

# The Village Courier



fermi national accelerator laboratory

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

Vol. 6 No. 39

October 10, 1974

## HIGH INTEREST IN SUPERCONDUCTIVITY HERE

Nobel Laureate John Bardeen told a group of 700 scientists from 16 countries attending the recent 1974 Applied Superconductivity Conference in Oak Brook, Illinois, that "in the present immediate energy crisis the application of superconductivity promises to be of great importance in future years."

Bardeen, who won the 1972 Nobel prize with Leon Cooper and Robert Schrieffer for their work in superconductivity, went on to note that the three-fold increase in attendance at the Conference in the past two years is an indication of the worldwide interest in superconductivity and potential applications. "Research in superconductivity has been generously supported both here and abroad and this is appropriate in view of the long time scale and the difficulties that must be overcome in bringing this new technology into being," Bardeen pointed out.

Superconductivity is a property of some metals and metal alloys when they are cooled to about 450 degrees below zero Fahrenheit. At these extremely low temperatures, the resistance of the metals to the passage of electricity disappears completely. Bardeen and his colleagues deduced that the swarms of electrons which carry electricity line up in such a way that when they are virtually frozen in position at the super-cold temperatures they flow without hindrance. Without the losses suffered in conventional transmission, electricity in a superconductor is transmitted more efficiently. Once current starts in a loop of superconductor, it can flow forever provided that the superconductor is kept cold. This suggests the possible application of superconductivity in power transmission, for example.

The Oak Brook meeting -- held jointly with the annual meeting of the Cryogenic Society of America -- also included tours to Fermilab and to the Argonne National Laboratory. Both laboratories have numerous important superconducting research projects going on. The two institutions combined efforts to host the Oak Brook meeting.

B. P. Strauss, Dave Sutter, E. Ioratti, and W. Habrylewicz of the Fermilab Energy Doubler group, gave an evaluation of the doubler project in the session on High Energy Magnets, chaired by W. Fowler who heads the doubler group. The doubler project proposes using a ring of superconducting magnets above the magnets of the present accelerator, which might increase the energy from the present 400 BeV to 1,000 BeV, or roughly, "doubled." The idea has the merit of not requiring a separate tunnel to achieve a new level of energy. The proton beam would first circulate as it does at present and at an appropriate energy would be transferred to the additional ring where the superconducting magnets will be able to operate at much higher magnetic fields.

Fred Mills described the large energy storage device being proposed by Fermilab to improve operation of the accelerator at 500 BeV, but with serious application possibilities for power companies to level off peak hour demands. Energy generated during off-peak hours could be stored in a large superconducting coil, then drawn upon in peak demand hours.



...*C. Laverick (L), Argonne, and W. Fowler, Fermilab's Energy Doubler head, at Oak Brook Conference...*

(Continued on Page 2)

SUPERCONDUCTIVITY CONFERENCE (Continued)

Power companies will eventually need systems thousands of times bigger than the Fermilab device, but the Fermilab store would be the first to be built, and power companies have expressed interest in the project.

J. R. Heim of Fermilab also participated in the Superconducting Conference, speaking on superconducting coils. Heim and Ron Fast gave another paper about the superconducting dipole magnets being developed at Fermilab. They pointed out that these magnets consume but 10% of the energy used by conventional magnets.

R. J. McCracken, D. E. Richied, and T. E. Toohig presented an engineering study of the conversion of the Chicago cyclotron magnet at Fermilab's Muon Area to a superconducting magnet.

T. Droege, with Purcell and Wang of Argonne, discussed "A Slow Cycling Flux Pump Using Digital Control." Tom Collins appeared on the Monday evening program speaking about multi-filament superconducting wire.

Paul Reardon, head of Fermilab's Accelerator Division, was co-chairman of the Conference with Charles Laverick of Argonne. Dorothy Carlson and Michael Otavka of Fermilab were on the local arrangements committee. Bruce Strauss was Conference treasurer; W. Fowler was Conference Secretary. Edwin L. Goldwasser was a speaker at the main banquet. NALWO members sponsored ladies' tours to Chicago and to Fermilab. Rene Donaldson and Doris Pinneo serviced the technical typing needs of the Conference and a number of Fermilab secretaries were also there.

