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LBL-91 Revised
April 1980

COMPILATION OF CURRENT HIGH-ENERGY-PHYSICS EXPERIMENTS

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MASTER

LAWRENCE BERKELEY LABORATORY
University of California

Prepared for the Department of Energy under contract W-7405-ENG-48

LBL-91
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UC-34

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Introduction

This is the third edition of our compilation of current high energy physics experiments. It is a collaborative effort of the Berkeley Particle Data Group, the SLAC library, and ten participating laboratories: Argonne (ANL), Brookhaven (BNL), CERN, DESY, Fermilab (FNAL), the Institute for Nuclear Study, Tokyo (INS), KEK, Rutherford (RHEL), Serpukhov (SERP), and SLAC.

The compilation includes summaries of all high energy physics experiments at the above laboratories that (1) were approved (and not subsequently withdrawn) before about January 1980, and (2) had not completed taking of data by 1 January 1976. We emphasize that only approved experiments are included.

The contents of the compilation are:

Summaries of experiments -- These are on the microfiche in the pocket at the front of the report. An example from the summaries, with some explanatory notes, follows this introduction.

Indices -- These follow the example. One index lists experiments by initial-state particles and beam momentum, in order of increasing particle mass and beam momentum. Another index lists experiments by spokesman.

Vocabularies -- These follow the indices, and give names and abbreviations used in the summaries. There are vocabularies for accelerators, detectors, particles, institutions, etc.

Beam lists -- These list beams for fixed-target experiments at Brookhaven, CERN, Fermilab, KEK, Serpukhov, and SLAC.

Anyone wanting more information about a particular experiment should contact the experiment's spokesman directly, not us. Although the original experimental proposals are sometimes available in libraries, there are often subsequent letters, revisions, and addenda, or simply informal arrangements with the powers that be, that extend the aims or shift the emphasis of an experiment. There are also often changes of collaborators on an experiment. We

try to keep up with such changes, but of course cannot entirely succeed. The spokesman is the authoritative source of information about an experiment.

We invite comments pointing out omissions, obscurities, out-of-date information, and outright errors. There are no doubt a number of each. Comments should be sent to:

Particle Data Group
Attn: PROPOSALS
Lawrence Berkeley Laboratory
Berkeley, CA 94720
USA

Requests for copies from the Americas, Australasia, and the Far East should go to the above address, while those from other areas should go to:

CERN Scientific Information Service
CH-1211 Geneva 23
Switzerland

The Berkeley Particle Data Center is supported by the General Science and Basic Research Division (High Energy Physics) of the US Department of Energy and by the National Science Foundation.

EXAMPLE FROM THE MICROFICHE

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*****************************************************************************

ANL-E-426 (14 JAN 1977); APPROVED 27 JAN 1977; STARTED AUG 1977; COMPLETED 3 JUL 1978.

PROPOSAL TO MEASURE 90-DEG C.M. PROTON-PROTON ELASTIC SCATTERING IN PURE INITIAL SPIN STATES
  FROM 2 TO 6 GEV/C

MICH -- K.ABE, R.C.FERNOW, A.D.KRISCH(SPOKESPERSON), T.A.MULERA, A.J.SALTHOUSE, B.SANDLER,
        K.M.TERWILLIGER
ANL  -- P.F.SCHULTZ, L.G.RATNER, J.R.O'FALLON
OXF  -- D.G.CRABB
NORD -- M.E.MIETTINEN
ABAD -- A.LIN

    ACCELERATOR=ANL; DETECTOR=DAS

    POLARIZED BEAM AND TARGET
    P P --> 2P                          2-6 GEV (PLAB)                    POL

    <EXPERIMENTAL COMMENT> USES APPARATUS OF ANL-E-421. RAN FOR 110 SHIFTS. MEASURES
      DIFFERENCE BETWEEN CROSS SECTIONS FOR INITIAL SPINS PARALLEL AND ANTI-PARALLEL, THE
      SPINS BEING ORIENTED PERPENDICULAR TO THE SCATTERING PLANE.
    <BIBLIOGRAPHIC COMMENT> SEE PHYS. LETTERS 74B (1978) 273.

*****************************************************************************

ANL-E-427 (17 JAN 1977); APPROVED 27 JAN 1977; COMPLETED 30 JUL 1979.

PROPOSAL TO STUDY EXCLUSIVE LAMBDA-PRODUCTION REACTIONS WITH THE ZGS POLARIZED PROTON BEAM

ANL  -- I.AMBATS, D.AYRES(SPOKESPERSON), D.COHEN, R.DIEBOLD, E.MAY, A.SNYDER, C.WARD,
        A.WICKLUND
ELMT,CNIC -- E.SWALLOW

    ACCELERATOR=ANL; DETECTOR=EMS

    POLARIZED BEAM
    P P --> P LAMBDA K+                 6, 12 GEV (PLAB)                  CS,ANGP,ANG,
                                                                          POL,ASYM
    P N --> N LAMBDA K+                 ''                                ''
    P N --> P LAMBDA K0                 ''                                ''

    N(UNSPEC)+          EX,MASS,W,QN

    <EXPERIMENTAL COMMENT> RAN FOR 205 SHIFTS. THE LAMBDA K0 P SAMPLE WILL BE MUCH SMALLER
      THAN THE OTHERS AND ONLY AT 12 GEV/C.

*****************************************************************************

ANL-E-428 (17 JAN 1977); APPROVED 27 JAN 1977; STARTED JUN 1977; COMPLETED 25 JUL 1977.

STUDY OF MESONS IN OMEGA PI-, OMEGA PI+ PI-, AND (4PI)- CHANNELS

CARL -- K.W.EDWARDS, D.LEGACEY
MCGI -- P.BROCKMAN, J.GANDSMAN, E.OHANESSIAN, P.M.PATEL
OSU  -- N.R.STANTON
TNTO -- J.BEAUFAYS, J.A.DANKOWYCH, A.J.PAWLICKI, J.D.PRENTICE, T.S.YOON(SPOKESPERSON)

    ACCELERATOR=ANL; DETECTOR=SPEC

    PI- P --> P PI+ PI0 2PI-            8.5 GEV (PLAB)
    PI- P --> P OMEGA PI-               ''
    PI- P --> N 2PI+ PI0 2PI-           ''
    PI- P --> N OMEGA PI+ PI-           ''

    B(1235)-            PW
    G(1700)-            PW
    A2(1310)0           PW
    MESON(UNSPEC)0      EX

    <EXPERIMENTAL COMMENT> RAN FOR 97 SHIFTS. RELATED TO ANL-E-420.

