May 26, 1983
FERMI NATIONAL ACCELERATOR LABORATORY

FermiNews

FERMILAB PEOPLE SCORE ANOTHER SUCCESS

Some of those who contributed to the Tevatron two sector beam studies (left to right) front row: Ray Yarema, Rajendran Raja, Mike Harrison, Bob Shafer, Dave Beechy, Dixon Bogert; second row: Frank Nagy, Howie Pfeffer, Rod Gerig, Al Russell, and Jim Lackey; third row: Dave Johnson, Chuck Ankenbrandt, Curt Owen, Stan Pruss, and Rol Johnson.

by Chuck Ankenbrandt

Smiling faces and sighs of relief abounded around the Main Control Room after two weekends of tests with beam in E and F sectors of the Tevatron. Murphy's Law was repeatedly violated as many complicated subsystems that could have gone wrong did not.

In preparation for the studies, the Booster, Main Ring, and Operations groups under Curt Owen, Stan Pruss, and Bob Mau tuned up the injectors to produce stable 150-GeV beam. To reduce the number and severity of quenches of Tevatron magnets due to beam losses, the beam intensity was reduced to about 40 bunches, each containing fewer than a billion protons. After Mike Harrison and Jim Lackey turned on the C48 extraction kicker and bump magnets in the Main Ring, together with the Lambertson magnets and steering dipoles in the E0 straight section, Tom Groves' eye-catching "bulls-eye plot" indicated beam cleanly headed toward the Tevatron. At the same time,

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FERMI SAVER ONE THIRD OF THE WAY THERE !

(cont'd. from pg. 1)

Rod Gerig's programs showed that the beam position and beam loss monitors designed by Bob Shafer had detected the beam at E11. Claus Rode's cryogenic experts gave the go-ahead, and Gerry Tool's power supply group energized the two sectors of Tevatron superconducting magnets with a nominal dc current of 660 amperes corresponding to about 150 GeV. At this point, beam was observed at a few position detectors, but subsequent progress was slow as various polarity conventions were checked and problems sorted out. Painstaking manual tuning of the dipole beam steering correction magnets, led by Mike Harrison and Don and Helen Edwards, steered the beam further downstream at the rate of about 100 feet per hour.

It soon became apparent from the large average value of the horizontal correction dipoles that the Tevatron guide field at 660 amperes was weaker than that of the Main Ring at 1698 amperes. A correction for this effect previously derived by Don Edwards was applied, raising the Tevatron buss current to about 665 amperes, with compensating reductions in the horizontal steering magnet currents. Thereafter, progress using manual tuning was rapid, and at 6:23 p.m. Saturday, April 23, a bright flash on a scintillating screen in front of the dump at A0 demonstrated successful transmission of 150-GeV beam through E and F sectors of the Tevatron.

Saturday evening, Rajendran Raja and Chuck Ankenbrandt tested their automatic beam position correction program, an ambitious application of the new accelerator control system which calculates dipole correction settings from beam position measurements. The correction methods had previously been checked intensively in conjunction with Al Russell's Tevatron orbit simulation program. After a few hardware problems were ironed out, the program successfully corrected the beam positions to within a millimeter of the design orbit after three iterations.

For simplicity the Tevatron injection kicker was left off at first, the necessary bend to place the beam on the closed orbit at E17 being supplied by the horizontal correction dipole there. Under the watchful eye of Bob Trendler of the Research Division, the E17 kicker was successfully tested on the first weekend and routinely used throughout the second weekend for injection.

The second weekend emphasized further testing and use of the automatic beam position correction system. The program steered the beam automatically through the two sectors in a few accelerator cycles, starting with the beam reaching only a few position detectors. It is expected that the capabilities of this program will facilitate the final commissioning of the Saver starting around the end of May.

Using the beam steering program, the beam was displaced intentionally by as much as an inch in order to scan the aperture of the accelerator. Changing a single correction dipole current caused the beam to oscillate, further probing the aperture and confirming the focusing properties of the accelerator.

Beam was successfully transported with guide fields differing from each other by as much as 0.6%. As the guide field was changed, a precise three-transductor comparator of Main Ring and Tevatron buss currents (suggested by Quentin Kerns and implemented by Howie Pfeffer) was successfully tested and calibrated.

