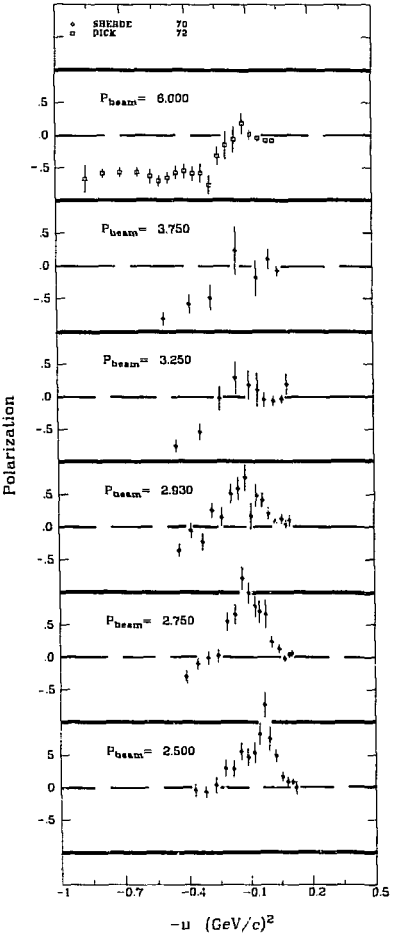
π^+p elastic polarization



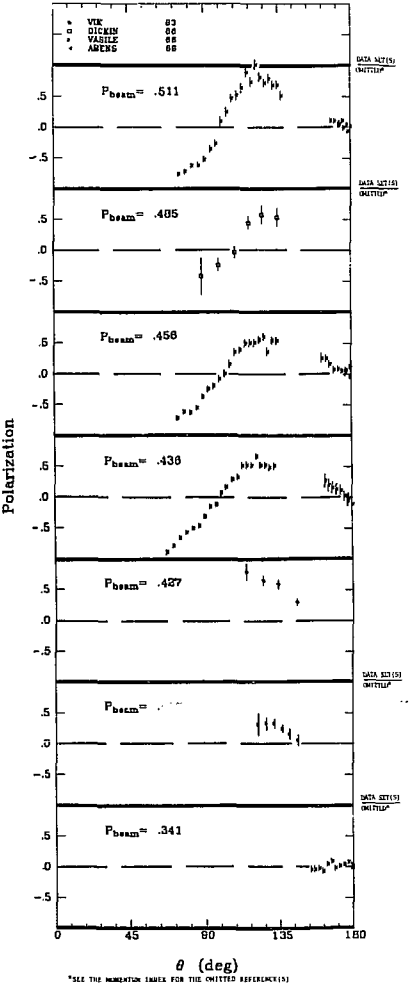


*SEE 3RD MOMENTUM INDEX FOR THE OMITTED REFERENCE(S)

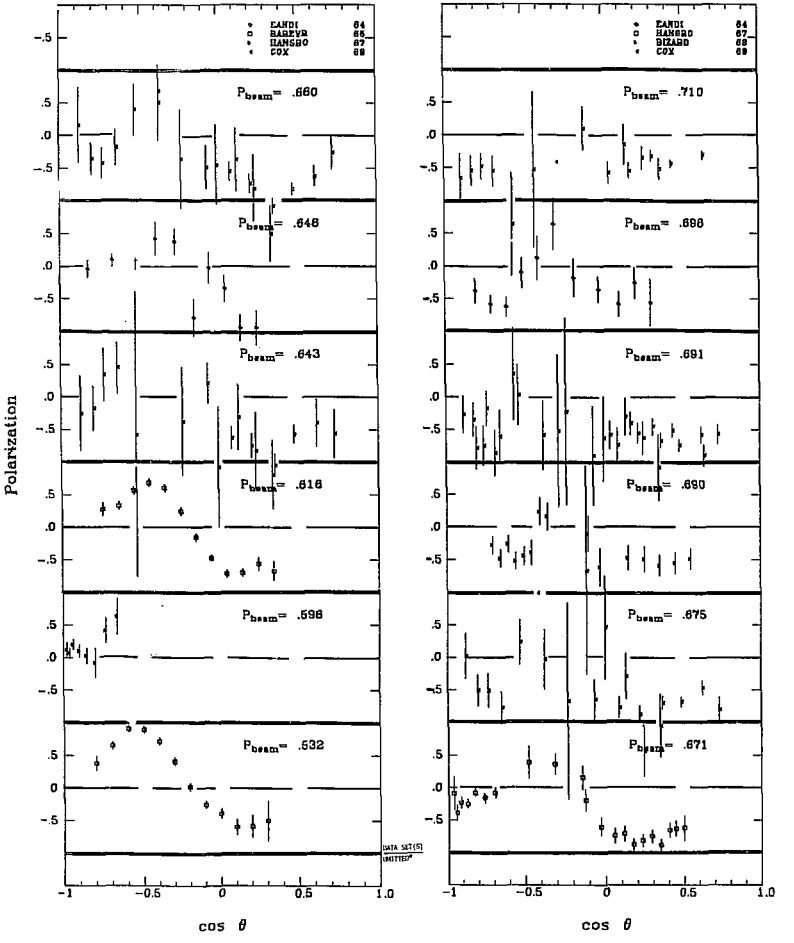
π^+p elastic polarization



π^-p elastic polarization

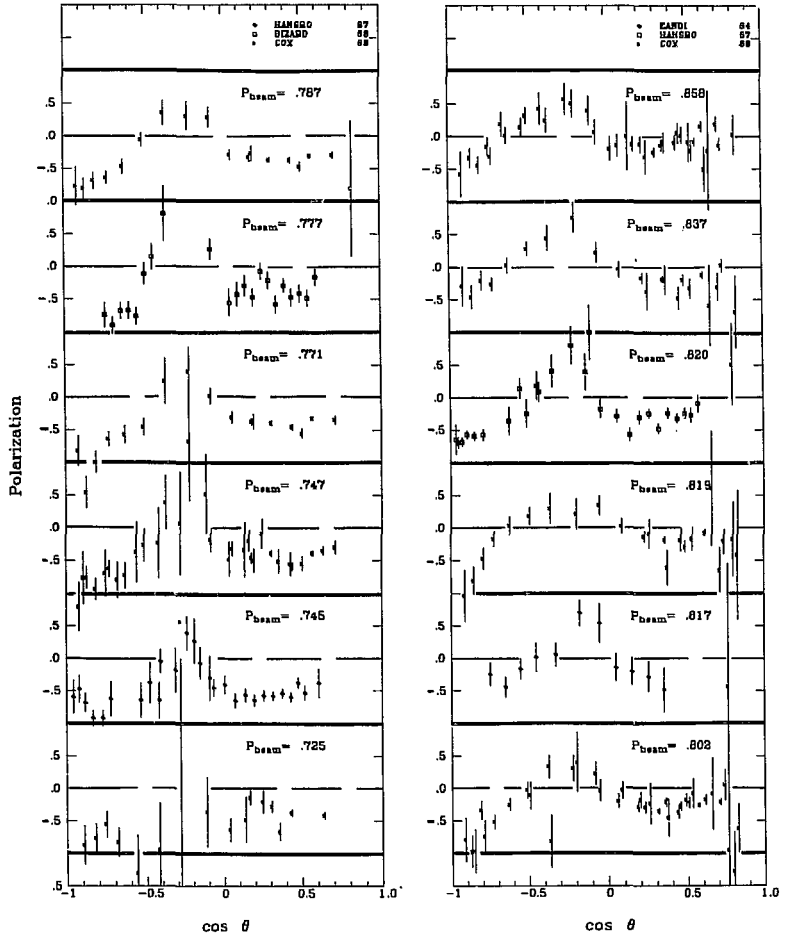


π^-p elastic polarization

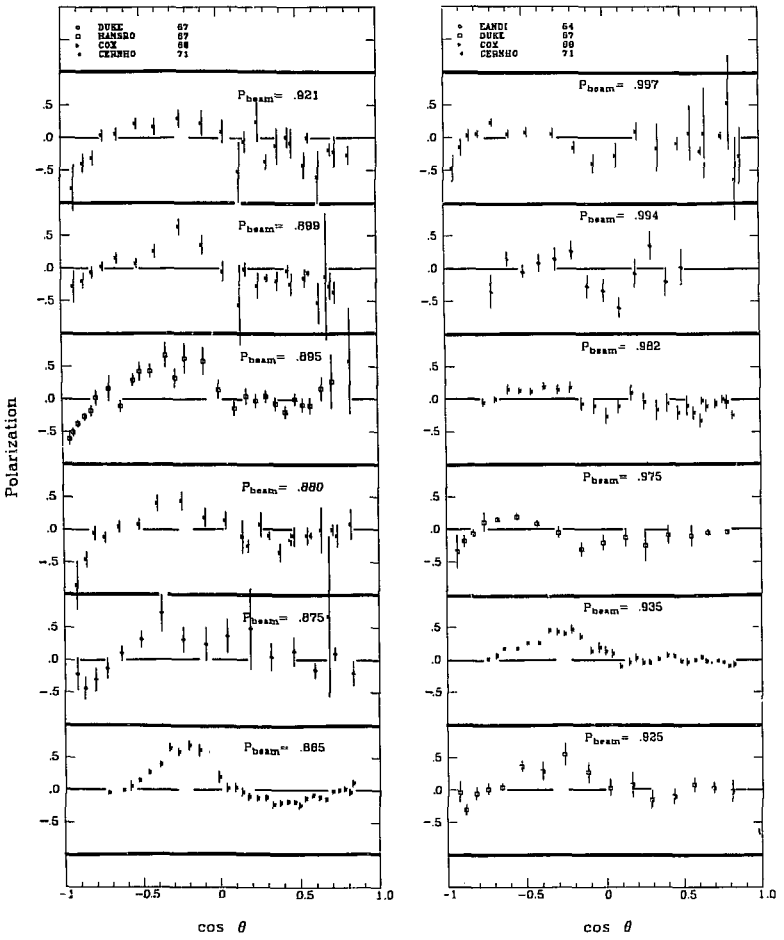


*SEE THE MOMENTUM INDEX FOR .75 OMITTED REFERENCE(S)

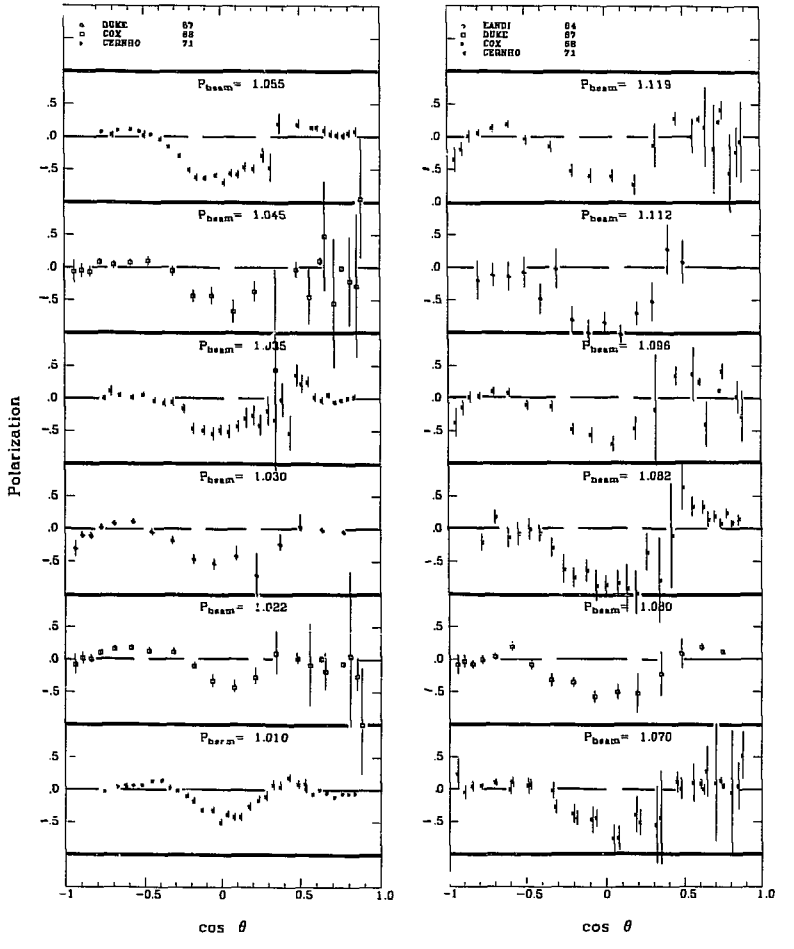
π^-p elastic polarization



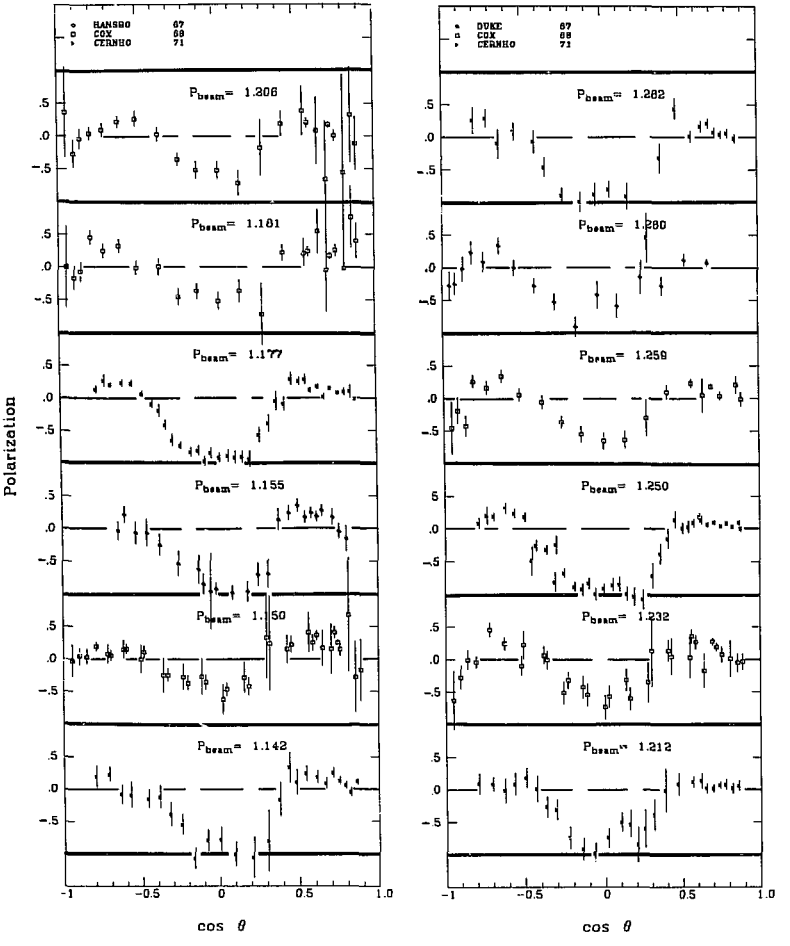
π^-p elastic polarization



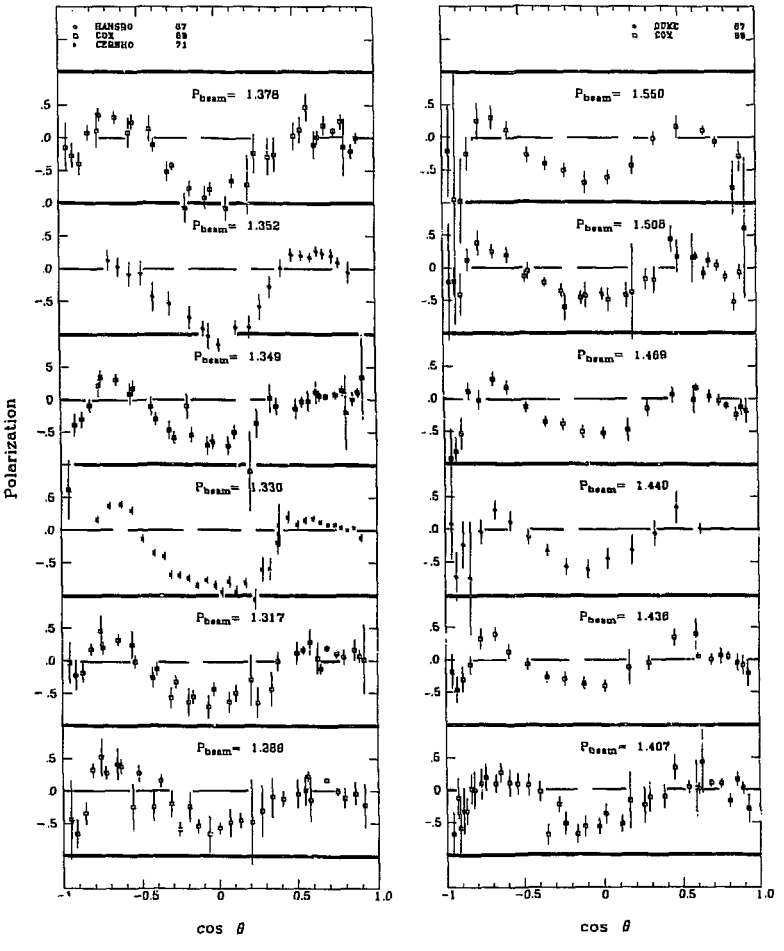
π^-p elastic polarization



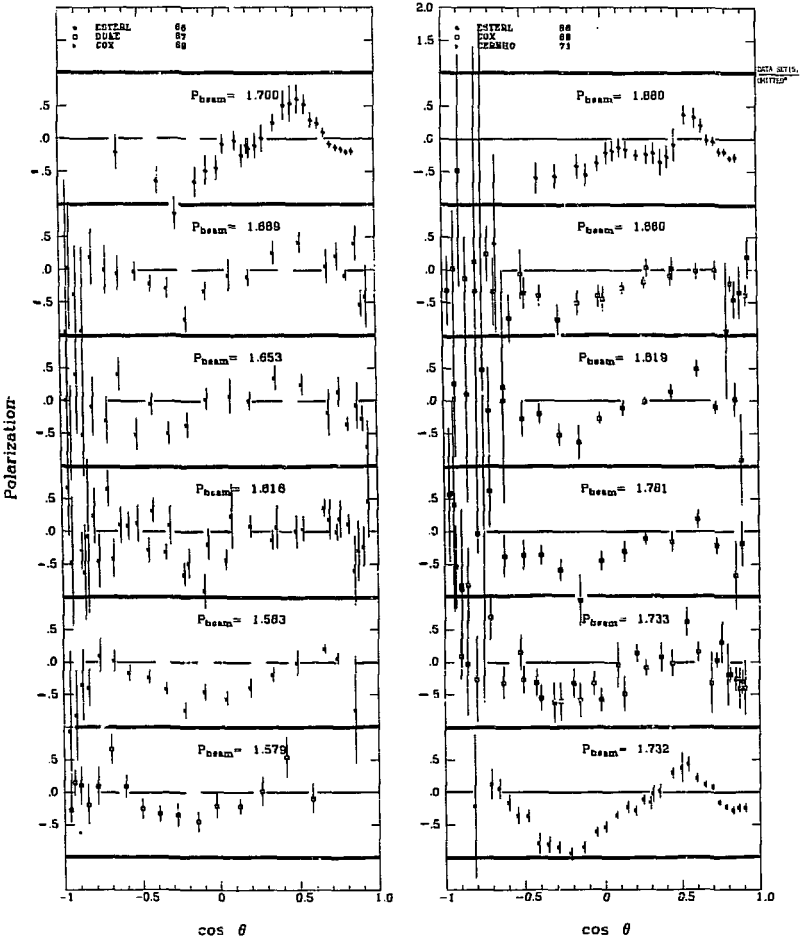
π^-p elastic polarization



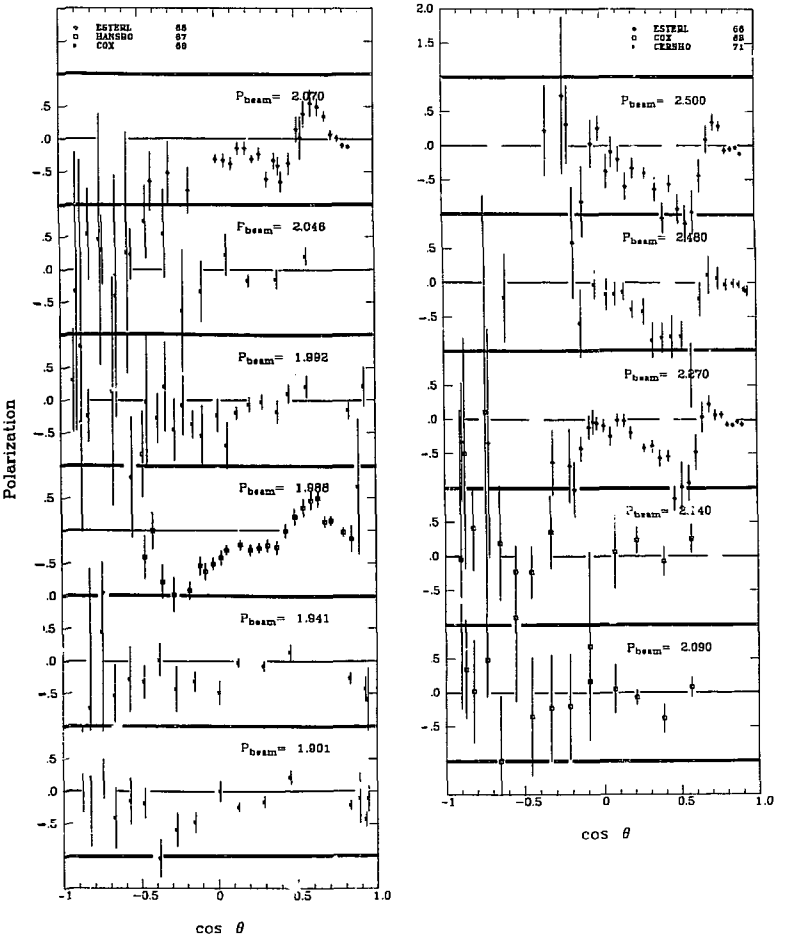
π^-p elastic polarization



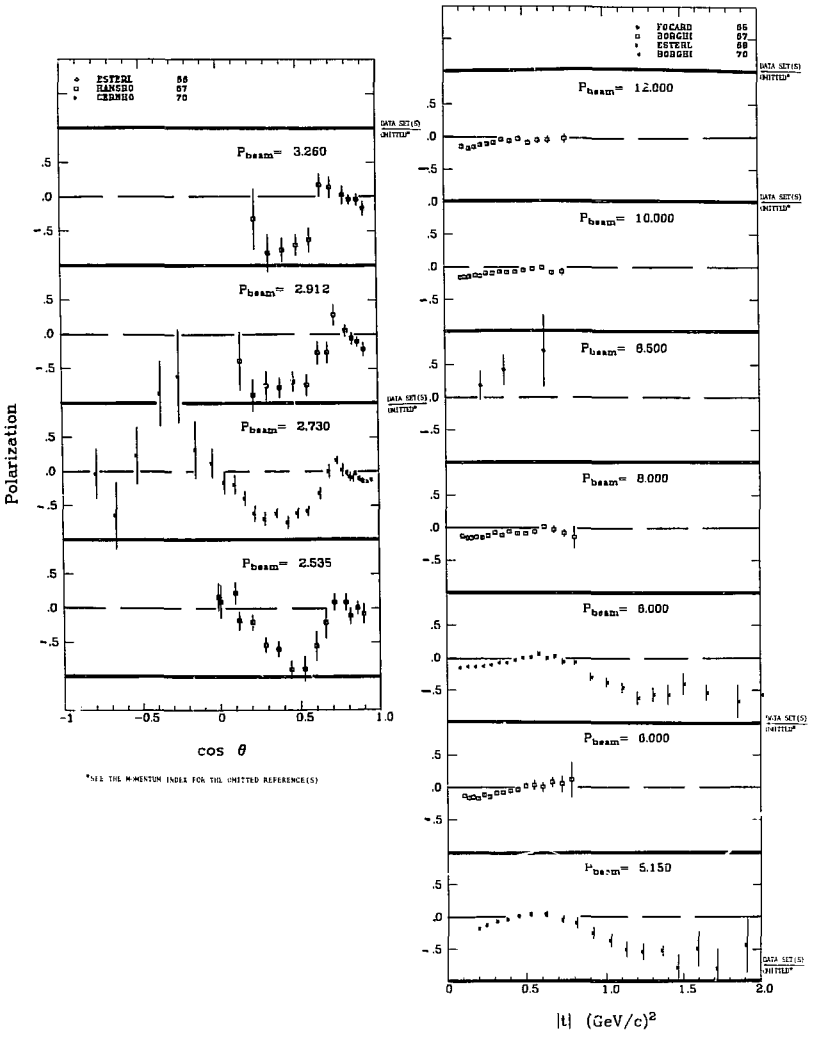
$\pi^- p$ elastic polarization



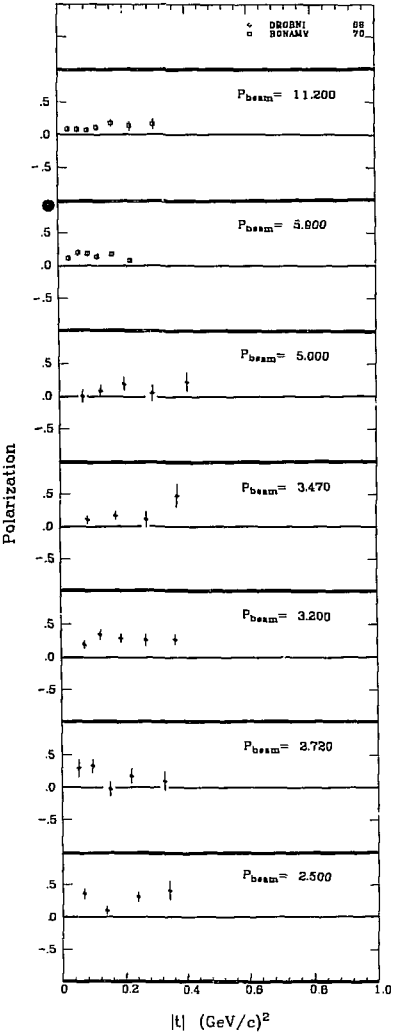
π^-p elastic polarization

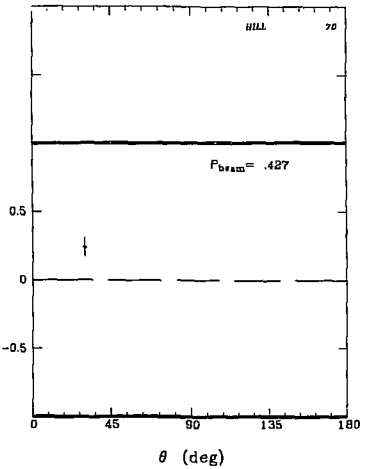


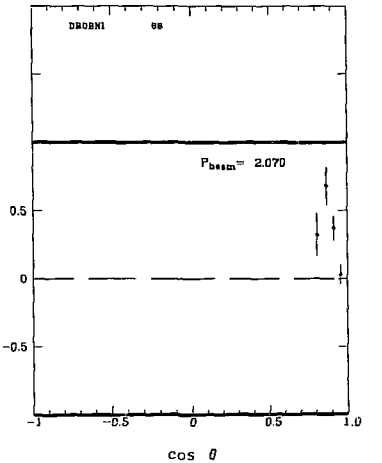
$\pi^- p$ elastic polarization



$\pi^- p \to n\pi^0$ elastic polarization

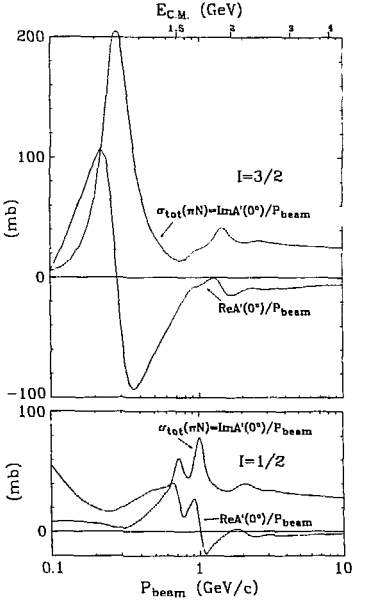






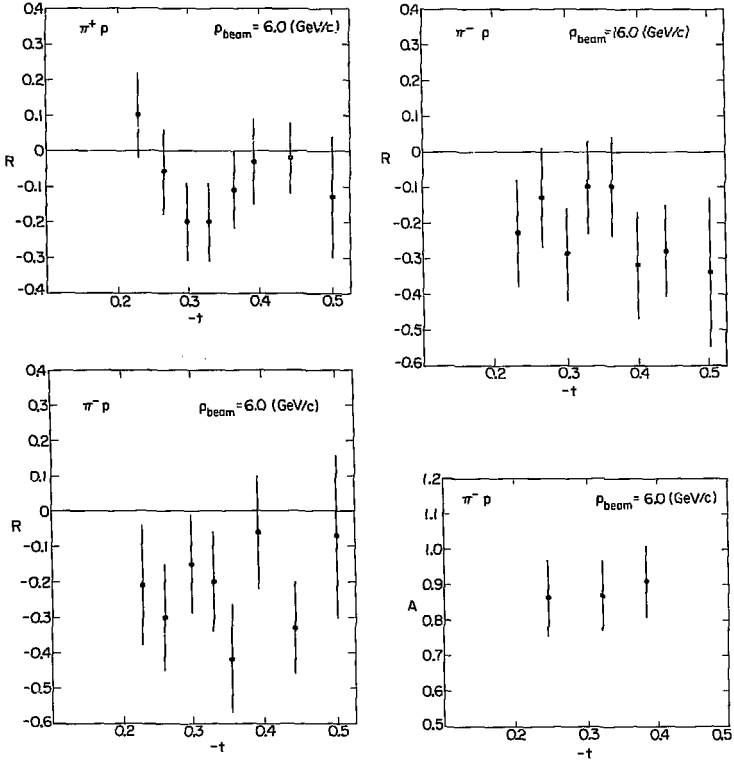
4. Spin Rotation Parameters and Real Parts of Forward Amplitudes

Real and imaginary parts of forward amplitudes



A smooth interpolation of the πN total cross sections for I=3/2 and I=1/2, and the corresponding real parts of the forward amplitudes as calculated from dispersion relations by G. Höhler and H. P. Jakob (private communication). The normalization of the curves for each value of I is such that the sum of their squares divided by 19.6 gives $d\sigma/dt$ at 0^0 in mb/(GeV/c)^2. The total cross sections shown here are not on the Lovelace-Almehed tape.

