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CURRENT EXPERIMENTS IN ELEMENTARY PARTICLE PHYSICS

C.G. Wohl, F.E. Armstrong, A. Rittenberg, T.G. Trippe, G.P. Yost

Particle Data Group, Lawrence Berkeley Laboratory, Berkeley, CA 94720 USA

Y. Oyanagi

University of Tsukuba, Sakura-mura, Niihari-gun, Ibaraki-ken 305, Japan

D.C. Dodder

Los Alamos National Laboratory, Los Alamos, NM 87545, USA

S.N. Grudtsia, Yu.G. Ryabov

Institute for High Energy Physics, Serpukhov, Protvino, Moscow Region 142 284, USSR

R. Frosch

Swiss Institute for Nuclear Research, CH-5234 Villigen, Switzerland

A. Olin

TRIUMF, 4004 Wesbrook Mall, Vancouver BC V6T 2A3, Canada

F. Lehar

DPhPE-SEPh, CEN Saclay, F-91190 Gif-sur-Yvette, France

A.A. Vorobiev

Leningrad Nuclear Physics Institute, Gatchina, Leningrad 188 350, USSR

B.P. Barkov

Institute of Theoretical and Experimental Physics, Moscow 117 259, USSR

Abstract -- This report contains summaries of 551 approved experiments in elementary particle physics (experiments that finished taking data before 1 January 1980 are excluded). Included are experiments at Brookhaven, CERN, CESR, DESY, Fermilab, Moscow Institute of Theoretical and Experimental Physics, Tokyo Institute of Nuclear Studies, KEK, LAMPF, Leningrad Nuclear Physics Institute, Saclay, Serpukhov, SIN, SLAC, and TRIUMF, and also experiments on proton decay. Properties of the fixed-target beams at most of the laboratories are summarized. Instructions are given for searching online the computer database (maintained under the SLAC/SPIRES system) that contains the summaries.

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EXAMPLE FROM THE MICROFICHE (INSIDE BACK COVER)

FOR ABBREVIATIONS USED FOR PARTICLES, INSTITUTIONS, ETC., SEE THE YELLOW PAGES.

CERN-UA-001 (JAN 1978); APPROVED JUN 1978, JUN 1983, SEP 1983, FEB 1984.

A 4PI SOLID ANGLE DETECTOR FOR THE SPS USED AS A PROTON-ANTIPROTON COLLIDER AT A C.M. ENERGY OF 540 GEV

AACH -- K EGGERT, P ERHARD, H FAISSNER, H GRASSMANN, H LEHMANN, H MOSER, E RADERMACHER, T REDELBERGER, H REITHLER, E TSCHESLOE
 ANIK -- J DORENBOSCH, R HERTZBERGER, D HOLTHUIZEN, B VAN EIJK
 LAPP -- B AUBERT, P CATZ, J COLAS, M DELLA NEGRA, P GHEZ, A GOMIDEZ, J P LEES, D LINGLIN, M N MINARD, J P VIALLE, M YVERT
 BIRM -- M CORDEN, J DOWELL, J GARVEY, R J HOMER, I KENYON, T MCMAHON, STREETS, P WATKINS, J WILSON
 CERN -- A BEZAGUET, R BOCK, P CENNINI, S CITTOLIN, M DEMOULIN, D DIBITO TO, M ELLIS, H HOFFMANN, W JANK, G JORAT, D KRYN, A LEVEQUE(**SPOKESPERSON), M LEVI, T MARKIEWICZ, G MAURIN, O MEYER, T MEYER, F MULLER, L MAUMANN, A MORTON, F PAUSS, A PLACCI, J P PORTE, R RAJA, P ROSSI, J P REVOL, M RIJSSENBEEK, C RUBBIA(**SPOKESPERSON), B SADOULET, D SCHINZEL, K C T O SUMOROK, V VUILLEMIN, R WILKE, T WYATT
 HARV -- S GEER, M GOODMAN, J ROHLF, R WILSON
 HELS -- V KARIMAKI, R KINNUNEN, E PIETARINEN, M PINIA, J TUOMINIEMI
 LOIC -- I SIOTIS, J VIRDEE
 LOQM -- R BATTLE, E BUCKLEY, E EISENHANDLER, W R GIBSON, A HONMA, P KALMUS, R KEELER, P KYBERG, G SALVI, G THOMPSON
 PADO -- A BETTINI, G Busetto, S CENTRO, M DE GIORGI, A MENEGUZZO, D PASCOLI
 CDEF -- L DOBRZYNSKI, G FONTAINE, C GHESQUIERE, Y GIRAUD-HERAUD, J P MENDIBU U, A ORKIN-LECOURTOIS, G SAJOT, J VRANA
 UCR -- R FREY, P GUTIERREZ, C HODGES, A KERNAN, W KOZANECKI, K MORGAN, J RANDDELL, D SMITH
 ROMA -- C BACCI, F CERADINI, G CIAPETTI, A DI CIACCIO, F LACAVA, M MORICCA, L PAOLUZI, G PIANO-MORTARI, G SALVINI, L ZANELLO
 RHEL -- M ALBROW, G ARNISON, A ASTBURY, B DENEY, G GRAYER, W J HAYNES, A K NA I, C ROBERTS, W SCOTT, T SHAN
 SACL -- C COCHET, M DEBEER, D DENEGRI, A GIVERNAUD, J P LAUGIER, E LOCCI, M LOKEY, J RICH, J SAAS, A SAVOY-WAVARRO
 VIEN -- D DALLMANN, R FRUHWIRTH, J STRAUSS, F SZONCSO, H WAHL, C WULZ
 WISC -- G BAUER, D CLINE, M MOHAMMADI
 KIEL -- O C ALLKOFER, D DAU, R LEUCHS, S LEVERGRUN

<ACCELERATOR> CERN-PBAR/P <DETECTOR> UA1

<REACTIONS STUDIED>
 AP P -->

540, 630 GEV (ECM)

<PARTICLES STUDIED>
 W+, W-, Z0, HIGGS, SUPERSYM

<EXPERIMENTAL COMMENT> HAS DISCOVERED THE W AND Z BOSONS AND ALSO FOUND A FEW EVENTS COMPATIBLE WITH THE EXISTENCE OF THE TOP QUARK. THE PRESENT PROGRAM INCLUDES A SEARCH FOR VARIOUS HIGH-MASS PARTICLES SUCH AS NEW QUARKS AND SUPERSYMMETRIC PARTICLES, AND AN INVESTIGATION OF QUARK AND GLUON INTERACTIONS, ETC. FOR A DESCRIPTION OF THE APPARATUS, SEE THE LBL-91 SUPPLEMENT ON DETECTORS. TAKING DATA (NOVEMBER 84).

<PUBLISHED PAPERS> PL 118B (1982) 167, PL 118B (1982) 173, PL 121B (1983) 77, PL 122B (1983) 103, PL 122B (1983) 189, PL 123B (1983) 108, PL 123B (1983) 115, PL 126B (1983) 398, PL 128B (1983) 336, PL 129B (1983) 273, PL 132B (1983) 214, PL 132B (1983) 223, PL 134B (1984) 469, PL 135B (1984) 250, PL 136B (1984) 294, AND PL 139B (1984) 115.

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INTRODUCTION

The microfiche at the back of this report contains summaries of 551 approved experiments in elementary particle physics. An example from the summaries is given on the inside front cover. Note that a summary includes a list of the published papers that have come from the experiment. A list of all the experiments with their titles begins on p. 5. Experiments that finished taking data before 1 January 1980 are not included here but are available on a computer database (see below). Experiments at the following laboratories are included:

Brookhaven (BNL)	KEK
CERN	Leningrad Nuclear Physics Institute (LENI)
CESR	Los Alamos (LAMPF)
DESY	Saclay
Fermilab (FNAL)	Serpukhov (SERP)
Institute for Nuclear Studies, Tokyo (INS)	SIN
Institute for Theoretical and Experimental Physics, Moscow (ITEP)	SLAC
	TRIUMF

There are also summaries of proton decay experiments (P-DECAY)

Computer database -- This report is produced from a computer database maintained at SLAC under the SPIRES database management system. The database, named EXPERIMENTS, also contains information from earlier editions of this report about many experiments completed before 1980 (going back to about 1975, and including experiments at Argonne and Rutherford). A guide to gaining access to and searching the EXPERIMENTS database online begins on p. 3.

Sources of information -- Our first information about an experiment usually comes from the proposal for the experiment. Then we follow the progress of the experiment as best we can in laboratory reports such as "Experiments at CERN in 1984" and the "SLAC Users' Bulletin". Finally, a few months before an edition of this report is to appear, we send copies of the summaries of the experiments to the spokespersons for checking and updating. If a reply is received -- as was the case for well over half the experiments -- there is a "-." next to "spokesperson" on the summary. (A single "-" indicates a reply for our 1983 edition, but none this time.)

Supplement on detectors -- This report has a supplement entitled "Major Detectors in Elementary Particle Physics." For each detector, there is a 2-page summary giving properties and performance characteristics and a diagram. The second edition, covering about 50 detectors, appears together with this edition of "Experiments."

Guides to the microfiche -- There are four aids for finding particular experiments on the microfiche. One is the list of experiments and their titles already mentioned. The second is an index of initial-state particles and beam momenta, in order of increasing particle mass and momentum. The third is an index of spokespersons. Finally, the table of contents of "Major Detectors in Elementary Particle Physics" lists the experiments that use the detectors described therein.

Abbreviations -- To keep the summaries on the microfiche brief, abbreviations are used to

indicate journals, kinematic variables, accelerators, detectors, particles, and institutions. The abbreviations are usually obvious but are defined in the yellow pages at the center of the report.

Properties of particle beams – Tables at the back of the report summarize the properties of beams for fixed-target experiments at Brookhaven, CERN, Fermilab, KEK, LAMPF, Serpukhov, SIN, SLAC, and TRIUMF.

Acknowledgments – We thank L. Addis (SLAC) for much help with the SPIRES database system, M. Ferro-Luzzi (CERN) for permission to make extensive use of "Experiments at CERN in 1984," J. Coleman (FNAL) for information about Fermilab experiments, G. Bunce (BNL) for information about Brookhaven experiments, J. Doornbus (TRIUMF) for a discussion about TRIUMF beams, and the 349 spokespersons who took the time to reply to our inquiries.

Comments and requests – We invite comments pointing out omissions, obscurities, out-of-date information, and errors. Comments should be sent to:

Particle Data Group (50-308)
Attn: EXPERIMENTS
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

SEARCHING THE EXPERIMENTS COMPUTER DATABASE ONLINE

As mentioned in the Introduction, the information in this report, and similar information about many earlier experiments, is contained in a computer database named EXPERIMENTS maintained at SLAC under the SPIRES database management system.

Anyone who has a SLAC account can access this database online. If you have an account but are unfamiliar with SPIRES, a "Guide to VM SPIRES" is available from the SLAC Library, Bin 196, SLAC, P.O. Box 4349, Stanford, CA 94305, USA (phone: 415/854-3300, ext. 2411). If you do not have an account and cannot find anyone who does (at main laboratories, ask at the library), contact Louise Addis of the SLAC Library. If you just want to try out the system, contact us about using a temporary guest account: Particle Data Group, 50-308, Lawrence Berkeley Laboratory, Berkeley, CA 94720, USA (phone: 415/486-5885, or FTS 451-5885).

The EXPERIMENTS database is also available under a different system in Europe (contact M. Whalley, Dept. of Physics, Univ. of Durham, South Road, Durham DH1 3LE, England) and in the USSR (contact V. V. Ezhela, Inst. for High Energy Physics, Serpukhov, Moscow Region, USSR).

A brief description of how to use the EXPERIMENTS database under SPIRES follows. Words *not* enclosed in angular brackets <> are to be typed in as given (only the letters in **BOLDFACE UPPER CASE** are needed, and these may be entered in upper or lower case). Words in angular brackets are "variables" for which the user substitutes an appropriate value, again in either upper or lower case (the brackets are *not* typed).

If you will be communicating with the SLAC computer (an IBM 3081 running VM/CMS) at 1200 BAUD or less (such as over telephone lines or with a hardcopy terminal), you will need to set your terminal/modem for half-duplex operation, and you will be running in line-by-line mode. If you will be communicating at a speed greater than 1200 BAUD, you will need to use full-duplex operation, and you will be running in full-screen mode. You will usually connect to the computer through the "MICOM switch," which will ask you what "class" you want. If you are set up for line-by-line mode, type:

VM

If you are set up for full-screen mode, type:

24VM

In full-screen mode, you will then be asked to type a carriage return, and for the kind of terminal you are using (e.g., VT100 or ADM3A). Finally, in either mode, type an extra carriage return after you see the message VM/370 ONLINE. [Note that in full-screen mode, whenever the screen fills up (indicated by the word MORE at the bottom), you must clear it by hitting the CLEAR key (which may be ENTER or CONTROL-Z on your terminal). Also, if you are listing out information and want to terminate the listing prematurely, type in HT and a carriage return before hitting the CLEAR key. In line-by-line mode, you can terminate a listing prematurely by hitting the BREAK or ATTN key.]

After going through the above connection procedure, log on to the computer by typing:

Logon <your-account>

(e.g., **Logon JDOE**)

Then type your password when asked for it (it will not show on your terminal), and finally type an extra carriage return after the system gives its introductory messages.

To enter the SPIRES system, type:

SPIRES

To get a detailed explanation of how to use a particular SPIRES command, type:

EXPLAIN <command-word>

(e.g., **EXPLAIN FIND, EXPLAIN EXPLAIN, EXPLAIN EVERYTHING**)

To access the database, type:

SELECT EXPERIMENTS

To find out what indices are available for searching in this database (and the various index names you may use to refer to them), type:

SHOW INDEX

To see a random selection of values in an index (and thus determine the form to use for a search value), type:

BROWse <index-name>
(e.g., **BROWse** EXPeriment-num)

To see a selection of values in an index near a particular value (perhaps to see if a value you are interested in is valid, or to see nearby values), type:

BROWse <index-name> <value>
(e.g., **BROWse** EXPeriment-num SLAC-PEP)

To search for experiments satisfying certain criteria, type:

FIND <index-name> <value> **AND(OR)** <index-name> <value> ...

Some sample searches are:

FIND EXPeriment-num CERN-UA-001

FIND Author RUBBIA

FIND DETector OMEGA OR OMEGAPRIME

FIND Title J/PSI

This finds any experiment with J/PSI as part of the title.

FIND CITation "PRL 46 (1981) 1115"

Note that the above form, with spaces but no commas between the elements, must be used. Note also the quotes which are required here and in the following two examples; for an explanation, see the discussion below on *Searching Problems*.

FIND REaction "PI- P --> PI0 N" **AND** ACcelerator KEK

The "arrow" here is composed of two minus signs and a greater-than sign. Specifying the reaction as, e.g., **PI- P#** would get all reactions with π^-p as the initial state, regardless of the final state.

FIND Particle "UPSI(9460)"

Searching Problems: If your search does not find any experiments, there are two common reasons why it may have failed spuriously. (1) You may have used an incorrect form for the value for which you were searching (e.g., an incorrect particle or experiment name). To find out the correct form, use the **BROWSE** command for the index you are searching (see above), or look in the lists of names and abbreviations given in the central section (colored pages) of this report. Note, in particular, that most antiparticle names are formed by preceding the particle name with the letter A; thus the antiproton is AP rather than PBAR. (2) Any search value containing any of the special characters () < > = must be enclosed in quotes; see the examples for CITATION, REACTION, and PARTICLE above.

After entering a **FIND** command, you will be told the number of experiments satisfying the criteria given. At this point, you have several options: (1) You may list out the information available for these experiments (in the format shown on the inside front cover of this report) by typing:

TYPE (or **TYPE PAUSE** if you are in line-by-line mode on a CRT terminal)

(To find out how to terminate a listing prematurely, see the note in the center of the previous page.)

Or (2) you may narrow down the list already found (i.e., add more selection criteria) by typing:

AND <index-name> <value>

Or (3) you may broaden the list already found (i.e., include more cases) by typing:

OR <index-name> <value>

Or (4) you may initiate a new search with a new **FIND** command, or issue any other command.

To switch to a briefer format (which does not list reactions and certain other information), type:

SET **Format QUICKLIST**

To switch back to the complete format, type:

SET **Format DEFAULT**

To terminate the session and log off the computer, type:

CP LOGoff

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT

TITLE

BNL-698	POLARIZED TARGET PHYSICS WITH THE MPS FOR STUDY OF STRANGE-PARTICLE REACTIONS
BNL-702	RADIATIVE DECAY $\Sigma^0 \rightarrow \gamma + p$ GAMMA FROM POLARIZED Σ^0 HYPERONS
BNL-705	A SEARCH FOR NARROW AND BROAD RESONANCES DECAYING INTO KSHORT KSHORT, LAMBDA ANTI-LAMBDA, LAMBDA KSHORT AND ANTI-LAMBDA KSHORT FROM $P \rightarrow P$ INTERACTIONS AT 20 GEV/C USING THE BNL MPS
BNL-708	SEARCH FOR GAMMA TRANSITIONS IN $P \rightarrow P$ ANNIHILATIONS AT REST AND LOW ENERGIES
BNL-722	FURTHER SEARCH FOR EXOTIC SIX-QUARK STATES
BNL-725	A PRECISION MEASUREMENT OF THE MAGNETIC MOMENT OF THE NEGATIVE SIGMA HYPERON BY THE EXOTIC ATOMS TECHNIQUE
BNL-726	SEARCH FOR CHARM IN NARROWCROSS INTERACTIONS NEAR THRESHOLD
BNL-732	SEARCH FOR THE η AND η'
BNL-734	A MEASUREMENT OF THE ELASTIC SCATTERING OF NEUTRINOS FROM ELECTRONS AND PROTONS
BNL-735	TRANSVERSE MUON POLARIZATION IN $K^+ \rightarrow \mu^+ \pi^0$ MU DECAYS; AN EXPERIMENTAL TEST OF TIME REVERSAL INVARIANCE
BNL-737	STUDY OF NEUTRINO INTERACTIONS IN DEUTERIUM
BNL-742	SEARCH FOR THE ϕ MESON IN THE TOTAL ELASTIC AND ANNIHILATION $P \rightarrow P$ CROSS SECTIONS
BNL-744	MEASUREMENT OF INCLUSIVE SIGMA ϕ PRODUCTION RATE AND POLARIZATION IN THE REACTION $p + \text{Be} \rightarrow \text{Sigma}^0 + K$
BNL-745	AN IMPROVED TEST OF OED -- AN EXPERIMENT TO MEASURE VACUUM POLARIZATION IN THE 3D-3P TRANSITIONS IN MUONIC HELIUM
BNL-746	SPIN AND ISOSPIN EFFECTS IN LIGHT HYPERNUCLEI
BNL-747	A HIGH STATISTICS STUDY OF Π AND Π PHI Π PRODUCTION FROM $P \rightarrow P$ AND $K \rightarrow P$ INTERACTIONS AT 22 GEV/C -- A SEARCH FOR GLUEBALLS
BNL-748	POLARIZATION IN $P \rightarrow P$ ELASTIC SCATTERING AT MEDIUM AND HIGH PT FROM 15 TO 28.5 GEV/C
BNL-749	A MEASUREMENT OF MILLIWEAK CP VIOLATION IN KL-KS DECAYS THROUGH THE DETERMINATION OF EPSILON-PRIME
BNL-751	MEASUREMENT OF HYPERON RADIATIVE DECAY
BNL-752	A SEARCH FOR SIGMA HYPERNUCLEAR LEVELS IN $O(16)$ IN THE (K^-, P) REACTION
BNL-754	DETERMINATION OF THE DYNAMICS OF μ^+ MOTION IN ALUMINUM
BNL-755	$P \rightarrow P$ TWO-BODY EXCLUSIVE REACTIONS AT 90 DEG FROM 8 GEV/C TO 18 GEV/C, AND (PHASE II) LARGE ANGLE EXCLUSIVES -- POSITIVES AND POLARIZATION
BNL-758	THE (P, K) REACTION -- A NEW TOOL FOR THE STUDY OF HYPERNUCLEAR STRUCTURE
BNL-759	THE WEAK DECAY MODES OF HYPERNUCLEI
BNL-760	SPIN DEPENDENCE OF THE LAMBDA NUCLEUS INTERACTION DETERMINED BY OBSERVATION OF HYPERNUCLEAR GAMMA RAYS
BNL-762	SEARCH FOR NARROW STRUCTURES IN THE $P \rightarrow P$ ANNIHILATION CROSS SECTION FROM 1900 TO 1950 MEV
BNL-766	DEVELOPMENT OF THE HARDWARE PROCESSOR TECHNIQUE. STUDY OF Ω - PRODUCTION AND SPIN. STUDY OF $N \rightarrow$ ALL CHARGED.
BNL-767	DEVELOPMENT OF A LOW ENERGY ANTINEUTRON SOURCE AND MEASUREMENT OF $N \rightarrow P$ ANNIHILATION CROSS SECTIONS NEAR ANTI-NUCLEON-NUCLEON THRESHOLD
BNL-769	SEARCH FOR GLUEBALLS AND OTHER MESON STATES
BNL-771	STUDY OF ϕ -MESON CHARACTERISTICS IN $P \rightarrow P$, $K \rightarrow P$, AND $P \rightarrow P$ INTERACTIONS
BNL-772	SEARCH FOR $P \rightarrow P$ -NEUTRON BOUND AND RESONANT STATES
BNL-773	SEARCH FOR $S=1$ DIABARYON STATE IN THE LAMBDA P MISSING MASS SPECTRUM NEAR THE SIGMA NUCLEON THRESHOLD IN THE REACTION $D(K^-, P) \rightarrow \text{LAMBDA } P$
BNL-774	SEARCH FOR SIGMA HYPERNUCLEAR LEVELS IN He^4
BNL-775	NEUTRINO OSCILLATION EXPERIMENTS AT THE AGS TO COVER THE INTERVAL $0.1 < \Delta E^2 \sin^2(\alpha) < 100 \text{ EV}^2$
BNL-776	NEUTRINO OSCILLATION EXPERIMENT AT BNL
BNL-777	SEARCH FOR THE RARE DECAY MODE $K^+ \rightarrow \pi^0 \mu^+ e^-$
BNL-778	STUDY OF NUCLEAR FRAGMENTS PRODUCED FROM P NUCLEUS COLLISIONS IN THE THRESHOLD REGION $1 < p < 28 \text{ GEV/C}$ USING A WARM GAS JET INTERNAL TARGET
BNL-779	USE OF 28-GEV PROTON EXTERNAL BEAM FOR NUCLEAR SPECTROSCOPY AND NUCLEAR REACTION STUDIES
BNL-780	A SEARCH FOR THE FLAVOR CHANGING NEUTRAL CURRENTS $K^0 \rightarrow \mu^0$ MUON ELECTRON AND $K^0 \rightarrow \mu^0 e^- e^+$
BNL-781	SPIN DEPENDENCE OF THE LAMBDA NUCLEUS INTERACTION DETERMINED BY OBSERVATION OF HYPERNUCLEAR GAMMA RAYS
BNL-782	SPIN-SPIN EFFECTS IN MEDIUM AND HIGH MOMENTUM TRANSFER ELASTIC $P \rightarrow P$ SCATTERING
BNL-785	SINGLE SPIN ASYMMETRY MEASUREMENT IN INCLUSIVE P (POLARIZED) P REACTIONS AT 24 GEV/C AT HIGH TRANSVERSE MOMENTUM
BNL-787	A STUDY OF THE DECAY $K^+ \rightarrow \pi^0 \mu^+ \nu_{\mu}$
BNL-788	THE FOUR-FERMION WEAK INTERACTION AND THE DECAY OF LAMBDA- He^4 AND LAMBDA- He^3
BNL-789	SEARCH FOR $\chi(2.22)$ FORMATION IN $P \rightarrow P$ INTERACTIONS
BNL-790	NUCLEAR STOPPING POWER MEASUREMENTS WITH 18-GEV/C PROTONS
BNL-791	STUDY OF VERY RARE K -LONG DECAYS
CERN-1S-010	DETERMINATION OF THE ELECTRON NEUTRINO MASS FROM EXPERIMENTS ON ELECTRON-CAPTURE BETA DECAY (EC)
CERN-LEP-ALEPH	THE ALEPH DETECTOR
CERN-LEP-DELPHI	DELPHI
CERN-LEP-L3	L3 EXPERIMENT
CERN-LEP-OPAL	OPAL COLLABORATION LEP
CERN-NA-001	MEASUREMENT OF THE PHOTOPRODUCTION OF VECTOR AND SCALAR BOSONS
CERN-NA-002	ELECTROMAGNETIC INTERACTIONS OF MUONS
CERN-NA-003	DIRECT PHOTON PRODUCTION IN HADRON-HADRON COLLISIONS AT THE SPS.
CERN-NA-004	INCLUSIVE DEEP INELASTIC MUON SCATTERING
CERN-NA-005	A STUDY OF HARD HADRON-HADRON COLLISIONS WITH A STREAMER CHAMBER VERTEX SPECTROMETER AND A CALORIMETER TRIGGER
CERN-NA-006	NEUTRON ELASTIC SCATTERING AT VERY SMALL ANGLES
CERN-NA-007	MEASUREMENT OF THE ELECTROMAGNETIC FORM FACTORS OF Π AND K MESONS AT THE SPS
CERN-NA-008	HADRON ELASTIC SCATTERING AT SMALL ANGLES
CERN-NA-009	STUDY OF FINAL STATES IN DEEP INELASTIC MUON SCATTERING
CERN-NA-010	HIGH RESOLUTION STUDY OF THE INCLUSIVE PRODUCTION OF MASSIVE MUON PAIRS BY INTENSE P ION BEAMS
CERN-NA-011	MEASUREMENT OF CHARMED PARTICLE PRODUCTION IN HADRONIC REACTIONS
CERN-NA-012	STUDY OF $P \rightarrow P$ INTERACTIONS WITH NEUTRAL FINAL STATES
CERN-NA-014	PHOTOPRODUCTION AT HIGH ENERGY AND HIGH INTENSITY
CERN-NA-014-2	A PROGRAM OF HEAVY FLAVOR PHOTOPRODUCTION
CERN-NA-016	STUDY OF THE HADRONIC PRODUCTION AND PROPERTIES OF NEW PARTICLES WITH A LIFETIME 10^{-13} S $< \tau < 10^{-10}$ S USING LEB-CHS
CERN-NA-017	MOMENTUM AND ANGULAR CORRELATIONS STUDY IN $P \rightarrow$ NUCLEI JETS AT HIGH ENERGIES USING AN EMULSION TELESCOPE TECHNIQUE WITH MAGNETIC FIELD
CERN-NA-018	SEARCH FOR SHORT-LIVED PARTICLES PRODUCED ON NUCLEI WITH A HEAVY LIQUID MINI BUBBLE CHAMBER
CERN-NA-019	DIRECT OBSERVATION OF BEAUTY PARTICLES SELECTED BY MUONIC DECAY IN EMULSION
CERN-NA-020	MEASUREMENTS OF Π^+ , Π^- , K^+ , K^- , P , AND P AN YIELDS IN 400 GEV PROTON BERYLLIUM AND COPPER COLLISIONS
CERN-NA-022	THE INFLUENCE OF PARTON STRUCTURE ON HADRONIC INTERACTIONS IN EHS WITH A $K^0/\Pi^0/P$ BEAM AT 250 GEV/C
CERN-NA-023	STUDY OF DIFFRACTIVE DISSOCIATION ESPECIALLY INTO STRANGE AND CHARMED PARTICLES WITH EHS