*****************************************************************************
```

EXPERIMENT NUMBER, DATE OF PROPOSAL (IN PARENTHESES), AND PROGRESS DATES.

INSTITUTIONS (SEE VOCABULARY FOR ABBREVIATIONS) AND AUTHORS, WITH SPOKESPERSON NOTED.

ACCELERATOR AND DETECTOR (SEE VOCABULARIES).

ADDITIONAL INFORMATION.

TITLE AND/OR DESCRIPTION (THE LATTER IN BRACKETS).

POLARIZATION INFORMATION (IF ANY).

REACTIONS TO BE STUDIED (SEE PARTICLE VOCABULARY), BEAM MOMENTUM OR OTHER KINEMATIC VARIABLE(S) (SEE VOCABULARY), AND REACTION-DATA DESCRIPTORS (SEE VOCABULARY).

PARTICLES AND PARTICLE PROPERTIES TO BE STUDIED (SEE VOCABULARIES).

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
GAMMA E-	?		SLAC-SP-007B
GAMMA P	?		DESY-115
GAMMA P		<1.3	INS-11-2
GAMMA P		<1.3	INS-13-2
GAMMA P		<1.3	INS-15-2
GAMMA P		<200.0	CERN-NA-014
GAMMA P	0.4	1.0	INS-12-2
GAMMA P	0.6	1.1	INS-15-1
GAMMA P	0.8	1.1	INS-14-1
GAMMA P	0.8	1.1	INS-15-4
GAMMA P	0.9	1.1	INS-14-3
GAMMA P	3.0	7.2	DESY-142
GAMMA P	3.0	7.2	DESY-145
GAMMA P	4.0	7.0	DESY-094
GAMMA P	5.5	6.5	DESY-136
GAMMA P	10.0	30.0	CERN-WA-004
GAMMA P	10.0	70.0	CERN-WA-004
GAMMA P	10.0	180.0	CERN-NA-001
GAMMA P	14.0	300.0	FNAL-025A
GAMMA P	20.0		SLAC-BC-072
GAMMA P	20.0		SLAC-BC-073
GAMMA P	20.0	60.0	FNAL-152B
GAMMA P	20.0	70.0	CERN-WA-057
GAMMA P	20.0	140.0	FNAL-612
GAMMA P	70.0	140.0	FNAL-516
GAMMA N	0.4	1.1	INS-14-4
GAMMA N	0.7	1.2	INS-12-1
GAMMA N	3.4	5.0	DESY-129
GAMMA DEUT	0.4	0.8	INS-15-3
GAMMA DEUT	0.4	0.6	INS-13-1
GAMMA DEUT	14.0	300.0	FNAL-025A
GAMMA BE	40.0	200.0	FNAL-401
GAMMA C	60.0		FNAL-025A
GAMMA C	170.0		FNAL-025A
GAMMA CU	60.0		FNAL-025A
GAMMA CU	170.0		FNAL-025A
GAMMA PB	60.0		FNAL-025A
GAMMA PB	170.0		FNAL-025A
GAMMA NUCLEUS	?		CERN-WA-004
GAMMA NUCLEUS	0.	300.0	FNAL-458
GAMMA NUCLEUS	0.4	0.6	INS-14-2
GAMMA NUCLEUS	0.4	0.8	INS-15-3
GAMMA NUCLEUS	0.8	1.1	INS-15-4
GAMMA NUCLEUS	10.0	180.0	CERN-NA-001
GAMMA NUCLEUS	20.0	60.0	FNAL-152B
GAMMA NUCLEUS	20.0	80.0	CERN-WA-034
GAMMA NUCLEUS	20.0	80.0	CERN-WA-045
GAMMA NUCLEUS	20.0	80.0	CERN-WA-058
GAMMA NUCLEUS	20.0	200.0	FNAL-087A
GAMMA NUCLEUS	100.0	300.0	FNAL-087A

MOMENTUM RANGES FOR NEUTRINO AND ANTINEUTRINO BEAMS ARE NOT DEFINED VERY SYSTEMATICALLY.

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
NUE E-	0.	260.0	CERN-WA-018
NUE E-	0.	400.0	FNAL-310
NUE E-	5.0	70.0	FNAL-045A
NUE E-	10.0	100.0	FNAL-253
NUE P	0.	150.0	CERN-WA-024
NUE P	0.	400.0	FNAL-310
NUE P	1.0	8.0	BNL-639
NUE P	5.0	70.0	FNAL-045A
NUE N	0.	400.0	FNAL-310
NUE N	1.0	8.0	BNL-639
NUE NUCLEUS	0.	150.0	CERN-WA-014
ANUE E-	0.	230.0	FNAL-594
ANUE E-	0.	260.0	CERN-WA-018
ANUE E-	10.0	100.0	FNAL-253
ANUE P	0.	400.0	FNAL-310
ANUE P	1.0	8.0	BNL-639
ANUE P	5.0	70.0	FNAL-045A
ANUE N	0.	400.0	FNAL-310
ANUE N	1.0	8.0	BNL-639
ANUE AL	2.0	30.0	SERP-E-045
NUMU E-	0.	12.0	BNL-613
NUMU E-	0.	12.0	BNL-734
NUMU E-	0.	150.0	CERN-WA-014
NUMU E-	0.	150.0	CERN-WA-021
NUMU E-	0.	230.0	FNAL-594
NUMU E-	0.	260.0	CERN-WA-018
NUMU E-	0.	400.0	FNAL-310
NUMU E-	2.0	30.0	SERP-E-045
NUMU E-	4.0		BNL-639
NUMU E-	5.0	70.0	FNAL-045A
NUMU E-	10.0		BNL-639
NUMU E-	10.0	100.0	FNAL-253
NUMU P	?		FNAL-247
NUMU P	0.	4.0	ANL-E-412
NUMU P	0.	10.0	BNL-427
NUMU P	0.	10.0	BNL-737
NUMU P	0.	12.0	BNL-613
NUMU P	0.	12.0	BNL-734
NUMU P	0.	150.0	CERN-WA-021
NUMU P	0.	150.0	CERN-WA-024
NUMU P	0.	150.0	CERN-WA-025
NUMU P	0.	200.0	FNAL-053A
NUMU P	0.	200.0	FNAL-545
NUMU P	0.	260.0	CERN-WA-001
NUMU P	0.	400.0	FNAL-310
NUMU P	1.0	8.0	BNL-639
NUMU P	2.0	3.5	BNL-693
NUMU P	3.0	5.0	BNL-693
NUMU P	4.0		BNL-639
NUMU P	5.0	70.0	FNAL-045A
NUMU P	10.0		BNL-639
NUMU P	28.0	43.0	FNAL-388
NUMU P	35.0	64.0	FNAL-388
NUMU P	50.0	150.0	FNAL-380
NUMU P	91.0	95.0	FNAL-388
NUMU P	131.0	143.0	FNAL-388
NUMU N	0.	0.2	BNL-704
NUMU N	0.	0.4	BNL-706
NUMU N	0.	4.0	ANL-E-412
NUMU N	0.	10.0	BNL-427
NUMU N	0.	10.0	BNL-737
NUMU N	0.	12.0	BNL-734
NUMU N	0.	150.0	CERN-WA-025
NUMU N	0.	200.0	FNAL-545
NUMU N	0.	230.0	FNAL-594
NUMU N	0.	400.0	FNAL-310
NUMU N	1.0	8.0	BNL-639
NUMU N	2.0	3.5	BNL-693
NUMU N	2.0	30.0	SERP-E-045
NUMU N	3.0	5.0	BNL-693
NUMU N	4.0		BNL-639
NUMU N	10.0		BNL-639
NUMU NUCLEON	0.	200.0	FNAL-545
NUMU DEUT	0.	10.0	BNL-427
NUMU DEUT	0.	10.0	BNL-737
NUMU DEUT	0.	260.0	CERN-WA-001
NUMU C12	0.	0.2	BNL-704
NUMU NE	0.	200.0	FNAL-053A
NUMU NE	28.0	43.0	FNAL-388
NUMU NE	35.0	64.0	FNAL-388
NUMU NE	50.0	150.0	FNAL-380
NUMU NE	91.0	95.0	FNAL-388
NUMU NE	131.0	143.0	FNAL-388
NUMU AL	2.0	30.0	SERP-E-045
NUMU FE	0.	260.0	CERN-WA-001
NUMU FE	2.0	30.0	SERP-E-045
NUMU PB	0.	200.0	CERN-WA-044
NUMU PB	0.	400.0	FNAL-310
NUMU NUCLEUS	?		FNAL-546
NUMU NUCLEUS	0.	150.0	CERN-WA-014
NUMU NUCLEUS	0.	150.0	CERN-WA-017
NUMU NUCLEUS	0.	200.0	FNAL-536
NUMU NUCLEUS	0.	200.0	FNAL-545
NUMU NUCLEUS	0.	230.0	FNAL-594
NUMU NUCLEUS	0.	240.0	CERN-WA-016
NUMU NUCLEUS	0.	260.0	CERN-WA-018
NUMU NUCLEUS	5.0	20.0	SERP-E-111
NUMU NUCLEUS	10.0	20.0	SERP-E-107
NUMU NUCLEUS	10.0	100.0	CERN-WA-059
NUMU NUCLEUS	10.0	100.0	FNAL-531
NUMU NUCLEUS	10.0	100.0	FNAL-564
NUMU NUCLEUS	10.0	200.0	CERN-WA-047
NUMU NUCLEUS	25.0		CERN-WA-022
NUMU NUCLEUS	25.0	250.0	FNAL-616
NUMU NUCLEUS	>60.0		FNAL-553
NUMU NUCLEUS	65.0		CERN-WA-022
NUMU NUCLEUS	>100.0		FNAL-482
NUMU NUCLEUS	200.0		CERN-WA-022
NUMU NUCLEUS	275.0		CERN-WA-019
NUMU	?		FNAL-356
ANUMU E-	0.	12.0	BNL-734
ANUMU E-	0.	200.0	FNAL-180
ANUMU E-	0.	230.0	FNAL-594
ANUMU E-	0.	260.0	CERN-WA-018
ANUMU E-	0.	400.0	FNAL-310
ANUMU E-	4.0		BNL-639
ANUMU E-	10.0		BNL-639
ANUMU E-	10.0	100.0	FNAL-253
ANUMU P	0.	12.0	BNL-734
ANUMU P	0.	100.0	FNAL-031A
ANUMU P	0.	130.0	FNAL-172
ANUMU P	0.	150.0	CERN-WA-021
ANUMU P	0.	150.0	CERN-WA-024
ANUMU P	0.	150.0	CERN-WA-025
ANUMU P	0.	200.0	FNAL-180
ANUMU P	0.	230.0	FNAL-594
ANUMU P	0.	260.0	CERN-WA-001

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
ANUMU N	0.	12.0	BNL-734
ANUMU N	0.	130.0	FNAL-172
ANUMU N	0.	150.0	CERN-WA-025
ANUMU N	0.	200.0	FNAL-180
ANUMU N	0.	400.0	FNAL-310
ANUMU N	1.0	8.0	BNL-639
ANUMU N	4.0		BNL-639
ANUMU N	10.0		BNL-639
ANUMU DEUT	0.	100.0	FNAL-390
ANUMU DEUT	0.	260.0	CERN-WA-001
ANUMU NE	0.	130.0	FNAL-172
ANUMU NE	0.	200.0	FNAL-180
ANUMU NE	28.0	43.0	FNAL-388
ANUMU NE	35.0	64.0	FNAL-388
ANUMU NE	50.0	150.0	FNAL-380
ANUMU NE	91.0	95.0	FNAL-388
ANUMU NE	131.0	143.0	FNAL-388
ANUMU AL	2.0	30.0	SERP-E-045
ANUMU FE	0.	260.0	CERN-WA-001
ANUMU FE	0.	260.0	CERN-WA-018
ANUMU FE	2.0	30.0	SERP-E-045
ANUMU NUCLEUS	?		FNAL-546
ANUMU NUCLEUS	0.	200.0	FNAL-536
ANUMU NUCLEUS	0.	230.0	FNAL-594
ANUMU NUCLEUS	0.	260.0	CERN-WA-018
ANUMU NUCLEUS	5.0	20.0	SERP-E-111
ANUMU NUCLEUS	10.0	20.0	SERP-E-107
ANUMU NUCLEUS	10.0	100.0	CERN-WA-059
ANUMU NUCLEUS	10.0	100.0	FNAL-531
ANUMU NUCLEUS	10.0	100.0	FNAL-564
ANUMU NUCLEUS	10.0	200.0	CERN-WA-047
ANUMU NUCLEUS	25.0	250.0	FNAL-616
ANUMU NUCLEUS	>60.0		FNAL-553
ANUMU NUCLEUS	>100.0		FNAL-482
ANUMU NUCLEUS	200.0		CERN-WA-019
ANUMU	?		FNAL-356
E- P	?		SLAC-E-122
E- P	?		SLAC-E-133
E- P	2.5		DESY-137
E- P	2.6	3.5	DESY-126
E- P	2.9	6.7	DESY-114
E- P	3.0		DESY-141
E- P	3.7		DESY-137
E- P	4.7		DESY-137
E- P	5.0		DESY-141
E- P	6.0		DESY-125
E- P	6.0		DESY-141
E- P	6.0	20.0	SLAC-E-080
E- P	6.4		DESY-137
E- P	6.7	7.0	DESY-137
E- P	7.0		DESY-141
E- P	12.9		SLAC-E-095
E- P	17.7		SLAC-E-095
E- P	19.3		SLAC-E-095
E- P	22.0		SLAC-E-130
E- N	?		SLAC-E-133
E- DEUT	?		SLAC-E-133
E- DEUT	3.0		DESY-141
E- DEUT	5.0		DESY-141
E- DEUT	6.0		DESY-141
E- DEUT	7.0		DESY-141
E- DEUT	22.0		SLAC-E-130
E- HE3	2.0	17.0	SLAC-E-121
E- HE	2.0	17.0	SLAC-E-121
E- BE	3.0		DESY-141
E- BE	5.0		DESY-141
E- BE	6.0		DESY-141
E- BE	7.0		DESY-141
E- SI	3.0		DESY-141
E- SI	5.0		DESY-141
E- SI	6.0		DESY-141
E- SI	7.0		DESY-141
E- W1	40.0	300.0	FNAL-510
E- PB	40.0	300.0	FNAL-510
E- PB	>100.0		FNAL-340
E- NUCLEUS	>100.0		FNAL-399
E-	>200.0		FNAL-498

FOR E^+E^- COLLIDING BEAM EXPERIMENTS, WE GIVE THE CENTER-OF-MASS (= LAB) MOMENTUM RATHER THAN THE EQUIVALENT LAB MOMENTUM FOR SCATTERING ON A STATIONARY TARGET.

E+ E-	7		DESY-138
E+ E-	?		SLAC-SP-007A
E+ E-	?		SLAC-SP-007B
E+ E-	7		SLAC-SP-025
E+ E-	?		SLAC-SP-026
E+ E-	1.0	1.5	DESY-119
E+ E-	1.5	3.0	SLAC-SP-028
E+ E-	1.5	4.0	SLAC-SP-029
E+ E-	1.5	4.2	SLAC-SP-024
E+ E-	1.5	4.2	SLAC-SP-030
E+ E-	1.5	4.3	DESY-144
E+ E-	1.6		SLAC-SP-027
E+ E-	>1.6		DESY-138
E+ E-	1.8	2.5	DESY-143
E+ E-	1.8		DESY-143
E+ E-	1.9		SLAC-SP-027
E+ E-	1.9	2.5	DESY-139
E+ E-	1.9	2.3	DESY-140
E+ E-	2.6		SLAC-SP-010
E+ E-	2.6	4.3	SLAC-SP-017
E+ E-	3.8		SLAC-SP-010
E+ E-	3.8		SLAC-SP-014
E+ E-	3.8		SLAC-SP-019
E+ E-	4.0	18.0	SLAC-PEP-002
E+ E-	4.0	18.0	SLAC-PEP-004
E+ E-	4.0	18.0	SLAC-PEP-005
E+ E-	4.0	18.0	SLAC-PEP-006
E+ E-	4.0	18.0	SLAC-PEP-009
E+ E-	4.0	18.0	SLAC-PEP-012
E+ E-	4.0	18.0	SLAC-PEP-014
E+ E-	4.0	18.0	SLAC-PEP-018
E+ E-	4.0	18.0	SLAC-PEP-020
E+ E-	4.5	5.0	DESY-ARGUS
E+ E-	4.7	5.1	DESY-LENA
E+ E-	4.7	5.1	DESY-147
E+ E-	5.0	15.0	DESY-PETRA-CELLO
E+ E-	5.0	15.0	DESY-PETRA-JADE
E+ E-	5.0	15.0	DESY-PETRA-MARKJ
E+ E-	5.0	15.0	DESY-PETRA-PLUTO
E+ E-	5.0	15.0	DESY-PETRA-TASSO
MU- P	100.0	250.0	CERN-NA-002
MU- P	100.0	250.0	CERN-NA-009
MU- P	225.0		FNAL-398
MU- DEUT	225.0		FNAL-398
MU- HE	0.		BNL-745
MU- BE	12.0		BNL-632
MU- BE	150.0		FNAL-448
MU- FE	90.0		FNAL-319
MU- FE	150.0		FNAL-319
MU- FE	240.0		FNAL-319
MU- CU	12.0		BNL-632
MU- CU	150.0		FNAL-448
MU- PB	12.0		BNL-632
MU- PB	150.0		FNAL-448
MU- NUCLEUS	12.0		BNL-632
MU- NUCLEUS	100.0	250.0	CERN-NA-004
MU+ LI	75.0		FNAL-501
MU+ LI	150.0		FNAL-501
MU+ LI	250.0		FNAL-501
MU+ BE	12.0		BNL-632
MU+ CL37	75.0		FNAL-501
MU+ CL37	150.0		FNAL-501
MU+ CL37	250.0		FNAL-501
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+ GA	75.0		FNAL-501
MU+ GA	150.0		FNAL-501
MU+ GA	250.0		FNAL-501
MU+ PB	12.0		BNL-632
MU+ NUCLEUS	12.0		BNL-632
MU+ NUCLEUS	200.0		FNAL-509
MUON NUCLEUS	90.0	240.0	FNAL-467
MUON NUCLEUS	200.0		FNAL-424
PION E-	300.0		CERN-NA-007
PION NUCLEUS	?		CERN-NA-019
PI+ PI-	5.7E-02	8.2	ANL-E-400
PI+ PI-	10.0		SLAC-E-128
PI+ P	?		FNAL-236A
PI+ P	1.5	2.6	CERN-PS-160
PI+ P	1.5	2.6	RHEL-193
PI+ P	2.0	8.0	ANL-E-365
PI+ P	>4.0		BNL-596
PI+ P	5.0	20.0	SERP-E-102
PI+ P	6.0	10.0	BNL-594
PI+ P	6.7		SLAC-BC-060
PI+ P	8.0		ANL-E-400
PI+ P	8.0		ANL-E-436
PI+ P	10.0		BNL-716
PI+ P	10.0		CERN-PS-131
PI+ P	10.0		SLAC-E-128
PI+ P	10.0	15.0	BNL-726
PI+ P	10.0	100.0	FNAL-290

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
PI+ P	12.0		SLAC-BC-059
PI+ P	13.0		SLAC-BC-061
PI+ P	16.0		SLAC-BC-067
PI+ P	16.0		SLAC-E-131
PI+ P	17.0		SLAC-E-123A
PI+ P	17.0		SLAC-E-123B
PI+ P	18.0		SLAC-BC-065
PI+ P	20.0		CERN-WA-010
PI+ P	20.0		CERN-WA-056
PI+ P	20.0	120.0	FNAL-099
PI+ P	20.0	500.0	FNAL-104
PI+ P	25.0	200.0	FNAL-396
PI+ P	30.0		CERN-WA-003
PI+ P	40.0		CERN-WA-010
PI+ P	40.0		FNAL-324
PI+ P	50.0		FNAL-061
PI+ P	50.0		FNAL-110A
PI+ P	50.0		FNAL-118A
PI+ P	50.0	140.0	CERN-WA-008
PI+ P	50.0	200.0	CERN-WA-006
PI+ P	50.0	200.0	FNAL-069A
PI+ P	55.0		CERN-WA-003
PI+ P	80.0		CERN-WA-003
