

# FERMILAB NEWS

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## TALENTED HIGH SCHOOL STUDENTS LEARN ABOUT HIGH ENERGY PHYSICS AT FERMILAB

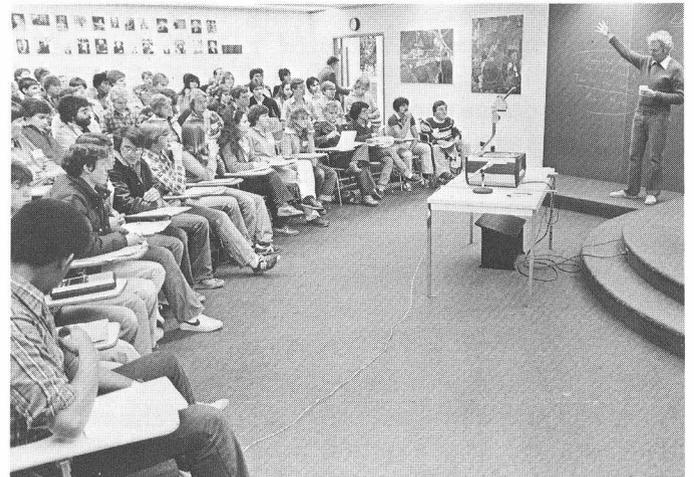
Fermilab is conducting a Saturday Morning Physics Program for gifted high school upper classmen who are interested in science. A group of 240 young men and women were selected as the best three or four science-oriented students in each of seventy high schools in the vicinity of the Laboratory. The program is offered at no charge as a way of maintaining and enhancing the interest of young students in science.

For 10 consecutive Saturday mornings, 80 students and instructors come to the Laboratory to attend lectures and take tours led by volunteer Fermilab scientists and engineers - men and women actively working at the frontiers in experimental and theoretical high energy physics. The students tour Fermilab's accelerator facilities and experimental areas. All in all, they spend up to three hours each Saturday morning learning about the frontiers of particle physics from the very scientists who are taming those challenging regions. One recent Saturday, the youths met Dr. James W. Cronin, University of Chicago, who shares the 1980 Nobel Prize in physics.

Three 10-week sessions are scheduled throughout the year, beginning Oct. 4, 1980, Jan. 10 and March 21, 1981. The subjects are carefully selected to give the students the broadest possible view of high energy physics, yet tuned to their level of understanding.

John McCook is coordinating the program. He is assisted by Mrs. Yvonne Richter, a physics teacher at Batavia High School.

In asking the high school educators to select the students for this program, Dr. Leon Lederman, Fermilab director, described the purpose of Saturday Morning Physics as a determined effort "to further the understanding and appreciation of modern physics among high school upper



*Leon Lederman enthusiastically gives opening lecture, orienting students about subjects they will be covering.*



*Carlos Hojvat (standing, far right) leads discussion group, helping the young men and women more fully understand topics covered in main lecture.*

classmen with strong interests in mathematics, physics, chemistry and science in general."

The series of lectures is given by Fermilab scientists on a volunteer basis. However, the lively and provocative interest of students has so stimulated the lecturers that there is a keen competition for the prize of enthraling the students (Continued on page 2)

with the lectures. (See curriculum content on this page.)

Dr. Lederman, in his opening lecture, stressed the importance of science to a troubled world inescapably dependent on an ever more effective technology.

The loss of a single young person due to indifferent teaching or an unreceptive environment could result in the loss of the mind capable of finding the cure for cancer or a solution to the energy crisis. The world can ill afford to wait for another 30 to 50 years for another chance. Professor Cronin, in his remarks to the students, noted that high school is often the crucial experience that sets the course for the future career of scientists.

Saturday Morning Physics at Fermilab is designed to address these problems by the exposure of high school science students to the exciting realm of frontier research.