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT

TITLE

CERN-WA-024	DEEP INELASTIC SCATTERING PROCESSES INVOLVING LARGE PT DIRECT PHOTONS IN THE FINAL STATE
CERN-WA-025	STUDY OF CHARM AND BOTTOM PARTICLE PRODUCTION USING A HOLOGRAPHIC BUBBLE CHAMBER
CERN-WA-027	AN EXPERIMENT TO MEASURE ACCURATELY THE LIFETIME OF THE D_0 , D^+ , D^- , F^- , F^+ , $\Lambda_{b0}/\Lambda_{b1}$ CHARM PARTICLES AND TO STUDY THEIR HADRONIC PRODUCTION AND DECAY PROPERTIES
CERN-WA-028	STUDY OF SHADOWING AND HADRON PRODUCTION IN HIGH ENERGY MUON SCATTERING USING NUCLEAR TARGETS
CERN-WA-029	STUDY OF P_T - $P_{\perp}$ PRODUCTION VIA THE PRIMAKOFF EFFECT ON NUCLEI
CERN-WA-030	PRECISION DETERMINATION OF THE LIFETIME OF THE NEUTRAL PION
CERN-WA-031	MEASUREMENT OF THE RATIO η/ω SQUARED TO η/π SQUARED
CERN-WA-032	INVESTIGATION OF CHARM PRODUCTION IN HADRONIC INTERACTIONS USING HIGH-RESOLUTION SILICON DETECTORS
CERN-WA-033	AN EXPERIMENTAL STUDY OF SINGLE-VERTEX ($E^- E^+$) PAIR CREATION IN A CRYSTAL
CERN-WA-034	LEPTON PRODUCTION
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CERN-PS-160	MEASUREMENT OF A AND R PARAMETERS IN THE REACTION $P_{\perp} + P \rightarrow K^+ \Sigma^0$
CERN-PS-161	SEARCH FOR STRONGLY BOUND STATES OF THE ANTIPROTON-PROTON, ANTIPROTON-DEUTERON, AND ANTIPROTON-FEW-NUCLEON STATES
CERN-PS-162	STUDY OF THE STRUCTURE OF EXOTIC LIGHT NUCLEI PRODUCED AT THE PS
CERN-PS-163-2	MEASUREMENT OF THE $P_{\perp}$ P EXCITATION FUNCTION
CERN-PS-164	THE INFLUENCE OF CHANNELLING ON ATOMIC AND NUCLEAR REACTION YIELDS
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CERN-PS-169	SEARCH FOR NEUTRINO OSCILLATIONS
CERN-PS-170	PRECISION MEASUREMENTS OF THE PROTON ELECTROMAGNETIC FORM FACTORS IN THE TIME-LIKE REGION AND VECTOR MESON SPECTROSCOPY
CERN-PS-171	A STUDY OF $P_{\perp}$ -P INTERACTIONS AT REST IN A H_2 GAS TARGET AT LEAR
CERN-PS-172	$P_{\perp}$ -P TOTAL CROSS SECTIONS AND SPIN EFFECTS IN $P_{\perp} + P \rightarrow K^+ K^-$, $P_{\perp} + P_{\perp}$, $P_{\perp} + P$ ABOVE 200 MEV/C
CERN-PS-173	MEASUREMENT OF $P_{\perp}$ -P CROSS SECTIONS AT LOW $P_{\perp}$ MOMENTA
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CERN-PS-175	MEASUREMENT OF THE ANTIPROTONIC LYMAN- α AND BALMER X-RAYS OF $P_{\perp}$ -H AND $P_{\perp}$ -D ATOMS AT VERY LOW TARGET PRESSURES
CERN-PS-176	STUDY OF X-RAY AND GAMMA-RAY SPECTRA FROM ANTIPROTONIC ATOMS AT THE SLOWLY EXTRACTED ANTIPROTON BEAM OF LEAR
CERN-PS-177	A SEARCH FOR HEAVY HYPERNUCLEI AT LEAR
CERN-PS-178	ANTINEUTRON PRODUCTION AT LEAR
CERN-PS-179	STUDY OF THE INTERACTION OF LOW-ENERGY ANTIPROTONS WITH H_2 , He_3 , He_4 , AND NE NUCLEI USING A STREAMER CHAMBER IN A MAGNETIC FIELD
CERN-PS-180	SEARCH FOR NEUTRINO OSCILLATIONS AT CERN PS USING BEBC
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CERN-PS-182	INVESTIGATIONS ON RAYONIUM AND OTHER RARE $P_{\perp}$ -P ANNIHILATION MODES USING HIGH-RESOLUTION $P_{\perp}$ SPECTROMETERS
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CERN-PS-189	HIGH PRECISION MASS MEASUREMENTS WITH A RADIOFREQUENCY MASS SPECTROMETER -- APPLICATION TO THE MEASUREMENT OF THE PROTON-ANTIPROTON MASS DIFFERENCE
CERN-PS-191	SEARCH FOR DECAYS OF HEAVY NEUTRINOS WITH THE PS BEAM
CERN-PS-192	STUDY OF THE ENERGY DEPENDENCE OF THE ANOMALOUS MEAN FREE PATH EFFECT BY MEANS OF HIGH-ENERGY (> 12 GEV/NUCLEON) HELIUM NUCLEI
CERN-R-110	STUDY OF HIGH MASS ELECTRON PAIRS AND HIGH P_T PHENOMENA
CERN-R-210	PRECISE MEASUREMENT OF THE PROTON-ANTIPROTON TOTAL CROSS SECTION AT THE CERN-ISR
CERN-R-211	MEASUREMENT OF THE ANTIPROTON-PROTON TOTAL CROSS-SECTION AT THE CERN-ISR
CERN-R-416	STUDY OF RARE EVENTS AT THE SPLIT FIELD MAGNET
CERN-R-418	STUDY OF LIGHT ION COLLISIONS
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CERN-R-420	STUDY OF $W(\pm)$ PHYSICS IN $P_{\perp}$ -P INTERACTIONS AT THE SPLIT FIELD MAGNET
CERN-R-421	STUDY OF PROTON-PROTON AND PROTON-ANTIPROTON COLLISIONS AT THE SPN FACILITY OF THE CERN ISR
CERN-R-422	STUDY OF HEAVY FLAVORS PRODUCTION IN P P INTERACTIONS AT $\sqrt{s} = 62$ GEV
CERN-R-501	SEARCH FOR MAGNETIC MONOPOLES
CERN-R-608	LARGE-X HADRON PHYSICS AND CORRELATIONS WITH CENTRAL REGION PHENOMENA
CERN-R-703	EVALUATION OF A LARGE STREAMER CHAMBER DETECTION SYSTEM AND A STUDY OF ANTIPROTON-PROTON PROTON-PROTON DIFFERENCES AT ISR ENERGIES
CERN-R-704	CHARMONIUM SPECTROSCOPY AT THE ISR USING AN ANTIPROTON BEAM AND A HYDROGEN JET TARGET
CERN-R-806	STUDY OF LARGE TRANSVERSE MOMENTUM PHENOMENA
CERN-R-807	A STUDY OF LARGE TRANSVERSE MOMENTUM PHENOMENA
CERN-R-808	A STUDY OF DIRECT PHOTON PRODUCTION
CERN-SC-077	DETERMINATION OF THE BRANCHING RATIO FOR THE DECAY $\pi^0 \rightarrow e^+ e^-$
CERN-SC-094	STUDY OF THE PRODUCTION OF SINGLE PIONS IN PION-PROTON COLLISIONS NEAR THRESHOLD
CERN-UA-001	A π^0 SOLID ANGLE DETECTOR FOR THE SPS USED AS A PROTON-ANTIPROTON COLLIDER AT A C.M. ENERGY OF 540 GEV
CERN-UA-002	STUDY OF ANTIPROTON-PROTON INTERACTIONS AT 620-GEV C.M. ENERGY
CERN-UA-003	SEARCH FOR MAGNETIC MONOPOLES AT THE ANTI-P P COLLIDING RING
CERN-UA-004	MEASUREMENT OF ELASTIC SCATTERING AND OF TOTAL CROSS SECTION AT THE CERN ANTI-P P COLLIDER
CERN-UA-005	INVESTIGATION OF PROTON-ANTIPROTON EVENTS AT 540-GEV C.M. ENERGY WITH A STREAMER CHAMBER DETECTION SYSTEM
CERN-UA-005-2	AN EXPLORATORY INVESTIGATION OF $P_{\perp}$ -P INTERACTIONS AT 800-900 C.M. ENERGY AT THE SPS COLLIDER
CERN-UA-006	AN INTERNAL HYDROGEN JET TARGET IN THE SPS TO STUDY INCLUSIVE ELECTROMAGNETIC FINAL STATES AND LAMBDA PRODUCTION IN $P_{\perp}$ -P AND P P INTERACTIONS AT $\sqrt{s} = 22.5$ GEV
CERN-WA-001	HIGH-ENERGY NEUTRINO INTERACTIONS
CERN-WA-001-2	PROPOSAL TO MEASURE $\sin^2(\theta_{\text{CHT}}/W)$ IN SEMILEPTONIC NEUTRINO FE INTERACTIONS WITH HIGH PRECISION
CERN-WA-006	POLARIZATION IN P P AND P P ELASTIC SCATTERING
CERN-WA-007	TWO-BODY REACTIONS AT LARGE TRANSVERSE MOMENTUM
CERN-WA-011	SEARCH FOR HIGH MASS STATES PRODUCED WITH THE $PS(3.1)$

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CERN-WA-018-2	HIGH-PRECISION MEASUREMENT OF THE RATIO $\sigma(\text{SIEN-NU}(NC)/\sigma(\text{SIEN-NU}(CC))$
CERN-WA-021	HIGH ENERGY NU AND ANTI-NU INTERACTIONS IN BEBC FILLED WITH H ₂
CERN-WA-025	NEUTRINO AND ANTINEUTRINO INTERACTIONS IN DEUTERIUM
CERN-WA-027	K ⁺ P INTERACTIONS IN BEBC AT 70 GEV/C
CERN-WA-028	K ⁻ P INTERACTIONS IN BEBC AT 110-GEV/C
CERN-WA-038	MAGNETIC MONOPOLE SEARCH AT THE SPS
CERN-WA-042	AN EXPERIMENT ON THE STRONG INTERACTIONS AND RADIATIVE DECAYS OF HYPERONS
CERN-WA-044	SEARCH FOR QUARKS IN HIGH-ENERGY NEUTRINO INTERACTIONS
CERN-WA-047	CONTINUATION OF THE STUDY OF NEUTRINO INTERACTIONS WITH DICHROMATIC BEAM. AT THE SPS, USING BEBC FILLED WITH NEON
CERN-WA-056	STUDY OF N ANTI-N STATES PRODUCED VIA BARYON EXCHANGE IN π^+ P INTERACTIONS USING THE OMEGAPRIME SPECTROMETER
CERN-WA-058	MEASUREMENT OF THE LIFETIME OF CHARGED PARTICLES IN NUCLEAR EMULSION EXPOSED TO AN 80 GEV BREMSSTRAHLUNG BEAM IN CONJUNCTION WITH THE OMEGA PRIME SPECTROMETER
CERN-WA-059	MEASUREMENT OF NUCLEON STRUCTURE FUNCTIONS IN NORM FOCUSED NEUTRINO AND ANTI-NEUTRINO BEAMS IN BEBC FILLED WITH NEON
CERN-WA-062	SEARCH FOR THE CHARMED STRANGE BARYON Λ_0
CERN-WA-063	INCLUSIVE BARYON-ANTIBARYON PRODUCTION IN THE CENTRAL REGION USING THE OMEGA SPECTROMETER
CERN-WA-064	CHANNELLING RADIATION IN A SILICON CRYSTAL
CERN-WA-065	FURTHER STUDIES OF PROMPT NEUTRINO PRODUCTION IN 400 GEV PROTON NUCLEUS COLLISIONS
CERN-WA-066	FURTHER STUDY OF PROMPT NEUTRINO PRODUCTION IN PROTON-NUCLEUS COLLISIONS USING BEBC
CERN-WA-067	STUDY OF π^+ P INTERACTIONS AT 85 GEV/C LEADING TO $K^+K^+K^-$ IN THE FINAL STATE -- SEARCH FOR NEW STATES
CERN-WA-068	FURTHER STUDY OF PROMPT NEUTRINO PRODUCTION IN A PROTON BEAM DUMP EXPERIMENT
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CERN-WA-070	STUDY OF DIRECT PHOTON EVENTS IN HADRONIC COLLISIONS
CERN-WA-071	AN EXPERIMENT TO STUDY BEAUTY PRODUCTION AND LIFETIME IN THE UPGRADED OMEGAPRIME SPECTROMETER
CERN-WA-072	A STUDY OF FAST PHOTON PRODUCTION IN $\pi^+/-$ NUCLEUS INTERACTIONS USING THE OMEGA SPECTROMETER
CERN-WA-074	ANTIPROTON-PROTON GLORY SCATTERING
CERN-WA-075	AN EXPERIMENT TO OBSERVE DIRECTLY BEAUTY PARTICLES SELECTED BY MUONIC DECAY IN EMULSION AND TO ESTIMATE THEIR LIFETIMES
CERN-WA-076	STUDY OF THE MESONS PRODUCED CENTRALLY IN THE REACTION $P P \rightarrow P P + X_0$ AND $\pi^+ P \rightarrow \pi^+ P + X_0$ AT 85 GEV/C
CERN-WA-077	SEARCH FOR DIRECT PRODUCTION OF GLUONIUM STATES IN HIGH PT $\pi^+ - N$ COLLISIONS AT 350 GEV/C
CERN-WA-078	SEARCH FOR THE HADROPRODUCTION OF B-BAR PAIRS
CERN-WA-079	STUDY OF NEUTRINO-ELECTRON SCATTERING AT THE SPS
CERN-CLEO	THE CLEO EXPERIMENT AT CESR
CERN-CUSB	CUSB-II -- HIGH RESOLUTION 860 CALORIMETER TO STUDY THE UPSILON SPECTROSCOPY AND B PHYSICS
DESY-ARGUS	A NEW DETECTOR FOR DORIS
DESY-CRYSTAL-BAL	A LARGE SOLID ANGLE NEUTRAL DETECTOR (THE CRYSTAL BALL)
DESY-LENA	PROPOSAL FOR MEASUREMENTS IN CONTINUATION OF DESY-147
DESY-PETRA-CELLO	PROPOSAL FOR A 4 π MAGNETIC DETECTOR FOR PETRA -- CELLO
DESY-PETRA-JADE	JADE -- PROPOSAL FOR A COMPACT MAGNETIC DETECTOR AT PETRA
DESY-PETRA-MARK J	A SIMPLE DETECTOR TO MEASURE $e^+ e^-$ REACTIONS AT HIGH ENERGIES -- MARK J
DESY-PETRA-PLU-2	A PROPOSAL TO STUDY GAMMA-GAMMA INTERACTIONS WITH THE DETECTOR PLUTO AT PETRA
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FNAL-180	A STUDY OF ANTINEUTRINO INTERACTIONS IN THE FERMI LAB 15-FT BUBBLE CHAMBER, FILLED WITH HYDROGEN AND NEON
FNAL-326	A PROPOSAL TO MEASURE MUON PAIRS PRODUCED AT HIGH INVARIANT MASS BY PIONS
FNAL-400	CHARMED PARTICLE PRODUCTION BY NEUTRONS
FNAL-458	PHOTOPRODUCTION EXPERIMENT AT FERMI LAB
FNAL-466	STUDY OF HIGH-ENERGY REACTION MECHANISMS BY THE MEASUREMENT OF THE ANGULAR AND ENERGY DISTRIBUTIONS OF NUCLEI RECOILING FROM TARGETS BOMBARDED WITH 200-300 GEV PROTONS
FNAL-490	SEARCH FOR SHORT LIVED PARTICLES USING A HIGH RESOLUTION STREAMER CHAMBER
FNAL-497	HYPERON FLUXES AND POLARIZATIONS
FNAL-502	SEARCH FOR MONOPOLES ABOVE THE 15-FOOT BUBBLE CHAMBER
FNAL-508	STUDY OF MECHANISM FOR MULTIPLE PRODUCTION OF PARTICLES AT HIGH ENERGIES; EMULSION EXPOSURE TO ABOUT 750 GEV PROTONS
FNAL-515	PROPOSAL TO STUDY CHARM PARTICLES PRODUCED IN HADRONIC INTERACTIONS
FNAL-516	PROPOSAL TO STUDY PHOTOPRODUCTION OF FINAL STATES OF MASS ABOVE 2.5 GEV WITH A MAGNETIC SPECTROMETER IN THE TAGGED PHOTON LAB
FNAL-524	PROPOSAL TO STUDY PROTON-NUCLEUS INTERACTIONS IN EMULSION PLATES WITH EMBEDDED METAL POWDER GRANULES AT HIGHEST AVAILABLE ENERGY (> 400 GEV)
FNAL-531	A PROPOSAL TO STUDY WEAK DECAY LIFETIMES OF NEUTRINO PRODUCED PARTICLES IN A TAGGED EMULSION SPECTROMETER
FNAL-537	PROPOSAL TO STUDY ANTI- $\pi^+ \mu^-$ INTERACTIONS IN THE P-WEST HIGH INTENSITY LABORATORY
FNAL-549	A SEARCH FOR FRACTIONAL CHARGES USING ACCELERATOR AND LOW TEMPERATURE TECHNIQUES
FNAL-553	A PROPOSAL TO SEARCH FOR SHORT-LIVED PARTICLES PRODUCED BY ANTINEUTRINOS AND NEUTRINOS
FNAL-555	A PROPOSAL TO STUDY CROSS SECTIONS AND POLARIZATION IN NEUTRAL STRANGE PARTICLE PRODUCTION AT HIGH TRANSVERSE MOMENTUM
FNAL-557	STUDY OF HADRON JETS WITH THE CALORIMETER TRIGGERED MULTIPARTICLE SPECTROMETER
FNAL-564	DIRECT DETECTION OF SHORT-LIVED PARTICLES FROM NEUTRINO INTERACTIONS IN NUCLEAR EMULSIONS INSIDE THE 15-FOOT BUBBLE CHAMBER
FNAL-565	A STUDY OF THE DETAILED CHARACTERISTICS OF HADRON-NUCLEUS COLLISIONS USING THE FERMI LAB HYBRID SPECTROMETER
FNAL-570	PROPOSAL FOR A STUDY OF PARTICLE PRODUCTION AND DYNAMICS FROM $x = 0$ TO $x = 1$ AND THE DEPENDENCE ON INCIDENT QUANTUM NUMBERS
FNAL-576	500 GEV PROTON INTERACTIONS IN NUCLEAR EMULSION
FNAL-577	PROPOSAL TO MEASURE $\pi^+ p$ ELASTIC SCATTERING AT LARGE ANGLES
FNAL-580	A SEARCH FOR NARROW AND BROAD RESONANCES DECAYING INTO $\Lambda\Lambda\Lambda\Lambda$, $\Lambda\Lambda\Lambda\Lambda\Lambda$, $\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda$, $\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda$, $\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda$ AND $K(\text{SHORT})-K(\text{SHORT})-\pi$ FROM $\pi^+ p$ INTERACTIONS AT 200-GEV/C USING THE FERMI LAB MPS
FNAL-584	PROPOSAL TO SEARCH FOR THE DECAY OF NEW LONG-LIVED NEUTRAL PARTICLES WITH A MASS AND LIFETIME EXCEEDING THAT OF THE $K_L(0M)$

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FNAL-594	PROPOSAL FOR A NEW NEUTRINO DETECTOR AT FERMILAB
FNAL-595	A STUDY OF CHARM AND PROMPT SINGLE MUON PRODUCTION IN PROTON-NUCLEON AND PION-NUCLEON COLLISIONS
FNAL-597	PROPOSAL FOR A HIGH STATISTICS STUDY OF PBAR P ANNIHILATIONS AND A COMPARISON OF PBAR, P, P_1^- , P_1^+ , AND K^+ INTERACTIONS ON HYDROGEN, MAGNESIUM, SILVER, AND GOLD AT 100-GEV/C UTILIZING THE FERMILAB 30-INCH HYDROGEN BUBBLE CHAMBER AND DOWNSTREAM PARTICLE IDENTIFIER
FNAL-605	A STUDY OF LEPTONS AND HADRONS NEAR THE KINEMATIC LIMITS
FNAL-609	A STUDY OF THE STRUCTURE OF HIGH PT HADRONIC INTERACTIONS
FNAL-610	PION PRODUCTION OF HEAVY QUARK MESON STATES DECAYING INTO $\Psi(1J(3097))$
FNAL-612	A PROPOSAL TO MEASURE THE DIFFRACTIVE PHOTON DISSOCIATION ON HYDROGEN
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FNAL-615	A STUDY OF THE FORWARD PRODUCTION OF MASSIVE PARTICLES
FNAL-616	PROPOSAL TO MEASURE NEUTRINO STRUCTURE FUNCTIONS
FNAL-617	A STUDY OF DIRECT CP VIOLATION IN THE DECAY OF THE NEUTRAL KAON VIA A PRECISION MEASUREMENT OF $\text{ABS}(\epsilon_2'/\epsilon_2'')$
FNAL-619	A MEASUREMENT OF THE SIGMA-LAMBDA TRANSITION MAGNETIC MOMENT
FNAL-620	PROPOSAL TO MEASURE THE MAGNETIC MOMENTS OF THE SIGMA ⁺ , Σ^- , SIGMA ⁻ , AND OMEGA- HYPERONS USING THE FERMILAB NEUTRAL HYPERON BEAM
FNAL-621	A MEASUREMENT OF THE CP VIOLATION PARAMETER ϵ_2'
FNAL-622	PROPOSAL TO SEARCH FOR RATIONALLY CHARGE PARTICLES FROM A MAGNETIZED BEAM DUMP
FNAL-623	HIGH-MASS STATES DECAYING INTO $\Psi(1J)$ AND $\Psi(1J)$ PRODUCED CENTRALLY IN 400 GEV/C P P INTERACTIONS
FNAL-629	MEASUREMENT OF DIRECT PHOTON PRODUCTION IN HADRON-NUCLEUS COLLISIONS
FNAL-630	STUDY OF B PARTICLE AND CHARMED PARTICLE PRODUCTION AND DECAY USING A HIGH RESOLUTION STREAMER CHAMBER
FNAL-631	A MEASUREMENT OF NUCLEAR CALIBRATION CROSS SECTIONS FOR PROTONS BETWEEN 100 AND 1000 GEV
FNAL-632	AN EXPOSURE OF THE 15-FOOT BUBBLE CHAMBER WITH A NEON-HYDROGEN MIXTURE TO A WIDEBAND NEUTRINO BEAM FROM THE TEVATRON
FNAL-635	PROPOSAL TO SEARCH FOR AXION-LIKE PARTICLES AND TO MEASURE $\mu\mu$ E- AND $\mu\mu$ E- ELASTIC SCATTERING AT THE TEVATRON OF FERMILAB
FNAL-636	NEUTRINO INTERACTION STUDIES WITH A HEAVY LIQUID BUBBLE CHAMBER AT TEVATRON ENERGIES USING A BEAM DUMP TECHNIQUE TO PRODUCE THE NEUTRINO BEAM
FNAL-646	SEARCH FOR THE μ TAU AND STUDY OF μ E AND μ NU INTERACTIONS
FNAL-649	PROPOSAL TO STUDY NUCLEON STRUCTURE FUNCTIONS AT HIGH Q SQUARED
FNAL-650	SEARCH FOR CHARM PRODUCTION IN HADRON INTERACTIONS
FNAL-652	NEUTRINO PHYSICS AT THE TEVATRON
FNAL-653	A PROPOSAL TO MEASURE CHARM AND B DECAYS VIA HADRONIC PRODUCTION IN A HYBRID EMULSION SPECTROMETER
FNAL-660	PROPOSAL TO STUDY THE EFFECT OF BENT CRYSTALS ON CHANNELING NEAR THE CRITICAL RADIUS OF BENDING
FNAL-663	COMPARISON OF POLARIZATIONS OF INCLUSIVELY PRODUCED LAMBDA AND ANTILAMBDA BY PROTONS, ANTIPROTONS, KADONS AND PIONS ON HYDROGEN
FNAL-665	MUON SCATTERING WITH HADRON DETECTION AT THE TEVATRON
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FNAL-672	A STUDY OF HADRONIC FINAL STATES PRODUCED IN ASSOCIATION WITH HIGH-PT JETS AND HIGH-MASS DIMUONS
FNAL-673	CHI MESON PRODUCTION BY HADRONS
FNAL-683	PHOTOPRODUCTION OF HIGH PT JETS
FNAL-687	HIGH ENERGY PHOTOPRODUCTION OF STATES CONTAINING HEAVY QUARKS AND OTHER RARE PHENOMENA
FNAL-690	STUDY OF HADRONIC PRODUCTION AND SPECTROSCOPY OF STRANGE, CHARM, AND BOTTOM PARTICLES AT THE TEVATRON
FNAL-691	PHOTON PHYSICS WITH THE TEVATRON AT THE TAGGED PHOTON SPECTROMETER
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FNAL-706	A COMPREHENSIVE STUDY OF DIRECT PHOTON PRODUCTION IN HADRON INDUCED COLLISIONS
FNAL-710	MEASUREMENTS OF ELASTIC SCATTERING AND TOTAL CROSS SECTIONS AT THE FERMILAB PBAR-P COLLIDER
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FNAL-713	PROPOSAL FOR A SEARCH FOR HIGHLY IONIZING PARTICLES FOR THE DO AREA AT FERMILAB
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FNAL-720	PROPOSAL TO SEARCH FOR $1/3$ E STABLE PARTICLES USING CRYOGENIC SOURCES
FNAL-721	CP VIOLATION
FNAL-725	TEST OF A GRAVITATIONAL DETECTOR AT THE FERMILAB COLLIDER
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FNAL-731	A MEASUREMENT OF THE MAGNITUDE OF EPSILONPRIME/EPSILON IN THE NEUTRAL KAON SYSTEM TO A PRECISION OF .001
FNAL-733	PROPOSAL TO STUDY HIGH ENERGY NEUTRINO INTERACTIONS WITH THE TEVATRON QUADRUPOLE TRIPLET BEAM
FNAL-735	SEARCH FOR A DECONFINED QUARK GLUON PHASE OF STRONGLY INTERACTING MATTER IN PBAR-P INTERACTIONS AT ECM NEAR 2 TEV
FNAL-740	A STUDY OF PROTON ANTIPROTON COLLISION USING A LARGE DETECTOR AT D-0
FNAL-741	A STUDY OF PROTON ANTIPROTON COLLISIONS USING A LARGE DETECTOR AT B-0
FNAL-743	CHARM PRODUCTION IN P P COLLISIONS WITH LEBG-FRMS AT TEVATRON ENERGIES
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INS-14-4	MEASUREMENT OF THE POLARIZED TARGET ASYMMETRY OF THE REACTION $\gamma p \rightarrow \pi^+ p$ IN THE SECOND RESONANCE REGION
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INS-17-2	STUDY OF QUASI-FREE DEUTERONS IN LIGHT NUCLEI
INS-18-1	ANGULAR DISTRIBUTION OF PHOTODISINTEGRATION OF QUASI-FREE DEUTERONS IN LIGHT NUCLEI
INS-18-3	MEASUREMENT OF DIFFERENTIAL CROSS SECTION OF GAMMA DEUTERIUM $\rightarrow \pi^0$ DEUTERIUM REACTION
INS-19-1	MEASUREMENT OF DIFFERENTIAL CROSS SECTIONS FOR THE GAMMA DEUT $\rightarrow \pi^0$ DEUT REACTION AT BACKWARD ANGLES