In summation, Rich Orr, head of the Accelerator Division, said: "We have now injected and transported protons through one-third of the Saver. The success of this test was due to the competence, hard work, splendid cooperation, and in some cases genius of people too numerous to mention from all parts of the Laboratory. The hardware was designed, built, and installed by engineers, technicians, and physicists from the Research Division and Technical Services as well as the Accelerator Division. We can all take satisfaction in our achievement in building the Saver and look forward with confidence to the next steps in the commissioning of our new accelerator."

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LEDERMAN GETS NIU'S FIRST HONORARY DEGREE

Dr. David E. Murray (left), Chairman of the Illinois Board of Regents, presents Northern Illinois University's first honorary degree to Leon Lederman.

by Eva Ritter-Walker

Saturday, May 14, 1983, saw Northern Illinois University in DeKalb hold its 84 Annual May Graduate School Commencement Exercises. As long robes and colorful hoods went by in academic procession, an expectant audience of almost 1,800 assembled in the Duke Ellington Ballroom of the University's Student Center, patiently awaited not only the distinguished Commencement speaker, the presentation of the 1983 Distinguished Alumna Award, and the awarding of graduate degrees to friends and family members, but also the happening of a unique and memorable event: the presentation of NIU's first honorary degree to none other than Fermilab's Director, Leon M. Lederman. Few in the audience knew that this award was not the first of its kind to Leon, who also holds an honorary Doctor of Science from the City University of New York, but as he was being hooded with the NIU colors, everyone there sensed that by awarding its honorary doctorate to Leon Lederman, the University not only made a statement in recognition of his outstanding contributions to science, but acknowledged his service to Northern Illinois, forging a permanent link between the two institutions.

Just back from Israel, where he and friend Martin Perl were awarded the Wolf Prize, Leon was delighted to become NIU's first honorary degree recipient. His Fermilab community might well echo President Monat's words that "it is as much an honor for us as it is for him."

COMMENCEMENT TALK BY DIRECTOR

Leon Lederman will deliver the commencement address, "Love and Fulfillment in the Computer Age" at the Waubonsee Community Commencement Exercises for more than 400 students at 8 p.m. Thursday, May 26, in Erickson Hall at Waubonsee. The commencememt ceremonies are open to the public.

COMPUTER/ENGINEERING CAREER AWARENESS PROGRAM

Leon Lederman receives Explorer Post charters. The officers presenting the charter to Leon are Julie Heim, Secretary for the Engineering Post and Vice President of the Advanced Computer Post, and Jon Urness, President of the Beginning Computer Post. In the background are Fermilab people who have been involved with the project (see story for names).

by Lauta Price-Joyner

If you're wondering what's been happening on Tuesday nights since December 15, 1982, the answer is: the Laboratory sponsored a Computer/Engineering Career Awareness Program through the young-adult division of the Boy Scouts of America.

Exploring, the young-adult division of the Boy Scouts of America, is a coeducational program for high school age youth designed to meet the needs, desires, and concerns of the next generation of citizens. It achieved this purpose through a planned program of career interest exposure that brought young adults throughout the community (Geneva, Batavia, St. Charles, Elburn) into association with Fermilab computer programmers, engineers, and physicists.

The Exploring program was developed by research done by the University of Michigan and a major survey firm which concluded that young adults have three major concerns: career orientation, company of the opposite sex without dating pressure, and to be measured not tested.

The Explorer Post at Fermilab strove to help these young people find their present and future roles as individuals in society and the world of work. This was accomplished by providing lecturers in the engineering, computer programming, and physics discipline, plus giving the students tours.

The following Fermilab employees acted as advisors: Dave Beechy, Dixon Bogert,

(cont'd. on next page)

PROGRAMMERS, ENGINEERS, PHYSICISTS SUPPORT PROGRAM

(cont'd. from previous page)
Charlie Briegel, Bruce Chrisman, Lee Chapman, Gene Dentino, John Dinkel, Tom Fink, John Grimson, Jeanne Ingebretsen, Alan Jonckheere, Cordon Kerns, Rich Knowles, Terri Lahey, Bryon MacKinnon, Finley Markley, Manuel Martin, Mike Mruzek, John O'Meara, Tom Peterson, Jack Pfister, Dave Ritchie, A. Russell, T. J. Sarlina, Bill Wickenberg, George Wyatt, and Jim Zagel.

Fermilab sponsored three Posts: Beginning Computer Programming Post (1203), Advanced Computer Programming Post (1204), and Engineering Post (1205). The Engineering Post included the following disciplines: electronic, electrical, mechanical, and physics.

The Laboratory intends to sponsor the three Posts next year. Individuals interested in volunteering their time and expertise should contact Lauta Price-Joyner or George Wyatt, ext. 3415.

