

# Fermi News

Fermi National Accelerator Laboratory

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## Cuts in Education Funding Force Program Reductions

*Fermilab sources say a 65 percent drop in precollege science education funds from DOE will force Fermilab to foster new methods of outreach*

by Donald Sena, Office of Public Affairs

Funds from the Department of Energy earmarked for precollege science education programs at Fermilab dropped 65 percent from fiscal 1995 to fiscal 1996, forcing the Laboratory to cut or scale back several popular programs designed to help teachers improve their physics instruction and enhance students' understanding of science.

The Leon M. Lederman Science Education Center lost one-third of its staff due to the cuts, and Marge Bardeen, manager of the Education Office, said she expects funding for the next fiscal year to remain at the 1996 level. As a result, the Laboratory and Lederman Science Center will have to rely more on public and private contributions to the nonprofit Friends of Fermilab, an organization whose purpose is to raise funds for Fermilab precollege education programs from various federal and state agencies, corporations and individuals.

Moreover, the reality of less money for education compels Fermilab to increase volunteerism and find more creative ways to reach K-12 students and teachers in the wake of the shrinking budgets, according to

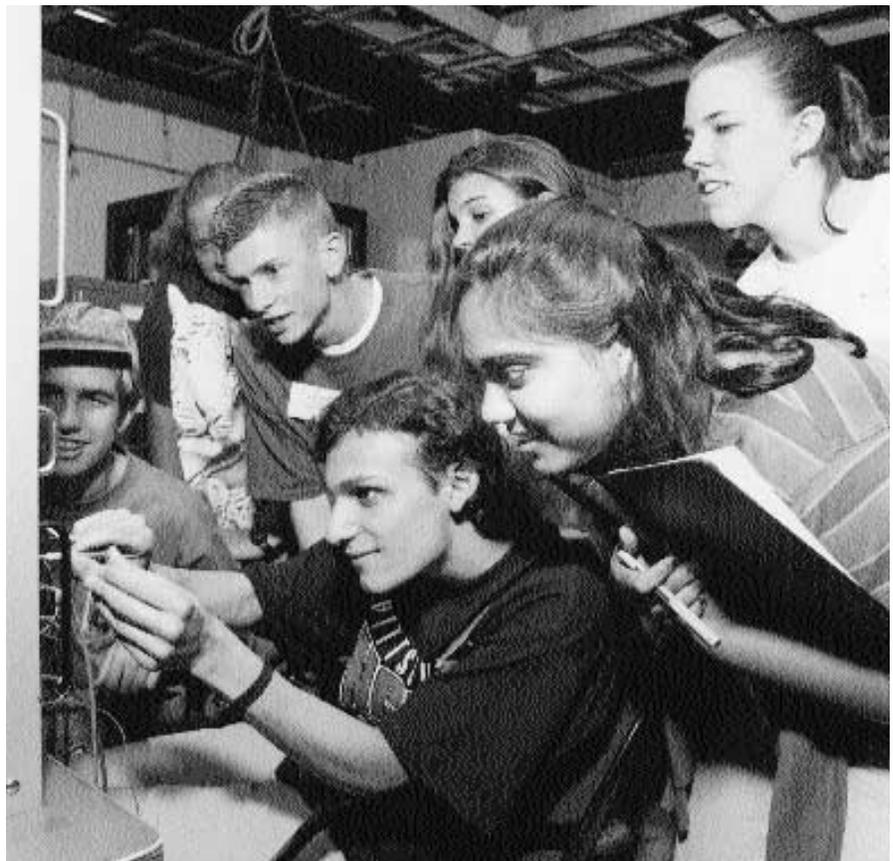


Photo by REIDAR HAHN

*DOE honors students get some hands-on experience at Fermilab in 1995. The program, which served high-school honors students, was canceled for 1996 due to budget cuts.*

Bardeen. However, she added that a staff dedicated to education is essential to run a full range of programs.

### THE FUNDING PICTURE

Fermilab receives funding for education in several ways. The main two sources are the Department of Energy and Friends of Fermilab (FFLA). From 1983 to 1989, all funds, includ-

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Fermilab

Fermi National Accelerator Laboratory  
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March 22, 1996

Letter from the Director

Dear Colleagues,

To paraphrase a familiar expression: Now is the time for the Fermilab community to come to the aid of the Laboratory. The time has long passed, if it ever existed, when we in the scientific community could afford to pursue our research and ignore the rest of the world. As Deputy Secretary of Energy Charles Curtis said in a recent speech, "To restore public confidence in the nation's investment in science and technology, we must build back trust in science and technology... The reality of our times is that the public whose dollars we propose to use for this investment—and the public representatives for that matter—need convincing. And it is the scientific community that must make that case."

One way to help convince the public is to volunteer to make the case for science, beginning in our local communities and schools and extending to the entire nation. We at Fermilab have a strong tradition of volunteer outreach. And as funding for Fermilab's science education program has dropped, the task of reaching out to those beyond our Laboratory increasingly falls upon volunteers. If we don't do it ourselves, no one else will.

This issue of FermiNews describes some of the outreach efforts of Fermilab staff and users, from teaching Saturday Morning Physics to founding a science museum. Many more opportunities await our efforts. I urge the members of the Fermilab community to join in the task of making the case for science and technology. I encourage you to volunteer some of your time and expertise to help our neighbors—across the street and across the country—understand the nature of our work and why it has value for our nation.

Sincerely,

John Peoples Jr.

# How Can You Help?

The possibilities are almost limitless. Here are a few of the many ways people at Fermilab reach out to the public.

*Edited by Leila Belkora, Office of Public Affairs*

## GET ON THE 'NET

William Wester (Physics Section) got a request to go on-line and chat about modern physics with students at Loyola Academy in Chicago. "I agreed because it was something I could do from home, in my bathrobe," he says. See the story on page 6.

