

The Village Courier



national accelerator laboratory

Operated by Universities Research Association Inc.
Under Contract with the United States Atomic Energy Commission

Vol. 4 No. 28

August 24, 1972

PROGRESS REPORT - AUGUST 7th through AUGUST 20, 1972

The accelerator was started up again on August 17th, after a ten-day shutdown, and beam studies have been underway since that time. During the shutdown, a new Booster control system was installed, similar to the systems in the Main Ring and Linac. Extensive work was done on extraction equipment.

WORLD-WIDE HIGH ENERGY PHYSICS MEETING AT NAL IN SEPTEMBER

Meeting in the United States for the first time since 1966, more than 800 high energy physicists will come to the National Accelerator Laboratory on September 11th for the biennial Sixteenth International Conference on High Energy Physics.

Originally and informally called "The Rochester Conference," the meeting was started in 1950 by Robert E. Marshak, then head of the University of Rochester physics department, and now president of the City College of New York. Less than 100 invited participants in that first meeting met for one day to review the untrodden field of physics that occurred at high energies. The conference has always provided an opportunity to pursue in depth, person-to-person, for several days, information that would otherwise be limited to 10-minute paper presentations. The formula has proved highly successful, as witnessed by the tremendous growth in the size of the meeting, paralleled by the equally burgeoning development of the field itself. Delegates still attend by invitation only, in an attempt to offer the most meaningful review of ideas and insights to attendees. The anticipated attendance of eight Nobel Laureates testifies to the quality of the presentations.

Locale of the meeting rotates between the U.S., Europe, and the U.S.S.R. It will thus not return to the U.S. until 1978. The uniqueness of the NAL machine and the magnitude of the program to be undertaken here gives promise of highly significant progress in high energy physics in the next few years, all of great interest to persons in the field. Those attending the 1972 meeting will come from North and South America, Europe, Asia, the U.S.S.R., Africa, China, and all other points of the globe.

On September 6, 7, and 8th, the Conference will meet in parallel sessions at the University of Chicago where suitable accommodations are available for the 250-person-group meetings. Session organizers and a few active participants in various aspects of the subject area of each session will summarize selected contributions. During the weekend of September 9 and 10th, delegates will transfer to housing facilities in the vicinity of NAL. In three days of plenary sessions beginning Monday, September 11th, distinguished authorities will present the most interesting and significant developments in their particular field of expertise. Plenary session speakers include:

W.J. Willis, Yale University, U.S.A.; R.K. Adair, Yale University, U.S.A.; C. Rubbia, CERN, Switzerland; B.W. Lee, New York State University at Stony Brook, U.S.A.; K. Berkelman, Cornell University, U.S.A.; V. Silvestrini, Laboratori Nazionali del CNEN, Frascati, Italy; D.H. Perkins, Oxford University, United Kingdom; R.E. Diebold, Argonne National Laboratory, U.S.A.; C. Lovelace, Rutgers University, U.S.A.; C. Michael, CERN, Switzerland; G. Giacomelli, Istituto di Fisica "A. Righi," Universita degli Studi, Bologna, Italy; M. Jacob, CERN, Switzerland; Y. Frishman, Weizmann Institute of Science, Israel; V.N. Gribov, A.F. Ioffe Physical-Technical Institute, U.S.S.R.; M. Gell-Mann, California Institute of Technology, U.S.A.; R.R. Wilson, National Accelerator Laboratory, U.S.A.

Social activities being planned for the meeting include an Illinois prairie picnic on

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WORLD-WIDE HIGH ENERGY PHYSICS MEETING (Continued)...

Sunday, September 10th. Wives of delegates will tour Chicago highlights while their husbands are in meeting sessions. The Chicago Fine Arts quartet, outstanding jazz artists, and the Darlene Blackburn dance troupe will also entertain guests in evening programs.

The meetings at NAL will be held in the auditorium building adjacent to the Central Laboratory. Auditorium construction will be suspended and temporary seating and meeting facilities used to accommodate the guests. Since the auditorium at best can only accommodate official delegates, a closed circuit television viewing of the proceedings will be available for as many persons as feasible in The Village Barn.