Spin rotation parameters



World data for spin rotation parameters R and A. LESQUE 72

Section III.

INSTRUCTIONS FOR USE OF THE TAPE

A. Sample Listing

The following listing is from the Lovelace-Almehed tape. This and the following format documentation illustrate how data are stored and coded.

A. Sample Listing

```
U  950C  P    950.0        12.0
 PI N DATA AT PLAB =    950.0 MEV/C     ELAB =    820.6 MEV      MASS =  1643.7 MEV
 PI N DATA AT PLAB =    95C.0 MEV/C     S =     2.702 GEV**2     PCM =   542.3 MEV/C

      QUADRATIC INTERPOLATION OF CARTER,PR 168,1457(68) TOTAL CS.          CARTER68
L PI+P T P    950.000   22.59978      .02261      .18125                   CARTER68

      ECLECTIC FORWARD REAL PART.  DISPERSION INTEGRAL HOEHLER68 WITH      1968A
      ERROR FROM CARTER68. LOW ENERGY PARAMETERS LOVELACE67.               1968A
L PI+P F E    820.600    -.32186      .09130                               1968A

      J.HEUHEBAERT, BRUXELLES LHEB-8(62) + B.THEVENET,SACLAY CEA2306(63).HEUHEB62
    QUOTED IN ROSENBERG ROPER    UCRL 14202
L PI+P O E    820.        12.7         .5                                  HEUHEB62

      M.DE BEER ET AL.(SACLAY))  NP B12(1969)617                           DEBEER69
      810 MEV PI+P HBC. NORMALIZED TO TOTAL = 23.5                         DEBEER69
N PI+P    E   810.          .           1.                                 DEBEER69
L PI+P DIE    810.        11.0         .3                                  DEBEER69
L PI+P O E    810.        12.5         .23                                 DEBEER69

      B.DELER, SACLAY CEA-R-3579(69). HBC. 940+-10,1430+-20MEV/C.          DELEP 69
      NORMALIZED TO TOTAL IN BAREYRE COLLECTION. READ FROM HISTOGRAM.
N PI+P    E   810.          .           1.                                 DELER 69
L PI+P O E    810.        12.5         .24                                 DELER 69
D PI+P D E    810.         .85        2.673       .140                    DELER 69
D PI+P D E    810.         .75        2.057       .123                    DELER 69
D PI+P D E    810.         .65        1.795       .115                    DELER 69
D PI+P D E    810.         .55        1.425       .102                    DELER 69
D PI+P D E    810.         .45        1.245       .096                    DELER 69
D PI+P D E    810.         .35         .768       .075                    DELER 69
D PI+P D E    810.         .25         .515       .061                    DELER 69
D PI+P D E    810.         .15         .484       .060                    DELER 69
D PI+P D E    810.         .05         .292       .046                    DELER 69
D PI+P D E    810.        -.05         .226       .041                    DELER 69
D PI+P D E    810.        -.15         .236       .042                    DELER 69
D PI+P D E    810.        -.25         .269       .044                    DELER 69
D PI+P D E    810.        -.35         .241       .042                    DELER 69
D PI+P D E    810.        -.45         .429       .056                    DELER 69
D PI+P D E    810.        -.55         .527       .062                    DELER 69
D PI+P D E    810.        -.65         .406       .055                    DELER 69
D PI+P D E    810.        -.75         .512       .061                    DELER 69
D PI+P D E    810.        -.85         .439       .057                    DELER 69
D PI+P5D E    810.        -.95         .279       .045                    DELER 69

      BARLOUTAU0, PL 1,207(62) CHANGED.  HBC.                              BARLOU62
          CHANGED MEANS REBINNED                                           BARLOU62
N PI+P    E   820.          .           .04                                BARLOU62
L PI+P O E    820.        12.3         .6                                  BARLOU62
D PI+P D E    820.000      .0750C     2.20000      .40000                  BARLOU62
D PI+P D E    820.000      .70000     1.40000      .22000                  BARLOU62
D PI+P D E    820.000      .5000C     1.20000      .20000                  BARLOU62
D PI+P D E    820.000      .30000      .40000      .10000                  BARLOU62
D PI+P D E    820.000      .1000C      .40000      .10000                  BARLOU62
D PI+P D E    820.000     -.10000      .20000      .07000                  BARLOU62
D PI+P D E    820.000     -.30000      .30000      .09000                  BARLOU62
D PI+P D E    820.000     -.5000C      .30000      .09000                  BARLOU62
D PI+P D E    820.000     -.7000C      .30000      .09000                  BARLOU62
D PI+P D E    820.000     -.90000      .30000      .09000                  BARLOU62

      DUKE, RHEL-M128(67).  COUNTERS.  NORM.ERROR FROM THRESHER.           DUKE  67
N PI+P D P    950.          .           .02                                DUKE  67
D PI+P D P    950.000      .8140C     2.34900      .14000                  DUKE  67
```

D	PI+P D P	950.000	.7414C	2.25600	.11000	DUKE	67
D	PI+P D P	950.000	.6128O	1.58300	.11000	DUKE	67
D	PI+P D P	950.000	.4777O	1.08500	.08000	DUKE	67
D	PI+P D P	950.000	.3510C	.63900	.04100	DUKE	67
D	PI+P D P	950.000	.2087C	.46500	.03000	DUKE	67
D	PI+P D P	950.000	.0898C	.28700	.02100	DUKE	67
D	PI+P D P	950.000	-.0561O	.25100	.02100	DUKE	67
D	PI+P D P	950.000	-.1880C	.29000	.02400	DUKE	67
D	PI+P D P	950.000	-.3210O	.31200	.02600	DUKE	67
D	PI+P D P	950.000	-.4548C	.37100	.02300	DUKE	67
D	PI+P D P	950.000	-.5752C	.47400	.02900	DUKE	67
D	PI+P D P	950.000	-.6915O	.49600	.03300	DUKE	67
D	PI+P D P	950.000	-.7773C	.48200	.03500	DUKE	67
D	PI+P D P	950.000	-.8461C	.42100	.03600	DUKE	67
D	PI+P D P	950.000	-.9008O	.48800	.04100	DUKE	67
D	PI+P D P	950.000	-.9423C	.51900	.04900	DUKE	67
D	PI+P D P	950.000	-.9660C	.56200	.08900	DUKE	67

S.L.BAKER ET AL.IC/WESTFIELD LONDON(70), NP 818(1970)29 BAKER 70
HBC. PI+P 895,945,955,1040MEV/C. NORMED TO GIACOMELLI(66)TOTAL. BAKER 70
DISAGREE WITH DUKE COUNTER DCS IN BACKWARD DIRECTION. BAKER 70

N	PI+P P	945.	.	1.		BAKER 70
L	PI+P D P	945.	13.42	.14		BAKER 70
D	PI+P5D P	945.	-.975	.25	.04	BAKER 70
D	PI+P D P	945.	-.925	.40	.05	BAKER 70
D	PI+P D P	945.	-.875	.43	.05	BAKER 70
D	PI+P D P	945.	-.825	.43	.05	BAKER 70
D	PI+P D P	945.	-.775	.48	.05	BAKER 70
D	PI+P D P	945.	-.725	.54	.05	BAKER 70
D	PI+P D P	945.	-.675	.38	.05	BAKER 70
D	PI+P D P	945.	-.625	.42	.05	BAKER 70
D	PI+P D P	945.	-.575	.44	.05	BAKER 70
D	PI+P D P	945.	-.525	.35	.04	BAKER 70
D	PI+P D P	945.	-.475	.33	.04	BAKER 70
D	PI+P D P	945.	-.425	.25	.04	BAKER 70
D	PI+P D P	945.	-.375	.28	.04	BAKER 70
D	PI+P D P	945.	-.325	.29	.04	BAKER 70
D	PI+P D P	945.	-.275	.22	.03	BAKER 70
D	PI+P D P	945.	-.225	.21	.03	BAKER 70
D	PI+P D P	945.	-.175	.25	.04	BAKER 70
D	PI+P D P	945.	-.125	.22	.03	BAKER 70
D	PI+P D P	945.	-.075	.15	.03	BAKER 70
D	PI+P D P	945.	-.025	.15	.03	BAKER 70
D	PI+P D P	945.	.025	.21	.03	BAKER 70
D	PI+P D P	945.	.075	.26	.04	BAKER 70
D	PI+P D P	945.	.125	.43	.05	BAKER 70
D	PI+P D P	945.	.175	.41	.05	BAKER 70
D	PI+P D P	945.	.225	.55	.06	BAKER 70
D	PI+P D P	945.	.275	.57	.06	BAKER 70
D	PI+P D P	945.	.325	.74	.06	BAKER 70
D	PI+P D P	945.	.375	.68	.06	BAKER 70
D	PI+P D P	945.	.425	.88	.07	BAKER 70
D	PI+P D P	945.	.475	1.01	.08	BAKER 70
D	PI+P D P	945.	.525	1.24	.08	BAKER 70
D	PI+P D P	945.	.575	1.42	.09	BAKER 70
D	PI+P D P	945.	.625	1.60	.09	BAKER 70
D	PI+P D P	945.	.675	1.81	.10	BAKER 70
D	PI+P D P	945.	.725	1.86	.10	BAKER 70
D	PI+P D P	945.	.775	2.27	.11	BAKER 70
D	PI+P D P	945.	.825	2.37	.11	BAKER 70
D	PI+P D P	945.	.875	2.40	.12	BAKER 70

ARIZONA PI+P PI-P AT 180 DEGREES 575 TO 1635 MEV/C ARIZONT71
PRELIMINARY DATA TWO PERCENT SYST. ERR. FOLDED IN ARIZONT71
INTERPOLATED POINT ARIZONT71

N	DFP	950.000	0.C000C	C.00000	0.00000	0.00000	ARIZONT71

```
D PI+P O P    950.000  -1.COOOC     .65554     .01522     .01346                ARIZON71

      QUADRATIC INTERPOLATION OF CARTER,PR 168,1457(68) TOTAL CS.               CARTER68
L PI-P T P    950.000  54.C4225     .05439     .18018                           CARTER68

      ECLECTIC FORWARD REAL PART.  DISPERSION INTEGRAL HOEHLER68 WITH           1968A
      ERROR FROM CARTER68. LOW ENERGY PARAMETERS LOVELACE67.                    1968A
L PI-P F E    820.600     .81235     .14276                                     1968A

    BRODY ET AL      PR D3,2619(1971)        HBC      PI-P AT 35 MMTA          BRODY 71
          NUMBERS IN SLAC-PUB-789/UCRL-20223    SUPLEMENT                      BRODY 71
N PI-P D X  1647.                  1.                                          BRODY 71
D PI-P D X  1647.        .925      8.82        .52                             BRODY 71
D PI-P D X  1647.        .85       6.10        .31                             BRODY 71
D PI-P D X  1647.        .75       2.89        .17                             BRODY 71
D PI-P D X  1647.        .65       1.65        .12                             BRODY 71
D PI-P D X  1647.        .55       C.79        .08                             BRODY 71
D PI-P D X  1647.        .45       0.49        .06                             BRODY 71
D PI-P D X  1647.        .35       C.54        .06                             BRODY 71
D PI-P D X  1647.        .25       C.37        .05                             BRODY 71
D PI-P D X  1647.        .15       C.40        .05                             BRODY 71
D PI-P D X  1647.        .05       C.35        .05                             BRODY 71
D PI-P D X  1647.       -.05       0.28        .04                             BRODY 71
D PI-P D X  1647.       -.15       C.35        .05                             BRODY 71
D PI-P D X  1647.       -.25       C.53        .06                             BRODY 71
D PI-P D X  1647.       -.35       C.63        .07                             BRODY 71
D PI-P D X  1647.       -.45       1.00        .09                             BRODY 71
D PI-P D X  1647.       -.55       1.47        .11                             BRODY 71
D PI-P D X  1647.       -.65       1.91        .13                             BRODY 71
D PI-P D X  1647.       -.75       2.00        .14                             BRODY 71
D PI-P D X  1647.       -.85       1.91        .16                             BRODY 71
D PI-P D X  1647.       -.95       C.75        .08                             BRODY 71

      D.G.CRABB ET AL. PRL 27,216(71).                                          CRABB 71
      D.CRABB ET AL. ST.LOUIS PREPPINT (71). DOUBLE ARM SPECTROMETER.           CRABB 71
      BACKWARD PI-P, 600-1280MEV/C. 33MMA. DISAGREE ABILLON ABOVE 1100.         CRABB 71
N PI-P D P    950.          .          .04                                      CRABB 71
D PI-P D P    950.       -.9988        .187        .013                         CRABB 71
D PI-P D P    950.       -.9958        .243        .012                         CRABB 71
D PI-P D P    950.       -.9906        .338        .013                         CRABB 71
D PI-P D P    950.       -.9831        .442        .013                         CRABB 71
D PI-P D P    950.       -.9728        .609        .013                         CRABB 71
D PI-P D P    950.       -.9597        .821        .014                         CRABB 71
D PI-P D P    950.       -.9438        .993        .015                         CRABB 71
D PI-P D P    950.       -.9253       1.145        .015                         CRABB 71

      BEALL, PR 126,1554(62).  SC.                                              BEALL 62
D PI-P PAE    830.000  90.COOOO    -.37000     .26000                           BEALL 62

      P.BORGEAUD ET AL. PL 10,134(64).  SC. FORWARD CX 765-1860 MEV.            BORGEA64
      SYSTEMATIC ERRORS FOLDED IN.                                              BORGEA64
D PION D E    815.       1.         2.40        .35                            BORGEA64

      CERN-TH PARTIAL WAVE DISPERSION RELATION FITS WITH LARGE ERRORS           CERN  68
P S31    R    820.6     -.19254    -.00877     .54520    -.01016                FIT+-DR
P P31         820.6    -23.C53      .492      .93564     .01599     .000045 01/09/67
P P33         820.6     176.840    1.380      .82022     .03515    -.000050 01/09/67
P D33         820.6      -2.538     .462      .71097     .01221     .000000 01/09/67
P D35         820.6      -2.625     .306      .96375     .01044     .000000 01/09/67
P F35         820.6        .980     .213      .96124     .00861     .000000 01/09/67
P F37         820.6       6.C13     .240     1.00000     .00279     .000018 01/09/67
P G37         820.6       -.446     .085     1.00000     .00032     .000000 04/09/67
P G39         820.6       -.526     .146     1.00000     .00016     .000000 03/09/67
P H39         820.6       -.115     .060     1.00000     .00064     .000000 03/09/67
P H31         820.6        .431     .108     1.00000     .00064     .000000 03/09/67
P S11         820.6      66.605   24.990      .36748     .32950    -.125800 07/04/68
```

```
P P11       820.6     155.342     6.032       .43521     .08760      .005440 01/09/67
P P13       820.6      -4.101     1.512       .94051     .03088     -.000256 01/09/67
P D13       820.6     164.292     5.160       .80008     .14900      .001800 05/04/68
P D15       820.6      17.081     3.184       .37133     .04144     -.000064 02/09/67
P F15   R     820.6      .23207    -.03639     .49493    -.02804              FIT+-
P F17       820.6       -.252      .330      1.00000     .00288     0.000000 01/09/67
P G17       820.6       1.830      .240      1.00000     .02200     0.000000 04/04/68
P G19       820.6        .489      .424      1.00000     .00160      .000000 03/09/67
P H19       820.6        .376      .260      1.00000     .00180      .000000 03/09/67
P H11       820.6        .004      .078      1.00000     .00070      .000000 03/09/67

  ------------------------------------------------------------------------------

U  975D  P    975.0        8.0
  PI N DATA AT PLAB =    975.0 MEV/C    ELAB =    845.4 MEV     MASS =  1657.7 MEV
  PI N DATA AT PLAB =    975.0 MEV/C    S =    2.748 GEV**2     PCM =   551.8 MEV/C

     QUADRATIC INTERPOLATION OF CARTER,PR 168,1457(68) TOTAL CS.         CARTER68
L PI+P T P    975.000  23.71813    .02342    .17440                      CARTER68

     ECLECTIC FORWARD REAL PART.  DISPERSION INTEGRAL HOEHLER68 WITH     1968A
     ERROR FROM CARTER68. LOW ENERGY PARAMETERS LOVELACE67.              1968A
L PI+P F E    845.300   -.31602    .09275                                1968A

     DUKE, RHEL-M128(67).  COUNTERS.  NORM.ERROR FROM THRESHER.          DUKE  67
N PI+P D P    975.        .          .02                                 DUKE  67
D PI+P D P    975.000    .81110   2.51500    .15000                      DUKE  67
D PI+P D P    975.000    .73730   1.89400    .15000                      DUKE  67
D PI+P D P    975.000    .60740   1.62400    .16000                      DUKE  67
D PI+P D P    975.000    .47100   1.32100    .06300                      DUKE  67
D PI+P D P    975.000    .34320    .91400    .03800                      DUKE  67
D PI+P D P    975.000    .20110    .47500    .02800                      DUKE  67
D PI+P D P    975.000    .08110    .34300    .02000                      DUKE  67
D PI+P D P    975.000   -.06510    .23200    .01800                      DUKE  67
D PI+P D P    975.000   -.19600    .24100    .02000                      DUKE  67
D PI+P D P    975.000   -.32890    .33800    .02400                      DUKE  67
D PI+P D P    975.000   -.46180    .39100    .02300                      DUKE  67
D PI+P D P    975.000   -.58100    .45300    .02600                      DUKE  67
D PI+P D P    975.000   -.69530    .49500    .02900                      DUKE  67
D PI+P D P    975.000   -.78150    .53800    .03200                      DUKE  67
D PI+P D P    975.000   -.84900    .50100    .03400                      DUKE  67
D PI+P D P    975.000   -.90270    .63800    .04400                      DUKE  67
D PI+P D P    975.000   -.94320    .57800    .04600                      DUKE  67
D PI+P D P    975.000   -.96660    .61400    .08400                      DUKE  67

    ARIZONA  PI+P PI-P AT 180 DEGREES    575 TO 1635 MEV/C               ARIZON71
       PRELIMINARY DATA         TWO PERCENT SYST. ERR. FOLDED IN         ARIZON71
          INTERPOLATED POINT                                             ARIZON71
N        DFP  975.000   0.00000   0.00000   0.00000   0.00000            ARIZON71
D PI+P D P    975.000  -1.00000    .84835    .01867    .01703            ARIZON71

    PIPLUS PROTON   CERN-HOLLAND 69     .97 GEV/C       ANGULAR DISTR.   CERNHO70
       CERN-HOLLAND GROUP   ALBROW ET AL      NP B25(1971)9              CERNHO70
N PI+P D P    970.        .          1.                                  CERNHO70
D PI+P D P    970.       .84220   2.32004    .11600                      CERNHO70
D PI+P D P    970.       .80475   2.38967    .11948                      CERNHO70
D PI+P D P    970.       .76054   2.32391    .11620                      CERNHO70
D PI+P D P    970.       .71459   2.31373    .11569                      CERNHO70
D PI+P D P    970.       .67469   1.82475    .09124                      CERNHO70
D PI+P D P    970.       .63296   1.86621    .09331                      CERNHO70
D PI+P D P    970.       .59008   1.79432    .08972                      CERNHO70
D PI+P D P    970.       .54610   1.45513    .08692                      CERNHO70
D PI+P D P    970.       .50127   1.26496    .06325                      CERNHO70
D PI+P D P    970.       .45576   1.23869    .06193                      CERNHO70
D PI+P D P    970.       .42370    .96545    .06613                      CERNHO70
D PI+P D P    970.       .37624    .93322    .04666                      CERNHO70
```

B. Detailed Description of the Format

1. Introduction

This data format was carefully designed to make the data easy to use and to avoid encoding errors (e. g., many options were provided to allow the data to be punched exactly as given by the experimentalists, eliminating one source of human error). Each card contains one datum. The format of a card depends on the type of datum and is specified by the character punched in column 1.

The original tape contains more data than those which are illustrated in this book, which is confined to πN elastic and charge-exchange scattering only (see Table I). However, these instructions are intended to cover all data on the tape.

2. Card types

Blank in column 1 denotes a comment card, used (1) for header cards giving the source and reference of the experiment, comments on technique and systematic errors, etc., (2) blank cards as markers in the deck, or to improve appearance of the data listing.

D in column 1 denotes an angular data point, e.g., $d\sigma/d\Omega$ or polarization.

L in column 1 denotes an integrated data point, e.g., σ_{tot}, σ_{cx}, or a Legendre polynomial coefficient.

N in column 1 denotes a normalization card, specifying the common systematic errors of a number of subsequent data points.

P in column 1 denotes a partial wave datum. This may come from a dispersion relation prediction, or from somebody else's solution. It consists of a complex number with its error.

U in column 1 denotes an energy bin card. For the purpose of the CERN phase shift analysis, the data were divided into energy bins. The bins appear on the tape in order of increasing energy, but the data within an individual bin are not ordered by energy. For present purposes, these cards should be considered to be comment cards.

3. D card format

(b, Ø, o to denote blank, number zero, letter o, respectively)

Col. 1: D for angular datum.

Col. 2 (format A1): Beam code. b for pion, + for K^+, - for K^-, 2 for K_2^0.

Col. 3-6 (format A4): final state: PI+P, PI-P, PIØN, EØNØ (= ηn), XØNØ (= η'n), KØLØ (= KΛ), K+S+ (=$K^+\Sigma^+$), KØSØ, K+S- for pion beams. K+Pb, K+Nb, KØPb for K^+ beams. K-Pb, KØNb, IØLØ (=$\pi^0\Lambda$), I-LØ, I+S- (=$\pi^+\Sigma^-$), I-S+, IØSØ, I-SØ, IØS-, EØLØ (=ηΛ), XØLØ (=η'Λ), EØSØ (=ηΣ⁰), EØS-, K+X- (= $K^+\equiv^-$), KØXØ, KØX-, for K^- beams.

Col. 7 (format I1): Data quality. High numbers denote unreliable data:

9 agreed by experimentalists to be a bad point for known reasons (e.g., scanning losses),

8 obvious outlier when plotted against rest of same experiment but reason not known,

7 disagrees with other certainly better experiments,

6, 5 disagrees with other probably better experiments,

4 gives persistently large χ^2 in all CERN partial wave analysis fits without being visually wrong,

3, 2, 1 gives large χ^2 in more plausible fits,

b normal data point.

Col. 8 (format A1): Observable. b = differential cross section; P = polarization (Basel convention please), Q = polarization times D. c. s.; A, R = spin rotation parameters.

Col. 9 (format A1): Angle code. This specifies the nature of the angle variable, and the kinematic factor in the d. c. s.

b or C angle variable is cos $\theta_{c.m.}$.

A angle variable is $\theta_{c.m.}$ in degrees. D. c. s. is $d\sigma/d\Omega$ in mb/sr.

T angle variable is -t in GeV^2. D. c. s. is $d\sigma/d|t|$ in mb/GeV^2.

U angle variable is +u in GeV^2. D. c. s. is $d\sigma/du$ in mb/GeV^2.

L angle variable is θ_{lab} in degrees. D. c. s. is $d\sigma/d\Omega$ in lab frame in mb/sr.

Col. 10 (format A1): Energy code. This specifies the nature of the energy variable.

P lab momentum in MeV/c.

E or b lab kinematic energy in MeV.

X total mass (c.m. energy) in MeV.

Col. 11-20 (format F10.3): Energy, interpreted according to col. 10.

Col. 21-30 (format F10.5): Angle, interpreted according to col. 9.

Col. 31-40 (format F10.5): Datum, units specified by Col. 9 where necessary.

Col. 41-50 (format F10.5): Statistical error. This must not be zero or blank.

Col. 51-60 (format F10.5): Systematic error (in the same units as the datum, not as percentage). The N card specifies what is done with this. When a set of data have a common normalization error, there is no need to punch it on the individual cards. Blank is legal, in fact it is used normally except for total cross sections.

Col. 71 (format A1): Compulsory renormalization code. If this column is not blank, then the datum on the card must be multiplied by some physical constant, whose value is specified by a similar N card. Codes are:

L divide by α_Λ (sign convention $\alpha_\Lambda \approx +0.645$),

S divide by α_{Σ^+} (sign convention $\alpha_\Sigma \approx +1$),

T divide by α_{Σ^-},

N divide by branching ratio for eta to all neutrals,

G divide by branching ratio for $\eta \to 2\gamma$,

X divide by branching ratio for $\eta' \to 2\gamma$.

Special warning to users of the data collection:

Lambda and sigma polarizations are normally multiplied by the decay asymmetry, and eta cross sections by the branching ratio of the decay mode. This is signalled by the letter in column 71. This convention could confuse casual users, but it advantageous for a permanent data collection, because we can then easily renormalize the later measurements of these universal constants.

Col. 73-78 (format A6): Name of first author of experimental paper.

Col. 79-80 (format A2): Year of publication. This is different for different editions of an experiment.

Note: Columns 73-80 constitute an identifier for an experiment and are identical for all data from one experiment, subject to a common systematic error. For example, when different channels of the same HBC experiment have been published by different authors, they should be given a common name and date. On the other hand, pieces of a counter experiment may be given different names if they were done in different geometries. Some data in the collection are punched with the name of the institution rather than the author.