## FOUND A SCIENCE MUSEUM

Ernie Malamud (Directorate) founded SciTech, a science center a few miles west of Fermilab in Aurora, IL. "It's very hard to get a science center off the ground," says Malamud. "I have more grey hairs now than when I started." He adds, however, that there are plenty of opportunities for paid and unpaid work at the center: "At SciTech you could do anything: build an exhibit, teach a course, put an exhibit on the Web."

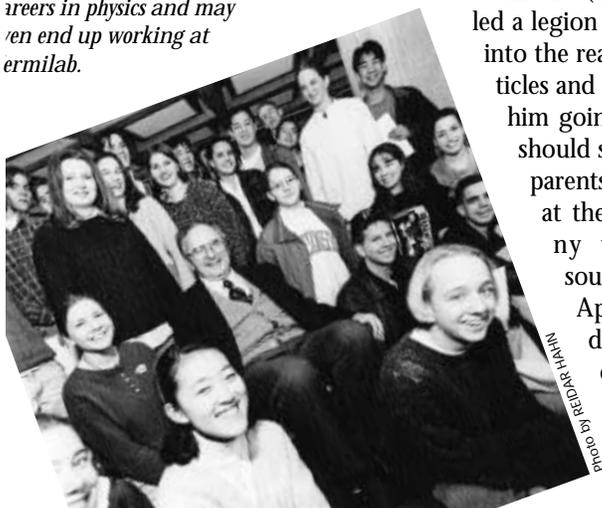
## SPEAK TO STUDENTS, OR TO A LOCAL CLUB

Roger Dixon (Research Division) says his most recent lecture to high school seniors was a lot of fun. "This group was excellent. The talk was supposed to last one hour; it lasted two. Nobody wanted to leave." He adds with satisfaction, "They gave me a really hard time."

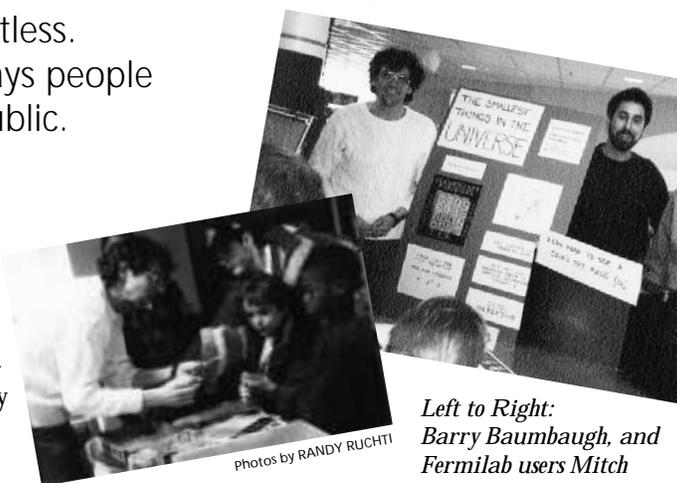
## TEACH A CLASS SATURDAY AT 9 A.M. FOR 17 YEARS

Through Saturday Morning Physics, Drasko Jovanovic (Physics Section) has led a legion of local area students into the realm of subatomic particles and forces. What has kept him going for so long? "One should see the faces of proud parents and the smiling kids at the graduation ceremony to see where the source of motivation is." Approximately 70 students attend the free course each time it is offered.

*Drasko Jovanovic is surrounded by students from the 50th class to graduate from the 0-session course called Saturday Morning Physics. "History is any guide, a few of these students will pursue careers in physics and may even end up working at Fermilab."*



*Photo by RICHARD HAHN*



*Photos by RANDY RUCHTI*

*Left to Right: Barry Baumbaugh, and Fermilab users Mitch Wayne and Randy Ruchti (U. Notre Dame) brought a detector of cosmic ray muons to this year's "Science Alive!" program in South Bend, and fed the signal to a TV screen (in front of Wayne).*

*Barry Baumbaugh, left, engages youngsters at the "Science Alive!" program in an examination of optical fiber.*

## CARRY A PORTABLE COSMIC RAY DETECTOR

Randy Ruchti and Mitch Wayne, Fermilab users from the University of Notre Dame, got the attention of several thousand school children at an outreach program at the South Bend (IN) public library in February. The detector of cosmic ray muons is the size of a sugar cube and contains a million scintillating fibers. A couple of events per minute flash across the phosphor screen, which gives him the opportunity to talk about cosmic rays and scintillating fiber technology. In a letter to Ruchti's department head, an enthusiastic mother wrote: "Professor Ruchti absolutely had those children spellbound!"



*Photo by RANDY RUCHTI*

*With her right hand, a young visitor to the "Science Alive!" program connects a fiber that emits red light to a coil of optical waveguides. She looks for the red glow emerging from the other end of the coil in the box in front of her.*

*continued on page 4*



Photo by REIDAR HAHN

*Mike Urso (Research Division) guides a young audience member through an experiment to demonstrate the properties of materials at very low temperature. Whether he's speaking to kindergarten children or adults, Urso says, he demonstrates the same effects; he tailors his explanations to the level of the audience.*

## How Can You Help? continued from page 3

### **FREEZE A BANANA**

Mike Urso (Research Division) has taken his cryogenics demonstration to about 70,000 children and adults in the last six or seven years. The purpose of the show is to illustrate the effects of cryogenic temperatures on ordinary materials, and sometimes involves making steam engines that run on liquid nitrogen. "It's like a magic show," he says, "but everything I do, I explain. I've found that the best way to teach people is to entertain them—while you've got their attention, teach them."

### **WRITE A BOOK**

Fermilab Director Emeritus Leon Lederman, author of about 200 papers on high-energy physics, also found time to write books. He imagined his reader as "college student, wine merchant, motorcycle mechanic, high school sophomore...." Lederman says there's "an urgent need for a higher level of popular understanding of science—its processes and some of its content, its powers and some of its limitations. Outreach by Fermilab is just the kind of activity (multiplied by legions!) that is effective in educating the public."

