

Lawrence Berkeley National Laboratory

Lawrence Berkeley National Laboratory

Title

COMPILATION OF CURRENT HIGH ENERGY PHYSICS EXPERIMENTS - July 1976

Permalink

<https://escholarship.org/uc/item/5kk9h8hk>

Author

Kelly, R.L.

Publication Date

1976-07-01

Peer reviewed

COMPILATION OF CURRENT HIGH ENERGY PHYSICS EXPERIMENTS

R.L. Kelly, F.E. Armstrong, C.P. Horne,
M.S. Hutchinson, D.R. Richards, A. Rittenberg,
A.H. Rosenfeld, T.G. Trippe, G.P. Yost

*Particle Data Group
Lawrence Berkeley Laboratory
University of California
Berkeley, CA 94720 USA*

L. Addis, G.B. Chadwick, G.M. Row
*Stanford Linear Accelerator Center
Stanford, CA 94305 USA*

G.C. Fox, P.R. Stevens
*California Institute of Technology
Pasadena, CA 91125 USA*

C.E.W. Ward
*Argonne National Laboratory
Argonne, Illinois 60439 USA*

R.H. Phillips
*Brookhaven National Laboratory
Upton, New York 11973 USA*

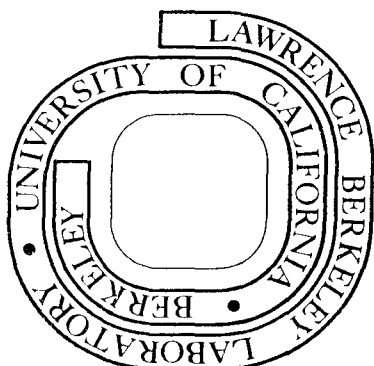
P. Weilhammer
*CERN
CH-1211 Geneve 23, Switzerland*

P. Joos
*DESY
Notkestieg 1
D-2 Hamburg-52, Germany*

T.H. Groves
*Fermilab
P.O. Box 500
Batavia, Illinois 60510 USA*

G.T.J. Arnison
*Rutherford High Energy Laboratory
Chilton, Didcot, Oxon. OX11 0QX, England*

July 1976



Prepared for the U.S. Energy Research and Development Administration
under Contract W-7405-ENG-48

Compilation of Current High Energy Physics Experiments

R.L. Kelly, F.E. Armstrong, C.P. Horne, M.S. Hutchinson, D.R. Richards,
A. Rittenberg, A.H. Rosenfeld, T.G. Trippe, G.P. Yost
Lawrence Berkeley Laboratory
University of California
Berkeley, California 94720 USA

L. Addis, G.B. Chadwick, G.M. Row
Stanford Linear Accelerator Center
Stanford, California 94305 USA

G.C. Fox, P.R. Stevens
California Institute of Technology
Pasadena, California 91125 USA

C.E.W. Ward
Argonne National Laboratory
Argonne, Illinois 60439 USA

R.H. Phillips
Brookhaven National Laboratory
Upton, New York 11973 USA

P. Weilhammer
CERN
CH-1211 Genève 23, Switzerland

P. Joos
DESY
Notkestieg 1
D-2 Hamburg-52, Germany

T.H. Groves
Fermilab
P.O. Box 500
Batavia, Illinois 60510 USA

G.T.J. Arnison
Rutherford High Energy Laboratory
Chilton, Didcot, Oxon. OX11 0QX, England

Table of Contents

Introduction	1
Beam-Target-Momentum Index.	3
Particle Index	9
Spokesman Index	10
Illustrative Key for Compilation Listing	12
Appendix I - Accelerator Abbreviations	13
Appendix II - Detector Abbreviations	13
Appendix III - Beam Momentum Designations	13
Appendix IV - Reaction Data Descriptors	13
Appendix V - Particle Properties Descriptors	14
Appendix VI - Institution Abbreviations	14
Appendix VII - Particle Abbreviations	17
Complete Compilation Listing (on Microfiche)	Inside front cover

Introduction

This compilation of current high energy physics experiments has been assembled in a collaborative effort by the Berkeley Particle Data Group, the SLAC Library, and the seven participating laboratories, ANL, BNL, CERN, DESY, FNAL, RHEL, and SLAC. Work on the compilation was begun early in 1975 and it is now intended to include all currently active high energy physics experiments at the participating laboratories. By "currently active" we mean experiments that were approved but had not finished running by June 1976. Nearly all experiments that completed running since the summer of 1975 are also included, as well as a few older experiments.

This report includes three indices to the compilation, seven appendices with definitions of the symbols used, and a microfiche listing of the compilation itself. The first index is keyed to beam and target particles and beam momenta in order of increasing particle mass and beam momentum; the two subsequent indices are keyed to individual particles studied and to spokesman names. The appendices contain lists of symbols used for accelerators, detectors, beam momentum designations, data descriptors, particle properties, institutions, and particle names. An illustrative key precedes the appendices, showing the format of the compilation listing and indicating the appropriate appendices for the various symbols used. The compilation listing for each experiment contains, in addition to the indexed information mentioned above, a list of participants and their institutions, a list of the reactions studied, information on the running status of the experiment, and various comments on the technique and/or physics goals of the experiment.

Users of this compilation who want more information about a specific experiment would be well advised to contact the experimental spokesman directly. Although proposals are sometimes available in libraries, it is not always easy to identify all the relevant information for a particular experiment. There are often important letters, addenda, revisions, etc., attached to a proposal after it is first submitted which may not be available with library copies. The "bibliographic comments" included in the compilation listing are intended to help the user find all relevant material. Users should also note that at two laboratories the experiment number that we list and the proposal number are not the same. The ANL proposal number corresponding to experiment number E-xxx is P-xxx. The CERN proposal number(s) corresponding to a specific experiment consists of the numbers of all CERN documents submitted in its support, and can usually be found in the CERN approved experiment list for the appropriate accelerator.

It is planned to keep this compilation up-to-date in the future, to add more laboratories, and to issue updated versions of this report every year. This report has been distributed to libraries at universities, high energy physics laboratories, etc., and to the experimental spokesmen listed in the index. A limited number of copies are also available for other interested individuals who may request a copy by writing to:

Particle Data Group
 LBL-91 Request
 Building 50, Room 304
 Lawrence Berkeley Laboratory
 Berkeley, California 94720 USA

Any comments concerning the compilation, such as missing or incorrect entries, should be sent to Robert Kelly at the Particle Data Group.

The information appearing in this report has been extracted from a new computerized data storage and retrieval system being developed by the Berkeley Particle Data Group, in collaboration with the California Institute of Technology and the University of Durham. In the next step of its development, this "Particle Physics Data System" will contain the same kind of information as appears in this report for all experimental particle physics documents: proposals (past as well as current), preprints, reports, theses, journal articles, etc. It is also planned that it will ultimately contain the actual physics data extracted from these documents -- both reaction data and particle properties measurements. The stored material will be searchable in response to specific requests, and will also be used to produce periodic indices such as this one, as well as various graphical "trend-of-the-data" reports. We welcome suggestions concerning the development of this system.

This project is jointly supported by the U. S. Energy Research and Development Administration, the Office of the Standard Reference Data of the National Bureau of Standards, and the National Science Foundation.

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
GAMMA E-	?	SLAC-SP-78	NUMU P	35.0 64.0	FNAL-388
GAMMA P	2.0 19.0	SLAC-E-112	NUMU P	50.0 150.0	FNAL-380
GAMMA P	2.5	DESY-115	NUMU P	70.0	FNAL-254
GAMMA P	4.0 7.0	DESY-94	NUMU P	91.0 95.0	FNAL-388
GAMMA P	5.5 6.5	DESY-136	NUMU P	100.0	FNAL-320
GAMMA P	6.0	SLAC-E-108	NUMU P	131.0 143.0	FNAL-388
GAMMA P	9.0	SLAC-E-108	NUMU N	0. 4.0	ANL-E-412
GAMMA P	10.0 40.0	CERN-WA-4	NUMU N	0. 10.0	BNL-427
GAMMA P	10.0 60.0	CERN-WA-4	NUMU N	0. 10.0	BNL-629
GAMMA P	12.0	SLAC-E-108	NUMU N	0. 400.0	FNAL-310
GAMMA P	13.0	SLAC-E-114	NUMU N	1.0 5.0	BNL-605
GAMMA P	14.0 300.0	FNAL-25A	NUMU N	1.0 8.0	BNL-589-639
GAMMA P	15.0	SLAC-E-114	NUMU N	2.0 3.5	BNL-693
GAMMA P	16.0	SLAC-E-114	NUMU N	3.0 5.0	BNL-693
GAMMA P	17.0	SLAC-E-114	NUMU N	4.0	BNL-589-639
GAMMA P	19.0	SLAC-E-114	NUMU N	4.0 19.0	CERN-T-224
GAMMA P	20.0 60.0	FNAL-152B	NUMU N	10.0	BNL-589-639
GAMMA P	20.0 200.0	FNAL-263	NUMU N	10.0 100.0	FNAL-151A
GAMMA P	21.0	SLAC-E-114	NUMU N	10.0 100.0	FNAL-227
GAMMA P	>21.0	SLAC-E-114	NUMU D	0. 10.0	BNL-427
GAMMA N	3.4 5.0	DESY-129	NUMU D	10.0 100.0	FNAL-151A
GAMMA N	13.0	SLAC-E-114	NUMU NE	0. 200.0	FNAL-53A
GAMMA N	15.0	SLAC-E-114	NUMU NE	5.0 155.0	FNAL-28A
GAMMA N	16.0	SLAC-E-114	NUMU NE	28.0 43.0	FNAL-388
GAMMA N	17.0	SLAC-E-114	NUMU NE	35.0 64.0	FNAL-388
GAMMA N	19.0	SLAC-E-114	NUMU NE	50.0 150.0	FNAL-380
GAMMA N	21.0	SLAC-E-114	NUMU NE	91.0 95.0	FNAL-388
GAMMA N	>21.0	SLAC-E-114	NUMU NE	131.0 143.0	FNAL-388
GAMMA D	2.0 19.0	SLAC-E-112	NUMU FE	0. 260.0	CERN-WA-1
GAMMA D	14.0 300.0	FNAL-25A	NUMU PB	0. 400.0	FNAL-310
GAMMA BE	2.0 19.0	SLAC-E-112	NUMU NUCLEUS	4.0 19.0	CERN-T-245
GAMMA BE	40.0 200.0	FNAL-401	NUMU NUCLEUS	10.0 100.0	FNAL-1A
GAMMA C	2.0 19.0	SLAC-E-112	NUMU NUCLEUS	40.0 300.0	FNAL-21A
GAMMA C	60.0	FNAL-25A	NUMU NUCLEUS	300.0	FNAL-21A
GAMMA C	170.0	FNAL-25A	NUMU	?	FNAL-155
GAMMA AL	2.0 19.0	SLAC-E-112	NUMU	?	FNAL-356
GAMMA CU	2.0 19.0	SLAC-E-112	ANUMU E-	0. 100.0	FNAL-390
GAMMA CU	60.0	FNAL-25A	ANUMU E-	0. 200.0	FNAL-180
GAMMA CU	170.0	FNAL-25A	ANUMU E-	0. 400.0	FNAL-310
GAMMA AG	2.0 19.0	SLAC-E-112	ANUMU E-	1.0 5.0	BNL-605
GAMMA PB	2.0 19.0	SLAC-E-112	ANUMU E-	4.0	BNL-589-639
GAMMA PB	60.0	FNAL-25A	ANUMU E-	10.0	BNL-589-639
GAMMA PB	170.0	FNAL-25A	ANUMU E-	10.0 100.0	FNAL-253
GAMMA NUCLEUS	?	CERN-WA-4	ANUMU P	0. 5.0	BNL-532
GAMMA NUCLEUS	13.0	SLAC-E-114	ANUMU P	0. 100.0	FNAL-31A
GAMMA NUCLEUS	15.0	SLAC-E-114	ANUMU P	0. 100.0	FNAL-390
GAMMA NUCLEUS	16.0	SLAC-E-114	ANUMU P	0. 130.0	FNAL-172
GAMMA NUCLEUS	17.0	SLAC-E-114	ANUMU P	0. 200.0	FNAL-180
GAMMA NUCLEUS	19.0	SLAC-E-114	ANUMU P	0. 400.0	FNAL-310
GAMMA NUCLEUS	20.0 60.0	FNAL-152B	ANUMU P	1.0 8.0	BNL-589-639
GAMMA NUCLEUS	20.0 200.0	FNAL-87A	ANUMU P	4.0	BNL-589-639
GAMMA NUCLEUS	21.0	SLAC-E-114	ANUMU P	4.0 19.0	CERN-T-224
GAMMA NUCLEUS	>21.0	SLAC-E-114	ANUMU P	10.0	BNL-589-639
GAMMA NUCLEUS	100.0 300.0	FNAL-87A	ANUMU P	10.0 50.0	FNAL-320
NUE E-	0. 400.0	FNAL-310	ANUMU P	28.0 43.0	FNAL-388
NUE E-	5.0 70.0	FNAL-45A	ANUMU P	35.0 64.0	FNAL-388
NUE E-	10.0 100.0	FNAL-253	ANUMU P	50.0 150.0	FNAL-380
NUE P	0. 400.0	FNAL-310	ANUMU P	91.0 95.0	FNAL-388
NUE P	1.0 8.0	BNL-589-639	ANUMU P	100.0	FNAL-320
NUE P	5.0 70.0	FNAL-45A	ANUMU P	131.0 143.0	FNAL-388
NUE N	0. 400.0	FNAL-310	ANUMU N	0. 100.0	FNAL-390
NUE N	1.0 8.0	BNL-589-639	ANUMU N	0. 130.0	FNAL-172
ANUE E-	10.0 100.0	FNAL-253	ANUMU N	0. 200.0	FNAL-180
ANUE P	0. 400.0	FNAL-310	ANUMU N	0. 400.0	FNAL-310
ANUE P	1.0 8.0	BNL-589-639	ANUMU N	1.0 8.0	BNL-589-639
ANUE P	5.0 70.0	FNAL-45A	ANUMU N	4.0	BNL-589-639
ANUE N	0. 400.0	FNAL-310	ANUMU N	4.0 19.0	CERN-T-224
ANUE N	1.0 8.0	BNL-589-639	ANUMU N	10.0	BNL-589-639
NUMU E-	0. 10.0	BNL-629	ANUMU D	0. 100.0	FNAL-390
NUMU E-	0. 12.0	BNL-613	ANUMU NE	0. 130.0	FNAL-172
NUMU E-	0. 400.0	FNAL-310	ANUMU NE	0. 200.0	FNAL-180
NUMU E-	1.0 5.0	BNL-605	ANUMU NE	28.0 43.0	FNAL-388
NUMU E-	4.0	BNL-589-639	ANUMU NE	35.0 64.0	FNAL-388
NUMU E-	5.0 70.0	FNAL-45A	ANUMU NE	50.0 150.0	FNAL-380
NUMU E-	10.0	BNL-589-639	ANUMU NE	91.0 95.0	FNAL-388
NUMU E-	10.0 100.0	FNAL-253	ANUMU NE	131.0 143.0	FNAL-388
NUMU P	?	FNAL-247	ANUMU FE	0. 260.0	CERN-WA-1
NUMU P	0. 4.0	ANL-E-412	ANUMU NUCLEUS	10.0 100.0	FNAL-1A
NUMU P	0. 10.0	BNL-427	ANUMU NUCLEUS	40.0 300.0	FNAL-21A
NUMU P	0. 10.0	BNL-629	ANUMU	?	BNL-652
NUMU P	0. 12.0	BNL-613	ANUMU	?	FNAL-155
NUMU P	0. 200.0	FNAL-53A	ANUMU	?	FNAL-356
NUMU P	0. 400.0	FNAL-310	E- P	?	SLAC-E-122
NUMU P	1.0 5.0	BNL-605	E- P	2.5	DESY-137
NUMU P	1.0 8.0	BNL-589-639	E- P	2.6	DESY-126
NUMU P	2.0 3.5	BNL-693	E- P	2.9	DESY-114
NUMU P	3.0 5.0	BNL-693	E- P	3.8	DESY-137
NUMU P	4.0	BNL-589-639	E- P	4.7	DESY-137
NUMU P	4.0 19.0	CERN-T-224	E- P	5.0	SLAC-E-107
NUMU P	5.0 70.0	FNAL-45A	E- P	6.0	DESY-125
NUMU P	10.0	BNL-589-639	E- P	6.0	SLAC-E-80
NUMU P	10.0 50.0	FNAL-320	E- P	6.4	DESY-137
NUMU P	10.0 100.0	FNAL-1A	E- P	6.7	DESY-137
NUMU P	10.0 100.0	FNAL-151A	E- P	12.9	SLAC-E-95
NUMU P	10.0 100.0	FNAL-227	E- P	17.7	SLAC-E-95
NUMU P	28.0 43.0	FNAL-388	E- P	19.3	SLAC-E-95

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT		
E- D	5.0	21.0	SLAC-E-107	PI+ P	50.0	150.0	CERN-WA-6
E- D	7.0	18.0	SLAC-E-101	PI+ P	50.0	200.0	FNAL-69A
E- HE3	6.0	15.0	SLAC-E-121	PI+ P	55.0		CERN-WA-3
E- HE	6.0	15.0	SLAC-E-121	PI+ P	75.0		CERN-WA-9
E- PB	>100.0		FNAL-340	PI+ P	80.0		CERN-WA-3
E- NUCLEUS	>100.0		FNAL-399	PI+ P	80.0		CERN-WA-10
				PI+ P	80.0		FNAL-7
				PI+ P	80.0		FNAL-324
				PI+ P	100.0		CERN-WA-9
				PI+ P	100.0		FNAL-61
				PI+ P	100.0		FNAL-110A
				PI+ P	100.0		FNAL-118A
				PI+ P	100.0		FNAL-268
				PI+ P	100.0	350.0	FNAL-258
				PI+ P	110.0		FNAL-7
				PI+ P	125.0		CERN-WA-9
	1.5	4.2	SLAC-SP-24	PI+ P	140.0		FNAL-7
	1.6		SLAC-SP-27	PI+ P	150.0		CERN-WA-9
	>1.6		DESY-138	PI+ P	150.0		FNAL-61
	1.9		SLAC-SP-27	PI+ P	150.0		FNAL-118A
	1.9	2.5	DESY-139	PI+ P	150.0		FNAL-268
	1.9	2.3	DESY-140	PI+ P	150.0		FNAL-299
	2.6		SLAC-SP-10	PI+ P	150.0		FNAL-331
	2.6	4.3	SLAC-SP-17	PI+ P	160.0		FNAL-324
	3.8		SLAC-SP-10	PI+ P	170.0		FNAL-7
	3.8		SLAC-SP-14	PI+ P	200.0		FNAL-110A
	3.8		SLAC-SP-19	PI+ P	200.0		FNAL-260
	4.0		SLAC-SP-16	PI+ P	200.0		FNAL-268
				PI+ P	200.0		FNAL-369
				PI+ P	200.0		FNAL-395
				PI+ P	300.0		FNAL-277
				PI+ P	300.0		FNAL-395
				PI+ P	400.0		FNAL-341
				PI+ N	6.0		ANL-E-380
				PI+ N	6.0		CERN-S-137
				PI+ N	150.0		FNAL-331
				PI+ D	14.0		SLAC-BC-63
				PI+ D	20.0	500.0	FNAL-104
				PI+ D	25.0	200.0	FNAL-396
				PI+ D	50.0		FNAL-118A
				PI+ D	100.0		FNAL-118A
				PI+ D	150.0		FNAL-118A
				PI+ D	200.0		FNAL-295
				PI+ HE	1.0	3.0	ANL-E-406
				PI+ C	0.2		FNAL-444
				PI+ C	1.0	3.0	ANL-E-406
				PI+ NE	1.0	3.0	ANL-E-406
				PI+ PB	300.0		FNAL-304
				PI+ U	300.0		FNAL-304
				PI+ NUCLEUS	?		BNL-694
				PI+ NUCLEUS	?		CERN-WA-1
				PI+ NUCLEUS	?		FNAL-379
				PI+ NUCLEUS	100.0		FNAL-178
				PI+ NUCLEUS	100.0	350.0	FNAL-258
				PI+ NUCLEUS	200.0		FNAL-178
				PI+ NUCLEUS	200.0		FNAL-339
				PI+ P	3.0	15.0	CERN-S-150
				PI+ P	25.0		FNAL-327
				PI+ P	50.0		FNAL-327
				PI+ P	100.0		FNAL-327
				PI+ P	175.0		FNAL-327
				PI- E-	100.0		FNAL-216
				PI- E-	200.0		FNAL-216
				PI- E-	200.0		FNAL-446
				PI- P	?		CERN-WA-1
				PI- P	?		FNAL-236A
				PI- P	?		FNAL-246
				PI- P	?		FNAL-246
				PI- P	0.1	150.0	CERN-WA-11
				PI- P	4.0E-02	2.2	RHEL-105
				PI- P	0.6	3.5	RHEL-81
				PI- P	0.6	3.5	RHEL-101
				PI- P	1.0	2.0	ANL-E-363
				PI- P	1.0	2.0	RHEL-128
				PI- P	1.0	2.1	RHEL-166
				PI- P	1.4	2.0	RHEL-114
				PI- P	2.0	8.0	ANL-E-335
				PI- P	2.0	8.0	ANL-E-365
				PI- P	4.0		CERN-T-227
				PI- P	4.0		RHEL-150
				PI- P	4.0		BNL-596
				PI- P	>4.0		BNL-557
				PI- P	4.5		BNL-588
				PI- P	5.0		CERN-S-134
				PI- P	5.0		CERN-S-144
				PI- P	5.0	15.0	CERN-S-153
				PI- P	5.1		ANL-E-379
				PI- P	6.0		ANL-E-380
				PI- P	6.0	10.0	BNL-594
				PI- P	7.0		BNL-557
				PI- P	7.0		BNL-588
				PI- P	8.0		ANL-E-370
				PI- P	8.0		RHEL-112
				PI- P	8.2	9.5	ANL-E-411
				PI- P	8.5		ANL-E-397
				PI- P	10.0		BNL-588
				PI- P	10.0		CERN-S-131
				PI- P	10.0		
MU- P	100.0		FNAL-98				
MU- P	100.0	250.0	CERN-WA-2				
MU- P	100.0	250.0	CERN-WA-4				
MU- P	200.0		FNAL-98				
MU- P	225.0		FNAL-398				
MU- N	100.0		FNAL-98				
MU- N	100.0	250.0	CERN-WA-4				
MU- N	200.0		FNAL-98				
MU- D	225.0		FNAL-398				
MU- BE	12.0		BNL-632			500.0	
MU- FE	90.0		FNAL-319			200.0	
MU- FE	150.0		FNAL-319				
MU- FE	240.0		FNAL-319				
MU- CU	12.0		BNL-632				
MU- PB	12.0		BNL-632				
MU- NUCLEUS	12.0		BNL-632				
MU- NUCLEUS	150.0		FNAL-382				
MU+ BE	12.0		BNL-632				
MU+ FE	?		FNAL-203A				
MU+ FE	90.0		FNAL-319				
MU+ FE	150.0		FNAL-319				
MU+ FE	225.0		FNAL-391				
MU+ FE	240.0		FNAL-319				
MU+ CU	12.0		BNL-632				
MU+ PB	12.0		BNL-632				
MU+ NUCLEUS	12.0		BNL-632				
PI+ E-	200.0		FNAL-446				
PI+ PI-	5.7E-02	8.2	ANL-E-400				
PI+ P	?		CERN-WA-1				
PI+ P	?		FNAL-236A				
PI+ P	?		FNAL-246				
PI+ P	?		FNAL-341				
PI+ P	4.0E-02	2.2	RHEL-105				
PI+ P	0.6	2.0	RHEL-83				
PI+ P	2.0	8.0	ANL-E-335				
PI+ P	2.0	8.0	ANL-E-365				
PI+ P	4.0		RHEL-91				
PI+ P	4.0		RHEL-150				
PI+ P	4.0	5.0	RHEL-126				
PI+ P	>4.0		BNL-596				
PI+ P	5.0		CERN-S-144				
PI+ P	6.0		RHEL-150				
PI+ P	6.0	10.0	BNL-594				
PI+ P	6.7		SLAC-BC-60				
PI+ P	7.0		ANL-E-400				
PI+ P	8.0		ANL-E-360				
PI+ P	8.0		ANL-E-370				
PI+ P	8.0		RHEL-112				
PI+ P	10.0		CERN-S-131				
PI+ P	10.0		CERN-S-144				
PI+ P	10.0	100.0	FNAL-290				
PI+ P	12.0		SLAC-BC-59				
PI+ P	13.0		SLAC-BC-61				
PI+ P	15.0		BNL-671				
PI+ P	17.0		SLAC-E-123A				
PI+ P	17.0		SLAC-E-123B				
PI+ P	20.0		CERN-WA-10				
PI+ P	20.0	120.0	FNAL-99				
PI+ P	20.0	500.0	FNAL-104				
PI+ P	25.0	200.0	FNAL-396				
PI+ P	30.0		CERN-WA-3				
PI+ P	40.0		CERN-WA-10				
PI+ P	40.0		FNAL-324				
PI+ P	50.0		CERN-WA-9				
PI+ P	50.0		FNAL-7				
PI+ P	50.0		FNAL-61				
PI+ P	50.0		FNAL-110A				
PI+ P	50.0		FNAL-118A				