The majority of visitors will stay in motels in the NAL area during the meeting time; transportation will be provided to the NAL site. NAL employees are asked to use the cafeterias between 11:30 and 12:30 on the days of the meetings, so that visitors may be served promptly at the close of the sessions. Delegates will be provided separate lunch facilities.

Edwin L. Goldwasser, Deputy Director of the National Accelerator Laboratory, and Robert G. Sachs, Director, Enrico Fermi Institute of The University of Chicago are co-chairmen of the meeting.

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FIRST NAL EXPERIMENTAL PUBLICATION

The results from one of the first high energy physics experiments performed at the National Accelerator Laboratory were published on August 21, 1972 in Physical Review Letters, a publication of the American Institute of Physics, by a team of 19 scientists from five institutions. This constitutes the first formal presentation of experimental results from the accelerator.

The experiment (NAL No. 141) started soon after the record-breaking 200 BeV protons were beamed into the 30-inch hydrogen bubble chamber in the Neutrino Laboratory. This event highlighted the fifth anniversary of the Laboratory on June 15, 1972 and was described in The Village Crier of June 29, 1972.

According to Louis Voyvodic, physicist in charge of the 30-inch chamber and a participant in the experiment, the excitement and enthusiasm which prevailed at the accelerator, beam lines and bubble chamber operations continued on into the film scanning and analysis stages. "The film was first divided into two equal samples and was analyzed by two groups of the authors, working as independent teams," he states.

"After two weeks of round-the-clock examination, the two teams compared their data and agreed on the re-checks needed for "final values" of the number of interactions of each type, the total track length in hydrogen, corrections for secondary interactions, close neutral disintegrations, etc. Repeated drafts finally resulted in the publication which was submitted on July 18th and appeared in print on August 21st," Dr. Voyvodic reports.

In this article, the main emphasis is on the frequency with which different numbers of secondary particles are produced in 200 BeV proton-proton interactions. The average number of secondaries turns out to be higher than indicated from previous cosmic ray measurements, and there is also greater clustering of these particles than might be normally expected.

Aided by this "first look" at 200 BeV proton-proton phenomena, and by sharpened questions from theorists proposing a variety of dynamical models, sub-teams from the experiment have since been studying more specific problems, with one eye on the calendar and the imminent XVI International Conference on High Energy Physics opening on September 6th. Hopefully, 200 BeV proton-proton data from Experiment 141 will be available for this meeting on the production mechanics of neutral particles, on elastic scattering, on the "rapidity" of negative pions, and on the reality of "fireballs."

The official caption on this publication reads as follows: "Charged-Particle Multiplicity Distribution from 200 GeV pp Interactions." Authors are: G. Charlton, Y. Cho, M. Derrick, R. Engelmann, T. Fields, L. Hyman, K. Jaeger, U. Mehtani, B. Musgrave, Y. Oren, D. Rhines, P. Schreiner, and H. Yuta of Argonne National Laboratory; L. Voyvodic, R. Walker, and J. Whitmore of the National Accelerator Laboratory; H.B. Crawley, Iowa State University; Z. Ming Ma, Michigan State University, and R.G. Glasser, University of Maryland.

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CIVIL DEFENSE SIREN TEST AT NAL SCHEDULED FOR NOON, August 29th...Note the sound of the signal so that you will be on the alert in case of tornado or other civil defense emergency. The warning signal will originate from Farm Site #50 on the corner of Batavia and McChesney roads.

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FIFTH ANNUAL NAL FAMILY PICNIC...

The temperature soared to 93° during the afternoon of Sunday, August 20th, but there was something for everyone at the fifth annual NAL family picnic.



...The pool was the place to be...



...But even watching felt good...



...Rides for the kids...



...Cotton candy & balloons...



...Shade was at a premium...



...On your mark...



...Getting ready to fly...

(Photos by Tim Fielding, NAL)

...SIGN UP NOW...

BOWLING - Mixed League season will open Thursday, September 7th. Joel Misek, Ext. 701 is chairman.

CHESS - Tournament being organized for September competition. Call Rich Parry, Ext. 504, Bob Mau, Ext. 721, Wayne Ganger or Jim Falk, Ext. 734.