PI+ P	80.0		CERN-WA-009
PI+ P	80.0		CERN-WA-010
PI+ P	80.0		FNAL-324
PI+ P	100.0		FNAL-061
PI+ P	100.0		FNAL-110A
PI+ P	100.0		FNAL-118A
PI+ P	100.0		FNAL-268
PI+ P	100.0		FNAL-350
PI+ P	100.0		FNAL-597
PI+ P	100.0	350.0	FNAL-258
PI+ P	150.0		FNAL-061
PI+ P	150.0		FNAL-118A
PI+ P	150.0		FNAL-268
PI+ P	150.0		FNAL-299
PI+ P	150.0		FNAL-331
PI+ P	160.0		FNAL-324
PI+ P	200.0		FNAL-110A
PI+ P	200.0		FNAL-260
PI+ P	200.0		FNAL-268
PI+ P	200.0		FNAL-369
PI+ P	200.0		FNAL-395
PI+ P	200.0		FNAL-557
PI+ P	200.0		FNAL-570
PI+ P	200.0		FNAL-577
PI+ P	200.0	400.0	CERN-WA-005
PI+ P	300.0		FNAL-395
PI+ P	300.0		FNAL-557
PI+ P	400.0		FNAL-557
PI+ P	400.0		FNAL-609
PI+ N	5.0	20.0	SERP-E-102
PI+ N	10.0		SLAC-E-128
PI+ N	20.0		CERN-WA-056
PI+ N	150.0		FNAL-331
PI+ NUCLEON	10.0		SLAC-E-128
PI+ DEUT	5.0	20.0	SERP-E-091
PI+ DEUT	10.0		SLAC-E-128
PI+ DEUT	20.0	500.0	FNAL-104
PI+ DEUT	25.0	200.0	FNAL-396
PI+ DEUT	50.0		FNAL-118A
PI+ DEUT	100.0		FNAL-118A
PI+ DEUT	100.0		FNAL-194
PI+ DEUT	150.0		FNAL-118A
PI+ C	0.2		FNAL-444
PI+ NE	25.0		CERN-WA-051
PI+ NE	60.0		CERN-WA-051
PI+ MG	100.0		FNAL-597
PI+ TA	5.0		KEK-053
PI+ AU	100.0		FNAL-597
PI+ NUCLEUS	?		BNL-694
PI+ NUCLEUS	?		FNAL-379
PI+ NUCLEUS	20.0		CERN-WA-035
PI+ NUCLEUS	40.0		CERN-WA-035
PI+ NUCLEUS	40.0		CERN-WA-039
PI+ NUCLEUS	75.0		FNAL-615
PI+ NUCLEUS	100.0		FNAL-451
PI+ NUCLEUS	100.0	300.0	CERN-WA-010
PI+ NUCLEUS	100.0	350.0	FNAL-258
PI+ NUCLEUS	200.0		FNAL-565
PI+ NUCLEUS	250.0		FNAL-615
PI+	2.0	20.0	CERN-PS-164
PI+	3.0	15.0	CERN-PS-150
PIO	?		SERP-E-119
PI- P	?		FNAL-236A
PI- P	?		SERP-E-105
PI- P	?		SERP-E-134
PI- P	1.0	2.1	RHEL-166
PI- P	1.4	2.0	RHEL-114
PI- P	1.8	3.0	KEK-019
PI- P	2.0	4.0	KEK-021
PI- P	2.0	8.0	BNL-E-365
PI- P	3.5		KEK-063
PI- P	4.0		BNL-698
PI- P	4.0		CERN-T-227
PI- P	4.0		KEK-063
PI- P	>4.0		BNL-596
PI- P	5.0	15.0	CERN-PS-153
PI- P	5.0	15.0	CERN-PS-157
PI- P	5.0	20.0	SERP-E-091
PI- P	6.0		KEK-006
PI- P	6.0		KEK-012
PI- P	6.0	10.0	BNL-594
PI- P	8.0		BNL-698
PI- P	8.0		BNL-715
PI- P	8.2	9.5	ANL-E-411
PI- P	8.5		ANL-E-397
PI- P	8.5		ANL-E-420
PI- P	8.5		ANL-E-428
PI- P	10.0		CERN-PS-131
PI- P	10.0		SLAC-E-127
PI- P	10.0	15.0	BNL-726
PI- P	10.0	100.0	FNAL-290
PI- P	12.0		SLAC-E-123A
PI- P	12.0		SLAC-E-123B
PI- P	13.0		BNL-732
PI- P	13.0		SERP-E-116
PI- P	16.0		CERN-WA-040
PI- P	16.0		SLAC-E-127
PI- P	17.0		SLAC-E-123A
PI- P	17.0		SLAC-E-123B
PI- P	18.0		SLAC-BC-065
PI- P	20.0		BNL-686
PI- P	20.0		BNL-688
PI- P	20.0		BNL-705
PI- P	20.0		CERN-WA-007
PI- P	20.0		CERN-WA-010
PI- P	20.0	25.0	BNL-679
PI- P	20.0	500.0	FNAL-104
PI- P	24.0		BNL-682
PI- P	25.0		SERP-E-116
PI- P	25.0	40.0	SERP-E-094
PI- P	25.0	200.0	FNAL-396
PI- P	30.0		CERN-WA-003
PI- P	30.0	140.0	CERN-WA-009
PI- P	40.0		CERN-WA-007
PI- P	40.0		CERN-WA-010
PI- P	40.0		FNAL-324
PI- P	40.0		SERP-E-040
PI- P	40.0		SERP-E-112
PI- P	40.0		SERP-E-116
PI- P	40.0	55.0	SERP-E-135
PI- P	50.0		FNAL-061
PI- P	50.0		FNAL-110A
PI- P	50.0	200.0	CERN-WA-006
PI- P	50.0	200.0	FNAL-069A
PI- P	55.0		CERN-WA-003
PI- P	60.0		CERN-WA-007
PI- P	70.0		CERN-WA-030
PI- P	80.0		CERN-WA-003
PI- P	80.0		CERN-WA-007
PI- P	80.0		CERN-WA-010
PI- P	80.0		FNAL-324
PI- P	100.0		FNAL-061
PI- P	100.0		FNAL-083A
PI- P	100.0		FNAL-110A
PI- P	100.0		FNAL-268
PI- P	100.0		FNAL-350
PI- P	100.0		FNAL-597
PI- P	100.0	200.0	CERN-WA-011
PI- P	100.0	350.0	FNAL-258
PI- P	140.0		CERN-WA-011
PI- P	150.0		FNAL-061
PI- P	150.0		FNAL-268
PI- P	150.0		FNAL-299
PI- P	150.0		FNAL-331
PI- P	150.0	300.0	CERN-WA-008
PI- P	160.0		FNAL-324
PI- P	200.0		FNAL-069
PI- P	200.0		FNAL-110A
PI- P	200.0		FNAL-260
PI- P	200.0		FNAL-268
PI- P	200.0		FNAL-350
PI- P	200.0		FNAL-369
PI- P	200.0		FNAL-557

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
PI- P	200.0		FNAL-570
PI- P	200.0		FNAL-577
PI- P	200.0	400.0	CERN-NA-005
PI- P	300.0		CERN-NA-012
PI- P	300.0		FNAL-557
PI- P	300.0		FNAL-580
PI- P	350.0		CERN-NA-013
PI- P	360.0		FNAL-384
PI- P	360.0		FNAL-597
PI- P	370.0		CERN-NA-016
PI- P	400.0		FNAL-557
PI- N	150.0		FNAL-331
PI- N	200.0		FNAL-338
PI- N	400.0		FNAL-338
PI- DEUT	5.0	20.0	SERP-E-091
PI- DEUT	20.0	500.0	FNAL-104
PI- DEUT	25.0	200.0	FNAL-396
PI- DEUT	50.0	300.0	CERN-NA-008
PI- DEUT	200.0		FNAL-338
PI- DEUT	400.0		FNAL-338
PI- HE	5.0		CERN-PS-143
PI- HE	50.0	200.0	FNAL-086A
PI- HE	50.0	300.0	CERN-NA-008
PI- BE	25.0		SERP-E-080
PI- BE	40.0		SERP-E-080
PI- BE	200.0		FNAL-326
PI- BE	225.0		FNAL-610
PI- C	0.2		FNAL-444
PI- C	16.0		BNL-687
PI- C	24.0		BNL-687
PI- C	25.0		BNL-647
PI- C	25.0		SERP-E-080
PI- C	40.0		SERP-E-080
PI- C12	25.0		SERP-E-080
PI- C12	40.0		SERP-E-080
PI- NE	25.0		CERN-WA-051
PI- NE	60.0		CERN-WA-051
PI- NE	200.0		FNAL-089
PI- MG	100.0		FNAL-597
PI- MG	360.0		FNAL-597
PI- AL	25.0		SERP-E-080
PI- AL	40.0		SERP-E-080
PI- SI	25.0		SERP-E-080
PI- SI	40.0		SERP-E-080
PI- TI	25.0		SERP-E-080
PI- TI	40.0		SERP-E-080
PI- CR	300.0		FNAL-525
PI- CU	16.0		BNL-687
PI- CU	24.0		BNL-687
PI- CU	25.0		SERP-E-080
PI- CU	25.0	80.0	CERN-WA-012
PI- CU	40.0		SERP-E-080
PI- CU	200.0		FNAL-415
PI- AG	25.0		SERP-E-080
PI- AG	40.0		SERP-E-080
PI- AG	300.0		FNAL-525
PI- TA	5.0		KEK-053
PI- TA	25.0		SERP-E-080
PI- TA	40.0		SERP-E-080
PI- WT	16.0		BNL-687
PI- WT	24.0		BNL-687
PI- WT	300.0		FNAL-525
PI- AU	100.0		FNAL-597
PI- AU	360.0		FNAL-597
PI- PB	25.0		SERP-E-080
PI- PB	40.0		SERP-E-080
PI- NUCLEUS	?		BNL-694
PI- NUCLEUS	?		FNAL-379
PI- NUCLEUS	20.0		CERN-WA-035
PI- NUCLEUS	40.0		CERN-WA-035
PI- NUCLEUS	40.0		CERN-WA-039
PI- NUCLEUS	40.0	55.0	SERP-E-135
PI- NUCLEUS	75.0		FNAL-615
PI- NUCLEUS	100.0	300.0	CERN-NA-010
PI- NUCLEUS	100.0	350.0	FNAL-258
PI- NUCLEUS	150.0		FNAL-272
PI- NUCLEUS	200.0		FNAL-490
PI- NUCLEUS	200.0		FNAL-515
PI- NUCLEUS	200.0		FNAL-565
PI- NUCLEUS	250.0		FNAL-615
PI- NUCLEUS	300.0		FNAL-272
PI- NUCLEUS	300.0		FNAL-481
PI- NUCLEUS	300.0		FNAL-503
PI- NUCLEUS	300.0		FNAL-506
PI- NUCLEUS	300.0		FNAL-568
PI- NUCLEUS	300.0		FNAL-573
PI- NUCLEUS	300.0		FNAL-574
PI- NUCLEUS	300.0		FNAL-595

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
PI- NUCLEUS	>300.0		CERN-NA-015
PI- NUCLEUS	340.0		CERN-WA-061
PI-	?		SERP-E-115
PI-	2.0	20.0	CERN-PS-164
PI-	3.0	15.0	CERN-PS-150
K+ P	?		FNAL-236A
K+ P	0.5	1.1	BNL-691
K+ P	2.0	8.0	ANL-E-365
K+ P	4.0	6.0	BNL-596
K+ P	6.0	10.0	BNL-594
K+ P	10.0		CERN-PS-131
K+ P	11.0		SLAC-E-135
K+ P	12.0		CERN-WA-055
K+ P	16.0		CERN-WA-048
K+ P	20.0		CERN-WA-010
K+ P	20.0	500.0	FNAL-104
K+ P	25.0	200.0	FNAL-396
K+ P	32.0		SERP-E-133
K+ P	40.0		CERN-WA-010
K+ P	40.0		FNAL-324
K+ P	50.0		FNAL-110A
K+ P	50.0		FNAL-118A
K+ P	50.0	140.0	CERN-NA-008
K+ P	50.0	200.0	CERN-WA-006
K+ P	50.0	200.0	FNAL-069A
K+ P	70.0		CERN-WA-027
K+ P	80.0		CERN-WA-009
K+ P	80.0		CERN-WA-010
K+ P	80.0		FNAL-324
K+ P	100.0		FNAL-110A
K+ P	100.0		FNAL-118A
K+ P	100.0		FNAL-350
K+ P	100.0		FNAL-597
K+ P	150.0		FNAL-118A
K+ P	150.0		FNAL-299
K+ P	150.0		FNAL-331
K+ P	160.0		FNAL-324
K+ P	200.0		FNAL-110A
K+ P	200.0		FNAL-557
K+ P	200.0		FNAL-570
K+ P	200.0		FNAL-577
K+ P	200.0	400.0	CERN-NA-005
K+ P	300.0		FNAL-557
K+ P	400.0		FNAL-557
K+ N	0.7	0.9	BNL-641
K+ N	0.7	1.4	RHEL-'36
K+ N	1.3		KEK-034
K+ N	1.6		KEK-034
K+ N	1.9		KEK-034
K+ N	5.0	20.0	SERP-E-091
K+ N	5.0	20.0	SERP-E-102
K+ N	6.0		CERN-PS-137
K+ N	75.0		FNAL-585
K+ N	100.0		FNAL-585
K+ N	150.0		FNAL-331
K+ N	150.0		FNAL-585
K+ DEUT	5.0	20.0	SERP-E-091
K+ DEUT	20.0	500.0	FNAL-104
K+ DEUT	25.0	200.0	FNAL-396
K+ DEUT	50.0		FNAL-118A
K+ DEUT	100.0		FNAL-118A
K+ DEUT	150.0		FNAL-118A
K+ MG	100.0		FNAL-597
K+ AU	100.0		FNAL-597
K+ NUCLEUS	?		BNL-694
K+ NUCLEUS	?		FNAL-379
K+ NUCLEUS	20.0		CERN-WA-035
K+ NUCLEUS	40.0		CERN-WA-035
K+ NUCLEUS	40.0		CERN-WA-039
K+ NUCLEUS	70.0		CERN-WA-061
K+ NUCLEUS	100.0		FNAL-451
K+	0.5	0.7	KEK-010
K+	2.0	20.0	CERN-PS-164
K+	3.0	15.0	CERN-PS-150
K+	4.0		BNL-735
KO	?		BNL-749
KO	6.0	16.0	BNL-615
KL E-	?		FNAL-226
KL P	?		FNAL-425
KL AL	30.0	150.0	FNAL-486
KL CU	8.0	20.0	SLAC-E-119
KL CU	30.0	150.0	FNAL-486
KL SN	30.0	150.0	FNAL-486
KL PB	30.0	150.0	FNAL-486
KL NUCLEUS	?		FNAL-226
KL	0.	3.0	BNL-696
KL	1.0	4.0	RHEL-168
KL	2.0	6.0	ANL-E-333

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
KL	30.0	200.0	FNAL-617
KL	50.0	150.0	FNAL-533
AKO	6.0	16.0	BNL-615
K- E-	250.0		FNAL-456
K- P	?		FNAL-236A
K- P	0.		BNL-643
K- P	0.		CERN-PS-151
K- P	0.		CERN-PS-165
K- P	0.		RHEL-181
K- P	0.4		ANL-E-347
K- P	0.5	1.0	BNL-634
K- P	0.5	1.1	BNL-691
K- P	0.7		BNL-702
K- P	0.7	1.4	RHEL-136
K- P	1.2	1.9	RHEL-120
K- P	1.3		KEK-034
K- P	1.6		KEK-034
K- P	1.9		KEK-034
K- P	2.0		BNL-698
K- P	2.0	8.0	ANL-E-365
K- P	3.0		BNL-593
K- P	4.0		BNL-673
K- P	4.0	6.0	BNL-596
K- P	4.6		BNL-593
K- P	5.0		BNL-673
K- P	5.0	20.0	SERP-E-091
K- P	6.0		CERN-PS-140
K- P	6.0	10.0	BNL-594
K- P	6.5		ANL-E-289-292
K- P	6.7		SLAC-BC-060
K- P	7.0	9.0	SLAC-BC-061
K- P	8.2		CERN-T-209
K- P	10.0		CERN-PS-131
K- P	10.0		SLAC-E-127
K- P	11.0		SLAC-E-132
K- P	11.0		SLAC-E-135
K- P	12.0		CERN-WA-049
K- P	12.0		SLAC-BC-059
K- P	13.0		SERP-E-116
K- P	16.0		CERN-WA-049
K- P	18.5		CERN-WA-060
K- P	20.0		CERN-WA-007
K- P	20.0		CERN-WA-010
K- P	20.0	150.0	FNAL-383
K- P	20.0	500.0	FNAL-104
K- P	25.0		SERP-E-116
K- P	25.0	200.0	FNAL-396
K- P	30.0		CERN-WA-003
K- P	30.0	140.0	CERN-WA-009
K- P	32.0		SERP-E-077
K- P	40.0		CERN-WA-007
K- P	40.0		CERN-WA-010
K- P	40.0		FNAL-324
K- P	40.0		SERP-E-112
K- P	40.0		SERP-E-116
K- P	40.0	55.0	SERP-E-135
K- P	50.0		FNAL-110A
K- P	50.0	200.0	CERN-WA-006
K- P	50.0	200.0	FNAL-069A
K- P	55.0		CERN-WA-003
K- P	60.0		CERN-WA-007
K- P	70.0		CERN-WA-026
K- P	75.0		FNAL-585
K- P	80.0		CERN-WA-003
K- P	80.0		CERN-WA-007
K- P	80.0		CERN-WA-010
K- P	80.0		FNAL-324
K- P	100.0		FNAL-083A
K- P	100.0		FNAL-110A
K- P	100.0		FNAL-350
K- P	100.0		FNAL-585
K- P	110.0		CERN-WA-028
K- P	150.0		FNAL-299
K- P	150.0		FNAL-331
K- P	150.0		FNAL-585
K- P	150.0	300.0	CERN-WA-008
K- P	160.0		FNAL-324
K- P	200.0		FNAL-110A
K- P	200.0		FNAL-557
K- P	200.0		FNAL-577
K- P	200.0	400.0	CERN-WA-005
K- P	300.0		FNAL-557
K- P	400.0		FNAL-557
K- N	150.0		FNAL-331
K- DEUT	?		BNL-726
K- DEUT	0.		BNL-643
K- DEUT	1.4		CERN-PS-159
K- DEUT	5.0	20.0	SERP-E-091
K- DEUT	20.0	500.0	FNAL-104
K- DEUT	25.0	200.0	FNAL-396
K- HE	0.		BNL-643
K- BE	0.6		BNL-664
K- BE	25.0		SERP-E-080
K- BE	40.0		SERP-E-080
K- C	0.2		FNAL-444
K- C	0.6		BNL-664
K- C	0.8		BNL-692
K- C	25.0		SERP-E-080
K- C	40.0		SERP-E-080
K- O	0.7		BNL-752
K- AL	25.0		SERP-E-080
K- AL	40.0		SERP-E-080
K- SI	25.0		SERP-E-080
K- SI	40.0		SERP-E-080
K- CA	0.8		BNL-692
K- TI	25.0		SERP-E-080
K- TI	40.0		SERP-E-080
K- CU	25.0		SERP-E-080
K- CU	40.0		SERP-E-080
K- AG	25.0		SERP-E-080
K- AG	40.0		SERP-E-080
K- TA	25.0		SERP-E-080
K- TA	40.0		SERP-E-080
K- PB	25.0		SERP-E-080
K- PB	40.0		SERP-E-080
K- NUCLEUS	?		BNL-694
K- NUCLEUS	?		FNAL-379
K- NUCLEUS	0.		CERN-PS-152
K- NUCLEUS	0.		RHEL-113
K- NUCLEUS	0.5		CERN-PS-166
K- NUCLEUS	0.6		BNL-646