FOR E+ E- COLLIDING RING EXPERIMENTS WE GIVE THE CENTER-OF-MASS MOMENTUM (ACTUAL LAB MOMENTUM) RATHER THAN THE EQUIVALENT LAB MOMENTUM FOR A STATIONARY TARGET.

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	
PI-P	10.0	CERN-S-144	PI-U	300.0	FNAL-304	
PI-P	10.0	FNAL-290	PI-NUCLEUS	?	BNL-694	
PI-P	12.0	BNL-557	PI-NUCLEUS	?	CERN-NA-1	
PI-P	12.0	BNL-588	PI-NUCLEUS	?	FNAL-379	
PI-P	12.0	SLAC-BC-58	PI-NUCLEUS	100.0	FNAL-178	
PI-P	12.0	SLAC-E-123A	PI-NUCLEUS	100.0	300.0	FNAL-387
PI-P	12.0	SLAC-E-123B	PI-NUCLEUS	100.0	350.0	FNAL-258
PI-P	15.0	BNL-671	PI-NUCLEUS	150.0	FNAL-272	
PI-P	17.0	SLAC-E-123A	PI-NUCLEUS	200.0	FNAL-178	
PI-P	17.0	SLAC-E-123B	PI-NUCLEUS	200.0	FNAL-339	
PI-P	17.2	CERN-S-136	PI-NUCLEUS	200.0	400.0	FNAL-362
PI-P	20.0	BNL-686	PI-NUCLEUS	225.0	FNAL-416	
PI-P	20.0	BNL-688	PI-NUCLEUS	300.0	FNAL-272	
PI-P	20.0	CERN-WA-7	PI-	3.0	15.0	CERN-S-150
PI-P	20.0	CERN-WA-10	PI-	25.0	FNAL-327	
PI-P	20.0	BNL-679	PI-	50.0	FNAL-327	
PI-P	20.0	FNAL-104	PI-	100.0	FNAL-327	
PI-P	24.0	BNL-682	PI-	175.0	FNAL-327	
PI-P	25.0	FNAL-396	K+ E-	200.0	FNAL-446	
PI-P	30.0	CERN-WA-3	K+ P	?	CERN-NA-1	
PI-P	40.0	CERN-WA-7	K+ P	?	FNAL-236A	
PI-P	40.0	CERN-WA-10	K+ P	0.5	BNL-524	
PI-P	40.0	FNAL-324	K+ P	0.5	1.1	BNL-691
PI-P	50.0	CERN-WA-9	K+ P	0.7	1.1	BNL-524
PI-P	50.0	FNAL-7	K+ P	2.0	8.0	ANL-E-335
PI-P	50.0	FNAL-61	K+ P	2.0	8.0	ANL-E-365
PI-P	50.0	FNAL-110A	K+ P	3.0	4.0	RHEL-126
PI-P	50.0	CERN-WA-6	K+ P	4.0		RHEL-150
PI-P	50.0	FNAL-69A	K+ P	4.0	6.0	BNL-546
PI-P	55.0	CERN-WA-3	K+ P	4.0	6.0	BNL-596
PI-P	60.0	CERN-WA-7	K+ P	5.0		CERN-S-144
PI-P	70.0	FNAL-138	K+ P	6.0	10.0	BNL-594
PI-P	75.0	CERN-WA-9	K+ P	10.0		CERN-S-131
PI-P	80.0	CERN-WA-3	K+ P	10.0		CERN-S-144
PI-P	80.0	CERN-WA-7	K+ P	10.0		SLAC-E-109
PI-P	80.0	CERN-WA-10	K+ P	18.0		CERN-WA-8
PI-P	80.0	FNAL-7	K+ P	20.0		CERN-WA-10
PI-P	80.0	FNAL-324	K+ P	20.0	500.0	FNAL-104
PI-P	100.0	CERN-WA-9	K+ P	25.0	200.0	FNAL-396
PI-P	100.0	FNAL-61	K+ P	32.0		CERN-WA-8
PI-P	100.0	FNAL-110A	K+ P	40.0		CERN-WA-10
PI-P	100.0	FNAL-268	K+ P	40.0		FNAL-324
PI-P	100.0	FNAL-350	K+ P	50.0		CERN-WA-9
PI-P	100.0	FNAL-83A	K+ P	50.0		FNAL-7
PI-P	100.0	FNAL-258	K+ P	50.0		FNAL-110A
PI-P	110.0	FNAL-7	K+ P	50.0		FNAL-118A
PI-P	125.0	CERN-WA-9	K+ P	50.0	150.0	CERN-WA-6
PI-P	140.0	FNAL-7	K+ P	50.0	200.0	FNAL-69A
PI-P	150.0	CERN-WA-9	K+ P	50.0	200.0	FNAL-96
PI-P	150.0	FNAL-61	K+ P	75.0		CERN-WA-9
PI-P	150.0	FNAL-89	K+ P	80.0		CERN-WA-10
PI-P	150.0	FNAL-268	K+ P	80.0		FNAL-7
PI-P	150.0	FNAL-299	K+ P	80.0		FNAL-324
PI-P	150.0	FNAL-331	K+ P	100.0		CERN-WA-9
PI-P	150.0	FNAL-350	K+ P	100.0		FNAL-110A
PI-P	150.0	FNAL-393	K+ P	100.0		FNAL-118A
PI-P	150.0	FNAL-192	K+ P	110.0		FNAL-7
PI-P	160.0	FNAL-324	K+ P	140.0		FNAL-7
PI-P	170.0	FNAL-7	K+ P	150.0		FNAL-118A
PI-P	200.0	FNAL-110A	K+ P	150.0		FNAL-299
PI-P	200.0	FNAL-260	K+ P	150.0		FNAL-331
PI-P	200.0	FNAL-268	K+ P	160.0		FNAL-324
PI-P	200.0	FNAL-350	K+ P	170.0		FNAL-7
PI-P	200.0	FNAL-369	K+ P	200.0		FNAL-110A
PI-P	200.0	FNAL-411	K+ P	300.0		FNAL-277
PI-P	250.0	FNAL-138	K+ N	0.7	0.9	BNL-641
PI-P	250.0	FNAL-281	K+ N	0.7	1.4	RHEL-136
PI-P	360.0	FNAL-384	K+ N	6.0		CERN-S-137
PI-P	400.0	FNAL-138	K+ N	150.0		FNAL-331
PI-P	400.0	FNAL-215	K+ D	20.0	500.0	FNAL-104
PI-N	150.0	FNAL-331	K+ D	25.0	200.0	FNAL-396
PI-N	150.0	FNAL-192	K+ D	50.0		FNAL-118A
PI-N	200.0	FNAL-338	K+ D	100.0		FNAL-118A
PI-N	400.0	FNAL-338	K+ D	150.0		FNAL-118A
PI-D	8.0	SLAC-E-103	K+ HE	1.0	3.0	ANL-E-406
PI-D	16.0	SLAC-E-103	K+ C	1.0	3.0	ANL-E-406
PI-D	20.0	FNAL-104	K+ NE	1.0	3.0	ANL-E-406
PI-D	25.0	FNAL-396	K+ NUCLEUS	?		BNL-694
PI-D	200.0	FNAL-338	K+ NUCLEUS	?		CERN-NA-1
PI-D	400.0	FNAL-338	K+ NUCLEUS	?		FNAL-379
PI-HE	1.0	ANL-E-406	K+ NUCLEUS	100.0		FNAL-178
PI-HE	5.0	CERN-S-143	K+ NUCLEUS	200.0		FNAL-178
PI-HE	50.0	FNAL-86A	K+	3.0	15.0	CERN-S-150
PI-C	0.2	FNAL-444	K+	25.0		FNAL-327
PI-C	1.0	ANL-E-406	K+	50.0		FNAL-327
PI-C	16.0	BNL-687	K+	100.0		FNAL-327
PI-C	24.0	BNL-687	K+	175.0		FNAL-327
PI-C	25.0	BNL-647	K0	6.0	16.0	BNL-615
PI-NE	1.0	ANL-E-406	KL E-	?		FNAL-226
PI-NE	150.0	FNAL-89	KL P	?		FNAL-425
PI-CU	16.0	BNL-687	KL P	2.0	8.0	CERN-S-147
PI-CU	24.0	BNL-687	KL P	4.0	16.0	CERN-S-130
PI-CU	200.0	FNAL-415	KL P	>40.0		FNAL-82
PI-WT	16.0	BNL-687	KL C	>40.0		FNAL-82
PI-WT	24.0	BNL-687	KL CU	8.0	20.0	SLAC-E-119
PI-PB	300.0	FNAL-304	KL NUCLEUS	?		FNAL-226

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
KL	?		BNL-631	K- C	0.6		BNL-664
KL	1.0	4.0	RHEL-168	K- C	1.0	3.0	ANL-E-406
KL	2.0	6.0	ANL-E-333	K- NE	1.0	3.0	ANL-E-406
AKO	6.0	16.0	BNL-615	K- NUCLEUS	?		BNL-694
K- E-	100.0		FNAL-216	K- NUCLEUS	?		CERN-NA-1
K- E-	200.0		FNAL-216	K- NUCLEUS	?		FNAL-379
K- E-	200.0		FNAL-446	K- NUCLEUS	0.		CERN-S-152
K- E-	250.0		FNAL-456	K- NUCLEUS	0.6		BNL-646
K- P	?		CERN-NA-1	K- NUCLEUS	0.8		BNL-646
K- P	?		FNAL-236A	K- NUCLEUS	0.9		CERN-P-11
K- P	0.		BNL-643	K- NUCLEUS	0.9		CERN-S-154
K- P	0.		CERN-S-151	K- NUCLEUS	100.0		FNAL-178
K- P	0.4	0.8	RHEL-117	K- NUCLEUS	150.0		FNAL-272
K- P	0.4		ANL-E-347	K- NUCLEUS	200.0		FNAL-178
K- P	0.5	0.9	CERN-T-236	K- NUCLEUS	300.0		FNAL-272
K- P	0.5	1.1	BNL-634	K-	3.0	15.0	CERN-S-150
K- P	0.5	1.1	BNL-691	K-	25.0		FNAL-327
K- P	0.7	1.2	BNL-524	K-	50.0		FNAL-327
K- P	0.7	1.4	RHEL-136	K-	100.0		FNAL-327
K- P	1.2	1.9	RHEL-120	K-	175.0		FNAL-327
K- P	2.0	8.0	ANL-E-335				
K- P	2.0	8.0	ANL-E-365				
K- P	2.8		RHEL-119				
K- P	3.0		BNL-593				
K- P	4.0		BNL-673				
K- P	4.0		RHEL-150				
K- P	4.0	6.0	BNL-546				
K- P	4.0	6.0	BNL-596				
K- P	4.6		BNL-593				
K- P	5.0		BNL-588				
K- P	5.0		BNL-673				
K- P	5.0		CERN-S-144				
K- P	5.1		ANL-E-379				
K- P	6.0		CERN-S-140				
K- P	6.0	10.0	BNL-594				
K- P	6.5		ANL-E-289-292				
K- P	6.7		SLAC-BC-60				
K- P	7.0		BNL-588				
K- P	7.0	9.0	SLAC-BC-61				
K- P	8.3		CERN-T-209				
K- P	10.0		BNL-588				
K- P	10.0		CERN-S-131				
K- P	10.0		CERN-S-144		0.	300.0	FNAL-317
K- P	10.0		SLAC-E-109		1.0	3.0	ANL-E-395
K- P	12.0		BNL-588		1.2		ANL-E-416
K- P	18.0		CERN-WA-8		1.5		ANL-E-416
K- P	20.0		CERN-WA-7		1.9		ANL-E-416
K- P	20.0		CERN-WA-10		2.0		ANL-E-372
K- P	20.0	500.0	FNAL-104		2.0		ANL-E-402
K- P	25.0	200.0	FNAL-396		2.0	8.0	ANL-E-418
K- P	30.0		CERN-WA-3		2.0	8.0	ANL-E-335
K- P	32.0		CERN-WA-8		2.0		ANL-E-365
K- P	40.0		CERN-WA-7		2.5		ANL-E-416
K- P	40.0		CERN-WA-10		3.0		ANL-E-339
K- P	40.0		FNAL-324		3.0		ANL-E-372
K- P	50.0		CERN-WA-9		3.0		ANL-E-402
K- P	50.0		FNAL-7		3.0		ANL-E-416
K- P	50.0		FNAL-110A		3.0		ANL-E-418
K- P	50.0	150.0	CERN-WA-6		4.0		ANL-E-339
K- P	50.0	200.0	FNAL-69A		4.0		ANL-E-372
K- P	50.0	200.0	FNAL-96		4.0		ANL-E-402
K- P	55.0		CERN-WA-3		4.0		ANL-E-415
K- P	60.0		CERN-WA-7		4.0		ANL-E-416
K- P	75.0		CERN-WA-9		4.0		ANL-E-418
K- P	80.0		CERN-WA-3		5.0		CERN-S-144
K- P	80.0		CERN-WA-7		6.0		ANL-E-339
K- P	80.0		CERN-WA-10		6.0		ANL-E-366
K- P	80.0		FNAL-7		6.0		ANL-E-367
K- P	80.0		FNAL-324		6.0		ANL-E-372
K- P	100.0		CERN-WA-9		6.0		ANL-E-381
K- P	100.0		FNAL-110A		6.0		ANL-E-385
K- P	100.0	150.0	FNAL-83A		6.0		ANL-E-393
K- P	110.0		FNAL-7		6.0		ANL-E-399
K- P	140.0		FNAL-7		6.0		ANL-E-401
K- P	150.0		FNAL-299		6.0		ANL-E-402
K- P	150.0		FNAL-331		6.0		ANL-E-407
K- P	150.0	300.0	FNAL-192		6.0		ANL-E-416
K- P	160.0		FNAL-324		6.0		ANL-E-418
K- P	170.0		FNAL-7		7.0	500.0	FNAL-198A
K- P	200.0		FNAL-110A		8.0		ANL-E-415
K- N	0.7	1.4	RHEL-136		8.0		ANL-E-418
K- N	0.9		CERN-T-211		8.0	400.0	RHEL-112
K- N	1.0		CERN-T-211		8.0		FNAL-381
K- N	2.0		CERN-T-211		9.0		ANL-E-391
K- N	2.2		CERN-T-211		9.0		SLAC-BC-64
K- N	2.3		CERN-T-211		10.0		CERN-S-131
K- N	2.5		CERN-T-211		10.0		CERN-S-144
K- N	150.0		FNAL-331		10.0		SLAC-E-109
K- N	150.0	300.0	FNAL-192		11.0		ANL-E-371
K- D	0.		BNL-643		12.0		ANL-E-366
K- D	20.0	500.0	FNAL-104		12.0		ANL-E-367
K- D	25.0	200.0	FNAL-396		12.0		ANL-E-391
K- HE	0.		BNL-643		12.0		ANL-E-399
K- HE	1.0	3.0	ANL-E-406		12.0		ANL-E-408
K- BE	0.6		BNL-664		12.0		ANL-E-415
K- C	0.2		FNAL-444		12.0		ANL-E-418

IN THE FOLLOWING INDEX OF PP EXPERIMENTS, ISR EXPERIMENTS ARE ORDERED BY THE EQUIVALENT LAB MOMENTUM FOR A STATIONARY TARGET RATHER THAN THE ACTUAL LAB (CENTER-OF-MASS) MOMENTUM.

