

The Village Courier



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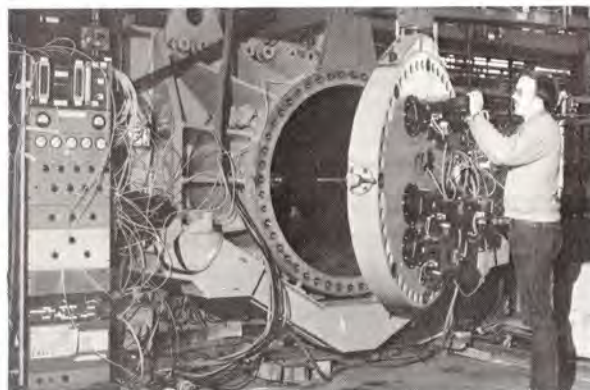
FIRST STREAMER CHAMBER COLLABORATION COMPLETED HERE

One of the international collaborations so common at Fermilab has completed a successful run in the Meson Area. Scientists from the University of Washington at Seattle, the University of California at Davis, and the Laboratoire de l'Accelérateur Lineaire at Orsay, France came together in Midwestern United States, bringing with them years of collaboration and joint studies. They recently completed two of the first streamer chamber experiments at Fermilab energies, E-416 and E-86.

The experimenters include T. Burnett, V. Cook, S. Csorna, A. Jonckheere, R. Kenyon, H. J. Lubatti, K. Moriyasu, and B. Robinson of the University of Washington; J. Klems, W. Ko, R. Lander, D. Pellett, of the University of California, Davis; J. Colas, D. Fournier, P. Rancon, and J. J. Veillet of the Laboratoire de l'Accelérateur Lineaire, Orsay. The late Prof. A. Lagarrigue of Orsay did much to make the collaboration possible.

The same magnet that is such an important part of the experiment had previously served the experimenters at CERN, in Geneva, Switzerland, from 1961 to 1964. It was at Orsay that the present collaborators first became interested in doing an experiment to study the diffractive dissociation of particles. In 1970 they submitted a proposal to continue at Fermilab the research they had begun in Europe. The French scientists also furnished the cameras for the experimental apparatus. The California experimenters on E-416 furnished the scintillators for the muon telescope and a calorimeter. The University of Washington provided the experiment's other hardware.

The experiments use the first streamer chamber in a major experiment at Fermilab. The streamer chamber, a vessel 1m x 50 cm x 30 cm (about the size of a trunk) is filled with neon gas, then mounted inside the magnet. A beam of particles comes through the beam pipe of the M-1 beam line. For E-416 a 5 cm lucite target was placed at the upstream end of the streamer chamber. A carefully-calculated combination of electronic devices ignores unwanted events but permits up to five cameras with shutters continually open, to be triggered by "good" events



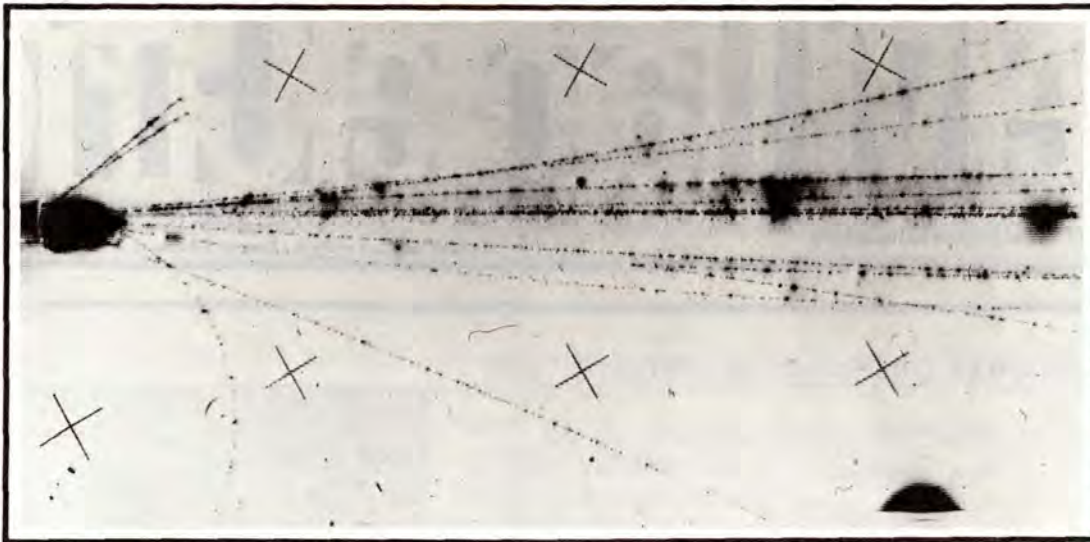
...A. Jonckheere mounting film magazine on camera port of BP3 magnet used in E-86 and E-416...