### **EMPLOY A SCHOOL TEACHER**

The Teacher Research Associates (TRAC) program has brought 120 mid-level and high-school teachers to Fermilab over the past 12 summers to assist with laboratory work. Mentors say "the teacher stimulates the evolutionary thought process and problem solving" and may provide "a real contribution to the research effort." Teachers say

they go back to their students with renewed enthusiasm and "an ability to provide concrete examples from first-hand knowledge." The Education Office is currently selecting participants for the 1996 program; contact them to review the teachers' applications.

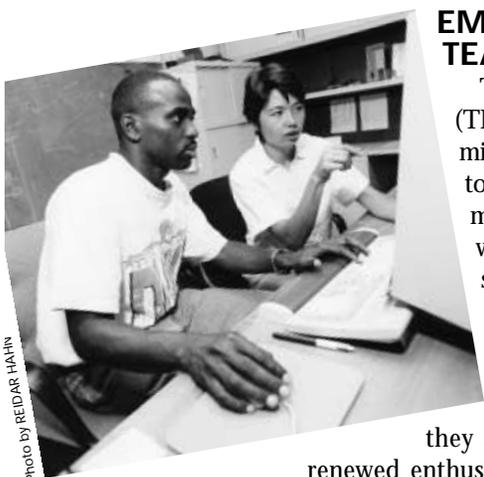


Photo by REIDAR HAHN

*Teacher Nigel Thompson and his mentor, Juliana Whitmore. Thompson and Whitmore participated in the Teacher Research Associates program last summer.*

### **TAKE A PHONE CALL**

What are the physical properties of mercury, and how does one handle it safely? High-school student Eric Vandiver called Fermilab to get help with his school project on the subject. Maureen Huey took the call; she's a Certified Industrial Hygienist in ES&H. "He wanted some background information on the health effects," says Huey, "and I also sent him some information in the mail." Huey says her contribution "seems pretty small," but requests like Vandiver's are a significant fraction of the calls to Fermilab from the general public.

### **GUIDE A SCIENCE PROJECT**

Last January, Chicago high-school junior Raymond Rodriguez asked Fermilab for help with his science fair project, an investigation of the effect of temperature on electrical resistivity in a variety of metals. With the encouragement of his supervisor and section head, engineering physicist Darryl Orris took Raymond under his wing. They set up a test stand, and Raymond learned some of the intricacies of accurate test and measurement and gained insight into the physics involved. "I had done some research on my own," Raymond said, "but I didn't really understand it until I worked with Darryl. Without his help, I couldn't have done it." Raymond won first prize in the Lane Tech Science Fair. Next step: the all-city competition.

### **COLLECT A WATER SAMPLE**

Sixth-graders from Tennessee asked Fermilab for a water sample, as part of a lesson on ecology. Doug Arends (ES&H) obliged with a draught from Swan Lake. Their teacher writes: "We got the water yesterday. We are going to test it....We certainly appreciate all the help. It is wonderful to find people so willing to help students." The Office of Public Affairs frequently calls on lab employees to help with requests from teachers and students.

### **INSPIRED?**

More opportunities await. To become an outreach volunteer, call or email the Office of Public Affairs at x3351 or [jjackson@fnal.gov](mailto:jjackson@fnal.gov) □



Photo by REIDAR HAHN

*Doug Arends of ES&H collects a water sample requested by elementary school students in Ten Mile, Tennessee.*

# Can You Talk the Talk?

by Donald Sena, Office of Public Affairs

Luann O'Boyle of the Directorate is playing match-maker these days, but she is not connecting lonely souls; instead, O'Boyle is matching Fermilab employees and users with local area organizations, including schools, that want expert speakers on a variety of topics.

In this new program, which O'Boyle volunteered to run, she takes requests from organizations that seek speakers to talk about physics, computer science, engineering and wildlife, among other subjects. O'Boyle then solicits Fermilab employees or users to address the group or school. She has also connected a school looking for a science fair judge with a Fermilab scientist. The age groups that speakers address vary; for example, Roger Dixon, head of the Research Division, recently talked with high-school students about general science, while Bob Bernstein, of the Research Division, met with a science club made up of seventh- and eighth-grade students.

O'Boyle says the Fermilab volunteers foster good relations with the surrounding community and help education efforts, as well as spreading the word about the benefits of science and of Fermilab's research.

"I hope that by working with people from the lab, [the community] can learn what Fermilab does," said O'Boyle. "Also, I think it is important for us to be good neighbors and talk to people who are going to be running our country and doing the experiments" of the future.

O'Boyle said she gets about two calls per week, but expects the requests to increase as word of the program spreads. As a result, she needs to add to her volunteer list. □

To volunteer for this Fermilab outreach program, please call Luann O'Boyle at x4229 or send e-mail to [luann@fnal.gov](mailto:luann@fnal.gov). She will have you fill out a short information sheet and add you to her new database of speakers.



Photo by REIDAR HAHN

Luann O'Boyle of the Directorate. O'Boyle manages Fermilab's new speaker program, designed to match Fermilab speakers with outside groups.

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## Cool Science!

by Donald Sena, Office of Public Affairs

"Chill!" is an expression heard in the halls and classrooms of high schools as hip students tell their friends to calm down; but recently, a local area teacher showed his students another way to chill.

Gary Anderson, a science teacher at Yorkville High School for 34 years, gives an annual demonstration with liquid nitrogen to teach his students about cryogenics and "show them the unusual things that happen at extremely low temperatures." The event, he says, is one of the highlights of his science class. However, liquid nitrogen is rarely found in a school's supply cabinet, so Anderson turned to Fermilab.

Fermilab uses liquid nitrogen, which is about -320 degrees Fahrenheit, for many purposes.