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
P P	14.0	SLAC-E-109	P P	2049.3	CERN-R-805
P P	15.0	BNL-671	P P	2074.0	CERN-R-108
P P	15.0 30.0	BNL-642	P P	2114.1	CERN-R-411
P P	20.0	BNL-658	P N	2.0	ANL-E-418
P P	20.0	CERN-WA-7	P N	3.0	ANL-E-418
P P	20.0	CERN-WA-10	P N	4.0	ANL-E-418
P P	20.0 50.0	FNAL-363	P N	6.0	ANL-E-418
P P	20.0 500.0	FNAL-104	P N	8.0	FNAL-381
P P	22.0	BNL-658	P N	9.0	ANL-E-391
P P	24.0	BNL-650	P N	12.0	ANL-E-391
P P	24.0	BNL-658	P N	50.0	FNAL-12
P P	24.0	CERN-S-141	P N	100.0	FNAL-196
P P	24.0	FNAL-396	P N	150.0	FNAL-331
P P	25.0 200.0	BNL-658	P N	200.0	FNAL-194
P P	26.0	BNL-658	P N	205.0	FNAL-280
P P	28.0	FNAL-313	P N	300.0	FNAL-209
P P	30.0 400.0	CERN-WA-7	P N	400.0	FNAL-194
P P	40.0	CERN-WA-10	P D	0.	FNAL-317
P P	40.0	FNAL-324	P D	2.0	ANL-E-339
P P	40.0	FNAL-7	P D	3.0	ANL-E-339
P P	50.0	FNAL-61	P D	4.0	ANL-E-339
P P	50.0	FNAL-110A	P D	6.0	ANL-E-339
P P	50.0	FNAL-118A	P D	7.0	FNAL-198A
P P	50.0 150.0	CERN-WA-6	P D	8.0	FNAL-381
P P	50.0 200.0	FNAL-69A	P D	20.0	FNAL-186
P P	50.0 200.0	FNAL-96	P D	20.0	FNAL-104
P P	60.0	CERN-WA-7	P D	25.0	FNAL-396
P P	70.0	FNAL-138	P D	50.0	FNAL-118A
P P	80.0	CERN-WA-7	P D	100.0	FNAL-118A
P P	80.0	CERN-WA-10	P D	100.0	FNAL-196
P P	80.0	FNAL-7	P D	100.0	FNAL-300
P P	80.0	FNAL-324	P D	150.0	FNAL-118A
P P	100.0	CERN-WA-9	P D	200.0	FNAL-194
P P	100.0	FNAL-61	P D	200.0	FNAL-300
P P	100.0	FNAL-110A	P D	205.0	FNAL-280
P P	100.0	FNAL-118A	P D	250.0	FNAL-118A
P P	100.0	FNAL-196	P D	300.0	FNAL-300
P P	100.0	FNAL-284	P D	400.0	FNAL-194
P P	100.0	FNAL-300	P D	400.0	FNAL-300
P P	100.0 500.0	FNAL-95A	P D	500.0	FNAL-300
P P	110.0	FNAL-7	P HE	0.4	ANL-E-414
P P	140.0	FNAL-7	P HE	1.0	ANL-E-406
P P	150.0	FNAL-61	P HE	8.0	FNAL-289
P P	150.0	FNAL-118A	P HE	12.0	ANL-E-351
P P	150.0	FNAL-299	P BE	?	BNL-669
P P	150.0	FNAL-331	P BE	28.5	BNL-658
P P	160.0	FNAL-324	P BE	300.0	FNAL-354
P P	170.0	FNAL-7	P BE	400.0	FNAL-400
P P	200.0	FNAL-110A	P C	0.2	FNAL-444
P P	200.0	FNAL-177A	P C	1.0	ANL-E-406
P P	200.0	FNAL-260	P C	100.0	FNAL-418
P P	200.0	FNAL-284	P C	200.0	FNAL-369
P P	200.0	FNAL-300	P C	300.0	FNAL-275
P P	200.0	FNAL-369	P O	300.0	FNAL-275
P P	200.0	FNAL-395	P NE	1.0	ANL-E-406
P P	205.0	FNAL-280	P NE	100.0	FNAL-291
P P	250.0	FNAL-118A	P NE	400.0	FNAL-291
P P	250.0	FNAL-138	P FE	400.0	FNAL-439
P P	281.0	CERN-R-411	P CU	100.0	FNAL-418
P P	281.0 2114.1	CERN-R-702	P CU	400.0	FNAL-436
P P	293.3	CERN-R-108	P WT	100.0	FNAL-418
P P	293.3 2100.7	CERN-R-413	P NUCLEUS	?	CERN-NA-1
P P	300.0	FNAL-209	P NUCLEUS	?	CERN-S-132
P P	300.0	FNAL-268	P NUCLEUS	?	FNAL-100A
P P	300.0	FNAL-277	P NUCLEUS	?	FNAL-184
P P	300.0	FNAL-281	P NUCLEUS	?	FNAL-276
P P	300.0	FNAL-284	P NUCLEUS	?	FNAL-379
P P	300.0	FNAL-300	P NUCLEUS	1.0	ANL-E-384
P P	300.0	FNAL-343	P NUCLEUS	2.5	ANL-E-354
P P	300.0	FNAL-395	P NUCLEUS	6.0	BNL-675
P P	300.0	FNAL-404	P NUCLEUS	6.0	ANL-E-403
P P	300.0 400.0	FNAL-413	P NUCLEUS	10.0	FNAL-442
P P	400.0	FNAL-138	P NUCLEUS	15.0	BNL-676
P P	400.0	FNAL-177A	P NUCLEUS	21.0	BNL-676
P P	400.0	FNAL-284	P NUCLEUS	29.0	BNL-676
P P	400.0	FNAL-300	P NUCLEUS	50.0	FNAL-81A
P P	400.0	FNAL-341	P NUCLEUS	100.0	FNAL-178
P P	400.0	FNAL-404	P NUCLEUS	200.0	FNAL-8
P P	400.0	FNAL-441	P NUCLEUS	200.0	FNAL-28A
P P	478.7 2047.5	CERN-R-806	P NUCLEUS	200.0	FNAL-48
P P	480.5	CERN-R-805	P NUCLEUS	200.0	FNAL-178
P P	498.0	CERN-R-108	P NUCLEUS	200.0	FNAL-271
P P	500.0	FNAL-207	P NUCLEUS	200.0	FNAL-292
P P	500.0	FNAL-300	P NUCLEUS	200.0	FNAL-435
P P	511.2	CERN-R-411	P NUCLEUS	200.0	FNAL-453
P P	1032.6	CERN-R-109	P NUCLEUS	200.0	FNAL-466
P P	1032.6	CERN-R-805	P NUCLEUS	200.0	FNAL-171
P P	1068.6	CERN-R-108	P NUCLEUS	300.0	FNAL-244
P P	1078.2	CERN-R-411	P NUCLEUS	300.0	FNAL-251
P P	1441.8	CERN-R-109	P NUCLEUS	300.0	FNAL-335
P P	1441.8	CERN-R-605	P NUCLEUS	300.0	FNAL-374
P P	1441.8	CERN-R-606	P NUCLEUS	300.0	FNAL-419
P P	1441.8	CERN-R-805	P NUCLEUS	300.0	FNAL-421
P P	1479.1	CERN-R-108	P NUCLEUS	300.0	FNAL-426
P P	1495.9	CERN-R-411	P NUCLEUS	400.0	FNAL-238
P r	2049.3	CERN-R-109	P NUCLEUS	400.0	FNAL-243

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT	BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
P NUCLEUS	400.0	FNAL-245	AP P	6.0 10.0	BNL-594
P NUCLEUS	400.0	FNAL-249	AP P	6.3	BNL-654
P NUCLEUS	400.0	FNAL-251	AP P	7.3	CERN-T-237
P NUCLEUS	400.0	FNAL-265	AP P	8.7	BNL-654
P NUCLEUS	400.0	FNAL-279	AP P	9.0	SLAC-BC-64
P NUCLEUS	400.0	FNAL-329	AP P	10.0	CERN-S-144
P NUCLEUS	400.0	FNAL-336	AP P	10.0	SLAC-E-109
P NUCLEUS	400.0	FNAL-346	AP P	10.0 12.0	BNL-661
P NUCLEUS	400.0	FNAL-364	AP P	12.0	CERN-T-243
P NUCLEUS	400.0	FNAL-385	AP P	15.0	BNL-671
P NUCLEUS	400.0	FNAL-423	AP P	20.0	CERN-WA-7
P NUCLEUS	400.0	FNAL-428	AP P	20.0	CERN-WA-10
P NUCLEUS	400.0	FNAL-434	AP P	20.0 500.0	FNAL-104
P NUCLEUS	400.0	FNAL-461	AP P	25.0 200.0	FNAL-396
P NUCLEUS	400.0	FNAL-462	AP P	30.0 60.0	FNAL-344
P NUCLEUS	400.0	FNAL-463	AP P	40.0	CERN-WA-7
P NUCLEUS	500.0	FNAL-48	AP P	40.0	CERN-WA-10
P NUCLEUS	500.0	FNAL-249	AP P	40.0	FNAL-324
P NUCLEUS	500.0	FNAL-271	AP P	50.0	CERN-WA-9
P NUCLEUS	500.0	FNAL-288	AP P	50.0	FNAL-7
P NUCLEUS	500.0	FNAL-292	AP P	50.0	FNAL-110A
P NUCLEUS	500.0	FNAL-329	AP P	50.0 200.0	FNAL-69A
P NUCLEUS	500.0	FNAL-435	AP P	50.0 200.0	FNAL-96
P	3.0 15.0	CERN-S-150	AP P	60.0	CERN-WA-7
P	25.0	FNAL-327	AP P	75.0	CERN-WA-9
P	50.0	FNAL-327	AP P	80.0	CERN-WA-7
P	50.0 500.0	FNAL-108	AP P	80.0	CERN-WA-10
P	100.0	FNAL-327	AP P	80.0	FNAL-7
P	175.0	FNAL-327	AP P	80.0	FNAL-324
N P	25.0 200.0	FNAL-396	AP P	100.0	CERN-WA-9
N P	40.0 300.0	FNAL-4	AP P	100.0	FNAL-110A
N P	40.0 300.0	FNAL-248	AP P	100.0	FNAL-311
N P	50.0 300.0	FNAL-305	AP P	100.0 150.0	FNAL-83A
N P	100.0 200.0	FNAL-366	AP P	110.0	FNAL-7
N N	50.0 300.0	FNAL-305	AP P	140.0	FNAL-7
N D	25.0 200.0	FNAL-396	AP P	150.0	FNAL-299
N D	40.0 300.0	FNAL-4	AP P	150.0	FNAL-311
N D	100.0 200.0	FNAL-366	AP P	150.0	FNAL-331
N BE	>6.0	BNL-656	AP P	150.0 300.0	FNAL-192
N BE	30.0 300.0	FNAL-438	AP P	160.0	FNAL-324
N BE	200.0	FNAL-397	AP P	170.0	FNAL-7
N C	30.0 300.0	FNAL-438	AP P	200.0	FNAL-110A
N AL	30.0 300.0	FNAL-438	AP P	200.0	FNAL-302
N FE	30.0 300.0	FNAL-438	AP P	200.0	FNAL-392
N CU	30.0 300.0	FNAL-438	AP N	100.0	FNAL-345
N CD	30.0 300.0	FNAL-438	AP N	150.0	FNAL-331
N WT	30.0 300.0	FNAL-438	AP N	150.0 300.0	FNAL-192
N PB	30.0 300.0	FNAL-438	AP D	?	BNL-660
N U	30.0 300.0	FNAL-438	AP D	0.	BNL-643
N NUCLEUS	40.0 300.0	FNAL-4	AP D	0.	ANL-E-413
N NUCLEUS	50.0 300.0	FNAL-305	AP D	2.0 4.0	BNL-625
N NUCLEUS	100.0 200.0	FNAL-366	AP D	20.0 500.0	FNAL-104
N NUCLEUS	300.0	FNAL-358	AP D	25.0 200.0	FNAL-396
N NUCLEUS	400.0	FNAL-358	AP HE	0.	BNL-643
AN P	0. 0.8	ANL-E-303	AP HE	1.0 3.0	ANL-E-406
AN P	5.0E-02 0.7	BNL-626	AP C	1.0 3.0	ANL-E-406
AN P	50.0 300.0	FNAL-305	AP NE	?	ANL-E-409
AN N	50.0 300.0	FNAL-305	AP NE	1.0 3.0	ANL-E-406
AN NUCLEUS	50.0 300.0	FNAL-305	AP NUCLEUS	?	BNL-694
AP P	?	ANL-E-368	AP NUCLEUS	?	CERN-NA-1
AP P	?	ANL-E-409	AP NUCLEUS	?	FNAL-379
AP P	?	BNL-660	AP NUCLEUS	10.0 12.0	BNL-661
AP P	?	CERN-NA-1	AP NUCLEUS	150.0	FNAL-272
AP P	?	FNAL-236A	AP NUCLEUS	300.0	FNAL-272
AP P	0.	BNL-643	AP	3.0 15.0	CERN-S-150
AP P	0.	CERN-S-135	AP	25.0	FNAL-327
AP P	0.	CERN-S-142	AP	50.0	FNAL-327
AP P	0.	CERN-S-151	AP	100.0	FNAL-327
AP P	0.	ANL-E-413	AP	175.0	FNAL-327
AP P	0. 0.8	ANL-E-303	LAMBDA P	60.0 130.0	FNAL-8
AP P	0.3 1.0	BNL-634	LAMBDA P	75.0 150.0	FNAL-97
AP P	0.3 1.0	BNL-666	LAMBDA	6.0 15.0	BNL-597
AP P	0.4	BNL-662	LAMBDA	150.0 210.0	FNAL-440
AP P	0.4 0.9	CERN-S-149	ALAMBDA P	60.0 130.0	FNAL-8
AP P	0.5	BNL-662	SIGMA+	100.0	CERN-WA-2
AP P	0.6	BNL-662	SIGMA- P	75.0 150.0	FNAL-97
AP P	1.2	ANL-E-382	SIGMA-	?	BNL-618
AP P	1.2 3.0	BNL-644	SIGMA-	100.0	CERN-WA-2
AP P	2.0	RHEL-115	XI- P	75.0 150.0	FNAL-97
AP P	2.0 8.0	ANL-E-365	XI-	?	BNL-618
AP P	2.6	ANL-E-383	XI-	100.0	CERN-WA-2
AP P	3.9	BNL-654	OMEGA- P	75.0 150.0	FNAL-97
AP P	4.0 10.0	BNL-596	HADRON P	?	CERN-NA-3
AP P	5.0	CERN-S-144	HADRON P	?	CERN-NA-5
AP P	5.7	ANL-E-383	NEUTRAL NUCLEUS	?	FNAL-386
AP P	6.0	BNL-601			

PARTICLE INDEX

PARTICLE	EXPERIMENT(S)	PARTICLE	EXPERIMENT(S)
MU-	CERN-S-97	SIGMA-	ANL-E-347; BNL-618; CERN-WA-2
MU+	CERN-S-97	SIG(1385P13)+	ANL-E-289-292
HVY-LEPTON+	FNAL-192	SIG(1385P13)-	ANL-E-289-292
HVY-LEPTON-	FNAL-192	SIG(1670B)+	ANL-E-289-292
HVY-LEPTONO	FNAL-192	SIG(1670B)0	ANL-E-289-292
HVY-LEPTON	BNL-632; CERN-WA-1; DESY-138, 139, 140; FNAL-45A, 48, 203A, 247, 379, 391, 435, 439	SIG(1670B)-	ANL-E-289-292
AHVY-LEPTON	FNAL-172, 180	SIG(1915B)+	ANL-E-289-292
PI+	FNAL-446	SIG(1915B)0	ANL-E-289-292
PIO	FNAL-171, 265	SIG(1915B)-	ANL-E-289-292
PI-	FNAL-446	SIG(2250B)+	ANL-E-289-292
EPSILON(700)	ANL-E-370, E-400	SIG(2250B)0	ANL-E-289-292
RHO0	DESY-115; SLAC-E-123A	SIG(2250B)-	ANL-E-289-292
RHO-	FNAL-272	XI0	FNAL-8
OMEGA	DESY-115	XI-	BNL-618; CERN-WA-2
ETAPRIME	ANL-E-289-292; BNL-593; RHEL-128	XI(1530P13)0	ANL-E-289-292; RHEL-119
DELTA(970)+	ANL-E-289-292, E-382, E-397	XI(1530P13)-	ANL-E-289-292; BNL-673; RHEL-119
DELTA(970)-	ANL-E-289-292, E-382, E-397; BNL-557, 593	XI(1630)0	ANL-E-289-292; RHEL-119
H(990)	ANL-E-397	XI(1630)-	ANL-E-289-292; RHEL-119
S*(993)	ANL-E-370; RHEL-128	XI(1820)0	ANL-E-289-292; RHEL-119
PHI	DESY-115	XI(1820)-	ANL-E-289-292; BNL-673; RHEL-119
ETA(1080)	ANL-E-368	XI(1940)0	ANL-E-289-292; RHEL-119
A1(1100)0	ANL-E-397	XI(1940)-	ANL-E-289-292; BNL-673; RHEL-119
F	ANL-E-289-292	XI(2030)0	ANL-E-289-292
D(1285)	ANL-E-368, E-382, E-397	XI(2030)-	ANL-E-289-292
A2(1310)+	RHEL-91	XI(2250)0	ANL-E-289-292
A2(1310)-	FNAL-272	XI(2250)-	ANL-E-289-292
E(1420)	ANL-E-368, E-382	XI(2500)0	ANL-E-289-292
FPRIME	ANL-E-289-292	XI(2500)-	ANL-E-289-292
F1(1540)0	BNL-593; CERN-WA-8	XI*(UNSPEC)	CERN-T-209
A3(1640)-	BNL-557	XI*(UNSPEC)	BNL-593
G(1680)-	BNL-557	OMEGA-	CERN-T-209
S(1930)-	ANL-E-413	HE3	SLAC-E-121
J/PSI(3100)0	ANL-E-411; DESY-140; FNAL-391, 444	HE	SLAC-E-121
PSI(3700)0	DESY-138, 140; FNAL-391, 444; SLAC-SP-27	HNUCLEUS	CERN-S-152, S-154
K+	FNAL-446	QUARK(2/3)	FNAL-89
KS	ANL-E-363; BNL-615	QUARK(1/3)	FNAL-89
KL	ANL-E-333, E-363; BNL-631; FNAL-82, 425; RHEL-168	QUARK	FNAL-45A
K-	FNAL-446, 456	W+	FNAL-21A, 45A, 48, 53A, 192, 288, 435
K*(892)-	FNAL-272	W0	CERN-R-804; FNAL-288
K*(1420)+	BNL-546	W-	FNAL-172, 180, 192, 288, 411
K*(1420)-	BNL-546; FNAL-272	W	CERN-WA-1; FNAL-310, 379
KN(1700)+	CERN-S-131	S+	FNAL-53A, 180
KN(1700)-	CERN-S-131	S-	FNAL-180
L(1770)-	ANL-E-289-292	CHARM	BNL-654, 658, 669, 679, 682, 686, 688, 694; CERN-R-605, R-702, T-243, T-245; DESY-138, 139; FNAL-151A, 247, 346, 357, 364, 369, 374, 379, 382, 384, 390, 397, 400, 411, 413, 416, 419, 428, 472; SLAC-E-123B
K*(UNSPEC)-	ANL-E-289-292	TACHYON	FNAL-202
AP	BNL-643	MONOPOLE	CERN-R-109, R-301; FNAL-3, 25A, 45A, 76, 202
N(1470B)+	ANL-E-339	UNSPEC	CERN-R-406; FNAL-45A, 171, 184, 238, 243, 421, 423
N(1520B)+	ANL-E-339	CHARGED+	FNAL-276; RHEL-144
N(1520B)0	ANL-E-339	CHARGED-	FNAL-276
N(1700B)+	ANL-E-339	NEUTRAL	FNAL-330, 366
N(1700B)0	ANL-E-339		
DEL(1232P33)++	ANL-E-339		
DEL(1950B)++	ANL-E-339		
LAMBDA	BNL-597, 618; FNAL-440		
SIGMA+	CERN-WA-2		

