

September 1, 1983

FERMI NATIONAL ACCELERATOR LABORATORY

FermiNews

463 ATTEND ACCELERATOR CONFERENCE



Participants at the 12th International Conference on High-Energy Accelerators eat in the yellow-and-white tent erected for the occasion in the west parking lot. The first day of the conference brought a welcome respite from the heat experienced most of the summer. Fortunately, rain never came and the day got progressively better as Fermilab and the participants set the mood for the remainder of the conference.

In summarizing the 12th International Conference on High-Energy Accelerators held at Fermilab August 11-16, Director Leon Lederman characterized it as a "Parade of Successes." The CERN (European Organization for Nuclear Research) proton-antiproton facility has had extraordinary success in operation, the commissioning of the first superconducting accelerator, our Energy Saver, is on schedule, development of superconducting radiofrequency at CERN, PETRA (Germany), and Cornell has been successful, and pulsed high-power radiofrequency klystrons for the SLAC (California) SLED project are achieving success.

The recent accelerator conference might be characterized as a "Parade of Successes" in other ways also due to the efforts of many, many Fermilab people, the weather, and a recent Energy Saver record unplanned by the organizers of the conference. A special photo insert with this issue of **Ferminews** relives the conference, the kind and grateful participants, the gracious workers, and the fine, vital spirit of support and cooperation that pervades Fermilab and makes this Laboratory an exciting place to visit.

Program-wise, Thursday morning Dr. Roy Billinge described CERN's antiproton source, Dr. Helen Edwards from Fermilab the Tevatron, and Dr. Burton Richter from SLAC the Stanford Linear Collider. Following lunch consisting of hamburgers and fresh local boiled sweet corn, participants heard Dr. Tetsuji Nishikawa from KEK, Japan, talk about TRISTAN and the Beijing e^+e^- Collider and Dr. Herwig Schopper of CERN describe LEP and Future Possibilities. After coffee break, Dr. Gus Voss from DESY in Hamburg, Germany, gave an interesting talk on DESY's machine called HERA scheduled for completion in 1989, and the day ended with a talk on the Soviet Union's superconducting machine called UNK.

One of the events that contributed to the general success and vitality of the conference was that on Monday, August 15, the Energy Saver set a new world's record for accelerating protons to 700 GeV (see story on page 2) and at the same time American scientists announced that they are planning for the next step on the road to higher energies, the Superconducting Super Collider. The excitement for this project was heightened by a conference session on
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Monday afternoon devoted to just such a project. This "panel" was chaired by Dr. Boyce McDaniel from Cornell University, and Fermilab speakers included Drs. Don Edwards, Russ Huson, Dick Lundy, and Lee Teng. In addition, Dr. Robert R. Wilson, Director Emeritus, gave a talk on "Very Large Hadron Accelerators" at the closing session on Tuesday where he imparted to the audience some of the things he had learned building our 200-GeV accelerator in the 1960's and 70's ahead of schedule and at a cost below the original budget.

The introduction of a session on detectors and high-energy physics was enthusiastically received as were talks by Dr. Bjorn Wiik from DESY and Bj of Fermilab.

Among the 463 registrants were young students and participants from 16 foreign countries and developing nations.

FERMILAB STARTS PROGRAM

Fermilab has been joined by four other laboratories of the Illinois Research Corridor to honor and help outstanding high school science and math teachers in the area. Seven teachers have been at Fermilab this summer working in research positions. They include Jim Bohan (Elgin Academy) and Count Hill (Aurora East High School) with David Ritchie in the Computing Department, Raymond Dagenais (Waubonsie Valley High School) and Don Earley (St. Charles High School) with Sam Baker in the Safety Section, Pat LaMaster (West Chicago Community High School) with Steve Pordes in the Experimental Areas Department, Paul Madsen (Hinsdale South High School) with Drasko Jovanovic in the Physics Section and Neil Stephens (Hinsdale South High School) with Ed Barsotti in CDF.

These are part of a group of 21 teachers selected on the basis of superior classroom teaching and their efforts towards enrichment programs for their students. The 21 were chosen from a select group of 44 who were nominated by superintendents and principals as candidates in the competition for the technical summer job opportunities.