Its main job is to precool gaseous helium during the liquefaction process and to shield the liquid helium, which is used with superconducting magnets. The 10 liters Anderson needed cost Fermilab about 50 cents and was enough for the teacher to perform several demonstrations.

"We do a lot of things like this for high schools," said Fermilab Director John Peoples. "In general, we are very helpful to local schools. [Providing the liquid nitrogen] encourages an understanding of science, so we found a way to help."

Anderson was thankful for that help, saying the demonstration is always a big hit.

"The [most common] comment among the students who attended the demonstration was that 'it was cool,'" said Anderson. "And I guess that is an understatement." □

## Updating Lessons on the Atom...

by William Wester, Physics Section, and Leila Belkora, Office of Public Affairs

*"I never had the gumption to get everybody on school buses," says Tim Sassen, a science teacher at Loyola Academy in Wilmette, IL, explaining what led him to seek communication with a working physicist via computer. Sassen wanted his 13- to 15-year-old students to glimpse the world of the atom as understood by a modern researcher. "The knowledge in our textbooks stops as of 1925," says Sassen. He says the students asked about the fact that their chemistry book "doesn't have 'quark' listed in the index." William Wester, a friend of Sassen who works in the Physics Section at Fermilab, relates the story. Parts of the transcript of the online chat appear on page 7.*

I received an email message from Tim Sassen, a former college roommate who teaches high school physics, asking whether I would talk to his class about subatomic particles. His request was unusual because he did not ask me to come to his school, Loyola Academy in Wilmette (near Chicago), but to talk on-line from the comforts of my own home.

Tim told me that his students had just finished a topic on the atom and suggested that I give them a working physicist's perspective on the atom and on subatomic physics. Many of his students had access to America Online through modems and home computers, and we could all meet in an on-line "chat room." I told Tim that this sounded good, as I could do this while wearing my bathrobe and nobody would know!

At 8 p.m. I logged on and found my way to the

"Rambler Room" that Tim had defined. One by one, students in their homes also logged on and went to the chat room. Some students who didn't have access went to friends' houses to sign on. At least one interested father attended the session by looking over his son's shoulder. In all, over a dozen students participated.

To avoid confusion and interruptions, students sent questions first to Tim, who prompted one student at a time to pose a question to me and the other students. As I answered each question, I tried to provide a little particle physics background along the way. The scheduled hour-long meeting went an hour and a half.

Some of the questions dealt with what Tim had covered during the students' discussion of atomic physics. They asked, for example, to whom historical credit belonged for some aspect of the atomic model. (Fortunately, I had a physics textbook at hand, which allowed me to answer with conviction.) Other questions were much more related to particle physics, and I tried to present answers appropriate for an introductory lecture.

On the whole, I believe that I could have presented more material in a normal lecture style. However, I feel that the real benefit to the students was that this session became an event that got several of them interested in ideas that they normally do not encounter in high school physics. They thought a bit about particles and the forces that guide them. Although the majority of the students might not do well on a quiz after the session, they did learn that there are subatomic particles and that there are people working on the fundamental questions of what the particles are and how they interact. I'm sure that a few of them will try to learn more on their own and all will be more aware when they encounter subatomic particles again.

I feel the experience was very positive—it was easy for me to participate in and I think I did communicate something to the students. I can envision future on-line sessions not only with the students of Tim Sassen but potentially with a worldwide audience to help educate and interest the public in particle physics. □

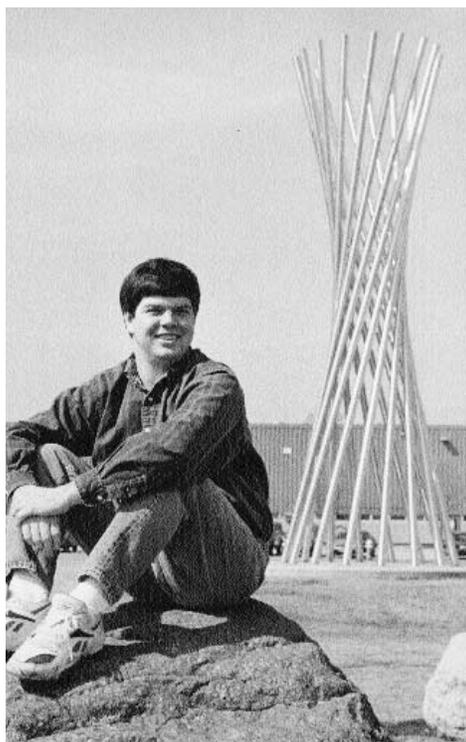


PHOTO BY LEILA BELKORA

William Wester poses in front of the sculpture known as Tractricious near his office in CDF.

# ...with an Online Chat

Sassen: We've just been studying the structure of the atom up to the ideas of Niels Bohr. But we have no sense of what makes up protons, neutrons, and electrons. Let's begin with an opening question from me: explain the differences between protons, neutrons and electrons for us.

**Wester: Electrons are fundamental particles as far as we know it.**

Sassen: And the other two?

**Wester: Neutrons and protons are known to be composed of objects called quarks. Matter can be divided into two types, one not composed of quarks, called leptons...**

Sassen: Explain the family of quarks to us.

**Wester: And the matter made of quarks called hadrons. Ok, we'll start with quarks...**

Dave: Hello everyone

**Wester: Ordinary matter, such as atoms made of protons and neutrons, are made up of the lightest quarks: up and down. A proton is made up of 2 up quarks and 1 down quark. A neutron is made up of two down quarks and one up quark. At very high energy, such as occurred during the big bang, or in particle accelerators, other species of quarks can be produced. These species are: strange and charm and bottom and top.**

Sassen: Dave, your question now.

Chi: i have a Q

Dave: Who came first Johann Balmer or Niels Bohr?