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INS-19-3	STUDY OF CUMULATIVE EFFECTS IN PHOTONUCLEAR REACTIONS
ITEP-E-761	STUDY OF RARE KO DECAYS
ITEP-E-771	STUDY OF THE INCLUSIVE PROPERTIES OF DEEP INELASTIC NUCLEAR REACTIONS
ITEP-E-782	STUDY OF LIGHT NUCLEUS INTERACTIONS WITH PROTONS IN THE INTERMEDIATE ENERGY REGION
ITEP-E-801	STUDY OF POLARIZATION EFFECTS IN PROCESSES WITH TWO CHARGED PARTICLES IN THE FINAL STATE AT INTERMEDIATE ENERGIES
ITEP-E-802	STUDY OF K^+ INTERACTIONS WITH XENON
ITEP-E-811	STUDY OF $\text{KL} \rightarrow 2\text{GAMMA}$ AND SEARCH FOR $\text{KS} \rightarrow 2\text{GAMMA}$ DECAYS
ITEP-E-812	STUDY OF CUMULATIVE PARTICLE PRODUCTION IN PION NUCLEUS INTERACTIONS
ITEP-E-813	STUDY OF CUMULATIVE PARTICLE CORRELATIONS
ITEP-E-821	STUDY OF $\text{KL} \rightarrow \text{PION E MU GAMMA}$ AND $\text{KL} \rightarrow 2\text{PION E MU}$ DECAYS
ITEP-E-822	SEARCH FOR BOUND AND RESONANT STATES IN THE TWO-LAMBDA SYSTEM
ITEP-E-823	MEASUREMENT OF COULOMB-NUCLEAR INTERFERENCE IN PI^+ -NUCLEI SCATTERING
ITEP-E-831	MEASUREMENT OF PI^- , PI^+ , P , N_2 , N_3 , AND HE3 INCLUSIVE CROSS SECTIONS IN PROTON INTERACTIONS WITH BE, AL, CU, AND TA NUCLEI IN THE ENERGY RANGE 5.7 TO 9.2 GEV
KEK-TE-001	TRISTAN $\text{E}^+ \text{E}^-$ EXPERIMENTS BY VENUS COLLABORATION
KEK-TE-002	STUDY OF ELECTRON-POSITRON ANNIHILATION PHENOMENA BY A DETECTOR WITH PARTICLE IDENTIFICATION
KEK-TE-003	AMY -- A HIGH RESOLUTION LEPTON DETECTOR FOR TRISTAN
KEK-010	SEARCH FOR RARE DECAY MODES $\text{K}^+ \rightarrow \text{PI}^+ \text{ MU AMU}$, $\text{K}^+ \rightarrow \text{PI}^+ 2\text{GAMMA}$, AND $\text{K}^+ \rightarrow \text{PI}^+ \text{ AXION}$
KEK-034	MEASUREMENT OF THE POLARIZATION FOR THE REACTIONS $\text{K}^+ \text{ N} \rightarrow \text{K}^+ \text{ N}$, KO P AT 1.06, 1.28, 1.39, AND 1.49 GEV/C
KEK-049	PRODUCTION OF POLARIZED LAMBDA PARTICLES AND THEIR BETA DECAYS
KEK-057	STUDIES OF P^+ INTERACTIONS IN THE MOMENTUM RANGE 0.9-2.0 GEV/C
KEK-062	STUDY OF AP P REACTIONS IN THE 3 TO 5 GEV/C REGION
KEK-064	STUDY OF 2PI , 3PI STATES IN $\text{PI}^- \text{ P}$ INELASTIC FORWARD SCATTERING
KEK-074	SEARCH FOR BARYONIUM STATES IN ANTIPROTON-NUCLEON INTERACTIONS
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KEK-075	MEASUREMENTS OF POLARIZATION PARAMETERS IN ELASTIC PROTON-NEUTRON SCATTERING
KEK-079	CALIBRATION OF ELECTRON/PION IDENTIFICATION EFFICIENCY IN THE BUBBLE CHAMBER
KEK-080	STUDY OF DEUTERIUM-PROTON REACTIONS FROM 2.0 TO 4.0 GEV/C
KEK-081	ASYMMETRY IN THE ELASTIC SCATTERING OF K^+ AND PI^+ FROM DEUTERIUM NUCLEI 1.5 GEV/C
KEK-082	NUCLEAR REACTIONS WITH HIGH ENERGY PARTICLE BEAMS
KEK-083	MEASUREMENT OF PI DEUTERIUM ELASTIC SCATTERING
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KEK-089	SEARCH FOR A HEAVY NEUTRINO EMITTED IN $\text{K}^+ \rightarrow \text{MU}^+ \text{ MU}$ DECAY
KEK-090	STUDY OF HIGH ENERGY NUCLEAR REACTIONS WITH LARGE APERTURE MULTIPARTICLE DETECTOR
KEK-092	MEASUREMENTS OF ASYMMETRY PARAMETER IN $\text{SIGMA}^+ \rightarrow \text{P GAMMA DECAY}$
KEK-094	REACTION MECHANISMS IN PI -NUCLEUS INTERACTIONS
KEK-099	STUDY OF MU^+ POLARIZATION IN K-MU-2 DECAY
KEK-104	SEARCH FOR HEAVY NEUTRINOS IN $\text{K}^+ \rightarrow \text{MU}^+ \text{ MU}$, $\text{E}^+ \text{ MU}$
KEK-113	DEUTERON FROM P NUCLEUS REACTIONS
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KEK-117	STUDIES OF LAMBDA AND SIGMA HYPERNUCLEI BY STOPPED K^-
KEK-121	STUDY OF FEW PION STATES IN $\text{PI}^- \text{ P EXCHANGE REACTION}$
KEK-125	STUDIES OF D D INTERACTION IN THE RANGE OF 2-4 GEV/C
LAMPF-015	ELASTIC SCATTERING AND TOTAL CROSS SECTION MEASUREMENTS OF PROTON ON HYDROGEN, DEUTERIUM, AND HELIUM
LAMPF-032	PRECISION MEASUREMENT OF THE PROCESSES $\text{PI}^+ \rightarrow \text{PI}^0 \text{ E}^+ \text{ MU}$
LAMPF-058-120	MEASUREMENT OF $\text{PI}^- \text{ P} \rightarrow \text{GAMMA N}$, AND MEASUREMENT OF THE POLARIZATION ASYMMETRY AND THE DIFFERENTIAL CROSS SECTION OF PION NUCLEON CHARGE EXCHANGE FROM 160 TO 500 MEV
LAMPF-190	A PRECISION MEASUREMENT OF THE PI^-/PIO MASS DIFFERENCE
LAMPF-194	PROTON-PROTON D , R , AND A MEASUREMENTS
LAMPF-225	A STUDY OF NEUTRINO-ELECTRON SCATTERING
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LAMPF-336	STUDY OF THE SPIN DEPENDENCE OF PROTON-PROTON PION PRODUCTION REACTIONS
LAMPF-360	THE MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS D/T AND A'/T AT 800 MEV FOR THE REACTIONS $\text{D}(\text{P}, \text{N})2\text{P}$, $\text{Li}^6(\text{P}, \text{N})\text{Be}^6$, AND $\text{Be}^9(\text{P}, \text{N})\text{B}^9$
LAMPF-366	NONRESONANT PION PRODUCTION IN THE REACTION $\text{N P} \rightarrow \text{PI}^- \text{ P}$
LAMPF-385	MEASUREMENT OF THE POLARIZED P N ANALYZING POWER, $\text{A/Y}(\text{THETA})$, FROM 10-70 DEG THETA C.M.
LAMPF-392	A MEASUREMENT OF THE TRIPLE-SCATTERING PARAMETERS D , R , A , R' , AND A' FOR PROTON-PROTON AND PROTON-NEUTRON SCATTERING AT 800 MEV
LAMPF-400-445	STUDY OF $\text{PI}^0 \rightarrow 3 \text{ GAMMA}$ AND $\text{PI}^+ \rightarrow \text{E}^+ \text{ GAMMA}$ NEUTRINO DECAYS, AND SEARCH FOR LEPTON FLAVOR-VIOLATING DECAYS
LAMPF-402	$\text{MU}^+ \rightarrow \text{E}^+ \text{ E}^+ \text{ E}^-$, $\text{MU}^+ \rightarrow \text{E}^+ 2 \text{ GAMMA}$, AND $\text{MU}^+ \rightarrow \text{E}^+ \text{ GAMMA}$
LAMPF-403	A MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS D/T (CO DEG) AND A'/T (CO DEG) IN THE REACTION $\text{P P} \rightarrow \text{N X}$ AT 800 MEV
LAMPF-421	A MEASUREMENT OF THE TRIPLE-SCATTERING PARAMETER D/T FOR THE CHARGE-EXCHANGE REGION IN N P SCATTERING
LAMPF-444	SENSITIVE SEARCH FOR $\text{MU}^+ \rightarrow \text{E}^+ \text{ CONVERSION}$
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LAMPF-455	HIGH-PRECISION STUDY OF THE MU^0 DECAY SPECTRUM
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LAMPF-478	PI^+ AND PI^- ELASTIC SCATTERING FROM DEUTERIUM
LAMPF-492	POLARIZER CALIBRATIONS FOR ENERGY-DEPENDENT STRUCTURE IN P P ELASTIC SCATTERING VIA CROSS SECTION, ANALYZING POWER, AND WOLFENSTEIN PARAMETER MEASUREMENTS
LAMPF-498	MEASUREMENTS OF LONGITUDINAL CROSS SECTION DIFFERENCE FOR LONGITUDINAL POLARIZED BEAM AND TARGET; DELTA-SIGMA/L FOR (1) P P , (2) P DEUT , AND (3) N P .
LAMPF-504	MEASUREMENT OF THE TOTAL CROSS SECTION DIFFERENCE FOR PROTON-PROTON SCATTERING IN PURE TRANSVERSE INITIAL SPIN STATES IN THE 400-800 MEV REGION
LAMPF-508	DIBARYON RESONANCES IN PION PRODUCTION
LAMPF-517	POLARIZED BEAM AND TARGET EXPERIMENTS IN THE P P SYSTEM. PHASE I. A/Y AND A'/Y FOR THE D PI^+ CHANNEL AND A'/Y FOR THE ELASTIC CHANNEL FROM 500 TO 800 MEV

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LAMPF-546	INVESTIGATION OF THE SPIN FORM FACTOR OF TRITIUM AND HELIUM-THREE
LAMPF-563	P ELASTIC SCATTERING AT 800 AND 500 MEV
LAMPF-567	A STUDY OF THE π^+ D $\rightarrow$ P P REACTION AT PION ENERGIES 5-200 MEV
LAMPF-581	π^+ - ELASTIC SCATTERING FROM DEUTERIUM AT 256 MEV
LAMPF-585	MEASUREMENT OF P P AND P D ELASTIC SCATTERING IN THE COULOMB INTERFERENCE REGION BETWEEN 500 AND 800 MEV
LAMPF-589	FREE-FORWARD N P ELASTIC-SCATTERING ANALYZING POWER MEASUREMENTS AT 800 MEV
LAMPF-590	MEASUREMENT OF D(T)ETA) IN P N AND N P SCATTERING AT 800, 650 MEV AND OTHER ENERGIES WITH ASSOCIATED P P MEASUREMENTS
LAMPF-605	A DIBARYON SEARCH AT EPICS
LAMPF-634	MEASUREMENT OF PARITY VIOLATION IN THE P-NUCLEON TOTAL CROSS SECTIONS AT 800 MEV
LAMPF-635	SPIN MEASUREMENTS IN P D ELASTIC SCATTERING
LAMPF-636	A MEASUREMENT OF THE WOLFENSTEIN POLARIZATION PARAMETERS D/LL, D/SL, K/LL, AND K/SL FOR P P ELASTIC SCATTERING
LAMPF-637	A MEASUREMENT OF THE VECTOR POLARIZATION OF THE DEUTERON IN THE REACTION P P $\rightarrow$ D π^+
LAMPF-638	A SEARCH FOR OSCILLATIONS USING MUON NEUTRINOS
LAMPF-645	A SEARCH FOR NEUTRINO OSCILLATIONS AT LAMPF
LAMPF-647	A NEUTRINO OSCILLATION EXPERIMENT AT LAMPF
LAMPF-650	A SEARCH FOR NEUTRINO MIXING VIA NONEXPONENTIAL π^+ $\rightarrow$ μ ν μ DECAY
LAMPF-651	MEASUREMENT OF A LOWER LIMIT FOR THE SUBTHRESHOLD PRODUCTION OF KAONS WITH 800-MEV PROTONS
LAMPF-664	THE MEASUREMENT OF THE POLARIZATION TRANSFER COEFFICIENTS A'/T AND D/T AT 500, 650, AND 800 MEV FOR THE REACTION D(P,N) π^0
LAMPF-665	THE MEASUREMENT OF THE INITIAL STATE SPIN CORRELATION PARAMETERS C/LL AND C/SL IN N P ELASTIC SCATTERING AT 500, 650, AND 800 MEV
LAMPF-682	SEARCH FOR DIBARYON RESONANCES IN THE REACTION π^+ D $\rightarrow$ P π^+ N AT PLAB 200 TO 600 MEV/C
LAMPF-683	MEASUREMENT OF DELTA-SIGMA/L IN FREE NEUTRON-PROTON SCATTERING AT 500, 650, AND 800 MEV
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LAMPF-689	A. NEUTRON COUNTER CALIBRATION USING TAGGED NEUTRONS FROM THE REACTION π^+ D $\rightarrow$ N N, AND B. FEASIBILITY STUDY; MEASUREMENTS OF THE DIFFERENTIAL CROSS SECTION FOR π^+ D $\rightarrow$ N N TO TEST CHARGE SYMMETRY AND ISOSPIN INVARIANCE
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LAMPF-758	TO CATCH A DEMON
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LAMPF-767	π^+ - DEUTERON ELASTIC SCATTERING AT THREE ENERGIES BETWEEN 30 AND 80 MEV
LAMPF-770	THE MEASUREMENT OF N P ELASTIC-SCATTERING SPIN-CORRELATION PARAMETERS WITH L- AND S-TYPE POLARIZED BEAM AND TARGET BETWEEN 500 AND 800 MEV
LAMPF-783	PION-INDUCED PION PRODUCTION ON DEUTERONS
LAMPF-790	I=1 N N INELASTIC CROSS SECTIONS AND FIRST MEASUREMENTS OF T20 FOR THE P P $\rightarrow$ D π^+ REACTION AT 800 AND 650 MEV
LAMPF-792	MEASUREMENT OF PARITY VIOLATION IN THE P-P AND P-NUCLEON TOTAL CROSS SECTIONS AT 800 MEV
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LAMPF-808	0-DEGREE EXCITATION FUNCTION FOR π^+ P $\rightarrow$ π^0 N
LAMPF-818	PROTON-DEUTERON ELASTIC SCATTERING AT 800 MEV; TWO- AND THREE-SPIN OBSERVABLES
LAMPF-825	INVESTIGATION OF THE N-DELTA INTERACTION VIA π^+ D $\rightarrow$ P π^+ N
LAMPF-828	TOTAL AND DIFFERENTIAL CROSS SECTIONS FOR π^+ D $\rightarrow$ P P BELOW 20 MEV
LAMPF-846	N N $\rightarrow$ N N π^+ ; CROSS SECTIONS AND ANALYZING POWERS FOR THE 800-MEV P P $\rightarrow$ π^+ (N P) AND P N $\rightarrow$ π^+ (P π^+) INCLUSIVE REACTIONS
LAMPF-849	A MEASUREMENT OF THE DIFFERENTIAL CROSS SECTION FOR π^+ P $\rightarrow$ π^0 N AT 0 DEGREES AND 180 DEGREES IN THE MOMENTUM REGION 471-687 MEV/C
LAMPF-853	MEASUREMENT OF WOLFENSTEIN PARAMETERS AT 650 AND DSIGMA/DOMEGA AT 500, 650, AND 800 MEV FOR P D $\rightarrow$ P D ELASTIC SCATTERING
LAMPF-861	MEASUREMENTS OF THE SPIN-CORRELATION PARAMETER ANN(THETA) FOR N P ELASTIC SCATTERING AT 800 MEV
LAMPF-869	HIGHER PRECISION MEASUREMENT OF THE LAMB SHIFT IN MUONIUM
LENI-SC-021	INELASTIC SCATTERING OF PROTONS WITH ENERGY 1 GEV AND TRANSITION NUCLEAR DENSITIES
LENI-SC-029	MULTIPARAMETER INVESTIGATIONS OF FRAGMENT KINEMATICS WHEN DESTROYING NUCLEI BY PROTONS WITH ENERGY 1 GEV USING A DOUBLE-ARM TIME-OF-FLIGHT MASS SPECTROMETER
LENI-SC-042	QUASIFREE PROTON SCATTERING AT ENERGY 1 GEV
LENI-SC-052	STUDY OF MULTIPARTICLE DISINTEGRATION OF NUCLEI BY FAST HADRONS
LENI-SC-056	MEASUREMENT OF ENERGY AND ANGULAR DEPENDENCE OF THE CORRELATION COEFFICIENT OF POLARIZATION C(NN) IN ELASTIC PROTON-PROTON SCATTERING AT ENERGIES 690-950 MEV
LENI-SC-062	STUDY OF DIFFERENTIAL CROSS SECTIONS FOR π^+ DEUT $\rightarrow$ P P IN THE DIBARYON RESONANCES REGION
LENI-SC-066	STUDY OF CUMULATIVE NEUTRON PRODUCTION FROM NUCLEI BY PROTONS WITH ENERGY 1 GEV
LENI-SC-078	EXPERIMENTAL DISCOVERY OF SPATIAL CAPTURE EFFECT BY A MONOCRYSTAL IN THE CHANNELING REGIME
LENI-SC-085	MEASUREMENT OF CUMULATIVE PROTON POLARIZATION
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LENI-SC-108	STUDY OF BACKWARD PROTON SPECTRA IN THE REACTION P DEUT $\rightarrow$ P P N IN THE ENERGY REGION 500-1000 MEV
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P-DECAY-RPW	THE HARVARD-PURDUE-WISCONSIN EXPERIMENT
P-DECAY-IWB	THE IRVING-HIGHMAN-BROOKHAVEN EXPERIMENT
P-DECAY-KAMIOKA	THE KAMIOKA EXPERIMENT
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SACLAY-038	D-P ELASTIC SCATTERING AS A SOURCE OF INFORMATION ABOUT THE DEUTERON D-WAVE AND THE SPIN STRUCTURE OF THE N-N AMPLITUDES
SACLAY-050	STUDY OF THE DI-BARYONIC COMPONENT (Δ^{++} , $2n$) AND EVENTUALLY DI-BARYONIC ($T=1$) IN NE3 USING THE TRANSFER REACTIONS $NE3(P,T)$, $NE3(P,D)$, AND $P(NE3,D)$
SACLAY-051	P-D AND P-NE3 ELASTIC SCATTERING BETWEEN 140 AND 190 DEGREES
SACLAY-052	STUDY OF NUCLEON-NUCLEON SCATTERING AT SATURNE II
SACLAY-052-2	MEASUREMENT OF P-P ELASTIC SCATTERING IN THE COULOMB-NUCLEAR INTERFERENCE REGION USING THE POLARIZED PROTON BEAM FROM SATURNE II
SACLAY-057	SEARCH FOR BARYONIC STATES NEAR THE N-NBAR THRESHOLD BY THE DETECTION OF RECOIL NUCLEI WITH SPES-IV
SACLAY-060	ANGULAR AND ENERGY DEPENDENCE OF THE CROSS SECTION AND THE ANALYZING POWER OF THE REACTION $P \rightarrow \pi^0$ BETWEEN 725 AND 1000 MEV
SACLAY-066	MEASUREMENT OF THE $D \rightarrow \pi^0$ HE GAMMA REACTION FOR A TEST OF THE MICROSCOPIC REVERSIBILITY PRINCIPLE
SACLAY-068	STUDY OF REACTIONS $P \rightarrow \pi^0$ NEUTRINO, $P \rightarrow \pi^0$ NEUTRINO, AND $P \rightarrow \pi^0$ NEUTRINO
SACLAY-070	SEARCH FOR DI-BARYONIC RESONANCES IN P-P ELASTIC SCATTERING BETWEEN 600 AND 1000 KEV
SACLAY-078	N-P ELASTIC SCATTERING AT SMALL ANGLES
SACLAY-080	STUDY OF ISOSCALAR DI-BARYONIC RESONANCES
SACLAY-085	THE $(NE3, T)$ REACTION AT INTERMEDIATE ENERGIES
SACLAY-087	MEASUREMENT OF THE TOTAL CROSS SECTION DIFFERENCE $\Delta\sigma_{\pi\pi}(\pi^0)$ IN THE ENERGY RANGE FROM 0.52 TO 2.8 GEV
SACLAY-088	MEASUREMENT OF $\Delta\sigma_{\pi\pi}(\pi^0)$ FOR P-P ELASTIC SCATTERING FROM 725 TO 1040 MEV
SACLAY-089	EXPERIMENTAL CONFIRMATION OF THE PHASE-SHIFT ANALYSIS PREDICTIONS IN THE DI-BARYON REGION
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SACLAY-095	CONCURRENT PRODUCTION OF THE η IN THE BACKWARD DIRECTION IN P-D AND D-D SYSTEMS
SACLAY-099	MEASUREMENT OF THE ANGULAR DISTRIBUTION OF THE DIFFERENTIAL CROSS SECTION AND POLARIZATION $A(\theta)$ IN THE REACTION $P \rightarrow \pi^0$ NEUTRINO BETWEEN 500 AND 1000 MEV
SACLAY-101	MODEL TECHNIQUE FOR THE BEAM POLARIZATION MEASUREMENT AT HIGH ENERGIES
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SACLAY-105	TEST OF CHARGE SYMMETRY IN THE REACTION $D \rightarrow \pi^0$ NEUTRINO
SACLAY-106	SIMULTANEOUS MEASUREMENT OF THE ASYMMETRIES $\epsilon_{\pi\pi}(\pi^0)$ AND $\epsilon_{\pi\pi}(\pi^0)$
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SACLAY-113	SEARCH FOR MULTIBARYONIC RESONANCES BY A STUDY OF MISSING MASS SPECTRA IN THE REACTIONS $P \rightarrow \pi^0$ NEUTRINO, $P \rightarrow \pi^0$ NEUTRINO, AND $P \rightarrow \pi^0$ NEUTRINO
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SERP-E-045	STUDY OF MUON CHARACTERISTICS IN NEUTRINO INTERACTIONS
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SERP-E-127	STUDY OF HADRON ATOMS AND ELEMENTARY PARTICLE PROPERTIES USING A CRYSTAL-DIFFRACTION SPECTROMETER AT THE SERP-KUKHOV PROTON SYNCHROTRON
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SERP-E-133	PROPOSAL TO EXTEND THE 32 GEV/C K ⁺ -P EXPERIMENT ON THE MIRABELLE BUBBLE CHAMBER UP TO 1 MILLION PICTURES
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SERP-E-148	STUDY OF EXCLUSIVE RESONANCE PRODUCTION IN RARE PROCESSES IN SIGMA-M
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SIN-R-71-07	P-P ELASTIC SCATTERING BETWEEN 400 AND 600 MEV
SIN-R-71-08	PRECISION MEASUREMENT OF THE MUON MOMENTUM IN PION DECAY AT REST
SIN-R-72-02	EXPERIMENTS WITH NEUTRON BEAMS
SIN-R-73-01-2	ENERGY AND ANGLE DEPENDENCE OF THE TENSOR POLARIZATION T20 IN π^0 D ELASTIC SCATTERING
SIN-R-74-05	ELECTRON POLARIZATION IN MUON DECAY
SIN-R-75-07-2	MEASUREMENT OF THE P PARAMETER IN π^+ -P ELASTIC AND CHARGE EXCHANGE SCATTERING
SIN-R-77-01	STUDY OF ANGULAR CORRELATIONS IN THE REACTIONS $\pi^0(\mu^+, \mu^-)\pi^0$ (G.S.)
SIN-R-78-05-4	MEASUREMENT OF THE AXZ PARAMETER IN THE REACTION $P \rightarrow \pi^0$ NEUTRINO
SIN-R-78-06	MEASUREMENT OF THE REACTION P (POLARIZED) P (POLARIZED) $\rightarrow \pi^0$ D AT 50 MEV
SIN-R-78-09	SEARCH FOR ANOMALOUS MUON-NUCLEON INTERACTIONS; PRECISION MEASUREMENTS OF $2p \rightarrow 1s$ TRANSITIONS IN MUONIC L17, C12, AND C12
SIN-R-78-13-1	STUDY OF THE RADIATIVE DECAY OF THE PION
SIN-R-78-15-1	MEASUREMENT OF THE $2p \rightarrow 2s$ ENERGY DIFFERENCE IN MUONIC HYDROGEN

LIST OF EXPERIMENTS AND TITLES

EXPERIMENT	TITLE
SIN-R-78-18	DETERMINATION OF THE VECTOR ANALYZING POWER IN π^0 D SCATTERING
SIN-R-79-05	π^0 AND π^+ ABSORPTION IN LIGHT NUCLEI
SIN-R-79-07	THE STUDY OF THE REACTION $\pi^+ d \rightarrow p p$ WITH A VECTOR POLARIZED D TARGET
SIN-R-80-01	MEASUREMENT OF CROSS SECTIONS WITH A BEAM OF POLARIZED PROTONS AND A POLARIZED TARGET
SIN-R-80-11	SEARCH FOR ADMIXTURE OF HEAVY NEUTRINOS IN $\pi^+ \rightarrow \mu^+ \mu^+ \mu^-$ DECAY
SIN-R-81-01	EXPERIMENTAL DETERMINATION OF THE STRONG INTERACTION SHIFT IN THE $2p-1s$ TRANSITION OF PIONIC HYDROGEN AND DEUTERIUM ATOMS
SIN-R-81-02	STUDY OF THE FORMATION OF MUONIC ATOMS IN LOW Z GASEOUS MATERIALS IN A CYCLOTRON TRAP
SIN-R-81-05	IMPROVED DETECTION OF $2-\gamma$ EVENTS FROM THE SIN BEAM DUMP AND MEASUREMENT OF THEIR INVARIANT MASS
SIN-R-81-09	SEARCH FOR HEAVY NEUTRINOS IN $\pi^+ \rightarrow e \mu$ DECAY
SIN-R-82-01	SEARCH FOR AN ADMIXTURE OF HEAVY NEUTRINOS IN THE DECAY OF PIONS AT REST
SIN-R-82-03-1	MEASUREMENT OF THE LIFETIME OF THE $2s$ STATE OF MUONIC HELIUM AT GAS PRESSURES BELOW 5 ATM
SIN-R-82-04	PRECISE DETERMINATION OF THE BRANCHING RATIO $R = \langle \pi^+ \rightarrow e \mu \text{ PLUS } \pi^+ \rightarrow e \mu \gamma \rangle / \langle \pi^+ \rightarrow \mu^+ \text{ PLUS } \pi^+ \rightarrow \mu^+ \mu^- \rangle$
SIN-R-82-06	SPIN TRANSFER PARAMETERS IN THE PROTON-PROTON INELASTIC CHANNELS
SIN-R-82-10	PRECISION DETERMINATION OF THE MASS OF THE NEGATIVE PION AND SEARCH FOR STRONG $\pi^+ n$ VAN DER WAALS FORCES
SIN-R-82-17	COULOMB-NUCLEAR INTERFERENCE IN $\pi^+ p$ AND $\pi^- p$ ELASTIC SCATTERING AT 55 MEV
SIN-R-83-20-2	MEASUREMENT OF THE $2s-2p$ ENERGY DIFFERENCE IN MUONIC HELIUM-4 AT LOW GAS DENSITY
SIN-R-83-29	MEASUREMENT OF THE χ_1 PARAMETER IN μ DECAY
SIN-2-75-02	PARITY VIOLATION IN $p p$ SCATTERING
SIN-2-80-01	PARITY VIOLATION IN p ALPHA SCATTERING
SLAC-BC-072	STUDY OF CHARM PHOTOPRODUCTION IN THE SHF EXPOSED TO A POLARIZED MONO-ENERGETIC BACKSCATTERED LASER BEAM OF 20 GEV PHOTONS
SLAC-BC-073	MEASUREMENT OF LIFETIME AND OTHER PROPERTIES OF CHARMED PARTICLES
SLAC-BC-075	PROPOSAL FOR AN IMPROVED CHARM PHOTOPRODUCTION STUDY AT THE SLAC HYBRID FACILITY
SLAC-BC-076	AN EXPERIMENT TO STUDY Λ_{b1}/Σ^+ DECAY MODES IN 10.5 GEV PHOTOPRODUCTION, WHERE A THRESHOLD ENHANCEMENT IS PREDICTED
SLAC-E-130	PRECISE MEASUREMENTS OF ASYMMETRIES IN DEEP INELASTIC SCATTERING OF POLARIZED ELECTRONS BY POLARIZED PROTONS AND BY POLARIZED DEUTERONS
SLAC-E-135	COMPARISON OF $K^- p$ AND $K^+ p$ INTERACTIONS, AND A PROGRAMMATIC STUDY OF STRANGE QUARK SPECTROSCOPY
SLAC-E-136	ELASTIC ELECTRON-PROTON CROSS SECTIONS AT LARGE MOMENTUM TRANSFER
SLAC-E-137	SEARCH FOR LOW MASS, METASTABLE NEUTRAL PARTICLES AT SLAC
SLAC-PEP-002	SEARCH FOR HIGHLY IONIZING PARTICLES AT PEP
SLAC-PEP-004	A PEP FACILITY BASED ON THE TIME PROJECTION CHAMBER
SLAC-PEP-005	A GENERAL SURVEY OF PARTICLE PRODUCTION AT PEP
SLAC-PEP-006	A LEPTON TOTAL ENERGY DETECTOR AT PEP
SLAC-PEP-009	A PEP FORWARD DETECTOR FACILITY
SLAC-PEP-012	A HIGH RESOLUTION SPECTROMETER AT PEP
SLAC-PEP-014	A SEARCH FOR FREE QUARKS AT PEP
SLAC-PEP-020	DELCO AT PEP
SLAC-PEP-021	PROPOSAL TO SEARCH FOR $E^+ E^- \rightarrow$ UNSEEN STATES USING PHOTON TAGGING
SLAC-SLC-SLD	SLD DETECTOR FOR THE SLC
SLAC-SLC-6	MARK II AT THE SLC
SLAC-SP-030	A LARGE SOLID ANGLE NEUTRAL DETECTOR FOR SPEAR II (THE CRYSTAL BALL)
SLAC-SP-031	CHECKOUT OF MARK III DETECTOR AT SPEAR
SLAC-SP-032	MARK-III AT SPEAR
TRIUMF-009	PION RADIATIVE CAPTURE AND CHARGE EXCHANGE IN FLIGHT
TRIUMF-052	A NEW MEASUREMENT OF THE $\pi^+ \rightarrow e \mu$ BRANCHING RATIO -- A TEST OF THE STANDARD MODEL
TRIUMF-104	SEARCH FOR MUON-ELECTRON CONVERSION AT TRIUMF
TRIUMF-121	TEST OF CHARGE-SYMMETRY IN $n p$ SCATTERING
TRIUMF-132-192	MEASUREMENT OF THE PION PRODUCTION ASYMMETRIES AND CROSS SECTIONS FROM REACTION $p p \rightarrow$ DEUT π^+ WITH A POLARIZED PROTON BEAM AT ENERGIES 350-500 MEV
TRIUMF-134	MEASUREMENT OF THE PARAMETER η IN MUON DECAY
TRIUMF-137	LIFETIME OF THE POSITIVE MUON
TRIUMF-168	$2s$ MUONIUM PRODUCTION FROM THIN FOILS
TRIUMF-171	TEST OF T-INVARIANCE IN $p p$ SCATTERING
TRIUMF-174	SPIN DEPENDENCE OF THE $p p \rightarrow p n \pi^+$ REACTION
TRIUMF-181	MEASUREMENT OF THE $1s$ STRONG INTERACTION SHIFT IN PIONIC HYDROGEN
TRIUMF-185	PRECISE MEASUREMENT OF THE POLARIZATION PARAMETER χ_1 ; A SEARCH FOR THE EFFECTS OF A RIGHT-HANDED GAUGE BOSON IN μ^+ DECAY
TRIUMF-190	RADIATIVE POLARIZED NEUTRON CAPTURE ON PROTONS
TRIUMF-205	TENSOR ANALYZING POWER IN PION DEUTERIUM SCATTERING
TRIUMF-208	PROTON-PROTON BREMSSTRAHLUNG
TRIUMF-217	LOW ENERGY, ELECTROMAGNETIC PION FORM FACTORS
TRIUMF-247	PRECISE MEASUREMENT OF MUON DECAY ASYMMETRY PARAMETER Δ
TRIUMF-248	A STUDY OF THE $\pi^+ \rightarrow e^+ \mu^+ \nu$ DECAY
TRIUMF-277	THE BRANCHING RATIO OF THE RARE DECAY $\pi^0 \rightarrow e^+ e^-$