The summer job experiences are intended to give the teachers help in
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DOUBLER DEVELOPMENTS

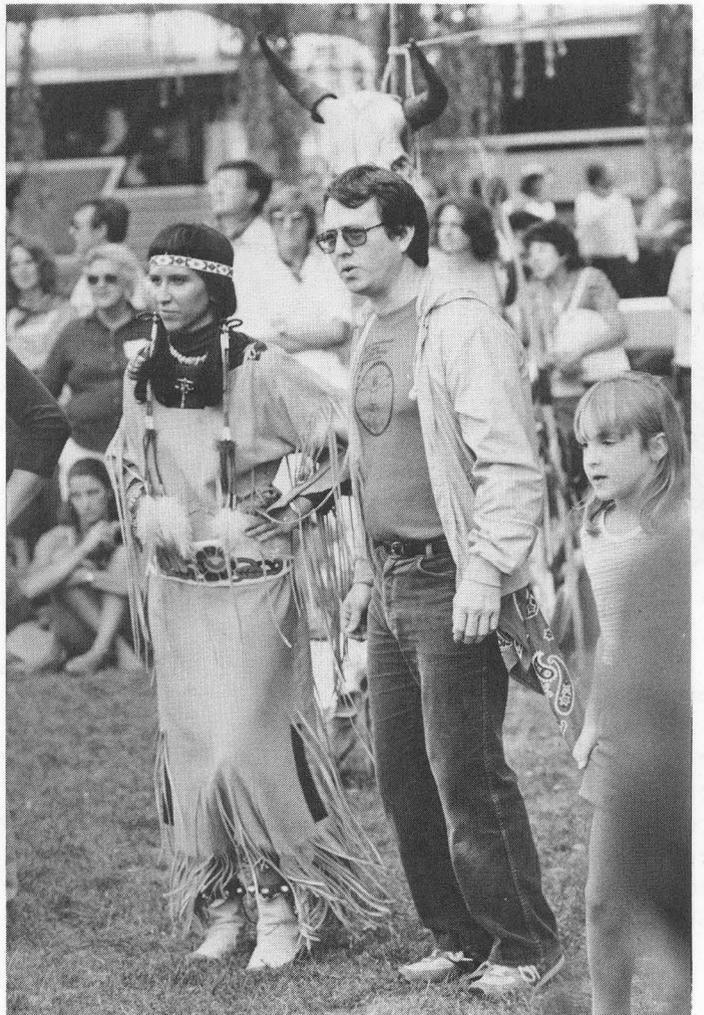
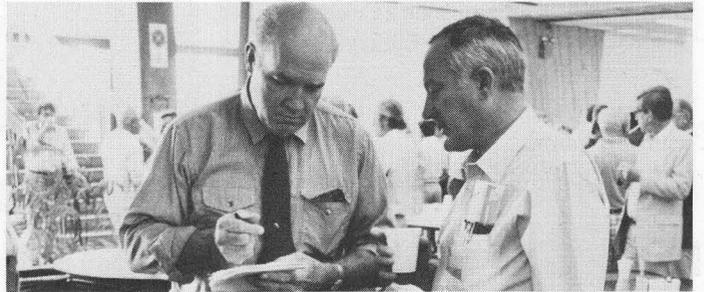
Since the last report, a number of important Doubler milestones have been successfully passed. In addition, the properties of the circulating beam have been thoroughly measured at a number of energies up to 512 GeV.

During the three weeks following the first acceleration to 512 GeV on July 3, study time was directed toward understanding the optical properties of the accelerator and the correction magnet circuits. Primary emphasis was placed on understanding these properties at 512 GeV in preparation for attempting slow beam extraction. The effect of each of the correction magnet circuits on the circulating beam has been measured: tune-quadrupoles, skew-quadrupoles, chromaticity sextupoles, resonant-extraction quadrupoles, and octupoles.

There followed, in rather rapid succession, three milestones on the route to an accelerator ready to do experiments. On August 2, 512-GeV beam was extracted to the Switchyard dump without great difficulty. On August 15, the circulating beam energy was successfully raised to 700 GeV. On August 19, beam was successfully "stored" at 512 GeV for 800 seconds, a precursor to eventual colliding-beam physics. Only software limitations prevented a longer storage time.