**Wester: I really don't know who came first.**

Sassen: I think Bohr did and Balmer simply got more specific about spectral lines.

Sassen: Dave, your follow-up.

Dave: What I mean by the question is who built on who's work?

Squirmy: i have a question

Slippa19: get in line squirm

Chi: im before you squirm

**Wester: It was noticed in the late 1800's that spectral lines existed...**

Slippa19: so am I

**Wester: The Balmer formula led Bohr to develop his atomic theory. (of course, I am smart enough to have a book in front of me!).**

Sassen: Good question, David! And good resourcefulness, Dr. Wester. Chi, your question now.

Chi: Is there any reason that quarks are called up/down quarks, what does the up/down mean?

**Wester: Up and Down are just names, but they have meaning. The names came to be when early particles were classified according to their properties and it was noticed that you could group some particles in pairs. Seeing these symmetries in nature is one of the things we try to do as physicists and we experimentally test and try to derive theories in which symmetries play a role. In fact, of the quarks which mentioned...**

Sassen: Next question to Aquinas.

**Wester: ...there are three pairs...(up, down), (charm, strange), and (top, bottom).**

(A little later...)

CalaMIDI: A particle accelerator cannot make nearly as much energy as the big bang. Can it?

**Wester: A particle accelerator can have energies in a small collision region which are close to the energy in a small part of the universe as it existed some period of time after the actual big bang. Today, we see the energy left over from the big bang, by seeing a constant temperature of the universe of 2.7 K. Earlier in the history of the universe, that...**

Sassen: K refers to the Kelvin temperature scale.

**Wester: temperature or effective energy was much higher. In the laboratory, we reproduce those effective energies by colliding beams of particles.**

Sassen: Excellent question. Matt, we'll talk about Kelvin temperature in the weeks ahead. JohnWitt is up... ☐

An excerpt from the online session in which William Wester answered students' questions about modern physics. The teacher's name is Sassen; the students selected their own identifiers, such as Chi, Squirmy, Slippa19.

## Education Funding Cuts...

*continued from page 1*

ing DOE money, went to FFLA. In fiscal 1990, the DOE Office of Science Education Programs was created, which directly funded the newly established Fermilab Education Office. Subsequently, fiscal 1996 legislation closed the DOE Office and eliminated 27 DOE positions. The legislation also cut the funding for education programs at laboratories by over 60 percent, according to Bardeen. In real dollars, Fermilab's budget fell from \$1.47 million in education funding from DOE in fiscal 1995 to \$515,000 in fiscal 1996, a sum that includes a one-time contribution from Universities Research Association, Fermilab's contractor. As a result, the Lederman Science Center—for the first time since its inception—actually required funding from the Laboratory. In the past, the

Center had brought in all of its own funding, including salaries and overhead. In fiscal 1996, Fermilab and URA had to provide some of the lost funds.

The Lederman Science Center also receives money via FFLA from the National Science Foundation, other federal agencies, state government, private corporations, foundations and individuals. Funds received through FFLA in fiscal 1996 amounted to about \$138,000, 38 percent more than in fiscal 1995.

At Fermilab's on-site review in late 1995 with Energy Research Director Martha Krebs, Fermilab Director John Peoples stressed that scientists and engineers who give their time for education gain positive results for Fermilab and for the surrounding community. He stated then that nearly half of the scientists and engineers at the Laboratory volunteer

some time to education.

"We are rather unique in having a [precollege] program of this scale, and it is very heavily leveraged by volunteerism. We would really be disappointed if it had to go away" because of a lack of funding, said Peoples.

During the September discussion, Krebs agreed with the importance of the education efforts at Fermilab and other national laboratories.

"If you care about...who will be the future performers in science and engineering in this country, and if you care about who is going to be making decisions about funding science and engineering in the future..., then you have to worry about precollege science and math education," said Krebs. "I certainly think the labs are the heart of what the Department [of Energy] has to bring to bear in education."

## WHAT HAS FERMILAB CUT ?

As a result of the cuts in DOE funds, Fermilab has had to eliminate various programs and drastically reduce others. For example, the Laboratory no longer offers a summer institute for physics teachers. This three-week program brought in high school teachers from all over the country and a few foreign nations to learn topics in modern physics. The instruction emphasized hands-on learning and teaching, rather than books and lectures, as a way to explain science to students. In 1995, 30 teachers attended the program.

"The idea behind this approach is that if teachers experience this way of learning, then that is something they could implement in their classrooms, which is more effective than lectures," said Bardeen.

On the student side, Fermilab recently eliminated the DOE High School Honors Research Program in Particle Physics for about 60 students each summer. This two-week activity previously brought one student from each state and a few foreign countries to Fermilab. In the mornings, the honors students participated in physics lectures and, in the afternoons, they performed actual experiments, working with Fermilab employees to learn how