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*Students gather around model of superconducting magnet.*



*Drasco Jovanovic gives the students an overview of the site using the model on the 15th floor of Wilson Hall.*

#### SATURDAY MORNING PHYSICS CURRICULUM

The subjects for each of the 10 classes in the order they will be given are:

Week 1 - Introduction. What is an elementary particle: from molecules to quarks with a pause at the hydrogen atom.

2 - Special theory of relativity.

3 - How do we see particles? Interactions of radiation with matter. Detectors.

4 - Conservation laws and symmetry principles: energy, momentum, rotation, left-handedness and right-handedness, time and antimatter.

5 - Quantum theory, particles and waves, quantum numbers and the intrinsic properties of elementary particles, such as charge, spin, mass, strangeness and others.

6 - How do we make particles? Accelerators, beam transport and assorted technologies.

7 - Leptons and quarks: electrons, muons, taus and neutrinos of the lepton world; mesons and baryons and their constituents. The quark model.

8 - The forces of nature and their carriers: photons, W particles and gluons.

9 - The connections of particles with cosmology. How the world began. Massive neutrinos, pulsars, neutron stars and black holes.

10 - Particle physics spin offs. Technology and application to other fields. Current problems and future projections.

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## INSTRUCTORS FOR SATURDAY MORNING PHYSICS

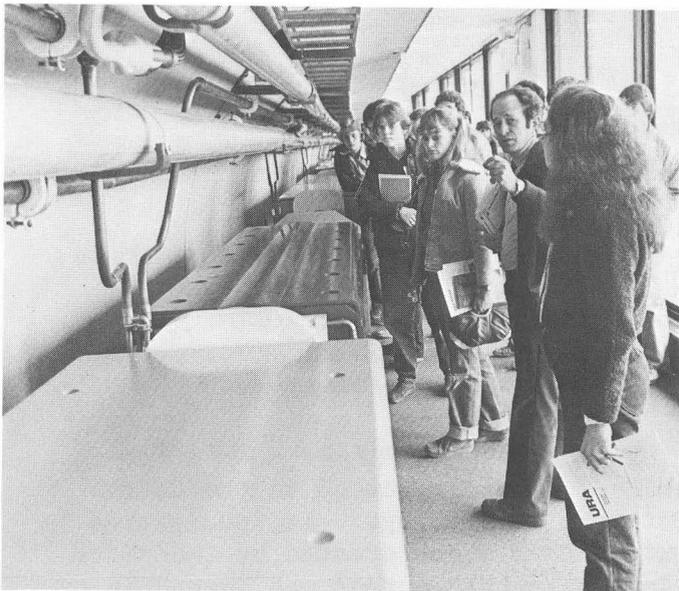
In addition to Leon Lederman, other main lecturers include James Bjorken, Charles Brown, Frank Cole, Mark Fischler, Irwin Gaines, Christopher Hill, Ernest Malamud, Chris Quigg and Alvin Tollestrup.

Volunteering to serve as associate lecturers for this first 10-week session are H. Barton, J. Butler, R. Carrigan, F. Cole, B. Cox, C. Curtis, M. Fischler, G. Fisk, P. Garbincius, D. Green, C. Hojvat, D. Jovanovic, J. Lach, E. Malamud, L. Michelotti, T. Murphy, S. Pordes, P. Rapidis, P. Rapp, L. Teng, L. Voyvodic and J. Walker.

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*Chuck Brown (at chalkboard) leads one of the discussion sessions as the students go into more detail on a specific topic.*



*On tour with Carlos Hojvat (second back from foreground). Here he shows the students the model of the tunnel on the 15th floor of Wilson Hall.*

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## LOMAX TO SPEAK HERE

BY Ruth Ganchiff,  
Cultural Editor

Alan Lomax, a noted folklorist and anthropologist, will speak at Fermilab Dec. 5.

His talk on "Dance, Song and Human Culture" will begin at 8 p.m. in Wilson Hall auditorium. Although there is no charge, admission will be by ticket only. They may be obtained at the ticket sales desk in the atrium.