TENNIS - Tournament will begin September 18th. To sign up call Eric Jarzab, Ext. 396.

SAIL INTO THE SUNSET ON LAKE LAW...

A 12' two passenger Sunflower Sailboat is now available for use of NAL employees on Lake Law (not off-site). Eric Jarzab, Ext. 396, takes reservations and has the handy instruction manual for novices.

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NEWS FROM NALWO PLAYGROUP...

Anything is possible as playgroup begins its second year. Come to an open meeting on Wednesday, August 30th at 7:30 p.m. at the White Farm on Eola Road. We'll try to map out a new program which most suits your needs. Call Ellen Ljung, 231-8513 for further information. All NAL employees and visitors are welcome.

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CLASSIFIED ADS

!!! REMEMBER, CREDIT COSTS LESS AT YOUR CREDIT UNION !!!

FOR SALE - 1967 Impala SS-427, 4 spd., a/c, p/s, tinted p/w, am/fm & tape, shag carpet, \$1015 or best offer. Call Bob Kreml, Ext. 570/701 or 627-1904.

FOR SALE - 1963 VW sedan, body gd. cond. Gd. loc car. Best offer. Call B. Strauss, Ext. 795.

FOR SALE - 1968 Triumph 250CC Motorcycle, n/paint job, recently overhauled w/rd. & scrambler back gear. \$475 or best offer over \$400. Call Halbert Landers, Ext. 701 or 851-5892.

FOR SALE - Four-15J x 6 Spyder Mags w/lug nuts & new ctr. caps. Excel. cond., \$100 or best offer. Call Michael May, Ext. 502 or 665-4696.

FOR SALE - 1965 Ford-4 dr. 352 cub. eng., 4 barrel carb., auto. trans., p/s. Orig. owner, \$350. Call Carl Maier, Ext. 728 or 552-3273.

FOR SALE - 1971 Plymouth Fury III, a/c, p/s, p/b, auto. 383 V8, heavy duty susp., 4-dr. sedan, \$1500 - Firm; Curta Calculator, M-#2, \$100. Call R. Crocker (DUSAF) 879-2900, Ext. 221.

FOR SALE - 4 Cragar Mags-15" for Ford; 1969 CB-350 Honda. Call D. Digmon, Ext. 575 or 851-5360.

FOR SALE - Regis. qtr. horse, 2 yr. old gelding, red dunn, approx. 15.2 hds., gr. broke, \$500; big horn saddle, Calif. Equitation, 3 mos. old, 5 yr. guar., \$400. Call J. Jenkins, Ext. 521.

FOR SALE - 1967 Olds Conv., blue 444, gd. cond., p/s & brks. Gd. Rubber. \$960. Call Ed Tilles, Ext. 271 or 897-8140.

FOR SALE - Two 8.55 x 14 snow tires on Chrysler, prod. rims. Like new. \$20. Call Barb, Ext. 701.

FOR SALE - 7000 BTU-HR-Sears A/C. Used 2 summers. Call John Satti, Ext. 236 or 35504430.

FOR SALE - 1964 Plymouth, gd. cond., gd. tires & two studded snow tires extra, \$250. Call M. Jacob, Ext. 581.

FOR SALE - Camping tent, 8x10 ft. \$20; Coleman Ice Box, \$6. Call Yori, Ext. 266.

FOR SALE - Dinette set w/6 chs. & table leaf, v/gd/cond. \$75 or best offer. Call Marvin Kral, Ext. 728 or 887-1149.

FOR RENT - 3 bd/rm apt., 2/ba., carpet, gas incld. NE/Aurora. Avail. Oct. 1 - \$220. Call R. Ducar, Ext. 782 or 898-2114.

WANTED - 1 push type lawnmower w/catch bag & adj. wheels. Call Ernie, Ext. 210 or 859-2599.

WANTED - Used freezer for home use. Any size. Call Cuomo, Ext. 402.

WANTED - Foreign stamps. Save them for Graciela Carbo, Ext. 532 or 892-0331.

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The Village Crier is published by the Public Information Office of the National Accelerator Laboratory, Margaret M.E. Pearson, Editor. Correspondence may be directed to the address below. Telephone number of the Laboratory is 312-231-6600.

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