In addition to discussions of the high energy physics superconducting research, papers were presented describing superconducting devices to measure magnetic fields produced by human heart, brain, and lungs, presented by David Cohen of M.I.T. Representatives of a major automotive manufacturer reported on the initial study of a vehicle which uses superconducting magnets in levitation and guidance elements. A group from Japan described a light-weight superconducting magnet for operating a high speed train.

Scientists from the Oak Ridge National Laboratory described superconducting toroidal magnet systems for controlled fusion reactors.

The superconducting installations at Fermilab and other national laboratories contribute directly to progress in many other aspects of the superconducting advances.

\* \* \* \* \*

FERMILAB AUDITORIUM LECTURE SERIES

presents

Dick Gregory

"Social Problems -- Social or Antisocial?"

Friday, October 18, 1974 - 8:30 p.m. - Auditorium

\$3.00 adults

\$1.50 children

Born in St. Louis, Dick Gregory was a track champion in high school and at Southern Illinois University. He later achieved fame as a TV and night club comedian. In the 1960's he became an outspoken advocate of civil rights, peace, and human liberation. He has produced several record albums and eight books on civil rights themes.

Gregory characterizes the motivation for his unusual success in his comment, "The real champion, I have come to understand, is the man who has risen to the crest of life's highest purpose -- singular and complete devotion to serving one's fellow man." Gregory has ardently pursued his definition of championship by doing things he does best -- making people laugh, making people listen, and ultimately, helping them understand one another.

Tickets for the Gregory program may be purchased or reserved in advance from Marilyn Paul, Directors Office, Central Laboratory 2E, Ext. 3216.

## CANADIANS WIN FERMILAB CANOE RACE

Two teams of visiting experimenters from the University of Toronto were first and second place winners of the world's first Accelerator Canoe Race. Jim Prentice and George Luste of Experiment #25, came in first with a new world record time of 53 mins., 38 secs.; Mike Shavitz and John Martin, also of the University of Toronto, followed in 53 mins., 55 secs.

Fermilab's Max Palmer and John O'Meara placed third with their time of 56 mins., 51 secs.

The NALREC-sponsored race started at 11 a.m. on Saturday, September 28 under a cloudy, threatening sky. The canoeists put in at the A-1 sector of the Main Ring cooling pond three minutes apart at the start. The race included fifteen portages in the course around the four-mile accelerator circle. At the B-3 sector, the racers transferred to the inner ponds of the Main Ring terrain, returning to the cooling canals at the E-2 sector.

Prentice and Luste are veteran canoeists, both having "warmed up" for the Fermilab race on extended canoe trips in the Yukon during the past summer. Palmer and O'Meara were regulars in the Mid-American Canoe Race on the Fox River.

Other entries in the contest, open to employees and visiting experimenters, were : Jackie Gifford and John Barry; Sam Childress and Jerry Reid; Doug Meteisis and Sid Manthe; George Mikota and Don Fischer.

Acting as judges, timers, and assistants were: Frank Cole, Helen Ecker, Bob Florian, Jesse Guerra, Jack Johnson, Frank Juravic, Jim Lackey, Warren Light, Gil Nichols, Ed Pettus, Howie Pfeffer, Ted Sozinski, Greg Urban, and Don Young.

NALREC plans to make the race an annual event, perhaps changing to an early spring date, according to Larry Allen, chairman of the contest.

*(Photos courtesy Larry Allen)*



*..In 1st, Jim Prentice, George Luste..*



*...Mike Shavitz, John Martin...*



*...Max Palmer, John O'Meara...*

\* \* \* \* \*

### FERMILAB OKTOBERFEST

Saturday, October 19, 1 p.m. - 1 a.m.

#### Fun for Everyone

- In the afternoon: Kids' games, magic show, scarecrow  
German band  
Grilled brats & thuringer in buns (25¢)  
Nickel draught beer, nickel cokes  
Horseshoes, volleyball, touch football, hay rides
- To get in: Bring a pot luck dish for 6 - potato salad, cole slaw, dessert, etc. for buffet table.
- In the evening: Adult dancing, 9 p.m. to 1 a.m. - Live band - Cash bar

FERMILAB INTER/NATIONAL FILM SOCIETY  
Friday, October 11 - 8 p.m. - Auditorium

A Very Curious Girl, directed by N. Kaplan, French (c.1970). This film concerns a gypsy girl in a small French town who is smart as well as pretty and learns to use her erotic powers to her own advantage, turning the tables on the town.