SPOKESMAN INDEX

SPOKESMAN	INSTITUTION	EXPERIMENT	SPOKESMAN	INSTITUTION	EXPERIMENT
ABOLINS, M.A.	MSU	FNAL-366	ENGELMANN, R.	STON	FNAL-227
ADAIR, R.K.	YALE	BNL-676	ENGELMANN, R.	STON	FNAL-196
ADAIR, R.K.	YALE	FNAL-435	ERMOLOV, P.F.	SERP	FNAL-180
ADAIR, R.K.	YALE	FNAL-436	ERNE, F.C.	?	CERN-R-207
ADAIR, R.K.	YALE	FNAL-48	FACKLER, O.	ROCK	FNAL-335
AKERLOF, C.	MICH	BNL-588	FEBEL, T.	ROCH	FNAL-272
ALBROW, M.	LIVP	CERN-R-413	FIDECARD, G.	?	CERN-WA-6
ALLISON, W.W.M.	OXF	FNAL-327	FIELDS, T.	ANL	FNAL-280
ANDERSON, H.L.	CHIC	FNAL-398	FISHER, C.M.	RHEL	RHEL-119
ANDERSON, H.L.	CHIC	FNAL-98	FITCH, V.	PRIN	BNL-661
ANKENBRANDT, C.	FNAL	FNAL-446	FITCH, V.	PRIN	BNL-694
ARONSON, S.H.	FNAL	FNAL-82	FOA, L.	PI SA, SNSP	CERN-WA-1
ARONSON, S.H.	FNAL	FNAL-425	FOX, G.	CIT	FNAL-350
ASTBURY, A.	RHEL	RHEL-136	FRETTER, W.B.	UCB	FNAL-89
ASTBURY, P.	LOIC	CERN-S-134	FRIDMAN, A.	STRB	ANL-E-351
AWSCHALOM, M.	FNAL	FNAL-108	FRIEDMAN, J.I.	MIT	SLAC-E-107
BAILEY, J.	DARE	CERN-S-142	FRIEDMAN, J.I.	MIT	FNAL-118A
BAILLON, P.	CERN	CERN-S-144	FRIES, D.C.	KARL	DESY-94
BAILLON, P.	CERN	CERN-S-153	FRISCH, H.J.	CHIC	FNAL-453
BAKER, W.F.	FNAL	FNAL-290	FRY, W.	WISC	FNAL-28A
BAKER, W.F.	FNAL	FNAL-354	FRY, W.F.	WISC	BNL-532
BALTAY, C.	COLU	BNL-589-639	FU, C.	IIT	ANL-E-371
BALTAY, C.	COLU	FNAL-380	FUKUI, K.	EMMA	FNAL-426
BALTAY, C.	COLU	FNAL-53A	GABATHULER, E.	DARE	CERN-WA-2
BANNER, M.	SACL	CERN-R-702	GAILLARD, J.M.	DRSA	CERN-WA-2
BARBARO-GALTIERI, A.	LBL	SLAC-SP-26	GARELICK, D.	NEAS	FNAL-411
BARISH, B.	CIT	FNAL-21A	GARELICK, D.	NEAS	FNAL-439
BARISH, B.C.	CIT	FNAL-356	GARELICK, D.	NEAS	FNAL-413
BARNES, V.E.	PURD	FNAL-277	GARFINKEL, A.F.	PURD	FNAL-390
BARTLETT, D.F.	COLO	FNAL-202	GASPARINI, F.	PADO	CERN-S-130
BENSINGER, J.	BRAN	BNL-682	GAYLER, J.	DESY	DESY-137
BERGER, C.	DESY	DESY-125	GENZEL, H.	DESY	DESY-129
BINGHAM, H.H.	UCB	FNAL-172	GENZEL, H.	DESY	DESY-136
BINNIE, D.	LOIC	RHEL-128	GIACOMELLI, G.	BGNA	FNAL-419
BINNIE, D.M.	LOIC	RHEL-168	GIACOMELLI, G.	BGNA	CERN-R-301
BIZZARRI, R.	ROMA	ANL-E-382	GIACOMELLI, G.	BGNA	FNAL-462
BLOOM, E.D.	SLAC	SLAC-SP-24	GIBBI, B.	NWES	FNAL-305
BLOOM, E.D.	MPIM	CERN-S-140	GOGGI, G.	PAVI	CERN-R-411
BOOTH, N.	OXF	RHEL-112	GOLDBERG, M.	SYRA	BNL-688
BORGIA, B.	ROMA	CERN-R-107	GOLDBERG, M.	SYRA	BNL-601
BRABSON, B.B.	IND	SLAC-E-103	GOLDBERG, M.	SYRA	BNL-593
BRACCINI, P.L.	?	CERN-R-804	GOLDEN, R.L.	MSCC	FNAL-399
BROWN, R.M.	RHEL	RHEL-81	GOLDHABER, G.	LBL	FNAL-215
BROWN, R.M.	RHEL	RHEL-101	GORDON, H.	BNL	BNL-686
BUCHANAN, C.	UCLA	SLAC-SP-10	GORMLEY, M.	ILL	FNAL-401
BUNCE, G.	WISC	FNAL-440	GOTTFRIED, K.	CORN	FNAL-271
BURHOP, E.H.S.	LOUC	FNAL-247	GOTTFRIED, K.	CORN	FNAL-292
BUSZA, W.	MIT	FNAL-178	GOULIANOS, K.	ROCK	FNAL-396
CALDWELL, D.	UCSB	FNAL-25A	GRACCO, V.	?	CERN-WA-7
CARITHERS, W.C.	ROCH	BNL-631	GRAFSTROM, P.	UOPP	CERN-S-143
CARITHERS, W.C.	ROCH	BNL-656	GRAY, S.W.	IND	ANL-E-399
CARRIGAN, R.A.	FNAL	FNAL-76	GURAGOSSIAN, Z.G.T.	STAN	FNAL-192
CASON, N.M.	NDAM	ANL-E-400	GUSAKOM, M.	LYON	CERN-S-152
CESTER-REGGE, R.	PRIN	FNAL-302	GUSTAFSON, H.R.	MICH	FNAL-330
CHADWICK, G.B.	SLAC	SLAC-BC-59	GUTAY, L.J.	PURD	FNAL-344
CHAMBERLAIN, D.	LBL	FNAL-61	HAND, L.	CORN	FNAL-382
CHAUDHARY, B.S.	TATA	RHEL-115	HEBERT, J.	OTTA	FNAL-428
CHEN, K.W.	MSU	FNAL-319	HEINZELMANN, G.	HEID	DESY-140
CHEN, M.	MIT	FNAL-263	HEUSCH, C.A.	UCSC	FNAL-152B
CHEN, M.	MIT	BNL-675	HUGHES, E.B.	STAN	SLAC-SP-16
CHERTOK, B.T.	AMER	SLAC-E-121	HUGHES, V.W.	YALE	BNL-524
CHERTOK, B.T.	AMER	SLAC-E-101	HUSON, F.R.	YALE	SLAC-E-80
CHRISTENSON, J.H.	NYU	BNL-615	HYMAN, L.G.	FNAL	FNAL-384
CHUNG, S.U.	BNL	BNL-682	JAIN, P.L.	ANL	ANL-E-412
CHUNG, S.U.	BNL	BNL-673	JAIN, P.L.	BUFF	FNAL-245
CHUNG, S.U.	BNL	BNL-557	JAIN, P.L.	BUFF	FNAL-244
CLINE, D.	?	FNAL-310	JARLSKOG, G.	BUFF	FNAL-362
CLINE, D.	WISC	FNAL-1A	JARLSKOG, G.	?	CERN-R-410
CLINE, D.	WISC	ANL-E-303	JENSEN, D.	?	CERN-R-413
COOL, R.	ROCK	FNAL-317	JONES, L.W.	PRIN	BNL-597
CORBETT, I.F.	RHEL	RHEL-150	JONES, L.W.	MICH	FNAL-438
COWARD, D.H.	SLAC	SLAC-E-107	KALBFLEISCH, G.R.	MICH	FNAL-404
COX, B.	JHU	FNAL-95A	KALBFLEISCH, G.R.	BNL	BNL-589-639
CRONIN, J.W.	CHIC	FNAL-300	KALMUS, G.	BNL	FNAL-254
CRONIN, J.W.	EFI	FNAL-325	KALOGEROPOULOS, T.E.	RHEL	RHEL-91
CRONIN, J.W.	CHIC	ANL-E-333	KALOGEROPOULOS, T.E.	SYRA	BNL-660
CROZON, M.	CDEF	CERN-S-130	KANE, J.R.	SYRA	BNL-626
DAKE, S.	KOBE	FNAL-434	KANDOSKY, A.	WILL	BNL-643
DAKE, S.	KOBE	FNAL-340	KANDOSKY, A.	LEHI	ANL-E-406
DALPIAZ, P.	TORI	CERN-S-135	KAUFMAN, S.B.	LEHI	BNL-664
DAO, F.T.	?	FNAL-209	KAUFMAN, S.B.	ANL	FNAL-81A
DARRIULAT, P.	CERN	CERN-R-702	KENNEY, R.	ANL	FNAL-466
DAVIS, D.H.	LOUC	FNAL-374	KENNEY, V.P.	LBL	FNAL-350
DE BOUARD, X.	ORSA	CERN-R-410	KERTH, L.T.	NDAM	ANL-E-370
DELLA NEGRA, M.	CDEF	CERN-R-407-408	KERTH, L.T.	UCB	FNAL-391
DERRICK, M.	ANL	FNAL-31A	KILIAN, K.	LBL	FNAL-203A
DI LELLA, L.	CERN	CERN-R-108	KIRK, T.	HEID	CERN-S-149
DICK, L.	CERN	CERN-S-141	KIRKBY, J.	ILL	FNAL-369
DIEBOLD, R.	ANL	FNAL-99	KIRSCH, L.	STAN	SLAC-SP-25
DOBINSON, R.W.	?	CERN-R-805	KITAGAKI, T.	BRAN	BNL-688
DORNAN, P.J.	LOIC	SLAC-BC-40	KITAGAKI, T.	TOHD	ANL-E-409
DOWELL, J.D.	BIRM	CERN-WA-8	KITAGAKI, T.	TOHD	ANL-E-368
DUCROS, Y.	SACL	CERN-S-137	KO, W.	TOHD	FNAL-83A
EBERHARD, P.H.	LBL	FNAL-3	KOCH, H.	UCD	FNAL-341
EDELSTEIN, R.M.	CARN	BNL-596	KRAMER, S.L.	?	CERN-S-151
EDWARDS, K.W.	CARL	ANL-E-397	KRIENEN, F.	ANL	ANL-E-391
EKELOF, T.	JUPP	CERN-WA-9	KRISCH, A.D.	CERN	CERN-S-97
EKSPONG, G.	STOH	FNAL-346	KRISCH, A.D.	MICH	ANL-E-381
EKSPONG, G.	STOH	FNAL-345	KUSUMOTO, O.	MICH	ANL-E-366
ENGE, W.	KIEL	FNAL-275	KYCIA, T.F.	OSAK	FNAL-251
ENGELMANN, R.	STON	FNAL-343	KYCIA, T.F.	BNL	FNAL-104
ENGELMANN, R.	STON	FNAL-207		BNL	BNL-656

SPOKESMAN INDEX

SPOKESMAN	INSTITUTION	EXPERIMENT	SPOKESMAN	INSTITUTION	EXPERIMENT
KYCIA, T. F.	BNL	BNL-671	PREPOST, R.	WISC	SLAC-E-114
LACH, J.	FNAL	FNAL-97	PRESCOTT, C.	SLAC	SLAC-E-122
LAGNAUX, J. P.	BELG	CERN-S-132	PRESCOTT, C. Y.	SLAC	SLAC-E-95
LEDERMAN, L. M.	COLU	FNAL-288	PRICE, L. E.	COLU	ANL-E-415
LEE, W.	COLU	BNL-605	REAY, N. W.	OSU	FNAL-12
LEE, W.	COLU	FNAL-87A	REAY, N. W.	OSU	FNAL-366
LEE, W.	COLU	BNL-652	REAY, N. W.	OSU	ANL-E-380
LEE, W.	COLU	BNL-693	RHINES, D.	ILL	ANL-E-360
LEE, W.	COLU	FNAL-358	RITSON, D. M.	STAN	FNAL-96
LEE-FRANZINI, J.	STON	FNAL-321	RITSON, D. R.	SLAC	SLAC-E-112
LEITH, D. W. G. S.	SLAC	SLAC-E-109	ROBERTS, J.	RICE	ANL-E-408
LINDENBAUM, S. J.	CUNY, BNL	BNL-594	ROBINSON, D. K.	CASE	ANL-E-367
LINDENBAUM, S. J.	BNL, CUNY	BNL-679	ROE, B.	MICH	FNAL-45A
LIPMAN, N.	RHEL	RHEL-126	RHODE, M.	?	DESY-115
LITT, J.	DARE	CERN-WA-4	ROSEN, J.	NWES	FNAL-397
LIU, J. K.	SLAC	SLAC-E-119	ROBBIA, C.	?	CERN-NA-4
LONGO, M. J.	MICH	FNAL-4	RUBBIA, C.	HARV	BNL-613
LONGO, M. J.	MICH	FNAL-248	RUDDICK, K.	MINN	ANL-E-411
LORD, J. J.	WASH	FNAL-386	RUSS, J.	CARN	BNL-642
LORD, J. J.	WASH	FNAL-171	RUTHERFOORD, J.	TUFT	SLAC-E-108
LORD, J. J.	WASH	FNAL-461	SACTON, J.	BRUX	FNAL-364
LORD, J. J.	WASH	FNAL-238	SAKITT, M.	BNL	BNL-641
LUBATTI, H. J.	WASH	FNAL-416	SAMIOS, N.	BNL	BNL-629
LUBATTI, H. J.	WUSL	FNAL-86A	SAMIOS, N.	BNL	BNL-427
LYNCH, H. L.	SLAC	SLAC-SP-17	SANDLER, B.	ANL	ANL-E-385
MA, Z. M.	MSU	ANL-E-363	SANNES, F.	RUTG	FNAL-418
MALAMUD, E.	FNAL	FNAL-289	SAXON, D. H.	RHEL	RHEL-166
MALAMUD, E.	FNAL	FNAL-381	SCHALK, T.	UCSC	SLAC-E-123B
MALOS, J.	BRIS	RHEL-83	SCHMIDT, D.	DESY	DESY-126
MALOS, J.	BRIS	RHEL-105	SCHNEEGANS, M.	STRB	CERN-S-135
MALOS, J.	BRIS	RHEL-120	SCHULTZ, P.	ANL	ANL-E-413
MANN, A. K.	PENN	BNL-613	SCHWARTZ, M.	STAN	BNL-614
MANN, W. A.	TUFT	FNAL-291	SCHWITTERS, R. F.	SLAC	SLAC-SP-17
MARSHAK, M.	MINN	ANL-E-407	SCIULLI, F.	CIT	FNAL-320
MARSHAK, M.	MINN	ANL-E-414	SCIULLI, F. J.	CIT	FNAL-356
MARSHAK, M.	MINN	ANL-E-393	SELOVE, W.	PENN	FNAL-246
MARTIN, F.	SLAC	SLAC-E-121	SELOVE, W.	PENN	BNL-557
MARTIN, H.	GEVA	CERN-S-131	SELOVE, W.	PENN	FNAL-395
MARTIN, H.	?	CERN-WA-10	SEYBOTH, P.	MPIM	CERN-NA-5
MARX, J.	YALE	FNAL-69A	SHIBATA, E. I.	PURD	ANL-E-379
MASEK, G.	UCSD	SLAC-SP-14	SINCLAIR, C.	SLAC	SLAC-E-122
MASEK, G.	UCSD	SLAC-SP-27	SMITH, A. J. S.	PRIN	FNAL-444
MASSAM, T.	BGNA	CERN-R-406	SMITH, G. A.	MSU	ANL-E-289-292
MCLEOD, D.	ILLC	FNAL-260	SMITH, G. A.	MSU	SLAC-BC-64
MCLEOD, D.	ILLC	FNAL-110A	SMITH, G. A.	RHEL	RHEL-144
MELISSINOS, A.	ROCH	FNAL-186	SMITH, P. F.	RHEL	FNAL-151A
MELISSINOS, A. C.	ROCH	BNL-687	SNOW, G. A.	UMD	FNAL-472
MELISSINOS, A. C.	ROCH	BNL-632	STANFIELD, K.	PURD	FNAL-472
MELLEMA, J.	CIT	FNAL-268	STANTON, N. R.	OSU	ANL-E-380
MEYER, D.	MICH	FNAL-357	STEINBERG, E. P.	ANL	ANL-E-384
MEYER, D.	MICH	FNAL-7	STEINBERGER, J.	CERN	CERN-WA-1
MICHELINI, A.	CERN	CERN-NA-3	STEVENSON, M. L.	UCB	FNAL-388
MILLER, D.	NWES	ANL-E-401	STONE, S. L.	VAND	SLAC-E-103
MILLER, D.	NWES	ANL-E-372	STORK, D.	UCLA	FNAL-216
MILLER, D. H.	PURD	SLAC-BC-61	STROOT, J. P.	BELG	CERN-S-132
MILLER, D. J.	LOUC	RHEL-117	SUGIMOTO, H.	TOKY	FNAL-423
MO, L. W.	CHIC	FNAL-253	SWALLOW, E. C.	CHIC	ANL-E-347
MOCKETT, P. M.	WASH	FNAL-236A	TAUSCHER, L.	?	CERN-S-151
MONETI, G. C.	SYRA	BNL-593	TELEGDI, V. L.	FNAL	FNAL-425
MONETI, G. C.	SYRA	BNL-625	TELEGDI, V. L.	FNAL	FNAL-82
MORIYASU, K.	WASH	FNAL-338	TELEGDI, V. L.	CHIC	FNAL-226
MOZLEY, R.	SLAC	SLAC-E-123A	THOMPSON, J. A.	PITT	BNL-618
MULLER, F.	CERN	CERN-R-606	TICHO, H.	UCLA	SLAC-BC-58
MULLER, F.	CERN	CERN-R-605	TIMM, U.	DESY	DESY-138
MURPHY, C. T.	FNAL	FNAL-194	TING, S. C. C.	MIT	BNL-669
MUSGRAVE, B.	ANL	ANL-E-289-292	TING, S. C. C.	MIT	BNL-658
NAGLE, D.	LASL	ANL-E-403	TING, S. C. C.	?	CERN-R-804
NAGLE, D. E.	LASL	ANL-E-354	TRETJAKOVA, M. I.	LEBD	FNAL-329
NEAL, H. A.	IND	FNAL-313	TRETJAKOVA, M. I.	LEBD	FNAL-463
NEALE, W. W.	FNAL	FNAL-311	TRIPP, R.	LBL	BNL-666
NEALE, W. W.	CAVE	FNAL-392	TRIPP, R.	LBL	BNL-691
NEUHOFER, G.	?	CERN-R-401	TRIPP, R. D.	LBL	BNL-634
NIELD, K.	ANL	ANL-E-402	TURKOT, F.	FNAL	FNAL-442
NIU, K.	NAGO	FNAL-243	VAN GINNEKEN, A.	FNAL	FNAL-276
OGATA, T.	KWAN	FNAL-336	VANDER VELDE, J.	MICH	FNAL-138
OLSEN, S.	ROCH	FNAL-363	VENUS, W.	RHEL	ANL-E-383
OLSEN, S. L.	ROCH	FNAL-198A	WALKER, J. K.	FNAL	FNAL-284
OREAR, J.	CDRN	FNAL-177A	WALKER, T.	RHEL	RHEL-114
OZAKI, S.	BNL	BNL-594	WALKER, W. D.	DUKE	FNAL-304
O'NEILL, G. K.	PRIN	SLAC-SP-27	WALKER, W. D.	DUKE	SLAC-BC-63
O'NEILL, G. K.	PRIN	SLAC-SP-19	WALTERS, J.	CARL	BNL-546
PALEVSKY, H.	BNL	BNL-646	WANDERER, P.	WISC	FNAL-184
PANVINI, R. S.	VANO	SLAC-E-103	WANG, C. L.	BNL	BNL-664
PEOPLES, J.	FNAL	FNAL-400	WANG, C. L.	BNL	ANL-E-406
PERL, M.	SLAC	SLAC-SP-26	WEBER, G.	DESY	DESY-114
PETERSON, E.	MINN	ANL-E-418	WEBSDALE, D.	LOIC	CERN-S-134
PETERSON, E.	MINN	ANL-E-365	WEILHAMMER, P.	CERN	CERN-WA-3
PETERSON, V. Z.	HAWA	FNAL-155	WEISBERG, H.	PENN	BNL-650
PHILLIPS, G. C.	RICE	ANL-E-395	WEISBERG, H.	PENN	FNAL-324
PICCIONI, O.	UCSD	BNL-647	WICKLUND, A. B.	ANL	ANL-E-339
PIEKARZ, H.	WARS	CERN-S-152	WIK, B. H.	DESY	DESY-139
PILCHER, J.	?	FNAL-331	WILKES, R. J.	WASH	FNAL-387
PIROUE, P. A.	PRIN	FNAL-100A	WILLIS, W.	CERN	CERN-R-806
PIROUE, P. A.	PRIN	FNAL-258	WILLIS, W.	?	CERN-R-806T
PLESS, I. A.	MIT	FNAL-393	WOJCICKI, S.	STAN	FNAL-379
PLESS, I. A.	MIT	FNAL-299	WOLTER, W.	CRAC	FNAL-249
POIRIER, J. A.	NDAM	ANL-E-335	WOLTER, W.	CRAC	FNAL-339
PONDROM, L.	WISC	FNAL-441	YAMIN, P.	RUTG	BNL-644
PONDROM, L. G.	WISC	FNAL-415	YEKUTIELI, G.	REHO	FNAL-295
PONDROM, L. G.	WISC	FNAL-8	YUAN, L. C. L.	BNL	CERN-R-107
POVH, B.	?	CERN-S-154	ZELLER, M.	YALE	BNL-662
PRAKASH, Y.	JAMU	FNAL-385			

ILLUSTRATIVE KEY FOR COMPILATION LISTING

FNAL-8 (JUN 1970); APPROVED AUG 1970; STARTED ; COMPLETED 22 MAR 1976. ← EXPERIMENT NUMBER AND STATUS. PROPOSAL DATE IN PARENTHESES.

EXPERIMENTS IN A NEUTRAL HYPERON BEAM ← PROPOSAL TITLE AND/OR BRIEF DESCRIPTION (DESCRIPTION ENCLOSED IN BRACKETS).

WISC -- R.H.MARCH, L.G.PONDROM(SPOKESMAN)
 MICH -- D.E.OVERSETH
 RUTG -- ET AL.

ACCELERATOR=FNAL; DETECTOR=SPEC ← { ACCELERATOR, DETECTOR, AND POLARIZATION INFORMATION (IF ANY).
 { SEE APPENDIX I FOR ACCELERATOR ABBREVIATIONS; APPENDIX II FOR DETECTORS.

P NUCLEUS --> LAMBDA ANYTHING	200 GEV (PLAB)	ANGP
P NUCLEUS --> ALAMBDA ANYTHING	"	"
P NUCLEUS --> XIO ANYTHING	"	"
P NUCLEUS --> AXIO ANYTHING	"	"
P NUCLEUS --> KL ANYTHING	"	"
P NUCLEUS --> KS ANYTHING	"	"
LAMBDA P --> ANYTHING	60-130 GEV (PLAB)	CS
ALAMBDA P --> ANYTHING	"	"
LAMBDA P --> LAMBDA P	60-130 GEV (PLAB)	ANGP
ALAMBDA P --> ALAMBDA P	"	"

} REACTIONS STUDIED (LEFTMOST), BEAM MOMENTA (MIDDLE), AND
 "DATA DESCRIPTORS" INDICATING TYPE OF DATA TAKEN (RIGHTMOST).
 { SEE APPENDIX VII FOR PARTICLE NAME ABBREVIATIONS,
 APPENDIX III FOR VARIOUS BEAM MOMENTUM DESIGNATIONS, AND
 APPENDIX IV FOR DATA DESCRIPTORS.

XIO PW

<EXPERIMENTAL COMMENT> NUCLEAR PRODUCTION MEASUREMENTS ARE ZERO DEGREE YIELDS FOR HYPERON BEAM; APPROVED FOR 400 HOURS; RAN 2350 HOURS.

FNAL-12 (12 JUN 1970); APPROVED AUG 1970; STARTED ; COMPLETED 2 DEC 1974.