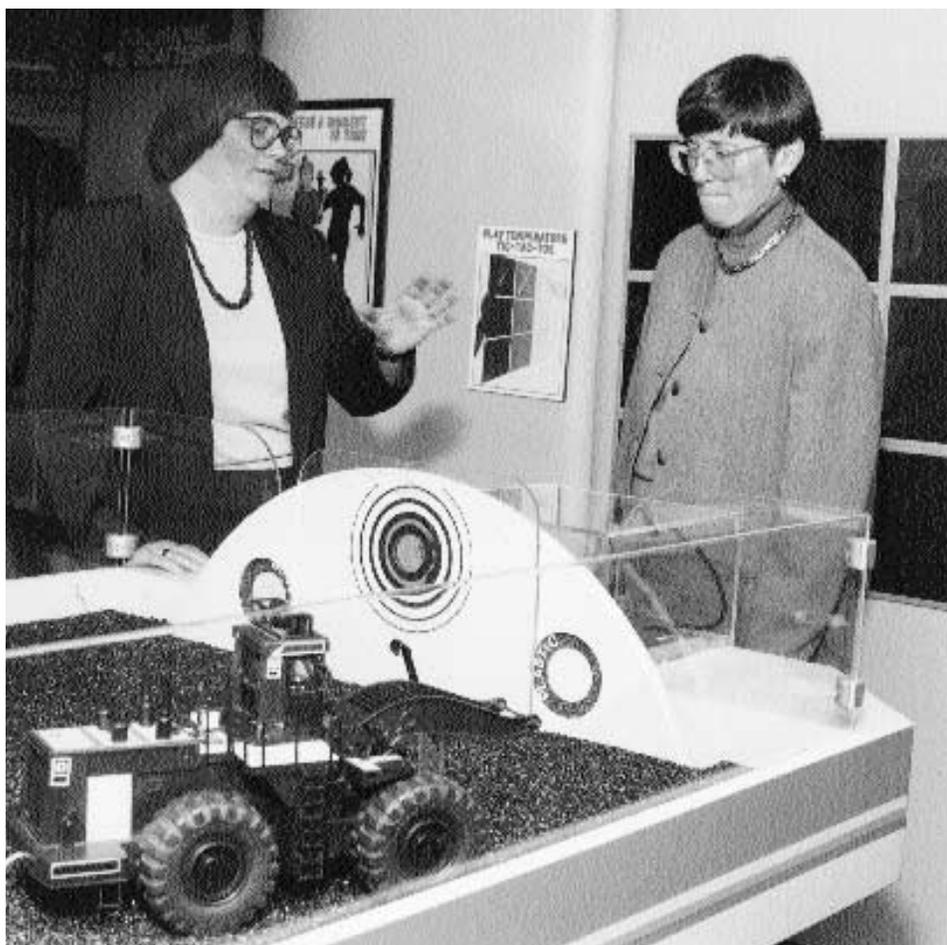
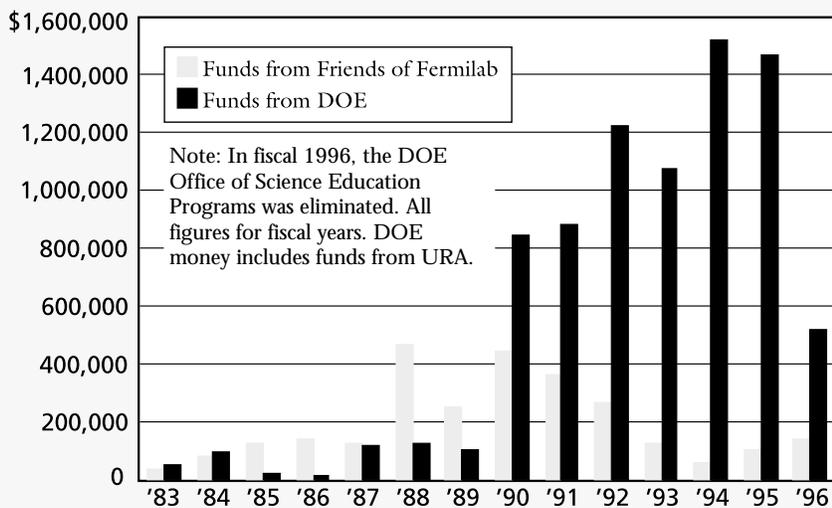


Photo by REIDAR HAHN

*Marge Bardeen (left), head of the Fermilab Education Office, with Energy Research Director Martha Krebs during DOE's on-site review of Fermilab in late September 1995.*

## FUNDING FOR PRE-COLLEGE EDUCATION PROGRAMS AT FERMILAB



scientists conduct research. This program ran for nine years, and 540 students participated.

Fermilab was also forced to cancel the Outreach Program, in which one Fermilab Education Office staff member spent at least half of her time in local area schools. Bardeen said this program was especially important because it let Fermilab reach schools and districts that could not reach Fermilab due to a lack of information or money or other obstacles.

Without the Outreach Program, “you are missing the teacher who really needs you. So, the converted are coming. But we are worried that now we are not able to attract the teacher who is uncomfortable with science and therefore reluctant to come,” said Bardeen.

Bardeen and her team also had to reduce classes for kids and their families that fostered the idea that kids and parents can learn together. Fermilab formerly offered these classes year round, but now it only has summer sessions.

In the fall of 1995, Fermilab had a 40 percent increase in the number of students coming to conduct field studies in the prairie, a popular attraction at the Laboratory. Bardeen said the Center is considering charging money for these field trips, and for the physics field trips, for the first

time in Fermilab’s history, possibly cutting off more programs for the poorer school districts.

### FERMILAB PROGRAMS

Despite the funding decrease, many Fermilab programs are still reaching a great number of students.

■ A grant from the Illinois State Board of Education sponsors a course at Fermilab that instructs teachers how to integrate Internet resources into their curriculum. In turn, these teachers agree to instruct other educators about the resources available on the Internet.

■ Fermilab’s “Prairie Science Experience” offers methods for educators to enhance their curriculum with prairie field studies. After incorporating prairie lessons in the classroom with Fermilab materials, teachers bring their classes to the Laboratory for students to experience the prairie firsthand and apply their knowledge. An Eisenhower National Clearinghouse publication, which is distributed nationwide to educators, highlighted the program in its fall 1995 issue—one of only about 15 programs that the publication promoted.

■ Fermilab’s “Target” program is a science and engineering curriculum that began in 1980 and is directed toward minority students to “identify

and encourage scientific and engineering research ability among members of underrepresented minority groups, and to increase their representation in the sciences and engineering.” Twenty-five high school students participate in the program each year, and Dianne Engram, manager of Fermilab’s Equal Opportunity Office, said 90 percent of the program’s graduates stayed in science and engineering on the undergraduate level. The high-energy physics program funds this course.

The programs mentioned above are just some of the activities that Fermilab sponsors with either high-energy physics money or funds through the DOE and FFLA, according to Bardeen.