The Fermilab INTER/NATIONAL Film Society is a group of persons interested in selecting and showing films of particular interest or importance in cinema. The films are shown on the second Friday of each month in the Fermilab auditorium at 8 p.m. The showings are open to the public. Admission charge for all films is \$1.00. (Fifty cents for children.)

Anyone wishing to become a member of the Society should contact Isobelle Walker, 469-0209, or Dave Ritchie, 840-3940.

THINK SNOW? -- The Fox Valley Snowdrifters extend an invitation to Fermilab people to join their ski club, now making plans for the coming season. Club meetings are held on the first and third Mondays of each month at the Fox Valley Country Club on Rt. 25, south of Batavia. Membership fees are \$15.00 for the first year, \$10.00 each year thereafter, assuring a place on the ski trips during the winter. Kurt Kasules, Ext. 3714, is a member of the board of directors of the Snowdrifters; call him for further information about the club's activities.

\* \* \* \* \*

PROGRESS REPORT - Parking Lot Resurfacing -- With good cooperation from the weather in the past ten days, work has gone ahead quickly on resurfacing the parking lots on the east and west sides of the Fermilab Central Laboratory. Ed Gallagher of Architectural Services, advises that a change of work schedule has been made to finish all work on the west side before proceeding to the east side. Much of the inconvenience experienced in the past two weeks should be relieved when this large lot is again available. Work will continue as rapidly as weather permits on the east side. Please continue to be cautious around paving vehicles.

\* \* \* \* \*

CLASSIFIED ADS

FOR SALE - Ford, Country Squire Station Wagon, '66, p/b/s, 90,000 miles, good running cond. \$450 or best offer. Call G. Mikenberg, Ext. 4095 or 969-9456.

FOR SALE - '72 Charger S.E., p/db/s, vinyl top, 400 CID, 4sp. \$2595. K.Bourkland, Ext. 3734.

FOR SALE - '66 Mustang, V8, A.T., p/s, AM-FM, 67,000 mi. \$425. B.Williams, 3614 or 325-4608.

FOR SALE - 1970 Sunway Camper, 11½ ft., self-contained w/many deluxe features, 12,000 BTU propane heater. Sleeps 4 to 6. Was \$4,000, now \$1,500. Call B.Lepocek, 815-436-6717.

FOR SALE - Fiberglass Hunting Kyack, "Camouflaged", bk.rst/gun slots,\$100. J.Bockmier, 3259.

FOR SALE - Bl/Wh.Pinto Gelding. Br/Wh.Pinto Shetland Pony Mare. F.Jasek, Ext.3719 or M08-9513.

FOR SALE - Min.Poodles, lt.apricot, paper trd., 5 wks.old. \$85. M. Richardson, Ext. 3048.

FOR SALE - Used Crown 30" Gas Range w/hood, 2 sp.fan and light, \$50. Also assortment of cassetts, reasonable. Call Greg Lawrence, Ext. 3677.

FOR SALE - Touch & Sew Singer Mdl.750 w/cab.& attach. Call J.Korienek after 5 pm, 544-2002.

FOR SALE - Two tickets, Andre Watts, pianist, Wheaton College, Tuesday, Oct. 22. Excellent seats, \$4.50 each. Call C. D. Curtis, 879-2974 or Ext. 3724.

MOVING SALE - Misc. household items, furniture & garden tools. Oct. 11-12, 9 am to 5 pm at 505 Bellview, West Chicago. Call W. Couch, 897-4892 or Ext. 4183.

RIDE WANTED - To N.Y.City for Thanksgiving holiday. Prefer round trip. Call Ernie, Ext. 3210

TO SUBLET - Thru August 31, 1975, 1 bedroom Apt., 5 mi. from Lab. on Rt. 59. Wall-to-wall carpet, central a/c, many extras, \$185 per month. Call Vickie, Ext. 3218 or 231-7965.

\* \* \* \* \*