A STUDY OF NEUTRON-PROTON CHARGE-EXCHANGE SCATTERING IN THE MOMENTUM RANGE 50-200 GEV/C

OSU -- N.W.REAY(SPOKESMAN), K.REIBEL, T.A.ROMANOWSKI, N.R.STANTON, J.S.FITCH, C.J.RUSH
 MSU -- M.A.ABOLINS, M.T.LIN, G.A.SMITH
 CARL -- K.W.EDWARDS

} INSTITUTIONS AND PARTICIPANTS. SEE APPENDIX VI FOR
 INSTITUTION ABBREVIATIONS.
 { UNKNOWN INSTITUTIONS INDICATED BY "????".
 UNKNOWN AUTHORS INDICATED BY "ET AL."

ACCELERATOR=FNAL; DETECTOR=SPEC

P N --> N P 50-200 GEV (PLAB) ANGP

<DATA COMMENT> SMALL ANGLE CEX, -T=.002-1.0 GEV²
 <EXPERIMENTAL COMMENT> APPROVED FOR 600 HOURS; RAN FOR 1300 HOURS.

FNAL-21A (10 JUN 1970); APPROVED OCT 1970; STARTED ; COMPLETED 2 NOV 1975.

NEUTRINO PHYSICS AT VERY HIGH ENERGIES ← COLLABORATION NAME (IF ANY) APPEARS HERE.

CIT -- F.SCIULLI, B.BARISH(SPOKESMAN), W.FORD, P.ODDONE, C.PECK
 FNAL -- A.MASCHKE

ACCELERATOR=FNAL; DETECTOR=COMB

NUMU NUCLEUS --> MU- ANYTHING	40-300 GEV (PLAB)	CS, ANGP
ANUMU NUCLEUS --> MU+ ANYTHING	"	"
NUMU NUCLEUS --> NUCLEUS MU- MU+ NUMU	300 GEV (PLAB)	ANGP, MASS

W+ EX, DEC ← { INDIVIDUAL PARTICLES (LEFT) AND PARTICLE PROPERTIES (RIGHT)
 { STUDIED. SEE APPENDIX V FOR "PARTICLE PROPERTY DESCRIPTORS".

<EXPERIMENTAL COMMENT> MONOCHROMATIC NEUTRINO BEAM; APPROVED FOR 1200 HOURS; RAN FOR 2450 HOURS.

<BIBLIOGRAPHIC COMMENT> DOCUMENT HAS ONE ADDENDUM AND IS NUMBERED FNAL-21 IN SLAC COLLECTION

Appendix I - Accelerator Abbreviations

The abbreviations used for high energy physics facilities are listed below. For the primary accelerator, the abbreviation is simply the institution at which the accelerator is located. For additional facilities, an appropriate modifier is appended to the institution abbreviation.

ANL	ARGONNE (ZGS) PROTON SYNCH. (12.7 GEV)
BNL	BROOKHAVEN (AGS) PROTON SYNCH. (33 GEV)
CERN	CERN (CPS) PROTON SYNCH. (28 GEV)
CERN-ISR	CERN (ISR) PROTON-PROTON ISR (11-31 GEV)
CERN-SPS	CERN PROTON SYNCH (400 GEV)
COSM	COSMIC RAYS
DESY	HAMBURG DEUTCHES ELECTRON SYNCH. (7.5 GEV)
DESY-DORIS	HAMBURG (DORIS) ELECTRON-POSITRON RING (3 GEV)
FNAL	FNAL BATAVIA PROTON SYNCH. (500 GEV)
RHEL	RUTHERFORD (NIMROD) PROTON SYNCH. (8 GEV)
SLAC	STANFORD ELECTRON LINEAR ACCEL. (22 GEV)
SLAC-SPEAR	STANFORD (SPEAR) ELECTRON-POSITRON RING (4.2 GEV)

Appendix II - Detector Abbreviations

The abbreviations used for non-bubble-chamber detectors are as follows:

CALO	Calorimeter
COMB	Combinations of different types of detectors. Can include a hybrid system involving a bubble chamber, if the bubble chamber is a minor part of the system.
EMUL	Emulsion. Also used for detectors like plastic where tracks are "frozen" in a solid medium.
OTHER	Rare non-electronic detectors.
STRC	Streamer Chamber
For a spectrometer	system, including magnets for momentum analysis:
DAS	Double Arm Spectrometer
SAS	Single Arm Spectrometer
WAS	Wide Angle Spectrometer
SPEC	General spectrometer system not fitting one of the above or where specific type not given.

For other electronic detector systems, not including magnets for momentum analysis:

CNTR	Counters (no chambers)
OPSK	Optical spark chambers
WIRE	Wire chambers (proportional wire chambers, drift chambers). Includes all non-optical spark chambers by convention.
SPRK	Spark chamber of unspecified type.

Acronyms for specific devices:

DASP	DESY Double Arm Spectrometer System
EMS	Argonne Effective Mass Spectrometer
LASS	SLAC Large Aperture Solenoid Spectrometer
MPS	BNL Multiparticle Spectrometer
OMEGA	CERN OMEGA Spectrometer
PLUTO	DESY Superconducting Solenoid Spectrometer
RMS	Rutherford Magnetic Spectrometer Facility
SFM	CERN-ISR Split Field Magnet
SMAG	SLAC-SPEAR Magnetic Detector

For bubble chambers we use a hyphenated construction, such as HLBC-15FT-HYB, where the first element, HBC, DBC, HECB, or HLBC indicates a hydrogen, deuterium, helium, or heavy-liquid device, the second element indicates the size or name, and the third element, HYP, RAP, or TST, is included if the device is hybrid, rapid cycling, or track sensitive.

Appendix III - Beam Momentum Designations

The beam "momentum" designation given in parentheses following the numerical value and units can be one of the following:

PLAB	beam momentum in the lab frame.
ELAB	beam energy in the lab frame.
TLAB	beam kinetic energy in the lab frame.
ECM	total energy in the CM frame.
S	total CM energy squared.

For colliding beam experiments the momentum of the second beam is given indented below that of the first. Alternately, a single line with the total center of mass energy or equivalent lab beam momentum may be given.

For electroproduction or other reactions involving a virtual photon, the second and third lines indented below the beam momentum specify the equivalent of the mass and momentum of the virtual photon. These can have the following designations:

W	mass of the target-virtual photon system.
W2	square of W.
Q2	absolute value of the mass squared of the virtual photon = absolute value of the squared 4-momentum transfer to the electron.
NU	energy of the virtual photon in the lab frame = energy loss of the electron in the lab frame.

Appendix IV - Reaction Data Descriptors

The data descriptors refer to the nature of the data taken in an experiment. Any of the variables below can also be understood to refer to functions (including averages or other moments, but not derivatives or integrals) of that variable, unless such functions involve other variables from the list. For data which represent a function of two variables, such as a scatter plot, combinations like MASS*MASS are used.

GENERAL

CS	Cross section, cross section ratio, and cross section upper limit. Can also be listed for very rare reactions whose existence is being established, even though the number of events is not converted to a cross section. Does not include <u>parametrizations</u> of the cross section, e.g., as a function of energy.
ANGP	Production angular distribution, i.e., of one or more of the outgoing particles relative to one of the incident particles. Includes $d\sigma/d\Omega$, $d\sigma/dt$, $d\sigma/dt'$, $d\sigma/dQ^2$, etc. Also the equivalent, expressed as moments or polynomial expansion coefficients. Also invariant cross section as a function of production angle or t . By convention, does not include rapidity or its approximation, $y = -\ln \tan \theta/2$ (see P).
ANG	Angular distribution between or among particles in the final state. Includes also angular distribution involving decay products of particles listed in the reaction, even though those decay products are not themselves explicitly listed. Includes angles used to study the decay of a system produced in the final state, even though the coordinate system axes may be defined with respect to the incident particles (e.g., Jackson angles, etc.) Also the equivalent, expressed as moments, etc.
MASS	Mass spectrum, M^2 spectrum, or invariant cross section as a function of mass or mass squared.
PT	Transverse momentum spectrum, p_T^2 spectrum, or invariant cross section as a function of p_T . Does not include <u>momentum</u> transfer spectrum (see ANGP). Includes transverse mass $= \sqrt{p_T^2 + m^2}$, unless the particle mass (m) is also variable.

Appendix IV - Reaction Data Descriptors (cont'd)

P Any function of outgoing momentum or energy not included in any of the above. Includes, E, y (rapidity, also rapidity gaps), $x (=p_y/p_{max})$, p_y , or other momentum or energy variable.

FV (for proposals only) Experiment proposes to measure complete four-vectors, without specifying exactly what analysis of them will be done.

AMPLITUDES

Functions linear in the amplitudes (i.e., involving the phases).

PWA Partial wave amplitudes. Includes formation partial waves and production partial waves. Any attempt to measure amplitudes of definite j (angular momentum). Includes scattering length and effective range.

AMP Amplitude not decomposed into states of definite j. Re/Im ratio, helicity amplitude, etc.

VARIABLES RELATED TO SPIN

DME Density matrix elements, including joint density matrix elements.

POL Final state spin-1/2 polarization measurement. Includes Wolfenstein spin rotation parameters. Includes measurement of asymmetry off a polarized target when it is equal to the final state polarization.

ASYM Asymmetry in scattering off a polarized target and/or with a polarized beam (with exception of special case noted under POL).

MULTIPLICITIES

MULT Multiplicity distribution, its average, ratio, or moments. Generally used in association with final states of the form N(PRONG), N(HADRON), etc., so that the individual final states do not have to be listed.

SYNOPSIS

DD	TYPICAL USE
CS	cross section.
ANGP	$d\sigma/dt, d\sigma/d\Omega, d\sigma/du, dN/dt$, etc.
ANG	ang. dist. between particles in final state
MASS	mass, mass ²
PT	P_T, P_T^2
P	x, y, p_y , E, Δy
FV	four-vectors (proposals only)
PWA	production or formation partial wave analysis
AMP	amplitudes not decomposed into states of definite j
DME	density matrix elements
POL	final state spin 1/2 polarization measurement
ASYM	asymmetry in scattering off polarized target
MULT	multiplicity distribution, its average or other moments
MASS*MASS	Dalitz plot, triangle plot
ANGP*MASS	Chew-Low plot
P*P	longitudinal phase space plot, rapidity correlation contour plot
PT*P	Peyrou plot
ANGP*P	$d\sigma/d\Omega^{lab}$ for several bins in p^{lab}

Appendix V - Particle Properties Descriptors

Types of particle properties data are indicated by the following descriptors:

MASS Mass or mass difference

W Total width, total rate, mean life. Also difference and ratios of these.

PW Partial widths, partial rate, as well as any ratio or product of these such as branching ratio or integrated cross section. Also upper limits on these. Also differences of these unless included in DEC (DEC includes charge asymmetry δ for $K_L \rightarrow \pi l \nu$, η for $K_L \rightarrow \pi^+ \pi^-$, $x+iy$ for $K_S \rightarrow \pi^+ \pi^- \pi^0$).

MOM Electric moment, magnetic moment, charge radius, moment ratios.

DEC Weak or electromagnetic decay parameter as defined by Review of Particle Properties, Rev. Mod. Phys. 48, no.2, pt.2, April 1976, Ch. VI:

$\rho, \eta, \xi, \delta, h, g_A/g_V , \phi_{AV}, \xi_S, \xi_T, \xi_P$	for μ decay
slopes g and slope difference σ (CP viol)	for $K \rightarrow 3\pi$
form factors $f_+, f_-, f_0, \lambda_+, \lambda_-, \lambda_0, \xi, f_S, f_T$	for $K \rightarrow \pi l \nu$
CP violation parameter $x+iy$	for $K_S \rightarrow \pi^+ \pi^- \pi^0$
charge asymmetry δ	for $K_L \rightarrow \pi l \nu$
CP viol. parameters $\eta_{+-}, \eta_{00}, \phi_{+-}, \phi_{00}, \epsilon, \epsilon'$	for $K_L \rightarrow \pi \pi$
$\Delta S \neq \Delta Q$ parameter x	{ for $K^0 \rightarrow \pi^+ l^- \nu$ or $\bar{K}^0 \rightarrow \pi^- l^+ \nu$
charge asymmetry	for η decay
$ g_A/g_V , \delta, \alpha, \beta, \gamma, \phi, \Delta$	for baryon decay

QN Quantum numbers.

EX Existence (e.g., particle search or evidence for a new particle in a mass spectrum).

Appendix VI - Institution Abbreviations

AACH	PHYS. INST. DER TECH. HOCHSCHULE	AACHEN, GERMANY
AARH	AARHUS UNIV.	AARHUS, DENMARK
ACUS	PHYSICAL INST. OF ACAD. OF SCIENCES	MOSCOW, USSR
AECL	ATOMIC ENERGY CENTER AT LAHORE	LAHORE, INDIA
AERE	ATOMIC ENERGY RES. ESTAB.	HARWELL, BERKS., ENGLAND
AFCR	AIR FORCE CAMBRIDGE RESEARCH LABS	BEDFORD, MASS., USA
AICH	AICHI EDUCATIONAL UNIV.	TOYOTA, AICHI PREF., JAPAN
ALBA	STATE UNIV. OF NEW YORK AT ALBANY	ALBANY, N. Y., USA
ALMA	INSTITUTE FOR HIGH ENERGY PHYSICS	ALMA-ATA, USSR
AMER	AMERICAN UNIV.	WASHINGTON DC, USA
AMMC	ACADEMY OF MINING AND METALLURGY	CRACOW, POLAND
AMST	UNIV. OF AMSTERDAM	AMSTERDAM, NETHERLANDS
ANKA	MIDDLE EAST TECHNICAL UNIV.	ANKARA, TURKEY
ANL	ARGONNE NAT. LAB.	ARGONNE, ILL., USA
ANUC	AUSTRALIAN NATIONAL UNIV. AT CANBERRA	CANBERRA, AUSTRALIA
AOYA	AOYAMA GAKUIN UNIV.	TOKYO, JAPAN
ARIZ	UNIV. OF ARIZONA	TUCSON, ARIZ., USA
ATEN	NUCLEAR RES. CENTRE DEMOKRITOS	ATHENS, GREECE
AUCK	AUCKLAND UNIV.	AUCKLAND, NEW ZEALAND
BARI	UNIV. DI BARI	BARI, ITALY
BELG	INST. INTERUNIV. DES SCI. NUC.	BRUXELLES, BELGIUM
BERG	FYSISK INSTITUTT	BERGEN, NORWAY
BERL	INST. HOCHENERGIEPHYS. DAW	ZETHEN/BERLIN, DDR
BERN	UNIV. BERN	BERN, SWITZERLAND
BGNA	UNIV. DI BOLOGNA	BOLOGNA, ITALY
BIEL	UNIV. BIELEFELD	BIELEFELD, GERMANY
BING	STATE UNIV. OF NEW YORK AT BINGHAMTON	BINGHAMTON, N. Y., USA

Appendix VI - Institution Abbreviations (cont'd)

BIRM BIRMINGHAM UNIV.
 BNL BROOKHAVEN NATIONAL LAB.
 BOHR NIELS BOHR INSTITUTE
 BONN UNIV. BONN
 BOST BOSTON UNIV.
 BRAN BRANDEIS UNIV.
 BRIS H. H. WILLS PHYS. LAB., U. OF BRISTOL
 BROW BROWN UNIV.
 BRUX UNIV. LIBRE DE BRUXELLES
 BUCH BUCHAREST STATE UNIV.
 BUDA CENTRAL RESEARCH INSTITUTE OF PHYSICS
 BUFF STATE UNIV. OF NEW YORK AT BUFFALO
 CAEN LAB. DE PHYS. CORPUSCULAIRE
 CAMB CAMBRIDGE UNIV.
 CAMP UNIV. OF CAMPINAS
 CARL CARLTON UNIV.
 CARN CARNEGIE-MELLON UNIV.
 CASE CASE WESTERN RESERVE UNIV.
 CAVE CAVENDISH LAB., CAMBRIDGE UNIV.
 CDEF COLLEGE DE FRANCE
 CEA CAMBRIDGE ELECTRON ACCEL.
 CERN EUROPEAN ORG. FOR NUC. RES.
 CHIC UNIV. OF CHICAGO
 CHTI CZECH. HIGHER TECH. INST. AT PRAGUE
 CINC UNIV. OF CINCINNATI
 CIOW CARNEGIE INST. OF WASHINGTON
 CIPP CANADIAN INST. OF PARTICLE PHYS.
 CIT CALIF. INSTITUTE OF TECHNOLOGY
 CLER UNIV. DE CLERMONT-FERRAND
 CNRC CANADIAN NATIONAL RESEARCH COUNCIL
 COLO UNIV. OF COLORADO
 COLU COLUMBIA UNIV.
 CORN CORNELL UNIV.
 COSU COLORADO STATE UNIV.
 COUN THE COOPER UNION
 CRAC INST. FOR NUCLEAR RESEARCH
 CRNL CHALK RIVER NUCLEAR LABORATORIES
 CUNY CITY UNIV. OF NEW YORK
 CURI LABORATOIRE JOLIO-CURIE
 DARE DARESBURY NUC. PHYS. LAB.
 DART DARTMOUTH COLLEGE
 DELH UNIV. OF DELHI
 DESY DEUTSCHES ELEKTRONEN-SYNCH.
 DORT UNIV. DORTMUND
 DSRL DUPONT AND CO., SAVANNAH RIVER LAB.
 DUKE DUKE UNIV.
 DURH UNIV. OF DURHAM
 DUUC UNIVERSITY COLLEGE
 EDIN UNIV. OF EDINBURGH
 EFI ENRICO FERMI INST. FOR NUCL. STUDIES
 EMMA EMMANUEL COLLEGE
 EPOL ECOLE POLYTECHNIQUE
 EREV STATE ATOMIC ENERGY COMM. AT EREVAN
 ETHZ SWISS FEDERAL INST. OF TECHNOLOGY
 FIRZ UNIV. DI FIRENZE
 FISK FISK UNIV.
 FLOR UNIV. OF FLORIDA
 FNAL FERMI NATIONAL ACCELERATOR LAB.
 FOM FOUN. FOR FUNDAMENTAL RESEARCH ON MATTER
 FRAS LAB. NAZIONALI DEL SINCROTRONE
 FREI UNIV. FREIBURG
 FRIB UNIV. DE FRIBOURG
 FSU FLORIDA STATE UNIV.
 FUKU FUKUSHIMA UNIV.

BIRMINGHAM, ENGLAND
 UPTON, L.I., N. Y., USA
 COPENHAGEN, DENMARK
 BONN, GERMANY
 BOSTON, MASS., USA
 WALTHAM, MASS., USA
 BRISTOL, ENGLAND
 PROVIDENCE, R. I., USA
 BRUXELLES, BELGIUM
 BUCHAREST, ROMANIA
 BUDAPEST, HUNGARY
 BUFFALO, N. Y., USA
 CAEN, FRANCE
 CAMBRIDGE, ENGLAND
 SAO PAULO, BRAZIL
 OTTAWA, CANADA
 PITTSBURGH, PA., USA
 CLEVELAND, OHIO, USA
 CAMBRIDGE, ENGLAND
 PARIS, FRANCE
 CAMBRIDGE, MASS., USA
 GENEVA, SWITZERLAND
 CHICAGO, ILL., USA
 PRAGUE, CZECHOSLOVAKIA
 CINCINNATI, OHIO, USA
 WASHINGTON, D.C., USA
 MONTREAL, CANADA
 PASADENA, CALIF., USA
 CLERMONT-FERRAND, FRANCE
 OTTAWA, CANADA
 BOULDER, COLO., USA
 NEW YORK, N. Y., USA
 ITHACA, N. Y., USA
 FORT COLLINS, COLO., USA
 NEW YORK, N. Y., USA
 CRACOW, POLAND
 CHALK RIVER, CANADA
 NEW YORK, N. Y., USA
 PARIS, FRANCE
 DARESBURY, ENGLAND
 HANOVER, N. H., USA
 DELHI, INDIA
 HAMBURG, GERMANY
 DORTMUND-HORNBRUCH, GERMANY
 AIKEN, S.C., USA
 DURHAM, N. C., USA
 DURHAM, ENGLAND
 DUBLIN, IRELAND
 EDINBURGH, SCOTLAND
 CHICAGO, ILL., USA
 BOSTON, MASS., USA
 PARIS, FRANCE
 EREVAN, USSR
 ZURICH, SWITZERLAND
 FIRENZE, ITALY
 NASHVILLE, TENN., USA
 GAINSVILLE, FLA., USA
 BATAVIA, ILL., USA
 UTRECHT, NETHERLANDS
 FRASCATI, ITALY
 FREIBURG, GERMANY
 FRIBOURG, SWITZERLAND
 TALLAHASSEE, FLA., USA
 FUKUSHIMA, JAPAN

Appendix VI - Institution Abbreviations (cont'd)

GENO UNIV. DI GENOVA
 GESC GENERAL ELECTRIC R AND D CENTER
 GEVA UNIV. DE GENEVE
 GLAS UNIV. OF GLASGOW
 GRAZ UNIV. GRAZ
 GREN GRENOBLE UNIV.
 GRUM GRUMMAN AEROSPACE CORP.
 GSCO GEOLOGICAL SURVEY OF CANADA
 GUIL UNIV. OF SURREY AT GUILFORD
 HAIF TECHNION - ISRAEL INST. OF TECHNOLOGY
 HAMB UNIV. HAMBURG
 HANO HANOI UNIV.
 HARV HARVARD UNIV.
 HAWA UNIV. OF HAWAII
 HEID UNIV. HEIDELBERG
 HELS HELSINGIN YLIOPISTO
 HIRO HIROSHIMA UNIV.
 HOUS UNIV. OF HOUSTON
 IASD INST. FOR ADVANCED STUDIES AT DUBLIN
 IBM INTERNATIONAL BUSINESS MACHINES, INC.
 ICUT INTERNATIONAL CHRISTIAN UNIV. AT TOKYO
 IFA INST. FOR ATOMIC PHYSICS
 IIT ILLINOIS INST. OF TECH.
 ILL UNIV. OF ILLINOIS
 ILLC UNIV. OF ILLINOIS AT CHICAGO
 IND UNIV. OF INDIANA
 INNPN INST. FOR NUCL. PROBLEMS, ACAD. OF SCI.
 INUS INST. FOR NUCLEAR STUDY AT TOKYO UNIV.
 IOWA UNIV. OF IOWA
 IPN INST. DE PHYS. NUCLEAIRE
 IPNP INSTITUT DE PHYSIQUE NUCLEAIRE
 IRAD INSTITUTE DU RADIUM
 ISSP SOLID STATE PHYS. INST., UNIV. OF TOKYO
 ISU IOWA STATE UNIV.
 ITEP INST. FOR TEOR. AND EXP. PHYS.
 IUPU INDIANA U. - PURDUE U. AT INDIANAPOLIS
 JAGL JAGELLONIAN UNIV.
 JAMU UNIV.
 JHU JOHNS HOPKINS UNIV.
 JINR JOINT INST. FOR NUCL. RESEARCH
 KANS UNIV. OF KANSAS
 KARL TECHNISCHE UNIV. KARLSRUHE
 KEK NAT. LAB FOR HIGH ENERGY PHYS., JAPAN
 KFAJ KFA JULICH
 KHAR PHYSICO-TECH. INST., ACAD. SCI., UKR.SSR
 KIAE KURCHATOV INST. OF ATOMIC ENERGY
 KIEL KIEL UNIV.
 KINK KINKI UNIV.
 KNTY UNIV. OF KENTUCKY
 KOBE KOBE UNIV.
 KONA KONAN UNIV.
 KWAN KWANSAN GAKUIN UNIV.
 KYOT KYOTO UNIV.
 LALO LINEAR ACCELERATOR LAB, ORSAY
 LANC LANCASTER UNIV.
 LAPP LAPP UNIV.
 LASL U. C. LOS ALAMOS SCIENTIFIC LAB.
 LAUS UNIV. OF LAUSANNE
 LBL U. C. LAWRENCE BERKELEY LAB.
 LEBD LEBEDEV PHYSICS INST.
 LEHI LEHIGH UNIV.
 LEID INST. LORENTZ
 LENI INST. OF NUCL. PHYS., AKAD. NAUK USSR
 LINZ LINZ INSTITUT FUR PHYSIK, KEPLER HOCH.