K- NUCLEUS	0.7		CERN-PS-154
K- NUCLEUS	0.8		BNL-646
K- NUCLEUS	0.8		BNL-746
K- NUCLEUS	20.0		CERN-WA-035
K- NUCLEUS	40.0		CERN-WA-035
K- NUCLEUS	40.0		CERN-WA-039
K- NUCLEUS	40.0	55.0	SERP-E-135
K- NUCLEUS	70.0		CERN-WA-061
K- NUCLEUS	150.0		FNAL-272
K- NUCLEUS	300.0		FNAL-272
K-	?		SERP-E-115
K-	2.0	20.0	CERN-PS-164
K-	3.0	15.0	CERN-PS-150
KAON E-	300.0		CERN-NA-007

PROTON-PROTON COLLIDING BEAM EXPERIMENTS AT THE CERN-ISR ARE ORDERED BY THE EQUIVALENT LAB MOMENTUM FOR SCATTERING ON A STATIONARY TARGET RATHER THAN BY THE ACTUAL LAB (= CENTER-OF-MASS) MOMENTUM.

P P	?		CERN-R-107
P P	?		CERN-R-207
P P	?		CERN-R-301
P P	?		CERN-R-410-413
P P	?		CERN-R-414
P P	?		FNAL-236A
P P	?		FNAL-321
P P	?		FNAL-357
P P	?		FNAL-472
P P	0.8	2.0	KEK-057
P P	0.9	2.5	ANL-E-450
P P	1.0		ANL-E-434
P P	1.0	3.0	ANL-E-395
P P	1.0		ANL-E-433
P P	1.1		ANL-E-434
P P	1.1		ANL-E-433
P P	1.2		ANL-E-416
P P	1.2		ANL-E-434
P P	1.3		ANL-E-434
P P	1.3		ANL-E-433
P P	1.5		ANL-E-416
P P	1.5		ANL-E-434
P P	1.5	2.0	ANL-E-462
P P	1.6		ANL-E-434
P P	1.7		ANL-E-434
P P	1.7		ANL-E-433
P P	1.7		ANL-E-437
P P	1.9		ANL-E-476
P P	2.0		ANL-E-402
P P	2.0		ANL-E-418
P P	2.0		ANL-E-425
P P	2.0	6.0	ANL-E-426
P P	2.0	8.0	ANL-E-365
P P	2.3		ANL-E-433
P P	2.5		ANL-E-416
P P	2.7		ANL-E-447
P P	2.9		ANL-E-447
P P	3.0		ANL-E-402
P P	3.0		ANL-E-416

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
P P	3.0		ANL-E-418
P P	3.0		ANL-E-425
P P	3.2		ANL-E-447
P P	3.5		ANL-E-447
P P	3.7		ANL-E-447
P P	4.0		ANL-E-402
P P	4.0		ANL-E-415
P P	4.0		ANL-E-416
P P	4.0		ANL-E-418
P P	4.0		ANL-E-447
P P	5.0		ANL-E-447
P P	5.0		BNL-703
P P	5.6		BNL-722
P P	6.0		ANL-E-367
P P	6.0		ANL-E-399
P P	6.0		ANL-E-401
P P	6.0		ANL-E-402
P P	6.0		ANL-E-407
P P	6.0		ANL-E-416
P P	6.0		ANL-E-418
P P	6.0		ANL-E-419
P P	6.0		ANL-E-425
P P	6.0		ANL-E-427
P P	6.0		ANL-E-431
P P	6.0		ANL-E-439
P P	6.0		ANL-E-444
P P	6.0		ANL-E-446
P P	6.0		ANL-E-451
P P	6.0		ANL-E-453
P P	6.0	12.0	ANL-E-432
P P	6.0	12.0	ANL-E-434
P P	7.0	500.0	FNAL-198A
P P	8.0		ANL-E-415
P P	8.0		ANL-E-418
P P	8.0		KEK-050
P P	8.0	400.0	FNAL-381
P P	9.0		SLAC-BC-064
P P	10.0		CERN-PS-131
P P	11.7		ANL-E-421
P P	11.7		ANL-E-435
P P	11.7		ANL-E-438
P P	11.7		ANL-E-439
P P	11.7		ANL-E-452
P P	11.7		ANL-E-458
P P	12.0		ANL-E-367
P P	12.0		ANL-E-391
P P	12.0		ANL-E-399
P P	12.0		ANL-E-408
P P	12.0		ANL-E-415
P P	12.0		ANL-E-418
P P	12.0		ANL-E-427
P P	12.0		ANL-E-434
P P	12.0		ANL-E-441
P P	12.0		ANL-E-445
P P	12.0		ANL-E-451
P P	12.0		CERN-WA-055
P P	12.7		ANL-E-452
P P	15.0		BNL-748
P P	20.0		BNL-717
P P	20.0		BNL-748
P P	20.0		CERN-WA-007
P P	20.0		CERN-WA-010
P P	20.0	500.0	FNAL-104
P P	23.0		BNL-748
P P	24.0		BNL-717
P P	24.0		CERN-PS-141
P P	25.0	200.0	FNAL-396
P P	26.0		BNL-748
P P	28.5		BNL-748
P P	30.0	300.0	FNAL-552
P P	30.0	400.0	FNAL-313
P P	40.0		CERN-WA-007
P P	40.0		CERN-WA-010
P P	40.0		FNAL-324
P P	50.0		FNAL-061
P P	50.0		FNAL-110A
P P	50.0		FNAL-118A
P P	50.0	140.0	CERN-WA-008
P P	50.0	200.0	CERN-WA-006
P P	50.0	200.0	FNAL-069A
P P	50.0	400.0	FNAL-522
P P	60.0		CERN-WA-007
P P	70.0		SERP-E-100
P P	80.0		CERN-WA-007
P P	80.0		CERN-WA-009
P P	80.0		CERN-WA-010
P P	80.0		FNAL-324
P P	100.0		FNAL-061
P P	100.0		FNAL-110A

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
P P	100.0		FNAL-118A
P P	100.0		FNAL-284
P P	100.0		FNAL-300
P P	100.0		FNAL-350
P P	100.0		FNAL-597
P P	100.0	340.0	FNAL-581
P P	100.0	500.0	FNAL-095A
P P	150.0		FNAL-061
P P	150.0		FNAL-118A
P P	150.0		FNAL-299
P P	150.0		FNAL-331
P P	160.0		FNAL-324
P P	200.0		FNAL-110A
P P	200.0		FNAL-177A
P P	200.0		FNAL-260.
P P	200.0		FNAL-284
P P	200.0		FNAL-300
P P	200.0		FNAL-369
P P	200.0		FNAL-395
P P	200.0		FNAL-557
P P	200.0		FNAL-570
P P	200.0	400.0	CERN-NA-005
P P	250.0		FNAL-118A
P P	257.0	2047.5	CERN-R-209
P P	257.0	2047.5	CERN-R-401
P P	257.0	2047.5	CERN-R-415
P P	257.0	2047.5	CERN-R-416
P P	257.0	2047.5	CERN-R-807
P P	281.0		CERN-R-411
P P	281.0	2114.1	CERN-R-702
P P	293.3		CERN-R-108
P P	293.3	2094.0	CERN-R-210
P P	300.0		FNAL-209
P P	300.0		FNAL-268
P P	300.0		FNAL-284
P P	300.0		FNAL-300
P P	300.0		FNAL-343
P P	300.0		FNAL-395
P P	300.0		FNAL-404
P P	300.0		FNAL-557
P P	400.0		FNAL-177A
P P	400.0		FNAL-284
P P	400.0		FNAL-300
P P	400.0		FNAL-404
P P	400.0		FNAL-441
P P	400.0		FNAL-557
P P	400.0		FNAL-609
P P	430.0		CERN-NA-016
P P	478.7	2047.5	CERN-R-110
P P	478.7	2047.5	CERN-R-211
P P	478.7	2047.5	CERN-R-501
P P	478.7	2047.5	CERN-R-607
P P	478.7	2047.5	CERN-R-806
P P	480.5		CERN-R-805
P P	496.0		CERN-R-108
P P	500.0		FNAL-300
P P	511.2		CERN-R-411
P P	1030.7		CERN-R-109
P P	1032.6		CERN-R-805
P P	1068.6		CERN-R-108
P P	1078.2		CERN-R-411
P P	1440.0		CERN-R-109
P P	1441.8		CERN-R-606
P P	1441.8		CERN-R-805
P P	1479.1		CERN-R-108
P P	1495.9		CERN-R-208
P P	1495.9		CERN-R-411
P P	2047.5		CERN-R-109
P P	2047.5		CERN-R-608
P P	2049.3		CERN-R-805
P P	2074.0		CERN-R-108
P P	2114.1		CERN-R-411
P P	1.6E+05		CERN-R-703
P N	1.0	3.0	ANL-E-460
P N	1.0	12.0	ANL-E-449
P N	1.7		ANL-E-437
P N	2.0		ANL-E-418
P N	3.0		ANL-E-418
P N	4.0		ANL-E-418
P N	6.0		ANL-E-418
P N	6.0		ANL-E-427
P N	6.0		ANL-E-433
P N	8.0	400.0	FNAL-381
P N	12.0		ANL-E-391
P N	12.0		ANL-E-427
P N	24.0		CERN-PS-156
P N	150.0		FNAL-331
P N	300.0		FNAL-209
P DEUT	1.0	3.0	ANL-E-460

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
P DEUT	1.0	12.0	ANL-E-449
P DEUT	1.3		ANL-E-437
P DEUT	1.7		ANL-E-437
P DEUT	2.3		ANL-E-437
P DEUT	7.0	500.0	FNAL-198A
P DEUT	8.0	400.0	FNAL-381
P DEUT	20.0		BNL-717
P DEUT	20.0	500.0	FNAL-104
P DEUT	24.0		BNL-717
P DEUT	25.0	200.0	FNAL-396
P DEUT	30.0	300.0	FNAL-552
P DEUT	50.0		FNAL-118A
P DEUT	50.0	400.0	CERN-WA-008
P DEUT	70.0		SERP-E-100
P DEUT	100.0		FNAL-118A
P DEUT	100.0		FNAL-194
P DEUT	100.0		FNAL-300
P DEUT	150.0		FNAL-118A
P DEUT	200.0		FNAL-300
P DEUT	250.0		FNAL-118A
P DEUT	300.0		FNAL-300
P DEUT	400.0		FNAL-300
P DEUT	500.0		FNAL-300
P DEUT	517.2		CERN-R-417
P DEUT	722.0		CERN-R-417
P DEUT	1025.8		CERN-R-417
P HE	0.4	5.0	ANL-E-414
P HE	6.0		ANL-E-351
P HE	8.0	500.0	FNAL-289
P HE	50.0	400.0	CERN-WA-008
P BE	?		BNL-669
P BE	28.0		BNL-744
P BE	200.0		FNAL-567
P BE	400.0		CERN-WA-020
P BE	400.0		FNAL-326
P BE	400.0		FNAL-400
P BE	400.0		FNAL-469
P BE	400.0		FNAL-555
P C	0.2		FNAL-444
P C	200.0		FNAL-369
P C	400.0		FNAL-547
P NE	400.0		FNAL-291
P MG	100.0		FNAL-597
P AL	400.0		FNAL-547
P CL	90.0	240.0	FNAL-467
P CR	500.0		FNAL-524
P FE	70.0		SERP-E-114
P FE	400.0		FNAL-439
P CU	400.0		CERN-WA-041
P CU	400.0		CERN-WA-043
P CU	400.0		CERN-WA-054
P AG	500.0		FNAL-524
P TA	5.0		KEK-053
P WT	28.0		BNL-720
P WT	30.0		BNL-719
P WT	500.0		FNAL-524
P PT	28.3		BNL-721
P AU	100.0		FNAL-597
P TL	90.0	240.0	FNAL-467
P PB	400.0		FNAL-547
P U	10.0	20.0	CERN-PS-155
P U	12.3		ANL-E-424
P U	20.0		CERN-PS-162
P NUCLEUS	?		FNAL-379
P NUCLEUS	1.0	12.3	ANL-E-384
P NUCLEUS	1.0	12.3	ANL-E-422
P NUCLEUS	>1.0		BNL-739
P NUCLEUS	1.5		BNL-718
P NUCLEUS	2.5	10.0	BNL-575
P NUCLEUS	4.0	12.0	KEK-045
P NUCLEUS	5.0	16.0	BNL-712
P NUCLEUS	6.0		ANL-E-403
P NUCLEUS	10.0	500.0	FNAL-442
P NUCLEUS	13.0		KEK-066
P NUCLEUS	15.0		BNL-676
P NUCLEUS	20.0		CERN-WA-035
P NUCLEUS	20.0	400.0	FNAL-591
P NUCLEUS	21.0		BNL-676
P NUCLEUS	24.0		CERN-PS-132
P NUCLEUS	28.0		BNL-718
P NUCLEUS	29.0		BNL-676
P NUCLEUS	40.0		CERN-WA-035
P NUCLEUS	40.0		CERN-WA-039
P NUCLEUS	50.0	200.0	FNAL-081A
P NUCLEUS	70.0		SERP-E-120
P NUCLEUS	70.0		SERP-E-121
P NUCLEUS	100.0		CERN-WA-032
P NUCLEUS	100.0		FNAL-451
P NUCLEUS	200.0		CERN-NA-017
P NUCLEUS	200.0		FNAL-008
P NUCLEUS	200.0		FNAL-435
P NUCLEUS	200.0		FNAL-565
P NUCLEUS	200.0	300.0	FNAL-466
P NUCLEUS	300.0		FNAL-426
P NUCLEUS	300.0		FNAL-505
P NUCLEUS	400.0		CERN-WA-020
P NUCLEUS	400.0		CERN-WA-038
P NUCLEUS	400.0		CERN-WA-052
P NUCLEUS	400.0		FNAL-468
P NUCLEUS	400.0		FNAL-495
P NUCLEUS	400.0		FNAL-499
P NUCLEUS	400.0		FNAL-549
P NUCLEUS	400.0		FNAL-565
P NUCLEUS	400.0		FNAL-575
P NUCLEUS	400.0		FNAL-592
P NUCLEUS	400.0		FNAL-596
P NUCLEUS	400.0		FNAL-605
P NUCLEUS	400.0		FNAL-608
P NUCLEUS	400.0		FNAL-613
P NUCLEUS	400.0	450.0	FNAL-622
P NUCLEUS	500.0		CERN-NA-017
P NUCLEUS	500.0		FNAL-288
P NUCLEUS	500.0		FNAL-435
P NUCLEUS	500.0		FNAL-494
P NUCLEUS	500.0		FNAL-508
P NUCLEUS	500.0		FNAL-576
P	2.0	20.0	CERN-PS-164
P	3.0	15.0	CERN-PS-150
N P	0.	400.0	CERN-NA-006
N P	2.0		ANL-E-425
N P	4.0		ANL-E-425
N P	6.0		ANL-E-425
N P	6.0		ANL-E-444
N P	25.0	200.0	FNAL-396
N P	40.0	300.0	FNAL-248
N P	100.0	200.0	FNAL-366
N DEUT	25.0	200.0	FNAL-396
N DEUT	100.0	200.0	FNAL-366
N BE	30.0	300.0	FNAL-438
N BE	200.0		FNAL-397
N C	30.0	300.0	FNAL-438
N C	45.0		SERP-E-104
N AL	30.0	300.0	FNAL-438
N FE	30.0	300.0	FNAL-438
N CU	30.0	300.0	FNAL-438
N CD	30.0	300.0	FNAL-438
N WT	30.0	300.0	FNAL-438
N PB	30.0	300.0	FNAL-438
N U	30.0	300.0	FNAL-438
N NUCLEUS	100.0	200.0	FNAL-366
N NUCLEUS	300.0		FNAL-540
AN P	5.0E-02	0.7	BNL-626
AP P	?		FNAL-236A
AP P	0.		BNL-643
AP P	0.		CERN-PS-135
AP P	0.		CERN-PS-142
AP P	0.		CERN-PS-151
AP P	0.	0.5	BNL-708
AP P	0.	0.5	CERN-PS-161
AP P	0.	0.6	ANL-E-368
AP P	0.	0.9	ANL-E-409
AP P	0.3	1.0	BNL-634
AP P	0.3	0.6	CERN-T-250
AP P	0.3	0.6	CERN-T-239
AP P	0.4		BNL-662
AP P	0.4	0.6	BNL-742
AP P	0.4	0.9	BNL-730
AP P	0.4	0.9	BNL-733
AP P	0.4	0.9	BNL-738
AP P	0.4	0.9	CERN-PS-149
AP P	0.4	0.7	KEK-033
AP P	0.5		BNL-662
AP P	0.5		BNL-662
AP P	0.6	1.1	CERN-PS-163
AP P	0.8	1.3	CERN-PS-163
AP P	1.2	3.0	BNL-644
AP P	1.6		BNL-698
AP P	2.0	8.0	ANL-E-365
AP P	3.0	5.0	KEK-062
AP P	4.0	10.0	BNL-596
AP P	4.1		ANL-E-429
AP P	5.0	10.0	CERN-WA-013
AP P	6.0		BNL-601
AP P	6.0	10.0	BNL-594
AP P	6.1		SLAC-BC-068
AP P	7.3		CERN-T-237

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AP P	8.3		SLAC-S-129
AP P	8.9		SLAC-BC-068
AP P	9.0		SLAC-BC-064
AP P	10.0		SLAC-E-127
AP P	10.0	12.0	BNL-661
AP P	10.0	15.0	BNL-726
AP P	12.0		CERN-WA-049
AP P	13.0		SERP-E-116
AP P	13.0		SLAC-E-129
AP P	15.0		CERN-WA-029
AP P	16.0		CERN-WA-049
AP P	20.0		CERN-WA-007
AP P	20.0		CERN-WA-010
AP P	20.0	500.0	FNAL-104
AP P	22.4		SERP-E-053
AP P	25.0		SERP-E-116
AP P	25.0	200.0	FNAL-396
AP P	30.0	60.0	FNAL-344
AP P	30.0	140.0	CERN-WA-009
AP P	32.0		SERP-E-122
AP P	32.0		SERP-E-138
AP P	40.0		CERN-WA-007
AP P	40.0		CERN-WA-010
AP P	40.0		FNAL-324
AP P	40.0		SERP-E-116
AP P	50.0		FNAL-110A
AP P	50.0	200.0	FNAL-069A
AP P	60.0		CERN-WA-007
AP P	70.0		CERN-WA-031
AP P	80.0		CERN-WA-007
AP P	80.0		CERN-WA-010
AP P	80.0		FNAL-324
AP P	80.0	140.0	CERN-WA-042
AP P	100.0		FNAL-083A
AP P	100.0		FNAL-110A
AP P	100.0		FNAL-350
AP P	100.0		FNAL-597
AP P	100.0	340.0	FNAL-581
AP P	150.0		FNAL-299
AP P	150.0		FNAL-331
AP P	150.0	300.0	CERN-WA-008
AP P	160.0		FNAL-324
AP P	200.0		FNAL-110A
AP P	200.0		FNAL-302
AP P	200.0		FNAL-557
AP P	200.0		FNAL-570
AP P	200.0		FNAL-577
AP P	200.0	400.0	CERN-WA-005
AP P	293.3	2094.0	CERN-R-210
AP P	300.0		FNAL-557
AP P	400.0		FNAL-557