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
GAMMA P	<1.3	INS-15-2
GAMMA P	<200.0	CERN-NA-014
GAMMA P	<200.0	CERN-NA-014-2
GAMMA P	0.6 1.1	INS-15-1
GAMMA P	0.8 1.0	INS-14-3
GAMMA P	1.2	INS-17-1
GAMMA P	10.5	SLAC-BC-076
GAMMA P	20.0	SLAC-BC-072
GAMMA P	20.0	SLAC-BC-075
GAMMA P	20.0	SLAC-BC-075
GAMMA P	40.0 160.0	FNAL-691
GAMMA P	70.0 140.0	FNAL-516
GAMMA P	70.0 200.0	CERN-WA-069
GAMMA P	80.0 140.0	FNAL-612
GAMMA P	200.0 550.0	FNAL-683
GAMMA N	0.5 0.9	INS-14-4
GAMMA NUCLEON	10.0 180.0	CERN-NA-001
GAMMA DEUT	0.3 0.6	INS-15-1
GAMMA DEUT	0.4 0.8	INS-15-3
GAMMA DEUT	0.5 0.9	INS-19-1
GAMMA DEUT	0.5 1.0	INS-18-3
GAMMA HE	0.2 0.4	INS-19-2
GAMMA NUCLEUS	0.3 300.0	FNAL-658
GAMMA NUCLEUS	0.2 0.5	INS-17-2
GAMMA NUCLEUS	0.2 0.5	INS-18-1
GAMMA NUCLEUS	0.2 1.0	INS-16-2
GAMMA NUCLEUS	0.3 0.5	INS-16-3
GAMMA NUCLEUS	0.4 0.8	INS-15-3
GAMMA NUCLEUS	0.7 1.0	INS-15-4
GAMMA NUCLEUS	10.0 180.0	CERN-NA-001
GAMMA NUCLEUS	20.0 80.0	CERN-WA-058
GAMMA NUCLEUS	200.0 500.0	FNAL-687
GAMMA CRYSTAL	100.0	CERN-NA-033

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

NU NE	10.0 200.0	FNAL-646
NU	0. 5.0	CERN-PS-191
ANU	0. 70.0	CERN-PS-191
NUE E-	0. 5.0	SERP-E-152
NUE E-	2.0E-02 5.3E-02	LAMPF-225
NUE E	10.0 200.0	FNAL-646
NUE NE	10.0 200.0	FNAL-646
NUE NUCLEUS	0. 70.0	SERP-E-152
NUE NUCLEUS	0.5 3.0	CERN-PS-180
NUE NUCLEUS	10.0 250.0	FNAL-636
NUE	0. 5.3E-02	LAMPF-645
ANUE E-	0. 230.0	FNAL-594
ANUE E-	10.0 200.0	FNAL-646
ANUE P	0. 5.3E-02	LAMPF-645
ANUE NE	10.0 200.0	FNAL-646
ANUE AL	2.0 30.0	SERP-E-045
NUMU E-	0. 12.0	BNL-734
NUMU E-	0. 70.0	SERP-E-152
NUMU E-	0. 150.0	CERN-WA-021
NUMU E-	0. 200.0	FNAL-053A
NUMU E-	0. 230.0	FNAL-594
NUMU E-	0. 260.0	CERN-WA-018
NUMU E-	0. <400.0	FNAL-635
NUMU E-	2.0 30.0	SERP-E-045
NUMU E-	5.0 100.0	CERN-WA-079
NUMU P	0. 10.0	BNL-737
NUMU P	0. 12.0	BNL-734
NUMU P	0. 150.0	CERN-WA-021
NUMU P	0. 200.0	FNAL-053A
NUMU P	0. 260.0	CERN-WA-001
NUMU N	0. 260.0	CERN-WA-025
NUMU N	0. 10.37	BNL-734
NUMU N	0. 12.0	BNL-734
NUMU N	0. 230.0	FNAL-594
NUMU N	0. 260.0	CERN-WA-025
NUMU N	2.0 30.0	SERP-E-045
NUMU NUCLEON	10.0 600.0	FNAL-649
NUMU DEUT	0. 10.0	BNL-737
NUMU DEUT	0. 260.0	CERN-WA-001
NUMU DEUT	0. 260.0	CERN-WA-025
NUMU C12	0. 9.3	LAMPF-764
NUMU NE	0. 200.0	FNAL-053A
NUMU NE	10.0 200.0	FNAL-646
NUMU AL	0. 0.3	SERP-E-045
NUMU AL	2.0 30.0	LAMPF-764
NUMU FE	0. 160.0	CERN-WA-001-2
NUMU FE	0. 260.0	CERN-WA-001
NUMU FE	2.0 30.0	SERP-E-045
NUMU FE	30.0 250.0	FNAL-701
NUMU PB	0. 200.0	CERN-WA-044
NUMU NUCLEUS	0. 6.0	CERN-PS-167
NUMU NUCLEUS	0. 6.0	CERN-PS-168
NUMU NUCLEUS	0. 70.0	SERP-E-152
NUMU NUCLEUS	0. 160.0	CERN-WA-018-2
NUMU NUCLEUS	0. 230.0	FNAL-594
NUMU NUCLEUS	0. 260.0	CERN-WA-018

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
NUMU NUCLEUS	0. 500.0	FNAL-733
NUMU NUCLEUS	<400.0	FNAL-744
NUMU NUCLEUS	<500.0	FNAL-745
NUMU NUCLEUS	0.5 1.5	CERN-PS-181
NUMU NUCLEUS	0.5 3.0	FNAL-564
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	10.0 250.0	FNAL-636
NUMU NUCLEUS	10.0 400.0	FNAL-632
NUMU NUCLEUS	20.0 800.0	FNAL-652
NUMU NUCLEUS	25.0 250.0	FNAL-616
NUMU NUCLEUS	>60.0	FNAL-553
NUMU	0. 5.3E-02	LAMPF-645
NUMU	0. 0.3	LAMPF-764
NUMU	0. 4.0	BNL-775
NUMU	0. 7.0	BNL-776
NUMU	6.0E-02 0.3	LAMPF-638
NUMU	0.5 3.0	CERN-PS-169
ANUKU E-	0. 12.0	BNL-734
ANUKU	0. 200.0	FNAL-180
ANUKU E-	0. 230.0	FNAL-594
ANUKU E-	0. 260.0	CERN-WA-018
ANUKU E-	0. <400.0	FNAL-635
ANUKU E-	5.0 100.0	CERN-WA-079
ANUKU P	0. 12.0	BNL-734
ANUKU P	0. 150.0	CERN-WA-021
ANUKU P	0. 200.0	FNAL-180
ANUKU P	0. 230.0	FNAL-594
ANUKU P	260.0 260.0	CERN-WA-001
ANUKU P	0. 260.0	CERN-WA-025
ANUKU P	2.0 30.0	SERP-E-045
ANUKU N	0. 12.0	BNL-734
ANUKU N	0. 200.0	FNAL-180
ANUKU N	0. 260.0	CERN-WA-025
ANUKU NUCLEON	10.0 600.0	FNAL-649
ANUKU DEUT	0. 260.0	CERN-WA-001
ANUKU DEUT	0. 260.0	CERN-WA-025
ANUKU NE	10.0 200.0	FNAL-646
ANUKU AL	2.0 30.0	SERP-E-045
ANUKU FE	0. 160.0	CERN-WA-001-2
ANUKU FE	0. 260.0	CERN-WA-001
ANUKU FE	0. 260.0	CERN-WA-018
ANUKU FE	2.0 30.0	SERP-E-045
ANUKU FE	30.0 230.0	FNAL-701
ANUKU NUCLEUS	0. 6.0	CERN-PS-167
ANUKU NUCLEUS	0. 6.0	CERN-PS-168
ANUKU NUCLEUS	0. 160.0	CERN-WA-018-2
ANUKU NUCLEUS	0. 230.0	FNAL-594
ANUKU NUCLEUS	0. 260.0	CERN-WA-018
ANUKU NUCLEUS	0. 500.0	FNAL-733
ANUKU NUCLEUS	<400.0	FNAL-744
ANUKU NUCLEUS	10.0 20.0	SERP-E-107
ANUKU NUCLEUS	10.0 100.0	CERN-WA-059
ANUKU NUCLEUS	10.0 100.0	FNAL-531
ANUKU NUCLEUS	10.0 100.0	FNAL-564
ANUKU NUCLEUS	10.0 200.0	CERN-WA-047
ANUKU NUCLEUS	10.0 400.0	FNAL-632
ANUKU NUCLEUS	20.0 600.0	FNAL-652
ANUKU NUCLEUS	25.0 250.0	FNAL-616
ANUKU NUCLEUS	>60.0	FNAL-553
ANUKU	0. 5.3E-02	LAMPF-645
ANUKU	6.0E-02 0.3	LAMPF-638
MUTAU NE	10. 200.0	FNAL-646
MUTAU NUCLEUS	10.0 250.0	FNAL-636
ANUTAU NE	10.0 200.0	FNAL-646

E- P	6.4	SLAC-E-130
E- P	14.0	SLAC-E-136
E- P	16.2	SLAC-E-130
E- P	21.0	SLAC-E-136
E- P	22.6	SLAC-E-130
E- P	28.5	SLAC-E-136
E- DEUT	6.4	SLAC-E-130
E- DEUT	16.2	SLAC-E-130
E- DEUT	22.6	SLAC-E-130
E- NUCLEUS	20.0	SLAC-E-137
E-	1.0 10.0	CERN-PS-188
E-	5.0 20.0	CERN-WA-064

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

E+ E-	?	SLAC-SP-031
E+ E-	0.2	CERN-WA-007
E+ E-	0.2	CERN-WA-007
E+ E-	0.2	CERN-WA-007
E+ E-	0.2	CERN-WA-007
E+ E-	1.5	SLAC-SP-030
E+ E-	1.5	SLAC-SP-032
E+ E-	1.8	SLAC-SP-032

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT		LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	
BEAM AND TARGET				BEAM AND TARGET			
E+ E-	1.9		SLAC-SP-032	P+ P	280.0		CERN-WA-070
E+ E-	2.0	2.5	SLAC-SP-032	P+ N	400.0		FNAL-609
E+ E-	2.2	5.6	DESY-CRYSTAL-BAL	P+ N	5.0	20.0	SERP-E-102
E+ E-	3.7	5.8	DESY-LENA	P+ N	20.0		CERN-PS-156
E+ E-	4.0	18.0	SLAC-PEP-002	P+ DEUT	3.8E-02		LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-005	P+ DEUT	5.4E-02		LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-006	P+ DEUT	6.0E-02	0.2	LAMPF-828
E+ E-	4.0	18.0	SLAC-PEP-012	P+ DEUT	9.5E-02		LAMPF-828
E+ E-	4.5	5.8	DESY-ARGUS	P+ DEUT	0.1		LAMPF-567
E+ E-	4.5	6.0	CERN-CLEO	P+ DEUT	0.2		LAMPF-567
E+ E-	4.7	5.8	CERN-CUSB	P+ DEUT	0.2		LAMPF-567
E+ E-	5.0	22.0	DESY-PETRA-JADE	P+ DEUT	0.2	0.4	TRIUMF-205
E+ E-	6.0	15.0	SLAC-PEP-009	P+ DEUT	0.2		LAMPF-567
E+ E-	6.0	23.5	DESY-PETRA-MARKJ	P+ DEUT	0.2	0.6	LAMPF-682
E+ E-	6.0	23.5	DESY-PETRA-TASSO	P+ DEUT	0.2		LAMPF-567
E+ E-	7.0	23.7	DESY-PETRA-CELLO	P+ DEUT	0.2	0.4	SIN-R-79-07
E+ E-	14.5		SLAC-PEP-004	P+ DEUT	0.2	0.4	SIN-R-78-18
E+ E-	14.5		SLAC-PEP-014	P+ DEUT	0.2	0.3	SIN-R-73-01-2
E+ E-	14.5		SLAC-PEP-020	P+ DEUT	0.2		LAMPF-567
E+ E-	14.5		SLAC-PEP-021	P+ DEUT	0.2		LAMPF-567
E+ E-	17.5		DESY-PETRA-PLU-2	P+ DEUT	0.2		LAMPF-478
E+ E-		<35.0	KEK-TE-001	P+ DEUT	0.3	0.6	LAMPF-825
E+ E-		<35.0	KEK-TE-002	P+ DEUT	0.3	0.4	LAMPF-605
E+ E-		<35.0	KEK-TE-003	P+ DEUT	0.4		LAMPF-581
E+ L-	50.0		SLAC-SLC-SLD	P+ DEUT	0.4		LAMPF-783
E+ E-	51.0		SLAC-SLC-4	P+ DEUT	0.4	0.7	LEW-SC-062
E+ E-	?		CERN-LEP-ALEPH	P+ DEUT	0.5		LAMPF-783
E+ E-	?		CERN-LEP-DELPHI	P+ DEUT	0.5	1.2	KEK-083
E+ E-	?		CERN-LEP-L3	P+ DEUT	0.6		LAMPF-783
E+ E-	?		CERN-LEP-OPAL	P+ DEUT	0.7		KEK-081
E+ E-	1.0	10.0	CERN-PS-188	P+ DEUT	1.0	1.4	CERN-PS-159
E+ E-	5.0	20.0	CERN-WA-064	P+ DEUT	1.5		KEK-081
				P+ DEUT	300.0		FNAL-705
MU- P	0.		SIN-R-78-15-1	P+ DEUT	750.0		FNAL-705
MU- P	120.0	280.0	CERN-WA-002	P+ HE3	0.1	0.3	SIN-R-79-05
MU- P	120.0	280.0	CERN-WA-009	P+ HE3	0.2		LAMPF-546
MU- HE	0.		BNL-745	P+ HE3	0.3		LAMPF-546
MU- HE	0.		SIN-R-82-03-1	P+ TRIT	0.2		LAMPF-546
MU- C12	0.		SIN-R-77-01	P+ TRIT	0.3		LAMPF-546
MU- NUCLEUS	0.		LAMPF-421	P+ HE	100.0	150.0	CERN-WA-008
MU- NUCLEUS	0.		TRIUMF-104	P+ C	530.0		FNAL-706
MU- NUCLEUS	0.2		SIN-R-81-02	P+ C12	1.0		BNL-758
MU- NUCLEUS	100.0	250.0	CERN-WA-004	P+ NUCLEUS	0.2	2.0	KEK-094
MU- NUCLEUS	0.2		SIN-R-83-29	P+ NUCLEUS	1.0	9.0	KEK-009
MU- E-	?		TRIUMF-168	P+ NUCLEUS	1.0		ITEP-E-771
MU- E-	5.0E-03		LAMPF-869	P+ NUCLEUS	1.5		ITEP-E-812
MU- AL	0.1		BNL-754	P+ NUCLEUS	1.8		ITEP-E-823
MU+	0.		LAMPF-400-445	P+ NUCLEUS	3.0		ITEP-E-823
MU+	0.		LAMPF-444	P+ NUCLEUS	30.0		CERN-WA-072
MU+	0.		LAMPF-455	P+ NUCLEUS	75.0		FNAL-615
MU+	0.		TRIUMF-134	P+ NUCLEUS	100.0		FNAL-597
MU+	0.		TRIUMF-137	P+ NUCLEUS	140.0	300.0	CERN-WA-010
MU+	0.		TRIUMF-247	P+ NUCLEUS	150.0		CERN-WA-003
MU+	3.0E-02		TRIUMF-185	P+ NUCLEUS	200.0		CERN-WA-003
MU+	5.2E-02		TRIUMF-248	P+ NUCLEUS	200.0		FNAL-565
MU+	0.1		SIN-R-74-05	P+ NUCLEUS	200.0		FNAL-029
MU+	0.2		SIN-R-83-29	P+ NUCLEUS	250.0		CERN-WA-022
MUON P	750.0		FNAL-685	P+ NUCLEUS	250.0		FNAL-615
MUON NUCLEUS	280.0		CERN-WA-028	P+ NUCLEUS	280.0		CERN-WA-003
MUON NUCLEUS	325.0		CERN-WA-028	P+ NUCLEUS	500.0		FNAL-672
MUON NUCLEUS	750.0		FNAL-665	P+	0.		LAMPF-400-445
TAU-	0.	70.0	SERP-E-152	P+	0.		LAMPF-650
				P+	0.		SIN-R-78-13-1
PION NUCLEUS	?		CERN-WA-018	P+	0.		SIN-R-81-09
PION NUCLEUS	350.0		CERN-WA-019	P+	0.		TRIUMF-052
P+ P	0.1		SIN-R-82-17	P+	7.0E-02		TRIUMF-248
P+ P	0.1		LAMPF-567	P+	8.5E-02		SIN-R-82-04
P+ P	0.2		LAMPF-567	P+	9.0E-02		SIN-R-80-11
P+ P	0.2		LAMPF-567	P+	0.1		SIN-R-82-01
P+ P	0.2		LAMPF-567	P+	0.1		SIN-R-71-08
P+ P	0.2		LAMPF-567	P+	0.5		LAMPF-032
P+ P	0.2		LAMPF-567	P+	1.0	10.0	CERN-PS-188
P+ P	0.2		LAMPF-567	P+	2.0		CERN-PS-164
P+ P	0.2		LAMPF-058-120	P+	?		TRIUMF-277
P+ P	0.3	0.5	CERN-SC-094	P+	0.		LAMPF-400-445
P+ P	0.4	0.6	LAMPF-806	P+	0.		LAMPF-726
P+ P	0.5	0.7	LAMPF-849	P+	0.		TRIUMF-217
P+ P	0.5		LAMPF-032	P+	0.		CERN-SC-077
P+ P	0.7		LAMPF-058-120	P+	0.	<0.3	CERN-E-119
P+ P	1.4	2.1	ITEP-E-801	P+ E-	250.0	<70.0	CERN-WA-007
P+ P	1.5	1.9	CERN-PS-160	P+ E-	300.0		CERN-WA-007
P+ P	2.5	14.0	CERN-PS-157	P+ P	0.		SIN-R-81-01
P+ P	5.0	20.0	SERP-E-102	P+ P	0.		TRIUMF-181
P+ P	10.0		BNL-755	P+ P	0.		TRIUMF-217
P+ P	20.0		CERN-WA-056	P+ P	0.	<8.0	KEK-064
P+ P	50.0	200.0	CERN-WA-006	P+ P	7.7E-02	0.3	TRIUMF-309
P+ P	85.0		CERN-WA-076	P+ P	8.6E-02	0.1	LAMPF-190
P+ P	100.0		FNAL-577	P+ P	9.5E-02	0.2	LAMPF-807
P+ P	100.0		FNAL-597	P+ P	0.1		SIN-R-82-17
P+ P	147.0		FNAL-570	P+ P	0.2	0.4	SIN-R-75-07-2
P+ P	150.0	300.0	CERN-WA-024	P+ P	0.2		LAMPF-058-120
P+ P	200.0		CERN-WA-070	P+ P	0.2	0.7	LAMPF-804
P+ P	200.0		FNAL-577	P+ P	0.3	0.5	CERN-SC-094
P+ P	250.0		CERN-WA-022	P+ P	0.4	0.6	LAMPF-806

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
P1- P		0.5	0.7	LAMPF-869	P1- NUCLEUS		30.0		SERP-E-148
P1- P		0.7		LAMPF-058-120	P1- NUCLEUS		40.0		SERP-E-143
P1- P		1.4	2.1	ITEP-E-801	P1- NUCLEUS		40.0		SERP-E-148
P1- P		2.0	14.0	CERN-SS-157	P1- NUCLEUS		75.0		FNAL-615
P1- P		8.0		BNL-771	P1- NUCLEUS		100.0		FNAL-597
P1- P		8.0		KEK-121	P1- NUCLEUS		125.0		FNAL-537
P1- P		10.0		BNL-755	P1- NUCLEUS		140.0	300.0	CERN-WA-010
P1- P		12.0		CERN-WA-056	P1- NUCLEUS		150.0		CERN-WA-003
P1- P		13.0		BNL-726	P1- NUCLEUS		200.0		CERN-WA-003
P1- P		13.0		BNL-732	P1- NUCLEUS		200.0		FNAL-490
P1- P		13.0		SERP-E-116	P1- NUCLEUS		200.0		FNAL-515
P1- P		13.5		BNL-755	P1- NUCLEUS		200.0		FNAL-565
P1- P		20.0		BNL-705	P1- NUCLEUS		250.0		FNAL-615
P1- P		20.0		CERN-WA-007	P1- NUCLEUS		280.0		CERN-WA-003
P1- P		20.0		SERP-E-148	P1- NUCLEUS		300.0		CERN-WA-017
P1- P		20.0	40.0	SERP-E-105	P1- NUCLEUS		350.0		CERN-WA-071
P1- P		21.0		BNL-769	P1- NUCLEUS		350.0		CERN-WA-078
P1- P		22.0		BNL-747	P1- NUCLEUS		350.0		FNAL-653
P1- P		25.0		SERP-E-116	P1- NUCLEUS		360.0		CERN-WA-075
P1- P		30.0		SERP-E-148	P1- NUCLEUS		360.0		FNAL-597
P1- P		33.0		SERP-E-142	P1- NUCLEUS		500.0		FNAL-672
P1- P		38.0		SERP-E-140	P1- NUCLEUS		7		SERP-E-115
P1- P		40.0		CERN-WA-007	P1-	4.0E-02			SIN-R-78-15-1
P1- P		40.0		SERP-E-112	P1-	4.0E-02			SIN-R-82-03-1
P1- P		40.0		SERP-E-116	P1-	1.0	10.0		CERN-PS-188
P1- P		40.0		SERP-E-147	P1-	2.0	20.0		CERN-PS-164
P1- P		40.0		SERP-E-148					
P1- P		60.0		CERN-WA-007	RH00		20.0		SERP-E-148
P1- P		80.0		CERN-WA-007	RH00		30.0		SERP-E-148
P1- P		85.0		CERN-WA-067	RH00		40.0		SERP-E-148
P1- P		100.0		FNAL-577	OMEGA		38.0		SERP-E-140
P1- P		100.0		FNAL-597	PH1		38.0		SERP-E-140
P1- P		100.0	345.0	CERN-WA-008	A1(1270)-		20.0		SERP-E-148
P1- P		140.0		CERN-WA-011	A1(1270)-		30.0		SERP-E-148
P1- P		147.0		FNAL-576	A1(1270)-		40.0		SERP-E-148
P1- P		150.0		CERN-WA-005	D(1285)		33.0		SERP-E-142
P1- P		150.0	300.0	CERN-WA-024	FPRIME		33.0		SERP-E-142
P1- P		175.0		FNAL-663	A3(1680)-		20.0		SERP-E-148
P1- P		200.0		CERN-WA-070	A3(1680)-		30.0		SERP-E-148
P1- P		200.0		FNAL-577	A3(1680)-		40.0		SERP-E-148
P1- P		200.0		FNAL-580					
P1- P		280.0		CERN-WA-070	K+ P		10.0		BNL-755
P1- P		300.0		CERN-WA-005	K+ P		11.7		SLAC-E-135
P1- P		300.0		CERN-WA-012	K+ P		32.1		SERP-E-133
P1- P		360.0		CERN-WA-016	K+ P		70.0		CERN-WA-027
P1- P		360.0		CERN-WA-027	K+ P		100.0		FNAL-577
P1- P		360.0		FNAL-597	K+ P		100.0		FNAL-597
P1- DEUT		0.		SIN-R-81-01	K+ P		147.0		FNAL-570
P1- DEUT	9.5E-02	0.2		LAMPF-767	K+ P		200.0		FNAL-577
P1- DEUT	9.5E-02	0.3		LAMPF-295	K+ P		250.0		CERN-WA-022
P1- DEUT	0.2			LAMPF-478	K+ N		1.1		KEK-034
P1- DEUT	0.3			LAMPF-689	K+ N		1.3		KEK-034
P1- DEUT	0.4			LAMPF-581	K+ N		1.4		KEK-034
P1- DEUT	0.4			LAMPF-783	K+ N		1.5		KEK-034
P1- DEUT	0.4	1.2		KEK-083	K+ N		5.0	20.0	SERP-E-102
P1- DEUT	0.5			LAMPF-783	K+ N		75.0		FNAL-585
P1- DEUT	0.6			LAMPF-783	K+ N		100.0		FNAL-585
P1- DEUT	1.0	1.4		CERN-PS-159	K+ N		150.0		FNAL-585
P1- DEUT	300.0			FNAL-705	K+ DEUT		1.5		KEK-081
P1- DEUT	750.0			FNAL-705	K+ DEUT		1.7		KEK-081
P1- HE3	0.	0.3		SIN-R-79-05	K+ XE		0.8		ITEP-E-802
P1- HE3	0.2			LAMPF-546	K+ XE		0.8		ITEP-E-761
P1- HE3	0.3			LAMPF-546	K+ NUCLEUS		100.0		FNAL-597
P1- TRIT	0.2			LAMPF-546	K+ NUCLEUS		200.0		FNAL-565
P1- TRIT	0.3			LAMPF-546	K+ NUCLEUS		250.0		CERN-WA-022
P1- HE	50.0	300.0		CERN-WA-008	K+ NUCLEUS		500.0		FNAL-672
P1- BE	100.0	200.0		CERN-WA-011	K+ P		7		KEK-104
P1- BE	85.0			FNAL-673	K+ P		0.		BNL-787
P1- BE	225.0			FNAL-326	K+ P		0.		KEK-099
P1- BE	225.0			FNAL-610	K+ P		0.	<0.5	KEK-089
P1- BE	275.0			FNAL-659	K+ P		2.0	2.7	KEK-010
P1- BE	350.0			CERN-WA-077	K+ P		2.0	20.0	CERN-PS-164
P1- C	530.0			FNAL-706	K+ P		4.0		BNL-735
P1- SI	400.0			SERP-E-157	K+ P		6.0		BNL-777
P1- SI	200.0			CERN-WA-032	KD		7		BNL-749
P1- FE	278.0			FNAL-595	KD		0.8		ITEP-E-761
P1- CU	20.0			SERP-E-148	KS		1.0	8.0	ITEP-E-811
P1- CU	30.0			SERP-E-148	KS		50.0	150.0	CERN-WA-031
P1- CU	40.0			SERP-E-148	KS		50.0	200.0	FNAL-621
P1- CU	225.0			FNAL-326	KL CU		1.0	8.0	ITEP-E-811
P1- SW	225.0			FNAL-326	KL		50.0	8.0	ITEP-E-811
P1- WT	225.0			FNAL-326	KL		1.0	8.0	ITEP-E-821
P1- PB	100.0	200.0		CERN-WA-029	KL		4.0	12.0	BNL-780
P1- NUCLEUS		<4.3		KEK-082	KL		4.0	20.0	BNL-791
P1- NUCLEUS	0.2	2.0		KEK-094	KL		5.0	10.0	FNAL-721
P1- NUCLEUS	1.0			SERP-E-127	KL		30.0	200.0	FNAL-617
P1- NUCLEUS	1.0	9.0		ITEP-E-771	KL		50.0	150.0	CERN-WA-031
P1- NUCLEUS	1.5			ITEP-E-812	KL		50.0	150.0	FNAL-731
P1- NUCLEUS	1.8			ITEP-E-823	KL		50.0	200.0	FNAL-621
P1- NUCLEUS	2.5			ITEP-E-813	K- E-		250.0		CERN-WA-007
P1- NUCLEUS	3.0			ITEP-E-823	K- P		0.		CERN-PS-165
P1- NUCLEUS	5.0			ITEP-E-813	K- P		0.7		BNL-702
P1- NUCLEUS	20.0			SERP-E-148	K- P		2.2		BNL-698
P1- NUCLEUS	30.0			CERN-WA-072	K- P		4.7		CERN-PS-157