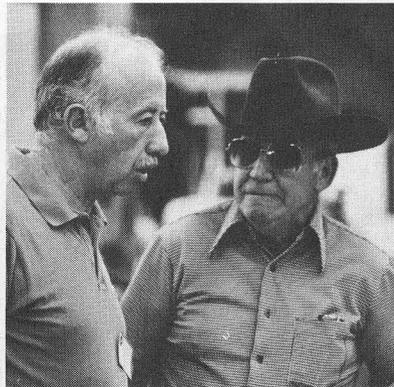
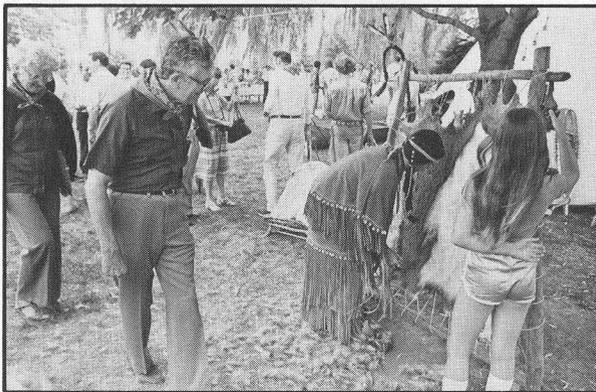
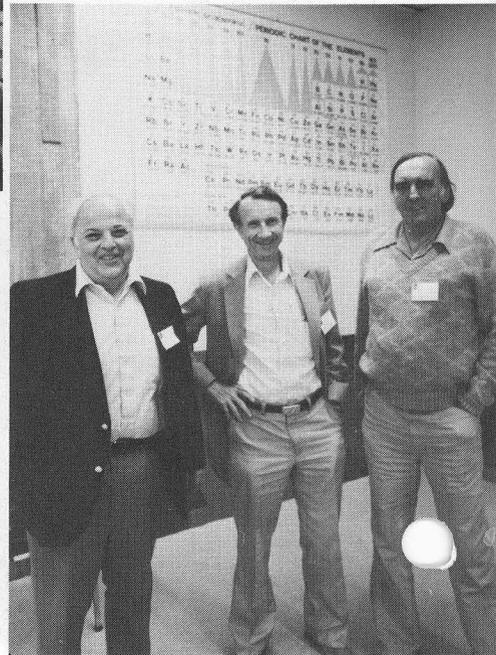
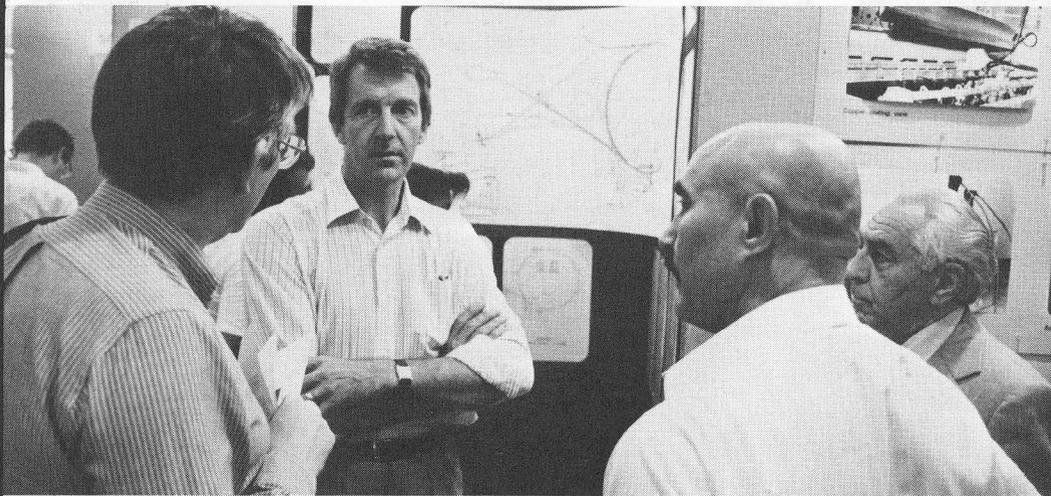
Somewhere along the line, the intensity in the Doubler was gradually raised to 2×10^{12} protons per pulse, at which point it was realized that the limiting factor was in the injector--the former Main Ring--which until this time had been denied serious study time. The intensity has since been raised to 10^{13} protons per pulse, although it has not been injected into the Doubler.