GENOVA, ITALY
 SCHENECTADY, N. Y., USA
 GENEVA, SWITZERLAND
 GLASGOW, SCOTLAND
 GRAZ, AUSTRIA
 GRENOBLE, FRANCE
 BETHPAGE, N. Y., USA
 OTTAWA, CANADA
 GUILFORD, SURREY, ENGLAND
 HAIFA, ISRAEL
 HAMBURG, GERMANY
 HANOI, VIETNAM
 CAMBRIDGE, MASS., USA
 HONOLULU, HAWAII, USA
 HEIDELBERG, GERMANY
 HELSINKI, FINLAND
 HIROSHIMA, JAPAN
 HOUSTON, TEXAS, USA
 DUBLIN, IRELAND
 PALO ALTO, CALIF., USA
 TOKYO, JAPAN
 BUCHAREST, ROMANIA
 CHICAGO, ILL., USA
 URBANA, ILL., USA
 CHICAGO, ILL., USA
 BLOOMINGTON, IND., USA
 MOSCOW, USSR
 TOKYO, JAPAN
 IOWA CITY, IOWA, USA
 ORSAY, FRANCE
 PARIS, FRANCE
 PARIS, FRANCE
 TOKYO, JAPAN
 AMES, IOWA, USA
 MOSCOW, USSR
 INDIANAPOLIS, IND., USA
 CRACOW, POLAND
 JAMMU-TAWI, INDIA
 BALTIMORE, MD., USA
 DUBNA, USSR
 LAWRENCE, KANSAS, USA
 KARLSRUHE, GERMANY
 TSUKUBA-GUN, JAPAN
 BONN, GERMANY
 KHARKOV, USSR
 MOSCOW, USSR
 KIEL, GERMANY
 OSAKA, JAPAN
 LEXINGTON, KY., USA
 KOBE, JAPAN
 KOBE, JAPAN
 HYOGO-KEN, JAPAN
 KYOTO, JAPAN
 ORSAY, FRANCE
 LANCASTER, ENGLAND
 ANNECY, FRANCE
 LOS ALAMOS, N. M., USA
 LAUSANNE, SWITZERLAND
 BERKELEY, CALIF., USA
 MOSCOW, USSR
 BETHLEHEM, PA., USA
 LEIDEN, NETHERLANDS
 LENINGRAD, USSR
 LINZ, AUSTRIA

Appendix VI - Institution Abbreviations (cont'd)

LIYP LIVERPOOL UNIV.
 LLL LAWRENCE LIVERMORE LAB
 LOIC IMPERIAL COL. OF SCI. AND TECH.
 LOKC KING'S COLLEGE
 LOQM QUEEN MARY COLLEGE
 LOUC UNIVERSITY COLLEGE
 LOUG LOUGHBOROUGH UNIV. OF TECHNOLOGY
 LOWC WESTFIELD COLLEGE
 LPGP LAB. DE PHYS. GENERAL, UNIV. PARIS
 LPNP LAB. DE PHYS. NUCL. ET HAUTES ENERGIES
 LRC LEWIS RESEARCH CENTER, NASA
 LSU LOUISIANA STATE UNIV.
 LUND UNIV. I LUND
 LYON INST. DE PHYS. NUCL., UNIV. DE LYON
 MADR JUNTA DE ENERGIA NUCLEAR
 MANH MANHATTAN COLLEGE
 MANI UNIV. OF MANITOBA
 MANZ UNIV. MAINZ
 MASA UNIV. OF MASSACHUSETTS
 MASB UNIV. OF MASSACHUSETTS
 MCGI MCGILL UNIV.
 MCHS UNIV. MANCHESTER
 MELB UNIV. OF MELBOURNE
 MICH UNIV. OF MICHIGAN
 MILA UNIV. DI MILANO
 MINN UNIV. OF MINNESOTA
 MIOH MIAMI UNIV.
 MIRA INTL. CENTER FOR THEO. PHYS., MIRAMARE
 MISU MISSISSIPPI STATE UNIV.
 MIT MASSACHUSETTS INST. OF TECHNOLOGY
 MODE ISTITUTO DI FISICA DELLA UNIVERSITA
 MONS UNIV. DE L'ETAT, MONS
 MOSU MOSCOW UNIV.
 MPIH MAX-PLANCK-INST. FUR PHYS.-ASTROPHYS.
 MPIM MAX-PLANCK-INST. FUR PHYS.-ASTROPHYS.
 MSCC NASA MANNED SPACECRAFT CENTER
 MSNA INS. DI FISICA DELL UNIV.
 MSU MICHIGAN STATE UNIV.
 MTHO MT. HOLYOKE COLLEGE
 MUDD HARVEY MUDD COLLEGE
 MULH CENTRE UNIV. DU HAUT-RHIN
 MUNI MUNICH UNIV.
 NAGO NAGOYA UNIV.
 NANC UNIV. DE NANCY
 NAPL UNIV. DI NAPOLI
 NARA NARA WOMEN'S UNIV.
 NDAM UNIV. OF NOTRE DAME
 NEAS NORTHEASTERN UNIV.
 NEBR UNIV. OF NEBRASKA
 NEUC UNIV. OF NEUCHATEL
 NEVI NEVIS LAB.
 NIJM R. K. UNIV. NIJMEGEN
 NILU NORTHERN ILLINOIS UNIV.
 NORD NORDISK INS. FOR TEOR. ATOMFYS.
 NOVO INST. OF NUCL. PHYS.
 NRL NAVAL RESEARCH LABORATORY
 NSF NATIONAL SCIENCE FOUNDATION
 NWES NORTHWESTERN UNIV.
 NYU NEW YORK UNIV.
 OBER OBERLIN COLLEGE
 OHIO OHIO UNIV.
 OREG UNIV. OF OREGON
 ORNL OAK RIDGE NATIONAL LAB.

LIVERPOOL, ENGLAND
 LIVERMORE, CALIF., USA
 LONDON, ENGLAND
 LONDON, ENGLAND
 LONDON, ENGLAND
 LONDON, ENGLAND
 LOUGHBOROUGH, ENGLAND
 LONDON, ENGLAND
 PARIS, FRANCE
 PARIS, FRANCE
 CLEVELAND, OHIO, USA
 BATON ROUGE, LA., USA
 LUND, SWEDEN
 VILLEURBANNE, FRANCE
 MADRID, SPAIN
 NEW YORK, N. Y., USA
 WINNIPEG, CANADA
 MAINZ, GERMANY
 AMHERST, MASS., USA
 BOSTON, MASS., USA
 MONTREAL, CANADA
 MANCHESTER, ENGLAND
 PARKVILLE, AUSTRALIA
 ANN ARBOR, MICH., USA
 MILANO, ITALY
 MINNEAPOLIS, MINN., USA
 OXFORD, OHIO, USA
 TRIESTE, ITALY
 STATE COLLEGE, MISS, USA
 CAMBRIDGE, MASS., USA
 MODENA, ITALY
 MONS, BELGIUM
 MOSCOW, USSR
 HEIDELBERG, GERMANY
 MUNICH, GERMANY
 HOUSTON, TEXAS, USA
 MESSINA, ITALY
 EAST LANSING, MICH., USA
 SOUTH HADLEY, MASS., USA
 CLAREMONT, CALIF., USA
 MULHOUSE, FRANCE
 MUNICH, GERMANY
 NAGOYA, JAPAN
 NANCY, FRANCE
 NAPOLI, ITALY
 NARA, JAPAN
 NOTRE DAME, IND., USA
 BOSTON, MASS., USA
 LINCOLN, NEBR., USA
 NEUCHATEL, SWITZERLAND
 IRVINGTON-ON-HUDSON, N.Y., USA
 NIJMEGEN, NETHERLANDS
 DEKALB, ILL., USA
 COPENHAGEN, DENMARK
 NOVOSIBIRSK, USSR
 WASHINGTON, D.C., USA
 WASHINGTON, D.C., USA
 EVANSTON, ILL., USA
 NEW YORK, N. Y., USA
 OBERLIN, OHIO, USA
 ATHENS, OHIO, USA
 EUGENE, ORE., USA
 OAK RIDGE, TENN., USA

Appendix VI - Institution Abbreviations (cont'd)

ORSA UNIV. DE PARIS, FAC. DES SCI.
 OSAK OSAKA UNIV.
 OSLO OSLO UNIV.
 OSMA OSMANIA UNIV.
 OSSE SCI. EDUC. INST. OF OSAKA PREF.
 OSU OHIO STATE UNIV.
 OTTA UNIV. OF OTTAWA
 OXF OXFORD UNIV.
 PADO UNIV. DI PADOVA
 PARM UNIV. OF PARMA
 PATR UNIV. OF PATRAS
 PAVI UNIV. DI PAVIA
 PENN UNIV. OF PENNSYLVANIA
 PISA UNIV. DI PISA
 PITT UNIV. OF PITTSBURGH
 PPA PRINCETON-PENN. PROTON ACCEL.
 PRAG INSTITUTE OF PHYSICS, CSAV
 PRIN PRINCETON UNIV.
 PSU PENNSYLVANIA STATE UNIV.
 PTIU PHYSICAL TECH. INST. OF ACAD. OF SCI.
 PURD PURDUE UNIV.
 QUB QUEENS UNIV. AT BELFAST
 QUEB UNIV. DU QUEBEC
 QUNS QUEENS COLLEGE OF CUNY
 RAMA TEL-AVIV UNIV. AT RAMAT AVIV
 REED REED COLLEGE
 REHO WEIZMANN INST. OF SCI.
 RHEL RUTHERFORD HIGH ENERGY LAB.
 RICE WILLIAM MARSH RICE UNIV.
 RISO RESEARCH ESTAB. RISO
 RMCS ROYAL MILITARY COLLEGE OF SCIENCE
 ROCH UNIV. OF ROCHESTER
 ROCK ROCKEFELLER UNIV
 ROMA UNIV. DI ROMA
 RUTG RUTGERS UNIV.
 SACL CNTR. D'ETUDES NUC. SACLAY
 SAGA SAGA UNIV.
 SAIT SAITAMA UNIV.
 SANI IST. SUPERIORE DI SANITA
 SANT UNIV. DE SANTANDER
 SCST STATE COMM. ON SCIENCE AND TECH.
 SEAT SEATTLE PACIFIC COLLEGE
 SERP INST. OF HIGH EN. PHYS.
 SETO SETON HALL UNIV.
 SHEF UNIV. OF SHEFFIELD
 SHMP UNIV. OF SOUTHAMPTON
 SIEG SIEGEN UNIV.
 SLAC STANFORD LINEAR ACCEL. CENTER
 SMAS SOUTHEASTERN MASSACHUSETTS UNIV.
 SMU SOUTHERN METHODIST UNIV.
 SNRC ISRAEL AEC SOTEG. NUCL. RESEARCH CENTER
 SNSP SCUOLA NORMALE SUPERIORE
 SOFC HIGH INST. OF CHEM. TECH.
 SOFI BULGARIAN ACAD. OF SCI.
 SRI STANFORD RESEARCH INST.
 STAN STANFORD UNIV.
 STEL UNIV. OF STELLENBOSCH
 STEV STEVENS INST. OF TECH.
 STLO ST. LOUIS UNIV.
 STOJ STOCKHOLM UNIV.
 STON STATE UNIV. OF NEW YORK AT STONYBROOK
 STRB CENTRE DES RES. NUCLEAIRES
 SUFF SUFFOLK UNIV.

ORSAY, FRANCE
 OSAKA, JAPAN
 OSLO, NORWAY
 HYDERABAD, INDIA
 OSAKA, JAPAN
 COLUMBUS, OHIO, USA
 OTTAWA, CANADA
 OXFORD, ENGLAND
 PADOVA, ITALY
 PARMA, ITALY
 PATRAS, GREECE
 PAVIA, ITALY
 PHILADELPHIA, PA., USA
 PISA, ITALY
 PITTSBURGH, PA., USA
 PRINCETON, N. J., USA
 PRAGUE, CZECHOSLOVAKIA
 PRINCETON, N. J., USA
 UNIVERSITY PARK, PA., USA
 TASHKENT, USSR
 LAFAYETTE, IND., USA
 BELFAST, NORTHERN IRELAND
 MONTREAL, CANADA
 FLUSHING, N. Y., USA
 RAMAT AVIV, ISRAEL
 PORTLAND, OREGON, USA
 REHOVOTH, ISRAEL
 CHILTON, DID., OXON., ENGLAND
 HOUSTON, TEXAS, USA
 ROSKILDE, DENMARK
 SHRIVENHAM, ENGLAND
 ROCHESTER, N. Y., USA
 NEW YORK, N. Y., USA
 ROMA, ITALY
 NEW BRUNSWICK, N. J., USA
 GIF-SUR-YVETTE, FRANCE
 SAGA, JAPAN
 SAITAMA, JAPAN
 ROMA, ITALY
 SANTANDER, SPAIN
 HANOI, NORTH VIETNAM
 SEATTLE, WASH., USA
 SERPUKOV, USSR
 SOUTH ORANGE, N. J., USA
 SHEFFIELD, YORKS., ENGLAND
 SOUTHAMPTON, ENGLAND
 HUTTENTAL, GERMANY
 STANFORD, CALIF., USA
 NORTH DARTMOUTH, MASS., USA
 DALLAS, TEXAS, USA
 YAVNEH, ISRAEL
 PISA, ITALY
 SOFIA, BULGARIA
 SOFIA, BULGARIA
 MENLO PARK, CALIF., USA
 STANFORD, CALIF., USA
 CAPE PROVINCE, SOUTH AFRICA
 HOBOKEN, N. J., USA
 ST. LOUIS, MO., USA
 STOCKHOLM, SWEDEN
 STONYBROOK, L.I., N. Y., USA
 STRASBOURG, FRANCE
 SUFFOLK, ENGLAND

Appendix VI - Institution Abbreviations (cont'd)

SUSS SUSSEX UNIV. SUSSEX, ENGLAND
 SYDN UNIV. OF SYDNEY SYDNEY, AUSTRALIA
 SYRA SYRACUSE UNIV. SYRACUSE, N. Y., USA
 TAMU TEXAS A AND M UNIV. COLLEGE STATION, TEXAS, USA
 TASM TASMANIA UNIV. HOBART, TASMANIA, AUSTRALIA
 TATA TATA INST. OF FUNDAMENTAL RESEARCH BOMBAY, INDIA
 TBIL INST. OF PHYSICS TBILSI, USSR
 TELA UNIV. OF TEL-AVIV TEL-AVIV, ISRAEL
 TEMP TEMPLE UNIV. PHILADELPHIA, PA., USA
 TENN UNIV. OF TENNESSEE KNOXVILLE, TENN., USA
 TEXA UNIV. OF TEXAS AT AUSTIN AUSTIN, TX, USA
 TMSK NUCL. PHYS. INST., TOMSK POLYTECH. INST. TOMSK, USSR
 TMU TOKYO METROPOLITAN UNIV. TOKYO, JAPAN
 TINTO UNIV. OF TORONTO TORONTO, CANADA
 TOGA TOHOKU-GAKUIN UNIV. MIYAGI, JAPAN
 TOHO TOHOKU UNIV. SENDAI, JAPAN
 TOIN TOKYO INST. OF TECH. TOKYO, JAPAN
 TOKY UNIV. OF TOKYO TOKYO, JAPAN
 TORI UNIV. DI TORINO TORINO, ITALY
 TRIU TRIUMF, UNIV. OF BRITISH COLUMBIA VANCOUVER, CANADA
 TRST UNIV. DI TRIESTE TRIESTE, ITALY
 TSOP SOPHIA UNIV. TOKYO, JAPAN
 TUAT TOKYO UNIV. OF AGRICULTURE AND TECH. TOKYO, JAPAN
 TUED TOKYO UNIV. OF EDUCATION TOKYO, JAPAN
 TUFT TUFTS UNIV. MEDFORD, MASS., USA
 TWAS WASEDA UNIV. TOKYO, JAPAN
 UATH UNIV. OF ATHENS ATHENS, GREECE
 UBEL UNIV. OF BELGRADE BELGRADE, YUGOSLAVIA
 UCB UNIV. OF CALIF. AT BERKELEY BERKELEY, CALIF., USA
 UCD UNIV. OF CALIF. AT DAVIS DAVIS, CALIF., USA
 UCI UNIV. OF CALIF. AT IRVINE IRVINE, CALIF., USA
 UCLA UNIV. OF CALIF. AT LOS ANGELES LOS ANGELES, CALIF., USA
 UCND UNION CARBIDE NUCLEAR DIVISION OAK RIDGE, TENN., USA
 UCR UNIV. OF CALIF. AT RIVERSIDE RIVERSIDE, CALIF., USA
 UCSB UNIV. OF CALIF. AT SANTA BARBARA SANTA BARBARA, CALIF., USA
 UCSC UNIV. OF CALIF. AT SANTA CRUZ SANTA CRUZ, CALIF., USA
 UCSD UNIV. OF CALIF. AT SAN DIEGO LA JOLLA, CALIF., USA
 ULAN INST OF PHYS-CHEM, MONGOLIAN SCI. ACAD. ULAN-BATOR, MONGOLIA
 UMAD UNIV. DE MADRID MADRID, SPAIN
 UMD UNIV. OF MARYLAND COLLEGE PARK, MD., USA
 UNC UNIV. OF NORTH CAROLINA GREENSBORO, N. C., USA
 UNCS UNION COLLEGE SCHENECTADY, N. Y., USA
 UNM UNIV. OF NEW MEXICO ALBUQUERQUE, NEW MEX., USA
 UPNJ UPSALA COLLEGE EAST ORANGE, N. J., USA
 USC UNIV. OF SOUTHERN CALIF. LOS ANGELES, CALIF., USA
 USPS U. S. NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIF., USA
 UTAH UNIV. OF UTAH SALT LAKE CITY, UTAH, USA
 UTRU UNIVERSITY OF UTRECHT UTRECHT, NETHERLANDS
 UTSU UTSUNOMIYA UNIV. UTSUNOMIYA, JAPAN
 UUPP UNIV. OF UPPSALA UPPSALA, SWEDEN
 VALE UNIV. DE VALENCIA VALENCIA, SPAIN
 VAND VANDERBILT UNIV. NASHVILLE, TENN., USA
 VARA BANARES HINDU UNIV. VARANASI, INDIA
 VASS VASSAR COLLEGE POUCHKEEPSIE, N. Y., USA
 VIEN INST. FOR HIGH EN. PHYS., A. A. S. VIENNA, AUSTRIA
 VIRG UNIV. OF VIRGINIA CHARLOTTESVILLE, VA., USA
 VPI VIRGINIA POLYTECHNIC INST. BLACKSBURG, VA., USA
 WAKA WAKAYAMA MEDICAL COLLEGE WAKAYAMA-SHI, JAPAN
 WARS UNIV. OF WARSAW WARSAW, POLAND
 WASH UNIV. OF WASHINGTON SEATTLE, WASH., USA
 WAYN WAYNE STATE UNIV. DETROIT, MICH., USA
 WEST WESTERN UNIV. LONDON, CANADA
 WIEN UNIV. WIEN VIENNA, AUSTRIA