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)		EXPERIMENT
BEAM AND TARGET			BEAM AND TARGET		
K-P	6.0	BNL-771	P-P	1.3	LAMPF-790
K-P	8.0	CERN-WA-074	P-P	1.3	LAMPF-636
K-P	10.0	BNL-755	P-P	1.3	SACLAY-052-2
K-P	11.0	SLAC-E-135	P-P	1.3	LENI-SC-056
K-P	13.0	SERP-E-116	P-P	1.3	LAMPF-517
K-P	20.0	CERN-WA-007	P-P	1.4	LAMPF-517
K-P	20.0	SERP-E-148	P-P	1.4	LAMPF-708
K-P	22.0	BNL-747	P-P	1.5	LAMPF-385
K-P	25.0	SERP-E-116	P-P	1.5	LAMPF-692
K-P	30.0	SERP-E-148	P-P	1.5	LAMPF-015
K-P	33.0	SERP-E-142	P-P	1.5	LAMPF-194
K-P	40.0	CERN-WA-007	P-P	1.5	LAMPF-336
K-P	40.0	SERP-E-112	P-P	1.5	LAMPF-392
K-P	40.0	SERP-E-116	P-P	1.5	LAMPF-402
K-P	40.0	SERP-E-148	P-P	1.5	LAMPF-457
K-P	60.0	CERN-WA-007	P-P	1.5	LAMPF-462
K-P	75.0	FNAL-585	P-P	1.5	LAMPF-517
K-P	80.0	CERN-WA-007	P-P	1.5	LAMPF-563
K-P	100.0	FNAL-577	P-P	1.5	LAMPF-590
K-P	100.0	FNAL-585	P-P	1.5	LAMPF-637
C-P	108.6	CERN-WA-028	P-P	1.5	LAMPF-708
C-P	150.0	FNAL-585	P-P	1.5	LAMPF-758
C-P	175.0	FNAL-663	P-P	1.5	LAMPF-790
C-P	200.0	FNAL-577	P-P	1.5	LAMPF-792
K-DEUT	0.9	BNL-773	P-P	1.5	LAMPF-846
K-DEUT	1.0	CERN-PS-159	P-P	1.5	SACLAY-088
K-HE	0.7	BNL-774	P-P	1.5	SACLAY-089
K-HE	0.8	BNL-788	P-P	1.6	SACLAY-088
F-L16	0.7	BNL-752	P-P	1.7	SACLAY-089
F-L16	0.8	BNL-788	P-P	1.6	SACLAY-088
K-C	0.8	BNL-759	P-P	1.6	SACLAY-089
K-O	0.7	BNL-752	P-P	1.7	SACLAY-088
K-SJ	40.0	SERP-E-157	P-P	1.7	SACLAY-089
K-WT	6.0	BNL-751	P-P	1.8	SACLAY-088
K-NUCLEUS	0	KEK-117	P-P	1.8	SACLAY-089
K-NUCLEUS	0.4	CERN-PS-166	P-P	5.6	BNL-722
K-NUCLEUS	0.4	KEK-114	P-P	10.0	BNL-751
K-NUCLEUS	0.5	CERN-PS-166	P-P	15.0	BNL-741
K-NUCLEUS	0.5	BNL-746	P-P	20.0	BNL-746
K-NUCLEUS	0.8	BNL-760	P-P	20.0	CERN-WA-007
K-NUCLEUS	0.8	BNL-781	P-P	23.0	BNL-748
K-NUCLEUS	1.0	SERP-E-127	P-P	24.0	BNL-785
K-NUCLEUS	200.0	FNAL-565	P-P	26.0	BNL-748
K-NUCLEUS	500.0	FNAL-672	P-P	26.0	BNL-782
K-	?	SERP-E-115	P-P	28.5	BNL-748
K-(892)0	3.0	CERN-PS-164	P-P	32.0	SERP-E-150
NESON-	20.0	FNAL-617	P-P	40.0	CERN-WA-107
NESON-	30.0	SERP-E-148	P-P	50.0	CERN-WA-106
NESON-	40.0	SERP-E-148	P-P	60.0	CERN-WA-107
NESON-		SERP-E-148	P-P	70.0	SERP-E-100
			P-P	80.0	CERN-WA-017
			P-P	85.0	CERN-WA-076
			P-P	100.0	FNAL-577
			P-P	100.0	FNAL-597
			P-P	100.0	CERN-WA-008
			P-P	147.0	FNAL-570
			P-P	150.0	CERN-WA-024
			P-P	175.0	FNAL-663
			P-P	200.0	CERN-WA-005
			P-P	200.0	CERN-WA-025
			P-P	200.0	CERN-WA-070
			P-P	200.0	FNAL-577
			P-P	200.0	FNAL-704
			P-P	212.2	CERN-R-420
			P-P	268.8	CERN-WA-006
			P-P	280.0	CERN-WA-070
			P-P	281.0	CERN-R-211
			P-P	293.3	CERN-R-210
			P-P	300.0	CERN-WA-005
			P-P	360.0	CERN-WA-016
			P-P	360.0	CERN-WA-025
			P-P	360.0	CERN-WA-027
			P-P	>360.0	CERN-WA-023
			P-P	400.0	FNAL-557
			P-P	400.0	FNAL-609
			P-P	400.0	FNAL-623
			P-P	478.7	CERN-R-211
			P-P	478.7	CERN-R-421
			P-P	478.7	CERN-R-608
			P-P	478.7	CERN-R-110
			P-P	478.7	CERN-R-501
			P-P	478.7	CERN-R-808
			P-P	478.7	CERN-R-806
			P-P	511.2	CERN-R-807
			P-P	800.0	FNAL-557
			P-P	1000.0	FNAL-743
			P-P	1030.7	CERN-R-421
			P-P	1030.7	CERN-R-416
			P-P	1440.0	CERN-R-211
			P-P	1440.0	CERN-R-420
			P-P	1495.9	CERN-R-808
			P-P	2047.5	CERN-R-211
			P-P	2047.5	CERN-R-419
			P-P	2047.5	CERN-R-421

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

BEAM-TARGET-MOMENTUM INDEX

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
P P	2047.5	CERN-R-422
P P	2047.5	CERN-R-608
P P	2114.1	CERN-R-420
P P	1.6E+05	CERN-R-703
P N		SERP-E-119
P N	1.1	LAMPF-392
P N	1.2	LAMPF-590
P N	1.3	KEK-075
P N	1.4	KEK-075
P N	1.5	LAMPF-385
P N	1.5	LAMPF-392
P N	1.5	LAMPF-457
P N	1.5	LAMPF-590
P N	1.5	LAMPF-792
P N	1.5	LAMPF-846
P N	1.6	KEK-075
P N	1.8	KEK-075
P N	32.0	SERP-E-150
P NUCLEON	1.5	LAMPF-634
P DEUT	7	SACLAY-037
P DEUT	7	SACLAY-113
P DEUT	1.0	LAMPF-498
P DEUT	1.0	SACLAY-068
P DEUT	1.1	SACLAY-099
P DEUT	1.1	LAMPF-635
P DEUT	1.1	LAMPF-664
P DEUT	1.1	LAMPF-853
P DEUT	1.2	LENI-SC-108
P DEUT	1.2	SACLAY-095
P DEUT	1.2	SACLAY-051
P DEUT	1.3	LAMPF-585
P DEUT	1.3	LAMPF-635
P DEUT	1.3	LAMPF-664
P DEUT	1.3	LAMPF-853
P DEUT	1.5	LAMPF-385
P DEUT	1.5	LAMPF-015
P DEUT	1.5	LAMPF-360
P DEUT	1.5	LAMPF-462
P DEUT	1.5	LAMPF-635
P DEUT	1.5	LAMPF-664
P DEUT	1.5	LAMPF-795
P DEUT	1.5	LAMPF-818
P DEUT	1.5	LAMPF-853
P DEUT	1.6	SACLAY-095
P DEUT	32.0	SERP-E-150
P DEUT	70.0	SERP-E-100
P DEUT	300.0	FNAL-705
P DEUT	750.0	FNAL-705
P HE3	1.3	SACLAY-051
P HE3	1.4	SACLAY-050
P HE3	1.4	SACLAY-050
P HE	0.3	SIN-2-80-01
P HE	1.5	LAMPF-015
P HE	72.1	CERN-R-210
P HE	100.0	CERN-NA-008
P HE	118.7	CERN-R-110
P HE	126.9	CERN-R-418
P BE	1.5	LAMPF-360
P BE	28.5	BNL-744
P BE	100.0	CERN-NA-011
P BE	200.0	FNAL-673
P BE	250.0	FNAL-673
P BE	400.0	CERN-NA-020
P BE	400.0	FNAL-555
P BE	450.0	CERN-NA-034
P BE	900.0	FNAL-711
P C	400.0	FNAL-706
P C	530.0	FNAL-706
P C	800.0	FNAL-706
P C12	1.5	LAMPF-651
P SI	1.0	LENI-SC-078
P AR	200.0	CERN-NA-005
P CR	500.0	FNAL-524
P FE	350.0	FNAL-595
P CU	0.9	SACLAY-107
P CU	400.0	CERN-NA-020
P AG	500.0	FNAL-524
P XE	200.0	CERN-NA-005
P MT	500.0	FNAL-524
P TH	20.0	CERN-PS-162
P TH	28.0	BNL-779
P U	20.0	CERN-PS-162
P U	28.0	BNL-779
P NUCLEUS	?	KEK-084
P NUCLEUS	?	KEK-082
P NUCLEUS	0.8	LENI-SC-097
P NUCLEUS	1.0	LENI-SC-042
P NUCLEUS	1.0	LENI-SC-085
P NUCLEUS	1.0	SERP-E-127
P NUCLEUS	1.0	KEK-115
P NUCLEUS	1.0	KEK-100
P NUCLEUS	1.0	ITEP-E-771
P NUCLEUS	1.0	BNL-778
P NUCLEUS	1.2	SIN-R-81-06

BEAM AND TARGET	LAB MOMENTUM OR MOMENTUM RANGE (GEV/C)	EXPERIMENT
P NUCLEUS	1.7	LENI-SC-021
P NUCLEUS	1.7	LENI-SC-029
P NUCLEUS	1.7	LENI-SC-052
P NUCLEUS	1.7	LENI-SC-066
P NUCLEUS	2.5	ITEP-E-813
P NUCLEUS	3.7	SACLAY-057
P NUCLEUS	4.5	ITEP-E-831
P NUCLEUS	5.0	ITEP-E-813
P NUCLEUS	7.5	ITEP-E-813
P NUCLEUS	12.0	SERP-E-153
P NUCLEUS	12.0	KEK-049
P NUCLEUS	17.0	BNL-790
P NUCLEUS	20.0	FNAL-591
P NUCLEUS	70.0	SERP-E-120
P NUCLEUS	70.0	SERP-E-121
P NUCLEUS	70.0	SERP-E-144
P NUCLEUS	100.0	FNAL-597
P NUCLEUS	200.0	FNAL-565
P NUCLEUS	200.0	FNAL-629
P NUCLEUS	200.0	FNAL-466
P NUCLEUS	400.0	CERN-NA-030
P NUCLEUS	400.0	CERN-NA-038
P NUCLEUS	400.0	CERN-NA-065
P NUCLEUS	400.0	CERN-NA-066
P NUCLEUS	400.0	FNAL-497
P NUCLEUS	400.0	FNAL-549
P NUCLEUS	400.0	FNAL-557
P NUCLEUS	400.0	FNAL-565
P NUCLEUS	400.0	FNAL-605
P NUCLEUS	400.0	FNAL-613
P NUCLEUS	400.0	FNAL-631
P NUCLEUS	400.0	FNAL-622
P NUCLEUS	450.0	CERN-NA-030
P NUCLEUS	450.0	CERN-NA-068
P NUCLEUS	500.0	FNAL-576
P NUCLEUS	500.0	FNAL-672
P NUCLEUS	750.0	FNAL-508
P NUCLEUS	800.0	FNAL-557
P NUCLEUS	800.0	FNAL-605
P NUCLEUS	1000.0	FNAL-672
P	1.0	CERN-PS-188
P	2.0	CERN-PS-164
N P	0.6	CERN-NA-006
N P	0.6	SIN-R-72-02
N P	0.6	TRIUMF-190
N P	0.9	SACLAY-078
N P	1.0	LAMPF-498
N P	1.0	SACLAY-106
N P	1.1	TRIUMF-121
N P	1.1	LAMPF-665
N P	1.1	LAMPF-683
N P	1.1	LAMPF-770
N P	1.2	LAMPF-590
N P	1.3	LAMPF-498
N P	1.3	LAMPF-665
N P	1.3	LAMPF-683
N P	1.5	LAMPF-366
N P	1.5	LAMPF-403
N P	1.5	LAMPF-590
N P	1.5	LAMPF-498
N P	1.5	LAMPF-589
N P	1.5	LAMPF-665
N P	1.5	LAMPF-683
N P	1.5	LAMPF-861
N DEUT	10.0	BNL-766
N DEUT	0.6	SIN-R-72-02
N C	45.0	SERP-E-104
N SI	280.0	FNAL-400
N SI	560.0	FNAL-400
N NUCLEUS	2.0	ITEP-E-822
N NUCLEUS	40.0	SERP-E-146
N NUCLEUS	300.0	FNAL-630
N	1.4E-04	LAMPF-647
AN P	0.1	BNL-767
AN NUCLEUS	0.1	CERN-PS-179
AP P	0.1	CERN-PS-170
AP P	0.1	CERN-PS-171
AP P	0.1	CERN-PS-174
AP P	0.1	CERN-PS-175
AP P	0.1	CERN-PS-182
AP P	0.1	CERN-PS-183
AP P	0.1	CERN-PS-183
AP P	0.1	CERN-PS-161
AP P	0.1	BNL-708
AP P	0.1	CERN-PS-179
AP P	0.1	CERN-PS-170
AP P	0.2	CERN-PS-173
AP P	0.2	CERN-PS-172
AP P	0.3	CERN-PS-172
AP P	0.3	CERN-PS-178
AP P	0.3	BNL-762
AP P	0.3	KEK-074
AP P	0.4	KEK-074A
AP P	0.4	BNL-742

BEAM-TARGET-MOMENTUM INDEX

LAB MOMENTUM OR MOMENTUM RANGE		EXPERIMENT	LAB MOMENTUM OR MOMENTUM RANGE		EXPERIMENT
BEAM AND TARGET	(GEV/C)		BEAM AND TARGET	(GEV/C)	
AP P	0.4	1.0	CERN-PS-163-2		
AP P	1.2	1.6	BNL-789		
AP P	1.5	2.0	CERN-PS-185		
AP P	3.0		KEK-062		
AP P	3.5		KEK-062		
AP P	3.5	7.5	CERN-R-704		
AP P	4.0		KEK-662		
AP P	4.5		KEK-062		
AP P	5.0		BNL-771		
AP P	8.0	16.0	CERN-WA-074		
AP P	13.0		SERP-E-176		
AP P	20.0		CERN-WA-007		
AP P	20.0		SERP-E-148		
AP P	25.0		SERP-E-116		
AP P	30.0		SERP-E-148		
AP P	32.0		SERP-E-138		
AP P	32.0		SERP-E-150		
AP P	40.0		CERN-WA-007		
AP P	40.0		SERP-E-116		
AP P	40.0		SERP-E-148		
AP P	60.0		CERN-WA-007		
AP P	74.0		CERN-WA-042		
AP P	80.0		CERN-WA-007		
AP P	100.0		FNAL-577		
AP P	100.0		FNAL-597		
AP P	137.0		CEM-WA-042		
AP P	147.0		FNAL-570		
AP P	175.0		FNAL-663		
AP P	200.0		CERN-WA-005		
AP P	200.0		FNAL-577		
AP P	200.0		FNAL-704		
AP P	212.2		CERN-R-420		
AP P	268.8		CERN-NA-006		
AP P	293.3	2094.9	CERN-R-210		
AP P	478.7		CERN-R-211		
AP P	478.7		CERN-R-421		
AP P	478.7		CERN-R-608		
AP P	478.7	2047.5	CERN-R-110		
AP P	478.7	2047.5	CERN-R-501		
AP P	478.7	2047.5	CERN-R-805		
AP P	511.2	2047.5	CERN-R-807		
AP P	1030.7		CERN-R-421		
AP P	1440.0		CERN-R-211		
AP P	1440.0		CERN-R-420		
AP P	1495.9		CERN-R-608		
AP P	2047.5		CERN-R-211		
AP P	2047.5		CERN-R-421		
AP P	2047.5		CERN-R-608		
AP P	2114.1		CERN-R-420		
AP P	5328.0	1.6E+05	CERN-NA-004		
AP P	47959.2	2.1E+06	FNAL-710		
AP P	47959.2	2.1E+06	FNAL-713		
AP P	1.3E+05	2.1E+06	FNAL-740		
AP P	1.3E+05	2.1E+06	FNAL-741		
AP P	1.6E+05		CERN-R-703		
AP P	1.6E+05		CERN-NA-001		
AP P	1.6E+05		CERN-NA-003		
AP P	1.6E+05		CERN-NA-005		
AP P	2.0E+05		CERN-NA-002		
AP P	3.4E+05	4.3E+05	CERN-NA-005-2		
AP P	2.1E+06		FNAL-735		
AP N	32.0		SERP-E-150		
AP DEUT	0.		CERN-PS-174		
AP DEUT	0.		CERN-PS-175		
AP DEUT	0.	0.5	CERN-PS-161		
AP DEUT	0.	0.6	BNL-772		
AP DEUT	0.	1.0	CERN-PS-179		
AP DEUT	0.3	1.0	KEK-074		
AP DEUT	32.0		SERP-E-150		
AP DEUT	74.0		CERN-WA-042		
AP DEUT	137.0		CERN-WA-042		
AP DEUT	300.0		FNAL-705		
AP DEUT	750.0		FNAL-705		
AP HE3	0.	1.0	CERN-PS-179		
AP HE	0.	1.0	CERN-PS-179		
AP HE	0.	1.0	CERN-PS-179		
AP AL	0.4	3.6	BNL-742		
AP AR	200.0		CERN-NA-005		
AP CU	0.4	0.6	BNL-742		
AP XE	200.0		CERN-NA-005		
AP PB	0.4	0.6	BNL-742		
AP NUCLEUS	?		KEK-084		
AP NUCLEUS	0.		CERN-PS-176		
AP NUCLEUS	0.		CERN-PS-177		
AP NUCLEUS	0.		CERN-PS-186		
AP NUCLEUS	0.	0.5	CERN-PS-161		
AP NUCLEUS	0.3	0.6	CERN-PS-184		
AP NUCLEUS	0.6		CERN-PS-187		
AP NUCLEUS	100.0		FNAL-597		
AP NUCLEUS	125.0		FNAL-537		
AP NUCLEUS	500.0		FNAL-672		
AP	2.0E-02		CERN-PS-189		
AP	2.0	20.0	CERN-PS-164		
LAMBDA P	30.0	60.0	SERP-E-120		
LAMBDA DEUT	30.0	60.0	SERP-E-120		
LAMBDA NUCLEUS	80.0	350.0	FNAL-619		
SIGMA+ P	30.0	60.0	SERP-E-120		
SIGMA+ DEUT	30.0	60.0	SERP-E-120		
SIGMA+	?		KEK-092		
SIGMA+	120.0	250.0	FNAL-620		
SIGMA+ P	30.0	60.0	SERP-E-120		
SIGMA- P	74.0		CERN-WA-042		
SIGMA- P	137.0		SERP-E-120		
SIGMA- DEUT	30.0	60.0	SERP-E-120		
SIGMA- DEUT	74.0		CERN-WA-042		
SIGMA- DEUT	137.0		CERN-WA-042		
SIGMA- BE	135.0		CERN-WA-062		
SIGMA- NUCLEUS	0.		BNL-723		
SIGMA- NUCLEUS	1.0		SERP-E-127		
SIGMA- NUCLEUS	20.0	350.0	FNAL-666		
SIGMA- NUCLEUS	250.0		FNAL-730		
SIGMA- NUCLEUS	120.0	250.0	FNAL-620		
SIGMA-	250.0		FNAL-715		
X10 P	30.0	60.0	SERP-E-120		
X10 DEUT	30.0	60.0	SERP-E-120		
X1- P	30.0	60.0	SERP-E-120		
X1- P	74.0		CERN-WA-042		
X1- P	137.0		CERN-WA-042		
X1- DEUT	30.0	60.0	SERP-E-120		
X1- DEUT	74.0		CERN-WA-042		
X1- DEUT	137.0		CERN-WA-042		
X1- BE	116.0		CERN-WA-042		
X1-	120.0	250.0	FNAL-620		
OMEGA- P	30.0	60.0	SERP-E-120		
OMEGA- DEUT	30.0	60.0	SERP-E-120		
OMEGA-	120.0	250.0	FNAL-620		
DEUT P	?		SACLAY-066		
DEUT P	0.8	1.5	SACLAY-108		
DEUT P	1.5		LAMPE-685		
DEUT P	1.6	3.6	SACLAY-115		
DEUT P	2.0	4.0	KEK-080		
DEUT P	2.4		SACLAY-038		
DEUT P	2.9		SACLAY-038		
DEUT P	3.4		SACLAY-038		
DEUT DEUT	?		SACLAY-066		
DEUT DEUT	1.9	2.6	SACLAY-105		
DEUT DEUT	2.0	4.0	KEK-125		
DEUT DEUT	3.0		SACLAY-080		
DEUT DEUT	3.4		SACLAY-080		
DEUT DEUT	3.7		SACLAY-080		
DEUT DEUT	254.3		CERN-R-418		
DEUT HE3	0.2	0.3	SIN-R-73-01-2		
DEUT Li6	?		SACLAY-010		
DEUT BE	?		SACLAY-010		
DEUT BOR10	?		SACLAY-010		
DEUT NUCLEUS	1.6	3.6	SACLAY-115		
ADEUT P	12.0	13.0	SERP-E-139		
ADEUT DEUT	12.0	13.0	SERP-E-139		
HE3 P	1.8	4.3	SACLAY-085		
HE3 P	2.5		ITEP-E-782		
HE3 P	4.7		SACLAY-050		
HE3 P	5.0		ITEP-E-782		
HE3 HE3	1.8		SACLAY-092		
HE3 NUCLEUS	1.7	4.3	SACLAY-085		
TRIT P	2.5		ITEP-E-782		
HE P	5.0		ITEP-E-782		
HE P	4.3		SACLAY-013		
HE DEUT	7.0		SACLAY-013		
HE DEUT	7.0		SACLAY-013		
HE HE3	4.3		SACLAY-013		
HE HE3	7.0		SACLAY-013		
HE HE	4.3		SACLAY-013		
HE HE	5.0		SACLAY-013		
HE HE	70.2	523.5	CERN-R-210		
HE HE	116.9	511.8	CERN-R-110		
HE HE	116.9	511.8	CERN-R-808		
HE HE	125.1		CERN-WA-418		
HE HE	125.1	511.8	CERN-R-807		
HE NUCLEUS	>45.0		CERN-PS-192		
BOR12	0.		SIN-R-77-01		
CHARGED-MESON	0.	70.0	CERN-PS-152		
HADRON P	200.0	2000.0	FNAL-690		
CHARGED+ P	40.0		CERN-WA-063		
CHARGED+	10.0	40.0	SERP-E-132		
CHARGED+	50.0	200.0	FNAL-660		
CHARGED- P	40.0		CERN-WA-063		
CHARGED-	10.0	40.0	SERP-E-132		
CHARGED-	50.0	200.0	FNAL-660		
NEUTRAL	?		FNAL-584		