5. L card format

Col. 1: L for integrated datum (no angle variable).

Col. 2: Beam code, as for D card.

Col. 3-6: Final state code, as for D card.

Col. 7: Data quality as for D card.

Col. 8: (format A1) Observable. The codes are slightly different for integrated data:

T optical theorem total cross section (in mb),

F forward real part in unitarity units (i.e., multiplied by q),

R forward real part in same units (mb) as imaginary part on a T-card,

D Legendre coefficient A_n in polynomial fit to differential cross section

$$\frac{d\sigma}{d\Omega} = \lambda^2 \sum_{n=0}^{N} A_n P_n(\cos\theta). \qquad (1)$$

This includes the integrated cross section as a special case. The integrated cross section (D) which refers to one channel should not be confused with the total cross section (T) which refers to all channels.

Q Legendre coefficient B_n for polarization

$$P\frac{d\sigma}{d\Omega} = \lambda^2 \sin\theta \sum_{n=1}^{N} B_n P'_n(\cos\theta).$$

* A_n/A_0

\$ B_n/A_0

O Total inelastic cross section into all channels other than charge exchange.

B Backward differential cross section (mb/sr).

Col. 9 (format A1). Order (n) of Legendre polynomial coefficient, if the observable is D, Q, *, or \$. Otherwise ignored. The codes are:

I integrated cross section in mb (col. 8 must be D).

O A_0 in (1) above (col. 8 must be D).

1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, ···: A_n or B_n in (1), (2) above. Letters are used to represent numbers ≥ 10.

Col. 10: Energy code, as for D card.

Col. 11-20: Energy variable, as for D card.

Col. 21-30: (format F10.5) Datum. In mb where not dimensional.

Col. 31-40: (format F10.5) Statistical error. Blank or zero is illegal.

Col. 41-50: (format F10.5). Systematic error, in some units as datum (not percentage). This is optional, but is punched in the case of total cross sections and other data from multi-energy runs with very small statistical errors.

Col. 71: (format A1). Code for compulsory renormalization, as for D card.

Col. 72: (format A1). Total order of Legendre polynomial fit, i.e., N in Eqs. (1) and (2) above.

Col. 73-78: Author, as for D card.

Col. 79-80: Year, as for D card.

5. N card format

An N card specifies a systematic correction to some data. It applies to all subsequent D and L cards which satisfy tests on (1) final state, (2) observable, (3) energy, (4) author + year,

(5) special code. Any of these five tests can be switched off by leaving the appropriate columns on the N card blank. If they are not blank, then only D and L cards having the same thing punched there will be affected by the systematic correction. If they are blank, then the N card will apply to all subsequent D and L cards *satisfying the other tests.*

Col. 1: N for normalization card.

Col. 2: Beam code, as for D card.

Col. 3-6: Final state as for D card, or else blank. If blank, the N card applies to all final states, e.g., the normalization error of a bubble chamber experiment.

Col. 8: (format A1) Observable (see D and L cards). Legal codes are T, F, D, Q, P, A, R, O, $^{\pm}$, $. The N card acts on both D and L cards having the same character in col. 8. If col. 8 of the N card is blank, then *it acts on all observables.*

Examples: (1) In a $K^{+}p$ bubble chamber experiment, the d.c.s. are punched on D cards with observable O. The tau decay normalization with its error is punched on an N card with col. 8 blank. The normalization variable will then multiply both of them simultaneously. (2) In a polarized target experiment, the d.c.s. will have a very large normalization error, the polarization a small one coming from the uncertainty in the target polarization. Thus two N cards with D and P in col. 8 allow the normalizations of d.c.s. and polarizations to be varied separately with different errors.

Col. 9: (format A1). Treatment code. This determines what is to be done with the systematic errors on the D and L cards to which the N card applies. The treatment factor (z) from cols. 41-50 on the N card is also used. The codes are:

- b ignore systematic error, except for observable T (total cross section) where blank is equivalent to F (see below). This convention is used because these data typically have very small statistical errors, and to ignore their systematic error would be unrealistic.
- F first multiply systematic (SYS) error by (1 + z), and then fold it into statistical error by STAT = SQRT(STAT**2 + SYS**2).
- E multiply statistical error by a factor (1 + z). Ignore SYS.
- A add z^{*} SYS to each datum.
- X omit all data of this experiment completely.

Col. 10: (format A1) Energy code. Single-energy N cards have b, P, E, or X in col. 10, with the same interpretation as for the D card; they only apply at one energy. Energy-independent N cards have Z *in* col. 10; they act on all subsequent data cards.

Col. 11-20: (format F10.3) Energy variable, as for D card. Ignored if col. 10 in Z.

Col. 21-30: (format F10.5) Renormalization factor x. All data to which the N card applies is multiplied by (1 + x). Thus if cols. 21-30 are blank, there is no renormalization.

Col. 31-40: (format F10.5) Normalization error y.

Col. 41-50: (format F10.5). Treatment factor z (see col. 9 above).

Col. 71: (format A1). Code for compulsory renormalization (see D card). This indicates correction by a universal constant (e.g., $1/\alpha_{\Lambda}$).

Col. 73-80: Author and date, as on D card. If these columns are blank, then the N card applies to all authors (e.g., the α_{Λ} renormalization factor). Otherwise it only applies to D and L cards with the same characters punched in cols. 73-80 (e.g., track length uncertainty).

Notes on N cards:

(1) The five N card tests are logical "ands," i.e., all the *tests must be satisfied for the* N card to apply, except for those which have been switched off by leaving columns blank.

(2) The N card must precede the cards to which it applies, but need not immediately procede them.

(3) Several N cards may apply to one D or L card. The renormalization factor will then be the product of all $(1 + x)$ factors, but the normalization error, treatment code, and treatment factor will be taken from the first relevant single-energy N card only.

(4) When the normalization of an experiment has changed, this has sometimes been effected by an N card, rather than by repunching the data cards.

6. P card format.

Col. 1: P for partial wave datum.

Col. 2: (format A1) Beam code as for D card.

Col. 3: (format A1) Orbital angular momentum code: S, P, D, F, G, H, I, J, K, L, M, N, O, B, Q, R, C, T, U, V, W, X, Y, Z.

Col. 4: (format A1) 2^* isospin,

Col. 5: (format A1) Last figure of 2^* total spin, e.g., $j = 13/2$ becomes 3.

Col. 6: (format A1) Channel code: b for elastic channel, L for $K/$ or $\pi\Lambda$, S for $K\Sigma$ or $K\Sigma$, E for ηN or $\eta\Lambda$, F for $\eta\Sigma$, X for $K\Xi$, H for $\eta' N$ or $\eta'\Lambda$.

Columns 2-6 together form the wave name.

Col. 7-8: (format 2I1). Data quality as for D card. Col. 7 applies to the first datum, col. 8 to the second.

Col. 9: (format A1): Representation code:

R	the card contains real and imaginary part of a partial wave in one channel, with their errors.
b, P	the card contains phase and elasticity (or argument and modulus in an inelastic channel) with their errors.
C	the card contains η, ξ from a coupled channel fit with their errors.

Col. 10: (format A1) Energy code, as for D card.

Col. 11-20: (format F10.3) Energy variable, as for D card.

Col. 21-30: (format F10.5) First datum, called a below.

Col. 31-40: (format F10.5) Error on first datum, called Δa below.

Col. 41-50: (format F10.5) Second datum b.

Col. 51-60: (format F10.5) Its error Δb.

Col. 61-70: (format F10.5) Covariance Δab, i.e., off-diagonal element of 2×2 error matrix. The correlation would be $\Delta ab/(\Delta a \Delta b)$.

Col. 73-80: (format A8) Label. For theoretical data from dispersion relation fits, it has been punched as the data: day/month/year.

Interpretation of P card:

If col. 9 is R, then a is the real part of b, the imaginary part of Argant units.

If col. 9 is b or P and the channel is elastic, then a is the phase in degrees and b the elasticity η:

$$T = \frac{1}{2i}(\eta e^{2i\delta} - 1).$$

If col. 9 is b or P and the channel is inelastic, then a is the argument in degrees, and b the modulus:

$$T = be^{ia}.$$

Section IV.

SUMMARY OF OTHER DATA COMPILATIONS

A. Other PDG Compilations

The PDG has issued five previous reports on cross-section type data. Unlike the present S2 series, each of these reports covers all data on one input channel: The five existing reports cover K^+N, YN, NN, $K_L N$, and $\bar{N}N$.

Listed below are the names of the many physicists who are working on, or have recently worked on, these or other (forthcoming) PDG reports:

I. System Development (LBL)
- David Richards
- Alan Rittenberg
- Arthur Rosenfeld

II. Encoding and Verifying Data, Editing Reports, Fitting Data
- Denyse Chew (LBL)
- James Enstrom (LBL)
- Zaven Guiragossian (Stanford)
- Victor Henri (Mons)
- Robert Kelly (LBL)
- Thomas Trippe (LBL)
- Fumiyo Uchiyama (LBL)

III. Reading and Evaluating Articles, and Analyzing Compiled Data in:

π^-N Interactions
- *Alan Thorndike (BNL)
- Thomas Trippe (LBL)
- Frank Turkot (BNL)

π^+N Interactions
- Denyse Chew (LBL)
- Victor Henri (Mons)
- Thomas Lasinski (LBL)
- Henry Lubatti (Univ. of Wash.)
- Thomas Trippe (LBL)
- Fumiyo Uchiyama (LBL)
- *Fred Winkelmann (LBL)
- James Wolfson (M.I.T.)

πN S2 Interactions
- Sverker Almehed (CERN)
- James Enstrom (LBL)
- Victor Henri (Mons)
- *Robert Kelly (LBL)
- Claude Lovelace (Rutgers)
- Fumiyo Uchiyama (LBL)

K^-N Interactions—below 2.0 GeV/c
- *Claude Bricman (CERN)
- Thomas Lasinski (LBL)

K^-N Interactions—above 2.0 GeV/c
- J. Badier (Ecole Polytechnique)
- *Enzo Flaminio (BNL)
- G. Kayas (Ecole Polytechnique)
- Thomas Lasinski (LBL)
- Brian Musgrave (ANL)

K_L^0 N Interactions
- James Loos (SLAC)
- *Fumiyo Uchiyama (LBL)

K^+N Interactions
- Odette Benary (Tel-Aviv)
- *Roger Bland (Ecole Polytechnique)
- Victor Henri (Mons)
- LeRoy Price (U. C. Irvine)
- Naomi Schmidt (Brandeis)
- Charles Wohl (Oxford)

NN Interactions
- Gideon Alexander (Tel-Aviv)
- *Odette Benary (Tel-Aviv)
- LeRoy Price (U. C. Irvine)

$\bar{N}N$ Interactions
- Andre Astier (C. de. F)
- J. Enstrom (LBL)
- R. I. Hulsizer (chairman)
- Lucien Montanet (CERN)
- Vladislav Simak (Prague)
- G. A. Smith (MSU)

YN Interactions
- Gideon Alexander (Tel-Aviv)
- *Odette Benary (Tel-Aviv)
- LeRoy Price (U. C. Irvine)

ν Interactions
- Carlo Franzinetti (Torino)
- *Frank A. Nezrick (NAL)
- Emmanuel Paschos (NAL)

If you have any suggestions for improving these reports, please let us know. Our address is:

*"Chairman"

Particle Data Center
Lawrence Berkeley Laboratory
Berkeley, California 94720
(415) 843-2740, Ext. 6301 or 5885; nights, weekends, and holidays, call 642-0807.

B. Collaboration with Other Groups

Some physicists in Europe have formed a group called HERA (High Energy Reactions Analysis) to compile data. We are trying to keep in close contact with one another in order to minimize duplication of effort both in programming and data collection.

We also cooperate with HERA on report distribution: LBL prints and distributes both HERA and our reports for the Western Hemisphere and Japan, and CERN does the same for the rest of the world.

C. Compilation List

We present below (in chronological order) all of the previous large tabular compilations that we know of (for tapes see Table I). In addition to just listing data, some of them have nice reviews, perform various fits to the data, etc.

- V. S. Barashenkov and V. M. Maltsev, Cross Sections for Elementary Particle Interactions, Fortsch. Physik 9, 549 (1961).
- V. S. Barashenkov and J. Patera, Cross Sections for Antinucleon Production, Fortsch. Physik 11, 469 (1963).
- V. S. Barashenkov and J. Patera, Strange Particle Production, Fortsch. Physik 11, 479 (1963).
- M. N. Focacci and G. Giacomellio Pion Proton Elastic Scattering, CERN 66-18 (1966).
- J. T. Beale, S. D. Ecklund, and R. L. Walker, Pion Photoproduction Data Below 1.5 GeV, CALT-68-108 (1966).
- H. Yukawa, ed., Experimental Data on Hadron Interactions in GeV Region, Supplement of the Progress of Theoretical Physics (Kyoto), Extra Number (1967).
- P. K. Williams, D. M. Levine, J. A. Koschik, References and Some Two-Body Data for High Energy Reactions, University of Michigan, 1967 (unpublished).
- G. Alexander, O. Benary, and U. Maor, Data Compilation of Proton-Proton Interactions Between 1 and 32 GeV/c, Nucl. Phys. B5, 1 (1968).
- G. Alexander, O. Benary, and U. Maor, Data Compilation of Baryon-Baryon Interactions. (II) Proton-Neutron Collisions Between 1 and 27 GeV/c, Nucl. Phys. B7, 281 (1968).
- G. Alexander, O. Benary, U. Karshon, and U. Maor, Data Compilation of Baryon-Baryon Interactions. (III) Hyperon-Proton Collisions, Nucl. Phys. B10, 554 (1969).
- W. Galbraith, Hadron-Nucleon Total Cross Sections at High Energies, Rep. Progr. Phys. 32, 547 (1969).
- † G. Giacomelli, P. Pini, and S. Stagni, A Compilation of Pion-Nucleon Scattering Data, CERN/HERA 69-1 (1969).
- B. Sadoulet, Data Compilation of Antiproton-Proton Reactions into Antihyperon-Hyperon, CERN/HERA 69-2 (1969).
- G. Giacomelli, A Compilation of Total and Total Elastic Cross Sections, CERN/HERA 69-3 (1969).
- Particle Data Group (L. R. Price, N. Barash-Schmidt, O. Benary, R. W. Bland, A. H. Rosenfeld, C. G. Wohl), A Compilation of $K^{-}N$ Reactions, UCRL-20 000 $K^{+}N$ (1969).
- † Particle Data Group (D. J. Herndon, A. Barbaro-Galtieri, A. H. Rosenfeld), πN Particle Wave Amplitudes; A Compilation, UCRL-20 030 πN(1970).
- Particle Data Group (O. Benary, N. Barash-Schmidt, L. R. Price, A. H. Rosenfeld, G. Alexander), A Compilation of YN Reactions, UCRL-20 000 YN (1970).

- G. C. Fox and C. Quigg, Compilation of Elastic Scattering Data, UCRL-20 001 (Jan. 1970).
- P. Spillantini and V. Valente, A Collection of Pion Protoproduction Data. I—From the Threshold to 1.5 GeV, CERN/HERA 70-1 (1970).
- † J. D. Hansen, D. R. O. Morrison, N. Tovey, E. Flaminio, Compilation of Cross Sections. I—Proton Induced Reactions, CERN/HERA 70-2 (1970).
- † E. Flaminio, J. D Hansen, D. R. O. Morrison, N. Tovey, Compilation of Cross Sections. II—Antiproton Induced Reactions, CERN/HERA 70-3 (1970).
- O. Benary, L. R. Price, G. Alexander, NN and ND Interactions (above 0.5 GeV/c) — A Compilation, UCRL-20 000 NN (August 1970).
- P. Joos, Compilation of Photoproduction Data above 1.2 GeV, DESY/HERA 70-1.
- G. Giacomelli, Total Cross Section Measurements, Progress, in Nuclear Physics 12, part 2, Oxford; Pergomon Press Ltd. (1970).
- L. D. Jacobs, M. Roos, S. Santiago, Selective Compilation of $\pi^- p \to \pi\pi N$ Events from Hydrogen Bubble Chambers, CERN/HERA 71-1 (Sept. 1971).
- I. Berceanu, S. Berceana, T. Besliu, A. Mihul, Compilation of Cross Sections for Strange Particle Production in $\pi^- p$ Interactions, JINR E1-6327 (1972).
- Particle Data Group (F. Uchiyama, J. S. Loos), K^0_L Interactions—A Compilation, LBL-55 (March 1972).
- E. Bracci, J. P. Doulez, E. Flaminio, J. D. Hansen, D. R. O. Morrison, Compilation of Cross Sections. I-π^- and π^+ Induced Reactions, CERN/HERA 72-1 (May 1972).
- J. E. Enstrom, T. Ferbel, P. F. Slattery, B. L. Werner, Z. G. T. Guiragossian, Y. Sumi, T. Yoshida, $\overline{NN}$ and ND Interactions—A Compilation, LBL-58 (May 1972).
- M. E. Law, J. Kasman, R. S. Panvini, W. H. Sims, T. Ludlam, A Compilation of Data on Inclusive Reactions, LBL-80 (August 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, CERN/HERA 72-2 (Oct. 1972). V. Indices.
- Particle Data Group (D. M. Chew, V. P. Henri, T. A. Lasinski, T. G. Trippe, F. Uchiyama, F. Winkelman), Compilation of $\pi^+ p$, $\pi^+ n$, and $\pi^+ d$ Interactions, LBL-53 (1973).

† For the articles marked with a dagger the Particle Data Group can provide BCS tapes of the compiled data.

Section V.

INDICES

A. Source Index

We list here all the references that appear in this version of the LA tape (including recent data added by the PDG). Unpublished references are marked with a star. ("Unpublished" means the reference appears neither as a journal article nor as a thesis; conference proceedings are considered "unpublished"). The references are alphabetized by their source ID's which usually (but not always) correspond to the name of the first author.

B. Unpublished References

On the following pages we repeat unpublished references with comments from the Lovelace-Almehed tape.

C. Momentum Index

A star in front of the beam momentum indicates that the reference is unpublished. An arrow means that the reference is published but not displayed in figures.

The following notation is used:

D.C.S.	Differential cross section
POL.	Polarization
TOTAL	Total cross section, elastic total cross section, Legendre coefficient.
SRP	Spin rotation parameter

A. Source Index

A

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GIACOM60 G.GIACOMELLI, PR 117,250(1960).
GIACOM66 G.GIACOMELLI, STONYBROOK CONF. BNL-10215(1966).
GIORDE70 N.GIORDENESKU ET AL., DUBNA P1-5460(1970).
GLICKS54 M.GLICKSMAN, PR 94,1335(1954).
M.GLICKSMAN, PR 95,1045(1954).
GOLDHA53 G.GOLDHABER, PR 89,1187(1953).
GOLOSA62 S.J.GOLOSACK ET AL., NC 23,941(1962).
GOODWI59 L.K.GOODWIN ET AL., PRL 3,522(1959).
GOODWI61 L.K.GOODWIN ET AL., PR 122,655(1961).
GORN 67 * W.GORN ET AL., BAPS 12,469(1967)+PRIV. COMM.
W.GORN, LBL 1320(1973). REPLACES GORN 67
GRANDE55 P.A.GRANDEY ET AL., PR 97,791(1955).
GRARD 61 F.GRARD ET AL., NC 22,193(1961).
GRIGOR56 E.L.GRIGORIEV ET AL., JETP 31,37(1956).
GRIGOR57 E.L.GRIGORIEV ET AL., JETP 32,445(1957).
GRIGOR59 E.L.GRIGORIEV ET AL., JETP 37,413(1959).
E.L.GRIGORIEV ET AL., JETP 37,1583(1959).
GUESS 71 * POINT INTERPOLATED BY EYE BETWEEN DIFFERENT EXPERIMENTS
GUISAN68 O.GUISAN, PRIV. COMM.(1968).
O.GUISAN, PRIV. COMM.(1970).
GUISAN71 O.GUISAN ET AL., SACLAY SUBM. NP(1971).

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HAGOPI72 S.HAGOPIAN ET AL., PR D5,2684(1972).
HANSRO67 M.HANSROUL, THESIS UCRL-17263(1967).
HARTIN65 D.HARTING ET AL., NC 38,60(1965).
HARVEY71 E.H.HARVEY ET AL., MINNESOTA PREPRINT(1971).
HAUSER71 M.G.HAUSER ET AL., PL 35B,252(1971).
HELLAN64 J.A.HELLAND ET AL., PR B134,1062(1964).
J.A.HELLAND ET AL., PR B134,1079(1964).
HEUGHE62 J.HEUGHEBAERT, BRUXELLES LHEB-8(1962)+B.THEVENET,SACLAY CEA2306(1963).
HILL 70 R.E.HILL ET AL., PR D2,1199(1970).
HOHLER71 G.HOHLER ET AL., PRIV. COMM.(1971).
HOMA 54 G.HOMA ET AL., PR 93,554(1954).
HYMAN 68 E.HYMAN ET AL., PR 165,1437(1968).

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IGNATE56 A.E.IGNATENKO ET AL., JETP 3,10(1956).

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JACOBS66 L.D.JACOBS, UCRL-16877(1966).
JAMES 65 F.E. JAMES ET AL., PL 19,72(1965).
JOHNSO67 C.H.JOHNSON, THESIS UCRL-17683(1967).

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KALMUS70 G.E.KALMUS ET AL., PR D4,676(197.).
KANG-C60 KANG-CHANG, JETP 11,913(1960).
KELLMA63 S.KELLMANN ET AL., PR 129,365(1963).
KENNEY64 P.W.KENNEY ET AL., UCRL-.1723(1964)+J.B.CARROLL ET AL., UCRL-11098(1963)
KERNAN60 W.J.KERNAN, PR 119,1092(1960).
KISTIA69 V.KISTIAKOVSKY ET AL., LUND PAPER 352(1969).
KISTIA71 V.KISTIAKOVSKY ET AL.,(1971) MIT --REPLACES PRL 22,618(1969).
V.KISTIAKOVSKY, PR D6,1882(1972). REPLACES KISTIA71
KNAPP 63 D.E.KNAPP ET AL., PR 131,1822(1963).
KOPP 61 J.KOPP ET AL., PRL 6,327(1961).
KORMAN67 S.W.KORMANYOS ET AL., PR 164,1661(1967).
KRUSE 59 U.E.KRUSE ET AL., PR 116,1088(1959).
KUNZE 60 J.F.KUNZE ET AL., PR 117,859(196C).
KURZ 62 * R.J.KURZ, UCRL-10564(1962).
KURZ 65 D.L.LIND ET AL., PR 138B,1509(1965)+R.J.KURZ, UCRL-10564(1962).

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LAI 61 K.W.LAI, PRL 7,125(1961).
LEONAR54 S.L.LEONARD ET AL., PR 93,568(1954).
LESQUE71 * A.DE LESQUEN ET AL.(SACLAY) AMSTERDAM CONF.(71). POLZD.TARGET+SC.
SPIN ROT.IN 6GEV/C PI+-P. READ OFF LARGE GRAPH.
LESQUE72 A.DE LESQUEN ET AL., PL 40B,277(1972).

LIKHAC62 M.F.LIKHACHEV ET AL., JETP 14,29(1962).
LIND 65 D.L.LIND ET AL., PR 1388,1505(1965).
LINDEN55 S.J.LINDENBAUM ET AL., PR 100,306(1955).
LINDEN58 S.J.LINDENBAUM ET AL., PR 111,1360(1958).
LINDEN61 S.J.LINDENBAUM ET AL., PRL 7,352(1961).
LONGO 62 M.J.LONGO ET AL., PR 125,701(1962).
LORD 57 J.J.LORD ET AL., QUOTED IN H.L.ANDERSON ET AL., NC 5,1235(1957).
LORIA 61 A.LORIA, NC 22,820(1961).
LUNDBY68 ≠ LUNDBY, PRIV.COMM.(1968).
A.S.CARROL ET AL., BNL 11359(1966).

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MACNAU71 J.MACNAUGHTON ET AL., NP B33,101(1971).
MANNEL65 I.MANNELLI ET AL., PRL 14,408(1965).
MASSAM67 MASSAM, PRIV. COMM.(1967).
MATULE68 J.MATULENKO ET AL., APP 35,625(1969).
METZGE67 W.J.METZGER ET AL., PR 164,1680(1967).
MILLER60 MILLER, PR 117,582(1960).
MIYAKE62 K.MIYAKE ET AL., PR 126,2188(1962).
MUKHIN56 ★ A.I.MUKHIN ET AL., CERNSYMP. 204(1956).
MULLER64 A.MULLER ET AL., PL 10,349(1964).
MYATT 67 S.G.F.FRANK ET AL., PPS 92,609(1967).

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NATAP064 ★ A.NATAPOFF ET AL., UCRL-11333(1964).
NEAGU 61 D.V.NEAGU ET AL., STUD CERCETARI FIZ. ROUMANIA 12,39(1961).
NEWCOM63 P.C.A.NEWCOMB, PR 132,1283(1963).
NOMOFI67 A.A.NOMOFILOV ET AL., JETPL 6,65(1967).

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OGDEN 65 P.M.OGDEN ET AL., PR B137,1115(1965).
OLIVER66 J.D.OLIVER ET AL., PP 147,932(1966).
OREAR 53 J.OREAR, PR 92,156(1953).
OREAR 54 J.OREAR ET AL., PR 93,575(1954).
J.OREAR, PR 96,1417(1954).
OREAR 66 J.OREAR ET AL., PR 152,1162(1966).
OTT 72 R.J.OTT ET AL., PL 42B,133(1972)+ PRIV.COMM. L.S.SCHROEDER.
OWEN 69 D.P.OWEN ET AL., PR 181,1794(1969).

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PERL 63 M.L.PERL ET AL., PR 132,1252(1963).
PERL 65 M.L.PERL ET AL., PR B138,707(1965).
PERRY 53 J.P.PERRY ET AL., PR 91,1289(1953).
PICKUP65 E.PICKUP ET AL., PR 132 1619(1963).
POIRIE63 C.POIRIER ET AL., BAPS 8,603(1963).
POIRIE66 C.P.POIRIER ET AL., PR 148,1311(1966).
C.P.POIRIER ET AL., PR 143,1092(1966).
C.POIRIER ET AL., BAPS 8,603(1963).

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REYNOL66 R.G.REYNOLDS ET AL., PR 173,1403(1968).
RISK 66 ★ W.S.RISK ET AL., BAPS 11,36(1966).
ROBERT53 A.ROBERTS ET AL., PR 90,951(1953)+PR 95,137(1954).
ROELLI59 ROELLIG, PP 116,1001(1959).
ROTHSC72 R.E.ROTHSCHILD ET AL., PR D5,499(1972).
RUGGE 63 H.R.RUGGE ET AL., PR 129,2300(1963).
RUST 70 D.R.RUST ET AL., PRL 24,1361(1970).

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SACHS 56 A.M.SACHS ET AL., PR 109,1750(1958).
SAVIN 65 I.A.SAVIN ET AL., PL 17,68(1965).
SAXER 64 ★ H.I.SAXER, MIC 03106-19-T(1964).
SCHNEI71 J.SCHNEIDER, PARIS THESIS(1971).
SCHOTA70 D.J.SCHOTANUS ET AL., NP B22,45(1970).
SHEPHA62 W.D.SHEPHARD ET AL., PR 126,278(1962).
SHERDE70 D.J.SHERDEN ET AL., PRL 25,898(1970).
D.J.SHERDEN ET AL., EFI 70-36(1970)+PRL 25,898(1970).
SHONLE60 J.I.SHONLE ET AL., PRL 5,157(1960).
SIDWEL70 R.A.SIDWELL ET AL., PR D5,1523(1971).
SLEEMA71 ★ J.C.SLEEMAN, RHEL-CXFORD PRIV. COMM.(1971).
SPRY 54 W.J.SPRY, PR 95,1295(1954).
STONEH61 D.STONEHILL ET AL., PRL 6,624(1961).