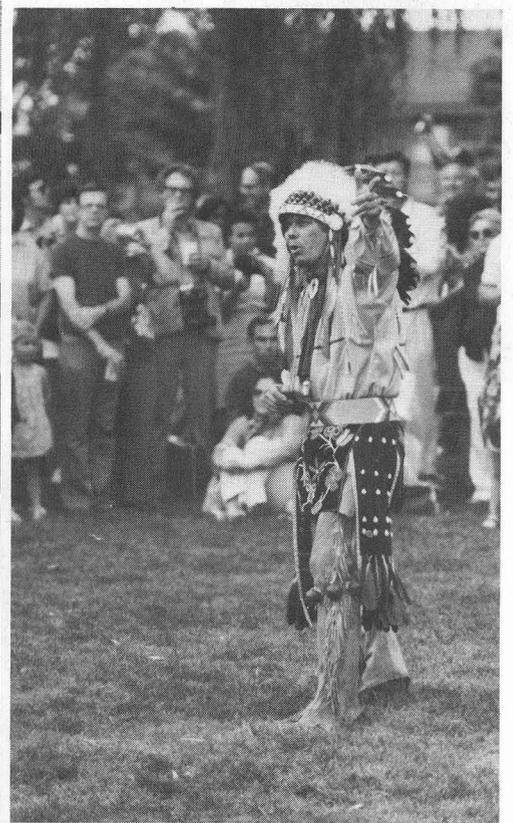
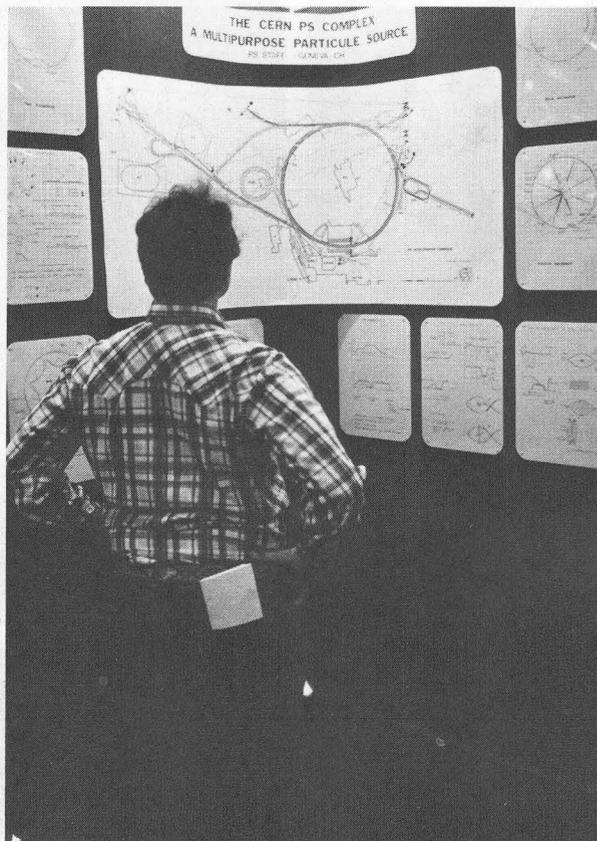
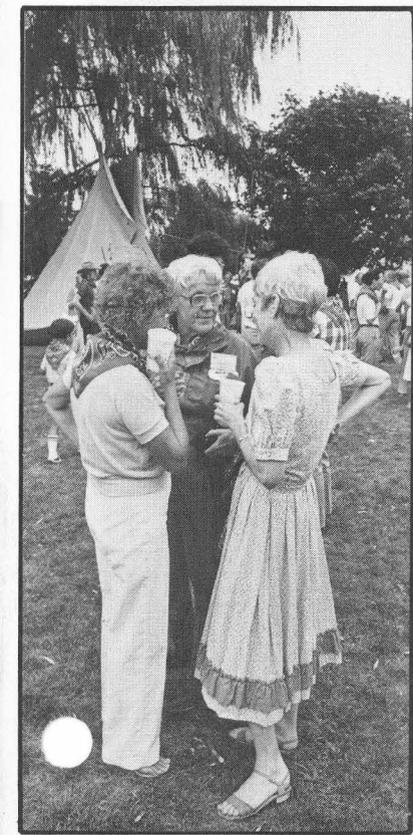
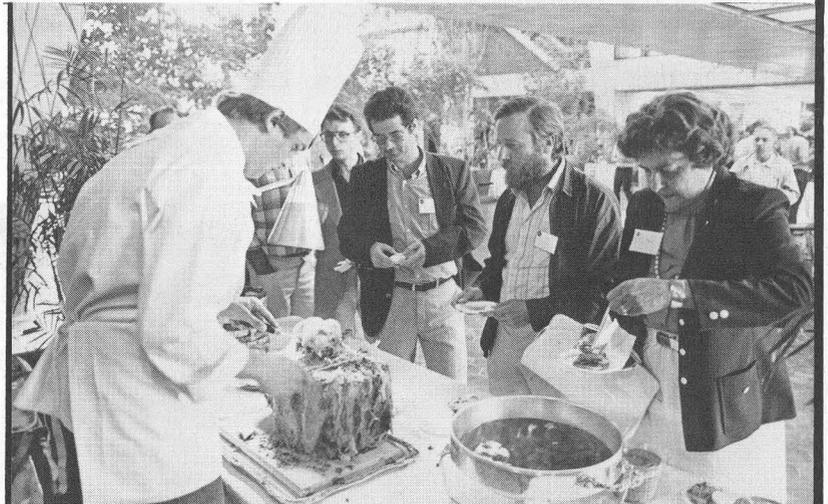
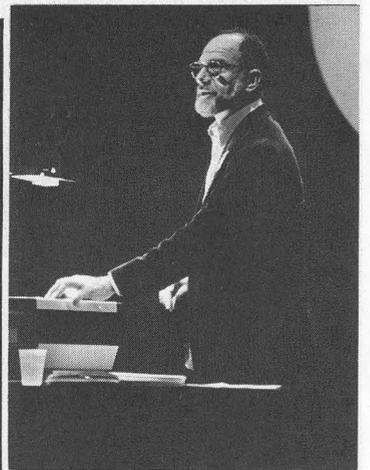
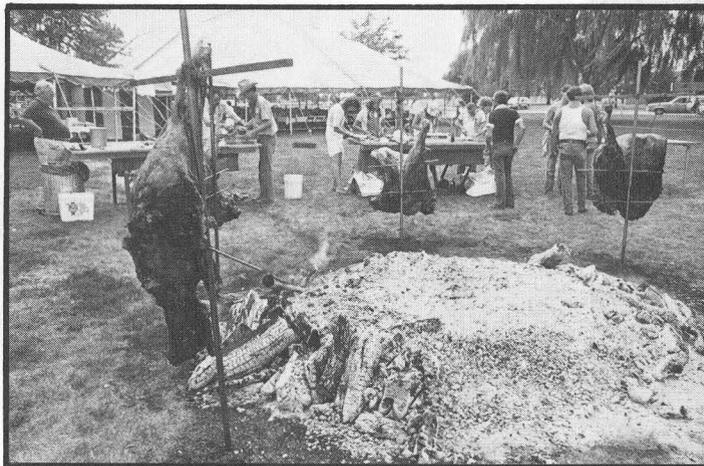
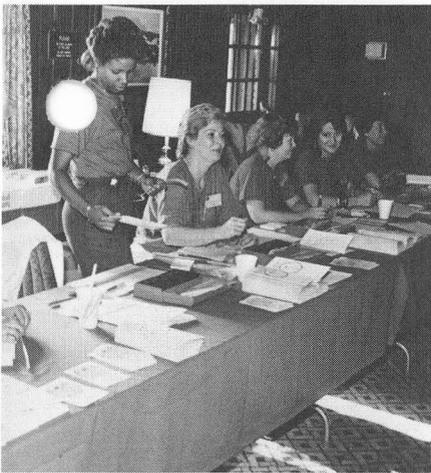
The accelerator is now off for a two-week M&D period, triggered by the need for a one-week decontamination of the Central Helium Liquefier. When studies resume, attention will focus on intensity and reliability, both of which need improvement before the accelerator is truly ready to deliver beam to experiments.