AP P	478.7	2047.5	CERN-R-211
AP P	5328.0	1.6E+05	CERN-UA-04
AP P	1.6E+05		CERN-UA-01
AP P	1.6E+05		CERN-UA-02
AP P	1.6E+05		CERN-UA-03
AP P	1.6E+05		CERN-UA-05
AP N	0.3	0.6	CERN-T-250
AP N	9.0		SLAC-BC-070
AP N	100.0		FNAL-345
AP N	150.0		FNAL-331
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AP DEUT	0.	0.5	CERN-PS-161
AP DEUT	0.	0.7	ANL-E-413
AP DEUT	0.5		BNL-701
AP DEUT	0.8	1.3	CERN-PS-163
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AP DEUT	8.9		SLAC-BC-068
AP DEUT	12.0		CERN-T-246-248
AP DEUT	20.0	500.0	FNAL-104
AP DEUT	25.0	200.0	FNAL-396
AP DEUT	80.0	140.0	CERN-WA-042
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AP LI6	0.		CERN-PS-158
AP LI7	0.		CERN-PS-158
AP NE	0.	0.9	ANL-E-409
AP MG	100.0		FNAL-597
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AP NUCLEUS	?		FNAL-379
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AP NUCLEUS	40.0		CERN-WA-035
AP NUCLEUS	40.0		CERN-WA-039
AP NUCLEUS	70.0		CERN-WA-061
AP NUCLEUS	100.0	400.0	FNAL-537
AP NUCLEUS	150.0		FNAL-272
AP NUCLEUS	300.0		FNAL-272
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AP	3.0	15.0	CERN-PS-150
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LAMBDA P	60.0	130.0	FNAL-008
LAMBDA DEUT	30.0	60.0	SERP-E-120
LAMBDA NUCLEUS	80.0	350.0	FNAL-619
LAMBDA	?		KEK-049
LAMBDA	6.0	15.0	BNL-597
LAMBDA	20.0	60.0	SERP-E-120
LAMBDA	60.0	200.0	FNAL-361
LAMBDA	150.0	210.0	FNAL-440
ALAMBDA P	60.0	130.0	FNAL-008
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SIGMA+ P	100.0	350.0	FNAL-497
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SIGMA+	20.0	60.0	SERP-E-120
SIGMA+	100.0		CERN-WA-002
SIGMA+	120.0	250.0	FNAL-620
SIGMA- P	30.0	60.0	SERP-E-120
SIGMA- P	80.0	140.0	CERN-WA-042
SIGMA- P	100.0	350.0	FNAL-497
SIGMA- DEUT	30.0	60.0	SERP-E-120
SIGMA- DEUT	80.0	140.0	CERN-WA-042
SIGMA- BE	135.0		CERN-WA-062
SIGMA- NUCLEUS	0.		EXL-723
SIGMA-	?		BNL-618
SIGMA-	20.0	60.0	SERP-E-120
SIGMA-	100.0		CERN-WA-002
SIGMA-	100.0		CERN-WA-046
SIGMA-	120.0	250.0	FNAL-620
XIO P	30.0	60.0	SERP-E-120
XIO DEUT	30.0	60.0	SERP-E-120
XIO	20.0	60.0	SERP-E-120
XI- P	30.0	60.0	SERP-E-120
XI- P	80.0	140.0	CERN-WA-042
XI- P	100.0	350.0	FNAL-497
XI- DEUT	30.0	60.0	SERP-E-120
XI- DEUT	80.0	140.0	CERN-WA-042
XI-	?		BNL-618
XI-	20.0	60.0	SERP-E-120
XI-	100.0		CERN-WA-002
XI-	120.0	250.0	FNAL-620
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OMEGA- P	100.0	350.0	FNAL-497
OMEGA- DEUT	30.0	60.0	SERP-E-120
OMEGA-	20.0	60.0	SERP-E-120
OMEGA-	100.0		CERN-WA-046
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ADEUT	5.0	40.0	CERN-WA-033
HE3	5.0	40.0	CERN-WA-033
AHE3	5.0	40.0	CERN-WA-033
T	5.0	40.0	CERN-WA-033
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HE	5.0	40.0	CERN-WA-033
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CHARGED+ P	85.0		CERN-WA-063
CHARGED- P	40.0		CERN-WA-063
CHARGED- P	85.0		CERN-WA-063
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ACCELERATOR VOCABULARY

ANL	ARGONNE (ZGS) PROTON SYNCHROTRON (12.7 GEV PLAB)
BNL	BROOKHAVEN (AGS) PROTON SYNCHROTRON (33 GEV PLAB)
CERN	CERN (PS) PROTON SYNCHROTRON (28 GEV PLAB)
CERN-ISR	CERN (ISR) PROTON-PROTON ISR (62 GEV ECM)
CERN-PBAR/P	CERN PBAR/P COLLIDER (540 GEV ECM)
CERN-SPS	CERN (SPS) SUPER PROTON SYNCHROTON (450 GEV PLAB)
DESY	HAMBURG DEUTCHES ELECTRON SYNCHROTRON (7.5 GEV PLAB)
DESY-DORIS	HAMBURG (DORIS) ELECTRON-POSITRON RING (10 GEV ECM)
DESY-PETRA	PETRA E+E- COLLIDING BEAMS (38 GEV ECM)
FNAL	FNAL BATAVIA PROTON SYNCHROTRON (500 GEV PLAB)
KEK	KEK (JAPAN) PROTON SYNCHROTRON (13 GEV PLAB)
RHEL	RUTHERFORD (NIMROD) PROTON SYNCHROTRON (8 GEV PLAB)
SERP	IHEP SERPUKHOV PROTON SYNCHROTRON (76 GEV PLAB)
SLAC	STANFORD ELECTRON LINEAR ACCELERATOR (33 GEV PLAB)
SLAC-PEP	SLAC POSITRON-ELECTRON PROJECT (36 GEV ECM)
SLAC-SPEAR	STANFORD (SPEAR) ELECTRON-POSITRON RING (8.4 GEV ECM)
TOKY	INS TOKYO ELECTRON SYNCHROTRON (1.3 GEV PLAB)

DETECTOR VOCABULARY

For bubble chambers we use a construction such as

DBC-2M

or

HBC-15FT-HYB

or

HLBC-BEBC-TST.

The first element, one of

HBC
DBC
HEBC
HLBC,

tells whether the chamber fill is hydrogen, deuterium, helium, or heavy liquid. The second element gives the size or name of the chamber. Where appropriate, a third element, one of

HYB
RAP
TST,

indicates that the chamber is part of a hybrid system, or that it is rapid cycling, or that it contains a track-sensitive target.

DETECTOR VOCABULARY (CONT'D)

For non-bubble-chamber detectors the abbreviations are:

General:

CALO	Calorimeter
CNTR	Counters (no chambers)
COMB	Combinations of different types of detectors, no particular one dominant
EMUL	Emulsion or a detector like lexan where tracks are frozen in a solid medium
OSPK	Optical spark chambers
OTHER	Rare non-electronic detectors (e.g., moon, ocean floor)
STRC	Streamer chamber
TRAD	Transition radiation detector
WIRE	Wire chambers (proportional wire chambers, drift chambers). Includes all non-optical spark by convention

For a spectrometer system, including magnets for momentum analysis:

DAS	Double arm spectrometer
SAS	Single arm spectrometer
SPEC	General spectrometer system not fitting one of the above or where specific type not given
WAS	Wide angle spectrometer

Acronyms for specific detectors:

ARGUS	DESY-DORIS detector system
ASTRON	ITEP wide angle spectrometer at Serpukhov
CCS	Chicago cyclotron spectrometer at FNAL
CELLO	DESY-PETRA spectrometer system
CRYS-BALL	SLAC-SPEAR and PEP large solid angle neutral detector
DASP	DESY-DORIS double arm spectrometer system
DELCO	SLAC-SPEAR and PEP detector system
EMS	ANL effective mass spectrometer
FMPS	Fermilab multiparticle spectrometer
GAMS	Gamma spectrometer at Serpukhov
HPW	HARV-PENN-WISC neutrino detector at BNL
HRS	SLAC-PEP high resolution spectrometer
JADE	DESY-PETRA spectrometer system
LASS	SLAC large aperature solenoid spectrometer
LENA	DESY-DORIS detector system
MAC	SLAC-PEP magnetic calorimeter
MARK-J	DESY-PETRA spectrometer system
MARK-2	SLAC-SPEAR and PEP spectrometer system
MPS	BNL multiparticle spectrometer
OMEGA	CERN OMEGA spectrometer
OMEGAPRIME	Upgraded CERN OMEGA spectrometer
PLUTO	DESY-DORIS and PETRA superconducting solenoid spectrometer
RMS	Rutherford multiparticle spectrometer, now at CERN
SASF	Single arm spectrometer facility at FNAL
SFM	CERN-ISR split field magnet
SIGMA	CERN-IHEP magnetic spectrometer at Serpukhov
SPEC-6M	SERP 6-m spectrometer system
SSF	SLAC spectrometer facility - 1.6, 8, and/or 20 GeV
TASSO	DESY-PETRA spectrometer system
TELAS	KEK target embedded large aperature spectrometer
TOKIWA	KEK spectrometer
TPC	SLAC-PEP time projection chamber
WA1	CERN-DORT-HEID-SACL-BGNA neutrino detector at SPS
2-GAMMA	SLAC-PEP detector to study 2-gamma process

REACTION DATA DESCRIPTOR VOCABULARY

The data descriptors refer to the nature of the data to be 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 are to be presented as a function of two variables, such as a scatter plot, combinations such as 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 has not been converted to a cross section. Does not include parametrizations 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, $y \sim -\ln \tan \theta/2$ (see P). Includes impact parameters and slopes of $d\sigma/dt$.

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 these 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, mass^2 spectrum, or invariant cross section as a function of mass or mass squared.

PT — Transverse momentum (p_T) spectrum, p_T^2 spectrum, or invariant cross section as a function of p_T. Does not include momentum transfer spectrum (see ANGP). Includes transverse mass $=\sqrt{p_T^2+m^2}$, unless the particle mass (m) is also variable.

P — Any function of outgoing momentum or energy not included in any of the above. Includes, E, y (rapidity, also rapidity gaps), x ($=p_L^*/p_{max}^*$), p_L, 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 are usually not listed.

KINEMATIC VARIABLE VOCABULARY

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. Alternatively, 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.

PARTICLE PROPERTY DESCRIPTOR VOCABULARY

The following descriptors are used to designate various types of particle property data:

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 $K_L \to \pi l \nu$, η for $K_L \to \pi^+\pi^-$, x+iy for $K_S \to \pi^+\pi^-\pi^0$).

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

DEC — Weak or electromagnetic decay parameter as defined by Review of Particle Properties, Phys. Letters 75B, No. 1, April 1978, Sec. VI:

ρ, η, ξ, δ, h, $\lvert g_A/g_V \rvert$, ϕ_{AV}, g_S, g_T, g_P	for μ decay
slopes g and slope difference σ(CP viol)	for $K \to 3\pi$
form factors f_+, f_-, f_S, λ_+, λ_-, λ_0, ξ, ξ_S, ξ_T	for $K \to \pi l \nu$
CP violation parameter x+iy	for $K_S \to \pi^+\pi^-\pi^0$
charge asymmetry δ	for $K_L \to \pi l \nu$
CP viol. parameters η_{+-}, η_{00}, ϕ_{+-}, ϕ_{00}, ϵ, ϵ'	for $K_L \to \pi\pi$
$\Delta S \neq \Delta Q$ parameter x	for $K^0 \to \pi^+ l^- \nu$ or $\bar{K}^0 \to \pi^- l^+ \nu$
charge asymmetry	for η decay
$\lvert g_A/g_V \rvert$, δ, α, β, γ, ϕ, Δ	for baryon decay

QN — Quantum numbers.

EX — Existence (e.g., particle search result, even if negative, or evidence for presence in a mass spectrum).

INSTITUTION VOCABULARY

Ordered by abbreviation:

AACH	PHYS. INST. DER TECH. HOCHSCHULE	AACHEN, GERMANY
AARH	AARHUS UNIV.	AARHUS, DENMARK
ABAD	ABADAN INST. OF TECHNOLOGY	ABADAN, IRAN
ABEL	ADELPHI UNIV.	GARDEN CITY, NY, USA
AFCR	AIR FORCE CAMBRIDGE RESEARCH LABS	BEDFORD, MASS., USA
AICH	AICHI EDUCATIONAL UNIV.	TOYOTA, AICHI PREF., JAPAN
AKIT	AKITA UNIV.	AKITA, JAPAN
ALBA	STATE UNIV. OF NEW YORK AT ALBANY	ALBANY, N. Y., USA
ALMA	KAZAMN INST. FOR HIGH ENERGY PHYS.	ALMA-ATA, USSR
AMER	AMERICAN UNIV.	WASHINGTON DC, USA
AMES	AMES LAB	AMES, IOWA, USA
AMST	UNIV. OF AMSTERDAM	AMSTERDAM, NETHERLANDS
AMTK	AMSTERDAM NIKHEF	AMSTERDAM, NETHERLANDS
ANKA	MIDDLE EAST TECHNICAL UNIV.	ANKARA, TURKEY
ANL	ARGONNE NAT. LAB.	ARGONNE, ILL., USA
ANUC	AUSTRALIAN NATIONAL UNIV. AT CANBERRA	CANBERRA, AUSTRALIA
ARIZ	UNIV. OF ARIZONA	TUCSON, ARIZ., USA
ASHI	ASHIKAGA INST. TECHNOLOGY	ASHIKAGA, JAPAN
ATEN	NUCLEAR RES. CENTRE DEMOKRITOS	ATHENS, GREECE
AUCK	AUCKLAND UNIV.	AUCKLAND, NEW ZEALAND
AWRE	ATOMIC WEAPONS RESEARCH ESTABLISHMENT	ALDERMASTON, ENGLAND
BARI	UNIV. DI BARI	BARI, ITALY
BASL	BASLE UNIV.	BASLE, SWITZERLAND
BELG	INST. INTERUNIV. DES SCI. NUC.	BRUXELLES, BELGIUM
BERG	FYSISK INSTITUTT	BERGEN, NORWAY
BERL	INST. HOCHENERGIEPHYS. DAW	ZEUTHEN/BERLIN, DDR
BERN	UNIV. BERN	BERN, SWITZERLAND
BGNA	UNIV. DI BOLOGNA	BOLOGNA, ITALY
BNEP	*INST. OF HIGH ENERGY PHYS.*	*BEIJING, CHINA*
BIEL	UNIV. BIELEFELD	BIELEFELD, GERMANY
BIRM	BIRMINGHAM UNIV.	BIRMINGHAM, ENGLAND
BLCH	OPEN UNIV.	BLETCHLEY, ENGLAND