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TAFT 56 H.D.TAFT, PR 101,1116(1956).
THOMAS60 R.G.THOMAS, PR 120,1015(1960).
TINLOT54 J.TINLOT ET AL., PP 95,137(1954).
TROKA 66 W.TROKA ET AL., PR 144,1115(1966).
TULI 69 S.K.TULI, NP B12,79(1969).

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VASILE60 I.M.VASILEVSKII ET AL., JETP 38,441(1960).
VASILE66 I.M.VASILEVSKY ET AL., PL 23,174(1966).
VIK 63 O.T.VIK ET AL., PR 129,2311(1963).
VITTIT64 C.N.VITTITOE,ET AL., PR B135,232(1964).
VOROBY69 G.G.VOROBYOV ET AL., DUBNA PREPRINT(1969).
VOVENK62 A.S.VOVENKO ET AL., JETP 15,458(1962).
A.S.VOVENKO ET AL., CERN CONF. 385(1962).

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WAHLIG68 M.A.WAHLIG ET AL., PR 168,1515(1968).
WALLE 68 R.T. VAN DE WALLE ET AL., NC A53,745(1968).
WALOSC68* WALOSCHEK, PRIV. COMM. JUNE(1968).
WEINBE62 A.WEINBERG ET AL., PRL8,70(1962).
WHETST56 S.L.WHETSTONE ET AL., PR 102,251(1956).
WIKNER57 F.WIKNER, UCRL-3639(1957).
WILLIS59 W.J.WILLIS ET AL., PR 116,753(1959)
WOOD 61 C.D.WOOD ET AL., PRL 6,480(1961).

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YAMAMO68 YAMAMOTO, PR 173,1302(1968).
YOKOSA71* A.YOKOSAWA, ANL/HEP 7117(1971).
YORK 60 C.M.YORK ET AL., PR 119,1056(1960).
YVERT 68 M.YVERT, PRIV.COMM.(GIACOMELLI)(1968).

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ZINOV 60 V.G.ZINOV ET AL., JETP 11,794(1960).
V.G.ZINOV ET AL., JETP 38,1395(1960).
V.G.ZINOV ET AL., JETP 11,1233(1960).

B. Unpublished References

ANGELO68 N.ANGELOV ET AL. DUBNA PREPRINT P1-4003(68). PI+P 2.34GEV/C HBC. NORMALIZED TO TOT=30.6MB,1 THINK. ELASTIC C.S.=8.71+.14MB. READ OFF SMALL GRAPH. TEXT IN RUSSIAN.

ANTHON68 R.ANTHONY ET AL. PRL 21,1605(68)+PRIV.COMM. 2.15GEV/C. SC
R.ANTHONY ET AL. VIENNA CONF.(1968),PAPER 347. SC. BACKWARD PI-P 2.15-6 GEV/C. PRELIMINARY RESULTS(20P.C.OF DATA). READ OFF GRAPH.

ANTOPO68 V.D.ANTOPOLSKII ET AL. ITEP(MOSCOW)-638(68). DP/P=.05. SC. PI-N THIS IS ACTUALLY DEUTERIUM PI-N DATA.
DISAGREE WITH DOBROWOLSKI AND WITH SOME OF BAKER. AGREE CARROLL.
V.D.ANTOPOLSKII ET AL. ITEP(MOSCOW)-639(68). DP/P=.05. SC. CX.
DISAGREE WITH BARMIN67 AT 2.8GEV/C. DN=.35

AOI 71 H.AOI ET AL.(CERN) AMSTERDAM CONF.PAPER 295(71),NUMBERS FROM AUTHORS. REPLACES PL35B,90(71). BUTANOL POLZD.TARGET. BACKWARD+-.

BERTAN68 BERTANZA K-,PI- 700-800 MEV/C CERN PRE 8990 READ FROM GRAPH
HBC NORMALISED TO OTHER DATA

BOOTH 69 N.E.BOOTH ET AL.CHICAGO EFI-69-34. LMN+COUNTERS. READ FROM GRAPH.
PI+- DCS,POL AT 5.15 PUBLISHED, PI+ DCS,POL AT 2.75 PRELIMINARY.
N.E.BOOTH ET AL. CHICAGO EFI69-89(69). POL.TARGET. PI+-P 3.75,2.75
GEV/C. READ FROM GRAPH. ALSO SLIGHTLY DIFFERENT VERSION OF 5.15GEV
/C ESTERL68.

BORGHI72 M.BORGHINI ET AL. SUBMITTED TO PHYS LETTERS.
REPLACES BORGHI71 PL 36B,493(71) ; 36B,497(71),36B,501(71)
BUTANOL POLZD.TARGET. PI+-P 10,14,17.5 GEV/C FORWARD. SYST.ERROR.1
.1 P.C.EXCEPT 10GEV/C PI- WHERE IT WAS INCLUDED IN STAT.ERRORS.
HOWEVER KP PAPER SAYS DN=.05.

BROCKE71 PRIV COM T L JENKINS 1971 PRELIMINARY PRL 26.529(1971)
IS SAME EXPERIMENT

BRODY 69 A.C.BRODY ET AL. LUND PAPER 92 +PRIV.COMM.FROM A.H.ROSENFELD.
HBC, NO NORMALIZATION, 500-5000 EVS.EACH AT 35 MASSES 1405-1979.

BROWN 70 BROWN ET AL KIEV CONFERENCE 1970
PRELIMINARY DATA
BROWN ET AL KIEV-CONFERENCE 1970 BAD GRAPH BAD TABLE
BROWN ET AL KIEV CONFERENCE 70 BAD TABLE
BROWN ET AL KIEV CONFERENCE 70 READ FROM GRAPH
BROWN ET AL RHEL-OXFORD RHEL R125 ANNUAL REPORT 70
READ OF GRAPH PRELIMINARY DATA AMSTER DAM 71
BAD TABLE PART OF IT HERE

CERNOP69 CERN-ORSAY-PISA GROUP, INTERNAL REPORT(SEPT.69). POL.TARGET

CROWE 68 K.M.CROWE ET AL. UCRL-18473(68)+PRIV.COMM. 141.9+-4.2MEV/C.COUNTER
REPLACES EARLIER VERSION GIVEN IN LAB QUANTITIES

DELER 69 B.DELER, SACLAY CEA-R-3579(69). HBC. 940+-10,1430+-20MEV/C.
DISAGREES SERIOUSLY WITH HELLAN64.

FELLIN70 M.FELLINGER ET AL. ICWA PREPRINT(70). 2ARM SPECT. FORWARD PI-P AT
18MMA.1.71-5.53GEV/C. DN=.05 OVERALL,.02 BETWEEN ENERGIES.
NORM FOR FELLINGER70, WITH BLSZA66,APLIN68,ESTERLING66 DCS ALL
RENORMALIZED TO IT. LABEL BLANK. ALL OTHER PI-P DCS BEFORE.

GORN 67 W.GORN ET AL. BAPS12,469(67)+PRIV.COMM. PRELIMINARY PI+-P POLZN.
AT 247,306,370,410 MEV. POLZD.TARGET + COUNTERS.

GUESS 71 POINT INTERPOLATED BY EYE BETWEEN DIFFERENT EXPERIMENTS

KURZ 62 R.J.KURZ,UCRL-10564(1962). 417. +-16. MEV
NUMBERS READ FROM GRAPH BY C.H.JOHNSON,PRIV.COMM.

LESQUE71 A.DE LESQUEN ET AL.(SACLAY) AMSTERDAM CONF.(71). POLZD.TARGET+SC.
SPIN ROT.IN 6GEV/C PI+-P. READ OFF LARGE GRAPH.

LUNDBY68 A.S. CARROL ET AL BNL 11359
BLSZA68 AND CERNHO70 PI+P DCS HAVE BEEN RENORMALIZED TO LUNDBY68.
THE BLANK LABEL N CARD IS TO GIVE THEM A COMMON NORM.ERROR.
LUNDBY, PRIV.COMM.(68). SC.
A.S. CARROL ET AL BNL 11359 SC

MUKHIN56 MUKHIN, CERNSYMP.204(56). COUNTERS.
IN CONFLICT WITH BUGG 71

NATAPO64 A.NATAPOFF AND V.X.BANG, UCRL-11333(64). HBC. CX AT 1.038BEV/C.
12 EVENTS WITH SUBSEQUENT NP SCATTERING. SAME AS CBERK62 KOLO.

RISK 66 W.S.RISK AND E.KLECKNER, BAPS 11,36(66). SC. 575,650,757,810MEV/C.

SAXER 64 SAXER, MIC 03106-19-T(64). SC.

SLEEMA71 J.C. SLEEMAN RHEL-OXFORD PRIVATE COM
SAME EXPERIMENT AS BROWN70 AND 71
SYSTEMATIC ERROR VARIES BETWEEN 7.5(FORW) AND 10.(BACKW) PERC.
DN=0.10 CHOOSEN

WALOSC68 WALOSCHEK,PRIV.COMM.(JUNE 68). VERY PRELIMINARY.

YOKOSA71 YOKOSAWA ANL/HEP 7117 PI-P POL PRELIMINARY DATA

C. Momentum Index

P_{beam}	Source ID	Reaction	Measured Quantity
.077	SPRY 54	PIO N	TOTAL
.079	MIYAKE62	PIO N	TOTAL
.080	WHETST56	PI+ P	D.C.S.
— .087	MILLER63	PI+ P	D.C.S.
.096	BARNES60	PI- P	D.C.S.
.096	BARNES60	PI+ P	D.C.S.
.096	GIACCM60	PI- P	D.C.S.
.096	GIACCM60	PI+ P	D.C.S.
.096	SPRY 54	PIO N	TOTAL
.098	MIYAKE62	PIO N	TOTAL
.099	KNAPP 63	PI- P	D.C.S.
.099	KNAPP 63	PI+ P	D.C.S.
.101	LEONAR54	PI+ P	TOTAL
.103	ROBERT53	PIO N	TOTAL
.105	CUNDY 65	PIO N	TOTAL
.105	CUNDY 65	PI- P	D.C.S.
.108	SACHS 58	PI+ P	D.C.S.
.111	OCNALD66	PIO N	TOTAL
.111	OCNALD66	PI- P	D.C.S.
.113	PERRY 53	PI+ P	D.C.S.
.113	TINLOT54	PIO N	TOTAL
.115	BARNES60	PI- P	D.C.S.
.115	BARNES60	PI+ P	D.C.S.
.116	SPRY 54	PIO N	TOTAL
.119	LEONAR54	PI+ P	TOTAL
.121	OREAR 54	PI+ P	TOTAL
.121	OREAR 54	PI+ P	D.C.S.
.128	KENNEY64	PIO N	TOTAL
.137	ANDERS52	PI+ P	TOTAL
.137	LEONAR54	PI+ P	TOTAL
.140	BODANS54	PI+ P	D.C.S.
.140	FOWLER52	PI+ P	D.C.S.
* .142	CROWE 68	PI- P	D.C.S.
* .142	CROWE 68	PI+ P	D.C.S.
.144	YORK 60	PIO N	TOTAL
.150	BODANS54	PI- P	D.C.S.
.150	BODANS54	PIO N	TOTAL
.156	LEONAR54	PI+ P	TOTAL
.159	ANDERS52	PI- P	TOTAL
— .163	GOLDHA53	PI+ P	D.C.S.
.167	ANDERS53	PI+ P	TOTAL
— .167	ANDERS53	PI+ P	D.C.S.
.167	NEAGU 61	PI+ P	TOTAL
.168	ANDERS52	PI- P	TOTAL
.168	ANDERS52	PI+ P	TOTAL
.172	ANDERS52	PI+ P	TOTAL
.181	FERRET57	PI+ P	D.C.S.
.181	ANDERS51	PI- P	TOTAL
.183	BUGG 71	PIO N	TOTAL
.189	YORK 60	PIO N	TOTAL
.191	MYATT 67	PIO N	TOTAL
.192	EDWARD59	PI- P	TOTAL
.192	EDWARD59	PI- P	D.C.S.
.192	MASSAM67	PI+ P	D.C.S.
.195	GESSAR57	PI+ P	D.C.S.
.206	ANDERS52	PI- P	TOTAL
.206	ANDERS52	PI+ P	TOTAL
.207	ANDERS52	PI+ P	TOTAL
.207	ANDERS53	PI+ P	TOTAL
— .207	ANDERS53	PI+ P	D.C.S.
.209	ANDERS51	PI- P	TOTAL
.211	OREAR 54	PI+ P	D.C.S.
.213	ANDERS52	PI+ P	TOTAL
.213	BUGG 71	PIO N	TOTAL
.216	ANDERS52	PI+ P	TOTAL
.216	OREAR 54	PI- P	D.C.S.
.219	ANDERS53	PI- P	D.C.S.
.219	ANDERS53	PIO N	TOTAL
.219	FERRET55	PI+ P	D.C.S.
— .219	LOCKE 61	PI+ P	D.C.S.
.227	ANDERS52	PI- P	TOTAL
.227	ANDERS52	PI+ P	TOTAL
.228	ASHKIN54	PI+ P	TOTAL
.228	BUDAGO61	PI- P	D.C.S.
.228	GARWIN59	PIO N	TOTAL
.231	KRUSE 59	PI- P	TOTAL
.231	KRUSE 59	PI- P	D.C.S.
.234	ANDERS52	PI+ P	TOTAL
.234	ASHKIN54	PI- P	TOTAL
.236	ANDERS51	PI- P	TOTAL
.236	ANDERS52	PI- P	TOTAL
.236	ANDERS52	PI+ P	TOTAL
.236	ANDERS52	PIO N	TOTAL
.236	ANDERS53	PI+ P	TOTAL
- .236	ANDERS53	PI+ P	D.C.S.
.236	ASHKIN54	PI+ P	TOTAL
.239	ANDERS52	PI+ P	TOTAL
.242	IGNATE56	PI+ P	TOTAL
.243	ASHKIN54	PI+ P	TOTAL
.245	LORD 57	PI+ P	D.C.S.
.246	LINDEN58	PI+ P	TOTAL
.246	BUGG 71	PIO N	TOTAL
.247	ANDERS53	PI- P	D.C.S.
.247	ANDERS53	PIO N	TOTAL
.247	IGNATE56	PI+ P	TOTAL
.249	LINDEN57	PI+ P	TOTAL
.250	HAUSE71	PIO N	D.C.S.
.254	ASHKIN56	PI- P	TOTAL
.254	ASHKIN56	PI+ P	TOTAL
.254	ASHKIN56	PI- P	D.C.S.
.254	ASHKIN56	PI+ P	D.C.S.
.254	ASHKIN56	PIO N	TOTAL
.254	KERNAN60	PIO N	TOTAL
.255	GRANDE55	PI+ P	D.C.S.
.255	HAUSE*71	PIO N	D.C.S.
.256	ASHKIN54	PI- P	TOTAL
.256	ASHKIN54	PI+ P	TOTAL
.256	KELLMA63	PI- P	TOTAL
.256	KELLMA63	PI- P	D.C.S.
.256	KRUSE 59	PI- P	TOTAL
.256	KRUSE 59	PI- P	D.C.S.
.261	ASHKIN54	PI+ P	TOTAL
.262	ASHKIN54	PI- P	TOTAL
.262	LINDEN55	PI+ P	TOTAL
.263	ZINOV 60	PI- P	TOTAL
.267	BLDAGG61	PI- P	D.C.S.
.267	LINDEN58	PI+ P	TOTAL
.268	HAUSE71	PIO N	D.C.S.
.269	BUGG 71	PIO N	TOTAL
.270	IGNATE56	PI+ P	TOTAL
.271	ANDERS55	PI- P	TOTAL
.271	ANDERS55	PI+ P	TOTAL
.271	ANDERS55	PI- P	D.C.S.

	.271	ANDERS55	PI+ P	D.C.S.
	.271	ANDERS55	PIO N	TOTAL
	.271	HAUSE*71	PIO N	D.C.S.
	.272	ASHKIN54	PI+ P	TOTAL
	.272	LINDEN55	PI+ P	TOTAL
	.274	HCMA 54	PI+ P	D.C.S.
	.274	BUGG 71	PIO N	TOTAL
	.275	FERMI 53	PI- P	TOTAL
	.275	FERMI 53	PI- P	D.C.S.
	.275	FERMI 53	PIO N	TOTAL
	.276	ASHKIN56	PI- P	TOTAL
	.276	ASHKIN56	PI+ P	TOTAL
	.276	ASHKIN56	PI- P	D.C.S.
	.276	ASHKIN56	PI+ P	D.C.S.
	.276	ASHKIN56	PIO N	TOTAL
	.276	LINDEN58	PI+ P	TOTAL
	.277	ASHKIN54	PI+ P	TOTAL
	.277	LINDEN55	PI+ P	TOTAL
	.278	ZINOV 60	PI- P	TOTAL
	.280	LINDEN55	PI+ P	TOTAL
	.280	LINDEN58	PI+ P	TOTAL
	.281	IGNATE56	PI+ P	TOTAL
*	.283	MUKHIN56	PI+ P	D.C.S.
	.283	ANDERS51	PI- P	TOTAL
*	.283	MUKHIN56	PI+ P	TOTAL
	.284	LINDEN58	PI+ P	TOTAL
	.284	BUGG 71	PIO N	TOTAL
	.286	ZINOV 60	PI- P	TOTAL
	.286	ASHKIN54	PI- P	TOTAL
	.289	LINDEN55	PI+ P	TOTAL
	.290	ASHKIN54	PI+ P	TOTAL
	.291	LINDEN58	PI+ P	TOTAL
	.292	IGNATE56	PI+ P	TOTAL
	.293	ASHKIN54	PI+ P	TOTAL
	.293	ZINOV 60	PI- P	TOTAL
	.295	GLICKS54	PI- P	TOTAL
	.295	GLICKS54	PI- P	D.C.S.
	.295	GLICKS54	PIO N	TOTAL
*	.295	WALOSC68	PI- P	D.C.S.
	.297	ANDERS55	PI+ P	TOTAL
	.297	ANDERS55	PI+ P	D.C.S.
	.297	HCMA 54	PI+ P	D.C.S.
	.297	LINDEN55	PI+ P	TOTAL
	.298	ZINOV 60	PI- P	TOTAL
	.300	HAUSE71	PIO N	D.C.S.
	.301	BUGG 71	PIO N	TOTAL
	.303	ASHKIN54	PI- P	TOTAL
	.303	FERMI 53	PI- P	TOTAL
	.303	FERMI 53	PI- P	D.C.S.
	.303	FERMI 53	PIO N	TOTAL
	.303	HAUSE*71	PIO N	D.C.S.
	.303	IGNATE56	PI+ P	TOTAL
	.304	ASHKIN54	PI- P	TOTAL
	.304	LINDEN58	PI+ P	TOTAL
	.305	ASHKIN54	PI+ P	TOTAL
	.305	ZINOV 60	PI- P	TOTAL
	.310	HAUSE71	PIO N	D.C.S.
	.310	HAUSE*71	PIO N	D.C.S.
*	.310	MUKHIN56	PI+ P	D.C.S.
	.311	ZINOV 60	PI- P	TOTAL
*	.312	WALOSC68	PI- P	D.C.S.
	.315	LINDEN58	PI+ P	TOTAL
	.316	ZINOV 60	PI- P	TOTAL
	.319	GLICKS54	PI- P	TOTAL
	.319	IGNATE56	PI+ P	TOTAL
	.321	FERMI 53	PI- P	TOTAL
	.321	FERMI 53	PI- P	D.C.S.
	.321	FERMI 53	PIO N	TOTAL
	.321	LINDEN55	PI+ P	TOTAL

	.321	ZINOV 60	PI- P	TOTAL
	.325	LINDEN55	PI+ P	TOTAL
	.326	ASHKIN54	PI- P	TOTAL
	.326	BUGG 71	PIO N	TOTAL
	.326	ZINOV 60	PI- P	TOTAL
	.328	ANDERS51	PI- P	TOTAL
	.328	GLICKS54	PI- P	D.C.S.
	.328	GLICKS54	PIO N	TOTAL
	.328	TAFT 56	PI+ P	D.C.S.
	.330	IGNATE56	PI+ P	TOTAL
	.331	ASHKIN57	PI- P	TOTAL
	.331	ASHKIN57	PI- P	D.C.S.
	.331	ASHKIN57	PI+ P	D.C.S.
	.331	ASHKIN57	PIO N	TOTAL
	.331	GLICKS54	PI- P	TOTAL
	.331	HAUSE*71	PIO N	D.C.S.
	.332	ZINOV 60	PI- P	TOTAL
	.334	LINDEN55	PI+ P	TOTAL
	.336	DEAHL 61	PIO N	TOTAL
	.336	DEAHL 61	PI- P	D.C.S.
	.336	KUNZE 60	PI- P	POL.
*	.337	WALOSC68	PI- P	D.C.S.
	.337	HAUSE71	PIO N	D.C.S.
	.337	FCHLER53	PI+ P	D.C.S.
	.337	HAUSE*71	PIO N	D.C.S.
	.337	ZINOV 60	PI- P	TOTAL
	.338	KELLMA63	PI- P	TOTAL
	.338	KELLMA63	PI- P	D.C.S.
	.339	HAUSE71	PIO N	D.C.S.
	.340	ZINOV 60	PI- P	TOTAL
	.341	ARENS 68	PI- P	POL.
	.341	IGNATE56	PI+ P	TOTAL
	.342	CARIS 61	PIO N	TOTAL
	.342	GOODWI61	PI- P	TOTAL
	.342	GOODWI61	PI- P	D.C.S.
	.344	ZINOV 60	PI- P	TOTAL
	.347	ZINOV 60	PI- P	TOTAL
	.349	HAUSE71	PIO N	D.C.S.
	.349	ASHKIN54	PI- P	TOTAL
	.350	BUGG 71	PIO N	TOTAL
	.351	ZINOV 60	PI- P	TOTAL
*	.352	WALOSC68	PI- P	D.C.S.
	.353	ASHKIN54	PI- P	TOTAL
*	.353	MUKHIN56	PI+ P	TOTAL
*	.353	MUKHIN56	PI+ P	D.C.S.
	.353	ZINOV 60	PI- P	D.C.S.
	.353	ZINOV 60	PIO N	TOTAL
	.355	ZINOV 60	PI- P	TOTAL
	.358	ZINOV 60	PI- P	TOTAL
	.359	CHAMBE63	PI+ P	POL.
*	.361	GORN 67	PI- P	POL.
*	.361	GORN 67	PI+ P	POL.
	.361	HAUSE*71	PIO N	D.C.S.
	.361	TROKA 66	PI+ P	D.C.S.
	.362	ZINOV 60	PI- P	TOTAL
	.365	ZINOV 60	PI- P	TOTAL
	.369	ZINOV 60	PI- P	TOTAL
	.372	ASHKIN54	PI- P	TOTAL
	.372	ZINOV 60	PI- P	TOTAL
	.374	CARIS 61	PIO N	TOTAL
	.375	BUGG 71	PIO N	TOTAL
	.376	ZINOV 60	PI- P	TOTAL
	.377	LINDEN55	PI+ P	TOTAL
	.378	LINDEN55	PI+ P	TOTAL
	.380	LINDEN55	PI- P	TOTAL
	.381	ZINOV 60	PI- P	TOTAL
	.385	CARIS 61	PIO N	TOTAL
	.385	HAUSE*71	PIO N	D.C.S.
*	.385	MUKHIN56	PI+ P	TOTAL
*	.385	MUKHIN56	PI+ P	D.C.S.

.385	ZINOV 60	FI- P	D.C.S.	
.385	ZINOV 60	PIO N	TOTAL	
.387	ZINOV 60	FI- P	TOTAL	
.392	ZINOV 60	PI- P	TOTAL	
.396	LINDEN55	PI+ P	TOTAL	
.398	ZINOV 60	PI- P	TOTAL	
.403	ZINOV 60	PI- P	TOTAL	
.406	CARIS 61	PIO N	TOTAL	
.406	GOODWI61	PI- P	TOTAL	
.406	GOODWI61	PI- P	D.C.S.	
.407	HAUSE71	PIO N	D.C.S.	
.408	BUGG 71	PIO N	TOTAL	
.408	ZINOV 60	PI- P	TOTAL	
.414	ZINOV 60	PI- P	TOTAL	
.415	LINDEN55	PI+ P	TOTAL	
.415	DAVIDS72	PI- P	TOTAL	
.415	DAVIDS72	PI+ P	TOTAL	
.417	BARNES63	FI+ P	TOTAL	
.417	VASILE60	FI- P	D.C.S.	
.417	VASILE66	PI- P	POL.	
.419	ZINOV 60	PI- P	TOTAL	
* .423	GORN 67	PI- P	POL.	
* .423	GORN 67	PI+ P	POL.	
.424	GRIGOR59	PI+ P	POL.	
* .424	MUKHIN56	FI+ P	TOTAL	
* .424	MUKHIN56	PI+ P	D.C.S.	
.424	ZINOV 60	PI- P	D.C.S.	
.424	ZINOV 60	PIO N	TOTAL	
.425	ZINOV 60	PI- P	TOTAL	
.427	BIZARD66	PI- P	TOTAL	
.427	FOOTE 61	FI+ P	POL.	
.427	GRIGOR56	PI+ P	D.C.S.	
.427	HILL 70	PIO N	POL.	
.427	OGDEN 65	PI+ P	D.C.S.	
.427	RUGGE 63	FI- P	TOTAL	
.427	RUGGE 63	PI- P	D.C.S.	
.427	VIK 63	FI+ P	D.C.S.	
.427	VIK 63	PI- P	POL.	
.431	LIND 65	PIO N	D.C.S.	
.431	ZINOV 60	FI- P	TOTAL	
.435	CARIS 61	PIO N	TOTAL	
.435	DAVIDS72	PI- P	TOTAL	
.435	DAVIDS72	PI+ P	TOTAL	
.436	ARENS 68	PI- P	POL.	
.436	BAREYR60	PI+ P	TOTAL	
.436	BIZARD66	PI+ P	TOTAL	
.436	ZINOV 60	PI- P	TOTAL	
.442	ZINOV 60	PI- P	TOTAL	
.446	ZINOV 60	PI- P	TOTAL	
.448	BIZARD66	PI- P	TOTAL	
.451	ZINOV 60	PI- P	D.C.S.	
.451	ZINOV 60	PIO N	TOTAL	
.453	ZINOV 60	PI- P	TOTAL	
.454	LINDEN55	PI+ P	TOTAL	
.455	DAVIDS72	PI- P	TOTAL	
.455	DAVIDS72	PI+ P	TOTAL	
.456	ARENS 68	PI- P	POL.	
.456	HAUSE*71	PIO N	D.C.S.	
.459	BIZARD66	PI- P	TOTAL	
.459	LINDEN63	PI- P	TOTAL	
.459	LINDEN55	PI+ P	TOTAL	
.464	ZINOV 60	PI- P	TOTAL	
.466	HAUSE71	PIO N	D.C.S.	
.467	BAREYR60	PI+ P	TOTAL	
.467	BIZARD66	PI+ P	TOTAL	
.469	BOWEN 69	PI- P	TOTAL	
.469	BOWEN 69	FI+ P	TOTAL	
.469	BIZARD66	PI- P	TOTAL	
.475	DAVIDS72	PI- P	TOTAL	

.475	DAVIDS72	FI+ P	TOTAL	
.480	BIZARD66	FI- P	TOTAL	
.480	GRIGOR57	PI+ P	D.C.S.	
.481	ZINOV 60	FI- P	TOTAL	
.485	DICKIN66	PI- P	POL.	
.488	BAREYR60	PI+ P	TOTAL	
.488	BIZARD66	FI+ P	TOTAL	
.490	GCODWI59	PI- P	TOTAL	
.490	GOODWI59	PI- P	D.C.S.	
* .490	GORN 67	PI- P	POL.	
* .490	GORN 67	PI+ P	POL.	
.490	HAUSE*71	PIO N	D.C.S.	
.490	OGDEN 65	PI- P	D.C.S.	
.490	OGDEN 65	PI+ P	D.C.S.	
.491	CARIS 61	PIO N	TOTAL	
.491	LIND 65	PIO N	D.C.S.	
.492	HAUSE71	PIO N	D.C.S.	
.493	BRISSD61	PI- P	TOTAL	
.493	BRISSD61	PIO N	TOTAL	
.494	KURZ 65	PIO N	D.C.S.	
.495	DAVIDS72	FI- P	TOTAL	
.495	CAVIDS72	PI+ P	TOTAL	
.496	BRISSD61	PI+ P	TOTAL	
.499	BOWEN 69	PI- P	TOTAL	
.499	BOWEN 69	FI+ P	TOTAL	
.500	BIZARD66	PI- P	TOTAL	
.511	ARENS 68	FI- P	POL.	
.511	BIZARD66	PI- P	TOTAL	
.511	GRIGOR59	PI+ P	D.C.S.	
.515	DAVIDS72	PI- P	TOTAL	
.515	DAVIDS72	PI+ P	TOTAL	
.519	BAREYR60	FI+ P	TOTAL	
.519	BIZARD66	FI+ P	TOTAL	
.528	BOWEN 69	PI- P	TOTAL	
.528	BOWEN 69	PI+ P	TOTAL	
.528	OERRE 69	PI- P	D.C.S.	
.532	BANNER67	PI- P	D.C.S.	
.532	BANNER67	PI+ P	D.C.S.	
.532	BAREYR65	PI- P	POL.	
.532	BAREYR65	PI+ P	POL.	
.532	BIZARD6A	FI- P	TOTAL	
* .532	GORN 67	PI- P	POL.	
* .532	GORN 67	PI+ P	POL.	
.532	HAUSE*71	PIO N	D.C.S.	
.532	OGDEN 65	FI- P	D.C.S.	
.532	OGDEN 65	FI+ P	D.C.S.	
.535	DAVIDS72	PI- P	TOTAL	
.535	DAVIDS72	FI+ P	TOTAL	
* .539	KURZ 62	PIO N	D.C.S.	
.540	BAREYR60	PI+ P	TOTAL	
.540	BIZARD66	PI+ P	TOTAL	
.540	DEVLIN65	PI- P	TOTAL	
.543	BRISSD61	PIO N	TOTAL	
.547	HAUSE71	PIO N	D.C.S.	
.547	BIZARD66	FI- P	TOTAL	
.547	HEUHER62	PI+ P	TOTAL	
.548	BRISSD61	PI- P	TOTAL	
.549	GOODWI59	FI- P	TOTAL	
.549	GCODWI59	PI- P	D.C.S.	
.555	DAVIDS72	PI- P	TOTAL	
.555	DAVIDS72	PI+ P	TOTAL	
* .555	BRODY 69	PI- P	D.C.S.	
.556	BOWEN 69	PI- P	TOTAL	
.556	BOWEN 69	PI+ P	TOTAL	
.557	BRODY 71	PI- P	D.C.S.	
.560	BAREYR60	PI+ P	TOTAL	
.560	BIZARD66	PI+ P	TOTAL	
.563	BIZARD66	PI- P	TOTAL	
.572	RETHSC72	PI- P	D.C.S.	