### THE IMPORTANCE OF REACHING OUT

Bardeen said that many people, including those at the top echelons of government, have stressed that it is imperative for the science community to reach out to the general public and proselytize about the importance of scientific research in an era of shrinking budgets.

“I think that one of the key ways in which Fermilab becomes a good neighbor and good community member is through the education office... [Lederman Science Center employees and volunteers] are making an important contribution to this whole idea of gaining public support.”

However, Bardeen adds that the more important consideration is the ability to reach precollege teachers and students to improve the general way science is taught and to further students’ knowledge of science. And the best way for Fermilab to help is by working hand in hand with the schools to find ways to further these goals, according to Bardeen.

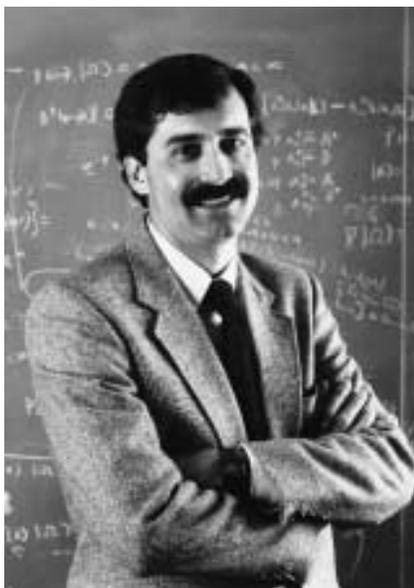
“When we work with the education community, we...say we’re partners. We try to say, ‘tell us what you need,’” said Bardeen. “We’ll talk to the scientists and we’ll look at the resources and we’ll try to make a match.” □

# FERMILAB CALENDAR

## MARCH 22

The Fermilab International Film Society will show Cobb on March 22. The dark side of the American dream told with wit, bravery, passion and depth through the story of baseball's finest, if most demonic, player, Ty Cobb. Admission is \$4. 8 p.m., Ramsey Auditorium, Wilson Hall.

## MARCH 29



Fermilab Lecture Series presents "Cosmic Revolutions: 1609, 1929, 1999" by Dr. Edward W. Kolb, Fermilab/University of Chicago. Remarkable new instruments today reveal the universe in unprecedented depth and detail. Dr. Kolb explores these recent findings in his lecture at 8 p.m. in Fermilab's Ramsey Auditorium.

Admission is \$5. Tickets are non-refundable. For further information or telephone reservations, call 708-840-ARTS weekdays between 9 a.m. and 4 p.m. Phone reservations are held for five working days, but will be released for sale if not paid for within that time.

## MARCH 31

NALREC hosts the Children's Easter Egg Hunt, intended for children up to 7 years old. Each child should bring a basket for collecting



*"Jellyeye's forte is heavily choreographed, intensely physical drum assaults, thunderous and complex, performed on an awesome set of custom designed rolling drums...one of the most intense musical experiences currently available." - The Reader*

eggs. Cookies and punch will be served. The Easter Bunny will also visit the children. Kuhn Barn, 1-4 p.m.

## APRIL 4

Wellness Programs presents "Good Mornings: The XYZ's of Sleeping," 1-2 p.m., One West.

## APRIL 6

Fermilab will host a "Family Challenge" 5K Run and One Mile and One-Half Mile Fun Run to benefit Drug Abuse Resistance Education (D.A.R.E.). T-Shirts for all, prizes for winners in several categories. Prepaid registration \$14 adult, \$8 under 15, \$30 family. For information, call Officer Karen Miller of the Addison Police Department (708) 543-4100 x238.

## APRIL 13

The Fermilab Arts Series presents a choreographer's showcase, Jellyeye Drum Theater, Jan Erkert & Dancers. These artists from Ballet Chicago feature a diverse mix of some of the best dance Chicago has to offer. The company of five dancers will perform Whole Fragments, a multimedia work created in 1995 set to John Adams' "Shaker Loops."

The showcase will include a performance of Blood Lotus, a compositionally and choreographically complex work that challenges the physical limits of the performers as it spirals through an ever-changing field of rhythm and motion. Tickets \$15. 8 p.m., Ramsey Auditorium. Call (708) 840-ARTS for information and reservations.

## APRIL 14

Arianna Quartet. Fermilab's quartet in residence performs their final concert of the season.

Tickets \$5 at the door. Call Janet McKay at x2059 for more information.

## APRIL 16

Blood Pressure Screening. Users' Office, 11:30 a.m. to 1 p.m.

## APRIL 18

The Wellness Works Committee presents a lecture on "Recognizing And Treating Depression" by R. Leider, MD & J. Schneider, MD. Noon-1 p.m., One West.

## APRIL 20

14th Annual Tornado and Severe Storm Seminar. Ramsey Auditorium, 1:30-4:30 p.m. and 7-11 p.m. Free.

## APRIL 24

The Wellness Works Committee presents "Count Down Cholesterol And Heart Health." Noon-1 p.m., One West.

## APRIL 26-27

Workshop on solar neutrino experiments, aimed at those familiar with the basic issues. The workshop will focus on options for both near-term and long-term future experiments. Curia II, 10 a.m. to 6 p.m. on Friday, 9:30 a.m. to 1 p.m. on Saturday. Consult <http://fnas08.fnal.gov/> or email [solarnus@fnas08.fnal.gov](mailto:solarnus@fnas08.fnal.gov) for further information.

## MAY 2

The Wellness Works Committee presents "Debtors Rights, Personal Bankruptcy," in One West from noon to 1 p.m.

## MAY 15

The Wellness Works Committee presents Annual Employee Health & Fitness Day, in One West from noon to 1 p.m.

## MAY 20 -24

The Wellness Works Committee presents Bike to Work Week.