SUMMER INSTITUTE FOR SCIENCE TEACHERS PLANNED

A pilot Summer Institute for Science Teachers in the greater Chicago area who wish to improve their skills and knowledge in teaching biology, chemistry, or physics will be held at Fermilab, June 20-July 15.

The Friends of Fermilab Association is planning the Institute, which will be funded by the Department of Energy's Office of Energy Research and private sources.

The Institute is the result of the deepening concern among scientists, educators, and private sector companies about the deteriorating quality of science education and training in the United States, according to Leon Lederman.

The primary objective of the Summer Institute for Science Teachers is to improve and update high school courses and attract more students to the science classroom. "By enriching the competency of high school teachers we hope that they will return to their classrooms with appropriate new information and skills and will project to their students the excitement and challenge of all that is happening today in science," says Leon who has spearheaded several attempts to stimulate local programs to help reverse this trend. One of the most well-known and in its eighth ten-week concentrated session is Fermilab's Saturday Morning Physics which has "graduated" over 600 high school students.

For the first Institute, 45 teachers have been accepted. In order to be accepted, they must have been teaching high school science courses for at least three years and must be recommended by their department chairman. Successful completion of the Institute will earn teachers four hours of graduate credit from Northern Illinois University in one of the three sciences. Participants will receive a $1,000 stipend.

The Institute curriculum will include parallel classroom, laboratory, and computer sessions as well as plenary sessions in advanced topics on current scientific research and contemporary social problems related to science. The plenary lectures to be given on Tuesday and Thursday mornings during the Institute will be open to any interested science teachers even though they are not enrolled in the Institute itself. Provided there will be at least 15 registered teachers in these sessions, one graduate credit will be awarded to the participants by Northern Illinois University. A list of topics for the plenary sessions (registration at 8 a.m. on Tuesday, June 21, in the second floor lounge) and other information may be obtained from

Friends of Fermilab Association
MS 105, Fermilab
P. O. Box 500
Batavia, Illinois 60510

Four post-Institute follow-up sessions will be held during the year to assess the success of the program. It is hoped that the 1984 summer session may be sufficiently expanded to accept up to 75 teachers.

Stanka Jovanovic is president of the Friends of Fermilab Association, and Marjorie Bardeen is director of the Institute. Marguerite Ankenbrandt, Chris Hill, and Charles L. Johnson are also members of the Institute Planning Committee.

DOUBLER DEVELOPMENTS

A problem which had prevented the magnets in C sector from ramping at full speed higher than a couple hundred amperes was pinpointed to be a turn-to-turn short in a diple at C29-3. The quarter-sector was warmed, the magnet was replaced (as was a second nearby magnet which was suspected of having a leak), and the quarter sector is again leak-tight and ready for cooldown.

Meanwhile, power testing continued in sectors D, E, and F. During the weekend of May 14, the D-sector magnets were successfully ramped to a current of 2200 amps for the first time, along with sectors E and F. B sector has been cooled and filled with liquid helium, and the A-sector cooldown is in progress.

PARKING SPACES CONSTRUCTED

Approximately 40 new parking spaces have been constructed between the Main Ring service buildings at A0 and A1. These spaces are for general use by all employees but should be particularly convenient for those working in the Accelerator Division.

Access to the new parking lot is via the West Booster entrance or through "C" Road off Eola Road. The foot bridge at the north end of the East Lot at Wilson Hall can be used to get from the new lot to work areas. This should be easier than parking in the far West Lot or north along A1 or A2 Roads and walking to the same locations.

Please give this new area a try. It will help ease the tight parking situation. With the start-up of additional new construction, particularly the Transfer Gallery Addition, parking in the Wilson Hall area will continue to be a problem, and aggravating to all, but your cooperation will be appreciated.

FILM SOCIETY SHOWS ANIMATION FLICKS

"16th International Tournee of Animation" will be presented by the Fermilab International Film Society tomorrow night at 8 p.m. in Ramsey Auditorium. This 1981 production is a touring package of 20 award-winning cartoons with various styles for adults.

HARTFORD NOW CARRIER FOR LTD

Effective May 1, the Laboratory group Long Term Disability Insurance will be provided by the Hartford Insurance Company. After many years with the Connecticut General Insurance Company, a marketing survey indicated that with a new carrier a cost savings could be obtained while maintaining the same comprehensive coverage for employees.