.573	CCOL 56	PI- P	TOTAL
.573	CCOL 56	PI+ P	TOTAL
.572	HAUSE*71	PIO N	O.C.S.
.573	LINDEN55	PI- P	TOTAL
.573	LINDEN55	PI+ P	TOTAL
.573	OGDEN 65	PI- P	O.C.S.
.573	OGDEN 65	PI+ P	O.C.S.
.573	POIRIE66	PI+ P	TOTAL
.573	POIRIE66	PI+ P	O.C.S.
.575	DEVLIN62	PI- P	TOTAL
.575	CAVIDS72	PI- P	TOTAL
.575	CAVIDS72	PI+ P	TOTAL
.575	RISK 66	PIO N	O.C.S.
.578	BIZARD66	PI- P	TOTAL
.580	DEVLIN62	PI+ P	TOTAL
.580	DEVLIN65	PI- P	TOTAL
.581	BAREYR60	PI+ P	TOTAL
.581	BIZARD66	PI+ P	TOTAL
.583	BIZARD66	PI- P	TOTAL
.583	CARIS 61	PI- P	TOTAL
.583	CRITTE59	PI- P	O.C.S.
.583	POIRIE66	PI- P	O.C.S.
.584	BOWEN 69	PI- P	TOTAL
.584	BOWEN 69	PI+ P	TOTAL
.590	BOWLER72	PI+ P	O.C.S.
.591	BOWLER69	PI+ P	TOTAL
.591	BRISSO61	PI- P	TOTAL
.592	ROTHSC72	PI- P	O.C.S.
.592	ROTHSC72	PI+ P	O.C.S.
.592	BRISSO61	PI+ P	TOTAL
.593	HAUSE71	PIO N	O.C.S.
.593	BIZARD66	PI- P	TOTAL
.593	BRISSO61	PIO N	TOTAL
.595	CAVIDS72	PI- P	TOTAL
.595	DAVIDS72	PI+ P	TOTAL
.596	HANSRD67	PI- P	POL.
.600	CRABB 71	PI- P	O.C.S.
.602	BAREYR60	PI+ P	TOTAL
.602	BIZARD66	PI+ P	TOTAL
.609	BIZARD66	PI- P	TOTAL
.610	BRODY 71	PI- P	O.C.S.
.610	ROTHSC72	PI- P	O.C.S.
.610	ROTHSC72	PI+ P	O.C.S.
.612	BOWEN 69	PI- P	TOTAL
.612	BOWEN 69	PI+ P	TOTAL
.614	BANNER67	PI- P	O.C.S.
.614	BANNER67	PI+ P	O.C.S.
.614	OGDEN 65	PI- P	O.C.S.
.614	OGDEN 65	PI+ P	O.C.S.
.614	CRABB 71	PI- P	O.C.S.
.614	CAVIDS72	PI- P	TOTAL
.614	CAVIDS72	PI+ P	TOTAL
.616	BAREYR65	PI- P	POL.
.616	BAREYR65	PI+ P	POL.
.617	DERRE 69	PI- P	O.C.S.
.621	DEVLIN65	PI- P	TOTAL
.621	DEVLIN65	PI+ P	TOTAL
.624	BEALL 62	PI- P	POL.
.624	BIZARD66	PI- P	TOTAL
.624	CHIU 67	PIO N	TOTAL
.624	CCOL 56	PI- P	TOTAL
.625	CRABB 71	PI- P	O.C.S.
.626	DEBAIS65	PI+ P	TOTAL
.626	DEBAIS65	PI+ P	O.C.S.
.627	DEVLIN62	PI- P	TOTAL
.628	ROTHSC72	PI- P	O.C.S.
.628	ROTHSC72	PI+ P	O.C.S.
.630	DEVLIN62	PI+ P	TOTAL
.632	CAVIDS72	PI- P	TOTAL

.632	CAVIDS72	PI+ P	TOTAL
.632	BAREYR60	PI+ P	TOTAL
.632	BIZARD66	PI+ P	TOTAL
.634	LINDEN55	PI- P	TOTAL
.635	WILLIS59	PI+ P	TOTAL
.635	WILLIS59	PI+ P	O.C.S.
.640	BIZARD66	PI- P	TOTAL
.641	DEVLIN65	PI- P	TOTAL
.641	GRAPD 61	PI- P	O.C.S.
.642	BOWEN 69	PI- P	TOTAL
.642	BOWEN 69	PI+ P	TOTAL
.643	BRISSO61	PI- P	TOTAL
.643	COX 68	PI- P	POL.
.645	BOWLER69	PI+ P	TOTAL
.645	BOWLER72	PI+ P	O.C.S.
.646	ROTHSC72	PI- P	O.C.S.
.646	ROTHSC72	PI+ P	O.C.S.
.648	SANDI 64	PI- P	POL.
.648	SANDI 64	PI+ P	POL.
.650	HEUHER62	PI+ P	TOTAL
.650	DAVIDS72	PI- P	TOTAL
.650	CAVILS72	PI+ P	TOTAL
.650	RISK 66	PIO N	O.C.S.
.654	DEVLIN62	PI+ P	TOTAL
.654	BULOS 69	PIO N	TOTAL
.655	BIZARD66	PI- P	TOTAL
.658	CHIU 67	PIO N	TOTAL
.658	HELLAN64	PI- P	O.C.S.
.658	HELLAN64	PI+ P	O.C.S.
.658	CRABB 71	PI- P	O.C.S.
.660	COX 68	PI- P	POL.
.661	BRODY 71	PI- P	O.C.S.
.662	DEVLIN65	PI- P	TOTAL
.664	ROTHSC72	PI- P	O.C.S.
.664	ROTHSC72	PI+ P	O.C.S.
.668	DAVIDS72	PI- P	TOTAL
.668	DAVIDS72	PI+ P	TOTAL
.670	BIZARD66	PI- P	TOTAL
.671	HANSRD67	PI- P	POL.
.675	COX 68	PI- P	POL.
.675	CRABB 71	PI- P	O.C.S.
.675	BIZARD66	PI- P	TOTAL
.675	CCOL 56	PI- P	TOTAL
.675	CCOL 56	PI+ P	TOTAL
.675	OGDEN 65	PI- P	O.C.S.
.675	OGDEN 65	PI+ P	O.C.S.
.675	WOOD 61	PI- P	O.C.S.
.679	DEVLIN62	PI- P	TOTAL
.683	BURNST65	PI- P	TOTAL
.683	BURSTE65	PI- P	O.C.S.
.683	ROTHSC72	PI- P	O.C.S.
.683	ROTHSC72	PI+ P	O.C.S.
.683	BAREYR60	PI+ P	TOTAL
.683	BIZARD66	PI+ P	TOTAL
.686	BIZARD66	PI- P	TOTAL
.687	CAVIDS72	PI- P	TOTAL
.687	DAVIDS72	PI+ P	TOTAL
.689	DEVLIN65	PI- P	TOTAL
.690	BIZARD68	PI- P	POL.
.690	BIZARD70	PI- P	TOTAL
.691	COX 68	PI- P	POL.
.693	BRISSO61	PI- P	TOTAL
.693	BRISSO61	PI+ P	TOTAL
.694	BRISSO61	PIO N	TOTAL
.694	BULOS 69	PIO N	TOTAL
.696	BIZARD66	PI- P	TOTAL
.698	SANDI 64	PI- P	POL.
.698	SANDI 64	PI+ P	POL.
.698	BOWLER69	PI+ P	TOTAL

	.699	HAUSE71	PIO N	D.C.S.
	.699	BRODY 71	PI- P	D.C.S.
	.700	BCWLER72	PI+ P	D.C.S.
	.701	BIZARD66	PI- P	TOTAL
	.701	ROTHSC72	PI- P	D.C.S.
	.701	ROTHSC72	PI+ P	D.C.S.
	.703	DEVLIN65	PI- P	TOTAL
*	.705	BERTAN68	PI- P	D.C.S.
	.705	CAVIDS72	PI- P	TOTAL
	.705	DAVIDS72	PI+ P	TOTAL
	.707	HAUSE*71	PIO N	D.C.S.
	.707	HELLAN64	PI- P	C.C.S.
	.707	HELLAN64	PI+ P	C.C.S.
	.707	CRABB 71	PI- P	D.C.S.
	.710	COX 68	PI- P	POL.
	.715	BIZARD70	PI- P	TOTAL
	.716	BIZARD66	PI- P	TOTAL
	.717	BRISSO61	PI- P	TOTAL
	.718	BRISSO61	PIO N	TOTAL
	.718	CHIU 67	PIO N	TOTAL
	.719	ROTHSC72	PI- P	D.C.S.
	.719	ROTHSC72	PI+ P	D.C.S.
	.720	HYMAN 68	PIO N	D.C.S.
	.722	MULLER64	PIO N	C.C.S.
	.722	DEVLIN65	PI- P	TOTAL
	.722	DEVLIN65	PI+ P	TOTAL
	.723	CAVIDS72	PI- P	TOTAL
	.723	DAVIDS72	PI+ P	TOTAL
	.724	DEVLIN62	PI- P	TOTAL
*	.725	BERTAN68	PI- P	D.C.S.
	.725	COX 68	PI- P	POL.
*	.725	SLEEMA71	PI+ P	POL.
	.726	CRABB 71	PI- P	D.C.S.
	.726	BARLOU62	PI+ P	TOTAL
	.726	BARLOU62	PI+ P	D.C.S.
	.726	CRITTE59	PI- P	D.C.S.
	.726	DEBEER69	PI+ P	TOTAL
	.726	LINDEN55	PI- P	TOTAL
	.726	NEWCCM63	PI+ P	TOTAL
	.726	NEWCCM63	PI+ P	D.C.S.
	.726	OGDEN 65	PI- P	D.C.S.
	.726	OGDEN 65	PI+ P	D.C.S.
	.726	WCOD 61	PI- P	D.C.S.
	.729	BULOS 69	PIO N	TOTAL
	.730	BPISSO61	PI- P	TOTAL
	.730	VITTIT64	PI- P	D.C.S.
	.736	BIZARD66	PI- P	TOTAL
	.736	COOL 56	PI- P	TOTAL
	.736	SHONLE60	PI- P	D.C.S.
	.737	ROTHSC72	PI- P	D.C.S.
	.737	ROTHSC72	PI+ P	D.C.S.
	.740	BIZARD70	PI- P	TOTAL
*	.741	BERTAN68	PI- P	D.C.S.
	.741	DAVIDS72	PI- P	TOTAL
	.741	DAVIDS72	PI+ P	TOTAL
—	.743	BEALL 62	PI- P	POL.
	.743	BRISSO61	PI- P	TOTAL
	.743	GRARD 61	PI- P	D.C.S.
	.744	DEVLIN65	PI- P	TOTAL
	.745	HANSRO67	PI- P	POL.
	.745	JOHNSO67	PI+ P	POL.
	.747	HEUHEB62	PI+ P	TOTAL
	.747	COX 68	PI- P	POL.
	.750	HYMAN 68	PIO N	D.C.S.
	.750	CRABB 71	PI- P	D.C.S.
	.750	BRODY 71	PI- P	D.C.S.
	.752	BCWLER69	PI+ P	TOTAL
	.752	BCWLER72	PI+ P	D.C.S.
	.753	BRISSO61	PI+ P	TOTAL
	.755	BULOS 69	PIO N	TOTAL
	.756	ROTHSC72	PI- P	D.C.S.
	.756	ROTHSC72	PI+ P	D.C.S.
	.757	BIZARD66	PI- P	TOTAL
*	.757	RISK 66	PIO N	C.C.S.
	.760	DAVIDS72	PI- P	TOTAL
	.760	DAVIDS72	PI+ P	TOTAL
	.763	DEVLIN65	PI- P	TOTAL
	.765	BIZARD70	PI- P	TOTAL
*	.768	BERTAN68	PI- P	D.C.S.
	.770	BRISSO61	PI- P	TOTAL
	.771	COX 68	PI- P	POL.
	.773	OLIVER66	PI- P	TOTAL
	.773	OLIVER66	PI- P	D.C.S.
	.774	ROTHSC72	PI- P	D.C.S.
	.774	ROTHSC72	PI+ P	D.C.S.
*	.777	BROWN 70	PI+ P	POL.
	.777	CRABB 71	PI- P	D.C.S.
	.777	BIZARD66	PI- P	TOTAL
	.777	BIZARD68	PI- P	POL.
	.777	FEMINO67	PI- P	D.C.S.
	.777	OGDEN 65	PI- P	D.C.S.
	.777	OGDEN 65	PI+ P	D.C.S.
	.778	DAVIDS72	PI- P	TOTAL
	.778	DAVIDS72	PI+ P	TOTAL
	.778	DEVLIN62	PI+ P	TOTAL
	.779	DEVLIN62	PI- P	TOTAL
	.780	HYMAN 68	PIO N	D.C.S.
	.782	CHIU 67	PIO N	TOTAL
	.782	SHONLE60	PI- P	D.C.S.
	.783	DEVLIN65	PI- P	TOTAL
	.783	DEVLIN65	PI+ P	TOTAL
	.787	COX 68	PI- P	POL.
	.789	MULLER64	PIO N	D.C.S.
	.790	BIZARD70	PI- P	TOTAL
	.791	CAVIDS72	PI- P	TOTAL
	.791	CAVIDS72	PI+ P	TOTAL
	.791	BRISSO61	PI+ P	TOTAL
	.792	ROTHSC72	PI- P	D.C.S.
	.792	ROTHSC72	PI+ P	D.C.S.
	.792	BRISSO61	PI- P	TOTAL
—	.794	BEALL 62	PI- P	POL.
	.797	COOL 56	PI- P	TOTAL
	.797	COOL 56	PI+ P	TOTAL
	.797	HEUHEB62	PI+ P	TOTAL
	.799	BRODY 71	PI- P	D.C.S.
	.800	CRABB 71	PI- P	D.C.S.
*	.802	BERTAN68	PI- P	D.C.S.
	.802	COX 68	PI- P	POL.
	.804	DEVLIN65	PI- P	TOTAL
	.805	HYMAN 68	PIO N	D.C.S.
	.807	BCWLER72	PI+ P	D.C.S.
	.808	BIZARD66	PI- P	TOTAL
	.809	BCWLER69	PI+ P	TOTAL
*	.810	RISK 66	PIO N	C.C.S.
	.811	BULOS 69	PIO N	TOTAL
	.811	ROTHSC72	PI- P	D.C.S.
	.811	ROTHSC72	PI+ P	D.C.S.
	.815	BIZARD70	PI- P	TOTAL
	.815	CERNHO70	PI+ P	D.C.S.
	.815	CERNHO70	PI+ P	POL.
	.815	DAVIDS72	PI- P	TOTAL
	.815	DAVIDS72	PI+ P	TOTAL
	.817	EANDI 64	PI- P	POL.
	.817	EANDI 64	PI+ P	POL.
	.819	BRISSO61	PIO N	TOTAL
	.819	COX 68	PI- P	POL.
	.820	HANSRO67	PI- P	POL.
*	.822	SLEEMA71	PI+ P	POL.

→	.823	BEALL 62	PI- P	POL.
	.824	DEVLIN65	PI- P	TOTAL
	.824	DEVLIN6E	PI+ P	TOTAL
	.825	CRABB 71	PI- P	D.C.S.
	.826	HELLAN64	PI- P	D.C.S.
	.826	HELLAN64	PI+ P	D.C.S.
	.828	LINDEN55	PI- P	TOTAL
	.828	LINDEN5E	PI+ P	TOTAL
	.829	R THSC72	PI- P	D.C.S.
	.829	RCTHSC72	PI+ P	D.C.S.
	.832	CHIU 67	PIO N	TOTAL
	.833	DEVLIN62	PI- P	TOTAL
	.833	DAVIDS72	PI- P	TOTAL
	.833	DAVIDS72	PI+ P	TOTAL
	.837	COX 68	PI- P	POL.
	.838	DEBEER69	PI+ P	TOTAL
	.838	GRARD 61	PI- P	D.C.S.
	.840	BIZARD70	PI- P	TOTAL
	.847	ROTHSC72	PI- P	D.C.S.
	.847	ROTHSC72	PI+ P	C.C.S.
	.847	BFISSO61	PI- P	TOTAL
	.848	HEUHEB62	PI+ P	TOTAL
	.848	WALLE 68	PI- P	D.C.S.
	.848	WOOD 61	PI- P	D.C.S.
	.850	CRABB 71	PI- P	D.C.S.
	.850	DEBAIS68	PI+ P	TOTAL
	.850	DEBAIS68	PI+ P	D.C.S.
	.851	CAVIDS72	PI- P	TOTAL
	.851	CAVIDS72	PI+ P	TOTAL
	.855	BRODY 71	PI- P	D.C.S.
	.855	DEVLIN62	PI- P	TOTAL
	.856	MULLER64	PIO N	D.C.S.
	.858	COX 68	PI- P	POL.
	.862	BULOS 69	PIO N	TOTAL
	.863	DEVLIN6E	PI- P	TOTAL
	.865	BIZARD70	PI- P	TOTAL
	.865	CERNHO71	PI- P	D.C.S.
	.865	CERNHO71	PI- P	POL.
	.866	RCTHSC72	PI- P	D.C.S.
	.866	ROTHSC72	PI+ P	D.C.S.
	.868	BEALL 62	PI- P	POL.
	.870	CERNHO70	PI+ P	C.C.S.
	.870	CERNHO70	PI+ P	POL.
	.870	CAVIDS72	PI- P	TOTAL
	.870	DAVIDS72	PI+ P	TOTAL
	.873	DEVLIN65	PI- P	TOTAL
	.875	APILLC70	PI- P	D.C.S.
*	.875	BROWN 70	PI+ P	POL.
	.875	CRABE 71	PI- P	C.C.S.
	.875	DUKE 67	PI- P	C.C.S.
	.875	DUKE 67	PI+ P	D.C.S.
	.875	DUKE 67	PI- P	POL.
	.878	BRISSO61	PI- P	TOTAL
	.878	DEVLIN62	PI+ P	TOTAL
	.879	SHINLE60	PI- P	D.C.S.
	.880	COX 68	PI- P	POL.
	.882	RCTHSC72	PI- P	D.C.S.
	.883	ROTHSC72	PI+ P	D.C.S.
	.884	DEVLIN63	PI- P	TOTAL
	.885	DEVLIN6E	PI+ P	TOTAL
	.889	AMBLER64	PI- P	TOTAL
	.890	BIZARD70	PI- P	TOTAL
	.894	BIZARD68	PI+ P	POL.
	.894	BROGDA64	PIO N	C.C.S.
	.895	BAKER 70	PI+ P	TOTAL
	.895	BAKER 70	PI+ P	D.C.S.
	.895	HANSRO6E	PI- P	POL.
	.895	JOHNSO67	PI+ P	POL.
	.896	CRITTE63	PI- P	D.C.S.

	.898	BRISSO61	PI- P	TOTAL
	.898	BRADAM68	PI- P	D.C.S.
	.899	BRISSO61	PI+ P	TOTAL
	.899	CRITTE59	PI- P	D.C.S.
	.899	HEUHEB62	PI+ P	TOTAL
	.899	COX 68	PI- P	POL.
	.900	CRABB 71	PI- P	D.C.S.
	.900	GIACOM66	PI- P	TOTAL
	.900	GIACOM66	PI+ P	TOTAL
	.901	RCTHSC72	PI- P	D.C.S.
	.901	RCTHSC72	PI+ P	D.C.S.
	.904	BERTAN66	PI- P	TOTAL
	.904	BERTAN66	PI- P	D.C.S.
	.905	DEVLIN65	PI- P	TOTAL
	.905	CERNHO70	PI+ P	C.C.S.
	.905	CERNHO70	PI+ P	POL.
	.907	POIRIE63	PI+ P	TOTAL
	.913	BIZARD70	PI- P	TOTAL
	.919	COOL 56	PI- P	TOTAL
	.919	COOL 56	PI+ P	TOTAL
	.920	RCTHSC72	PI- P	C.C.S.
	.920	RCTHSC72	PI+ P	D.C.S.
	.921	COX 68	PI- P	POL.
	.922	BRODY 71	PI- P	D.C.S.
	.924	DEVLIN65	PI- P	TOTAL
	.924	DEVLIN6E	PI+ P	TOTAL
	.925	ABILLC70	PI- P	D.C.S.
	.925	CRABB 71	PI- P	D.C.S.
	.925	DUKE 67	PI- P	D.C.S.
	.925	DUKE 67	PI+ P	D.C.S.
	.925	DUKE 67	PI- P	POL.
	.926	MULLER64	PIO N	D.C.S.
	.926	BRISSO61	PI- P	TOTAL
	.928	BULOS 69	PIO N	TOTAL
—	.929	BEALL 62	PI- P	POL.
	.929	DEVLIN62	PI- P	TOTAL
	.934	DEVLIN62	PI+ P	TOTAL
	.935	CERNHO71	PI- P	D.C.S.
	.935	CERNHC71	PI- P	POL.
	.938	AMBLER64	PI- P	TOTAL
	.939	RCTHSC72	PI- P	C.C.S.
	.939	ROTHSC72	PI+ P	D.C.S.
	.939	DEBEER69	PI+ P	TOTAL
*	.939	DELER 69	PI+ P	TOTAL
*	.939	DELER 69	PI+ P	D.C.S.
	.940	BIZARD70	PI- P	TOTAL
	.944	BORGDA64	PIO N	D.C.S.
	.944	DEVLIN6E	PI- P	TOTAL
	.945	BAKER 70	PI+ P	TOTAL
	.945	BAKER 70	PI+ P	C.C.S.
	.945	BRISSO61	PI- P	TOTAL
	.945	BRISSO61	PI+ P	TOTAL
	.947	BRISSO61	PI+ P	TOTAL
	.948	BRISSO61	PI- P	TOTAL
	.949	BARLOW62	PI+ P	TOTAL
	.949	BARLOW62	PI+ P	C.C.S.
	.949	HEUHEB62	PI+ P	TOTAL
	.950	ABILLC70	PI- P	C.C.S.
	.950	CRABB 71	PI- P	D.C.S.
	.950	DUKE 67	PI+ P	D.C.S.
	.950	GIACOM66	PI- P	TOTAL
	.950	GIACOM66	PI+ P	TOTAL
	.956	BRODY 71	PI- P	D.C.S.
	.958	RCTHSC72	PI- P	D.C.S.
	.958	RCTHSC72	PI+ P	C.C.S.
—	.959	BEALL 62	PI- P	POL.
	.965	BIZARD70	PI- P	TOTAL
	.965	CRABB 71	PI- P	C.C.S.
	.966	BRISSO61	PI- P	TOTAL
	.966	DEVLIN6E	PI- P	TOTAL

.966	DEVLIN65	PI+ P	TOTAL
.968	BRISSO61	PI+ P	TOTAL
.970	BRISSO61	PI- P	TOTAL
.970	CERNHO70	PI+ P	D.C.S.
.970	CERNHO70	PI+ P	POL.
.975	ABILLO70	PI- P	D.C.S.
.975	CRABB 71	PI- P	D.C.S.
.975	DUKE 67	PI- P	D.C.S.
.975	DUKE 67	PI+ P	D.C.S.
.975	DUKE 67	PI- P	POL.
* .975	SLEEMA71	PI+ P	POL.
.977	ROTHSC72	PI- P	D.C.S.
.977	ROTHSC72	PI+ P	D.C.S.
.978	BULOS 69	PIO N	TOTAL
.979	BRODY 71	PI- P	D.C.S.
.982	DEVLIN62	PI- P	TOTAL
.982	CERNHO71	PI- P	D.C.S.
.982	CERNHO71	PI- P	POL.
.985	DEVLIN65	PI- P	TOTAL
.985	DEVLIN65	PI+ P	TOTAL
.986	BRISSO61	PI- P	TOTAL
.989	AMBLAR64	PI- P	TOTAL
.990	CCOL 56	PI- P	TOTAL
.990	BIZARD70	PI- P	TOTAL
.990	CRABB 71	PI- P	D.C.S.
.991	DEVLIN62	PI+ P	TOTAL
.993	BRISSO61	PI+ P	TOTAL
.994	BRISSO61	PIO N	TOTAL
.994	EANDI 64	PI- P	POL.
.994	EANDI 64	PI+ P	POL.
.995	BORGEA64	PIO N	D.C.S.
.995	BAKER 70	PI+ P	TOTAL
.995	BAKER 70	PI+ P	D.C.S.
.995	BRODY 71	PI- P	D.C.S.
.996	BRISSO61	PI- P	TOTAL
.996	BRISSO61	PI+ P	TOTAL
.996	ROTHSC72	PI- P	D.C.S.
.996	ROTHSC72	PI+ P	D.C.S.
.997	MULLER64	PIO N	D.C.S.
.997	COX 68	PI- P	POL.
.998	BRISSO61	PI- P	TOTAL
— 1.000	BEALL 62	PI- P	POL.
1.000	HEUHEB62	PI+ P	TOTAL
1.000	ABILLO70	PI- P	D.C.S.
1.000	CRABB 71	PI- P	D.C.S.
1.000	DUKE 67	PI- P	D.C.S.
1.000	DUKE 67	PI+ P	D.C.S.
1.000	ESTERL66	PI+ P	D.C.S.
1.000	ESTERL66	PI+ P	POL.
1.000	GIACOM66	PI- P	TOTAL
1.000	GIACOM66	PI+ P	TOTAL
1.003	DEVLIN62	PI- P	TOTAL
1.003	HELLAN64	PI- P	D.C.S.
1.003	HELLAN64	PI+ P	D.C.S.
1.004	BRODY 71	PI- P	D.C.S.
1.005	CHIU 67	PIO N	TOTAL
1.005	DEVLIN65	PI- P	TOTAL
1.010	OSBEER69	PI+ P	TOTAL
1.010	CERNHO71	PI- P	D.C.S.
1.010	CERNHO71	PI- P	POL.
1.014	AMBLAR64	PI- P	TOTAL
1.014	AMBLAR64	PI+ P	TOTAL
1.015	BIZARD70	PI- P	TOTAL
1.015	CRABB 71	PI- P	D.C.S.
1.015	ROTHSC72	PI- P	D.C.S.
1.015	ROTHSC72	PI+ P	D.C.S.
1.016	BRISSO61	PI- P	TOTAL
1.017	GRARD 61	PI- P	D.C.S.
1.020	METZGE67	PI+ P	D.C.S.