BNL	BROOKHAVEN NATIONAL LAB.	UPTON, L.I., N. Y., USA
BOHR	NIELS BOHR INSTITUTE	COPENHAGEN, DENMARK
BONN	UNIV. BONN	BONN, GERMANY
BOST	BOSTON UNIV.	BOSTON, MASS., USA
BRAN	BRANDEIS UNIV.	WALTHAM, MASS., USA
BRIS	H. H. WILLS PHYS. LAB., U. OF BRISTOL	BRISTOL, ENGLAND
BROW	BROWN UNIV.	PROVIDENCE, R. I., USA
BRUX	UNIV. LIBRE DE BRUXELLES	BRUXELLES, BELGIUM
BUCH	BUCHAREST STATE UNIV.	BUCHAREST, ROMANIA
BUDA	CENTRAL RESEARCH INSTITUTE OF PHYSICS	BUDAPEST, HUNGARY
BUFF	STATE UNIV. OF NEW YORK AT BUFFALO	BUFFALO, N. Y., USA
CAMB	CAMBRIDGE UNIV.	CAMBRIDGE, ENGLAND
CARL	CARLTON UNIV.	OTTAWA, CANADA
CASE	CASE WESTERN RESERVE UNIV.	CLEVELAND, OHIO, USA
CAVE	CAVENDISH LAB., CAMBRIDGE UNIV.	CAMBRIDGE, ENGLAND
CDEF	COLLEGE DE FRANCE	PARIS, FRANCE
CERN	EUROPEAN ORG. FOR NUC. RES.	GENEVA, SWITZERLAND
CHAR	CHARLES UNIV.	PRAGUE, CZECHOSLOVAKIA
CHIC	UNIV. OF CHICAGO	CHICAGO, ILL., USA
CINC	UNIV. OF CINCINNATI	CINCINNATI, OHIO, USA
CIPP	CANADIAN INST. OF PARTICLE PHYS.	MONTREAL, CANADA
CIT	CALIF. INSTITUTE OF TECHNOLOGY	PASADENA, CALIF., USA
CLER	UNIV. DE CLERMONT-FERRAND	CLERMONT-FERRAND, FRANCE
CMU	CARNEGIE-MELLON UNIV.	PITTSBURGH, PA., USA
CNRC	CANADIAN NATIONAL RESEARCH COUNCIL	OTTAWA, CANADA
COLO	UNIV. OF COLORADO	BOULDER, COLO., USA

INSTITUTION VOCABULARY (CONT'D)

COLU	COLUMBIA UNIV.	NEW YORK, N. Y., USA
COPE	COPENHAGEN UNIV	COPENHAGEN, DENMARK
CORN	CORNELL UNIV.	ITHACA, N. Y., USA
CRAC	INST FOR NUCLEAR RESEARCH	CRACOW, POLAND
CUNY	CITY UNIV. OF NEW YORK	NEW YORK, N. Y., USA
CURI	PIERRE ET MARIE CURIE UNIV.	PARIS, FRANCE
DARE	DARESBURY NUC. PHYS. LAB.	DARESBURY, ENGLAND
DESY	DEUTSCHES ELEKTRONEN-SYNCH.	HAMBURG, GERMANY
DORT	UNIV. DORTMUND	DORTMUND-HORNSBRUCH, GERMANY
DUKE	DUKE UNIV.	DURHAM, N. C., USA
DURH	UNIV. OF DURHAM	DURHAM, ENGLAND
DUUC	UNIVERSITY COLLEGE	DUBLIN, IRELAND
EDIN	UNIV. OF EDINBURGH	EDINBURGH, SCOTLAND
EFI	ENRICO FERMI INST. FOR NUCL. STUDIES	CHICAGO, ILL., USA
ELMT	ELMHURST COLLEGE	ELMHURST, I, USA
EMMA	EMMANUEL COLLEGE	BOSTON, MASS., USA
EPOL	ECOLE POLYTECHNIQUE	PALAISEAU, FRANCE
ERLA	*UNIV. ERLANGEN*	ERLANGEN, GERMANY
ETHZ	SWISS FEDERAL INST. OF TECHNOLOGY	ZURICH, SWITZERLAND
FIRZ	UNIV. DI FIRENZE	FIRENZE, ITALY
FNAL	FERMI NATIONAL ACCELERATOR LAB.	BATAVIA, ILL., USA
FOM	FOUN. FOR FUNDAMENTAL RESEARCH ON MATTER	UTRECHT, NETHERLANDS
FRAS	LAB. NAZIONALI DEL SINCROTRONE	FRASCATI, ITALY
FREI	UNIV. FREIBURG	FREIBURG, GERMANY
FSU	FLORIDA STATE UNIV.	TALLAHASSEE, FLA., USA
GENO	UNIV. DI GENOVA	GENOVA, ITALY
GESC	GENERAL ELECTRIC R AND D CENTER	SCHENECTADY, N. Y., USA
GEVA	UNIV. DE GENEVE	GENEVA, SWITZERLAND
GIT	GEORGIA INST. TECH.	ATLANTA, GEORGIA, USA
GLAS	UNIV. OF GLASGOW	GLASGOW, SCOTLAND
GUIL	UNIV. OF SURREY AT GUILFORD	GUILFORD, SURREY, ENGLAND
HAIF	TECHNION - ISRAEL INST. OF TECHNOLOGY	HAIFA, ISRAEL
HAMB	UNIV. HAMBURG	HAMBURG, GERMANY
HARV	HARVARD UNIV.	CAMBRIDGE, MASS., USA
HAWA	UNIV. OF HAWAII	HONOLULU, HAWAII, USA
HEID	UNIV. HEIDELBERG	HEIDELBERG, GERMANY
HELS	HELSINGIN YLIOPISTO	HELSINKI, FINLAND
HIRO	HIROSHIMA UNIV.	HIROSHIMA, JAPAN
HOUS	UNIV. OF HOUSTON	HOUSTON, TEXAS, USA
HRSK	HIROSAKI UNIV.	HIROSAKI, JAPAN
IIT	ILLINOIS INST. OF TECH.	CHICAGO, ILL., USA
ILL	UNIV. OF ILLINOIS	URBANA, ILL., USA
ILLC	UNIV. OF ILLINOIS AT CHICAGO	CHICAGO, ILL., USA
IND	UNIV. OF INDIANA	BLOOMINGTON, IND., USA
INUS	INST. FOR NUCLEAR STUDY AT TOKYO UNIV.	TOKYO, JAPAN
IPN	INST. DE PHYS. NUCLEAIRE	ORSAY, FRANCE
ISU	IOWA STATE UNIV.	AMES, IOWA, USA
ITEP	INST. FOR TEOR. AND EXP. PHYS.	MOSCOW, USSR
JAMU	JAMMU UNIV.	JAMMU-TAWI, INDIA
JHU	JOHNS HOPKINS UNIV.	BALTIMORE, MD., USA
JINR	JOINT INST. FOR NUCL. RESEARCH	DUBNA, USSR
KANS	UNIV. OF KANSAS	LAWRENCE, KANSAS, USA
KARL	TECHNISCHE UNIV. KARLSRUHE	KARLSRUHE, GERMANY
KEK	NAT. LAB FOR HIGH ENERGY PHYS., JAPAN	TSUKUBA-GUN, JAPAN
KHAR	PHYSICO-TECH. INST., ACAD. SCI., UKR.SSR	KHARKOV, USSR
KIAE	KURCHATOV INST. OF ATOMIC ENERGY	MOSCOW, USSR
KIEL	KIEL UNIV.	KIEL, GERMANY
KINK	KINKI UNIV.	OSAKA, JAPAN
KNGA	KANAGAWA UNIV	YOKOHAMA, JAPAN
KOBE	KOBE UNIV.	KOBE, JAPAN

INSTITUTION VOCABULARY (CONT'D)

NDNA	NINAN UNIV.	KOBE, JAPAN
NSPU	PAVLA J. SAFARIKA UNIV.	KOSICE, CZECHOSLOVAKIA
NHAN	HYOGO-KEN, JAPAN	HYOGO-KEN, JAPAN
KYOT	KYOTO UNIV.	KYOTO, JAPAN
LALB	LINEAR ACCELERATOR LAB. ORSAY	ORSAY, FRANCE
LANC	LANCASTER UNIV.	LANCASTER, ENGLAND
LAPP	LAPP UNIV.	ANNECY, FRANCE
LASL	U. C. LOS ALAMOS SCIENTIFIC LAB.	LOS ALAMOS, N. M., USA
LAUS	UNIV. OF LAUSANNE	LAUSANNE, SWITZERLAND
LBL	U. C. LAWRENCE BERKELEY LAB.	BERKELEY, CALIF., USA
LEBD	LEBEDEV PHYSICS INST.	MOSCOW, USSR
LEHI	LEHIGH UNIV.	BETHLEHEM, PA., USA
LENI	INST. OF NUCL. PHYS., AKAD. NAUK USSR	LENINGRAD, USSR
LENU	LENINGRAD UNIV.	LENINGRAD, USSR
LIEB	LAB INTERUNIV. BELGE HIGH ENG.	BRUSSELS, BELGIUM
LIVP	LIVERPOOL UNIV.	LIVERPOOL, ENGLAND
LONC	IMPERIAL COL. OF SCI. AND TECH.	LONDON, ENGLAND
LONM	QUEEN MARY COLLEGE	LONDON, ENGLAND
LONU	UNIVERSITY COLLEGE	LONDON, ENGLAND
LONW	WESTFIELD COLLEGE	LONDON, ENGLAND
LPGP	LAB. DE PHYS. GENERAL, UNIV. PARIS	PARIS, FRANCE
LPHP	LAB. DE PHYS. NUCL. ET HAUTES ENERGIES	PARIS, FRANCE
LSU	LOUISIANA STATE UNIV.	BATON ROUGE, LA., USA
LUND	LUND UNIV.	LUND, SWEDEN
LVLN	UNIV. CATHOLIQUE DE LOUVAIN	LOUVAIN-LA-NEUVE, BELG.
LYON	INST. DE PHYS. NUCL., UNIV. DE LYON	VILLEURBANNE, FRANCE
MADR	JUNTA DE ENERGIA NUCLEAR	MADRID, SPAIN
MAINZ	UNIV. MAINZ	MAINZ, GERMANY
MASA	UNIV. OF MASSACHUSETTS	AMHERST, MASS., USA
MCGI	MCGILL UNIV.	MONTREAL, CANADA
MCHS	UNIV. MANCHESTER	MANCHESTER, ENGLAND
MELB	UNIV. OF MELBOURNE	PARKVILLE, AUSTRALIA
MIAM	MIAMI UNIV.	MIAMI, FL, USA
MICH	UNIV. OF MICHIGAN	ANN ARBOR, MICH., USA
MILA	UNIV. DI MILANO	MILANO, ITALY
MINN	UNIV. OF MINNESOTA	MINNEAPOLIS, MINN., USA
MINR	INSTITUTE FOR NUCLEAR RESEARCH	MOSCOW, USSR
MISU	MISSISSIPPI STATE UNIV.	STATE COLLEGE, MISS, USA
MIT	MASSACHUSETTS INST. OF TECHNOLOGY	CAMBRIDGE, MASS., USA
MLP1	MILANO POLYTECHNIC INST.	MILANO, ITALY
MONS	UNIV. DE L'ETAT, MONS	MONS, BELGIUM
MOSU	MOSCOW STATE UNIV. INST. OF NUCL. PHYS.	MOSCOW, USSR
MPEI	MOSCOW PHYS. ENG. INST.	MOSCOW, USSR
MPIH	MAX-PLANCK-INST. FUR PHYS.-ASTROPHYS.	HEIDELBERG, GERMANY
MPIM	MAX-PLANCK-INST. FUR PHYS.-ASTROPHYS.	MUNICH, GERMANY
MSFC	NASA MANNED SPACECRAFT CENTER	HOUSTON, TEXAS, USA
MSU	MICHIGAN STATE UNIV.	EAST LANSING, MICH., USA
MTHD	MT. HOLYOKE COLLEGE	SOUTH HADLEY, MASS., USA
MUDD	HARVEY MUDD COLLEGE	CLAREMONT, CALIF., USA
MULH	CENTRE UNIV. DU HAUT-RHIN	MULHOUSE, FRANCE
MUNI	MUNICH UNIV.	MUNICH, GERMANY
MWRA	MIDWESTERN UNIV. RESEARCH ASSOC.	STRUGHTON, WI, USA
NARI	NATIONAL EL-NASR RESEARCH CENTER	CAIRO, EGYPT
NAGO	NAGOYA UNIV.	NAGOYA, JAPAN
NANC	UNIV. DE NANCY	NANCY, FRANCE
NAPL	UNIV. DI NAPOLI	NAPOLI, ITALY
NARA	NARA WOMEN'S UNIV.	NARA, JAPAN
NARU	NARA UNIV.	NARA, JAPAN
NCCI	NORTH CENTRAL COLLEGE	NAPERVILLE, IL, USA
NDAM	UNIV. OF NOTRE DAME	NOTRE DAME, IND., USA
NEAS	NORTHEASTERN UNIV.	BOSTON, MASS., USA
NEUC	UNIV. OF NEUCHATEL	NEUCHATEL, SWITZERLAND
NIIG	NIIGATA UNIV.	NIIGATA, JAPAN
NIJM	R. K. UNIV. NIJMEGEN	NIJMEGEN, NETHERLANDS

INSTITUTION VOCABULARY (CONT'D)

NILU	NORTHERN ILLINOIS UNIV.	DEKALB, ILL., USA
NORD	NORDISK INS. FOR TEOR. ATOMFYS.	COPENHAGEN, DENMARK
NOVO	INST. OF NUCL. PHYS.	NOVOSIBIRSK, USSR
NRL	NAVAL RESEARCH LABORATORY	WASHINGTON, D.C., USA
NRLO	NAVAL RESEARCH LAB	ORLANDO, FL, USA
NSF	NATIONAL SCIENCE FOUNDATION	WASHINGTON, D.C., USA
NWES	NORTHWESTERN UNIV.	EVANSTON, ILL., USA
NYU	NEW YORK UNIV.	NEW YORK, N. Y., USA
OAKM	OAKLAND UNIV.	OAKLAND, MICH., USA
OKAY	OKAYAMA UNIV	OKAYAMA, JAPAN
OPEN	OPEN UNIV	MILTON KEYNES, ENGLAND
ORNL	OAK RIDGE NATIONAL LAB.	OAK RIDGE, TENN., USA
ORSA	UNIV. DE PARIS, FAC. DES SCI.	ORSAY, FRANCE
OSAK	OSAKA UNIV.	OSAKA, JAPAN
OSLO	OSLO UNIV.	OSLO, NORWAY
OSSE	SCI. EDUC. INST. OF OSAKA PREF.	OSAKA, JAPAN
OSU	OHIO STATE UNIV.	COLUMBUS, OHIO, USA
OTTA	UNIV. OF OTTAWA	OTTAWA, CANADA
OXF	OXFORD UNIV.	OXFORD, ENGLAND
PADO	UNIV. DI PADOVA	PADOVA, ITALY
PARI	PARIS UNIV. BEFORE DIVISION IN EARLY 70'S	PARIS, FRANCE
PAVI	UNIV. DI PAVIA	PAVIA, ITALY
PENN	UNIV. OF PENNSYLVANIA	PHILADELPHIA, PA., USA
PISA	UNIV. DI PISA	PISA, ITALY
PITT	UNIV. OF PITTSBURGH	PITTSBURGH, PA., USA
PRAG	INSTITUTE OF PHYSICS, CSAV	PRAGUE, CZECHOSLOVAKIA
PRIN	PRINCETON UNIV.	PRINCETON, N. J., USA
PURD	PURDUE UNIV.	LAFAYETTE, IND., USA
QUEB	UNIV. DU QUEBEC	MONTREAL, CANADA
REHO	WEIZMANN INST. OF SCI.	REHOVOTH, ISRAEL
RHEL	RUTHERFORD HIGH ENERGY LAB.	CHILTON, DID., OXON., ENGLAND
RICE	WILLIAM MARSH RICE UNIV.	HOUSTON, TEXAS, USA
RMCS	ROYAL MILITARY COLLEGE OF SCIENCE	SHRIVENHAM, ENGLAND
ROCH	UNIV. OF ROCHESTER	ROCHESTER, N. Y., USA
ROCK	ROCKEFELLER UNIV	NEW YORK, N. Y., USA
ROMA	UNIV. DI ROMA	ROMA, ITALY
RUTG	RUTGERS UNIV.	NEW BRUNSWICK, N. J., USA
SACL	CNTR. D'ETUDES NUC. SACLAY	GIF-SUR-YVETTE, FRANCE
SAGA	SAGA UNIV.	SAGA, JAPAN
SAIT	SAITAMA UNIV.	SAITAMA, JAPAN
SANT	UNIV. DE SANTANDER	SANTANDER, SPAIN
SCAN	SCANDINAVIAN COLLABORATION	SCANDINAVIA
SCUC	UNIV. OF SOUTH CAROLINA AT COLUMBIA	COLUMBIA, SC, USA
SEOU	KOREA UNIV. AT SEOUL	SEOUL, S. KOREA
SERP	INST. OF HIGH EN. PHYS.	SERPUKOV, USSR
SHEF	UNIV. OF SHEFFIELD	SHEFFIELD, YORKS., ENGLAND
SHIN	SHINSHU UNIV.	MATSUMOTO, JAPAN
SHMP	UNIV. OF SOUTHAMPTON	SOUTHAMPTON, ENGLAND
SIEG	SIEGEN UNIV.	HUTTENTAL, GERMANY
SLAC	STANFORD LINEAR ACCEL. CENTER	STANFORD, CALIF., USA
SMAS	SOUTHEASTERN MASSACHUSETTS UNIV.	NORTH DARTMOUTH, MASS., USA
SOFC	HIGH INST. OF CHEM. TECH.	SOFIA, BULGARIA
SOFI	BULGARIAN ACAD. OF SCI.	SOFIA, BULGARIA
STAN	STANFORD UNIV.	STANFORD, CALIF., USA
STEV	STEVENS INST. OF TECH.	HOBOKEN, N. J., USA
STLO	ST. LOUIS UNIV.	ST. LOUIS, MO., USA
STOH	STOCKHOLM UNIV.	STOCKHOLM, SWEDEN
STON	STATE UNIV. OF NEW YORK AT STONYBROOK	STONYBROOK, L.I., N. Y., USA
STRB	CENTRE DES RES. NUCLEAIRES	STRASBOURG, FRANCE
SUFF	SUFFOLK UNIV.	SUFFOLK, ENGLAND
SYDN	UNIV. OF SYDNEY	SYDNEY, AUSTRALIA
SYRA	SYRACUSE UNIV.	SYRACUSE, N. Y., USA
TASM	TASMANIA UNIV.	HOBART, TASMANIA, AUSTRALIA
TATA	TATA INST. OF FUNDAMENTAL RESEARCH	BOMBAY, INDIA

INSTITUTION VOCABULARY (CONT'D)

TBIL	INST. OF PHYS., ACAD. SCI.	TBILISI, USSR
TBSU	TBILISI STATE UNIV.	TBILISI, 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
THES	UNIV. OF THESSALONIKI	THESSALONIKI, GREECE
TOMK	NUCL. PHYS. INST., TOMSK POLYTECH. INST.	TOMSK, USSR
TOKI	TOKYO METROPOLITAN UNIV.	TOKYO, JAPAN
TORO	UNIV. OF TORONTO	TORONTO, CANADA
TOCR	COSMIC RAY LAB, TOKYO UNIV.	TOKYO, JAPAN
TOHA	TOHOKU-GAKUIN UNIV.	MIYAGI, JAPAN
TOHO	TOHOKU UNIV.	SENDAI, 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
TSUK	TSUKUBA UNIV.	IBARAKI, JAPAN
TUAT	TOKYO UNIV. OF AGRICULTURE AND TECH.	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
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
UMAD	UNIV. DE MADRID	MADRID, SPAIN
UMD	UNIV. OF MARYLAND	COLLEGE PARK, MD., USA
UNM	UNIV. OF NEW MEXICO	ALBUQUERQUE, NEW MEX., USA
USPS	U. S. NAVAL POSTGRADUATE SCHOOL	MONTEREY, CALIF., USA