SPOKESPERSON INDEX

SPOKESPERSON	INSTITUTION	EXPERIMENT	SPOKESPERSON	INSTITUTION	EXPERIMENT
ADAIR, R.K.	YALE	BNL-755	DAVID, M.	SACL	CERN-NA-011
ADAIR, R.K.	YALE	BNL-749	DAVIES, J.D.	BIRM	CERN-PS-174
AMALDI, U.	CERN	CERN-LEP-DELPHI	DAVIES, J.D.	BIRM	CERN-SC-077
ANDERSON, M.L.	LANL	LAMPF-455	DEL PRETE, T.	PISA	CERN-R-210
ANTIPPOV, Y.M.	SERP	SERP-E-143	DENISOV, S.P.	SERP	SERP-E-152
ANTIPPOV, Y.M.	SERP	SERP-E-148	DEWICK, G.	ANL	CERN-PEP-012
ARNOLD, R.G.	AMER	SLAC-E-136	DEUTSCH, M.	MIT	BNL-760
ASTON, D.	SLAC	SLAC-E-135	DEUTSCH, M.	MIT	BNL-781
AUER, J.P.	ANL	LAMPF-498	DEVILIN, T.	RUTG	FNAL-555
AVILEZ, C.	HEXU	BNL-766	DEVILIN, T.	RUTG	FNAL-619
AXEN, D.A.	BRCC	TRIUMF-174	DIAMBRI-PALAZZI, G.	GENO	CERN-NA-058
BACKENSTOSS, G.	BNL	SIN-R-79-05	DIAMBRI-PALAZZI, G.	ROMA	CERN-NA-071
BADERTSCHER, A.	YALE	LAMPF-869	DICK, L.	CERN	CERN-UA-C06
BAKER, S.I.	FNAL	FNAL-631	DIGACOMO, N.	LANL	CERN-PS-187
BALATZ, M.Y.	ITEP	ITEP-E-821	DITZLER, W.R.	ANL	LAMPF-683
BALATZ, M.Y.	ITEP	ITEP-E-811	DOMBECK, T.W.	LANL	LAMPF-764
BALDO-CEOLIN, M.	PADO	CERN-PS-180	DOMBECK, T.W.	LANL	LAMPF-638
BALYAT, C.	CCU	FNAL-046	DORFAN, J.	SLAC	SLAC-SLC-6
BALYAT, C.	CCU	SLAC-SLC-SLD	DORFAN, J.	SACL	SACLAY-013
BALYAT, C.	CCU	FNAL-053A	DYDAR, F.	CERN	CERN-NA-701-2
BARLOUTAUD, R.	SACL	P-DECAY-FREJUS	DZIEPA, A.	IND	FNAL-672
BARLOUTAUD, R.	SACL	CERN-PS-168	ECKHAUSE, M.	WILL	TRIUMF-137
BARNES, P.D.	CRU	BNL-788	ELLIS, R.J.	LANL	LAMPF-647
BARNES, P.D.	CRU	BNL-759	ENDU, J.	WRO	INS-15-3
BARNLEY, E.	EPOL	CERN-PS-157	ERMOLOV, P.F.	SERP	FNAL-180
BARTLETT, D.F.	CCO	FNAL-502	EXTERMANN, P.	GEVA	CERN-NA-042
BATTY, C.J.	RHEL	CERN-PS-165	FASNAUGHT, P.	STRB	SACLAY-113
BEER, G.A.	VICT	TRIUMF-181	FAYARD, D.	LVLM	CERN-R-211
BELLINI, G.	MILA	CERN-NA-029	FELDMAN, G.	SLAC	SLAC-E-6
BERKELMAN, K.	CORN	CERN-CLIO	FELST, R.	DESY	DESY-PETRA-JADE
BERTHET, P.	IPN	SACLAY-095	FENNER, A.	CERN	CERN-NA-056
BERTINI, R.	SACL	SACLAY-060	FETSCHER, W.	ETHZ	SIN-R-74-05
BEVINGTON, P.R.	CASE	LAMPF-194	FETSCHER, W.	ETHZ	SIN-R-85-29
BHATTIA, T.S.	TAMU	LAMPF-457	FIDECARO, G.	CERN	CERN-NA-006
BHATTIA, T.S.	TAMU	LAMPF-846	FIORINI, E.	CERN	CERN-PS-167
BIENLEIN, J.	DESY	DESY-LENA	FIORINI, E.	MILA	P-DECAY-MUSEX
BIENLEIN, J.K.	DESY	DESY-CRYSTAL-BAL	FISHER, C.	RHEL	CERN-NA-016
BIESZYNSKI, M.	IPN	SACLAY-092	FITZGERALD, D.	LANL	LAMPF-808
BIESZYNSKI, M.	UCLA	LAMPF-635	FITZGERALD, D.H.	LANL	LAMPF-849
BLOOM, E.	SLAC	LAMPF-685	FITZGERALD, D.H.	UCLA	LAMPF-689
BLOOM, E.D.	SLAC	DESY-CRYSTAL-BAL	FOD, L.	PISA	CERN-NA-001
BLOOM, E.D.	SLAC	SLAC-SP-030	FOD, L.	PISA	CERN-NA-029
BODER, A.	ROCH	FNAL-595	FONTAINE, J.M.	SACL	SACLAY-104
BOGGILD, H.	COPE	CERN-R-807	FRANCIS, H.	MSU	FNAL-585
BOLDTOV, V.N.	MINR	SERP-E-115	FRANK, S.G.F.	SHNP	CERN-NA-007
BONNER, B.E.	LANL	LAMPF-637	FRANKEL, S.	PERN	LAMPF-421
BONNER, B.E.	LANL	LAMPF-635	FRANKLIN, G.	CCU	CERN-788
BONNER, B.E.	LANL	LAMPF-403	FRANZINI, P.	CERN	CERN-NA-008
BORISOV, V.S.	ITEP	ITEP-E-823	FRASCARIA, R.	IPN	SACLAY-095
BOUDARD, A.	SACL	SACLAY-108	FRASCARIA, R.	IPN	SACLAY-051
BOUDRIE, R.L.	LANL	LAMPF-581	FRASCARIA, R.	SACL	SACLAY-080
BOVET, E.	NEUC	SIN-R-81-01	FRIEDLANDER, E.M.	SACL	CERN-PS-192
BOWMAN, J.D.	LANL	LAMPF-650	FROSCHE, R.	VILL	SIN-R-82-01
BOWMAN, J.D.	LANL	LAMPF-444	FROSCHE, R.	VILL	SIN-R-71-08
BOWMAN, J.D.	LANL	LAMPF-295	FROYBERGER, D.	SLAC	SLAC-PEP-002
BOWMAN, J.D.	LANL	LAMPF-455	FURUT, S.	HACO	KEK-084
BRAU, J.	TENN	SLAC-BC-076	GAARDE, C.	COPE	SACLAY-115
BRIDENBACH, M.	SLAC	SLAC-SLC-SLD	GAARDE, C.	COPE	SACLAY-085
BRESSANI, T.	TORI	CERN-PS-178	GAGO, J.M.	LSBF	CERN-NA-074
BRISCOE, W.J.	UCLA	LAMPF-546	GARGON, M.	SACL	SACLAY-017
BRISCOE, W.J.	GWU	LAMPF-849	GARRERA, D.	SACL	CERN-PS-184
BRISCOE, W.J.	GWU	LAMPF-806	GAZZALY, M.M.	MINN	LAMPF-790
BROCK, R.	MSU	FNAL-733	GEIST, W.	CERN	CERN-R-416
BROCKNER, W.	WPIH	CERN-PS-166	GEIST, W.	CERN	CERN-R-419
BRYMAN, D.A.	TRIU, VICT	TRIUMF-052	GIBSON, W.	ALBA	FNAL-650
BRYMAN, D.A.	VICT, TRIU	TRIUMF-104	GIMLETT, J.	CIT	SIN-R-81-01
BUDAGOV, Y.A.	JINR	SERP-E-102	GLADISCH, M.W.	HEID	LAMPF-869
BUGG, D.	LODM	CERN-PS-172	GLASS, G.	TAMU	LAMPF-664
BUNCE, G.	BNL	BNL-755	GLASS, G.	TAMU	LAMPF-402
BUNYATOV, S.A.	JINR	SERP-E-136	GLASS, G.C.	TAMU	LAMPF-846
BURKE, D.	SLAC	SLAC-PEP-021	GLASS, G.C.	TAMU	LAMPF-589
BURLESON, G.R.	UNM	LAMPF-770	GOLDZAHN, L.	SACL	SACLAY-095
BURLESON, G.R.	WNKS	LAMPF-665	GOTOW, K.	VPI	LAMPF-767
BUTLER, J.	FNAL	LAMPF-687	GOTOW, K.	VPI	LAMPF-567
BUTTON-SHAFFER, J.	MASA	BNL-698	GOTOW, K.	VPI	LAMPF-828
CAMERON, J.	ALBE	SACLAY-108	GOUDSMIT, P.F.A.	ANIK	SIN-R-78-09
CAMERON, J.M.	ALBE	TRIUMF-190	GOUDSMIT, P.F.A.	ROCK	FNAL-612
CARLILLI, R.	CERN	SIN-R-110	GRACIO, V.	GENO	CERN-NA-007
CARLINI, R.	LANL	LAMPF-634	GRAFSTROM, K.	UOPP	CERN-NA-008
CARR, J.	LBL	TRIUMF-247	GRAM, P.A.M.	LANL	LAMPF-783
CASON, N.M.	NOAM	BNL-769	GRAMENITSKY, I.M.	JINR	SERP-E-139
CHEN, H.H.	UCI	LAMPF-225	GRANIS, P.	STON	FNAL-740
CHRISTENSON, J.H.	NYU	BNL-726	GREEN, D.	FNAL	FNAL-623
CHUNG, S.U.	BNL	BNL-771	GREEN, D.	FNAL	FNAL-580
CLINE, D.	WISC	P-DECAY-HPW	GREENE, S.J.	NXMS	LAMPF-682
COOPER, J.	FNHN	FNAL-673	GRUEBLER, W.	ETHZ	SIN-R-73-01-2
COOPER, R.	LANL	LAMPF-808	GUSTAFSON, H.R.	WISC	FNAL-622
COOPER, P.S.	YALE	FNAL-715	GUTAY, L.J.	PURD	FNAL-735
CORMELL, L.R.	ARIZ	FNAL-683	GUTAY, L.J.	PURD	FNAL-591
COUVERT, P.	SACL	SACLAY-068	HANN, B.	BERN	SIN-R-82-04
COX, B.	FNAL	FNAL-705	HAYANO, R.	TOKI	CERN-NA-009
COX, B.	FNAL	FNAL-537	HEBERT, J.	OTTA	FNAL-576
CROME, K.M.	LBL	TRIUMF-134	HESS, R.	GEVA	SIN-R-78-06
DALPIAZ, P.	FERN	CERN-PS-170	HESS, R.	GEVA	SIN-R-80-01
DARRULAT, P.	CERN	CERN-NA-002	HESS, R.	GEVA	SIN-R-71-07

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HIBDU, F.	STRB, SACL	SACLAY-092	LANDSBERG, L.G.	SERP	SERP-E-162
HIGHLAND, V.L.	TEMP	LAMPF-726	LE BORNEC, Y.	JPN, SACL	SACLAY-092
HIRSCHMANN, H.	VILL	SIN-R-75-07-2	LEE, W.	COLU	FNAL-458
HITLIN, D.	CIT	SLAC-SP-031	LEE, W.	COLU	BNL-776
HITLIN, D.G.	CIT	SLAC-SP-032	LEE-FRANZINI, J.	STON	CERN-CUSB
HOFFMAN, C.M.	LANL	LAMPF-44P-445	LEGRAND, D.	SACL	SACLAY-070
HOFFMANN, G.W.	LANL	LAMPF-385	LEHAR, F.	SACL	SACLAY-106
HOFFMANN, G.W.	TEXA	LAMPF-392	LEHAR, F.	SACL	SIN-R-80-01
HOFFMANN, G.W.	TEXA	LAMPF-563	LEHAR, F.	SACL	SACLAY-089
HOFSTADTER, R.	STAN	LAMPF-444	LEHAR, F.	SACL	SACLAY-052
HOLLAS, C.L.	TEXA	LAMPF-636	LEHAR, F.	SACL	SACLAY-087
HOLLAS, C.L.	TEXA	LAMPF-708	LEHAR, F.	SACL	SACLAY-101
HOLLEBEEK, R.	SLAC	SLAC-PEP-021	LEHAR, F.	SACL	SACLAY-088
HOMMA, S.	INUS	INS-17-2	LEHAR, F.	SACL	SACLAY-104
HOMMA, S.	INUS	INS-18-1	LEIPUNER, L.B.	BNL	BNL-749
HOMMA, S.	INUS	INS-19-2	LEISI, H.J.	ETHZ	SIN-R-82-10
HOMMA, S.	INUS	INS-14-3	LEISI, H.J.	ETHZ	SIN-R-78-09
HORIKAWA, N.	NAGO	INS-16-1	LEKSHIN, G.A.	ITEP	ITEP-E-813
HUGENTOBLE, E.	BERN	CERN-WA-018	LEKSHIN, G.A.	ITEP	ITEP-E-771
HUGHES, V.W.	YALE	LAMPF-421	LEVEQUE, A.	CERN	CERN-UA-001
HUGHES, V.W.	YALE	LAMPF-869	LEVINTHAL, D.	FNAL	FNAL-711
HUGHES, V.W.	YALE	SLAC-E-130	LICHTENSTADT, J.	TELA	LAMPF-783
HULT, P.O.	STON	CERN-WA-066	LIKHACHEV, M.F.	SERP	SERP-E-104
HUNGERFORD, E.	HOUS	BNL-752	LIKHACHEV, M.F.	JINR	SERP-E-146
HUNGERFORD, E.V.	HOUS	BNL-774	LINDENBAUM, S.J.	BNL, CUNY	BNL-747
HUNGERFORD, E.V.	HOUS	BNL-773	LING, T.Y.	OSU	LAMPF-645
HUTCHCOFF, D.A.	TRIU	TRIUMF-171	LITCHFIELD, P.J.	RHEL	CERN-PS-160
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IGO, G.	UCLA	LAMPF-818	LOCKYER, N.	SLAC	SLAC-PEP-005
IGO, G.J.	UCLA	LAMPF-685	LONGO, M.J.	MICH	FNAL-549
IGO, G.J.	UCLA	KEK-081	MACKE, R.J.	LAML	LAMPF-032
IGO, G.J.	UCLA	LAMPF-635	MACRI, M.	CERN	CERN-W-704
IGO, G.J.	UCLA	LAMPF-853	MAKDISI, Y.I.	BNL	BNL-785
IGO, G.J.	UCLA	LAMPF-015	MAKI, A.	KEK	KEK-TE-003
IMAI, K.	ANL	LAMPF-682	MALAMUD, E.	FNAL	FNAL-557
IKAGAKI, T.	KEK	KEK-121	MANDL, F.	VLEN	CERN-WA-078
ISHII, T.	INUS	INS-17-1	MAROV, P.K.	SOFI	SERP-E-104
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IWATA, S.	KEK	KEK-TE-002	MARSHAK, M.	MINN	P-DECAY-SUDANII
JACKSON, J.N.	LIVP	CERN-WA-067	MARSHAK, M.	MINN	BNL-755
JARMER, J.J.	LANL	LAMPF-517	MARTENIANOV, V.P.	KIAC	CERN-WA-038
JARMER, J.J.	LANL	LAMPF-518	MARTIN, M.	GEVA	CERN-WA-070
JENSEN, D.	NASA	BNL-744	MASAIKE, A.	KEK	KEK-081
JONSON, B.	CERN	CERN-15-010	MASTERSON, T.G.	COLO	LAMPF-478
JOSEPH, C.	LAUS	CERN-UA-008	MASTERSON, T.G.	COLO	LAMPF-581
JULIEN, J.	SACLAY	SLAC-107	MATTHIAS, G.	MAPL	SLAC-WA-004
KAFKANO, V.S.	ITEP	SERP-E-045	HAY, M.	BNL	BNL-781
KAJIKAWA, R.	NAGO	INS-14-4	MAYER, B.	SACL	SACLAY-060
KALNUS, G.	RHEL	SLAC-BC-073	MAYER, B.	SACL	SACLAY-099
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KALDOGEROPOULOS, T.E.	SYRA	BNL-708	MCCARTHY, R.	STON	FNAL-605
KAMAE, T.	TOKY	KEK-TE-002	MCCUBBIN, N.A.	RHEL	CERN-WA-034
KANAVETS, V.P.	ITEP	ITEP-E-801	MCDONALD, K.T.	PRIN	FNAL-615
KATCOFF, S.	BNL	BNL-179	MCFARLANE, M.W.	TEMP	LAMPF-032
KATO, S.	INUS	INS-15-1	MCFARLANE, M.W.	LANL	LAMPF-492
KATO, S.	INUS	INS-16-1	MEASDAY, J.	TRIU	TRIUMF-009
KATO, S.	INUS	INS-18-3	MELISSINOS, A.	ROCH	FNAL-723
KAZAKINOV, Y.M.	JINR	SERP-E-112	MERRITT, F.	CHIC	FNAL-744
KERMEL, G.	LJUB	CERN-SC-094	MEYER, D.	MICH	SLAC-PEP-012
KILIAN, K.	CERN	CERN-PS-185	MEYER, W.T.	AMES	CERN-R-420
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KLAMMER, R.	HPM	CERN-WA-011	MIYAGI, T.	INUS	INS-19-1
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KLUDE, W.	KARL	SIN-R-82-17	MO, L.W.	VPI	FNAL-635
KNAPP, B.	NEVI	BNL-690	MOFFETT, K.	SLAC	SLAC-BC-075
KNAPP, B.	NEVI	BNL-766	MOFFETT, K.C.	SLAC	SLAC-BC-072
KOBRAK, H.	UCSD	FNAL-663	MOINSTER, M.A.	TELA, LANL	LAMPF-295
KODCH, K.	KARL	CERN-PS-161	NOISEEV, A.M.	SERP	SERP-E-150
KODMO, K.	TSUK	KEK-049	NOISEEV, A.M.	SERP	SERP-E-158
KOROLEV, G.	LENI	SACLAY-078	MONNET, L.	CERN-WA-027	KEK-082
KOSSEN, W.J.	WILL	BNL-754	MORI, S.	TSUK	KEK-082
KOTTMANN, F.	ETHZ	SIN-R-78-15-1	MORRIS, C.L.	LANL	LAMPF-651
KOTTMANN, F.	ETHZ	SIN-R-83-20-2	MORRISON, D.R.O.	CERN	FNAL-632
KOTTMANN, F.	ETHZ	SIN-R-82-03-1	MORSE, W.M.	BNL-780	BNL-780
KREISLER, M.	NASA	BNL-766	MOSER, U.	BERN	SIN-82-04
KRISCH, A.D.	NICH	BNL-782	MUKHIM, A.I.	SERP	SERP-E-045
KRISCH, A.D.	NICH	BNL-768	MULLER, A.	SACL	CERN-WA-063
KRUSE, H.	LANL	LAMPF-764	MURATA, Y.	INUS	INS-19-3
KUREPIN, A.B.	MINR	SACLAY-107	MURTAGH, M.J.	BNL-775	BNL-775
KUTYIN, V.M.	SERP	SERP-E-102	MUSSET, P.	CERN	CERN-R-501
KUZNETSOV, E.P.	SERP	SERP-E-107	MUSSET, P.	CERN	CERN-WA-003
KYCIA, T.F.	BNL	BNL-787	MUSSET, P.	CERN	CERN-WA-075
KYCIA, T.F.	BNL	BNL-722	MUSSET, P.	CERN	CERN-WA-019
KYCIA, T.F.	BNL	BNL-732	MUTCHLER, G.S.	RICE	LAMPF-336
LACH, J.	FNAL	FNAL-497	MUTCHLER, G.S.	RICE	LAMPF-825
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NAGACH, A.	SACL	SACLAY-101	RUSHBROOKE, J.G.	CAMP	CERN-WA-885-2
NAKAI, K.	TOKY	KEK-090	RYKALIN, V.I.	SERP	SERP-E-144
NAKAMURA, K.	TOKY	KEK-074A	RYSECK, H.E.	BERL	SERP-E-104
NAKAMURA, K.	TOKY	KEK-074	SACHS, A.M.	COLU	BNL-745
NAM, H.	WUES	LAMPF-442	SADLER, H.E.	ABLC	LAMPF-849
NARASIMHAM, V.S.	TATA	P-DECAY-KGF	SADLER, H.E.	ABLC	LAMPF-886
NASH, T.	FNAL	FNAL-516	SAI, F.	TOKY	KEK-080
NEFKENS, B.	UCLA	SACLAY-066	SAKITI, A.	BNL	BNL-742
NEFKENS, B.	UCLA	SACLAY-037	SANDERS, G.H.	LANL	LAMPF-726
NEFKENS, B.M.K.	UCLA	LAMPF-058-120	SANDWEISS, J.	YALE	FNAL-490
NEFKENS, B.M.K.	UCLA	LAMPF-689	SANDWEISS, J.	YALE	FNAL-630
NEFKENS, B.M.K.	UCLA	LAMPF-546	SASAKI, A.	AKIT	IRS-15-2
NEFKENS, B.M.K.	UCLA	SACLAY-068	SCHALK, T.	UCSC	SLAC-AP-032
NEFKENS, B.M.K.	UCLA	LAMPF-804	SCHARENBERG, R.P.	PURD	BNL-778
NEFKENS, B.M.K.	UCLA	LAMPF-806	SCHIFFER, J.P.	ANL	FNAL-720
NELSON, C.A.	FNAL	FNAL-629	SCHLEIN, P.	UCLA	CERN-E-608
NEUMOV, L.L.	JINR	SERP-E-119	SCHMIDT, R.P.	YALE	BNL-760
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NORTHCLIFFE, L.C.	TAMU	LAMPF-590	SCULLI, F.	CIV	FNAL-616
NORTHCLIFFE, L.C.	TAMU	LAMPF-517	SCULLI, F.	COLU	BNL-652
NORTHCLIFFE, L.C.	TAMU	LAMPF-518	SCULLI, J.	NTU	BNL-789
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MURUSHEV, S.B.	SERP	SERP-E-112	SELOVE, W.	JENN	FNAL-629
OBERLACK, H.	MPIM	DESY-PETRA-CELLO	SETH, K.K.	NWES	LAMPF-758
ODOME, P.	LBL	SLAC-PEP-004	SETH, K.K.	NWES	LAMPF-440
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PALMER, R.B.	BNL	BNL-737	SHEPARD, H.D.	NOAN	TRIUMF-205
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PIASETZKY, E.	LANL	LAMPF-783	SIMMONS, J.E.	LANL	LAMPF-517
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PLESS, I.A.	MIT	FNAL-570	SLOAN, T.	LANC	CERN-WA-009
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REINES, F.	UCI	P-DECAY-1MB	SZEPTEYKA, M.	WARS	CERN-WA-072
REMLILLEUX, J.	LYON	CERN-WA-033	TAKASAKI, F.	KEK	KEK-TE-001
REMSBERG, L.P.	BNL	BNL-790	TAKASAKI, F.	KEK	KEK-034
REUCROFT, S.	CERN	FNAL-743	TALAGA, R.L.	LANL	LAMPF-634
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RITCHIE, B.G.	UMD	LAMPF-828	TANAKA, N.	LANL	LAMPF-015
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ABBREVIATIONS USED ON THE MICROFICHE

JOURNALS

Following are abbreviations for journals listed in the summaries:

AJP	American Journal of Physics
ANNP	Annals of Physics
APP	Acta Physica Polonica
ARNPS	Annual Review of Nuclear and Particle Science
BAPS	Bulletin of the American Physical Society
CNPP	Comments on Nuclear and Particle Physics
HPA	Helvetica Physica Acta
IEEE TNS	Institute of Electrical and Electronics Engineers Transactions in Nuclear Science
JASA	Journal of the Acoustical Society of America
JETPL	JETP Letters (translation of ZETFP)
JJAP	Japanese Journal of Applied Physics
JP	Journal de Physique
JPHY	Journal of Physics
JPL	Journal de Physique Lettres
JPSJ	Journal of the Physical Society of Japan
LNC	Lettiere al Nuovo Cimento
NIM	Nuclear Instruments and Methods
NP	Nuclear Physics
PL	Physics Letters
PR	Physical Review
PREP	Physics Reports (Physics Letters C)
PRL	Physical Review Letters
PS	Physica Scripta
RMP	Reviews of Modern Physics
RNC	Rivista del Nuovo Cimento
SHEP	Surveys in High Energy Physics
SJNP	Soviet Journal of Nuclear Physics (translation of YF)
YF	Yadernaya Fizika (translated as SJNP)
ZETFP	Pis'ma v Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (translated as JETPL)
ZPHY	Zeitschrift für Physik

KINEMATIC VARIABLES

The following abbreviations are used with reactions to indicate the momenta or energies at which they are studied:

PLAB	beam momentum in the lab frame
TLAB	beam kinetic energy in the lab frame
ECM	total energy in the c.m. frame
Q2	absolute value of the 4-momentum transfer

ACCELERATORS

BNL	Brookhaven (AGS) Proton Synchrotron (31 GeV/c Plab)
CERN-ISR	CERN Intersecting Storage Rings (62 GeV Ecm)
CERN-LEP	CERN Large Electron-Positron Collider
CERN-PBAR/P	CERN Proton-Antiproton Collider (540 GeV Ecm)
CERN-PS	CERN Proton Synchrotron (28 GeV/c Plab)
CERN-SC	CERN Synchro-Cyclotron (600 MeV Tlab)
CERN-SPS	CERN Super Proton Synchrotron (450 GeV/c Plab)
CESR	Cornell Positron-Electron Storage Ring (16 GeV Ecm)
DESY	Deutsches Electron Synchrotron (7.5 GeV/c Plab)
DESY-DORIS	DESY Positron-Electron Ring (11.6 GeV Ecm)
DESY-PETRA	DESY Positron-Electron Colliding Beams (40 GeV Ecm)
FNAL	FNAL Proton Synchrotron (500 GeV/c Plab)
FNAL-COLLIDER	FNAL Proton-Antiproton Collider (2 TeV Ecm)
FNAL-TEV	FNAL Tevatron (1 TeV Plab)
ITEP	Moscow Proton Synchrotron (7 GeV/c Plab)
KEK	KEK Proton Synchrotron (13 GeV/c Plab)
KEK-TRISTAN	KEK Positron-Electron Ring (60 GeV Ecm)
LAMPF	Los Alamos Meson/Proton Factory (1460 MeV/c Plab)
LENI	Leningrad Synchrotron (1 GeV Tlab)
SATURNE-II	Saclay p, d, He Synchrotron
SERP	Serpukhov Proton Synchrotron (76 GeV/c Plab)
SIN	Schweizerisches Inst. für Nuklearforschung (590 MeV Tlab)
SLAC	Stanford Electron Linear Accelerator (33 GeV/c Plab)
SLAC-PEP	SLAC Positron-Electron Project (36 GeV Ecm)
SLAC-SLC	SLAC Linear Collider (100 GeV Ecm)
SLAC-SPEAR	SLAC Positron-Electron Ring (8.4 GeV Ecm)
TOKY	INS Tokyo Electron Synchrotron (1.3 GeV/c Plab)
TRIUMF	Canadian Triangle Universities Meson Facility (520 MeV Tlab)

DETECTORS

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, HEBE, or 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, or 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.