1.020	BRISSO61	PI- P	TOTAL
1.020	DEVLIN62	PI+ P	TOTAL
1.022	COX 68	PI- P	POL.
1.024	BULOS 69	PIO N	TOTAL
1.024	JOHNSO67	PI+ P	POL.
1.024	BRODY 71	PI- P	D.C.S.
1.025	BIZARD68	PI+ P	POL.
1.025	DEVLIN65	PI- P	TOTAL
1.025	DEVLIN65	PI+ P	TOTAL
1.026	DEVLIN62	PI- P	TOTAL
* 1.028	BROWN 70	PI+ P	POL.
1.029	AMBLAR64	PI- P	TOTAL
1.030	ABILLO70	PI- P	D.C.S.
1.030	ABILLO70	PIO N	D.C.S.
1.030	CRABB 71	PI- P	D.C.S.
1.030	DUKE 67	PI- P	D.C.S.
1.030	DUKE 67	PI+ P	D.C.S.
1.030	DUKE 67	PI- P	POL.
1.030	BARLOW62	PI+ P	TOTAL
— 1.030	BARLOW62	PI+ P	D.C.S.
1.030	COOL 56	PI- P	TOTAL
1.030	WOOD 61	PI- P	D.C.S.
1.034	ROTHSC72	PI- P	D.C.S.
1.034	ROTHSC72	PI+ P	D.C.S.
1.035	CERNHO71	PI- P	D.C.S.
1.035	CERNHO71	PI- P	POL.
1.033	BORGEA64	PIO N	D.C.S.
1.035	PICKUP63	PI- P	D.C.S.
1.036	DEVLIN62	PI+ P	TOTAL
1.040	BAKER 70	PI+ P	TOTAL
1.040	BAKER 70	PI+ P	D.C.S.
1.040	BIZARD70	PI- P	TOTAL
1.040	SALTAY61	PI+ P	TOTAL
1.040	STONEH61	PI+ P	TOTAL
1.042	BRODY 71	PI- P	D.C.S.
— 1.042	BEALL 62	PI- P	POL.
1.044	DEVLIN65	PI- P	TOTAL
1.045	COX 68	PI- P	POL.
1.045	BORGEA60	PI- P	D.C.S.
1.045	BRISSO61	PI- P	TOTAL
1.045	BRISSO61	PI+ P	TOTAL
1.048	BRISSO61	PI- P	TOTAL
1.050	GIACOM66	PI- P	TOTAL
1.050	GIACOM66	PI+ P	TOTAL
1.050	AMBLAR64	PI- P	TOTAL
1.050	DEVLIN62	PI- P	TOTAL
1.050	HEUHEB62	PI+ P	TOTAL
1.053	ROTHSC72	PI- P	D.C.S.
1.053	ROTHSC72	PI+ P	D.C.S.
1.054	DEVLIN65	PI+ P	TOTAL
1.055	ABILLO70	PI- P	D.C.S.
1.055	CERNHO71	PI- P	D.C.S.
1.035	CERNHO71	PI- P	POL.
1.055	CRABB 71	PI- P	D.C.S.
1.055	DUKE 67	PI- P	D.C.S.
1.060	BIGI 64	PIO N	D.C.S.
1.064	DEVLIN65	PI- P	TOTAL
1.065	BIZARD70	PI- P	TOTAL
1.065	BORGEA64	PIO N	D.C.S.
1.068	BRODY 71	PI- P	D.C.S.
1.070	COX 68	PI- P	POL.
— 1.071	BEALL 62	PI- P	POL.
1.073	ROTHSC72	PI- P	D.C.S.
1.073	ROTHSC72	PI+ P	D.C.S.
1.074	BRISSO61	PI- P	TOTAL
1.076	BRISSO61	PI- P	TOTAL
1.080	DUKE 67	PI- P	D.C.S.
1.080	DUKE 67	PI+ P	D.C.S.
1.080	DUKE 67	PI- P	POL.

*	1.080	SLEEMA71	PI+ P	POL.
	1.081	ERWIN 58	FI- P	D.C.S.
	1.082	CERNHO71	PI- P	D.C.S.
	1.082	CERNHO71	PI- P	POL.
	1.083	DEVLIN62	PI+ P	TOTAL
—	1.084	JOHNSO67	PI+ P	POL.
	1.085	DEVLIN65	PI+ P	TOTAL
	1.085	ABILLC70	FI- P	D.C.S.
	1.085	CRABB 71	FI- P	D.C.S.
→	1.086	BIZARD68	PI+ P	POL.
	1.086	DEVLIN65	PI- P	TOTAL
	1.088	BRODY 71	PI- P	D.C.S.
	1.090	BIZARD70	FI- P	TOTAL
	1.090	CERNHO70	FI+ P	D.C.S.
	1.090	CERNHO70	PI+ P	POL.
	1.091	MEINBE62	PIO N	D.C.S.
	1.092	ROTHSC72	FI- P	D.C.S.
	1.092	ROTHSC72	FI+ P	D.C.S.
	1.093	DEVLIN62	PI- P	TOTAL
	1.096	BRISSO61	PI- P	TOTAL
	1.096	BRISSO61	FI+ P	TOTAL
	1.096	COX 68	FI- P	POL.
	1.099	BULOS 69	PIO N	TOTAL
	1.100	CRABB 71	FI- P	D.C.S.
	1.100	GIACOM66	FI- P	TOTAL
	1.100	GIACOM66	PI+ P	TOTAL
	1.101	COOL 56	PI- P	TOTAL
	1.101	HEUHEB62	PI+ P	TOTAL
	1.103	BRISSO61	PI- P	TOTAL
	1.106	CHIU 67	PIO N	TOTAL
	1.106	DEVLIN65	PI- P	TOTAL
	1.107	BRODY 71	FI- P	D.C.S.
	1.112	EANDI 64	PI- P	POL.
→	1.112	EANOT 64	PI+ P	POL.
	1.113	ROTHSC72	PI- P	D.C.S.
	1.113	ROTHSC72	FI+ P	D.C.S.
	1.115	BIZARD70	PI- P	TOTAL
	1.116	BRISSO61	PI- P	TOTAL
	1.119	COX 68	PI- P	POL.
	1.120	ABILLC70	PI- P	D.C.S.
	1.121	HELLAN64	PI- P	D.C.S.
	1.121	HELLAN64	PI+ P	D.C.S.
	1.121	KOPP 61	PI+ P	TOTAL
*	1.121	BROWN 70	PI+ P	POL.
	1.121	CRABB 71	FI- P	D.C.S.
	1.124	DEVLIN62	FI- P	TOTAL
	1.125	DEVLIN65	PI+ P	TOTAL
	1.125	BRODY 71	PI- P	D.C.S.
	1.129	DEVLIN62	PI+ P	TOTAL
	1.130	ROTHSC72	FI- P	D.C.S.
	1.130	ROTHSC72	FI+ P	D.C.S.
	1.131	COOL 56	PI- P	TOTAL
	1.131	COOL 56	PI+ P	TOTAL
	1.131	DERACO60	PI- P	TOTAL
	1.131	DERADO60	FI- P	D.C.S.
	1.135	BIDAN 62	PI+ P	D.C.S.
	1.140	BIZARD70	FI- P	TOTAL
	1.142	CERNHO71	FI- P	D.C.S.
—	1.142	CERNHO71	PI- P	POL.
	1.145	BRISSO61	PI- P	TOTAL
	1.145	BRISSO61	PI+ P	TOTAL
	1.145	DEVLIN65	FI- P	TOTAL
	1.150	COX 68	PI- P	POL.
	1.150	CRABB 71	PI- P	D.C.S.
	1.150	GIACOM66	FI- P	TOTAL
	1.150	GIACOM66	PI+ P	TOTAL
	1.150	ROTHSC72	FI- P	D.C.S.
	1.150	ROTHSC72	FI+ P	D.C.S.
	1.151	WOOD 61	PI- P	D.C.S.
	1.153	DEVLIN62	FI- P	TOTAL
	1.155	HANSRO67	PI- P	POL.
—	1.155	JOHNSO67	PI+ P	POL.
—	1.156	BIZARD68	PI+ P	POL.
	1.165	BRODY 71	FI- P	D.C.S.
	1.165	BIZARD70	FI- P	TOTAL
	1.165	DEVLIN65	FI+ P	TOTAL
	1.167	BRODY 71	PI- P	D.C.S.
	1.172	CERNHO70	PI+ P	D.C.S.
	1.172	CERNHO70	PI+ P	POL.
*	1.173	SLEEMA71	PI+ P	POL.
	1.173	DEVLIN62	PI+ P	TOTAL
	1.174	BRODY 71	PI- P	D.C.S.
	1.176	DEVLIN62	FI- P	TOTAL
	1.177	CERNHO71	FI- P	D.C.S.
	1.177	CERNHO71	PI- P	POL.
	1.180	ABILLC70	FI- P	D.C.S.
	1.180	CRABB 71	PI- P	D.C.S.
	1.180	DUKE 67	PI- P	D.C.S.
	1.180	DUKE 67	FI+ P	D.C.S.
*	1.181	BROWN 70	PI+ P	POL.
	1.181	COX 68	PI- P	POL.
	1.181	BARLOW62	FI+ P	TOTAL
	1.181	BARLOW62	PI+ P	D.C.S.
	1.185	DEVLIN65	FI- P	TOTAL
	1.185	DEVLIN65	PI+ P	TOTAL
	1.189	ROTHSC72	FI- P	D.C.S.
	1.189	ROTHSC72	PI+ P	D.C.S.
	1.189	ANBLAR64	PI- P	TOTAL
	1.189	ANBLAR64	FI+ P	TOTAL
	1.190	BIZARD70	PI- P	TOTAL
	1.195	BRISSO61	PI- P	TOTAL
	1.195	BRISSO61	FI+ P	TOTAL
	1.196	BORGEA64	PIO N	D.C.S.
	1.200	CRABB 71	PI- P	D.C.S.
	1.200	GIACOM66	PI- P	TOTAL
	1.200	GIACOM66	PI+ P	TOTAL
	1.201	COOL 56	PI+ P	TOTAL
	1.201	HEUHEB62	FI+ P	TOTAL
	1.206	DEVLIN65	PI- P	TOTAL
	1.206	COX 68	FI- P	POL.
	1.208	BRISSO61	PI- P	TOTAL
	1.210	APLIN 68	FI- P	D.C.S.
	1.210	CERNHO70	FI+ P	D.C.S.
	1.210	CERNHO70	PI+ P	POL.
	1.210	CRABB 71	PI- P	D.C.S.
	1.212	COOL 56	PI- P	TOTAL
	1.212	CERNHO71	PI- P	D.C.S.
	1.212	CERNHO71	FI- P	POL.
	1.214	BRODY 71	FI- P	D.C.S.
	1.215	BIZARD70	FI- P	TOTAL
	1.217	GRARO 61	PI- P	D.C.S.
	1.222	STONEH61	PI+ P	TOTAL
	1.226	DEVLIN65	PI+ P	TOTAL
	1.229	ROTHSC72	FI- P	D.C.S.
	1.229	ROTHSC72	PI+ P	D.C.S.
	1.230	APLIN 68	PI- P	D.C.S.
	1.230	CRABB 71	FI- P	D.C.S.
	1.232	DEVLIN62	PI- P	TOTAL
	1.232	DEVLIN62	FI+ P	TOTAL
	1.232	PICKUP63	FI- P	D.C.S.
	1.232	RCELLI59	PI+ P	TOTAL
	1.232	RCELLI59	PI+ P	D.C.S.
*	1.232	BROWN 70	PI+ P	POL.
	1.232	COX 68	PI- P	POL.
	1.240	BIZARD70	PI- P	TOTAL
	1.244	BRISSO61	PIO N	TOTAL
	1.246	BRISSO61	PI+ P	TOTAL

1.246	DEVLIN65	PI-	P	TOTAL
1.247	BULOS 69	PIO	N	TOTAL
1.249	CHIU 67	PIO	N	TOTAL
1.250	CERNHO71	PI-	P	D.C.S.
1.250	CERNHO71	PI-	P	POL.
1.250	CRABB 71	PI-	P	D.C.S.
1.250	GIACOM66	PI-	P	TOTAL
1.250	GIACOM66	PI+	P	TOTAL
1.250	OTT 72	PI+	P	D.C.S.
1.251	BRODY 71	PI-	P	D.C.S.
1.259	COX 68	PI-	P	POL.
1.261	BRODY 71	PI-	P	D.C.S.
1.265	BIZARD70	PI-	P	TOTAL
1.269	ROTHSC72	PI-	P	D.C.S.
1.269	ROTHSC72	PI+	P	D.C.S.
1.278	DEVLIN62	PI+	P	TOTAL
1.280	ABILLO70	PI-	P	D.C.S.
1.280	CRABB 71	PI-	P	D.C.S.
1.280	DUKE 67	PI-	P	D.C.S.
1.280	DUKE 67	PI+	P	D.C.S.
1.280	DUKE 67	PI-	P	POL.
1.280	KALMUS70	PI+	P	D.C.S.
1.280	OTT 72	PI-	P	D.C.S.
1.280	OTT 72	PI+	P	D.C.S.
1.280	BRODY 71	PI-	P	D.C.S.
1.282	CERNHO71	PI-	P	D.C.S.
1.282	CERNHO71	PI-	P	POL.
1.282	BRISSO61	PI-	P	TOTAL
1.282	COOL 56	PI+	P	TOTAL
1.282	DEVLIN62	PI-	P	TOTAL
1.284	JOHNSO67	PI+	P	POL.
1.286	COX 68	PI-	P	POL.
1.286	DEVLIN65	PI-	P	TOTAL
1.286	DEVLIN65	PI+	P	TOTAL
1.289	AMBLAR64	PI-	P	TOTAL
1.289	AMBLAR64	PI+	P	TOTAL
1.290	BIZARD70	PI-	P	TOTAL
1.293	OTT 72	PI-	P	D.C.S.
1.296	BRISSO61	PI-	P	TOTAL
1.296	BRISSO61	PI+	P	TOTAL
1.297	BERGER64	PIO	N	D.C.S.
1.300	APLIN 68	PI-	P	D.C.S.
1.300	GIACOM66	PI-	P	TOTAL
1.300	GIACOM66	PI+	P	TOTAL
1.302	HEUHE862	PI+	P	TOTAL
1.309	ROTHSC72	PI-	P	D.C.S.
1.309	ROTHSC72	PI+	P	D.C.S.
1.315	BIZARD70	PI-	P	TOTAL
1.315	DEVLIN62	PI+	P	TOTAL
1.316	OTT 72	PI-	P	D.C.S.
1.316	OTT 72	PI+	P	D.C.S.
1.317	COX 68	PI-	P	POL.
1.320	CERNHO70	PI+	P	D.C.S.
1.320	CERNHO70	PI+	P	POL.
1.323	BRODY 71	PI-	P	D.C.S.
1.325	DEVLIN65	PI-	P	TOTAL
1.325	DEVLIN65	PI+	P	TOTAL
1.327	DEVLIN62	PI-	P	TOTAL
1.330	CERNHO71	PI-	P	D.C.S.
1.330	CERNHO71	PI-	P	POL.
1.336	BERTAN61	PI-	P	D.C.S.
1.339	AMBLAR64	PI-	P	TOTAL
1.339	AMBLAR64	PI+	P	TOTAL
1.340	APLIN 68	PI-	P	D.C.S.
1.340	BIZARD70	PI-	P	TOTAL
1.340	KALMUS70	PI+	P	D.C.S.
1.343	BRODY 71	PI-	P	D.C.S.
1.345	BRISSO61	PI+	P	TOTAL
1.347	BORGER64	PIO	N	D.C.S.
1.349	COX 68	PI-	P	POL.
1.349	ROTHSC72	PI-	P	D.C.S.
1.349	ROTHSC72	PI+	P	D.C.S.
1.350	GIACOM66	PI-	P	TOTAL
1.350	GIACOM66	PI+	P	TOTAL
1.352	HANSRO67	PI-	P	POL.
1.352	JOHNSO67	PI+	P	POL.
* 1.359	SLEEMA71	PI+	P	POL.
1.360	ABILLO70	PI-	P	D.C.S.
1.360	APLIN 68	PI-	P	D.C.S.
1.360	DUKE 67	PI-	P	D.C.S.
1.360	DUKE 67	PI+	P	D.C.S.
1.360	OTT 72	PI-	P	D.C.S.
1.365	BIZARD70	PI-	P	TOTAL
1.366	DEVLIN65	PI+	P	TOTAL
1.371	OTT 72	PI-	P	D.C.S.
1.371	OTT 72	PI+	P	D.C.S.
1.372	DEVLIN62	PI-	P	TOTAL
1.372	DEVLIN62	PI+	P	TOTAL
1.375	CERNHO70	PI+	P	D.C.S.
1.375	CERNHO70	PI+	P	POL.
1.378	COX 68	PI-	P	POL.
1.380	ALIKPA65	PI+	P	D.C.S.
1.381	BRODY 71	PI-	P	D.C.S.
1.383	COOL 56	PI-	P	TOTAL
1.383	COOL 56	PI+	P	TOTAL
1.386	DEVLIN65	PI+	P	TOTAL
1.389	ROTHSC72	PI-	P	D.C.S.
1.389	ROTHSC72	PI+	P	D.C.S.
1.390	BIZARD70	PI-	P	TOTAL
1.390	OTT 72	PI-	P	D.C.S.
1.390	OTT 72	PI+	P	D.C.S.
1.393	DEVLIN65	PI-	P	TOTAL
1.393	STONEH61	PI+	P	TOTAL
1.395	CROUCH68	PIO	N	TOTAL
1.396	BRISSC61	PI-	P	TOTAL
1.396	BRISSO61	PI+	P	TOTAL
1.400	APLIN 68	PI-	P	D.C.S.
1.400	GIACOM66	PI-	P	TOTAL
1.400	GIACOM66	PI+	P	TOTAL
1.400	KALMUS70	PI+	P	D.C.S.
1.403	HEUHE862	PI+	P	TOTAL
1.407	COX 68	PI-	P	POL.
1.407	BRODY 71	PI-	P	D.C.S.
1.411	OTT 72	PI-	P	D.C.S.
1.413	SHEPPA62	PI-	P	TOTAL
1.414	AMBLAR64	PI-	P	TOTAL
1.414	AMBLAR64	PI+	P	TOTAL
1.415	BIZARD70	PI-	P	TOTAL
1.420	LONGC 62	PI+	P	TOTAL
1.421	BRISSP61	PI+	P	TOTAL
1.423	BORGER64	PIO	N	D.C.S.
1.425	DEVLIN65	PI-	P	TOTAL
1.426	DEVLIN65	PI+	P	TOTAL
1.430	APLIN 68	PI-	P	D.C.S.
1.430	KALMUS70	PI+	P	D.C.S.
1.433	CHIU 67	PIO	N	TOTAL
* 1.433	DELEP 69	PI+	P	TOTAL
* 1.433	DELEP 69	PI+	P	D.C.S.
1.433	DEVLIN62	PI-	P	TOTAL
1.433	CHRET157	PI-	P	D.C.S.
1.434	BANDI 64	PI+	P	POL.
1.438	COX 68	PI-	P	POL.
1.438	ROTHSC72	PI-	P	D.C.S.
1.438	ROTHSC72	PI+	P	D.C.S.
1.440	ABILLO70	PI-	P	D.C.S.

	1.440	BIZARD70	PI- P	TOTAL
	1.440	DUKE 67	PI- P	D.C.S.
	1.440	DUKE 67	PI- P	POL.
	1.440	OTT 72	PI- P	D.C.S.
	1.440	OTT 72	PI+ P	D.C.S.
	1.441	JOHNSO67	PI+ P	POL.
*	1.441	SLEEMA71	PI+ P	POL.
	1.444	HELLAN64	PI+ P	D.C.S.
	1.446	BRODY 71	PI- P	D.C.S.
	1.446	BRISSO61	PI+ P	TOTAL
	1.450	GIACOM66	PI- P	TOTAL
	1.450	GIACOM66	PI+ P	TOTAL
	1.460	CERNHO70	PI+ P	D.C.S.
	1.460	CERNHO70	PI+ P	POL.
	1.465	BIZARD70	PI- P	TOTAL
	1.468	ROTHSC72	PI- P	D.C.S.
	1.468	ROTHSC72	PI+ P	D.C.S.
	1.469	DEVLIN62	PI+ P	TOTAL
	1.469	COX 68	PI- P	POL.
	1.469	CROUCH68	PIO N	TOTAL
	1.470	BRODY 71	PI- P	D.C.S.
	1.471	BRISSO61	PI+ P	TOTAL
	1.476	DEVLIN65	PI+ P	TOTAL
*	1.480	LUNDBY68	PI+ P	D.C.S.
	1.480	OTT 72	PI- P	D.C.S.
	1.480	OTT 72	PI+ P	D.C.S.
	1.480	DEVLIN62	PI- P	TOTAL
	1.483	COOL 56	PI- P	TOTAL
	1.489	AMBLAR64	PI- P	TOTAL
	1.489	AMBLAR64	PI+ P	TOTAL
	1.490	BIZARD70	PI- P	TOTAL
	1.496	BRISSO61	PI- P	TOTAL
	1.496	BRISSO61	PI+ P	TOTAL
	1.498	BORGEA64	PIO N	D.C.S.
	1.500	APLIN 68	PI- P	D.C.S.
	1.500	CERNHO70	PI+ P	D.C.S.
	1.500	CERNHO70	PI+ P	POL.
	1.500	COOK 63	PI+ P	D.C.S.
	1.500	GIACOM66	PI- P	TOTAL
	1.500	GIACOM66	PI+ P	TOTAL
	1.505	ABILLO70	PI- P	D.C.S.
	1.505	DUKE 67	PI- P	D.C.S.
	1.505	DUKE 67	PI+ P	D.C.S.
	1.505	OTT 72	PI- P	D.C.S.
	1.505	OTT 72	PI+ P	D.C.S.
	1.505	DEVLIN65	PI- P	TOTAL
	1.505	BRODY 71	PI- P	D.C.S.
	1.508	COX 68	PI- P	POL.
	1.508	ROTHSC72	PI- P	D.C.S.
	1.508	ROTHSC72	PI+ P	D.C.S.
	1.509	BRODY 71	PI- P	D.C.S.
	1.510	LAI 61	PI- P	D.C.S.
*	1.512	SLEEMA71	PI+ P	POL.
	1.513	COOL 56	PI- P	TOTAL
	1.513	COOL 56	PI+ P	TOTAL
	1.513	BIZARD70	PI- P	TOTAL
	1.525	OTT 72	PI- P	D.C.S.
	1.525	DEVLIN65	PI- P	TOTAL
	1.525	DEVLIN65	PI+ P	TOTAL
	1.530	CERNHO70	PI+ P	D.C.S.
	1.530	CERNHO70	PI+ P	POL.
	1.533	FISBER55	PI- P	TOTAL
	1.540	BIZARD70	PI- P	TOTAL
	1.545	BRISSO61	PI+ P	TOTAL
	1.545	DEVLIN65	PI- P	TOTAL
	1.548	ROTHSC72	PI- P	D.C.S.
	1.548	ROTHSC72	PI+ P	D.C.S.
	1.549	DEVLIN62	PI- P	TOTAL
	1.550	ALIKHA65	PI+ P	D.C.S.
*	1.550	ANTOFO68	PI+ P	D.C.S.
*	1.550	ANTOFO68	PIO N	D.C.S.
	1.550	BARMIN64	PIO N	D.C.S.
	1.550	COX 68	PI- P	POL.
	1.550	GIACOM66	PI- P	TOTAL
	1.550	GIACOM66	PI+ P	TOTAL
	1.550	KALMUS70	PI+ P	D.C.S.
	1.550	OTT 72	PI- P	D.C.S.
	1.550	OTT 72	PI+ P	D.C.S.
	1.560	APLIN 68	PI- P	D.C.S.
	1.565	BIZARD70	PI- P	TOTAL
	1.565	DEVLIN65	PI+ P	TOTAL
	1.568	BRODY 71	PI- P	D.C.S.
	1.570	JOHNSO67	PI+ P	POL.
	1.573	DEVLIN62	PI+ P	TOTAL
	1.575	DUKE 67	PI- P	D.C.S.
	1.5 9	DUKE 67	PI+ P	D.C.S.
	1.579	DUKE 67	PI- P	POL.
	1.575	AMBLAR64	PI+ P	TOTAL
	1.580	ABILLO70	PI- P	D.C.S.
	1.580	OTT 72	PI- P	D.C.S.
	1.580	OTT 72	PI+ P	D.C.S.
	1.583	COX 68	PI- P	POL.
	1.583	BORGEA64	PIO N	D.C.S.
	1.585	DEVLIN65	PI- P	TOTAL
	1.588	ROTHSC72	PI- P	D.C.S.
	1.588	ROTHSC72	PI+ P	D.C.S.
	1.589	DEVLIN62	PI- P	TOTAL
	1.590	ALITTI63	PI- P	D.C.S.
	1.590	BIZARD70	PI- P	TOTAL
	1.590	OTT 72	PI- P	D.C.S.
	1.595	BRISSO61	PI- P	TOTAL
	1.595	BRISSO61	PI+ P	TOTAL
	1.600	APLIN 68	PI- P	D.C.S.
	1.600	BURLES71	PI+ P	POL.
	1.600	CERNHO70	PI+ P	D.C.S.
	1.600	CERNHO70	PI+ P	POL.
	1.600	DAUDIN64	PI+ P	D.C.S.
	1.600	GIACOM66	PI- P	TOTAL
	1.600	GIACOM66	PI+ P	TOTAL
	1.600	KORMAN67	PI- P	D.C.S.
	1.600	LONGO 62	PI+ P	TOTAL
	1.604	COOL 56	PI- P	TOTAL
	1.604	BRODY 71	PI- P	D.C.S.
	1.616	COX 68	PI- P	POL.
	1.625	DEVLIN65	PI+ P	TOTAL
	1.626	DEVLIN65	PI- P	TOTAL
	1.628	ROTHSC72	PI- P	D.C.S.
	1.628	ROTHSC72	PI+ P	D.C.S.
	1.634	COOL 56	PI- P	TOTAL
	1.634	COOL 56	PI+ P	TOTAL
	1.640	APLIN 68	PI- P	D.C.S.
	1.640	CERNHO70	PI+ P	D.C.S.
	1.640	CERNHO70	PI+ P	POL.
	1.644	DEVLIN62	PI+ P	TOTAL
	1.644	DIDDEN63	PI- P	TOTAL
	1.644	DIDDEN63	PI+ P	TOTAL
	1.650	GIACOM66	PI- P	TOTAL
	1.650	GIACOM66	PI+ P	TOTAL
	1.653	COX 68	PI- P	POL.
	1.654	DEVLIN62	PI- P	TOTAL
	1.666	DEVLIN65	PI+ P	TOTAL
	1.667	OTT 72	PI- P	D.C.S.
	1.667	OTT 72	PI+ P	D.C.S.
	1.670	APLIN 68	PI- P	D.C.S.
	1.680	KALMUS70	PI+ P	D.C.S.
*	1.680	LUNDBY68	PI+ P	D.C.S.