UTAH	UNIV. OF UTAH	SALT LAKE CITY, UTAH, USA
UTSU	UTSUNOMIYA UNIV.	UTSUNOMIYA, JAPAN
UUPP	UNIV. OF UPPSALA	UPPSALA, SWEDEN
VALE	UNIV. DE VALENCIA	VALENCIA, SPAIN
VAND	VANDERBILT UNIV.	NASHVILLE, TENN., USA
VASS	VASSAR COLLEGE	POUGHKEEPSIE, 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
WEST	WESTERN UNIV.	LONDON, CANADA
WIEN	UNIV. WIEN	VIENNA, AUSTRIA
WILL	COLLEGE OF WILLIAM AND MARY	WILLIAMSBURG, VA., USA
WISC	UNIV. OF WISCONSIN	MADISON, WISC., USA
WUPP	UNIV. WUPPERTAL	WUPPERTAL, GERMANY
WURZ	WURZBURG UNIV.	WURZBURG, 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
YORK	YORK UNIVERSITY	DOWNSVIEW, ONT., CANADA

PARTICLE VOCABULARY

Particle Names Ordered Alphabetically

ADELO	C= ANTIPARTICLE OF DEL(1232P33)0
ADEUT	C= ANTIDEUTERON
ADO	C= CHARMED MESON
AG	C= SILVER NUCLEUS
AKD	
AK*(UNSPEC)0	C= S=-1 NEUTRAL K* OF UNSPECIFIED MASS
AK*(892)0	
AL	C= ALUMINUM NUCLEUS
ALAMBDA	C= ANTILAMBDA
AN	C= ANTINEUTRON
ANNIHIL	C= PURE ANNIHILATION FINAL STATE IN NUCLEON-ANTINUCLEON SCATTERING
ANN(1935)0	C= NARROW NUCLEON-ANTINUCLEON STATE
ANN(1935)+	ANN(1935)-
ANN(2020)0	C= VERY NARROW P-PBAR RESONANCE
ANN(2200)0	C= VERY NARROW P-PBAR RESONANCE
ANUCLEON	C= ANTINUCLEON
ANUCLEUS	C= GENERAL ANTINUCLEUS
ANUE	
ANUMU	
ANYTHING	
AN(SPECT)	C= SPECTATOR ANTINEUTRON
AP	
AP(SPECT)	C= SPECTATOR ANTIPROTON
AR	C= ARGON NUCLEUS -- NOTE NAME NOT SAME AS CHEMICAL SYMBOL
AR37	C= ARGON 37 NUCLEUS
ASIGMA0	ASIGMA+ ASIGMA-
AXION	C= HYPOTHESIZED LIGHT HIGGS SCALAR BOSON
AXIO	AXI+
A0	C= CHARMED BARYON
A1(1100)0	A1(1100)+ A1(1100)-
A2(1310)0	A2(1310)+ A2(1310)-
BARYONIUM	C= MESONS THAT COUPLE PROMINENTLY TO BARYON-ANTIBARYON
BE	C= BERYLLIUM NUCLEUS
BEAUTY	C= GENERIC NAME FOR ANY PARTICLE WITH NAKED BEAUTY
B(1235)0	B(1235)+ B(1235)-
C	C= CARBON NUCLEUS
CA	C= CALCIUM NUCLEUS
CENTAURO	C= NEW TYPE OF FINAL STATE WITH 50 OR MORE CHARGED PARTICLES, NO PI0S
CHARGED	C= A CHARGED TRACK ORIGINATING FROM THE PRIMARY INTERACTIONS. ASSUMES OBSERVED OR UNOBSERVED NEUTRALS MAY BE PRESENT, BUT ARE IGNORED UNLESS SPECIFICALLY MENTIONED
CHARGED+	C= POSITIVE CHARGED PARTICLE
CHARGED-	C= NEGATIVE CHARGED PARTICLE
CHARM	C= CHARMED PARTICLE
CHARMED-BARYON	C= CHARMED BARYON OF UNSPECIFIED C, S, I, OR CHARGE
CHI(UNSPEC)	C= UNSPECIFIED RADIATIVE DECAY PRODUCT OF PSI(3700)
CHI(UNSPEC)0	C= UNSPECIFIED RADIATIVE DECAY PRODUCT OF PSI(3700)
CU	C= COPPER NUCLEUS

PARTICLE VOCABULARY (CONT'D)

C*(4.44)	C= 4.44 MEV EXCITED STATE OF CARBON
DD	C= DIFFRACTION DISSOCIATION. TO BE FOLLOWED BY NAMES OF PARTICLES WHICH WERE SO PRODUCED, E.G. DD <F PI0>
DELTA(960)0	DELTA(960)+ DELTA(960)-
DEL0	C= DEL(1232P33)0
DEL+	C= DEL(1232P33)+
DEL++	C= DEL(1232P33)++
DEL-	C= DEL(1232P33)-
DEL(UNSPEC)0	C= I=3/2 BARYON OF UNSPECIFIED MASS
DEL(UNSPEC)++	C= I=3/2 BARYON OF UNSPECIFIED MASS
DEUT	C= DEUTERON
DIBARYON	C= S=0 DIBARYON RESONANCE OF UNSPECIFIED MASS
DIHYPERON	C= S=-2 DIHYPERON RESONANCE OF UNSPECIFIED MASS
D0	C= CHARMED MESON
D+	C= CHARMED MESON
D-	C= CHARMED MESON
D*(2010)+	C= CHARMED MESON
D*(2010)-	C= CHARMED MESON
D(1386)	
EPSILON(700)	C= PI-PI S-WAVE (NEAR 700 MEV)
ETA	
ETAPRIME	
ETA/C	C= JP=0- CHARMONIUM STATE
ETA(1060)	
EXOTIC-MESON	C= CANNOT BE FORMED OF QUARK-ANTIQUARK
EXOTIC-NUCLEON	C= CANNOT BE FORMED OF QQQ
E+	C= POSITRON
E+S	C= TWO OR MORE POSITRONS
E+(S)	C= ONE OR MORE POSITRONS
E-	C= ELECTRON
E-S	C= TWO OR MORE ELECTRONS
E-(S)	C= ONE OR MORE ELECTRONS
E(1420)	
F	C= F(1270) MESON RESONANCE
FPRIME	
F1(1540)0	F1(1540)+ F1(1540)-
F+	C= CHARMED STRANGE MESON
F-	C= CHARMED STRANGE MESON
GAMMA	
GAMMAS	C= TWO OR MORE GAMMAS
GAMMA(S)	C= ONE OR MORE GAMMAS
G(1700)0	G(1700)+ G(1700)-
HADRON	C= SINGLE HADRON, ANY CHARGE OR MASS
HADRONS	C= TWO OR MORE HADRONS
HADRON+	C= POSTIVE HADRON
HADRON-	C= NEGATIVE HADRON
HADRON(S)	C= ONE OR MORE HADRONS
HMIBARYON(2130)+	C= S=-1 DIBARYON RESONANCE
HE	C= HELIUM-4 NUCLEUS
HE3	C= HELIUM 3
HIGGS	C= HIGGS BOSON
HYNUCLEUS	C= HYPERNUCLEUS
HVY-LEPTON	C= GENERAL HEAVY LEPTON
HVY-LEPTONS	C= HEAVY LEPTON
IN(2040)	C= I=0, JP=4+ MESON RESONANCE
IN(900)	
INELASTIC	C= SAME AS ANYTHING, EXCEPT ELASTIC EXCLUDED
J/PSI(3100)0	

PARTICLE VOCABULARY (CONT'D)

KAON	C= ONE KAON OR AKAON OF UNSPECIFIED CHARGE
KAONS	C= TWO OR MORE UNSPECIFIED KAONS
KAON(S)	C= ONE OR MORE UNSPECIFIED KAONS
KL	C= K LONG
KN(1800)0	KN(1800)+ KN(1800)-
KS	C= K SHORT
K0	K+
K+(S)	C= ONE OR MORE K+
K-	
K-(S)	C= ONE OR MORE K-
K*(UNSPEC)	C= UNSPECIFIED K*
K*(UNSPEC)0	C= UNSPECIFIED K*
K*(UNSPEC)+	C= UNSPECIFIED K*
K*(UNSPEC)-	C= UNSPECIFIED K*
K*(1430)0	K*(1430)+ K*(1430)-
K*(892)0	K*(892)+ K*(892)-
LAMBDA	
LAMBDA/C+	C= CHARMED BARYON
LAM(UNSPEC)	C= I=0, S=-1 BARYON RESONANCE
LAM(1330B)	C= BUMP AT 1330 MEV
LAM(1520D03)	
LEPTON	C= UNSPECIFIED LEPTON
LI6	LI7
LONGLIVED	C= STABLE UNDER STRONG OR ELECTROMAGNETIC DECAY; MASS AND OTHER Q NUMBERS NOT SPECIFIED
L(1770)0	L(1770)+ L(1770)-
MESON	C= SINGLE MESON OF UNSPECIFIED TYPE
MESONS	C= TWO OR MORE MESONS
MESON(S)	C= ONE OR MORE MESONS
MESON(UNSPEC)0	C= NEUTRAL MESON OF UNSPECIFIED MASS
MESON(UNSPEC)+	C= CHARGE +1 MESON OF UNSPECIFIED MASS
MESON(UNSPEC)-	C= CHARGE -1 MESON OF UNSPECIFIED MASS
MESON(2950)	C= BUMP SEEN IN P AP PI-
MM.GE.2	C= TWO OR MORE UNDETECTED NEUTRAL PARTICLES
MONOPOLE	C= MAGNETIC MONOPOLE
MUON	C= A MU+ OR MU-
MUONS	C= TWO OR MORE MUONS
MUON(S)	C= ONE OR MORE MUONS
MU+	MU-
N	C= NEUTRON
NE	C= NEON NUCLEUS
NEUTRAL	C= SINGLE NEUTRAL PARTICLE
NEUTRALS	C= TWO OR MORE NEUTRAL PARTICLES
NEUTRAL(S)	C= ONE OR MORE NEUTRAL PARTICLES
NEUTRONS	C= TWO OR MORE NEUTRONS
NEUTRON(S)	C= ONE OR MORE NEUTRONS
NIT12	C= NITROGEN-12 NUCLEUS
NUCLEON	
NUCLEONS	C= TWO OR MORE UNSPECIFIED NUCLEONS
NUCLEON(S)	C= ONE OR MORE UNSPECIFIED NUCLEONS
NUCLEUS	C= GENERAL NUCLEUS, THE EXACT NUCLEUS OR NUCLEON BEING NOT SPECIFIED
NUE	
NUMU	
NUTAU	C= NEUTRINO ASSOCIATED WITH TAU-
N*5/2(UNSPEC)	C= I=5/2, Y=1 BARYON OF UNSPECIFIED MASS AND CHARGE
N*(UNSPEC)	C= S=0 BARYON OF UNSPECIFIED MASS AND ISOSPIN
N*(UNSPEC)0	
N*(UNSPEC)+	

PARTICLE VOCABULARY (CONT'D)

N(PRONG)	C= A COLLECTION OF REACTIONS WITH DIFFERENT NUMBERS OF PRONGS, E.G. 0(PRONG), 2(PRONG), 4(PRONG) ETC.
N(SPECT)	C= SPECTATOR NEUTRON (NOT NUMBER OF SPECTATORS)
N(UNSPEC)0	C= I=1/2, Y=1 BARYON OF UNSPECIFIED MASS
N(VEE)	C= A COLLECTION OF REACTIONS TO DIFFERENT NUMBERS OF STRANGE VISIBLE NEUTRAL VEES (NOT GAMMA CONVERSIONS)
N(1470B)0	N(1470B)+
N(1470P11)0	N(1470P11)+
N(1520B)0	N(1520B)+
N(1520D13)0	N(1520D13)+
N(1670D15)0	N(1670D15)+
N(1700B)0	N(1700B)+
OMEGA	C= MESON RESONANCE
OMEGA-	C= THE S=-3 BARYON
OMEGA*(UNSPEC)	C= S=-3 BARYON RESONANCE OF UNSPECIFIED I AND MASS
OMEGA*(UNSPEC)-	
P	
PB	C= LEAD NUCLEUS
PHI	
PHIPRIME	C= UNSPECIFIED RECURRENCE OF THE PHI
PION	C= ONE PION OF UNSPECIFIED CHARGE
PIONS	C= TWO OR MORE PIONS
PION(S)	C= ONE OR MORE PIONS
PIO	
PIOS	C= TWO OR MORE PIOS
PIO(S)	C= ONE OR MORE PIOS
PI+	
PI+S	C= TWO OR MORE PI+S
PI+-	C= ONE CHARGED PION
PI+(S)	C= ONE OR MORE PI+S
PI-	
PI-S	C= TWO OR MORE PI-S
PI-(S)	C= ONE OR MORE PI-S
PRONGS	C= TWO OR MORE PRONGS
PRONG(S)	C= ONE OR MORE PRONGS
PROTONS	C= TWO OR MORE PROTONS
PROTON(S)	C= ONE OR MORE PROTONS
PSI(UNSPEC)	C= UNSPECIFIED JP=1- CHARMONIUM STATE
PSI(3685)	
PSI(3770)	
PSI(4415)	
P(SPECT)	C= SPECTATOR PROTON
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)-
RHOPRIME(1550)0	RHOPRIME(1550)+ RHOPRIME(1550)-
RHOPRIME(1600)0	RHOPRIME(1600)+ RHOPRIME(1600)-
RHO0	
RHO+	
RHO-	
SI	C= SILICON NUCLEUS
SIGMA0	SIGMA+ SIGMA-
SIGMA/C(2430)++	C= CHARMED BARYON
SIG(UNSPEC)0	C= I=1, Y=0 PARTICLE OF UNSPECIFIED MASS
SIG(UNSPEC)+	C= I=1, Y=0 PARTICLE OF UNSPECIFIED MASS
SIG(UNSPEC)-	C= I=1, Y=0 PARTICLE OF UNSPECIFIED MASS
SIG(1385P13)0	SIG(1385P13)+ SIG(1385P13)-

PARTICLE VOCABULARY (CONT'D)

SIG(1670B)0	C= I=1, Y=0 BUMP
SIG(1670B)+	C= I=1, Y=0 BUMP
SIG(1670B)-	C= I=1, Y=0 BUMP
SIG(1915B)0	C= I=1, Y=0 BUMP
SIG(1915B)+	C= I=1, Y=0 BUMP
SIG(1915B)-	C= I=1, Y=0 BUMP
SIG(2250B)0	C= I=1, Y=0 BUMP
SIG(2250B)+	C= I=1, Y=0 BUMP
SIG(2250B)-	C= I=1, Y=0 BUMP
SN	C= TIN NUCLEUS
STRANGE	C= UNSPECIFIED STRANGE PARTICLE
STRANGEONIUM	C= MESON WHOSE QUARK CONTENT IS DOMINANTLY S-SBAR, SUCH AS THE PHI
STRANGE(S)	C= ONE OR MORE UNSPECIFIED STRANGE PARTICLES
S+	C= INTERMEDIATE SCALAR BOSON
S-	C= INTERMEDIATE SCALAR BOSON
S*(980)	C= PI-PI OR K-KBAR S-WAVE
S(1935)0	S(1935)+ S(1935)-
T	C= TRITIUM NUCLEUS
TA	C= TANTALUM NUCLEUS
TACHYON	
TAU	C= HEAVY LEPTON
TI	C= TITANIUM NUCLEUS
TOPONIUM	C= TOP-ANTITOP STATE
TRUTH	C= GENERIC NAME FOR ANY PARTICLE WITH NAKED TRUTH
UNSPEC	C= PARTICLE OF UNSPECIFIED TYPE
UPSI(UNSPEC)	C= UNSPECIFIED UPSILON PARTICLE
UPSI(10020)	C= UPSILON(10020)
UPSI(9460)	C= UPSILON(9460)
VEE(S)	C= ONE OR MORE UNSPECIFIED NEUTRAL STRANGE PARTICLE DECAYS
VMESON	C= VECTOR MESON OF UNSPECIFIED MASS AND CHARGE
VMESON0	C= VECTOR MESON OF UNSPECIFIED MASS
W	C= INTERMEDIATE VECTOR BOSON
W0	C= INTERMEDIATE VECTOR BOSON
W+	C= INTERMEDIATE VECTOR BOSON
W-	C= INTERMEDIATE VECTOR BOSON
XI0	XI-
XI*(UNSPEC)	C= S=-2 BARYON OF UNSPECIFIED MASS
XI*(UNSPEC)0	
XI(UNSPEC)	C= I=1/2, S=-2 BARYON OF UNSPECIFIED MASS
XI(UNSPEC)0	C= I=1/2, S=-2 BARYON OF UNSPECIFIED MASS
XI(UNSPEC)-	C= I=1/2, S=-2 BARYON OF UNSPECIFIED MASS
XI(1530P13)0	XI(1530P13)-
XI(1630)0	XI(1630)-
XI(1820)0	XI(1820)-
XI(1940)0	XI(1940)-
XI(2030)0	XI(2030)-
XI(2250)0	XI(2250)-
XI(2500)0	XI(2500)-
X(2830)	C= JP=0- CHARMONIUM STATE
Y*(UNSPEC)	C= S=-1 BARYON OF UNSPECIFIED ISOSPIN AND MASS
Y*(UNSPEC)0	C= S=-1 BARYON OF UNSPECIFIED ISOSPIN AND MASS
Y*(UNSPEC)+	C= S=-1 BARYON OF UNSPECIFIED ISOSPIN AND MASS
Y*(UNSPEC)-	C= S=-1 BARYON OF UNSPECIFIED ISOSPIN AND MASS
Z0	C= NEUTRAL WEAK GAUGE BOSON
Z*(UNSPEC)0	C= EXOTIC Y=2 BARYON OF UNSPECIFIED MASS
.GT.3PRONG	C= MORE THAN 3 PRONGS

BROOKHAVEN AGS BEAMS (Source: P. Wanderer)

Up to 10^{13} protons per pulse are accelerated typically to 28.5 GeV kinetic energy (31 GeV has been obtained). At 28.5 GeV, the period is 2.4 sec for slow extraction (with a 1-sec flattop), or 1.4 sec for fast extraction (used for neutrino beams). Fluxes below are calculated using the 2.4-sec period. Counting rates may be estimated using the nominal beam spill time of 1 sec.

	Beam	Momentum range (GeV/c)	±Δp/p (%)	Production angle (°)	Solid angle (msr)	Beam length (m)	Particles	Flux in thousands per sec per 10^{12} protons on target	→ at (GeV/c)	Comments
Separated	B4	1.5-6	3	3	0.2	81	K^+/K^-	90/45	4	Usually 2×10^{12} ppp; $\pi/K \sim 3$ in K beam
		1.5-6.6					$\bar{p}$	130		
							π^+/π^-	$1.7\times10^4/1.2\times10^4$		
	B2	1.5-9 for $\bar{p}$ (otherwise same characteristics as B4, above)								To multiparticle spectrometer
	C2, C4	≤ 1.1	2	10.5	2.6	15	K^+/K^-	120/40	0.75	Usually 2×10^{12} ppp; $\pi/K \sim 10$ in K beam
							$\bar{p}$	2		
							π^+/π^-	$7\times10^4/6\times10^4$		
	C6, C8	≤ 0.8	2.5	5	15	15	K^+/K^-	840/280	0.75	