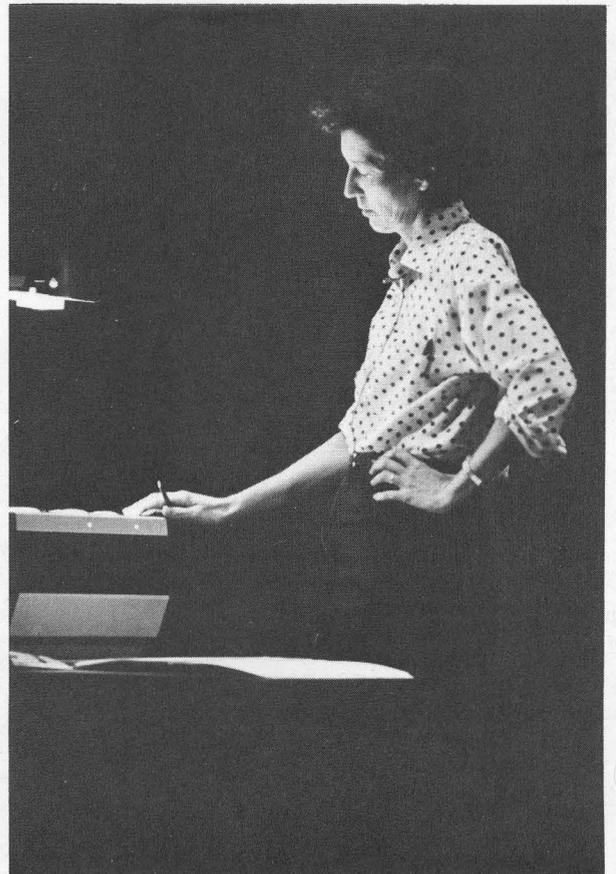
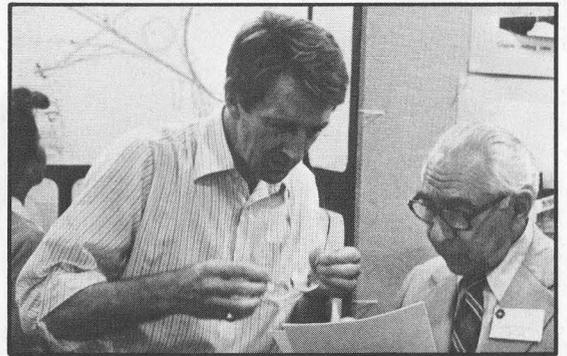
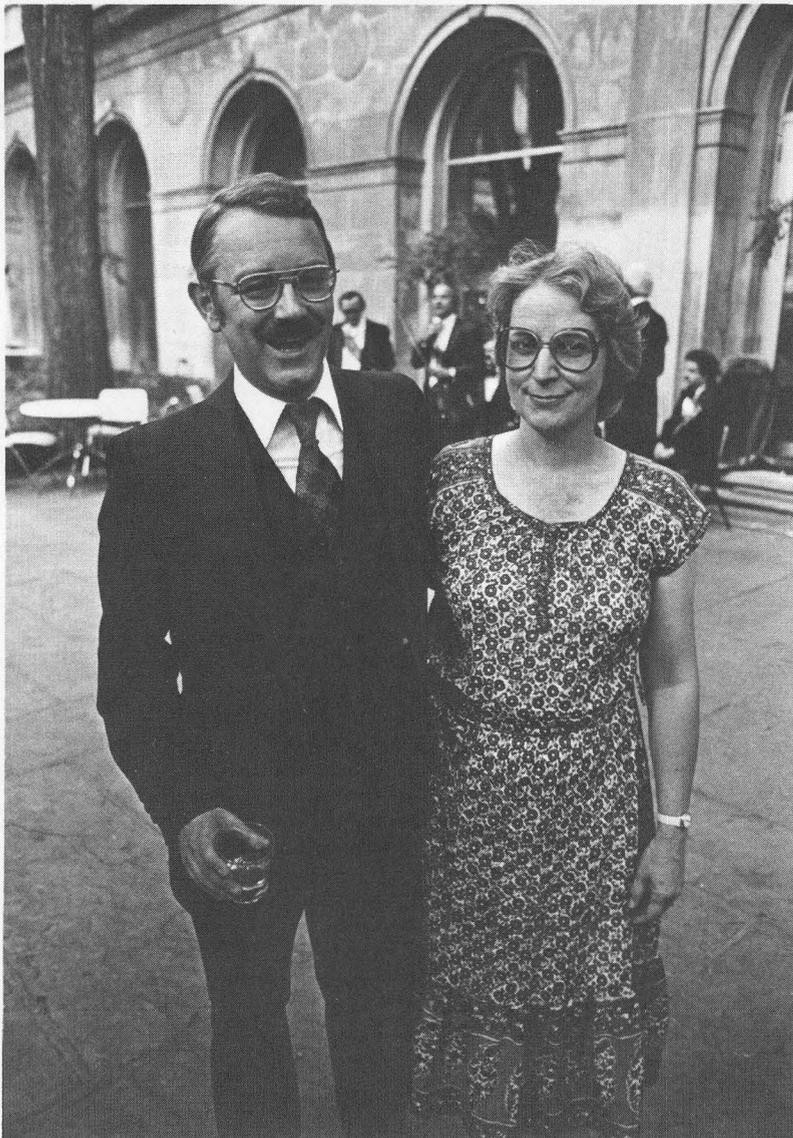
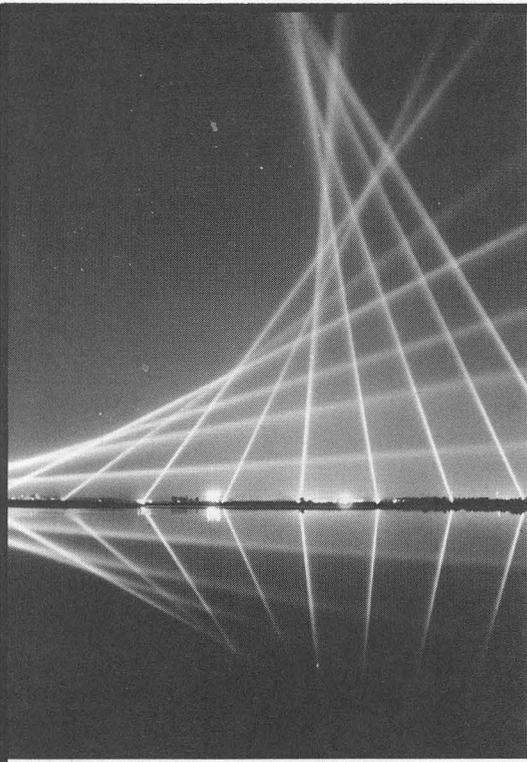