	1.682	DEVLIN62	PI- P	TOTAL
	1.686	DEVLIN65	PI- P	TOTAL
	1.686	AMBLAR64	PI- P	TOTAL
	1.688	AMBLAR64	PI+ P	TOTAL
	1.685	HELLAN66	PI+ P	D.C.S.
	1.685	COX 68	PI- P	POL.
	1.690	JOHNSO67	PI+ P	POL.
*	1.692	SLEEMA71	PI+ P	POL.
	1.694	BORGEA64	PIO N	D.C.S.
	1.697	CROUCH68	PIO N	TOTAL
	1.700	ALLEN 66	PI- P	D.C.S.
*	1.700	ANTOPO68	PI+ P	D.C.S.
*	1.700	ANTOPO68	PIO N	D.C.S.
	1.700	ESTERL66	PI- P	D.C.S.
	1.700	ESTERL66	PI- P	POL.
	1.700	GIACOM66	PI- P	TOTAL
	1.700	GIACOM66	PI+ P	TOTAL
	1.700	KORMAN67	PI- P	D.C.S.
	1.700	OTT 72	PI- P	D.C.S.
	1.700	OTT 72	PI+ P	D.C.S.
	1.710	CAPPOL68	PIO N	TOTAL
*	1.710	FELLIN70	PI- P	D.C.S.
	1.716	OTT 72	PI- P	D.C.S.
	1.718	DEVLIN62	PI- P	TOTAL
	1.720	ALIKHA65	PI+ P	D.C.S.
	1.720	BUSZA 66	PI- P	D.C.S.
	1.720	BUSZA 68	PI+ P	D.C.S.
*	1.720	GUESS 71	PI+ P	D.C.S.
	1.724	OIDDEN63	PI- P	TOTAL
	1.725	DEVLIN65	PI+ P	TOTAL
	1.730	APLIN 68	PI- P	D.C.S.
	1.730	LONGO 62	PI+ P	TOTAL
	1.732	CERNHO71	PI- P	D.C.S.
	1.732	CERNHO71	PI- P	POL.
	1.733	COX 68	PI- P	POL.
	1.740	CERNHO70	PI+ P	D.C.S.
	1.740	CERNHO70	PI+ P	POL.
	1.750	GIACOM66	PI- P	TOTAL
	1.750	GIACOM66	PI+ P	TOTAL
	1.760	APLIN 68	PI- P	D.C.S.
	1.760	JAMES 65	PI+ P	D.C.S.
	1.764	DEVLIN65	PI- P	TOTAL
	1.765	DEVLIN65	PI+ P	TOTAL
	1.768	CERNHO70	PI+ P	D.C.S.
	1.768	CERNHO70	PI+ P	POL.
	1.768	OTT 72	PI- P	D.C.S.
	1.768	OTT 72	PI+ P	D.C.S.
	1.770	KALMUS70	PI+ P	D.C.S.
*	1.780	LUNDBY68	PI+ P	D.C.S.
	1.781	CCX 68	PI- P	POL.
	1.784	DEVLIN62	PI- P	TOTAL
	1.789	AMBLAR64	PI- P	TOTAL
	1.789	AMBLAR64	PI+ P	TOTAL
	1.790	CERNHO70	PI+ P	D.C.S.
	1.790	CERNHO70	PI+ P	POL.
	1.794	BORGEA64	PIO N	D.C.S.
	1.800	APLIN 68	PI- P	D.C.S.
	1.800	BURLES71	PI+ P	POL.
	1.800	GIACOM66	PI- P	TOTAL
	1.800	GIACOM66	PI+ P	TOTAL
*	1.800	GUESS 71	PI+ P	D.C.S.
	1.800	KISTIA71	PIO N	D.C.S.
	1.800	KORMAN67	PI- P	D.C.S.
	1.804	COOL 56	PI- P	TOTAL
	1.804	COOL 56	PI+ P	TOTAL
*	1.810	FELLIN70	PI- P	D.C.S.
	1.816	OTT 72	PI- P	D.C.S.
	1.816	OTT 72	PI+ P	D.C.S.
	1.819	CCX 68	PI- P	POL.
	1.824	DIDDEN63	PI- P	TOTAL
	1.824	DIDDEN63	PI+ P	TOTAL
	1.825	DEVLIN65	PI- P	TOTAL
	1.825	DEVLIN65	PI+ P	TOTAL
	1.840	APLIN 68	PI- P	D.C.S.
	1.840	KALMUS70	PI+ P	D.C.S.
	1.850	GIACOM66	PI- P	TOTAL
	1.850	GIACOM66	PI+ P	TOTAL
	1.860	COX 68	PI- P	POL.
	1.865	OTT 72	PI- P	D.C.S.
	1.865	OTT 72	PI+ P	D.C.S.
	1.869	JOHNSO67	PI+ P	POL.
	1.880	ALIKHA65	PI+ P	D.C.S.
	1.880	APLIN 68	PI- P	D.C.S.
	1.880	ESTERL66	PI- P	D.C.S.
	1.880	ESTERL66	PI- P	POL.
*	1.880	LUNDBY68	PI- P	D.C.S.
*	1.880	LUNDBY68	PI+ P	D.C.S.
*	1.880	YOKOSA71	PI- P	POL.
	1.883	DEVLIN65	PI- P	TOTAL
	1.890	BUSZA 68	PI- P	D.C.S.
	1.890	BUSZA 68	PI+ P	D.C.S.
	1.890	CARROL68	PIO N	TOTAL
	1.890	LONGO 62	PI+ P	TOTAL
	1.894	BORGEA64	PIO N	D.C.S.
*	1.900	ANTOPO68	PI+ P	D.C.S.
*	1.900	ANTOPO68	PIO N	D.C.S.
	1.900	CERNHO70	PI+ P	D.C.S.
	1.900	CERNHO70	PI+ P	POL.
	1.900	GIACOM66	PI- P	TOTAL
	1.900	GIACOM66	PI+ P	TOTAL
	1.900	KISTIA71	PIO N	D.C.S.
	1.901	COX 68	PI- P	POL.
	1.904	COOL 56	PI+ P	TOTAL
*	1.910	FELLIN70	PI- P	D.C.S.
	1.917	OTT 72	PI- P	D.C.S.
	1.917	OTT 72	PI+ P	D.C.S.
	1.920	APLIN 68	PI- P	D.C.S.
*	1.921	GUESS 71	PI+ P	D.C.S.
	1.925	DEVLIN65	PI- P	TOTAL
	1.925	DEVLIN65	PI+ P	TOTAL
	1.935	DIDDEN63	PI- P	TOTAL
	1.941	COX 68	PI- P	POL.
	1.950	GIACOM66	PI- P	TOTAL
	1.950	GIACOM66	PI+ P	TOTAL
	1.965	OTT 72	PI- P	D.C.S.
	1.980	APLIN 68	PI- P	D.C.S.
*	1.980	LUNDBY68	PI- P	D.C.S.
*	1.980	LUNDBY68	PI+ P	D.C.S.
*	1.980	SLEEMA71	PI+ P	POL.
	1.985	DIDDEN63	PI+ P	TOTAL
	1.985	LONGO 62	PI- P	TOTAL
	1.988	HANSSO67	PI- P	POL.
	1.988	JOHNSO67	PI+ P	POL.
	1.992	CCX 68	PI- P	POL.
	1.995	BORGEA64	PIO N	D.C.S.
	2.000	ALIKHA65	PI+ P	D.C.S.
	2.000	CERNHO70	PI+ P	D.C.S.
	2.000	CERNHO70	PI+ P	POL.
	2.000	CHASE 70	PIO N	D.C.S.
	2.000	COOK 63	PI+ P	D.C.S.
	2.000	CAMOUT63	PI- P	D.C.S.
	2.000	CAMOUT63	PI+ P	D.C.S.
	2.000	GIACOM66	PI- P	TOTAL
	2.000	GIACOM66	PI+ P	TOTAL
*	2.000	GUESS 71	PI+ P	D.C.S.

	2.000	KISTIA71	PIO N	D.C.S.
	2.000	KCRMAN67	PI- P	D.C.S.
	2.008	OTT 72	PI- P	D.C.S.
*	2.010	FELLIN70	PI- P	D.C.S.
*	2.010	SAXER 64	PI- P	D.C.S.
	2.030	APLIN 68	FI- P	D.C.S.
	2.035	CCOL 56	PI- P	TOTAL
	2.035	DIDDEN63	FI- P	TOTAL
	2.035	DIDDEN63	PI+ P	TOTAL
*	2.040	GUESS 71	PI+ P	POL.
	2.046	COX 68	PI- P	POL.
	2.050	JACOBS66	PI- P	D.C.S.
	2.050	KISTIA71	PIO N	C.C.S.
	2.050	LONGC 62	FI+ P	TOTAL
	2.060	DOBROW67	FI+ P	D.C.S.
	2.070	APLIN 68	FI- P	D.C.S.
	2.070	BUSZA 66	FI- P	D.C.S.
	2.070	BUSZA 68	PI+ P	D.C.S.
	2.070	CARROL68	PIO N	TOTAL
	2.070	CERNHO70	PI+ P	D.C.S.
	2.070	CERNHO70	FI+ P	POL.
	2.070	DROBNI68	PIO N	POL.
	2.070	ESTERL66	PI- P	D.C.S.
	2.070	ESTERL66	FI- P	POL.
	2.080	JAMES 65	FI+ P	TOTAL
	2.080	JAMES 65	PI+ P	D.C.S.
*	2.080	LLNDBY68	PI- P	D.C.S.
*	2.080	LUNDBY68	PI+ P	D.C.S.
	2.090	COX 68	FI- P	POL.
	2.090	CROUCH68	PIO N	TOTAL
*	2.090	FELLIN70	PI- P	D.C.S.
*	2.100	ANTOPO68	FI+ P	D.C.S.
*	2.100	ANTOPO68	PIO N	D.C.S.
	2.100	APLIN 68	PI- P	D.C.S.
	2.100	GIACCM66	PI- P	TOTAL
	2.100	GIACCM66	FI+ P	TOTAL
	2.100	KISTIA71	PIO N	D.C.S.
	2.100	KORMAN67	FI- P	D.C.S.
	2.110	BURLES71	FI+ P	POL.
	2.111	OTT 72	FI- P	D.C.S.
	2.120	ALIKHA65	FI+ P	D.C.S.
	2.124	DEVLIN6F	PI- P	TOTAL
	2.135	DIDDEN63	PI- P	TOTAL
	2.135	DIDDEN63	PI+ P	TOTAL
	2.140	COX 68	FI- P	POL.
*	2.150	ANTHON68	PI- P	D.C.S.
	2.150	APLIN 68	PI- P	D.C.S.
	2.150	KISTIA71	PIO N	D.C.S.
*	2.160	FELLIN70	PI- P	D.C.S.
	2.170	BUSZA 68	FI- P	D.C.S.
	2.170	BUSZA 68	FI+ P	D.C.S.
	2.170	CROUCH68	PIO N	TOTAL
	2.170	JACOBS66	PI- P	D.C.S.
*	2.180	LUNDBY68	PI- P	D.C.S.
*	2.180	LUNDBY68	PI+ P	D.C.S.
	2.180	SIDWEL70	FI+ P	D.C.S.
	2.190	CERNHO70	PI+ P	D.C.S.
	2.190	CERNHO70	PI+ P	POL.
	2.200	APLIN 68	FI- P	D.C.S.
	2.200	GIACCM66	FI- P	TOTAL
	2.200	GIACCM66	PI+ P	TOTAL
	2.200	KISTIA71	FI- N	D.C.S.
	2.200	KORMAN67	FI- P	D.C.S.
	2.205	OTT 72	PI- P	D.C.S.
*	2.230	FELLIN70	FI- P	D.C.S.
	2.240	APLIN 68	PI- P	D.C.S.
	2.245	DIDDEN63	FI- P	TOTAL
	2.245	DIDDEN63	FI+ P	TOTAL
	2.250	DOBROW67	PI+ P	D.C.S.
	2.250	KISTIA71	PIO N	D.C.S.
	2.260	REYNCL68	FI- P	D.C.S.
	2.270	BUSZA 66	PI- P	D.C.S.
	2.270	BUSZA 68	PI+ P	D.C.S.
	2.270	CARROL68	PIO N	TOTAL
	2.270	ESTERL66	PI- P	D.C.S.
	2.270	ESTERL66	FI- P	POL.
*	2.280	LUNDBY68	PI- P	D.C.S.
*	2.280	LUNDBY68	PI+ P	D.C.S.
	2.280	SIDWEL70	PI+ P	D.C.S.
	2.290	APLIN 68	PI- P	D.C.S.
	2.290	HAGOPI72	PI- P	TOTAL
	2.290	HAGOPI72	FI- P	D.C.S.
*	2.300	ANTOPO68	PIO N	D.C.S.
	2.300	CERNHO70	PI+ P	D.C.S.
	2.300	CERNHO70	PI+ P	POL.
	2.300	COFFIN67	PI+ P	D.C.S.
	2.300	GIACCM66	FI- P	TOTAL
	2.300	GIACCM66	PI+ P	TOTAL
	2.300	KISTIA71	PIO N	D.C.S.
	2.300	KORMAN67	PI- P	D.C.S.
	2.303	CROUCH68	PIO N	TOTAL
	2.309	OTT 72	PI- P	D.C.S.
	2.310	BURLES71	FI+ P	POL.
*	2.310	FELLIN70	PI- P	D.C.S.
	2.340	ALFF-S66	PI+ P	D.C.S.
*	2.340	ANGELG68	FI+ P	TOTAL
*	2.340	ANGELG68	PI+ P	D.C.S.
	2.340	APLIN 68	FI- P	D.C.S.
	2.345	DIDDEN63	PI- P	TOTAL
	2.345	DIDDEN63	PI+ P	TOTAL
	2.350	KISTIA71	PIO N	D.C.S.
	2.360	BUSZA 68	FI- P	D.C.S.
	2.360	BUSZA 68	PI+ P	D.C.S.
	2.360	JACOBS66	PI- P	D.C.S.
	2.380	APLIN 68	FI- P	D.C.S.
	2.380	CRITTE70	FI- P	D.C.S.
	2.380	SIDWEL70	PI+ P	D.C.S.
	2.390	CERNHO70	PI+ P	D.C.S.
	2.390	CERNHO70	PI+ P	POL.
	2.400	GIACCM66	PI- P	TOTAL
	2.400	GIACCM66	PI+ P	TOTAL
	2.400	KISTIA71	PIO N	D.C.S.
	2.400	KORMAN67	PI- P	D.C.S.
	2.400	WAHLIG68	PIO N	D.C.S.
*	2.410	FELLIN70	PI- P	D.C.S.
	2.412	OTT 72	PI- P	D.C.S.
	2.450	KISTIA71	PIO N	D.C.S.
	2.456	DIDDEN63	FI- P	TOTAL
	2.456	DIDDEN63	PI+ P	TOTAL
	2.460	APLIN 68	FI- P	D.C.S.
	2.460	BUSZA 66	FI- P	D.C.S.
	2.460	BUSZA 68	PI+ P	D.C.S.
	2.460	CARROL68	PIO N	TOTAL
	2.470	LONGC 62	PI+ P	TOTAL
	2.480	CERNHO71	PI- P	D.C.S.

	2.480	CERNHO71	PI- P	POL.
*	2.480	LUNDBY68	PI- P	D.C.S.
*	2.480	LUNDBY68	PI+ P	D.C.S.
	2.490	APLIN 68	PI- P	D.C.S.
*	2.500	ANTHON68	PI- P	D.C.S.
	2.500	COFFIN67	PI- P	D.C.S.
	2.500	COFFIN67	PI+ P	D.C.S.
	2.500	CCOK 63	PI+ P	D.C.S.
	2.500	CRITTE70	PI- P	D.C.S.
	2.500	DROBNI68	PIO N	POL.
	2.500	ESTERL66	FI- P	D.C.S.
	2.500	ESTERL66	PI- P	POL.
	2.500	KISTIA71	PIO N	D.C.S.
	2.500	KORMAN67	PI- P	D.C.S.
	2.500	SHERDE70	PI+ P	POL.
	2.500	WAHLIG68	PIO N	D.C.S.
	2.510	FELLIN69	FI- P	D.C.S.
*	2.510	FELLIN70	FI- P	D.C.S.
	2.515	OTT 72	PI- P	D.C.S.
	2.529	CROUCH68	PIO N	TOTAL
	2.530	LAI 61	PI- P	D.C.S.
	2.535	HANSRO67	PI- P	POL.
	2.535	JOHNSO67	PI+ P	POL.
	2.550	DOBROW67	FI+ P	D.C.S.
	2.550	YVERT 68	PIO N	D.C.S.
	2.556	DIDDEN63	PI+ P	TOTAL
	2.560	ALIKHA65	PI+ P	D.C.S.
	2.560	BUSZA 68	FI- P	D.C.S.
	2.560	BUSZA 68	PI+ P	D.C.S.
*	2.580	LUNDBY68	PI+ P	D.C.S.
*	2.600	ANTOPO68	PI+ P	D.C.S.
*	2.600	ANTOPO68	PIO N	D.C.S.
	2.600	BAKER 63	PI- P	TOTAL
	2.600	BAKER 63	FI+ P	TOTAL
	2.600	JACOBS66	PI- P	D.C.S.
	2.600	KISTIA71	PIO N	D.C.S.
	2.600	KORMAN67	FI- P	D.C.S.
	2.600	OTT 72	PI- P	D.C.S.
	2.600	WAHLIG68	PIO N	D.C.S.
*	2.620	FELLIN70	PI- P	D.C.S.
	2.650	BUSZA 68	PI- P	D.C.S.
	2.650	BUSZA 68	FI+ P	D.C.S.
	2.650	CRITTE70	PI- P	D.C.S.
	2.650	KORMAN67	PI- P	D.C.S.
	2.656	DIDDEN63	PI- P	TOTAL
	2.656	DIDDEN63	PI+ P	TOTAL
	2.690	VOVENK62	PI+ P	TOTAL
	2.700	COFFIN67	PI+ P	D.C.S.
	2.700	KISTIA71	PIO N	D.C.S.
	2.700	KORMAN67	PI- P	D.C.S.
	2.720	DROBNI68	PIO N	POL.
	2.730	CERNHO70	PI- P	D.C.S.
	2.730	CERNHO70	FI+ P	D.C.S.
	2.730	CERNHO70	PI- P	POL.
	2.730	CERNHO70	PI+ P	POL.
*	2.750	BOOTH 69	PI+ P	D.C.S.
*	2.750	BOOTH 69	PI- P	POL.
*	2.750	BOOTH 69	FI+ P	POL.
	2.750	KISTIA71	PIO N	D.C.S.
	2.750	SHERDE70	PI+ P	POL.
	2.750	SIDWEL70	FI+ P	D.C.S.
	2.760	FELLIN69	PI- P	D.C.S.
*	2.760	FELLIN70	PI- P	D.C.S.
	2.760	YVERT 68	PIO N	D.C.S.
	2.766	DIDDEN63	PI+ P	TOTAL
	2.770	BATON 70	FI- P	D.C.S.
	2.770	YAMAMO68	FI+ P	D.C.S.

*	2.780	LUNDBY68	PI+ P	D.C.S.
	2.790	DOBROW67	PI+ P	D.C.S.
*	2.800	ANTHON68	FI- P	D.C.S.
	2.800	BARMIN67	PIO N	D.C.S.
	2.800	BUSZA 68	FI- P	D.C.S.
	2.800	BUSZA 68	PI+ P	D.C.S.
	2.800	KISTIA71	PIO N	D.C.S.
	2.800	KORMAN67	PI- P	D.C.S.
	2.800	WAHLIG68	PIO N	D.C.S.
	2.801	OTT 72	PI- P	D.C.S.
	2.850	BAKER 68	PI+ P	D.C.S.
	2.850	BANAIG68	PI- P	D.C.S.
	2.850	BANAIG68	PI+ P	D.C.S.
	2.850	CRITTE70	FI- P	D.C.S.
	2.860	JACOBS66	FI- P	D.C.S.
	2.866	DIDDEN63	PI- P	TOTAL
	2.866	DIDDEN63	PI+ P	TOTAL
*	2.880	YOKOSA71	FI- P	POL.
	2.900	ALFF-S66	FI+ P	D.C.S.
	2.900	KISTIA71	PIO N	D.C.S.
	2.900	KORMAN67	FI- P	D.C.S.
	2.900	WAHLIG68	PIO N	D.C.S.
	2.912	HANSRO67	PI- P	POL.
	2.920	PERL 63	PI+ P	D.C.S.
	2.920	YVERT 68	PIO N	D.C.S.
*	2.930	LUNDBY68	FI+ P	D.C.S.
	2.930	SHERDE70	PI+ P	POL.
	2.940	APLIN 68	FI- P	D.C.S.
	2.940	DOBROW67	PI+ P	D.C.S.
	2.950	KORMAN67	FI- P	D.C.S.
	2.966	DIDDEN63	PI+ P	TOTAL
	2.970	LONGO 62	PI+ P	TOTAL
	3.000	ALIKHA65	PI+ P	D.C.S.
*	3.000	ANTOPO68	PI+ P	D.C.S.
*	3.000	ANTOPO68	PIO N	D.C.S.
	3.000	BAKER 63	PI- P	TOTAL
	3.000	BAKER 63	PI+ P	TOTAL
	3.000	CHASE 70	PIO N	D.C.S.
	3.000	COFFIN67	PI- P	D.C.S.
	3.000	COFFIN67	PI+ P	D.C.S.
	3.000	CRITTE70	FI- P	D.C.S.
	3.000	KISTIA71	PIO N	D.C.S.
	3.000	KORMAN67	FI- P	D.C.S.
	3.000	SIDWEL70	FI+ P	D.C.S.
	3.000	WAHLIG68	PIO N	D.C.S.
	3.006	OTT 72	FI- P	D.C.S.
	3.010	FELLIN69	FI- P	D.C.S.
*	3.010	FELLIN70	PI- P	D.C.S.
	3.050	KISTIA71	PIO N	D.C.S.
	3.060	VOROBY69	PI- P	TOTAL
	3.066	DIDDEN63	PI- P	TOTAL
	3.066	DIDDEN63	PI+ P	TOTAL
	3.070	YVERT 68	PIO N	D.C.S.
	3.086	LONGO 62	PI- P	TOTAL
	3.100	KISTIA71	PIO N	D.C.S.
	3.100	KORMAN67	PI- P	D.C.S.
	3.100	WAHLIG68	PIO N	D.C.S.
	3.101	CROUCH68	PIO N	TOTAL
	3.140	VOVENK62	PI+ P	TOTAL
	3.150	KORMAN67	FI- P	D.C.S.
	3.150	PERL 63	FI- P	D.C.S.
	3.150	SAVIN 65	FI+ P	D.C.S.
*	3.150	SAXER 64	PI- P	D.C.S.
	3.167	DIDDEN63	FI+ P	TOTAL
	3.190	DOBROW67	FI+ P	D.C.S.
	3.200	BAKER 63	FI- P	TOTAL
	3.200	DROBNI68	PIO N	POL.

