

# FERMINES

 Fermi National Accelerator Laboratory

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## CONSTRUCTION OF SUPERCONDUCTING RING PROGRESSES DURING SHUTDOWN

Construction of the world's first superconducting accelerator at Fermilab continues to pick up momentum and enthusiasm, now aided by the recent formation of the Energy Saver Division with Rich Orr as head and Helen Edwards as deputy head.

A great deal of work is proceeding on the string of superconducting magnets in the A-2 sector of the ring during shutdown which began Jan. 22 and will continue to Feb. 29. All of the 32 dipole magnets -- now 21 feet long in the latest design -- have been installed in this string. The first of 8 quadrupole magnets and the first spool piece (containing correction elements) were installed Feb. 6. Along with installation of the magnets, work is progressing on the refrigeration and vacuum systems, power supplies, transfer lines and the many other components that go into making a complete accelerator.

After work on the A-2 string is finished, it will undergo full testing of its systems, without beam for the time being.

Its companion string -- the A-1 test string -- contains 20 dipoles, these of the earlier 22-foot design, and five quadrupoles. This string has been used primarily for beam injection tests. But it also has undergone life tests of the various supporting systems, particularly the refrigeration system. The A-1 test string represents one-half of a refrigeration load.

The third major aspect of the superconducting accelerator is the above-ground testing and evaluation that is being conducted at B-12, the "Awning." Because this string of 16 dipoles (a mix of 21- and 22-foot magnets) and four quadrupoles is above ground, access to it is around the clock. The research and development going on there includes designing and testing controls, developing new relief valves and evaluating the quench protection, vacuum and refrigeration systems as well as a myriad of other mechanical and electrical components.



*...Putting a superconducting dipole magnet into place just below the string of conventional magnets in the Main Ring tunnel...*

The members of the Energy Saver team are enthusiastic about the progress being made on the superconducting accelerator, both in the Main Ring during shutdowns and above ground when work can continue without interruption.

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On the morning of Jan. 4 in the East Room of the White House, President Carter gave an address at the Medal of Science awards presentation.

Dr. Leon Lederman, Fermilab director, felt that many Laboratory employees and users would be interested in the President's remarks. The full text of that talk has been enclosed with this issue of Ferminews.



*...Workmen install penetration tube on top of the Main Ring tunnel...*

#### PENETRATIONS WILL PROVIDE HELIUM ACCESS TO SUPERCONDUCTING ACCELERATOR

Work continues on construction of satellite refrigeration penetrations in the berm around the Main Ring.

Already 10 have been completed. The purpose of these penetrations, each four feet in diameter and 16 feet long, is to provide channels for the liquid helium feed and return lines that go from the heat exchangers to the tunnel magnet cryogenic loops of the superconducting accelerator, explained Bob Vanecek, who is overseeing the building of these penetrations.

Auxiliary service buildings will be constructed over the penetrations. After a building is finished, cryogenic piping, heat exchangers, engines and controls will be installed.

The construction of a penetration involves first excavating the berm to the tunnel roof. Pilot holes are drilled from the tunnel out to locate the penetration. Then a penetration tube -- corrugated metal -- is set in place and grouted and back filled. Four feet of sand is poured into the bottom to act as a radiation shield. Finally, a steel cover is locked onto the top of each penetration.

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*...Paul D. Brindza, engineering physicist with the Cryogenics Systems Group, inspects the recently completed helium transfer line that runs from A-1 to A-2 on the berm of the Main Ring. This view is toward A-2. Liquid helium is made from gaseous helium at A-1 in quantities of 100 liters each hour. The liquid helium is then pumped through the transfer line to the A-2 refrigerator. There the helium is consumed and runs A-2 as a satellite refrigerator. In the background (just above Brindza's head) is a moveable tent in which sections of the line are welded together. Brindza expects the line to be operational sometime near the end of February. Eventually the transfer line will run the full four miles around the Main Ring...*

#### NEW IN THE LIBRARY

The Creation of the Universe by David E. Fisher.

My Life: Recollections of a Nobel Laureate by Max Born.

Einstein: A Centenary Volume.

The New Physics by John Gerald Taylor.

Einstein's Universe by Nigel Calder.

Space and Time in the Modern Universe by P. C. W. Davies.

Experimental Techniques in Low-Temperature Physics by Guy K. White.

#### URA SCHOLARSHIP APPLICATION REMINDER

The deadline for turning in applications for Universities Research Association scholarships is March 1, reminds Ruth Christ, CL15E, Ext. 3793.

The applications may be obtained from her. Scholarships are for children of Fermilab employees. The young men and women must be high school seniors who plan to pursue a college education leading to a degree. They will be selected for the scholarships primarily on their American College Test scores.

Each year the URA offers a minimum of 15 scholarships, some for up to \$2,000. The money covers tuition and fees. The scholarship is usually renewed each year if the student remains in good academic standing.

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#### DISCOUNT PRICES FOR OLD CHICAGO PARK

Discount admission prices to Old Chicago Amusement Park, Bolingbrook, are available to Fermilab employees, users and their families.

All one has to do is to clip the coupon at the bottom of this article and present it to the cashier at the main gate. The discount will be good on Feb. 16 and 17, when John Mayall and Dr. John are the featured performers; Feb. 23 and 24 with Dr. Hook; and March 1 and 2 (performer not yet announced).

Old Chicago is a six-acre amusement park that offers rides, attractions, midway games, disco dancing, eateries, family shows and live entertainment. Parking is available at the site.