## LETTER TO THE EDITOR

FermiNews staff:

I write to congratulate you on the electronic FermiNews effort. I suggest you contact the User's Office and ask them to discontinue the postal mailing of FermiNews to remote lab users. The last mailing should be a postcard informing about the electronic FermiNews. Worry about not internet connected users? These are slow dying dinosaurs and the lab should not waste resources on them in these budget tight days.

And a suggestion: Adobe Acrobat supports hyperlinks. It will be super if you could sprinkle the static articles with some "live" links to relevant points.

Best wishes to your effort; success is guaranteed!

*-Dimitri Dimitroyannis PhD  
Physics, Northwestern University  
dad239@nwu.edu*

*<http://ceres.phys.nwu.edu> vox (847) 491-8598*

[We appreciate your taking the time to encourage us and to suggest improvements to FermiNews. We do not think that it would be wise to discontinue the postal mailing of FermiNews to remote lab users, however. Such users frequently request extra copies of

issues that are of special interest to them, for distribution to their university colleagues, families, and representatives in government. Even if the remote user only shares his or her one printed copy of FermiNews, our audience grows. These printed copies reach members of the public who may not be "internet connected" and who are a vital part of our audience.

Deputy Secretary of Energy Charles B. Curtis has argued strongly for scientists to reach out to members of the nonscientific public in ways that this public can appreciate. He says, "The scientific community needs to do a better job of articulating the relevance of its work in terms that the public can understand and relate to." We feel we would not be relating as effectively to the public if FermiNews were to cut back on the number of printed copies. You're right, budgets are tight, but that makes it all the more important for us to get our message across wherever we can. Thanks again for your letter—and for saving paper by sending it to us electronically!

*-Leila Belkora, Office of Public Affairs]*

## LAB NOTES

### 1996 SUMMER DAY CAMP

Fermilab will again sponsor three supervised day camp sessions for children of employees, visitors, and Fermilab contractors. Session dates are June 17-July 5, July 8-July 26, and July 29-August 16. The fee is \$225 per child, per session. Admission is by lottery drawing on April 1. Contact Jean Guyer at x2548 for more information and for a registration form.

### CHEZ LÉON CLOSED

Chez Léon will close for Spring Break on March 27 and 28. It will reopen in April.

### CLAIMS DEADLINE

The filing deadline for submitting 1995 claims to your Health Care Reimbursement Account and Dependent Care Reimbursement Account is March 31, 1996. CIGNA must have your claims in their claims office by the close of business on that date. Some employees have substantial funds left in their accounts. Under IRS regulations, "If you don't use it, you lose it."

## MILESTONES

**ADOPTED:** Margaret Woo-Young Newberg, born September 21, 1995, by Fermilab astrophysicist Heidi Newberg and Lee Newberg.

**RETIRING:** Jose Villarreal, I.D. #3492, on March 29, 1996. He started at Fermilab May 8, 1978. Villarreal is a Technician II in the Magnet Design and Fabrication Group of the Technical Support Section.

**DIED:** Don Tinsley, on March 10. He worked as a quality assurance manager in the Technical Support Section, where his most recent project involved the building of magnets for the Main Injector. He began working at Fermilab in 1976. "Don wanted us all to be successful. We are all going to have to work a little harder and be a little smarter without Don here to help us," wrote coworker Gregg Kobliska in a eulogy for Tinsley.

**DIED:** Jorge Martinez on March 11. He arrived at Fermilab in 1980, and worked as a mechanical technician in the Research Division, where he worked on fixed-target experiments and at DZero; and as a mail carrier in the Laboratory Services Section.

## REMEMBER: FERMINews IS NOW ON THE WORLD WIDE WEB

It can be found at [http://www.fnal.gov/directorate/public\\_affairs/ferminews](http://www.fnal.gov/directorate/public_affairs/ferminews); it is also linked to the Fermilab home page located at <http://www.fnal.gov>

## CLASSIFIEDS

### FOR SALE

■ HP Deskwriter Printer for Macintosh, A-1 Condition, with original carton, and three ink cartridges: \$95, call Bob x3769, (708) 879-6355, or FLORA@FNAL.GOV.

■ Mayline (Hamilton) 4-post Drafting Table. Steel frame w/wood drawers. 37-1/2" x 60" wood top. Vemco Model 4100 Elbow-Type Drafting Machine w/Versatilt. 24" arm length, right-handed. (no scales) Asking \$150 each, or \$250/obo for the set. Delivery of table negotiable. Call Dave Richardson at x3354 or (708) 556-3007.

■ 1986 Isuzu Trooper II, 4WD, red, 5-speed manual, power steering and brakes, AC, AM/FM cassette stereo, luggage rack, towing hitch, very well kept (interior -

exterior), runs great, no rust, 92k miles. \$ 4,500. Call Alex at x3873 or (708) 393-6774.

■ 1983 Chevy Cavalier Wagon, blue, automatic transmission, power steering, power brakes, AM/FM, 175K mi, runs good, rusty, \$450. Call Rich at x3512 or (815) 436-7970.

■ 1986 Toyota Corolla DX sedan, silver, 4-dr, automatic transmission, AC, power steering, AM/FM stereo, rear defogger, good condition. Only 165k miles. A really nice car, it's yours for \$1,975 or best offer. Call Hank at x8105 or e-mail [glass@fnal.gov](mailto:glass@fnal.gov).

### WANTED

■ 12-to 14-foot aluminum fishing boat. Call Mike Van Densen at x4054 or (708) 264-1056

**The deadline for the Friday, April 5 issue of FermiNews is Tuesday, March 26.**

**Please send your article submissions, classified advertisements and ideas to the Office of Public Affairs, MS 206 or Email: [ferminews@fnal.gov](mailto:ferminews@fnal.gov)**

**FermiNews welcomes letters from readers. Please include your name and daytime phone number.**

# FermiNews

*Fermi National Accelerator Laboratory*

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