	3.200	KISTIA71	PIO	N	D.C.S.
	3.200	KORMAN67	PI-	P	D.C.S.
	3.200	WAHLIG68	PIO	N	D.C.S.
	3.220	JACOBS66	PI-	P	D.C.S.
	3.220	YVERT 68	PIO	N	D.C.S.
	3.250	SHERDE70	PI+	P	POL.
	3.250	SIDWEL70	PI+	P	D.C.S.
	3.260	HANSR067	PI-	P	POL.
	3.260	JOHNSO67	PI+	P	POL.
	3.277	DIDDEN63	PI-	P	TOTAL
	3.277	DIDDEN63	PI+	P	TOTAL
	3.300	ALIKHA65	PI+	P	D.C.S.
*	3.300	ANTOPO68	PI+	P	D.C.S.
*	3.300	ANTOPO68	PIO	N	D.C.S.
	3.300	BAKER 68	PI-	P	D.C.S.
	3.300	BAKER 68	PI+	P	D.C.S.
	3.300	BANAIG68	PI+	P	D.C.S.
	3.300	KISTIA71	PIO	N	D.C.S.
	3.300	KORMAN67	PI-	P	D.C.S.
	3.300	WAHLIG68	PIO	N	D.C.S.
	3.308	CROUCH68	PIO	N	TOTAL
	3.380	YVERT 68	PIO	N	D.C.S.
	3.400	BAKER 63	PI-	P	TOTAL
	3.400	BAKER 63	PI+	P	TOTAL
	3.400	KISTIA71	PIO	N	D.C.S.
	3.400	KORMAN67	PI-	P	D.C.S.
	3.400	VOVENK62	PI-	P	TOTAL
	3.400	WAHLIG68	PIO	N	D.C.S.
	3.460	DCBROW67	PI+	P	D.C.S.
	3.460	VOVENK62	PI+	P	TOTAL
	3.470	DROBNI68	PIO	N	POL.
	3.477	DIDDEN63	PI+	P	TOTAL
	3.480	NPMOFI67	PI-	P	TOTAL
*	3.500	ANTHCN68	PI-	P	D.C.S.
	3.500	COFFIN67	PI-	P	D.C.S.
	3.500	COFFIN67	PI+	P	D.C.S.
	3.500	KISTIA71	PIO	N	D.C.S.
	3.500	KORMAN67	PI-	P	D.C.S.
	3.500	SIDWEL70	PI+	P	D.C.S.
	3.500	WAHLIG68	PIO	N	D.C.S.
*	3.520	FELLIN70	PI-	P	D.C.S.
	3.520	YVERT 68	PIO	N	D.C.S.
	3.550	BAKER 68	PI-	P	D.C.S.
	3.550	BAKER 68	PI+	P	D.C.S.
	3.550	BANAIG68	PI-	P	D.C.S.
	3.550	BANAIG68	PI+	P	D.C.S.
	3.550	KORMAN67	PI-	P	D.C.S.
	3.580	LONGO 62	PI+	P	TOTAL
	3.600	BAKER 63	PI-	P	TOTAL
	3.600	KISTIA71	PIO	N	D.C.S.
	3.600	KORMAN67	PI-	P	D.C.S.
	3.600	WAHLIG68	PIO	N	D.C.S.
	3.630	MACNAU71	PI+	P	D.C.S.
	3.630	PERL 65	PI-	P	D.C.S.
	3.650	HARVEY71	PIO	N	D.C.S.
	3.660	OOBROW67	PI+	P	D.C.S.
	3.660	YVERT 68	PIO	N	D.C.S.
*	3.670	BROCKE71	PIO	N	D.C.S.
	3.687	DIDDEN63	PI-	P	TOTAL
	3.687	DIDDEN63	PI+	P	TOTAL
	3.687	CROUCH68	PIO	N	TOTAL
	3.700	COFFIN67	PI+	P	D.C.S.
	3.700	KISTIA71	PIO	N	D.C.S.
	3.700	KORMAN67	PI-	P	D.C.S.
	3.700	LIKHAC62	PI+	P	TOTAL
	3.700	VOVENK62	PI+	P	TOTAL
	3.747	JOHNSO67	PI+	P	POL.
*	3.750	BOOTH 69	PI-	P	POL.
*	3.750	BOOTH 69	PI+	P	POL.
	3.750	KISTIA71	PIO	N	D.C.S.
	3.750	SHERDE70	PI+	P	POL.
	3.750	SIDWEL70	PI+	P	D.C.S.
	3.762	CROUCH68	PIO	N	TOTAL
*	3.770	FELLIN70	PI-	P	D.C.S.
*	3.800	ANTOPO68	PI+	P	D.C.S.
*	3.800	ANTOPO68	PIO	N	D.C.S.
	3.800	BAKER 63	PI-	P	TOTAL
	3.800	BAKER 63	PI+	P	TOTAL
	3.800	KISTIA71	PIO	N	D.C.S.
	3.800	KORMAN67	PI-	P	D.C.S.
	3.800	WAHLIG68	PIO	N	D.C.S.
	3.839	CROUCH68	PIO	N	TOTAL
	3.840	OOBROW67	PI+	P	D.C.S.
	3.850	KISTIA71	PIO	N	D.C.S.
	3.860	YVERT 68	PIO	N	D.C.S.
	3.880	GIORDE70	PI-	P	TOTAL
	3.897	DIDDEN63	PI+	P	TOTAL
	3.900	BAKER 63	PI-	P	TOTAL
	3.900	BASTIE71	PI+	P	TOTAL
	3.900	BASTIE71	PI+	P	D.C.S.
	3.900	KISTIA71	PIO	N	D.C.S.
	3.900	KORMAN67	PI-	P	D.C.S.
	3.900	VOVENK62	PI-	P	TOTAL
	3.950	KISTIA71	PIO	N	D.C.S.
	3.950	KORMAN67	PI-	P	D.C.S.
	4.000	AACHEN64	PI-	P	D.C.S.
	4.000	AACHEN64	PI+	P	D.C.S.
	4.000	BAKER 63	PI-	P	TOTAL
	4.000	CHASE 70	PIO	N	D.C.S.
	4.000	COFFIN67	PI-	P	D.C.S.
	4.000	COFFIN67	PI+	P	D.C.S.
	4.000	FAISSN64	PIO	N	D.C.S.
	4.000	KISTIA71	PIO	N	D.C.S.
	4.000	KORMAN67	PI-	P	D.C.S.
	4.000	LONGO 62	PI+	P	TOTAL
	4.000	MATULE68	PIO	N	D.C.S.
	4.000	OREAP 66	PI-	P	D.C.S.
	4.000	OREAR 66	PI+	P	D.C.S.
	4.000	SCHNEI71	PIO	N	D.C.S.
	4.000	SIDWEL70	PI+	P	D.C.S.
*	4.020	FELLIN70	PI-	P	D.C.S.
	4.030	DCBROW67	PI+	P	D.C.S.
	4.050	ALIKHA65	PI+	P	D.C.S.
	4.060	YVERT 68	PIO	N	D.C.S.
	4.087	LONGO 62	PI-	P	TOTAL
	4.100	BAKER 63	PI-	P	TOTAL
	4.100	KORMAN67	PI-	P	D.C.S.
	4.107	OIDDEN63	PI-	P	TOTAL
	4.107	DIDDEN63	PI+	P	TOTAL
	4.125	KISTIA71	PIO	N	D.C.S.
	4.130	PERL 63	PI-	P	D.C.S.
*	4.130	SAXEP 64	PI-	P	D.C.S.
	4.160	EISNER67	PI-	P	D.C.S.
	4.170	VGROBY69	PI-	P	TOTAL
	4.200	BAKER 63	PI-	P	TOTAL
	4.200	BAKER 63	PI+	P	TOTAL
	4.200	BRODY 66	PI-	P	D.C.S.
	4.200	KORMAN67	PI-	P	D.C.S.
	4.250	KISTIA71	PIO	N	D.C.S.
	4.250	SIDWEL70	PI+	P	D.C.S.
	4.250	YVERT 68	PIO	N	D.C.S.
	4.260	DCBROW67	PI+	P	D.C.S.
	4.287	WIKNER57	PI-	P	TOTAL
	4.300	KORMAN67	PI-	P	D.C.S.
	4.317	DIDDEN63	PI+	P	TOTAL
	4.350	VOVENK62	PI+	P	TOTAL

	4.375	KISTIA71	PIO N	D.C.S.
	4.400	BAKER 63	PI- P	TOTAL
	4.400	BRODY 66	PI+ P	D.C.S.
	4.400	KORMAN67	PI- P	D.C.S.
	4.450	YVERT 68	PIO N	D.C.S.
	4.500	DARDEL61	PI- P	TOTAL
	4.500	DARDEL61	PI+ P	TOTAL
	4.500	KISTIA71	PIO N	D.C.S.
	4.500	KORMAN67	PI- P	D.C.S.
	4.500	SIDWEL70	PI+ P	D.C.S.
	4.527	DIDDEN63	PI- P	TOTAL
	4.527	DIDDEN63	PI+ P	TOTAL
	4.540	DOBROW67	PI+ P	D.C.S.
	4.560	VOROBY69	PI- P	TOTAL
	4.600	BAKER 63	PI- P	TOTAL
	4.600	BAKER 63	PI+ P	TOTAL
	4.600	KORMAN67	PI- P	D.C.S.
	4.620	GIORDE70	PI- P	TOTAL
	4.625	KISTIA71	PIO N	D.C.S.
	4.637	FERNIN64	PI- P	TOTAL
	4.640	YVERT 68	PIO N	D.C.S.
	4.650	KORMAN67	PI- P	D.C.S.
	4.700	DOBROW67	PI+ P	D.C.S.
	4.700	KORMAN67	PI- P	D.C.S.
	4.750	KISTIA71	PIO N	D.C.S.
	4.750	LIKHAC62	PI+ P	TOTAL
	4.750	SIDWEL70	PI+ P	D.C.S.
	4.750	VOVENK62	PI+ P	TOTAL
	4.800	KORMAN67	PI- P	D.C.S.
	4.820	YVERT 68	PIO N	D.C.S.
*	4.830	BROCKE71	PIO N	D.C.S.
	4.875	KISTIA71	PIO N	D.C.S.
	4.888	LONGC 62	PI- P	TOTAL
	4.900	KORMAN67	PI- P	D.C.S.
	4.900	VOVENK62	PI- P	TOTAL
	4.950	PEPL 63	PI- P	D.C.S.
*	4.950	SAXER 64	PI- P	D.C.S.
	4.950	VOROBY69	PI- P	TOTAL
	5.000	AKERLO71	PI- P	D.C.S.
	5.000	AKERLO71	PI+ P	D.C.S.
	5.000	BAKER 63	PI- P	TOTAL
	5.000	BAKER 63	PI+ P	TOTAL
	5.000	BUCAGO70	PIO N	TOTAL
	5.000	CHABAU72	PI+ P	D.C.S.
	5.000	CHASE 69	PIO N	D.C.S.
	5.000	CHASE 70	PIO N	D.C.S.
	5.000	COFFIN67	PI- P	D.C.S.
	5.000	DRODNI68	PIO N	POL.
	5.000	KISTIA71	PIO N	D.C.S.
	5.000	KORMAN67	PI- P	D.C.S.
	5.000	NOTHSC72	PI- P	D.C.S.
	5.000	RUST 70	PI+ P	D.C.S.
	5.000	SIDWEL70	PI+ P	D.C.S.
	5.010	YVERT 68	PIO N	D.C.S.
*	5.030	FELLIN70	PI- P	D.C.S.
	5.050	KORMAN67	PI- P	D.C.S.
	5.100	KISTIA71	PIO N	D.C.S.
	5.100	KORMAN67	PI- P	D.C.S.
*	5.120	ANTHONE68	PI- P	D.C.S.
	5.120	SIDWEL70	PI+ P	D.C.S.
	5.150	ESTEPL68	PI- P	POL.
	5.150	ESTEPL68	PI+ P	POL.
	5.150	KISTIA71	PIO N	D.C.S.
	5.150	KORMAN67	PI- P	D.C.S.
	5.170	THOMAS60	PI- P	TOTAL
	5.200	BAKER 71	PI+ P	D.C.S.
	5.200	KISTIA71	PIO N	D.C.S.
	5.200	KORMAN67	PI- P	D.C.S.
	5.210	YVERT 68	PIO N	D.C.S.
	5.250	KISTIA71	PIO N	D.C.S.
	5.250	SIDWEL70	PI+ P	D.C.S.
	5.300	KISTIA71	PIO N	D.C.S.
	5.300	KORMAN67	PI- P	D.C.S.
	5.330	GIORDE70	PI- P	TOTAL
	5.380	YVERT 68	PIO N	D.C.S.
	5.400	BAKER 63	PI- P	TOTAL
	5.400	BAKER 63	PI+ P	TOTAL
	5.400	KISTIA71	PIO N	D.C.S.
	5.500	KISTIA71	PIO N	D.C.S.
*	5.530	FELLIN70	PI- P	D.C.S.
	5.550	YVERT 68	PIO N	D.C.S.
	5.625	KISTIA71	PIO N	D.C.S.
	5.740	YVERT 68	PIO N	D.C.S.
	5.750	DARDEL61	PI- P	TOTAL
	5.750	DARDEL61	PI+ P	TOTAL
	5.750	KISTIA71	PIO N	D.C.S.
	5.800	BAKER 63	PI+ P	TOTAL
	5.800	OWEN 69	PI- P	D.C.S.
	5.875	KISTIA69	PIO N	D.C.S.
	5.875	KISTIA71	PIO N	D.C.S.
	5.900	BONAMY70	PIO N	D.C.S.
	5.900	BONAMY70	PIO N	POL.
	5.900	BORIGH70	PIO N	D.C.S.
*	5.900	BROCKE71	PIO N	D.C.S.
	5.900	GUISAN68	PIO N	D.C.S.
	5.900	OWEN 69	PI- P	D.C.S.
	5.910	OWEN 69	PI- P	D.C.S.
	5.910	OWEN 69	PI+ P	D.C.S.
	5.928	DIDDEN63	PI- P	TOTAL
	5.988	LINDEN61	PI- P	TOTAL
*	6.000	ACI 71	PI- P	POL.
*	6.000	ACI 71	PI+ P	POL.
	6.000	BORGHI67	PI- P	POL.
	6.000	BORGHI67	PI+ P	POL.
	6.000	BORGHI70	PI- P	POL.
	6.000	BORGHI70	PI+ P	POL.
	6.000	BRUYEN64	PIO N	TOTAL
	6.000	CHASE 70	PIO N	D.C.S.
	6.000	COFFIN67	PI- P	D.C.S.
	6.000	DICK 72	PI+ P	POL.
	6.000	GALBRA65	PI- P	TOTAL
	6.000	GALBRA65	PI+ P	TOTAL
	6.000	KISTIA71	PIO N	D.C.S.
	6.000	MANNEL65	PIO N	D.C.S.
	6.000	LESQUE72	PI+ P	S.R.P.
	6.000	LESQUE72	PI- P	S.R.P.
	6.000	SCHNEI71	PIO N	D.C.S.
	6.000	WAHL IG68	PIO N	D.C.S.
	6.030	GIORDE70	PI- P	TOTAL
	6.100	BRODY 66	PI+ P	D.C.S.
	6.130	NONOFI67	PI- P	TOTAL
	6.200	BRODY 66	PI- P	D.C.S.
	6.800	FOLEY*63	PI- P	D.C.S.
	6.800	FOLEY 63	PI+ P	D.C.S.
	6.800	KANG-CH0	PI- P	TOTAL
	7.000	BAKER*71	PI- P	D.C.S.
	7.000	BAKER 71	PI- P	D.C.S.
	7.000	BAKER 71	PI+ P	D.C.S.
	7.000	CARDEL61	PI- P	TOTAL
	7.000	CARDEL61	PI+ P	TOTAL
	7.000	FOLEY*63	PI- P	D.C.S.
	7.000	FOLEY 63	PI- P	D.C.S.
	7.000	VOVENK62	PI- P	TOTAL
	7.330	AINUTD62	PI- P	TOTAL
	7.338	AINUTD62	PI- P	D.C.S.
	7.380	FOLEY 67	PI- P	TOTAL
	7.600	FOLEY 67	PI- P	TOTAL
	7.730	FOLEY 67	PI+ P	TOTAL

	7.760	FOLEY 68	PI+ P	D.C.S.
	7.760	FOLEY 69	PI+ P	TOTAL
	7.800	BRODY 66	PI- P	D.C.S.
	7.800	BRODY 66	PI+ P	D.C.S.
	7.820	GUISAN71	PIO N	D.C.S.
	7.880	OWEN 69	PI- P	D.C.S.
	7.890	FOLEY 68	PI- P	D.C.S.
	7.890	FOLEY 69	PI- P	TOTAL
	7.998	LINDEN61	PI+ P	TOTAL
	8.000	ANDERS68	FI- P	D.C.S.
	8.000	BORGHI67	PI- P	POL.
	8.000	GALBRA65	FI- P	TOTAL
	8.000	GALBRA65	PI+ P	TOTAL
	8.000	MANNEL65	PIO N	D.C.S.
	8.000	OREAR 66	PI- P	D.C.S.
	8.000	OREAR 66	PI+ P	D.C.S.
	8.000	SCHNEI71	PIO N	D.C.S.
	8.040	AACHEN68	PI+ P	TOTAL
	8.040	AACHEN68	FI+ P	D.C.S.
	8.500	FOCARD65	FI- P	POL.
	8.500	HARTIN65	FI- P	D.C.S.
	8.500	HARTIN65	PI+ P	D.C.S.
	8.800	FOLEY*63	PI+ P	D.C.S.
	8.800	FOLEY 63	PI+ P	D.C.S.
	8.800	FOLEY 67	PI- P	TOTAL
	8.800	FOLEY 67	PI+ P	TOTAL
	8.838	LINDEN61	FI+ P	TOTAL
	8.900	FOLEY*63	PI- P	D.C.S.
	8.900	FOLEY 63	FI- P	D.C.S.
	9.119	LINDEN61	PI- P	TOTAL
	9.200	VOVENK62	PI- P	TOTAL
	9.710	OWEN 69	FI- P	D.C.S.
	9.780	FOLEY 67	FI- P	TOTAL
	9.800	GUISAN68	PIO N	D.C.S.
	9.840	FOLEY 67	PI+ P	TOTAL
	9.840	FOLEY 68	PI- P	D.C.S.
	9.840	FOLEY 69	PI- P	TOTAL
	9.840	OWEN 69	FI- P	D.C.S.
	9.850	OWEN 69	PI- P	D.C.S.
	9.850	OWEN 69	PI+ P	D.C.S.
	9.860	FOLEY 68	FI+ P	D.C.S.
	9.860	FOLEY 69	PI+ P	TOTAL
	9.869	LINDEN61	PI+ P	TOTAL
	9.890	FOLEY 68	FI- P	D.C.S.
	9.890	FOLEY 69	PI- P	TOTAL
	9.999	DARDEL62	PI- P	TOTAL
	9.999	DARDEL62	FI+ P	TOTAL
	10.000	BACKEN66	PIO N	D.C.S.
	10.000	BORGHI67	PI- P	POL.
	10.000	BORGHI67	FI+ P	POL.
*	10.000	BORGHI72	PI- P	POL.
*	10.000	BORGHI72	PI+ P	POL.
	10.000	BRANDT63	FI- P	D.C.S.
	10.000	DARDEL61	PI- P	TOTAL
	10.000	DARDEL61	FI+ P	TOTAL
	10.000	GALBRA65	PI- P	TOTAL
	10.000	GALBRA65	PI+ P	TOTAL
	10.000	MANNEL65	PIO N	D.C.S.
	10.000	WAHLIG68	PIO N	D.C.S.
	10.020	FOLEY 68	PI+ P	D.C.S.
	10.020	FOLEY 69	PI+ P	TOTAL
	10.100	BORIGH70	PIO N	D.C.S.
	10.249	LINDEN61	PI- P	TOTAL
	10.749	LINDEN61	FI+ P	TOTAL
	10.800	FOLEY*63	PI- P	D.C.S.
	10.800	FOLEY*63	FI+ P	D.C.S.
	10.800	FOLEY 63	FI- P	D.C.S.
	10.800	FOLEY 63	PI+ P	D.C.S.
	11.000	SCHNEI71	PIO N	D.C.S.
	11.119	LINDEN61	PI- P	TOTAL
	11.200	BONAMY70	PIO N	D.C.S.
	11.200	BONAMY70	PIO N	POL.
	11.500	FERBEL63	FI- P	TOTAL
	11.749	LINDEN61	PI+ P	TOTAL
	11.890	FOLEY 68	FI- P	D.C.S.
	11.890	FOLEY 69	PI- P	TOTAL
	11.900	FOLEY 67	PI+ P	TOTAL
	11.950	FOLEY 69	PI+ P	D.C.S.
	11.950	FOLEY 69	PI+ P	TOTAL
	11.989	DARDEL62	PI- P	TOTAL
	11.999	DARDEL62	PI+ P	TOTAL
	12.000	BORGHI67	FI- P	POL.
	12.000	BORGHI67	PI+ P	POL.
	12.000	GALBRA65	FI- P	TOTAL
	12.000	GALBRA65	FI+ P	TOTAL
	12.000	MANNEL65	PIO N	D.C.S.
	12.000	OREAR 66	FI- P	D.C.S.
	12.000	OREAR 66	PI+ P	D.C.S.
	12.010	FOLEY 67	PI- P	TOTAL
	12.249	LINDEN61	FI- P	TOTAL
	12.400	HARTIN65	FI- P	D.C.S.
	12.400	HARTIN65	FI+ P	D.C.S.
	12.749	LINDEN61	FI+ P	TOTAL
	12.800	FOLEY*63	PI+ P	D.C.S.
	12.800	FOLEY 63	PI+ P	D.C.S.
	12.800	FOLEY 67	FI- P	TOTAL
	12.800	FOLEY 67	FI+ P	TOTAL
	13.000	FOLEY*63	PI- P	D.C.S.
	13.000	FOLEY 63	FI- P	D.C.S.
	13.249	LINDEN61	FI- P	TOTAL
	13.300	GUISAN68	FIO N	D.C.S.
	13.570	OWEN 69	FI- P	D.C.S.
	13.730	OWEN 69	PI- P	D.C.S.
	13.730	OWEN 69	PI+ P	D.C.S.
	13.749	LINDEN61	PI+ P	TOTAL
	13.800	BORIGH70	PIO N	D.C.S.
	13.999	DARDEL62	PI- P	TOTAL
	13.999	DARDEL62	PI+ P	TOTAL
*	14.000	BORGHI72	PI- P	POL.
*	14.000	BORGHI72	PI+ P	POL.
*	14.000	CERNOP69	FI+ P	POL.
	14.000	FOLEY 68	PI+ P	D.C.S.
	14.000	FOLEY 69	FI+ P	TOTAL
	14.000	GALBRA65	PI- P	TOTAL
	14.000	GALBRA65	PI+ P	TOTAL
	14.000	MANNEL65	PIO N	D.C.S.
	14.070	FOLEY 67	PI+ P	TOTAL
	14.130	FOLEY 67	PI- P	TOTAL
	14.160	FOLEY 68	FI- P	D.C.S.
	14.160	FOLEY 69	FI- P	TOTAL
	14.249	LINDEN61	PI- P	TOTAL
	14.749	LINDEN61	PI+ P	TOTAL
	14.800	FOLEY*63	PI+ P	D.C.S.
	14.800	FOLEY 63	PI+ P	D.C.S.
	14.800	FOLEY 67	FI- P	TOTAL
	14.800	FOLEY 67	PI+ P	TOTAL
	14.840	FOLEY 65	FI- P	D.C.S.
	15.000	DENISO71	PI+ P	TOTAL
	15.000	FOLEY*63	PI- P	D.C.S.
	15.000	FOLEY 63	PI- P	D.C.S.
	15.210	FOLEY 67	PI- P	TOTAL
	15.249	LINDEN61	PI- P	TOTAL

15.749	LINDEN61	PI+	P	TOTAL
15.960	FOLEY 67	PI+	P	TOTAL
15.990	FOLEY 68	PI-	P	D.C.S.
15.990	FOLEY 69	PI-	P	TOTAL
16.000	ANDER568	FI-	P	D.C.S.
16.000	BARTKE62	PI-	P	TOTAL
16.000	FOLEY 68	FI-	P	D.C.S.
16.000	FOLEY 69	FI-	P	TOTAL
16.000	GALBRA65	PI-	P	TOTAL
16.000	GALBRA65	PI+	P	TOTAL
16.000	GOLOSA62	PI-	P	TOTAL
16.000	MANNEL6E	PIO	N	TOTAL
16.000	MANNEL65	PIO	N	D.C.S.
16.000	LESQUF72	PI-	P	S.R.P.
16.020	FOLEY 68	PI+	P	D.C.S.
16.020	FOLEY 69	PI+	P	TOTAL
16.035	CZAPEK62	FI-	P	TOTAL
16.035	CZAPEK62	PI-	P	D.C.S.
16.245	LINDEN61	FI-	P	TOTAL
16.250	OWEN 69	FI-	P	D.C.S.
16.310	FOLEY 67	PI-	P	TOTAL
16.700	FOLEY*62	FI+	P	D.C.S.
16.700	FOLEY 63	PI+	P	D.C.S.
16.749	LINDEN61	PI+	P	TOTAL
16.995	DARDEL62	PI-	P	TOTAL
16.999	DARDEL62	FI+	P	TOTAL
17.000	FOLEY*63	PI-	P	D.C.S.
17.000	FOLEY 63	FI-	P	D.C.S.
17.070	OWEN 69	FI+	P	D.C.S.
17.249	LINDEN61	PI-	P	TOTAL
17.320	FOLEY 67	FI-	P	TOTAL
* 17.500	BORGHI72	PI+	P	POL.
17.749	LINDEN61	FI+	P	TOTAL
17.960	FOLEY 68	PI+	P	D.C.S.
17.960	FOLEY 69	PI+	P	TOTAL
18.000	GALBRA65	PI-	P	TOTAL
18.000	GALBRA65	FI+	P	TOTAL
18.020	FOLEY 67	PI+	P	TOTAL
18.190	FOLEY 68	FI-	P	D.C.S.
18.190	FOLEY 69	FI-	P	TOTAL
18.200	GUISAN68	PIO	N	D.C.S.
18.249	LINDEN61	PI-	P	TOTAL
18.360	FOLEY 67	PI-	P	TOTAL
18.400	HARTIN65	FI-	P	D.C.S.
18.680	FOLEY 67	FI-	P	TOTAL
18.749	LINDEN61	FI+	P	TOTAL
18.900	FOLEY*63	PI-	P	D.C.S.
19.220	FOLEY 67	PI-	P	TOTAL
19.249	LINDEN61	FI-	P	TOTAL
19.749	LINDEN61	PI+	P	TOTAL
19.750	FOLEY 65	FI-	P	D.C.S.
19.999	DARDEL62	PI-	P	TOTAL
19.999	DARDEL62	PI+	P	TOTAL
20.000	ALLABY69	PI-	P	TOTAL
20.000	ALLABY69	FI+	P	TOTAL
20.000	BCLOTD71	PIO	N	TOTAL
20.000	DENISO71	PI+	P	TOTAL
20.000	GALBRA65	FI-	P	TOTAL
20.000	GALBRA65	PI+	P	TOTAL
20.150	FOLEY 68	PI-	P	D.C.S.
20.150	FOLEY 69	PI-	P	TOTAL
20.170	FOLEY 67	PI-	P	TOTAL
20.190	FOLEY 68	PI+	P	D.C.S.
20.190	FOLEY 69	PI+	P	TOTAL
20.249	LINDEN61	FI-	P	TOTAL
20.290	FOLEY 67	FI+	P	TOTAL
20.380	FOLEY 68	PI-	P	D.C.S.
20.380	FOLEY 69	PI-	P	TOTAL

21.000	DENISO71	PI-	P	TOTAL
22.090	FOLEY 67	PI-	P	TOTAL
22.100	FOLEY 67	PI+	P	TOTAL
22.130	FOLEY 68	FI-	P	D.C.S.
22.130	FOLEY 69	PI-	P	TOTAL
23.000	BABAEV72	PI+	P	D.C.S.
23.000	DENISO71	PI-	P	TOTAL
23.180	FOLEY 65	FI-	P	D.C.S.
23.180	FOLEY 67	FI-	P	TOTAL
23.180	FOLEY 67	PI+	P	TOTAL
24.220	FOLEY 68	FI-	P	D.C.S.
24.220	FOLEY 69	PI-	P	TOTAL
24.270	FOLEY 67	FI-	P	TOTAL
25.000	ALLABY69	FI-	P	TOTAL
25.000	ALLABY69	PI+	P	TOTAL
25.000	BCLOTO71	PIO	N	TOTAL
25.000	DENISO71	FI-	P	TOTAL
25.000	DENISO71	PI+	P	TOTAL
25.340	FOLEY 65	PI-	P	D.C.S.
25.340	FOLEY 67	FI-	P	TOTAL
26.190	FOLEY 67	PI-	P	TOTAL
26.230	FOLEY 68	PI-	P	D.C.S.
26.230	FOLEY 69	PI-	P	TOTAL
27.500	DENISO71	FI-	P	TOTAL
28.680	FOLEY 67	PI-	P	TOTAL
30.000	ALLABY69	PI-	P	TOTAL
30.000	ALLABY69	PI+	P	TOTAL
30.000	DENISO71	PI-	P	TOTAL
30.000	DENISO71	FI+	P	TOTAL
31.200	DENISO71	PI-	P	TOTAL
32.500	BCLOTC71	PIO	N	TOTAL
33.500	DENISO71	FI-	P	TOTAL
35.000	ALLABY69	PI-	P	TOTAL
35.000	ALLABY69	FI+	P	TOTAL
35.000	DENISO71	FI+	P	TOTAL
35.200	DENISO71	PI-	P	TOTAL
37.500	DENISO71	PI-	P	TOTAL
40.000	ALLABY69	PI-	P	TOTAL
40.000	ALLABY69	FI+	P	TOTAL
40.000	BABAEV72	PI+	P	D.C.S.
40.000	BCLOTO71	PIO	N	TOTAL
40.000	DENISO71	PI-	P	TOTAL
40.000	DENISO71	PI+	P	TOTAL
42.500	DENISO71	PI-	P	TOTAL
45.000	ALLABY69	PI-	P	TOTAL
45.000	ALLABY69	PI+	P	TOTAL
45.000	DENISO71	PI-	P	TOTAL
45.000	DENISO71	FI+	P	TOTAL
47.500	DENISO71	FI-	P	TOTAL
49.000	BCLOTO71	PIO	N	TOTAL
50.000	ALLABY69	FI-	P	TOTAL
50.000	ALLABY69	PI+	P	TOTAL
50.000	DENISO71	PI-	P	TOTAL
50.000	DENISO71	PI+	P	TOTAL
52.500	DENISO71	FI-	P	TOTAL
55.000	ALLABY69	FI-	P	TOTAL
55.000	ALLABY69	FI+	P	TOTAL
55.000	DENISO71	FI-	P	TOTAL
55.000	DENISO71	FI+	P	TOTAL
57.500	DENISO71	FI-	P	TOTAL
60.000	ALLABY69	FI-	P	TOTAL
60.000	ALLABY69	FI+	P	TOTAL
60.000	DENISO71	FI-	P	TOTAL
60.000	DENISO71	FI+	P	TOTAL
62.500	DENISO71	FI-	P	TOTAL
65.000	ALLABY69	FI-	P	TOTAL
65.000	ALLABY69	PI+	P	TOTAL
65.000	DENISO71	PI-	P	TOTAL