12th INTERNATIONAL CONFERENCE ON HIGH ENERGY ACCELERATORS







CHOREOGRAPHERS' SHOWCASE HERE SEPT. 24

The Arts Series' annual Choreographers' Showcase is renowned for bringing the best of Chicago dance entertainment to the western suburbs. On Saturday, September 24, at 8 p.m., a collection of our city's most exceptional dancers and choreographers will present an unsurpassed evening of ballet, modern, and ethnic dance in Ramsey Auditorium.

Pascual Olivera and Angela del Moral's return to Fermilab will undoubtedly be greeted with "olés." This husband and wife team will capture the drama, color, and excitement of flamenco and Spanish folk dancing.



Pascual Olivera and Angela del Moral

Modern dancers Mordine and Company are the resident dance ensemble at Columbia College. Under the direction of "Chicago Treasure" Shirley Mordine, the troupe will perform the "highly dramatic and insightful" work "Two Women and a Man" and "Cartoons," a whimsical piece inspired by cartoonist Saul Steinberg.

Chicago Repertory Dance Ensemble members Warren Conover and Elizabeth Selz return to Fermilab to perform Richard Wagner's "Youth," a classical pas de deux. In addition, Conover, former soloist with

the American Ballet Theatre, will dance George de la Peña's piece, "The Rebel."

Critics have acclaimed Kate Kuper as an "ingratiating dancer" and a "singular talent." In the Showcase, Kuper will perform her popular work, "At the Bar," a humorous modern piece.

Joel Hall returns with the graceful Anna Czajun, an independent choreographer and former member of the Joel Hall Dancers. The couple will perform "It's About Time," a duet which they choreographed, set to the music of Bill Withers and John Cage.

The Choreographers' Showcase is produced by the Ballet Guild of Chicago. Admission is \$5, and tickets are now available at the Information Desk in the atrium of Wilson Hall, ext. 3353. Phone reservations are held for five days, awaiting payment.

TEACHERS LEARN AT LABS

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motivating and directing their students into careers in science and math, and at the same time provide productive work for the laboratories. The other participating laboratories are Amoco, Argonne, Bell Laboratories, and Nalco Chemical Company.

The program is also intended to provide a financial supplement for these teachers in hopes of encouraging them to remain in the school system during the school year. In addition, it is hoped that experience in real work situations in research laboratories will give the teachers a kind of experience which is not available in standard teaching curriculum, and yet is useful in selecting course material and guiding students.

The idea for this program was originally suggested by Jeff Appel, Frank Cole, Norman Gelfand, Drasko Jovanovic, Arlene Lennox, Dennis Theriot, and Herman White. They devised it in a series of informal discussions at the Laboratory. Leon Lederman and Phil Livdahl were enthusiastic about the suggestion and proposed that the program be expanded to include as many of the research laboratories in the area as possible. The resulting program is still considered experimental in its first year.

In Memoriam
Lee Mapalo, 1940-1983

Leno Mapalo, 43, an Engineering Associate with Research Services Department died on June 20, 1983. Lee began his career at Argonne National Laboratory in 1958. In 1967 he was loaned to the new accelerator project which became Fermilab. Lee joined the Booster Section as a design drafter in 1968. While in the Booster, Lee worked on magnet stacking fixtures, injection components, and wire-type beam profile detectors. He transferred to the 15-foot Bubble Chamber Group in 1971, where he was responsible for the design, drafting, and commissioning of the camera optics system. He was promoted to designer in 1972. When the chamber was completed, he worked on superconducting beam-line magnets and refrigeration systems for the Neutrino Department. Lee transferred to the Cryogenics Group of Research services in 1975 where he was involved with the design of the superconducting analysis and beam-line magnets. More recently, he helped design the superconducting coils for the 30-in. bubble chamber magnet and the zip-track magnet measuring apparatus used for E-605; he also assisted with the CDF superconducting solenoid design report. Promoted to Engineering Associate in 1983, Lee was responsible for the design of the refrigeration system for the CDF solenoid at the time of his death.



According to Brad Cox, head of Research Services, "Lee was not only an extremely valuable and talented individual, but was also very well liked by his co-workers. We were very saddened by his premature and tragic passing. He will be missed by all of us."

Lee, a resident of Woodridge, is survived by his wife, Rose, and five children.

1st ROUND SPORTS RESULTS

Softball:

The Bushwackers, led by captain Joe Morgan, defeated Stan Boysons team, Pleasure, once again with a score of 13-7. The Masterbatters, captain Dave Warner, took third place with Proton, captain Don Sorenson, in fourth.

Volleyball:

As of July 21, the 1st round standings for LEAGUE I are

Place	Team	Captain
1st	1	Manny Garcia
2nd	3	Manuel Shockley
3rd	6	Wendy Moore
4th	5	Larry Rodriquez
5th	2	Alma Karas
6th	4	Marilyn Smith

LEAGUE II

After seven weeks, the standings are

Place	Team	Captain
1st	3	Chuck Ankenbrandt
2nd	2	Brian Pientak
3rd	1	Gary Andrews
4th	4	Jim Zagel/Roger Rice
5th	6	Bob Gorge
6th	7	Fred Ullrich
7th	8	Jerry Miller/Kim Webster
8th	5	Steve Smith

The teams will now be split into two divisions of four teams each. Each team will play three more games within their division. The first place team will be determined by total points accumulated at the end of the season.

PROPERTY OFFICE SEEKS HELP

YOU CAN HELP!! Security of Government Property is everyone's business. The Property Office is currently conducting spot checks with various groups in a follow-up effort to verify accountability of sensitive items in their possession. This is an on-going effort and you can help by keeping track of those items that you are personally accountable for. You can contact the Property Office on ext. 3585 with any questions.