For non-bubble-chamber detectors, general abbreviations are:

CALO	calorimeter
CNTR	counters (no chambers)
COMB	combinations of different types of detectors, no particular one dominant
DAS	double arm spectrometer
EMUL	emulsion
OSPK	optical spark chambers
OTHER	rare non-electronic detectors (e.g., moon, ocean floor)
PHOTON	photon spectrometer
PLASTIC	lexan or other such material in which tracks are frozen (except emulsion)
SAS	single arm spectrometer
SPEC	general spectrometer
STRC	streamer chamber
WIRE	wire chambers (proportional wire chambers, drift chambers, etc.; includes all non-optical spark chambers by convention)
WAS	wide angle spectrometer

Acronyms for specific detectors:

AFS	CERN-ISR axial field spectrometer
ALEPH	CERN-LEP detector
AMY	KEK-TRISTAN high resolution lepton detector
ARGUS	DESY-DORIS detector system
BIS	JINR spectrometer now at Serpukhov
CCS	FNAL Chicago cyclotron spectrometer
CDF	FNAL-COLLIDER detector
CDHS	CERN-Dortmund-Heidelberg-Saclay neutrino detector (WAI)
CELLO	DESY-PETRA spectrometer system
CHARM	CERN-Hamburg-Amsterdam-Rome-Moscow neutrino detector at CERN
CHARM-II	upgraded CHARM neutrino detector
CLEO	CESR spectrometer
CRYBOX	LAMPF crystal array detector
CRYS-BALL	SLAC-SPEAR and DESY-DORIS large solid angle neutral detector
CUSB	CESR high resolution calorimeter
CUSB-II	upgraded CUSB detector
DELCO	SLAC-SPEAR and PEP detector system

DETECTORS (CONT'D)

DELPHI	CERN-LEP detector
D0	FNAL-COLLIDER detector
EHS	European hybrid spectrometer at CERN-SPS
EMC	CERN-SPS European muon collaboration detector
EPICS	LAMPF energetic pion spectrometer and detection system
FANCY	KEK forward and cylindrical detector
FMPS	FNAL multiparticle spectrometer
GAMS	gamma spectrometer at Serpukhov
HPW	Harvard-Penn-Wisconsin neutrino detector at BNL
HRS	SLAC-PEP high resolution spectrometer
JADE	DESY-PETRA spectrometer system
JANUS	LAMPF proton polarimeter
LAB-E	FNAL target-calorimeter muon-spectrometer detector for neutrino physics
LAHRS	LAMPF high resolution proton spectrometer
LASS	SLAC large aperture solenoid spectrometer
LENA	DESY-DORIS detector system
L3	CERN-LEP detector
MAC	SLAC-PEP magnetic calorimeter
MARK-II	SLAC-SPEAR and PEP spectrometer system
MARK-III	SLAC-SPEAR spectrometer system (not related to MARK-II)
MARK-J	DESY-PETRA spectrometer system
MIS	Serpukhov multiparticle spectrometer
MPS	BNL multiparticle spectrometer
MPS-II	upgraded BNL MPS
OMEGA	CERN OMEGA spectrometer
OMEGAPRIME	upgraded OMEGA spectrometer
OMICRON	CERN-SC spectrometer
OPAL	CERN-LEP detector
PLUTO	DESY-DORIS and PETRA superconducting solenoid spectrometer
RMS	Rutherford multiparticle spectrometer, now at CERN
SFM	CERN-ISR split field magnet
SIGMA	CERN-IHEP magnetic spectrometer at Serpukhov
SLD	SLAC-SLC detector
SPES-I	Saclay SATURNE spectrometer
SPES-III	Saclay SATURNE spectrometer
SPES-IV	Saclay SATURNE spectrometer
SSF	SLAC spectrometer facility -- 1.6, 8, and/or 20 GeV
SUPERBENKEI	KEK superconducting magnetic spectrometer
TASSO	DESY-PETRA spectrometer system
TELAS	KEK target-embodied large-aperture spectrometer
TOKIWA	KEK spectrometer
TOPAZ	KEK-TRISTAN solenoidal spectrometer with TPC
TPC	SLAC-PEP time projection chamber
TPS	FNAL tagged photon spectrometer
UA1	CERN-PBAR/P detector
UA2	CERN-PBAR/P detector
VENUS	KEK-TRISTAN spectrometer
2-GAMMA	SLAC-PEP detector to study 2-gamma process

- unspecified antibaryon
- particle with negative charm
- antideuteron
- $C = -1$ D^0 meson
- silver nucleus
- anti-helium-4 nucleus
- anti-helium-3 nucleus
- $S = -1$ K^0
- unspecified $S = -1$ K^*
- aluminum nucleus
- antilambda ($S = +1$ antibaryon)
- antineutron
- pure annihilation final state in N-N scattering
- nuclear fragment with anomalous cross section
- antineutrino
- antinucleon
- unspecified antinucleus
- electron antineutrino
- antiparticle of a light supersymmetric particle
- muon antineutrino
- tau antineutrino
- any combination of particles
- antiproton
- antiquark
- antiquark
- argon nucleus
- antisigma ($S = +1$ antibaryon)
- unspecified $S = +1$ particle
- anti-tritium nucleus
- gold nucleus
- hypothetized light Higgs scalar boson
- anti-xi ($S = +2$ antibaryon)
- meson
- meson
- meson
- unspecified baryon
- meson coupling mainly to baryon-antibaryon
- beryllium nucleus
- particle with nonzero beauty (bottom)
- boron-10
- boron-12
- meson with beauty
- meson
- meson with beauty
- carbon nucleus
- calcium nucleus
- cadmium nucleus
- final state with 50 or more charged particles, no π^0 's
- charged particle

CHARM	unspecified particle with charm
CHARMED-BARYON	unspecified baryon with charm
CHARMED-MESON	unspecified meson with charm
CHI(UNSPEC)	unspecified radiative decay product of $\psi(3685)$
CHI(3510)	$c\bar{c}$ meson
CHI(3555)	$c\bar{c}$ meson
CHI/B(9875)	$b\bar{b}$ meson
CHI/B(9895)	$b\bar{b}$ meson
CHI/B(9915)	$b\bar{b}$ meson
CHI/B(10240)	$b\bar{b}$ meson
CHI/B(10255)	$b\bar{b}$ meson
CHI/B(10270)	$b\bar{b}$ meson
CHI/B(UNSPEC)	unspecified radiative decay product of T's
CR	chromium nucleus
CRYSTAL	crystal, target in channeling experiments
CU	copper nucleus
C12	carbon-12 nucleus
C*(4.44)	4.44 keV excited state of carbon
DD	diffraction dissociation; followed by particles so produced, e.g. $DD < P \text{ } \pi^0$
DELTA(980)	meson
DEL	DEL(1232P33) baryon resonance
DEL(UNSPEC)	unspecified 1-3/2 baryon
DEMON	exotic 3-diquark deuteron-like state
DEUT	deuteron
DIBARYON	unspecified S=0 dibaryon
DIHYPERON	unspecified S=-2 dihyperon
D0	charmed meson
D+	charmed meson
D-	charmed meson
D*(2010)	charmed meson
D(UNSPEC)	unspecified charmed meson
D(1285)	meson
EPSILON	$\pi-\pi$ S-wave state
ETA	meson
ETAPRIME	recurrence of the η
ETAPRIME/C	recurrence of the η_c
ETA/C	lowest mass JP=0- charmonium state
EXOTIC-MESON	cannot be formed of quark-antiquark
EXOTIC-NUCLEON	cannot be formed of three quarks
E+	positron
E+-	electron or positron
E-	electron
E(1420)	meson
F	f(1270) meson
FE	iron nucleus
FPRIME	f'(1525) meson
FRAG	nuclear fragment
FI(1540)	meson

PARTICLES (CONT'D)

F+	charmed strange meson
F-	charmed strange meson
GAMMA	photon
GLUEBALL	gluon resonance
GLUON	gluon
HADRON	unspecified hadron
HE	helium-4 nucleus
HE3	helium 3
HIGGS	Higgs boson
HYPERNUC	hypernucleus
HVY-FLAVOR	unspecified particle with heavy flavor quark
HVY-LEPTON	unspecified heavy lepton
HVY-NEUTRINO	heavy neutrino
HVY-NUE	electron neutrino with nonzero mass
HVY-NUMU	muon neutrino with nonzero mass
H(2050)	$I=0$, $J^P=4+$ meson
INELASTIC	same as ANYTHING, except elastic excluded
IOTA(1440)	meson
IR	iridium nucleus
JET	jet detected as a whole
J/PSI	$c\bar{c}$ meson
KAON	unspecified K or $\bar{K}$
KL	K_L
KS	K_S
K0	K^0
K+	K^+
K-	K^-
K*(UNSPEC)	unspecified K^*
K*(892)	meson
K*(1430)	meson
LAMBDA	$S=-1$ baryon
LAMBDA/C+	charmed baryon
LAM(UNSPEC)	$I=0$, $S=-1$ baryon
LAM(1330B)	unverified bump at 1330 MeV
LAM(1520D03)	baryon resonance
LEPTON	unspecified lepton
LI6	lithium-6 nucleus
LI7	lithium-7 nucleus
LONGLIVED	unspecified particle stable under strong and electromagnetic decay
MESON	unspecified meson
MESON(UNSPEC)	unspecified meson
MG	magnesium nucleus
MONOPOLE	magnetic monopole
MUONIUM	muon-electron atom
MUON	μ^+ or μ^-
MU+	μ^+
MU-	μ^-
N	neutron
NE	neon nucleus

PARTICLES (CONT'D)

NEUTRAL	neutral particle
NIT12	nitrogen-12 nucleus
NNBAR(2020)	nucleon-antinucleon state
NNBAR(2200)	nucleon-antinucleon state
NU	neutrino
NUCLEON	nucleon
NUCLEUS	unspecified nucleus
NUE	electron neutrino
NUINO	any light supersymmetric particle
NUMU	muon neutrino
NUTAU	tau neutrino
N*5/2(UNSPEC)	unspecified $I=5/2$, $S=0$ baryon
N*(UNSPEC)	unspecified $S=0$ baryon resonance
N(UNSPEC)	unspecified $I=1/2$, $S=0$ baryon resonance
N(1520D13)	baryon resonance
N(1675D15)	baryon resonance
O	oxygen nucleus
OMEGA	meson resonance
OMEGA-	$S=-3$ baryon
OMEGA/C0	baryon with quark content ssc (was T^0)
OMEGA*(UNSPEC)	unspecified $S=-3$ baryon resonance
P	proton
PB	lead nucleus
PHI	meson
PHIPRIME	recurrence of the ϕ
PHOTINO	supersymmetric counterpart of photon
PION	π of unspecified charge
PI0	π^0
PI+	π^+
PI+-	π^+ or π^-
PI-	π^-
PRONG	charged prong
PSI(UNSPEC)	unspecified $J^P=1-$ charmonium state
PSI(3685)	$c\bar{c}$ meson
PSI(3770)	$c\bar{c}$ meson
QUARK	unspecified quark
QUARK(1/3)	quark
QUARK(2/3)	quark
RHO	meson
RHOPRIME(1600)	meson
SELECTRON	supersymmetric counterpart of electron
SI	silicon nucleus
SIGMA	$S=-1$ baryon
SIGMA/C	$I=1$ charmed baryon
SIG(UNSPEC)	unspecified $I=1$, $S=-1$ baryon
SIG(1385P13)	baryon resonance
SN	tin nucleus
STRANGE	unspecified strange particle
STRANGEONIUM	meson dominantly ss , such as the ϕ

PARTICLES (CONT'D)

SUPERSYM

S+	any supersymmetric particle
S-	intermediate scalar boson
S*(975)	intermediate scalar boson
S(1935)	π - π or K-K S-wave state
TACHYON	meson
TAU	hypothesized faster-than-light particle
THETA(1690)	heavy lepton
TH	meson
TOPONIUM	thorium nucleus
TRIT	(t) meson
TRUTH	tritium nucleus
U	particle with nonzero truth (or top)
UNSPEC	uranium nucleus
UPSI(UNSPEC)	particle of unspecified type
UPSI(9460)	unspecified upsilin particle
UPSI(10025)	bb meson
UPSI(10355)	bb meson
UPSI(10575)	bb meson
UPSI(10645)	bb meson
UPSI(11020)	bb meson
VEE	unspecified neutral strange particle decay
VMESON	unspecified vector meson
WATER	water
WT	tungsten nucleus (note name not same as chemical symbol)
W+	intermediate vector boson
W-	intermediate vector boson
XE	xenon nucleus
XI	S=-2 baryon
XI/C+	baryon with quark content usc (was A*)
XI/C0	baryon with quark content dsc (was A ⁰)
XI*(UNSPEC)	unspecified S=-2 baryon resonance
XI(UNSPEC)	unspecified I=1/2, S=-2 baryon resonance
XI(1530P13)	baryon resonance
XI(1820)	baryon resonance
XI(1940)	baryon resonance
XI(2220)	narrow KK meson seen in J/ ψ decay
Y0	neutral strange baryon
Y*(UNSPEC)	unspecified S=-1 baryon resonance
ZETA(8300)	meson seen in T(9460) decay
Z0	neutral weak gauge boson
Z*(UNSPEC)	unspecified exotic S=+1 baryon resonance

INSTITUTIONS

AACH	Phys. Inst. der Tech. Hochschule	Aschen, W. Germany
AARH	Aarhus Univ.	Aarhus, Denmark
ABLC	Abilene Christian Univ.	Abilene, TX, USA
AICH	Aichi Educational Univ.	Toyota, Aichi Pref., Japan
AKIT	Akita Univ.	Akita, Japan
ALBA	State Univ. of New York at Albany	Albany, NY, USA
ALBE	Alberta Univ., NRC	Edmonton, Alb., Canada
ALMA	Kazakh Inst. for High Energy Physics	Alma-Ata, USSR
AMER	American Univ.	Washington, DC, USA
AMES	Ames Lab	Ames, Iowa, USA
AMST	Univ. of Amsterdam	Amsterdam, Netherlands
ANIK	Amsterdam Nikhef	Amsterdam, Netherlands
ANL	Argonne Nat. Lab.	Argonne, Ill., USA
ANPL	Athens Univ., Nucl. Phys. Lab.	Athens, Greece
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
BASL	Basel Univ.	Basel, Switzerland
BEDF	Bedford College	London, England
BELG	Inst. Interuniv. des Sci. Nuclear	Bruxelles, Belgium
BERG	Fysisk Institut	Bergen, Norway
BERL	Inst. Hochenergiephys. DAW	Zeuthen/Berlin, E. Germany
BERN	Univ. Bern	Bern, Switzerland
BGNA	Univ. di Bologna	Bologna, Italy
BHEP	Inst. of High Energy Physics	Beijing, China
BIEL	Univ. Bielefeld	Bielefeld, W. Germany
BIRK	Birkbeck College	London, England
BIRM	Birmingham Univ.	Birmingham, England
BLOO	Bloomsburg State Coll.	Bloomsburg, PA, USA
BNL	Brookhaven National Lab.	Upton, L.I., NY, USA
BOHR	Niels Bohr Institute	Copenhagen, Denmark
BONN	Univ. Bonn	Bonn, W. Germany
BOST	Boston Univ.	Boston, Mass., USA
BRAN	Brandeis Univ.	Waltham, Mass., USA
BRAT	Inst. of Physics	Bratislava, Czechoslovakia
BRCO	British Columbia Univ.	Vancouver, Canada
BRIS	H. H. Wills Phys. Lab., U. of Bristol	Bristol, England
BROW	Brown Univ.	Providence, RI, USA
BRUX	Univ. Libre de Bruxelles	Bruxelles, Belgium
BTL	Bell Telephone Labs.	Murray Hill, NJ, USA
BUDA	Central Research Institute of Physics	Budapest, Hungary
CAEN	Lab. de Phys. Corpusculaire	Caen, France
CAGL	Calgary Univ.	Calgary, Alb., Canada
CAMB	Cambridge Univ.	Cambridge, England
CAPE	Univ. of Cape Town	Cape Town, S. Africa
CARL	Carleton Univ.	Ottawa, Canada
CASE	Case Western Reserve Univ.	Cleveland, Ohio, USA
CATH	Catholic Univ. of America	Washington DC, USA
CAVE	Cavendish Lab., Cambridge Univ.	Cambridge, England

INSTITUTIONS (CONT'D)

CBPF Centro Bras. Pesquisas Fisicas
CDEF College de France
CENG CEN, Grenoble
CERN European Org. for Nuclear Research
CHIC Univ. of Chicago
CHUO Chuo Univ.
CINC Univ. of Cincinnati
CIPP Canadian Inst. of Particle Physics
CIT Calif. Institute of Technology
CLER Univ. de Clermont-Ferrand
CLEV Cleveland State Univ.
CMU Carnegie-Mellon Univ.
CNRC Canadian National Research Council
COLC Colorado College
COLO Univ. of Colorado
COLU Columbia Univ.
COPE Copenhagen Univ.
CORN Cornell Univ.
CRAC Inst. for Nuclear Research
CRNL Chalk River Nuclear Lab.
CUNY City Univ. of New York
CURI Pierre et Marie Curie Univ., Paris VI
CWSH Central Washington Univ.
DEAJ Chungnam Univ.
DELH Univ. of Delhi
DESY Deutsches Elektronen-Synch.
DGSI Gesellschaft für Schwerionenforschung
DLFT Technische Hogeschool
DOE Department of Energy
DORT Univ. Dortmund
DUKE Duke Univ.
DUUC University College
EDIN Univ. of Edinburgh
EFI Enrico Fermi Inst. for Nuclear Studies
ELMT Elmhurst College
EPOL Ecole Polytechnique
ERLA Univ. Erlangen
ETHZ Swiss Federal Inst. of Technology
FERR Univ. di Ferrara
FIRZ Univ. di Firenze
FKUU Fukui Univ.
FLOR Univ. of Florida
FNAL Fermi National Accelerator Lab.
FRAS Lab. Nazionali del Sincrotrone
FREI Univ. Freiburg
FRIB Univ. de Fribourg
FRNK Univ. Frankfurt
FSU Florida State Univ.
GENE State Univ. of New York, Genesee
GENO Univ. di Genova
GESC General Electric R and D Center
 Rio de Janeiro, Brazil
 Paris, France
 Grenoble, France
 Geneva, Switzerland
 Chicago, Ill., USA
 Tokyo, Japan
 Cincinnati, Ohio, USA
 Montreal, Canada
 Pasadena, Calif., USA
 Clermont-Ferrand, France
 Cleveland, OH, USA
 Pittsburgh, PA, USA
 Ottawa, Canada
 Colorado Springs, CO, USA
 Boulder, Colo., USA
 New York, NY, USA
 Copenhagen, Denmark
 Ithaca, NY, USA
 Cracow, Poland
 Chalk River, Canada
 New York, NY, USA
 Paris, France
 Ellensburg, WA, USA
 Daejeon, Korea
 Delhi, India
 Hamburg, W. Germany
 Darmstadt, W. Germany
 Delft, Netherlands
 Washington D.C., USA
 Dortmund-Hornbruch, W. Germany
 Durham, NC, USA
 Dublin, Ireland
 Edinburgh, Scotland
 Chicago, Ill., USA
 Elmhurst, Ill., USA
 Palaiseau, France
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 Zurich, Switzerland
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 Firenze, Italy
 Fukui, Japan
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 Fribourg, Switzerland
 Frankfurt, W. Germany
 Tallahassee, Fla., USA
 Genesee, NY, USA
 Genova, Italy
 Schenectady, NY, USA

INSTITUTIONS (CONT'D)

GEVA Univ. de Geneve
GLAS Univ. of Glasgow
GMAS George Mason Univ.
GREN Grenoble Univ.
GUIL Univ. of Surrey at Guilford
GWU George Washington U.
HAIF Technion - Israel Inst. of Technology
HAMB Univ. Hamburg
HARV Harvard Univ.
HAWA Univ. of Hawaii
HEFE Univ. of Science and Tech.
HEID Univ. Heidelberg
HELS Helsingin Yliopisto
HIRO Hiroshima Univ.
HOUS Univ. of Houston
HOWD Howard Univ.
IDAH Univ. of Idaho
ITT Illinois Inst. of Tech.
ILL Univ. of Illinois
ILLC Univ. of Illinois at Chicago
IND Univ. of Indiana
INNS Innsbruck Univ.
INUS Inst. for Nuclear Study at Tokyo Univ.
IOWA Univ. of Iowa
IPN Inst. de Phys. Nucleaire
ISU Iowa State Univ.
ITEP Inst. for Theor. and Exp. Physics
ITHA Ithaca College
JADA Jadavpur Univ.
JAMU Jammu Univ.
JAPN Japan Univ. Group Collaboration
JHU Johns Hopkins Univ.
JINR Joint Inst. for Nuclear Research
KANS Univ. of Kansas
KARL Technische Univ. Karlsruhe
KEK Nat. Lab for High Energy Phys., Japan
KFAJ KFA Julich
KFZK Kernforschungszentrum, Karlsruhe
KHSU Kharkov State Univ.
KIAE Kurchatov Inst. of Atomic Energy
KIEL Kiel Univ.
KIMC Industrial Medical College
KOBE Kobe Univ.
KOSI Czech. Acad. Sci. Inst. Exp. Phys.
KYOE Kyoto U. of Education
KYOT Kyoto Univ.
KYUS Kyushu Univ.
LALO Linear Accelerator Lab, Orsay
LANC Lancaster Univ.
LANL Los Alamos National Lab.
LAPP Lapp Univ.
 Geneva, Switzerland
 Glasgow, Scotland
 Fairfax, VA, USA
 Grenoble, France
 Guilford, Surrey, England
 Washington, DC, USA
 Haifa, Israel
 Hamburg, W. Germany
 Cambridge, Mass., USA
 Honolulu, Hawaii, USA
 Hefei, Anhui, China
 Heidelberg, W. Germany
 Helsinki, Finland
 Hiroshima, Japan
 Houston, Texas, USA
 Washington, DC, USA
 Moscow, ID, USA
 Chicago, Ill., USA
 Urbana, Ill., USA
 Chicago, Ill., USA
 Bloomington, Ind., USA
 Innsbruck, Austria
 Tokyo, Japan
 Iowa City, Iowa, USA
 Orsay, France
 Ames, Iowa, USA
 Moscow, USSR
 Ithaca, NY, USA
 Calcutta, India
 Jammu-Tawi, India
 Japan
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 Dubna, USSR
 Lawrence, Kansas, USA
 Karlsruhe, W. Germany
 Tsukuba-gun, Japan
 Julich, W. Germany
 Leopoldshafen, W. Germany
 Kharkov, USSR
 Moscow, USSR
 Kiel, W. Germany
 Kitakyushu, Japan
 Kobe, Japan
 Kosice, Czechoslovakia
 Kyoto, Japan
 Kyoto, Japan
 Fukuoka, Japan
 Orsay, France
 Lancaster, England
 Los Alamos, NM, USA
 Annecy, France

INSTITUTIONS (CONT'D)

LAUS Univ. of Lausanne
LBL Lawrence Berkeley Lab.
LEBD Lebedev Physics Inst.
LEHI Lehigh Univ.
LEMO Le Moyne College
LENI Inst. of Nucl. Phys., Akad. Nauk USSR
LIBH Lab Interuniv. Belge High Energy
LISB Nova Univ. de Lisbon
LIVP Liverpool Univ.
LJUB Univ. of Ljubljana
LLL Lawrence Livermore Lab.
LOIC Imperial Col. of Science and Tech.
LOQM Queen Mary College
LOUC University College
LOWC Westfield College
LPGP Lab. de Phys. General, Univ. Paris
LSBF Lisbon Inst. Fisica
LSU Louisiana State Univ.
LUMI Centre Univ. de Luminy
LUND Lund Univ.
LVLN Univ. Catholique de Louvain
LYON Inst. de Phys. Nucl., Univ. de Lyon
MADR Junta de Energia Nuclear
MANI Univ. of Manitoba
MANZ Univ. Mainz
MARB Univ. Marburg
MASA Univ. of Massachusetts
MCGI McGill Univ.
MCBS Univ. Manchester
MCPT Meiji College of Pharmacy
MELB Univ. of Melbourne
MEXU Univ. Nac. Autonoma de Mexico
MIAM Miami Univ.
MICH Univ. of Michigan
MILA Univ. di Milano
MINN Univ. of Minnesota
MINR Institute for Nuclear Research
MISS Univ. of Mississippi
MIT Massachusetts Inst. of Technology
MONS Univ. de l'Etat, Mons
MONT Montreal Univ.
MOSU Moscow State Univ. Inst. of Nucl. Phys.
MPEI Moscow Phys. Eng. Inst.
MPHI Max-Planck-Inst. fur Phys.-Astrophys.
MPIM Max-Planck-Inst. fur Phys.-Astrophys.
MSU Michigan State Univ.
MTHO Mt. Holyoke College
MTU Univ. of Montana
MUNI Munich Univ.
MUNT Technische Univ. Munich
NAGO Nagoya Univ. Coll. Medical Tech.

Lausanne, Switzerland
 Berkeley, Calif., USA
 Moscow, USSR
 Bethlehem, PA, USA
 Syracuse, NY, USA
 Leningrad, USSR
 Brussels, Belgium
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 Liverpool, England
 Ljubljana, Yugoslavia
 Livermore, Calif., USA
 London, England
 London, England
 London, England
 London, England
 Paris, France
 Lisbon, Portugal
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 Marburg/Lahn, W. Germany
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 Moscow, USSR
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 Munich, W. Germany
 Nagoya-shi, Aichi, Japan

INSTITUTIONS (CONT'D)

NAGO Nagoya Univ.
NANC Univ. de Nancy
NAPL Univ. di Napoli
NARA Nara Women's Univ.
NARU Nara Univ.
NDAM Univ. of Notre Dame
NEAS Northeastern Univ.
NEUC Univ. of Neuchatel
NEVI Nevis Lab.
NIFS Ist. di Fis. Sperimentale
NIHN Nihon Univ.
NIIG Niigata Univ.
NIJM R. K. Univ. Nijmegen
NILU Northern Illinois Univ.
NMXS New Mexico State Univ.
NNIK Nijmegen NIKHEF
NOVO Inst. of Nuclear Physics
NRDG Cal State Univ.
NRL Naval Research Laboratory
NTUA National Technical Univ. of Athens
NWES Northwestern Univ.
NYU New York Univ.
OKAY Okayama Univ.
OKLN Oklahoma Univ.
OPEN Open Univ.
OREC Oregon State Univ.
ORNL Oak Ridge National Lab.
ORSA Univ. de Paris, Fac. des Sciences
OSAK Osaka Univ.
OSKC Osaka City Univ.
OSLO Oslo Univ.
OSSE Science Educ. Inst. of Osaka Pref.
OSU Ohio State Univ.
OTTA Univ. of Ottawa
OXF Oxford Univ.
PADO Univ. di Padova
PAVI Univ. di Pavia
PENN Univ. of Pennsylvania
PERG Univ. di Perugia
PISA Univ. di Pisa
PITT Univ. of Pittsburgh
PRIN Institute of Physics, CSAV
PRNG Princeton Univ.
PSU Pennsylvania State Univ.
PURD Purdue Univ.
QUNK Queen's Univ.
REHO Weizmann Inst. of Science
RHEL Rutherford High Energy Lab.
RHLC Royal Holloway College
RICE William Marsh Rice Univ.
RIKK Rikkyo University

Nagoya, Japan
 Nancy, France
 Napoli, Italy
 Nara, Japan
 Nara, Japan
 Notre Dame, Ind., USA
 Boston, Mass., USA
 Neuchatel, Switzerland
 Irvington-on-Hudson, NY, USA
 Napoli, Italy
 Tokyo, Japan
 Niigata, Japan
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 Osaka, Japan
 Osaka, Japan
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 Rehovoth, Israel
 Chilton, Dtd., Oxon., England
 Egham Hill, Surrey, England
 Houston, Texas, USA
 Rikkyo, Japan

INSTITUTIONS (CONT'D)

RISO RISO National Lab
ROCH Univ. of Rochester
ROCK Rockefeller Univ.
ROMA Univ. di Roma
RGSS Zentralinst. für Kernforschung
RUTG Rutgers Univ.
SACL Center d'Etudes Nuclear Saclay
SACR Cal State, Sacramento
SAGA Saga Univ.
SAIT Saitama Univ.
SANI Ist. Superiore di Sanita
SANT Univ. de Santander
SASK Univ. of Saskatchewan
SCUC Univ. ov. at Seoul
SERP Inst. of High Energy Physics
SHAN Shandoong Univ.
SHFE Univ. of Sheffield
SHMP Univ. of Southampton
SIEG Siegen Univ.
SLAC Stanford Linear Accel. Center
SMAS Southeastern Massachusetts Univ.
SOFC High Inst. of Chem. Tech.
SOFI Bulgarian Acad. of Science
SRIP State Res. Inst. Photochem. Proj.
STAN Stanford Univ.
STEV Stevens Inst. of Tech.
STOH Stockholm Univ.
STON State Univ. of New York at Stonybrook
STRB Centre des Res. Nucleaires
SWRK Inst. of Nuclear Research
SYDN Univ. of Sydney
SYRA Syracuse Univ.
TAMU Texas A and M Univ.
TATA Tata Inst. of Fundamental Research
TBSU Tbilisi State Univ.
TELA Univ. of Tel-Aviv
TEMP Temple Univ.
TENN Univ. of Tennessee
TEXA Univ. of Texas at Austin
THES Univ. of Thessaloniki
TMSK Nucl. Phys. Inst., Tomsk Polytech. Inst.
TMU Tokyo Metropolitan Univ.
TNTO Univ. of Toronto
TOCR Cosmic Ray Lab, Tokyo Univ.
TOGA Tohoku-Gakuin Univ.
TOHO Tohoku Univ.
TOIN Tokyo Inst. Tech.
TOKY Univ. of Tokyo
TORI Univ. di Torino

Roskilde, Denmark
 Rochester, NY, USA
 New York, NY, USA
 Roma, Italy
 Rossendorf, E. Germany
 New Brunswick, NJ, USA
 Gif-sur-Yvette, France
 Sacramento, CA, USA
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 Saitama, Japan
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 Sofia, Bulgaria
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 Swierk, Poland
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 Tbilisi, USSR
 Tel-Aviv, Israel
 Philadelphia, PA, USA
 Knoxville, Tenn., USA
 Austin, TX, USA
 Thessaloniki, Greece
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 Toronto, Canada
 Tokyo, Japan
 Miyagi, Japan
 Sendai, Japan
 Tokyo, Japan
 Tokyo, Japan
 Torino, Italy

INSTITUTIONS (CONT'D)

TRIUMF Univ. of British Columbia
TRST Univ. di Trieste
TSUK Tsukuba Univ.
TUAT Tokyo Univ. of Agriculture and Tech.
TUFT Tufts Univ.
UATH Univ. of Athens
UBEL Univ. of Belgrade
UCB Univ. of Calif. at Berkeley
UCD Univ. of Calif. at Davis
UCI Univ. of Calif. at Irvine
UCLA Univ. of Calif. at Los Angeles
UCR Univ. of Calif. at Riverside
UCSB Univ. of Calif. at Santa Barbara
UCSC Univ. of Calif. at Santa Cruz
UCSD Univ. of Calif. at San Diego
UMAD Univ. de Madrid
UMD Univ. of Maryland
UNM Univ. of New Mexico
UTAH Univ. of Utah
UTRE University of Utrecht
UUPP Univ. of Uppsala
VALE Univ. de Valencia
VALI Valparaiso Univ.
VAND Vanderbilt Univ.
VASC Virginia State Coll.
VASS Vassar College
VICT Victoria Univ.
VIEN Inst. for High En. Phys., A. A. S.
VILL SIN, Villigen Univ. High Energy Physics
VIRG Univ. of Virginia
VIRK Inst. für Radiumforschung und Kernphysik
VPI Virginia Polytechnic Inst.
VRIJ Vrije Univ.
WABE Eidgenossisches Amt für Messwesen
WARS Univ. of Warsaw
WASH Univ. of Washington
WIEN Univ. Wien
WILL College of William and Mary
WINR Warsaw Inst. of Nuclear Research
WISC Univ. of Wisconsin
WSUP Washington State Univ.
WUPP Univ. Wuppertal
WURZ Wurzburg Univ.
WYOM Univ. of Wyoming
YALE Yale Univ.
YERE Yerevan Physics Inst.
YOKO Yokohama National Univ.
YORK York University
ZAGR Inst. Ruder Boskovic, Zagreb
ZURI Zurich University

Vancouver, Canada
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 Villigen, Switzerland
 Charlottesville, VA, USA
 Vienna, Austria
 Blacksburg, VA, USA
 Amsterdam, Netherlands
 Wabern, Germany
 Warsaw, Poland
 Seattle, Wash., USA
 Vienna, Austria
 Williamsburg, VA, USA
 Warsaw, Poland
 Madison, Wisc., USA
 Pullman, WA, USA
 Wuppertal, W. Germany
 Wurzburg, W. Germany
 Laramie, Wyoming, USA
 New Haven, Conn., USA
 Yerevan, Armenia, USSR
 Yokohama, Japan
 Downsview, Ont., Canada
 Zagreb, Yugoslavia
 Zurich, Switzerland

BROOKHAVEN AGS BEAMS (Source: G. Bunce, BNL)

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). Counting rates may be estimated using the nominal beam spill time of 1 sec.