Over the years with the growth of Laboratory employment and inflation, the cost for maintaining this aspect of Fermilab's fringe benefit program had grown to over $350,000 per year. This is the plan that protects your income and continues retirement plan contribution in the event of a disabling injury or illness. Details of the coverage can be found in the Fermilab Pension and Group Insurance Handbook. Personnel expects to publish an update of the handbook sometime later this year.

Persons who have active LTD claims with Connecticut General will continue to receive benefits from that company. Disabilities incurred after May 1 will be processed by Hartford. While evaluating this change, the Laboratory reviewed the experience of other companies using Hartford and received positive comments regarding their service. Fermilab's initital agreement is for two years.

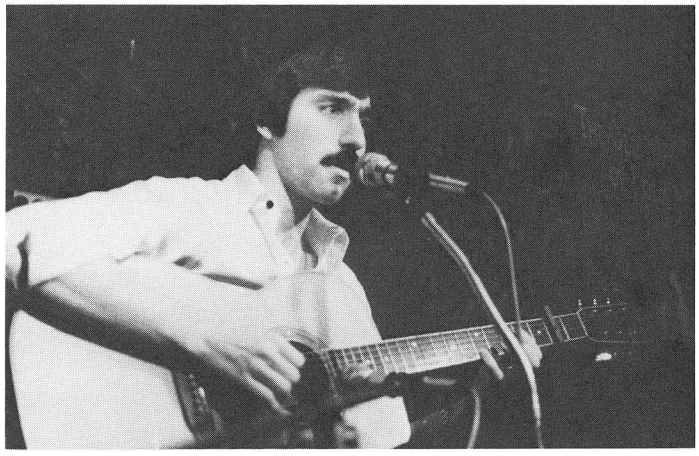
FERMILAB POOL OPENS 1983 SEASON

The Fermilab swimming pool will open its 1983 season on Saturday, May 28. Pool membership is available to Fermilab employees, visiting researchers, employees of the Department of Energy Office at Fermilab, and Diamond Security Service personnel at Fermilab. Families and accompanied paid guests of the aforementioned are also eligible.

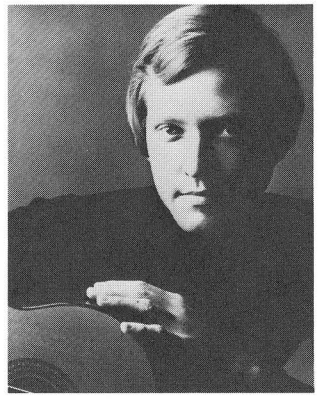
Pool memberships may be purchased at the Information Desk in the atrium of Wilson Hall and at the Housing Office at Aspen East. They may also be obtained at the swimming pool the weekend of May 28, 29, and 30 only. Season rates are $20 per single person, $35 per couple, and $50 per family. Daily charge for swimming is $2.

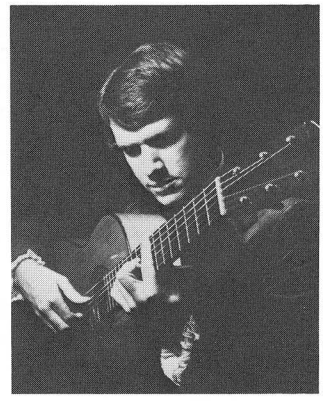
Lifeguards will be on duty from 11 a.m. to 7 p.m. Monday through Friday. Weekend and holiday lifeguards will be on duty from 9 a.m. to 7 p.m.

NIEDT, HIRSCH, RADFORD, PRESENT GUITAR SHOWCASE



Jim Hirsch, finger-picking virtuoso and director of the Old Town School of Folk Music in Evanston, will demonstrate his style at the Guitar Showcase in June.





Douglas Niedt left), a student of Andres Segovia, has appeared at Carnegie Hall in New York and Orchestra Hall in Chicago. Ronald Radford (right is a flamenco guitarist and a protege of Carlos Montoya.

by Jane Green

The thrilling spectacle of virtuoso guitar playing in an astonishing range of colors and tones will appear on Saturday, June 18, 1983, in Ramsey Auditorium. The Auditorium Committee offers you a unique opportunity to experience the versatility of this magnificent instrument in a Guitar Showcase featuring three critically acclaimed guitarists. These artists will perform in styles ranging from jazz to classical and from finger and flat-picking to flamenco.