							$\bar{p}$	14		
							π^+/π^-	$5\times10^5/4\times10^5$		
Unseparated	A1	5-28.5	1.7	0	0.3	130	K^+/K^-	460/17	18	To multiparticle spectrometer; 10^{12} ppp
							$\bar{p}$	1.5		
							π^+/π^-	$1.3\times10^4/3000$		
	B1	6-28.5	1.7	0	0.3	75	K^+/K^-	1500/350	10	Usually 2×10^{12} ppp
							$p/\bar{p}$	$4\times10^4/85$		
							π^+/π^-	$4\times10^4/2\times10^4$		
	C1	6-24	5	0	0.8	61	π^-	2300	16	Usually 2×10^{12} ppp; $\mu/\pi \sim 3\%$
	A3	≤ 4	10	0	0.95	7	K^+	2.6×10^5	4	Typically 10^{11} ppp; alternates with A1
							p	0.8×10^6		
							π^+	1.8×10^6		
Neutral	B5	6-20		4	0.4	2.6	Λ/n	$300/4\times10^5$	6-20	Typically 10^{10} ppp
							K_S/K_L	$27/2\times10^4$		
	U	1.5 (peak)					$\nu/\bar{\nu}$	$10^6/5\times10^5$ per m^2		Typically 9×10^{12} ppp; to 7' b.c. and counter area; flux averaged over 0.7 m radius

CERN PS BEAMS [Source: "Experiments at CERN in 1979," Y. Goldschmidt-Clermont (editor)]

South Area — These are test beams. The fluxes are for $\Delta p/p = \pm 1\%$ and 3×10^{11} protons on target. The targets are internal, $2 \times 1 \times 10$ mm^3 of Be. There are auxilary test facilities d_{31a} and q_{12a} downstream of the d_{31} and q_{12} facilities.

Beam	Momentum (GeV/c)	Particles	Flux	Comments
d_{31}	≤ 10	positive negative	$\geq 10^6$ $\geq 10^5$	Fluxes at 6 GeV/c
b_{16}	≤ 24	neutral charged	5×10^5 10^5	
q_{12}	≤ 4.5	negative e^-	10^5 10^3	Maximum e^- flux at 2 GeV/c
m_{14}	≤ 1	positive negative	$\geq 10^5$ $\leq 10^5$	
t_1	< 1.5	positive negative	10^4 $< 10^4$	

East and South-East Area — These are primary proton beams.

Beam	Momentum (GeV/c)	Particles	Flux	Comments
e_{16}	≤ 18	p	10^{11}	Fast ejection
e_{15}	8-24	p	6×10^{12}	Slow ejection; splits into three branches
e_{18}	≤ 22	p	10^{13}	Fast ejection

East Area — These are counter beams. They are all fed by branches of the e_{15} beam above. The fluxes are for $\Delta p/p = \pm 1\%$ and 10^{12} protons on the (external) targets. All but the first beam are enriched by electrostatic separation.

Beam	Momentum (GeV/c)	Particles	Flux	Comments
p_{17}	5-14	π^-	4×10^6	Flux at 10 GeV/c
m_{16}	≤ 2.5	π^+	$\geq 10^5$	
k_{25}	≤ 1.3	$\bar{p}$	2.5×10^4	Flux at 1.3 GeV/c
k_{23}	0.5-1.0	$\bar{p}$	5×10^3	Flux at 0.8 GeV/c
k_{24}	≤ 1.5	K^-	$\leq 10^4$	Flux at 1.4 GeV/c

CERN SPS BEAMS [Source: "Experiments at CERN in 1979," Y.Goldschmidt-Clermont (editor)]

Beams in the North Area

Beam name	Maximum momentum (GeV/c)	Intensity of beam for 10^{13} incident protons at 400 GeV/c (based on measured values)	Beam type
H2	350	3×10^7 π^+ at 200 GeV/c 1×10^7 π^- at 200 GeV/c	High-energy hadron beam
H4/E4 or P4	320 (H4) 400/450(P4)	3×10^7 π^+ at 200 GeV/c 1×10^7 π^- at 200 GeV/c 1×10^6 $e^\pm$ at 150 GeV/c	High-energy hadron or electron beam or attenuated proton beam for production of N4
N4	<400/450	$1 \times 10^9 n/3 \times 10^{-16} sr/10^{11}$ p	Neutron beam
H6	200	6×10^7 π^+ at 150 GeV/c 2×10^7 π^- at 150 GeV/c	Medium-energy hadron beam
H8/P8	350(H8) 400/450(P8)	6×10^7 π^+ at 200 GeV/c 2×10^7 π^- at 200 GeV/c	High-energy hadron or proton beam
M2	280	2×10^7 μ^+ at 200 GeV/c 6×10^6 μ^- at 200 GeV/c	High-intensity muon beam
P0	450	$\sim 10^{13}$ p at 400/450 GeV/c	High-intensity primary proton beam for production of H10, E12
H10	450	3×10^9 π^+ at 200 GeV/c 1×10^9 π^- at 200 GeV/c	High-energy high-intensity hadron or proton beam
E12	300	3×10^9 e^- total with energy >100 GeV	Broad-band electron/photon beam

Beams in the West Area

Beam name	Maximum momentum (GeV/c)	Intensity of beam for 10^{12} incident protons at 240 GeV/c (based on measured values)	Beam type
S1	40	$\sim 2 \times 10^8$ $K^\pm$ (10-20 GeV/c) $\sim 2 \times 10^8$ $\bar{p}$ (20-30 GeV/c)	R.F. separated beam to Omega spectrometer
E1/H1	80/100	5×10^8 $e^\pm$ at 80 GeV/c 1×10^9 π^+ at 80 GeV/c 4×10^7 π^- at 80 GeV/c	Electron or hadron beam: south branch to Omega spectrometer, north branch to other experiments
P1	240	10^9 - 10^{12} protons	Attenuated proton beam: used to produce Y1+H5
Y1	150	3×10^3 $\Sigma^\pm$ at 150 GeV/c (for 10^9 incident protons)	Charged hyperon beam
H5	200	8×10^7 π^+ at 100 GeV/c 3×10^7 π^- at 100 GeV/c	High-energy hadron beam
S3	150	Separated K^+ up to 75 GeV/c Separated K^- up to 110 GeV/c	R.F. separated beam to BEBC bubble chamber
H5 TEST	96	$\leq 10^6$ π^-	TEST Beam

Beams in the West Area Neutrino Facility

Beam name	Parent momentum (GeV/c)	$\langle E_\nu \rangle$ (GeV)	Intensity of beam and/or event rate for 10^{13} incident protons*)		Beam type
N1	Spectrum up to 450 GeV/c	~ 30		1.17 ev/ton/m² 0.23 ev/ton/m²	Wide-band beam**)
N3	+ 275	67	1×10^8 ν_π	2×10^{-3} ev/ton	Narrow band or dichromatic beam*)
		200	1×10^7 ν_K	2×10^{-3} ev/ton	
	- 275	67	3×10^7 $\bar{\nu}_\pi$	1.5×10^{-4} ev/ton	
		200	8.3×10^6 $\bar{\nu}_K$	1.4×10^{-5} ev/ton	
	+ 200	53	5×10^8 ν_π	7×10^{-3} ev/ton	
		160	7×10^7 ν_K	3×10^{-3} ev/ton	
	- 200	53	1.3×10^8 $\bar{\nu}_\pi$	6×10^{-3} ev/ton	
		160	8.1×10^6 $\bar{\nu}_K$	1.1×10^{-4} ev/ton	
	+ 140	41	1×10^8 ν_π	1×10^{-2} ev/ton	
		120	6×10^6 ν_K	4×10^{-3} ev/ton	
	- 140	41	4×10^8 $\bar{\nu}_\pi$	1.4×10^{-3} ev/ton	
		120	2.4×10^7 $\bar{\nu}_K$	2.4×10^{-4} ev/ton	
	+ 60	22	1×10^8 ν_π	6×10^{-2} ev/ton	
		56	8×10^7 ν_K	1×10^{-3} ev/ton	
	- 60	22	1×10^9 $\bar{\nu}_\pi$	2×10^{-3} ev/ton	
		56	6.8×10^7 $\bar{\nu}_K$	3.1×10^{-4} ev/ton	

*) 450 GeV for N1, 400 GeV for N3.

**) The beam is defined as that flux falling inside a circle of diameter 1.5 m at the position of BEBC.

++) Flux integrated over a circle of 2 m diameter at BEBC position.

FERMILAB BEAMS (Source: H.B. White, Jr.)

Protons are accelerated to a maximum momentum of 500 GeV/c. The maximum intensity is 2.6×10^{13} protons per pulse. The repetition rate is 0.1/sec. Counting rates may be estimated using the nominal beam spill time of 1 sec.

Beam	Momentum range (GeV/c)	$\pm\Delta p/p$ (%)	Production angle (mr)	Solid angle (μsr)	Particles	Flux in thousands per sec per 10^{12} protons on target →	at (GeV/c)	Comments
p west p central p east	50-500				p	$< 2\times10^{13}$ per pulse		Note that flux units are different here
ITA	8-500				p			Internal primary protons, gas jet targets
M1E, W	20-400	0.1-1.5	0-3.5	2	π^-	4000 (at 3.5 mr)	200	Medium resolution beam
M2	20-400	0.1-1.4	0-1.1	0.2	p π^-	3000 (at 0.6 mr) 300	200	Diffracted protons available at 400 GeV/c with flux $< 10^{12}$ per pulse
M4	35-200	6	7-8	1	K^- π^-	60 100	75	
M6E, W	20-400	0.01-1.0	0-7	1.3	π^-	4000 (at 2.5 mr)	200	E to single-arm spectrometer, W to multiparticle spectrometer
N1	50-275 100-300	2	0-1	4-16	μ^+ π^+	150 > 1000	225	To muon/hadron spectrometer
N3	50-500	0.1-1.0	0-10	3	hadrons			To 30" b.c. and hybrid spectrometer
N5	50-500	0.1-1.0	0-10	3	hadrons			To 15" b.c.
P2	40-300	2.3	0-2	1.2	e^-	1000	200	p-east beam; also gives tagged γ's
P3	20-250 20-300	7 5	0-8 0	8	π^- $\bar{p}$	10^5 1000	200 100	p-west secondary beam
P4	20-350				Σ^-	2000	300	p-center beam charged hyperons
M3	300 (peak)		0.3-1.1	$\sim 10^{-4}$	n K^0_L	200/cm^2 5000	total	
P1	300 (peak)		0	0.04	n	4000	> 100	p-east beam; also gives tagged γ's
								<u>ν/ν̄ beams for general use or 15" b.c.</u>
NO-H	≤ 500		0	2800	ν/ν̄	30000/10000 per m^2	total	Fast spill only; horn focus; spectrum peaks at 17 GeV
NO-D	200-500	< 25		10	ν/ν̄	600/200 per m^2	total	Narrow band, sign selected; spectrum depends on tune
NO-T	50-300	2-30	0.5	4-16	ν/ν̄	2300/800 per m^2	total	Broad band, quadrupole focus; spectrum depends on tune; ΔΩ depends on momentum

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SERPUKHOV BEAMS (Source: Y.M. Antipov, F.A. Yoch)

Protons are accelerated to a maximum momentum of 70 GeV/c. The intensity is about 3×10^{12} protons per pulse. The repetition rate is 0.2/sec, and the beam spill time is about 2 sec.

Beam	Momentum range (GeV/c)	$\pm\Delta p/p$ (%)	Production angle (mr)	Solid angle (μsr)	Beam length (m)	Particles	Typical flux in particles per pulse	→ at (GeV/c)	Comments
2/14	30-70	1	6-35	10	120	hadrons+	10^6	60	Internal target lines 2A, 2B, 14
	30-60	1	0-5	30		hadrons-	10^6	60	
	5-45	3	0-7	30		e^-	10^6	30	May be used for polarized γ's
4	20-50	1	0-5	40	130	hadrons-	2×10^6	40	Internal target lines 4A, 4B, 4V, 4L, 4E
16	20-40	10	0-5	40	130	μ^-	10^6	40	
18	3-17	2	0-200	120	50	hadrons+	10^8	5	Internal target, ejection in ring
	2-14	2	240-400	80		hadrons-	10^4	8	
20	0.4-3.2	1	0	2800	20	hadrons±	10^8	1	External target, fast ejection
19	70		0			p	10^{12}	70	Slow ejection
4N	≤ 70		12	1	40	neutrals	10^7	total	Internal target
7	30-70	0.25	11.5	1-4	511.5	p	10^6	69	Internal target, unseparated
	20-50	0.25	0	40		π^+, $K^\pm$, $\bar{p}$	5-10		Fast ejection, separated
	20-55	0.25	0	10		π^-	5-10		Fast ejection, unseparated
9	< 25	0.5	0	30	194	$\pi^\pm$, $K^\pm$, $\bar{p}$, d	5		Fast ejection, separated
	10-13	1	0	30		$\bar{d}$	0.8	12.2	Separated
8	< 40 (mean = 6)		0	2500	500	ν, $\bar{\nu}$	5×10^9	total	Wide-band neutrino beam

SLAC BEAMS (Source: T. Fieguth)

In the normal mode, electrons are accelerated to ≤ 23.5 GeV/c or positrons to ≤ 15 GeV/c. The electron flux is $\leq 5 \times 10^{11}$ per pulse and the repetition rate is ≤ 360/sec; the positron flux is $\leq 2 \times 10^{10}$ per pulse and the repetition rate is ≤ 90/sec. In either case, the pulse length is 1.6 μsec. In the upgraded (SLED) mode, electrons are accelerated to ≤ 33.5 GeV/c, with 10^{11} per pulse, at a repetition rate ≤ 360/sec, and with a pulse length of 0.2 μsec.

Beam	Momentum range (GeV/c)	$\pm\Delta p/p$ (%)	Production angle (°)	Solid angle (msr)	Particles	Maximum particles per pulse	→ at (GeV/c)	Repetition rate (Hz)	Facility	Comments
21	1-16	≤ 4.0	1	0.03	K^+/K^-	17/8	10	≤ 180	LASS	Separated: $\pi/K \approx 1/30$
					$p/\bar{p}$	40/6				$\pi/\bar{p} \approx 1/14$
					π^+/π^-	10^3				
					e^-	10^4				
	1-8				e^+	10^4	2.5			
27	20	9.0 FWHM	0	10^{-7}	γ	10^2	20	≤ 20	40" b.c. hybrid facility	Backscattered laser beam; under construction
3	≤ 15	0.1-1.0			e^+	2×10^{10}	All	≤ 90	ESA 1 ½, 8, and 20 GeV/c spectrometers	e^+ beam requires high power source; all fluxes at $\Delta p/p = \pm 0.25\%$
	≤ 23.5	0.1-1.0			e^-	5×10^{11}	All	≤ 360		
	3.237 j (j = 1,···,6)	0.1-1.0			e^-	5×10^{11}		120, 180		+ High intensity source; longitudinal polarization = 0.4
	3.237 j (j = 1,···,6)	≥ 0.5			e^-	10^9		≤ 360		+ Low intensity source; longitudinal polarization = 0.85
	≤ 21.5	Brems.	0		γ	4×10^9 EQ	20	≤ 360		+ 0° bremsstrahlung
	5-15	7-10	0		γ	5×10^7 EQ	All	≤ 360		+ Coherent bremsstrahlung, linearly polarized (10^9 EQ without collimation)
	≤ 21.5	Brems.	0		γ	2×10^8 EQ		≤ 360		+ Linearly polarized at maximum energy by coherent pair production in graphite
6	0.1-16	≤ 2.0	1.6-6	0.03	e^-	10		≤ 60	Test beam	
	1-16				π^-	10				
19	1-16	0.25	0		e^+	10		≤ 60	Test beam	Very pure; $\sigma_x = 1$ mm