Separated

Unseparated

Neutral

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (°)	Solid angle (msr)	Beam length (m)	Particles	Flux in thousands per 10^{12} protons $\rightarrow$ on target	at (GeV/c)	Comments
B4	1.5-6 1.5-9	3	3	0.3	81	K^+/K^- $\bar{p}$ π^+/π^-	270/120 100 $4 \times 10^4/3 \times 10^4$	4	Usually 2×10^{12} ppp on target; $\pi/K \sim 3$ in K beam; $\pi/\bar{p} \sim 3/4$
B2	- same characteristics as B4 above -							To multiparticle spectrometer	
C2, C4	≤ 1.1	2	10.5	2.6	15	K^+/K^- $\bar{p}$ π^+/π^-	40/12 2 8×10^4	0.75	Usually 2×10^{12} ppp; $\pi/K \sim 10$ in K beam
C6, C8	≤ 0.8	2.5	5	15	15	K^+/K^- $\bar{p}$ π^+/π^-	200/60 14 6×10^5	0.75	Usually 2×10^{12} ppp; $\pi/K \sim 20$
A1	5-24	1.5	0	0.2	130	π^-	1000	22	To multiparticle spectrometer; 10^{12} ppp; 25 cm Be target
B1	5-24	3	0	0.3	75	K^+/K^- $p/\bar{p}$ π^+/π^-	2500/700 $1.5 \times 10^5/200$ $6 \times 10^4/3 \times 10^4$	10	Usually 2×10^{12} ppp
C1	5-24	5	0	0.8	61	K^+/K^- $p/\bar{p}$ π^+/π^-	9000/400 $3 \times 10^4/30$ $10^5/3 \times 10^4$	16	Usually 2×10^{12} ppp; $\mu/\pi \sim 3\%$ in π beam; also runs at lower momenta (1.4 GeV/c)
D2	0.1-0.3(π) 0.05-0.15(μ)	9(π)	55(π)	50(π)	9	μ^-	2000	0.10	Muon channel; flux in 100 cm^2 with $\Delta p/p = \pm 2\%$; design intensity
A3	1-28		0	0.0045	8	K_L n	2000 10^5	1-28	Typically 10^{12} ppp; alternates with A1
B5	1-28		0	0.01	2.6	n	10^5	1-28	Typically 10^{10} ppp; design intensity
U	1.5 (peak)					$\nu/\bar{\nu}$	$10^7/7 \times 10^6$ per m^2		Typically 1.2×10^{13} ppp; flux averaged over 0.7 m radius; narrow band beam also available

CERN PS BEAMS [Source: *Experiments at CERN in 1984* (M. Ferro-Luzzi, editor)]

East Area – The primary beam.

Beam	Momentum (GeV/c)	Particles	Flux/cycle	Comments
e_{17}	8-24	p	2×10^{11}	Slow ejection; splits into two branches

East Area – These are counter beams fed by branches of the e_{17} beam above. The fluxes are for $\Delta p/p = \pm 1\%$ and 10^{11} 24-GeV/c protons on the external target; they assume 30% target efficiency (fluxes also depend on the external target used).

Beam	Momentum (GeV/c)	Particles	Flux/cycle	Comments
t_7	1-10	p, π^+, e^+ or π^-, e^-		e^+ is 7% of + beam at 5 GeV/c, 50% at 2 GeV/c
t_9	≤ 10	π^- e^- positives	$\geq 10^5$ at 10 GeV/c 1-3%* $\approx 4 \times 10^5$	Production angle 0°; beam height 2.28 m
t_{10}	≤ 5	π^- e^- positives	$\approx 3 \times 10^5$ at 5 GeV/c $\approx 10\%*$ $\approx 6 \times 10^5$	Production angle 3.53°; beam height 2.5 m
t_{11}	≤ 3.5	π^- e^- positives	$\approx 2 \times 10^5$ at 3.5 GeV/c $< 10\%*$ $\approx 4 \times 10^5$	Production angle 8.55°; beam height 2.5 m

*The e^- percentage in the negative beam depends on the external target used.

South Area (LEAR) – Design values. The $\bar{p}$ beam splits into three branches (six experimental areas).

Beam	Momentum range (GeV/c)	Flux (per sec)	Comments
External $\bar{p}$ beam, with ultra-slow ejection (≈ 1 hr)	0.2-1.5 0.1-2.0	$\lesssim 10^6$	A long spill of $< 3 \times 10^9 \bar{p}$

North Area Beams (NA experiments)

Beam	Maximum momentum (GeV/c)	Maximum intensity for 10^{12} protons at 450 GeV/c	Beam type
H2	400	$9 \times 10^7 \pi^+$ at 200 GeV/c $3 \times 10^7 \pi^-$ " " " $4 \times 10^6 e^\pm$ at 150 "	High energy hadrons or electrons (also enriched $K^+/\bar{p}$)
H4/E4	330	$6 \times 10^7 \pi^+$ at 200 GeV/c $2 \times 10^7 \pi^-$ " " " $1 \times 10^6 e^\pm$ " " "	High energy hadrons or electrons
K4	~200	$1 \times 10^5 K_L^0/10^{11}$ incident p $1 \times 10^2 K_S^0/10^7$ " " "	Alternate K_L^0/K_S^0 beam
H6	250	$1 \times 10^8 \pi^+$ at 150 GeV/c $4 \times 10^7 \pi^-$ " " "	Medium energy hadrons
H8	400	$2 \times 10^8 \pi^+$ at 200 GeV/c $7 \times 10^7 \pi^-$ " " "	High energy hadrons (electrons)
M2	325	$2.5 \times 10^7 \mu^+$ at 200 GeV/c $8 \times 10^6 \mu^-$ " " "	High intensity muons
P0	450	$\sim 10^{13}$ p at 450 GeV/c	High intensity primary protons for production of H10 or E12
H10	400/450	$2 \times 10^9 \pi^+$ at 200 GeV/c $7 \times 10^8 \pi^-$ " " "	High energy high-intensity hadrons or protons
E12	300	$1.5 \times 10^8 e^-$ total with energy > 100 GeV	Broad-band electrons/photons

West Area Beams (WA experiments) The table below gives some calculated properties of the upgraded beams.

Beam	Maximum momentum (GeV/c)	Intensity for 10^{12} protons at 450 GeV/c	Beam type
H1	450	$4 \times 10^6 \pi^-$ at 350 GeV/c $2 \times 10^8 \pi^+$ at 200 " $1.5 \times 10^6 e^\pm$ " " "	Hadrons, electrons, or attenuated protons
H3	450	$2 \times 10^6 \pi^-$ at 350 GeV/c $1 \times 10^8 \pi^+$ at 200 " $7 \times 10^5 e^\pm$ " " "	Hadrons, electrons, or attenuated protons
X3	50	10^3 - 10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons
X5	100	10^3 - 10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons
X7	100	10^3 - 10^4 tertiaries/ 10^7 incident particles from H3	Test beam; tertiary electrons & hadrons

CERN SPS BEAMS [Source: *Experiments at CERN in 1984* (M. Ferro-Luzzi, editor)]

West Area Neutrino Beams (WA experiments) – Reference: CERN/EF/BEAM 80-7, A. Grant, High momentum version of the narrow-band neutrino beam N3, and CERN/EF/BEAM 83-2, A. Grant and J.M. Mauguin, High intensity version of beam N3.

Beam	Parent momentum (GeV/c)	Particle	Flux for 10^{13} incident protons [†]	$\langle E_p \rangle$ (GeV)	σ_{rms} on E_p (GeV)	Beam type
N1	450 protons	ν	$5.3 \times 10^{10}/m^2$ (~ 0.25 ev/ton)	~ 30		Wide-band spectrum up to 450 GeV
		$\bar{\nu}$	$2.3 \times 10^{10}/m^2$ (~ 0.025 ev/ton)	~ 30		
N3	380 secondaries	ν_π	1.19×10^7	88	41	Narrow-band dichromatic beam with 450 GeV primary protons
		ν_K	5.4×10^6	259	49	
	350	$\bar{\nu}_\pi$	1.4×10^7	82	37	
		$\bar{\nu}_K$	1.7×10^5	248	48	
		ν_π	3.8×10^7	80	38	
		ν_K	2.5×10^7	251	45	
	320	$\bar{\nu}_\pi$	3.2×10^7	78	35	
		$\bar{\nu}_K$	7.2×10^5	224	49	
		ν_π	1.1×10^8	78	34	
		ν_K	8.5×10^7	228	45	
	300	$\bar{\nu}_\pi$	5.3×10^7	74	32	
		$\bar{\nu}_K$	1.7×10^6	220	37	
		ν_π	1.9×10^8	73	32	
		ν_K	1.2×10^8	220	41	
	275	$\bar{\nu}_\pi$	1.1×10^8	68	29	
		$\bar{\nu}_K$	3.4×10^6	215	34	
	200	$\bar{\nu}_\pi$	4.2×10^8	55	19	
		$\bar{\nu}_K$	1.8×10^7	167	26	
		ν_π	1.0×10^9	54	20	
		ν_K	2.4×10^8	165	20	
	160	$\bar{\nu}_\pi$	8.0×10^8	47	14.5	
		$\bar{\nu}_K$	1.8×10^7	141	15	
		ν_π	1.9×10^9	46.5	14.7	
		ν_K	2.4×10^8	141	15	

[†] Fluxes for the N3 beam are at the WA1 (CDHS) detector in a circle of diameter 1.5 m.

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

Currently, protons are accelerated to an operational momentum of 800 GeV/c. The maximum intensity is 1×10^{13} protons per pulse, the current repetition rate is 0.017/sec, and the beam spill time is 20 sec. Maximum design momentum is 1000 GeV/c.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (mr)	Solid angle (μ sr)	Particles	Flux in thousands per sec per 10^{12} protons on target $\rightarrow$	at (GeV/c)	Comments
PW	300 (peak)	5	1.5		π^-	2×10^6	300	High intensity pion beam
					$\bar{p}$	10^4	300	P-west secondary beam
*PB	600 (peak)	15		4	e^-	10^4	600	Wide band charged and neutral beam
					γ	8×10^3	>200	Also capable of K_L^0 , p, and π^-
					n	6×10^5	~750	
PE	300 (peak)	2.3	0-2	1.2	e^-	10^4	200	Also provides tagged photons
	300 (peak)		0	0.04	n	4000	>100	Also tagged photons
	300		2		π^-	8×10^4	300	
*PC	100-350		± 7.5		Σ^-	2900		P-center charged hyperons
					Ω^-, Λ	<50		
PC	800		0	0.01-0.45	n	10^4		P-center neutral beam
					K_S^0	<50		
					K_L^0	<50		
ME	800 (peak)	1.0			p	$\sim 2 \times 10^9$	800	Primary protons
*MP	70-350	0 ± 5.0	0 ± 1.0		p	10^5	600	Polarized protons from 1000 GeV/c primary
	1000				$\bar{p}$ p, π	<7000	200	Antiprotons from 1000 GeV/c primary Also capable of unpolarized transport
MC	50-150		0-3		K_L^0	2×10^5	100	Neutral beam with 1000 GeV/c primary
					n	7×10^5	variable	
MB	200 (peak)	± 4.0		2.5	π, K	15×10^4	75-100	Low intensity wide-angle test beam
					$e^\pm$	9	100	
MT	800				p	10^9	800	Primary protons (intensity limited)
					$\mu^\pm$			Calibration beam mode

continued on next page

FERMILAB BEAMS (continued)

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	$\rightarrow$ at (GeV/c)	Comments
*MW	1000 (peak)	10	0 ± 0.7		p	6×10^6	600	Beam transport to possible new multiparticle spectrometer; assumes 1000 GeV/c on target
					π^+	5×10^5	600	
					K^+	10^5	600	
					π^-	3×10^5	600	
					K^-	10^4	500	
					$\bar{p}$	10^4	300	
NW	10-150	2	0-1	4-16	μ^+			Currently a test beam, intensity limited
					π^+	40	~ 50	
					e^-	~ 10	~ 50	
*NC-D	750 (peak)		0		$\nu/\bar{\nu}$	variable		Narrow band, sign-selected neutrino beam
*NC-T	1000 (peak)		0		$\nu/\bar{\nu}$	variable		Broad band, quadrupole focus
NE	800		0		p	$\sim 10^6$	800	To hybrid spectrometer system and Lab G
NT-west	450		0-3		hadrons	$\sim 10^5$	450	Test beam to Lab E neutrino detector and Lab B
NT-east	450		0-3		hadrons	$\sim 10^5$	450	Test beam to Lab C neutrino detector Muons also available
*NP	1000		0		p	$\sim 10^{10}$	1000	Proton transport to prompt neutrino detector
*NM	275-750	20			$\mu^\pm$	$\sim 10^4$	750	Tevatron muon beam

*These beams will be commissioned as part of the Tevatron II project. Design characteristics are shown; detailed characteristics will be determined in operation. These beams will also replace present beams in most cases.

KEK BEAMS (Source: H. Hirabayashi, KEK)

Protons are accelerated to a maximum momentum of 13 GeV/c. The maximum intensity is 4.0×10^{12} protons per pulse. The repetition rate is 0.45/sec.

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle (°)	Solid angle (msr)	Beam length (m)	Particles	Typical flux in particles per pulse	$\rightarrow$ at (GeV/c)	Comments
EP1	4-13					p	5×10^{10}		Fast extraction
EP2	4-13					p	2×10^{12}		Slow extraction; branches feed the π^1 , T1, K2, K3, and π - μ beams
π^1	4-8	2	1.5	0.33	33	π^+/π^-	$2 \times 10^6/6 \times 10^5$	8	Superconducting septum and bending magnets
π^2	2-4.3	1	10	0.594	31.3	$p/\bar{p}$ π^+/π^-	$10^5/10^2$ $2 \times 10^5/1 \times 10^5$	3	Internal target beam; fluxes for 10^{11} ppp
T1	0.5-2.3	2	23	0.16	18.8	τ^+/π^-	$5 \times 10^4/4 \times 10^3$	1	Internal target test beam; fluxes for 10^{11} ppp
T2	0.5-6.0	4	15	0.35	37.0	π^+/π^-	10^4	4	Test beam
K2	1-2	3	0	1.02	27.9	K^+/K^- $p/\bar{p}$ π^+/π^-	$1.5 \times 10^5/5.7 \times 10^4$ $2 \times 10^7/1.2 \times 10^4$ $1.7 \times 10^7/1.4 \times 10^7$	2	
K3-S (K3-L)	0.5-1.0 "	2 "	0 "	7.3 (3.0)	14.4 (16.5)	K^+/K^- $p/\bar{p}$ π^+/π^-	$4.2 \times 10^4/1.0 \times 10^4$ $7 \times 10^7/3.5 \times 10^2$ $5 \times 10^7/5 \times 10^7$	0.6 0.8 0.8	Fluxes are for the S (short) mode of operation
K4	0.4-0.8	3	0	7.3	28.5	$\bar{p}$	700	0.6	Branch of K3
π - μ	0.1-0.45		87	20		$\pi^\pm$ $\mu^\pm$	10^6 10^4	0.15	

LAMPF PARTICLE PHYSICS BEAMS (Source: D. Dodder, Los Alamos)

The primary 800 MeV H^+ beam normally runs with an average current up to 900 μA , but 1.2 mA has been achieved. The macro duty factor is up to 10.5%, with a macrostructure of 120 pps. Each macropulse consists of a 0.25 ns burst every 5 ns. This beam is used to generate the meson and neutrino beams described below, as well as additional beams for other purposes. Simultaneously with the H^+ beam a low current (5 μA unpolarized; up to 25 nA polarized) H^- beam is accelerated to a desired energy between 212 and 800 MeV.

Beam	Momentum (MeV/c)	$\pm \Delta p/p$ (%)	Solid angle (msr)	Particle	Flux in particles/sec or current	$\rightarrow$ at (MeV/c)	Comments
A	1460	0.1		p	900 μA	1460	Main beam; 1.2 mA has been achieved
LEP	77-415	0.05-2.8	0-17	π^+	9×10^8	195	Low energy pion beam; achromatic; flux at $\Delta p/p = 2.8\%$
				π^-	$\sim 2 \times 10^8$		
EPICS	156-415	2.0	3.4	π^+	1.9×10^8	300	Energetic pion channel and spectrometer
				π^-	4.2×10^7		
p ³	100-750	5.0	7.0	π^+	2×10^9	470	High energy pions; achromatic
	"			π^-	3×10^8	470	
	28			μ^+	1.9×10^6	28	
	100			μ^-	1.0×10^6	100	
Stopped muon	25-250			μ^+	1.8×10^8	130	
				μ^-	3.6×10^7		
	665-1460			p	6 μA	1460	Current reduced to 1/3 for <1460 MeV/c Polarization = 0.8 N,L,S available "Unpolarized" beam has P = 0.2 at 20° Polarization = 0.5; max 0° energy is given; other ports up to 37° give lower energies
	"			$\bar{p}$	25 nA		
	<1460			n	10^7		
	"			$\bar{n}$	10^4		
External proton beam	665-1460	<0.1	<6	p	<100 nA	1460	H^- beam stripped to H^0 or H^+ Polarization = 0.8 N,L,S available Independent of polarization direction of internal beam
				H^0	"		
				H^-	"		
				$\bar{p}$	10 nA		
				$\bar{H}^0$	"		
HRS	475-1460	0.26		p	100 nA		For high resolution proton spectrometer
				$\bar{p}$	10 nA		
Neutrino facility	0-53		$\sim 4\pi$ sr	ν_e	3×10^{14}	total	Peak momentum is 35 MeV/c for ν_μ Flux at 8 m is 4×10^8 ν/cm^2 -sec Source subtends $\pm 1.5^\circ$ for target 8 m away
				ν_μ	"		
				$\bar{\nu}_\mu$	"		
Neutrino, line E	0-300			$\bar{\nu}_\mu$		total	Peak momentum is 150 MeV/c; flux at 25 m is 1.4×10^5 ν/cm^2 -sec

SERPUKHOV BEAMS (Source: N.A. Galiacv and R.A. Rzaev, Serpukhov)

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 0.115/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	$\rightarrow$ at (GeV/c)	Comments
2/14	30-70	1	6-35	10	120	hadrons+	10^6	60	Internal target lines
	30-60	1	0-5	30		hadrons-	10^6	60	2A, 2B, 14; the e^- 's may
	5-45	3	0-7	30		e^-	10^6	30	be used for polarized γ 's
4	20-50	1	0-5	40	130	hadrons-	6×10^6	40	Internal target lines 4A, 4B, 4V, 4L, 4E
18	3-17	2	0-200	120	50	hadrons+	10^8	5	Internal target,
	2-14	2	240-400	80		hadrons-	10^4	8	injection in ring
21	70		0		180	p	10^{11}	70	Slow ejection
	7-70	2.5	0	60	110	hadrons+	6×10^7	35	External target
						hadrons-	2×10^7	35	Slow ejection
19	70		0			p	10^{12}	70	Slow ejection
	70		0.5-5			p	$10^6, 10^{10}$	70	Internal target
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		$\pi^+, K^\pm, \bar{p}$			Fast ejection, separated
	20-55	0.25	0	10		π^-			to bubble chamber
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		0	5000	500	$\nu, \bar{\nu}$	5×10^9	total	Wide-band neutrino beam
	(mean=6) 70		0			p	10^{12}	70	Slow ejection

SIN BEAMS (Source: R. Frosch, SIN)

The average energy of the primary proton beam is 589 MeV with a FWHM spread of 0.4 %. The pulse rate is 5×10^7 per sec and the pulse width is 1 nsec. The maximum intensity at extraction is expected to be about 300 μA in 1985. Secondary beam rates given below are for $I_p = 100 \mu\text{A}$

Pion Beams

Beam	Energy range (MeV)	Minimum $\pm \Delta p/p$ (%)	Maximum flux (per sec)	for maximum flux		
				Energy (MeV)	$\pm \Delta p/p$ (%)	FWHM spot size H $\times$ V (cm)
πE1	50-350	0.2	π^+ 9×10^9	225	2.5	2×5
			π^- 8×10^8			
πE3	8-125	1.0	π^+ 7×10^8	85	5.0	5.6×2.6
			π^- 1.3×10^8			
πM3	8-350	0.1	π^+ 2.7×10^9	225	3.0	4×2
			π^- 2.4×10^7			
πM1	50-350	0.05	π^+ 3×10^7	225	1.0	0.9×0.7
			π^- 3×10^6			

Muon Beams (μ^+ fluxes are 4 or 5 times μ^- fluxes)

Beam	Momentum (MeV/c)	μ^- flux (per sec)	Δ -range (g/cm)	Stop density μ^- (stops/g-sec)	e^-/μ^- ratio	Burst width (nsec)	FWHM spot size H $\times$ V (cm)
μE1	120-50	3×10^7 - 4×10^5	4-0.3	1×10^5 - 3×10^4	0.01-3	≥ 4	6×4
μE2	125-50	10^7 - 10^5	2-0.15	4×10^4 - 1×10^4	0.01-3	≥ 4	10×6
μE3	stopping			3.5×10^6			
μE4	stopping			2×10^5	$0.3(\pi^-/\mu^-)$		
πE3	28	$10^7(\mu^+)$	0.04	$2 \times 10^7(\mu^+)$	$0.1(e^+/\mu^+)$		5×4

Neutron Beam (nE1)

Energy range (MeV)	Intensity in 25 cm ² spot (per MeV-sec)	Available flight path (m)	Resolution from T.O.F. at 590 MeV (MeV)
590-200	4×10^5 - 1.4×10^5	60	7

SLAC BEAMS (Source: T. Fieguth, SLAC)

Accelerator mode	Particles	Momenta (GeV/c)	Particles per pulse	Pulse length (μ s)	Repetition rate (Hz)	Comments
Normal	e^-	≤ 23.5	$\leq 5 \times 10^{11}$	1.6	≤ 360	To conserve power, repetition rates rarely exceed 180 Hz. The e^+ beam would require reinstallation of a high-power source. Sector 25 off-axis injector
	e^+	≤ 15.0	$\leq 2 \times 10^{10}$	1.6	≤ 90	
SLED	e^-	≤ 33.5	10^{11}	0.2	≤ 360	
NPI	e^-	≤ 4	$\leq 8 \times 10^{11}$	1.6	≤ 180	

Colliding beams	Particles	C.m. energy (GeV)	Peak luminosity ($\text{cm}^{-2} \text{sec}^{-1}$)	Average luminosity ($\text{cm}^{-2} \text{sec}^{-1}$)	Comments
SPEAR	e^+e^-	2-7.4	2×10^{31} at 6.4 GeV	1×10^{30} at 3.7 GeV	SPEAR has 2 interaction regions, PEP has 6. At PEP, the luminosity scales as E^{-2} (E^{-3}) for c.m. energies below (above) that at the peak.
PEP	e^+e^-	8-36	3.2×10^{31} at 29 GeV	1.2×10^{31}	

Beam	Momentum range (GeV/c)	$\pm \Delta p/p$ (%)	Production angle ($^\circ$)	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^- $p/\bar{p}$ π^+/π^- e^- e^+	17/8 40/6 10^3 10^4 10^4	10	≤ 180	Test beams	Separated: $\pi/K \approx 1/30$ $\pi/\bar{p} \approx 1/14$
	1-8						2.5			
27	20	9.0 FWHM	0	10^{-7}	γ	10^2	20	≤ 20	Test beam	Backscattered laser beam
3	≤ 15 ≤ 23.5	0.1-1.0 0.1-1.0			e^+ e^-	2×10^{10} 5×10^{11}	All All	≤ 90 ≤ 360	ESA 1.6, 8, & 20 GeV/c spectrometers	e^+ beam requires high power source; all fluxes at $\Delta p/p = \pm 0.25\%$ See footnote A
	3.237 j (j=1,...,6)	0.1-1.0			e^-	5×10^{11}		120, 180		
	3.237 j (j=1,...,6)	≥ 0.5			e^-	10^9		≤ 360		
	≤ 21.5 5-15	Brems. 7-10	0 0		γ γ	4×10^9 EQ 5×10^7 EQ	20 All	≤ 360 ≤ 360		
	≤ 21.5	Brems.	0		γ	2×10^8 EQ		≤ 360		See footnote D
6	0.1-16 1-16	≤ 2.0	1.6-6	0.03	e^- π^-	10 10		≤ 60	Test beams	
19	1-16	0.25	0		e^+	10	10	≤ 60	Test beam	Very pure; $\sigma_x = 1$ mm

- A. High intensity source; longitudinal polarization = 0.4 (would require reinstallation).
 B. Low intensity source; longitudinal polarization = 0.85 (would require reinstallation).
 C. Coherent bremsstrahlung, linearly polarized (10^9 EQ without collimation).
 D. Linearly polarized at maximum energy by coherent pair production in graphite.

TRIUMF BEAMS [Source: Status of TRIUMF Plans for Development, G. Dutto, E.W. Blackmore, and M.K. Craddock, TRI-82-PP-37 (October 1982)]

The cyclotron energy range is 180-520 MeV with an energy spread of 0.1% (FWHM). The unpolarized intensity is 150 μA , and the polarized intensity is 300 nA; the polarization is 75-82%. The BL4/BL1A split ratio is $1/10^4$. The phase width is variable from 0.5 to 6 ns. The pulse separation is 43 or 217 ns. There are plans to upgrade various performance levels.

Main beam lines

Beam	Particle	Energy (MeV)	Intensity	Momentum spread FWHM (%)	Polarization (%)	Spot size H $\times$ V(cm)
BL1A	p	180-520	120 μA (500 MeV)	0.2	0	0.2 $\times$ 0.5
BL4/1B	$\bar{p}$	180-520	300 nA	0.2	70-80	0.2 $\times$ 0.5
BL4A	$\bar{n}$	160-500	$10^6/\text{sec}$	1.0	40-75	6 $\times$ 6
BL2C	p	65-100	10 μA	0.2	0	1 $\times$ 2

Secondary lines The M8, M9, and M20 fluxes are for full momentum acceptance with 100 μA of protons on a 10-cm Be target. The M11, M13, and M15 fluxes are for full momentum acceptance with 100 μA of protons on a 1-cm C target. Beams of π^- and μ^- have the same properties as the π^+ and μ^+ beams, except fluxes are about 5 times lower.

Beam	Particle	Momentum (MeV/c)	Particle flux (per sec)	$\rightarrow$ at (MeV/c)	Momentum spread FWHM (%)	Polarization (%)	Spot size H $\times$ V(cm)
M8	π^-	0-220	1.3×10^8	180	13	—	1 $\times$ 2
M9	μ^-	30-150	10^6	77	14	50	8 $\times$ 8
	π^+	30-250	2×10^8	120	14	—	10 $\times$ 2
M20	μ^+	30-200	2.5×10^6	30	5	>90	4 $\times$ 3
			2×10^6	85	8	75	8 $\times$ 8
M13	π^+	30-130	5×10^7	130	10	—	3 $\times$ 2
	μ^+	30 (surface)	1.3×10^6	30	10	>90	3 $\times$ 2
M11	π^+	90-470	5×10^6	200	3	—	2 $\times$ 3
M15 (design)	μ^+	30 (surface)	1.6×10^6	30	12	>90	2 $\times$ 1

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