For the past 40 years, Lomax has dedicated himself to studying and classifying folk songs in an effort to understand how different cultures affected the creative impulse that expresses itself in song. His talents as a singer have been widely acclaimed, and his book, "Folk Songs of North America," has come to be recognized as one of the finest collections of indigenous music ever compiled.

An entertainer of enormous talent and a scholar of wide perspective, Lomax will bring an evening of tapes, slides and stories from which his conclusions on the nature of man have been drawn. He plans to discuss primitive and modern cultures and their music in a program that others who have attended say will both entertain and stimulate the attentive listener.

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## TICKETS FOR FERMILAB CHRISTMAS DINNER-DANCE TO GO ON SALE DEC. 1

Tickets for Fermilab's popular Christmas dinner and dance will go on sale Dec. 1. They may be obtained at \$12 each from any member of the NALREC Committee. The event will be held Dec. 19 at St. Andrews Country Club.

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## BIG PARTY TOMORROW NIGHT

Don't overlook the fun you can have at the fall collage tomorrow night (Friday). It'll run from 5:15 to 10 p.m. at the Village Barn. Tickets for prizes - \$10 worth of groceries - can be purchased from any NALREC member.

So for live music, pizza and beverages, come to the fall collage. And bring along your friends.

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### WILSON RECOVERING SATISFACTORILY

Dr. Robert R. Wilson, director emeritus, is recovering satisfactorily from a heart attack he suffered several weeks ago in New York. He has now left the hospital and will be convalescing for several more weeks.

Cards and greetings may be sent to Dr. Wilson in care of Judy Ward, MS105. "I think he'd love to hear from his friends," she said.



### CHARITY PLEDGE RENEWAL TIME

It's that time of year when employees are asked to contribute to charities through payroll deductions. They may choose up to three charities, including a community fund.

The authorization forms were sent to employees earlier this week. The original copy of the form must be returned to the Payroll Department by Dec. 5. The carbons should be retained by the employees.

Participation is voluntary. No pledge below \$12 for 1981 can be accepted through payroll deduction. The selected charities must be among those approved by the Internal Revenue Service.

The payroll deductions an employee designates will be made each pay period beginning Jan. 1, 1981, and will continue throughout the year. At the end of 1981, employees taking advantage of this plan will receive a statement of their contributions for income tax purposes.

Pledges for this year will end Dec. 31, 1980, unless they are renewed. For additional information, contact the Benefits Office, Ext. 4361 or 4362.

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### NEXT COLLOQUIUM SPEAKER

Prof. Thomas Ahrens of the California Institute of Technology will speak at the Physics Colloquium Dec. 3. His lecture on "Earth Materials Under High Pressure" will begin at 4 p.m. in Wilson Hall auditorium. He comes as the guest of the Physics Colloquium Committee.

*"ON THE JOB SAFETY BEGINS HERE" is an appropriate backdrop for the conversation about safety between Gary Andrews (left), safety representative with the Safety Section, and Bob Kraft, Roads and Grounds. Two of the most visible signs of a progressive program are the hard hat and safety glasses.*

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### CAFETERIA, CULTURAL CALENDAR AND FERMINES AFFECTED BY HOLIDAY

Wilson Hall cafeteria will be closed Nov. 27, Thanksgiving, and Nov. 28. Grill service will be available over the weekend, Nov. 29 and 30.

FERMINES and the CULTURAL CALENDAR will not be published that week. They will resume publication the following week.

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### CHEZ LEON

Wednesday, Nov. 26, 12:30 p.m. - \$6.00

French onion soup  
Stuffed loin of pork w/wine cream  
sauce  
Small new potatoes w/parsley  
Sauteed red cabbage  
Baked apples w/cream

For reservations call Ext. 3082. The Chez Leon is located in the Users Center in the Village. It specializes in gourmet-type menus created by Chef Tita Jensen. The restaurant was opened in 1979.

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