**Fermi-Lab**  
**Family Days**  
February 8 thru March 2, 1980

**\$1.75 Off** per Family Member

Regular Admission	Adult \$6.95	12 - over
Junior \$5.95	3-11	Children Under 3 Free When Accompanied By Paying Adult

**\$5.20** ☐  
**\$4.20** ☐

**Family Fun Capitol**  
I-55 & Ill. Rt. 53  
in Bolingbrook

This Coupon Good  
for Entire Family

Not Honored with Another  
Discount Offer or Promotion

Clip this Coupon and Present to Cashier at Main Gate

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#### PSYCHOLOGIST TO TALK ABOUT RESEARCH STRESS

Dr. David Jachim, clinical psychologist with the DuPage County Health Department's Mental Health Division, will speak at Fermilab Feb. 19.

His talk, "The Stresses and Strains of the Research Team and How to Cope With Them," will begin at 11:30 a.m. in the 1-West conference room on the first floor of the Central Laboratory. Dr. Jachim's presentation is open to all Fermilab employees and users.

He also will explain the many services that are available to employees and users at the DuPage County Health Department.

Dr. Jachim, who has been with the health department for two years, earned his doctorate at the Illinois Institute of Technology. His master's degree in clinical psychology was awarded at Eastern Illinois University. He did his undergraduate work at Knox College.

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#### RADIOBIOLOGIST TO SPEAK AT SPECIAL SEMINAR

Dr. Jack Fowler, director of the Gray Laboratory, Northwood, Middlesex, Great Britain, will give a special seminar on March 20.

His talk on "Modifying Radiation Effects in Cancer Patients" will begin at 4 p.m. in Curia II in the Central Laboratory. Fowler is regarded as a world leader in radiobiology. Work in Gray Laboratory, which is associated with Mount Vernon Hospital in Middlesex, concentrates on radiation biology.

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#### PHOTOGRAPHER TO PRESENT SLIDE SHOW

Robert Cumming, a leading conceptual photographer, will give an informal slide show of his work today (Thursday).

The presentation is free and open to the public. It will begin at 3:30 p.m. in Curia II on the second floor of the Central Laboratory.

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#### NALREC "WINTER FUN" SET

For live music, Sloppy Joes and a variety of beverages, the NALREC's "Winter Fun" is the place to be.

It'll be held Feb. 15 from 5:15 to 9 p.m. in the Village Barn.



## NANCY WILSON NEEDS YOUR HELP

Nancy Wilson works in the mail room. She's a widow with three children. And, she needs help.

On Feb. 5, her house in Aurora burned. Fortunately no one was hurt. Unfortunately though, nothing escaped except "just us," she said.

The fire left her and her children almost destitute. For the moment, she is living with friends. So an appeal is being made by her friends at Fermilab for clothing, toys, small appliances, kitchen items, non-perishable foods, linens and those many other items that go into making a home. People who want to help her with financial contributions, clothing or household goods should take them to the mail room in the basement of the Central Laboratory.

Shamia, 7, wears girl's clothes size 10 and shoe size 3; Nicole, 11, girl's clothes size 12/14 and shoe size 5½; and Alfonso, 13, boy's clothing size 14 and shoe size 5.

Nancy herself wears clothing size 9/10 and shoe size 6 or 6½.

Despite the tragedy on Tuesday, she was back to work on Thursday sorting and delivering mail.

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## BOWLING SEASON BRIGHTENS WITH CANDLELIGHT

Bowling season at Fermilab is rolling with its Candlelight Bowl.

The event will run from 9 p.m. to 1 a.m. on March 8 at the Bowling Green Sports Center on Roosevelt Road in West Chicago. The fee is \$7.50 for each individual, but that includes a free beverage, partaking of the "great buffet" after bowling and participation in the red pin bowl, Scotch doubles and comic bowl. Prizes will be awarded to the best bowlers.

For tickets, call Sharon Koteles, Ext. 3232; Pat Yost, 4365; Jesse Guerra, 3533; Ed LaVallie, 3138; Sherry Hickey, 3555; and Ginny McLaughlin, 4201.

Reservation deadline is March 3.

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## CHEZ LEON MENUS

Tuesday, Feb. 19 - 7:00 p.m. \$8.00

Zucchini soup  
Pork tenderloin kebabs with fruit  
Cracked wheat with walnuts  
Salad  
Homemade raspberry ice cream

Wednesday, Feb. 20 - 12:30 \$4.50

Watercress soup  
Selection of quiches  
Ham and gruyere  
Smoked Salmon  
Fresh leek salad  
Sliced oranges, grand marnier

Thursday, Feb. 21, - 7:00 p.m. \$8.00

Moules marinieres  
Tournedos au pouvoire  
Fresh green beans  
Carrots vichy  
Crepes with strawberries

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## REMINDER ABOUT USING RESTRICTED PHONES

Individuals who use telephones that are restricted to on-site use only must dial 4000 to get the Fermilab operator.

People who call from off site to a restricted phone must first dial 840-3000 to reach the Fermilab operator. The operator will then connect the individual with the restricted phone.

To reach the Fermilab operator from a non-restricted telephone on site, an individual should dial 0.

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## FINE ARTS SERIES CALENDAR

Canadian Brass -- March 18

Fine Arts Quartet -- April 19

New York Light Opera Co. -- May 30

Performances begin at 8:30 p.m. in the Central Laboratory auditorium. Tickets go on sale one month before each event.

They may be purchased at the Users Office, CL1E. Past performances in the series have been so popular that nearly all seats have been sold.

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