Appendix VI - Institution Abbreviations (cont'd)

WILL COLLEGE OF WILLIAM AND MARY WILLIAMSBURG, VA., USA
 WISC UNIV. OF WISCONSIN MADISON, WISC., USA
 WITW UNIV. OF THE WITWATERSRAND JOHANNESBURG, SOUTH AFRICA
 WOOD WOODSTOCK COLLEGE WOODSTOCK, MD., USA
 WOPI WORCESTER POLYTECHNIC INST. WORCESTER, MASS., USA
 WUPP UNIV. WUPPERTAL WUPPERTAL, GERMANY
 WUSL WASHINGTON UNIV. ST. LOUIS, MO., USA
 WYOM UNIV. OF WYOMING LARAMIE, WYOMING, USA
 YALE YALE UNIV. NEW HAVEN, CONN., USA
 YERE YEREVAN PHYSICS INST. YEREVAN, ARMENIA, USSR
 YOKO YOKOHAMA NATIONAL UNIV. YOKOHAMA, JAPAN
 ZAGR INSTITUTE RUDER BOSKOVIC, ZAGREB ZAGREB, YUGOSLAVIA
 ZEEM ZEEMAN LAB., UNIV. OF AMSTERDAM AMSTERDAM, NETHERLANDS
 ? UNKNOWN INSTITUTION

Appendix VII - Particle Abbreviations

AD
 ADEL(1232P33)0 ADEL(1232P33)+ ADEL(1232P33)- ADEL(1232P33)--
 ADEL(1650S31)0 ADEL(1650S31)+ ADEL(1650S31)- ADEL(1650S31)--
 ADEL(1670D33)0 ADEL(1670D33)+ ADEL(1670D33)- ADEL(1670D33)--
 ADEL(1690P33)0 ADEL(1690P33)+ ADEL(1690P33)- ADEL(1690P33)--
 ADEL(1890F35)0 ADEL(1890F35)+ ADEL(1890F35)- ADEL(1890F35)--
 ADEL(1900S31)0 ADEL(1900S31)+ ADEL(1900S31)- ADEL(1900S31)--
 ADEL(1910P31)0 ADEL(1910P31)+ ADEL(1910P31)- ADEL(1910P31)--
 ADEL(1950B)0 ADEL(1950B)+ ADEL(1950B)- ADEL(1950B)--
 ADEL(1950F37)0 ADEL(1950F37)+ ADEL(1950F37)- ADEL(1950F37)--
 ADEL(1960D35)0 ADEL(1960D35)+ ADEL(1960D35)- ADEL(1960D35)--
 ADEL(2160)0 ADEL(2160)+ ADEL(2160)- ADEL(2160)--
 ADEL(2420B)0 ADEL(2420B)+ ADEL(2420B)- ADEL(2420B)--
 ADEL(2420H311)0 ADEL(2420H311)+ ADEL(2420H311)- ADEL(2420H311)--
 ADEL(2850B)0 ADEL(2850B)+ ADEL(2850B)- ADEL(2850B)--
 ADEL(3230B)0 ADEL(3230B)+ ADEL(3230B)- ADEL(3230B)--
 AD*0 AD*-- AD*--
 AG C= SILVER NUCLEUS
 AHE C= ANTI-HELIUM-4 NUCLEUS
 AHVY-LEPTON C= GENERAL ANTI HEAVY-LEPTON
 AHYPERON C= GENERAL ANTI-HYPERON
 AKAPPA0 C= AKPI S-WAVE
 AKN(I=0) C= ANTI-K NUCLEON I=0 INITIAL STATE (AND ELASTIC FINAL STATE)
 AKN(I=1) C= ANTI-K NUCLEON I=1 INITIAL STATE (AND ELASTIC FINAL STATE). DO NOT USE FOR THE SINGLE PHYSICAL STATE (K- N)
 AKN(1660)0
 AKN(1700)0 C= POSSIBLE K- OMEGA STATE
 AKPI(S30)--
 AKPRIME(1400)0 C= JP=0- STATE SEEN IN PWA BY BRANDENBURG 76, DECAYING PREDOMINATLY INTO EPSILON K0
 AKPRIME(1400)- C= JP=0- STATE SEEN IN PWA BY BRANDENBURG 76, DECAYING PREDOMINATLY INTO EPSILON K0
 AKO
 AK*(UNSPEC)
 AK*(UNSPEC)0
 AK*(1225)0
 AK*(1420)0
 AK*(1660)0
 AK*(2200)0
 AK*(2800)0
 AK*(892)0
 AL C= ALUMINUM NUCLEUS

Appendix VII - Particle Abbreviations (cont'd)

ALAMBDA
 ALAM(1330B)
 ALAM(1405S01)
 ALAM(1520D03)
 ALAM(1600P01)
 ALAM(1670S01)
 ALAM(1690D03)
 ALAM(1800G09)
 ALAM(1800P01)
 ALAM(1815F05)
 ALAM(1830D05)
 ALAM(1860P03)
 ALAM(1870S01)
 ALAM(2010)
 ALAM(2020F07)
 ALAM(2100B)
 ALAM(2100G07)
 ALAM(2110F05)
 ALAM(2350B)
 ALAM(2585B)
 AL(1770)0
 AN
 ANN(I=0)
 ANN(I=1)
 ANU
 ANUCLEON
 ANUCLEUS
 ANUE
 ANYTHING
 AN(1470B)0
 AN(1470P11)0
 AN(1520B)0
 AN(1520D13)0
 AN(1535S11)0
 AN(1670D15)0
 AN(1688F15)0
 AN(1700B)0
 AN(1700D13)0
 AN(1700S11)0
 AN(1780P11)0
 AN(1810P13)0
 AN(1990F17)0
 AN(2000F15)0
 AN(2040D13)0
 AN(2100D15)0
 AN(2100S11)0
 AN(2190B)0
 AN(2190G17)0
 AN(2220H19)0
 AN(2650B)0
 AN(3030B)0
 AN(3245B)0
 AN(3690B)0
 AN(3755B)0
 AOMEGA+
 AP
 AQHIGH(1340)0
 AQLow(1240)0
 AQUARK
 C= ANTI-L(1770)0
 C= ANTI-NEUTRON
 C= ANTI-NUCLEON NUCLEON I=0 INITIAL STATE (AND ELASTIC FINAL STATE)
 C= ANTI-NUCLEON NUCLEON I=1 INITIAL STATE (AND ELASTIC FINAL STATE). DO NOT USE FOR THE SINGLE PHYSICAL STATE (AP N)
 C= ANTI-NUCLEON
 C= GENERAL ANTI-NUCLEUS
 ANUMU
 C= FOR USE IN INCLUSIVE REACTIONS, ALSO FOR CROSS-SECTION DATA, AS IN K- P --> ANYTHING
 AN(1470B)-
 AN(1470P11)-
 AN(1520B)-
 AN(1520D13)-
 AN(1535S11)-
 AN(1670D15)-
 AN(1688F15)-
 AN(1700B)-
 AN(1700D13)-
 AN(1700S11)-
 AN(1780P11)-
 AN(1810P13)-
 AN(1990F17)-
 AN(2000F15)-
 AN(2040D13)-
 AN(2100D15)-
 AN(2100S11)-
 AN(2190B)-
 AN(2190G17)-
 AN(2220H19)-
 AN(2650B)-
 AN(3030B)-
 AN(3245B)-
 AN(3690B)-
 AN(3755B)-
 C= ANTI-QUARK

Appendix VII - Particle Abbreviations (cont'd)

AQ(1240-1400)0
 ASIGMA0
 ASIG(1385P13)0
 ASIG(1440B)0
 ASIG(1480B)0
 ASIG(1580D13)0
 ASIG(1620B)0
 ASIG(1620P11)0
 ASIG(1620S11)0
 ASIG(1670B)0
 ASIG(1670D13)0
 ASIG(1690B)0
 ASIG(1750S11)0
 ASIG(1765D15)0
 ASIG(1840P13)0
 ASIG(1880P11)0
 ASIG(1915B)0
 ASIG(1915F15)0
 ASIG(1940D13)0
 ASIG(2000S11)0
 ASIG(2030B)0
 ASIG(2030F17)0
 ASIG(2070F15)0
 ASIG(2080P13)0
 ASIG(2100G17)0
 ASIG(2210H111)0
 ASIG(2215G19)0
 ASIG(2250B)0
 ASIG(2260D15)0
 ASIG(2455B)0
 ASIG(2620B)0
 ASIG(3000B)0
 AT
 AXI0
 AXI(1530P13)0
 AXI(1630)0
 AXI(1820)0
 AXI(1940)0
 AXI(2030)0
 AXI(2250)0
 AXI(2500)0
 A1(1100)0
 A1.5(1170)0
 A2(1310)0
 A3(1640)0
 A4(1900)0
 BE
 BOR
 BR
 B1(1040)0
 B(1235)0
 C
 CC
 CD
 CHARGED
 CHARGED+
 CHARGED-
 CHARM
 CHGD-HADRON
 CHI(3410)0
 CHI(3530)0
 ASIGMA+
 ASIG(1385P13)+
 ASIG(1440B)+
 ASIG(1480B)+
 ASIG(1580D13)+
 ASIG(1620B)+
 ASIG(1620P11)+
 ASIG(1620S11)+
 ASIG(1670B)+
 ASIG(1670D13)+
 ASIG(1690B)+
 ASIG(1750S11)+
 ASIG(1765D15)+
 ASIG(1840P13)+
 ASIG(1880P11)+
 ASIG(1915B)+
 ASIG(1915F15)+
 ASIG(1940D13)+
 ASIG(2000S11)+
 ASIG(2030B)+
 ASIG(2030F17)+
 ASIG(2070F15)+
 ASIG(2080P13)+
 ASIG(2100G17)+
 ASIG(2210H111)+
 ASIG(2215G19)+
 ASIG(2250B)+
 ASIG(2260D15)+
 ASIG(2455B)+
 ASIG(2620B)+
 ASIG(3000B)+
 C= ANTI-TRITIUM NUCLFUS
 AXI+
 AXI(1530P13)+
 AXI(1630)+
 AXI(1820)+
 AXI(1940)+
 AXI(2030)+
 AXI(2250)+
 AXI(2500)+
 A1(1100)+
 A1.5(1170)+
 A2(1310)+
 A3(1640)+
 A4(1900)+
 C= BERYLLIUM NUCLEUS
 C= BORON NUCLEUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 C= BROMINE
 B1(1040)+
 B(1235)+
 C= CARBON NUCLEUS
 C= CHARGE CONJUGATE REACTION
 C= CADMIUM NUCLEUS
 C= CHARGED PARTICLE. UNLIKE PRONG, THIS DOES NOT INCLUDE POSSIBLE NEUTRALS
 C= POSITIVE CHARGED PARTICLE
 C= NEGATIVE CHARGED PARTICLE
 C= CHARMED PARTICLE
 C= CHARGED HADRON
 A1(1100)-
 A1.5(1170)-
 A2(1310)-
 A3(1640)-
 A4(1900)-
 B1(1040)-
 B(1235)-
 C= CHARGED HADRON

Appendix VII - Particle Abbreviations (cont'd)

COSMIC C= COSMIC-RAY PARTICLE OF UNDETERMINED NATURE
 CU C= COPPER NUCLEUS
 C*(4.44) C= 4.44 KEY EXCITED STATE OF CARBON
 D
 DD C= DIFFRACTION DISSOCIATION. TO BE FOLLOWED BY NAMES OF PARTICLES WHICH WERE PRODUCED VIA DIFFRACTION DISSOCIATION. E.G. DD <P PIO>
 DELTA(970)0 DELTA(970)+ DELTA(970)-
 DEL(UNSPEC)0 C= I=3/2 BARYON OF UNSPECIFIED MASS, USE PRIMARILY IN PROP, RVUE, COMP
 DEL(UNSPEC)+ C= I=3/2 BARYON OF UNSPECIFIED MASS, USE PRIMARILY IN PROP, RVUE, COMP
 DEL(UNSPEC)++ C= I=3/2 BARYON OF UNSPECIFIED MASS, USE PRIMARILY IN PROP, RVUE, COMP
 DEL(UNSPEC)- C= I=3/2 BARYON OF UNSPECIFIED MASS, USE PRIMARILY IN PROP, RVUE, COMP
 DEL(1232P33)0 DEL(1232P33)+ DEL(1232P33)++ DEL(1232P33)-
 DEL(1650S31)0 DEL(1650S31)+ DEL(1650S31)++ DEL(1650S31)-
 DEL(1670D33)0 DEL(1670D33)+ DEL(1670D33)++ DEL(1670D33)-
 DEL(1690P33)0 DEL(1690P33)+ DEL(1690P33)++ DEL(1690P33)-
 DEL(1890F35)0 DEL(1890F35)+ DEL(1890F35)++ DEL(1890F35)-
 DEL(1900S31)0 DEL(1900S31)+ DEL(1900S31)++ DEL(1900S31)-
 DEL(1910P31)0 DEL(1910P31)+ DEL(1910P31)++ DEL(1910P31)-
 DEL(1950B)0 DEL(1950B)+ DEL(1950B)++ DEL(1950B)-
 DEL(1950F37)0 DEL(1950F37)+ DEL(1950F37)++ DEL(1950F37)-
 DEL(1960D35)0 DEL(1960D35)+ DEL(1960D35)++ DEL(1960D35)-
 DEL(2160)0 DEL(2160)+ DEL(2160)++ DEL(2160)-
 DEL(2420B)0 DEL(2420B)+ DEL(2420B)++ DEL(2420B)-
 DEL(2420H311)0 DEL(2420H311)+ DEL(2420H311)++ DEL(2420H311)-
 DEL(2850B)0 DEL(2850B)+ DEL(2850B)++ DEL(2850B)-
 DEL(3230B)0 DEL(3230B)+ DEL(3230B)++ DEL(3230B)-
 D*0 D**+ D***
 D(1285) C= LOW MASS D PI PI BUMP
 EPSILON(1200) C= PIPI S-WAVE (NEAR 1200 MEV)
 EPSILON(700) C= PIPI S-WAVE (NEAR 700 MEV)
 ETA
 ETAPRIME
 ETA(1080)
 EXOTIC-HYPERON C= CANNOT BE FORMED OF QUARK-ANTI-QUARK OR QQQ
 EXOTIC-MESON C= CANNOT BE FORMED OF QUARK-ANTI-QUARK
 EXOTIC-NUCLEON C= CANNOT BE FORMED OF QQQ
 EX(1640)0 C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 EX(1640)+ C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 EX(1640)++ C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 EX(1640)+++ C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 EX(1640)- C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 EX(1640)-- C= I=5/2 NON-STRANGE BARYON (EXOTIC)
 E+ C= POSITRON
 E- C= ELECTRON
 E(1420)
 F C= F(1270) MESON RESONANCE
 FE C= IRON NUCLEUS
 FL C= FLUORINE NUCLEUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 FPRIME
 FRAG C= FRAGMENT FROM NUCLEUS. USED FOR DESCRIPTION OF HEAVY ION EXPERIMENTS
 FRAGB C= FRAGMENT OF BEAM
 FRAGT C= FRAGMENT OF TARGET
 F1(1540)0 F1(1540)+ F1(1540)-
 GAMMA
 GAMMAS C= TWO OR MORE GAMMAS

Appendix VII - Particle Abbreviations (cont'd)

GAMMA(S) C= ONE OR MORE GAMMAS
 G(1680)0 G(1680)+ G(1680)-
 HADRON C= SINGLE HADRON, ANY CHARGE OR MASS
 HADRONS C= TWO OR MORE HADRONS
 HADRON0 C= CHARGE 0 HADRON
 HADRON+ C= CHARGE + HADRON
 HADRON- C= CHARGE - HADRON
 HADRON(S) C= ONE OR MORE HADRONS
 HE C= HELIUM-4 NUCLEUS
 HE3 C= HELIUM 3
 HNUCLEUS C= HYPER-NUCLEUS
 HVY-LEPTON C= GENERAL HEAVY LEPTON
 HVY-LEPTON0 C= HEAVY LEPTON
 HVY-LEPTON+ C= HEAVY LEPTON
 HVY-LEPTON- C= HEAVY LEPTON
 HYPERON C= GENERAL HYPERON
 H(2040) C= I=0, JP=4+ MESON RESONANCE
 H(990)
 INELASTIC C= SAME AS ANYTHING, EXCEPT ELASTIC EXCLUDED
 IR C= IRIDIUM NUCLEUS
 J/PSI(3100)0
 KAPPA(1250)0 C= KPI S-WAVE
 KAPPA(1250)+ C= KPI S-WAVE
 KAPPA(1250)- C= AKPI S-WAVE
 KL C= K LONG
 KN(I=0) C= K NUCLEON I=0 INITIAL STATE (AND ELASTIC FINAL STATE)
 KN(I=1) C= K NUCLEON I=1 INITIAL STATE (AND ELASTIC FINAL STATE). DO NOT USE FOR THE SINGLE PHYSICAL STATE (K+ P)
 KN(1660)0 KN(1660)+ KN(1660)-
 KN(1700)0 C= POSSIBLE K- OMEGA STATE
 KN(1700)+ C= POSSIBLE K- OMEGA STATE
 KN(1700)- C= POSSIBLE K- OMEGA STATE
 KPI(S30)++ C= K PI S-WAVE STATE (EXOTIC)
 KPRIME(1400)0 C= JP=0- STATE SEEN IN PWA BY BRANDENBURG 76, DECAYING PREDOMINATLY TO EPSILON K0
 KPRIME(1400)+ C= JP=0- STATE SEEN IN PWA BY BRANDENBURG 76, DECAYING PREDOMINATLY INTO EPSILON K0
 C= K SHORT
 K+ K-
 KS
 KO
 K*(UNSPEC)
 K*(UNSPEC)0
 K*(UNSPEC)+
 K*(UNSPEC)-
 K*(1225)0 K*(1225)+ K*(1225)-
 K*(1420)0 K*(1420)+ K*(1420)-
 K*(1660)0 K*(1660)+ K*(1660)-
 K*(2200)0 K*(2200)+ K*(2200)-
 K*(2800)0 K*(2800)+ K*(2800)-
 K*(892)0 K*(892)+ K*(892)-
 LAMBDA
 LAM(UNSPEC) C= I=0, S=-1 BARYON RESONANCE, FOR USE PRIMARILY IN PROP, RVUE, COMP
 C= BUMP AT 1330 MEV
 LAM(1330B)
 LAM(1405S01)
 LAM(1520D03)
 LAM(1600P01)
 LAM(1670S01)
 LAM(1690D03)
 LAM(1800G09)
 LAM(1800P01)
 LAM(1815F05)

Appendix VII - Particle Abbreviations (cont'd)

LAM(1830D05)
 LAM(1860P03)
 LAM(1870S01)
 LAM(2010)
 LAM(2020F07)
 LAM(2100B) C= BUMP AT 2100 MEV
 LAM(2100G07)
 LAM(2110F05)
 LAM(2350B) C= I=0, Y=0 BUMPS
 LAM(2585B)
 LI C= LITHIUM NUCLEUS
 LONGLIVED C= STABLE UNDER STRONG OR E- DECAY; MASS AND OTHER Q NUMBERS NOT WELL-DETERMINED
 L(1770)0 L(1770)+ L(1770)-
 MESONS C= TWO OR MORE MESONS
 MESON(1970)0 C= 1970 MEV I=1 MESON DECAYING INTO K*(1420) AK
 MESON(1970)+ C= 1970 MEV I=1 MESON DECAYING INTO K*(1420) AK
 MESON(1970)- C= 1970 MEV I=1 MESON DECAYING INTO K*(1420) AK
 MESON(2190)0 C= 2190 MEV I=1 MESON OBSERVED IN AP P AND AP D TOTAL CS
 MESON(2190)+ C= 2190 MEV I=1 MESON OBSERVED IN AP P AND AP D TOTAL CS
 MESON(2190)- C= 2190 MEV I=1 MESON OBSERVED IN AP P AND AP D TOTAL CS
 MESON(3270)0 C= NEW POSSIBLE PARTICLE OBSERVED IN E+ E- --> MU+ MU- 2GAMMA AS A BUMP IN 2GAMMA MASS REPORTED IN SLAC-PUB-1644
 MESON(3500)0 C= NEW POSSIBLE PARTICLE OBSERVED IN E+ E- --> MU+ MU- 2GAMMA AS A BUMP IN 2GAMMA MASS REPORTED IN SLAC-PUB-1644
 MESON(3520)0 C= OBSERVED IN E+ E- 2GAMMA FINAL STATE IN WHICH 2GAMMA HAS A BUMP AT 160 MEV, SEE R=DESY-75-20 FOR DETAIL
 MM C= TWO OR MORE UNDETECTED NEUTRAL PARTICLES (THIS IS THE STANDARD MEANING OF MISSING MASS IN BUBBLE CHAMBER EXPERIMENTS) ** SEE MM.GE.0 AND MM.GE.1 FOR OTHER MISSING MASS STATES
 MM.GE.0 C= ZERO, ONE OR MORE UNDETECTED NEUTRAL PARTICLES ** SEE MM AND MM.GE.1 FOR OTHER MISSING MASS STATES
 MM.GE.1 C= ONE OR MORE UNDETECTED NEUTRAL PARTICLES ** SEE MM AND MM.GE.0 FOR OTHER MISSING MASS STATES
 MONOPOLE C= MAGNETIC MONOPOLE
 MU+
 MU-
 M(1033) C= NON-STRANGE, I=0 MESON RESONANCE
 M(1150) C= NON-STRANGE, I=0 MESON RESONANCE
 M(940) C= NON-STRANGE, I=0 MESON RESONANCE
 M(953) C= NON-STRANGE, I=0 MESON RESONANCE
 N C= NEUTRON
 NANO(2375) C= NUCLEON-ANTINUCLEON I=0 BUMP
 NE C= NEON NUCLEUS
 NEPSILON(I=1/2) C= NUCLEON EPSILON I=1/2 FINAL STATE
 NEUTRAL C= SINGLE NEUTRAL PARTICLE
 NEUTRALS C= TWO OR MORE NEUTRAL PARTICLES -- DO NOT USE FOR MM
 NEUTRAL(S) C= ONE OR MORE NEUTRAL PARTICLES -- DO NOT USE FOR MM.GE.1
 NIT C= NITROGEN 14 NUCLEUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 NN(I=0) C= NUCLEON NUCLEON I=0 INITIAL STATE (AND ELASTIC FINAL STATE)