...J. Klems, H. Lubatti at the SOD magnet after experimenters have finished winding 101 turns on the iron in an all-night session...



...B. Robinson, A. Jonckheere, H. Lubatti discuss capacitor changes in the Marx generator box...



...Photo of an event in the streamer chamber triggered by two muons, illustrating the Vee of a neutral strange particle decay. E-416 (completed in July, 1975) was searching for correlations of dimuons with neutral strange particles in pi minus interactions...

visible through the glass side of the streamer chamber. A good event results in a picture similar to a bubble chamber track picture. The film is analyzed on automatic scanning devices at both the University of Washington and at Orsay, France.

E-416 searched for "charmed" particles by looking in the streamer chamber for neutral strange particles produced in association with muons. "Charm" may be a property similar to strangeness. Charm has received a great deal of attention since the discoveries in the neutrino beam at Fermilab and the discovery of the J/psi. Theorists at Fermilab and elsewhere have suggested that charmed particles would occasionally decay into a muon plus a strange particle and a neutrino. To see this decay, a large muon detector, consisting of magnetized iron absorber, provided by Fermilab, plus scintillators and spark chambers, was placed behind the streamer chamber to signal whenever a muon was produced. A picture was then taken of that interaction in the streamer chamber.

The streamer chamber pictures were scanned and the number of "Vees" (neutral strange particles look like the letter V in a streamer chamber) associated with muons were counted. This number was compared with the number of Vees ordinarily produced without a muon. Any excess of the Vee-plus-muons events could be an indication of possible charmed particles.

"Charm, unfortunately, turned out to be even more elusive than we thought," reports Henry Lubatti of the University of Washington, spokesman for E-416. "We did not find any excess in the number of Vees produced with muons over that ordinarily produced without muons."

The experiment, however, did see a handful of psi/J events, and they have submitted a proposal to use their streamer chamber to further study the details of how psis are produced, still unknown to particle physicists.

E-416's search for charm was a diversion from E-86 which studied the diffractive dissociation of pions on helium nucleus targets. For E-86 the streamer chamber was filled with helium gas which acted as the target and also produced streamers for the charged tracks. The sensitivity of this experiment can be inferred from the fact that bags of helium gas are often used in experiments as a cheap substitute for vacuum pipes! The experimenters returned to E-86 after the charm search and these data are now being analyzed.

"E-86 and E-416 have demonstrated how streamer chambers can effectively bridge the gap between bubble chambers and pure electronic detectors," Dr. Lubatti says. "Streamer chambers can operate with high intensity beams and can be triggered like counter experiments. Thus, they are uniquely suited for detecting very rare events and showing every charged particle, as well as many neutral particles, from the interactions."

FERMILAB BOWLING CHAMPS

FERMILAB bowlers finished their 1975-76 season and awarded trophies at a gala banquet...

FIRST PLACE TEAM

"Hockey Pucks"

Doug Maxwell Ed LaVallie
Tom Groves Helen Ecker
 Gail Tate

SECOND PLACE TEAM

"Last Chance"

Harland Gerzevske Al Forni
Keith Schuh Bob Kocanda
Brian Kramper Jim Moncrieff

HIGH AVERAGE

MEN: Harland Gerzevske
WOMEN: Jean Plese

HIGH SERIES

Roy Justice
Jean Plese

HIGH GAME

Roy Justice
Barb Schluchter

MOST IMPROVED

Theo Gordon
Jackie Gifford

HIGH TEAM SERIES: Last Chance, Harland Gerzevske, Captain

HIGH TEAM GAME: Last Chance, Harland Gerzevske, Captain

1976-77 Officers: Al Guthke, president; Ed Stitts, vice-president; Marion Richardson, secretary; and Barb Schluchter, recording secretary.