CLASSIFIED ADS TO BE DISTRIBUTED WITH FERMINES SEPTEMBER 1, 1983

FOR SALE:

HOUSES: FOUR-BEDROOM TRI-LEVEL. On 1/2-acre lot in Lake Charlotte area 1 mi. west of St. Charles, 15 min. from Fermilab; liv. rm. w/fireplace, din. rm., rec. rm., 2-1/2-car garage, VHA or FHA possible. \$97,500. Call Jim Dowd, ext. 3792 or 584-1930 after 2 p.m.

TWO/THREE-BEDROOM RANCH TOWNHOME. Close to Fermilab, finished bsmt., all appl., many upgrades, near pool. Reduced to \$55,900. Call E. Henry Schram, ext. 3198 or 393-1711.

FOR LEASE:

HOUSE: THREE-BEDROOM RANCH. In West Chicago, 3.6 mi. from East Gate, central air, all appl., one-car garage w/opener, one bath, fam. rm. w/fireplace, paneled bsmt. w/bar, fenced back yard w/deck. \$590/mo. Call C. M. Ankenbrandt, 355-0299 evenings.

FOR SALE:

CARS: 1983 4-DR. CHEVY MALIBU. Less than 2,000 mi., P/S, P/B, A/C, AM radio. \$8,500. Call Carl, ext. 3719.

1980 DATSUN 210 STATION WAGON. New brakes, new exhaust system, AM/FM radio, \$3,500 or best reasonable offer. Call Mark or Patti after 6 p.m., 232-8150.

1979 CHEVY MONZA NOTCHBACK. 4-cyl., 4-spd., good gas mileage. \$2,000. Call Scott, ext. 2363.

1979 TWO-TONE MAROON PONTIAC GRAN PRIX. SJ package, P/S, P/B, A/C, cruise control, rally wheels, 301-V8, sharp, clean, low miles. Asking \$6,000. Call Scott, ext. 3263.

1977 VOLARE PREMIER WAGON 4-DR. 6-cyl., P/S, P/B, A/C, cruise control, \$2,400. Call Win Baker, 293-1807 after 6 p.m.

1974 FORD TORINO. Excellent running cond., excel. tires, some rust, good work or school car. \$750. Call Genevieve, ext. 3404 or 232-2341.

MISC: RIDING LAWNMOWER. Dynamark, 8-hp, 36-in. cut. \$150. Call W. Williams, ext. 3169.

ANTIQUe FOUR-POSTER SOLID MAHOGANY COLONIAL BED AND CUSTOM COLONIAL REPRODUCTION DRESSER BY DREXEL. Mattress and box springs incl. \$450. Call M. Cox, 469-9100 or 682-0542 after 5 p.m.

continued on reverse

FOR SALE:
MISC.-cont:

For the following items call Jim Dowd, ext. 3792 or 584-1930 after 2 p.m. Antique studio upright piano (ca. 1905), \$375; antique square grand piano, rosewood case, mahogany legs, keyboard like new, mfg. Louisville, KY in 1876, \$3,500; 1971 Coleman pop-up camper, sleeps 8, needs some work, but generally good cond., \$750.

For the following items contact Win Baker, 293-1807 after 6 p.m. Casement window room air cond., 10,500 BTU, 115 volts, \$200; Sears garden tractor, 8-hp., elec. start, 38-in. mower, \$350.

For the following items contact Kevin, ext. 4589. 2-Nikon EM cameras w/28 mm, 50 mm, 100 mm lenses; Vivitar 283 flash, \$350 for the set; other photo equip. also for sale; Sansui 210 stereo receiver w/2 Sony speakers, \$50.

For the following items contact Linda Olson, ext. 3777. Kimball Entertainer organ, \$1,400; avocado GE double-oven stove (elec.), \$225; Gibson upright freezer, \$200; GE washer, \$100; GE dryer, \$75; bar stools, \$15/ea.; Signature speaker, \$20; Magnavox speaker, \$20; National speaker, \$20; Garrard turntable and amp., \$50; Craig 8-track tape player, \$20.

For the following items contact Tom Prosapio, ext. 4263 or 759-3568. Pilot stereo system, \$500; 16.1 cu. ft upright freezer, \$200; Fisher stereo/Jensen speakers, \$250; roll-top desk, \$250; white captain's bed, \$75; bunk bed set/mattresses, \$250; Wards washer & dryer, \$100; Toshiba microwave, \$300; plus much more.

Woodhaven Lakes water front trailer lot, 28 ft travel trailer with air cond., awning, deck and utility shed, \$13,900. Contact Bill Riches, ext. 3779.

WANTED: AQUARIUM. 125 gal. or larger. Call Mark, ext. 4776 or 695-3263.