Appendix VII - Particle Abbreviations (cont'd)

NN(I=1) C= NUCLEON NUCLEON I=1 INITIAL STATE (AND ELASTIC FINAL STATE). DO NOT USE FOR THE SINGLE PHYSICAL STATE (P P)
 NONSTR-PRONG C= PRONG PRODUCED BY NON-STRANGE PARTICLE
 NON-RES C= NON-RESONANT STATE. TO BE FOLLOWED BY NAMES OF PARTICLES WHICH WERE PRODUCED IN A NON-RESONANT STATE. E.G. NON-RES <P PI+>
 NRHO(I=1/2) C= NUCLEON RHO I=1/2 FINAL STATE
 NRHO(I=3/2) C= NUCLEON RHO I=3/2 FINAL STATE
 NU
 NUCLEON
 NUCLEUS C= GENERAL NUCLEUS. USE ONLY WHEN THE EXACT NUCLEUS OR NUCLEON IS NOT SPECIFIED. E.G., USE FOR TARGET WHEN DETECTOR IS EMULSION.
 NUC
 NUMU
 N*5/2(UNSPEC) C= I=5/2, Y=1 BARYON OF UNSPEC MASS AND CHG
 N*5/2(UNSPEC)+++ C= I=5/2, Y=1 BARYON OF UNSPEC MASS
 N*(UNSPEC) C= S=0 BARYON OF UNSPEC MASS, ISOSPIN, FOR USE IN PROP, RVUE, COMP
 N*(UNSPEC)0 C= I UNSPECIFIED, Y=1 BARYON OF UNSPEC MASS
 N*(UNSPEC)+ C= I UNSPECIFIED, Y=1 BARYON OF UNSPEC MASS
 N*(UNSPEC)- C= I UNSPEC, MASS UNSPEC, Y=1 BARYON
 N(AP) C= USED FOR MULTIPLICITY DISTRIBUTION OF AP. USE ONLY WITH DD=MULT.
 N(CHARGED) C= CHARGED PARTICLE, FOR MULTIPLICITY DISTRIBUTION ONLY
 N(CHGD-HADRON) C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF CHARGED HADRONS. USE ONLY WITH DD=MULT
 N(FRAG) C= USED FOR MULTIPLICITY DISTRIBUTION OF HEAVY IONS
 N(GAMMA) C= GAMMA MULTIPLICITY, USE WITH DD=MULT ONLY
 N(HADRON) C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF HADRONS, E.G. 2HADRON, 3HADRON, 4HADRON, ETC.. USE ONLY WITH DD=MULT.
 N(HE) C= USED FOR MULTIPLICITY DISTRIBUTION OF HELIUM NUCLEI IN FINAL STATE. USE ONLY WITH DD=MULT
 N(KO) C= A COLLECTION OF REACTION TO DIFFERENT NUMBERS OF KOS. USE ONLY WITH DD=MULT
 N(K-) C= USED FOR MULTIPLICITY DISTRIBUTION OF K-. USE ONLY WITH DD=MULT.
 N(LAMBDA) C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF LAMBDA. USE ONLY WITH DD=MULT
 N(MESON) C= USED FOR MULTIPLICITY DISTRIBUTION OF MESON. DD=MULT ONLY
 N(NEUTRAL) C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF NEUTRALS. USE ONLY WITH DD=MULT
 N(N) C= USED FOR MULTIPLICITY DISTRIBUTION OF N. USE ONLY WITH DD=MULT.
 N(PION) C= PION MULTIPLICITY, USE WITH DD=MULT ONLY
 N(PIO) C= PIO MULTIPLICITY, USE WITH DD=MULT ONLY
 N(PI-) C= USED FOR MULTIPLICITY DISTRIBUTION OF PI-. USE ONLY WITH DD=MULT
 N(PRONG) C= A COLLECTION OF REACTIONS WITH DIFFERENT NUMBERS OF PRONGS, E.G. OPRONG, 2PRONG, 4PRONG, ETC.. USE ONLY WITH DD=MULT.
 N(SIGMA0) C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF SIGMA0S. USE ONLY WITH DD=MULT
 N(SPECT) C= SPECTATOR NEUTRON (NOT NUMBER OF SPECTATORS)
 N(UNSPEC) C= I=1/2, Y=1 BARYON OF UNSPECIFIED MASS
 N(UNSPEC)0 C= I=1/2, Y=1 BARYON OF UNSPEC MASS
 N(UNSPEC)+ C= I=1/2, Y=1 BARYON OF UNSPEC MASS

Appendix VII - Particle Abbreviations (cont'd)

N(1470B)0 N(1470B)+
 N(1470P11)0 N(1470P11)+
 N(1520B)0 N(1520B)+
 N(1520D13)0 N(1520D13)+
 N(1535S11)0 N(1535S11)+
 N(1590B)0 N(1590B)+
 N(1670D15)0 N(1670D15)+
 N(1688F15)0 N(1688F15)+
 N(1700B)0 N(1700B)+
 N(1700D13)0 N(1700D13)+
 N(1700S11)0 N(1700S11)+
 N(1780P11)0 N(1780P11)+
 N(1810P13)0 N(1810P13)+
 N(1990F17)0 N(1990F17)+
 N(2000F15)0 N(2000F15)+
 N(2040D13)0 N(2040D13)+
 N(2100D15)0 N(2100D15)+
 N(2100S11)0 N(2100S11)+
 N(2190B)0 N(2190B)+
 N(2190G17)0 N(2190G17)+
 N(2220H19)0 N(2220H19)+
 N(2650B)0 N(2650B)+
 N(3030B)0 N(3030B)+
 N(3245B)0 N(3245B)+
 N(3690B)0 N(3690B)+
 N(3755B)0 N(3755B)+
 O C= OXYGEN NUCLEUS
 OMEGA C= MESON RESONANCE
 OMEGA- C= THE S=-3 BARYON
 OMEGA*(UNSPEC) C= S=-3 BARYON RESONANCE OF UNSPEC I, MASS
 OMEGA*(UNSPEC)0 C= Y=-2 BARYON OF UNSPEC MASS, I
 OMEGA*(UNSPEC)- C= Y=-2 BARYON OF UNSPEC MASS, I
 OMEGA*(UNSPEC)-- C= Y=-2 BARYON OF UNSPEC MASS, I
 OMEGA(1675) C= MESON RESONANCE
 P
 PARTON C= HYPOTHEZIZED PARTICLE
 PB C= LEAD NUCLEUS
 PC(3300-3500)0 C= GENERIC NAME FOR EITHER MESON(3500) OR MESON(3270) (Q.V.)
 PH C= PHOSPHORUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 PHI
 PIDEL(I=1/2) C= PI DELTA I=1/2 FINAL STATE
 PIDEL(I=3/2) C= PI DELTA I=3/2 FINAL STATE
 PILAM(I=1) C= I=1 PI LAMBDA SYSTEM OF UNSPEC MASS, FOR PWA
 PILAM(I=1)0 C= I=1 PI LAMBDA SYSTEM OF UNSPEC MASS, FOR PWA
 PILAM(I=1)+ C= I=1 PI LAMBDA SYSTEM OF UNSPEC MASS, FOR PWA
 PILAM(I=1)- C= I=1 PI LAMBDA SYSTEM OF UNSPEC MASS, FOR PWA
 PIN(I=1/2) C= PI NUCLEON I=1/2 INITIAL STATE (AND ELASTIC FINAL STATE)
 PIN(I=3/2) C= PI NUCLEON I=3/2 INITIAL STATE (AND ELASTIC FINAL STATE). DO NOT USE FOR THE SINGLE PHYSICAL STATES (PI+ P) OR (PI- N)
 PIONS C= TWO OR MORE PIONS
 PIPI(I=0) C= PI PI ISOSPIN 0 STATE
 PIPI(I=1) C= PI PI ISOSPIN 1 STATE
 PIPI(I=2) C= PI PI ISOSPIN 2 STATE
 PIPI(S20)++ PIPI(S20)--
 PISIG(I=0) C= I=0 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA
 PISIG(I=0) C= I=0 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA
 PISIG(I=1) C= I=1 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA
 PISIG(I=1)0 C= I=1 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA

Appendix VII - Particle Abbreviations (cont'd)

PISIG(I=1)+ C= I=1 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA
 PISIG(I=1)- C= I=1 PI SIGMA SYSTEM OF UNSPEC MASS, FOR PWA
 PIO
 PIOS C= 2 OR MORE PIOS
 PIO(S) C= 1 OR MORE PIOS
 PI+
 PRONG PI- C= A CHARGED TRACK ORIGINATING FROM THE PRIMARY INTERACTIONS. ASSUMES OBSERVED OR UNOBSERVED NEUTRALS MAY BE PRESENT, BUT ARE IGNORED UNLESS SPECIFICALLY MENTIONED.
 PSI(3700)0
 PSI(4100)0
 PSI(4400)0
 PT C= PLATINUM NUCLEUS
 P(SPECT) C= SPECTATOR PROTON
 QHIGH(1340) QHIGH(1340)0 QHIGH(1340)+ QHIGH(1340)-
 QLOW(1240) QLOW(1240)0 QLOW(1240)+ QLOW(1240)-
 QUARK C= QUARK OF UNSPECIFIED CHARGE
 QUARK(1/3) C= QUARK OF CHARGE 1/3
 QUARK(2/3) C= QUARK OF CHARGE 2/3
 Q(1240-1400)0 Q(1240-1400)+ Q(1240-1400)-
 RHOPI(S21)++ C= A RHO PI RESONANCE
 RHOPI(S21)-- C= A RHO PI RESONANCE
 RHOPRIME(1250)0 RHOPRIME(1250)+ RHOPRIME(1250)-
 RHOPRIME(1600)0 RHOPRIME(1600)+ RHOPRIME(1600)-
 RHO+ RHO-
 RHO(2100)0 RHO(2100)+ RHO(2100)-
 RHO(2275)0 RHO(2275)+ RHO(2275)-
 S C= INTERMEDIATE SCALAR BOSON
 SHOWER C= SHOWER TRACK
 SIGMA+ SIGMA-
 SIG(UNSPEC)0 C= I=1, Y=0 PARTICLE OF UNSPEC MASS
 SIG(UNSPEC)+ C= I=1, Y=0 PARTICLE OF UNSPEC MASS
 SIG(UNSPEC)- C= I=1, Y=0 PARTICLE OF UNSPEC MASS
 SIG(1385P13)0 SIG(1385P13)+ SIG(1385P13)-
 SIG(1440B)0 C= I=1, Y=0 BUMPS
 SIG(1440B)+ C= I=1, Y=0 BUMPS
 SIG(1440B)- C= I=1, Y=0 BUMPS
 SIG(1480B)0 C= I=1, Y=0 BUMPS
 SIG(1480B)+ C= I=1, Y=0 BUMPS
 SIG(1480B)- C= I=1, Y=0 BUMPS
 SIG(1580D13)0 SIG(1580D13)+ SIG(1580D13)-
 SIG(1620B)0 C= I=1, Y=0 BUMPS
 SIG(1620B)+ C= I=1, Y=0 BUMPS
 SIG(1620B)- C= I=1, Y=0 BUMPS
 SIG(1620S11)0 SIG(1620S11)+ SIG(1620S11)-
 SIG(1660P11)0 SIG(1660P11)+ SIG(1660P11)-
 SIG(1670B)0 C= I=1, Y=0 BUMPS
 SIG(1670B)+ C= I=1, Y=0 BUMPS
 SIG(1670B)- C= I=1, Y=0 BUMPS
 SIG(1670D13)0 SIG(1670D13)+ SIG(1670D13)-
 SIG(1690B)0 C= I=1, Y=0 BUMPS
 SIG(1690B)+ C= I=1, Y=0 BUMPS
 SIG(1690B)- C= I=1, Y=0 BUMPS
 SIG(1750S11)0 SIG(1750S11)+ SIG(1750S11)-
 SIG(1765D15)0 SIG(1765D15)+ SIG(1765D15)-
 SIG(1770P11)0 SIG(1770P11)+ SIG(1770P11)-
 SIG(1840P13)0 SIG(1840P13)+ SIG(1840P13)-
 SIG(1880P11)0 SIG(1880P11)+ SIG(1880P11)-
 SIG(1915B)0 C= I=1, Y=0 BUMPS
 SIG(1915B)+ C= I=1, Y=0 BUMPS
 SIG(1915B)- C= I=1, Y=0 BUMPS
 SIG(1915F15)0 SIG(1915F15)+ SIG(1915F15)-

Appendix VII - Particle Abbreviations (cont'd)

SIG(1940D13)0
 SIG(2000S11)0
 SIG(2030B)0
 SIG(2030B)+
 SIG(2030B)-
 SIG(2030F17)0
 SIG(2070F15)0
 SIG(2080P13)0
 SIG(2100G17)0
 SIG(2210H111)0
 SIG(2215G19)0
 SIG(2250B)0
 SIG(2250B)+
 SIG(2250B)-
 SIG(2260D15)0
 SIG(2455B)0
 SIG(2455B)+
 SIG(2455B)-
 SIG(2620B)0
 SIG(2620B)+
 SIG(2620B)-
 SIG(3000B)0
 SIG(3000B)+
 SIG(3000B)-
 STRANGE
 STRANGE0
 SU
 S0
 S+
 S-
 S*(993)
 S(1930)0
 T
 TA
 TACHYON
 TH
 T(2200)0
 U
 UNLINKED
 UNSPEC
 UNSPEC+
 UNSPEC-
 UPSI(5970)0
 U(2360)0
 VEE
 W
 WT
 W0
 W+
 W-
 XE
 XIO
 XI-
 XI*3/2(UNSPEC)
 XI*3/2(UNSPEC)0

SIG(1940D13)+
 SIG(2000S11)+
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 SIG(2030F17)+
 SIG(2070F15)+
 SIG(2080P13)+
 SIG(2100G17)+
 SIG(2210H111)+
 SIG(2215G19)+
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 SIG(2260D15)+
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= I=1, Y=0 BUMPS
 C= UNSPECIFIED STRANGE PARTICLE
 N= NEUTRAL STRANGE PARTICLE C= SAME AS STRANGE EXCEPT CHARGE IS SPECIFIED
 C= SULFUR NUCLEUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 C= INTERMEDIATE SCALAR BOSON
 C= INTERMEDIATE SCALAR BOSON
 C= INTERMEDIATE SCALAR BOSON
 C= PIFI OR KKBAR S-WAVE
 S(1930)+ S(1930)-
 C= TRITIUM NUCLEUS
 C= TANTALUM NUCLEUS
 C= THORIUM NUCLEUS
 T(2200)+ T(2200)-
 C= URANIUM NUCLEUS
 C= PSEUDO-PARTICLE USED AS A COMPLETE REACTION BY ITSELF. IMPLIES THAT DD'S IN SAME NODE APPLY IN UNSPECIFIED WAY TO REACTIONS IN ALL OTHER NODES. I.E., DD'S ARE NOT LINKED TO SPECIFIC REACTIONS
 C= PARTICLE OF UNSPECIFIED TYPE. FOR PARTICLE SEARCH. NORMALLY ITS USE SHOULD BE ACCOMPANIED BY A DATA COMMENT DESCRIBING THE PARTICLE OR SEARCH. USE FOR PARTICLES NOT YET FOUND AND OF UNKNOWN PROPERTIES. PRINCIPALLY FOR USE IN PROP
 C= SAME AS UNSPEC EXCEPT THAT IT HAS CHARGE+
 C= SAME AS UNSPEC EXCEPT THAT IT HAS CHARGE-
 C= LEDERMANS UPSILON TO E+ E-
 U(2360)+ U(2360)-
 C= NEUTRAL OF UNSPECIFIED TYPE
 C= INTERMEDIATE VECTOR BOSON
 C= TUNGSTEN NUCLEUS -- NOTE NAME IS NOT SAME AS CHEMICAL SYMBOL
 C= INTERMEDIATE VECTOR BOSON
 C= INTERMEDIATE VECTOR BOSON
 C= INTERMEDIATE VECTOR BOSON
 C= XENON NUCLEUS
 XI-
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS

Appendix VII - Particle Abbreviations (cont'd)

XI*3/2(UNSPEC)+
 XI*3/2(UNSPEC)-
 XI*3/2(UNSPEC)--
 XI*(UNSPEC)
 XI*(UNSPEC)0
 XI*(UNSPEC)+
 XI*(UNSPEC)-
 XI*(UNSPEC)--
 XI(UNSPEC)
 XI(UNSPEC)0
 XI(UNSPEC)-
 XI(1530P13)0
 XI(1630)0
 XI(1820)0
 XI(1940)0
 XI(2030)0
 XI(2250)0
 XI(2500)0
 X0(1430)
 X1(1440)0
 X1(1795)0
 X(1690)0
 X(2500-3600)
 X(2750)0
 Y*2(UNSPEC)
 Y*2(UNSPEC)++
 Y*(UNSPEC)
 Y*(UNSPEC)0
 Y*(UNSPEC)+
 Y*(UNSPEC)-
 Z0(UNSPEC)
 Z0(UNSPEC)+
 Z0(1780)+
 Z0(1865)+
 Z1(UNSPEC)
 Z1(UNSPEC)0
 Z1(UNSPEC)+
 Z1(UNSPEC)++
 Z1(1900)0
 Z1(1900)+
 Z1(1900)++
 Z1(2150)0
 Z1(2150)+
 Z1(2150)++
 Z1(2500)0
 Z1(2500)+
 Z1(2500)++
 Z*(UNSPEC)
 Z*(UNSPEC)0
 Z*(UNSPEC)+
 Z*(UNSPEC)++
 OPRONG
 (GAMMAS)
 (HADRONS)
 (NEUTRALS)
 (PIOS)
 .GE.4PRONG
 .GE.7PRONG
 .GT.10PRONGS
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=3/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=UNSPEC, Y=-1 BARYON OF UNSPEC MASS
 C= Y=-1 BARYON OF UNSPEC MASS, I
 C= Y=-1 BARYON OF UNSPEC MASS, I
 C= Y=-1 BARYON OF UNSPEC MASS, I
 C= Y=-1 BARYON OF UNSPEC MASS, I
 C= I=1/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=1/2, Y=-1 BARYON OF UNSPEC MASS
 C= I=1/2, Y=-1 BARYON OF UNSPEC MASS
 XI(1530P13)-
 XI(1630)-
 XI(1820)-
 XI(1940)-
 XI(2030)-
 XI(2250)-
 XI(2500)-
 X1(1440)+ X1(1440)-
 X1(1795)+ X1(1795)-
 C= ANY MESON BUMP SEEN IN PRODUCTION EXPERIMENTS IN THAT MASS REGION (EXCEPT THOSE ASSOCIATED WITH J/PSI, ETC.)
 C= SEEN IN E+ E- ANNIHILATIONS
 C= I=2, Y=0 BARYON OF UNSPEC MASS, CHG
 C= I=2, Y=0 BARYON OF UNSPEC MASS
 C= Y=0 BARYON OF UNSPEC ISOSPIN AND MASS
 C= Y=0 BAYON OF UNSPEC ISOSPIN AND MASS
 C= Y=0 BARYON OF UNSPEC ISOSPIN AND MASS
 C= Y=0 BARYON OF UNSPEC ISOSPIN AND MASS
 C= EXOTIC I=0, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=0, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=0, Y=2 BARYON
 C= EXOTIC I=0, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=1, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=1, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=1, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=1, Y=2 BARYON
 C= EXOTIC I=UNSPEC, Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC Y=2 BARYON OF UNSPEC MASS
 C= EXOTIC Y=2 BARYON OF UNSPEC MASS, I
 C= USE FOR REACTIONS WITH NO CHARGED PARTICLES ORIGINATING FROM PRIMARY VTX. IGNORES OBSERVED OR UNOBSERVED VEES.
 C= ZERO OR MORE GAMMAS
 C= ZERO OR MORE HADRONS
 C= ZERO OR MORE NEUTRAL PARTICLES -- DO NOT USE FOR MM.GE.0
 C= 0 OR MORE PIOS
 C= GREATER THAN OR EQUAL TO 4 PRONGS
 C= GREATER THAN OR EQUAL TO 7 PRONGS
 C= MORE THAN 10 PRONGS