...First Place, (L-R) D. Maxwell, T. Groves, H. Ecker, G. Tate, and E. LaVallie...



...Second Place, (L-R) K. Schuh, B. Kocanda, B. Kramper, A. Forni, H. Gerzevske being handed prize money by L. Foster...



...Jean Plese accepts award from Curt Owen...



...1975-76 Officers, (L-R) Curt Owen, president; John Robb, vice president; Sherry Nila, recording secretary and Liz Foster, secretary...



...Jackie Gifford accepts award from Curt Owen...

KEN BARTHOLD FUND

Friends and fellow employees are soliciting funds on behalf of Ken Barthold, maintenance mechanic in Fermilab Operations/Support. Ken has been a Fermilab employee since last August. Shortly after he underwent a leg amputation in February resulting from a diabetic condition, Ken's wife passed away. He and his family of three children at home need financial help and support, according to Jack Morphey, Ken's supervisor. Contributions may be sent to Jack Morphey, at the Phillips Farm.

CAFETERIA COMMITTEE REQUESTING INFORMATION

John Satti, chairman of the Cafeteria Committee, requests that Laboratory personnel return the questionnaire distributed recently by the committee to all Fermilab employees. The committee is eager to be representative of the ideas of the majority of the Fermilab community. They are asking for constructive suggestions for services that might be changed or added to the cafeteria. Cafeteria Committee members are: Jim Finks, Superconductor group; Max Palmer, Accelerator Division; Helen Peterson, Directorate; Neville Reay, Experiment #366; and Jim Richardson, Internal Audit.

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SWIM LESSONS BEGIN JUNE 14

Children's swimming lessons begin Monday, June 14, and run to July 16. Beginner's lessons will be given on Monday, Wednesday, and Friday from 10-11 a.m. Intermediate lessons will be offered Tuesday and Thursday from 9:30-11 a.m. Sign up with the guard at the pool. The cost is \$12.00 per student for each session.

Season pool passes may be obtained from the cashier in the Central Laboratory, 4E. Daily pool passes are on sale at the pool.

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...STILL TIME to sign up for Talent Night to be held June 18 in the Auditorium. Auditions have been postponed; entries will be notified. For further information contact Jane Theis, Ext. 3126.

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MARCEL BARDON PHOTOGRAPHY EXHIBIT

The photographs of Marcel Bardon are now on exhibit in the second floor lounge of the Central Laboratory. Most of the photographs were included in a one-man show in 1975 at the Corcoran Gallery of Art, Washington, D. C. Bardon, of the National Science Foundation, will also exhibit at the 7th International Art Fair in Basel, Switzerland next month, and at the Castelli Gallery, New York and the Max Protetch Gallery, Washington D. C., in the fall.

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...BABYSITTERS ARE NEEDED for families who will be summer visitors at Fermilab. Names of persons who can do daytime, evening, and overnight sitting should be given to the Guest Office, CL-1W, Ext. 3440, as soon as possible.

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CLASSIFIED ADS

WANTED - Bicycle for 5 year old girl. Please call Freudenreich, Ext. 4914.

FOR SALE - 1976 Blazer, auto. trans., 350, 4-barrel, 4-wheel drive, Cheyenne pack., tinted windows, AM-FM radio, 5 spec. tires & rims, AC, P/S/B, more. \$6800. 365-2252 after 5 p.m.

FOR SALE - Semperit 5.90-15 tubeless tire, good cond., fits Volvo, etc., \$15. Peter Gollon, Ext. 3465.

FOR SALE - 4 bedroom, bi-level, 2½ bath, finished rec. room, 2 car garage attached, 16x20 enc. back porch, near school & Catholic Church, 20' above ground pool. 969-2277.

WANTED - to purchase, 36 h.p. electric motor. Call 859-1837 anytime.

FOR SALE - 3bedroom condominium 4-plex, pool, garage, AC, dishwasher, shag carpets, 5 mi. from laboratory, across street from school & park. Call Fred Harris, 851-5305.