Douglas Niedt has been called a "brilliant, rising star" whose playing is "dazzling." Niedt has been recognized for his transcriptions and arrangements of the works of composers from Ravel to Gershwin. In addition to an extensive repertoire of the classics, Niedt performs the works of such American composers as Dave Brubeck, Leonard Berstein and Duke Ellington.

Jim Hirsch is often compared to Leo Kottke and Doc Watson. Hirsch's music is an amalgam of country, ragtime, classical, and blues. In the showcase, Hirsch will demonstrate the solo potential of finger-style playing, and then with an ensemble back-up, will capture the bluegrass spirit of flat-picking.

As a protege of the legendary Carlos Montoya, Ronald Radford was acclaimed in Mexico City for flamenco interpretations "equal to those on any stage in Madrid, Seville or Andalusia." Radford has been enthusiastically received on four continents, a true master at capturing "the spirit, the aliveness, the agile technique, and the energy of red-hot flamenco."

The concert will begin promptly at 8 p.m. Admission is $5.

SCIENTIST RABI TALK YESTERDAY

by Leon M. Lederman

Professor I. I. Rabi, yesterday's Colloquium speaker, is one of the outstanding American scientists of his day and most qualified to talk on "Physics at Mid-Century." In fact, U.S. physics came of age when Rabi returned from his European post-doctoral education in 1928 to settle at Columbia, and J. R. Oppenheimer did the same on the West Coast. Their students fanned out across the U.S. as teachers to the next generation.

Rabi played a crucial role in both radar and the atomic bomb work in World War II. He was important in the establishment of Brookhaven, CERN, and the President's Science Advisor position, to list a few of his contributions. His research in the properties of molecules and nuclei won him the Nobel Prize in 1944.

As Chairman of the Columbia Physics Department, he was influential in many of the activities that made Columbia great in physics--including the Lamb Shift, the anomalous movement of the electron, and the construction of the Nevis Laboratory.

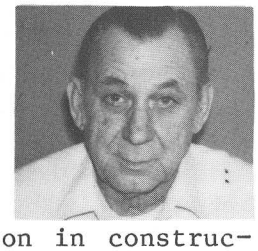
BOWLING LEAGUE ANNOUNCES WINNERS & OFFICERS

Wednesday night bowling league first place team members (left to right) are Paul Kurylo, Guy Farnsworth, Sherry Hickey, Jr. Jones, and Jesse Guerra. Members of the team that placed second were Reggie Gibbons, Ed Justice, Val Justice, Terry O'Brien, and Greg Urban. Congratulations to all!

The new league officers are Dale Miller, president; Jesse Guerra, vice president; Ginny Ritchie, secretary; and Sherry Hickey, treasurer.

In Memoriam
Clinton Hay, 1921-1983

Clinton Hay, a contract administrator at Fermilab for eleven years, died May 12. Clint's supervisor, Ed West, said that Clint was a significant force in Fermilab construction contract administration, and that he was responsible for over $60 million in construction contracts while he was at the Laboratory. Associated with the early construction of Fermilab as an employee of DUSAF, Clint's "eager to please" attitude will be missed by his fellow workers and all those who knew him.



Congratulations To...

Jim (Research Services) and Cindy Pace on the birth of their first child, James Clifford, on April 2 at Copley Memorial Hospital.

James (Technical Support) and Linda Mulvey on the birth of Valerie Lin, April 14, at Delnor Hospital.

Mario Gonzalez (Experimental Areas) and Teresa De Anda on the birth of Adriana Martha at Central DuPage Hospital, May 2, 1983. Mario says, "I am still the king!"

Sign-up for the 1983-84 bowling season will be held the end of July. The $16.50 fee, collected on the day of sign-up, will cover the first and last two weeks of bowling. The weekly fee will remain $5.50. The league is open to Fermilab family members and friends of employees. Come join the fun at the Wednesday night mixed league. Help make this the best season yet! Contact one of the league officers if you have any questions.

This year's individual awards (men) went to the following: high series scratch, Ed Justice 712; high series handicap, Keith Dillow 759; high game scratch, Paul Kurylo 298; high game handicap, Tim Nebel 305; (women): high series scratch, Pat Mascione 545; high series handicap, Jackie Coleman 661; high game scratch, Pat Mascione 242; high game handicap, Karen Davis 257.

The most improved awards went to Ed Justice and Sherry Hickey, and Paul Kurylo (198) and Jean Plese (150) had the highest averages.

Los Magneticos had the high team series scratch (2714), Great Expectations has the high team series handicap (3246), Spare Devils had the high team game scratch (1014), and Help had the high team game handicap (1187).