

# Fermi News

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Secretary of Energy Hazel O'Leary speaks at the users' meeting in Fermilab's Ramsey Auditorium.

## INSIDE

- 2 The Final Countdown
- 5 Cost Awareness the VIP Way
- 6 PET Project
- 1 Graduate Student Conference

Photo by Reidar Hahn



Mason Wiggins (right), aide to the Basic Research Subcommittee of the House Science Committee, talks with Fermilab physicist Jeff Appel in the New Muon Lab. On the floor behind them are Main Injector magnets.

## O'Leary Urges Passion in Support of Basic Research

Addressing an audience that included Fermilab users and congressional aides, the Secretary of Energy challenged scientists to take the lead in explaining the value of research to the American people. Other speakers at the annual users' meeting detailed physics accomplishments and future plans in a time of shrinking federal budgets.

*by Leila Belkora, Eric Berger, Judy Jackson and Donald Sena, Office of Public Affairs*

"We've got to get out there and mix it up," Secretary of Energy Hazel O'Leary told an audience of 800 in Fermilab's Ramsey Auditorium. She urged her listeners, assembled for the opening session of the Fermilab users' annual meeting, to join her and others in the Department of Energy "to articulate to the American people and to Congress why what you do is so important—why our nation benefits from basic research."

O'Leary was the keynote speaker at the annual gathering of physicists held June 3 and 4. More than 2,200 scientists—or users—from nearly 200 institutions use Fermilab's facilities to conduct high-energy physics research and expand the world's knowledge of the fundamental constituents of nature. Scientists come to Fermilab from more than 100 U.S. universities and institutions in 36 states and 86 institutions in 20 foreign countries. They meet each year to discuss science achievements and plans for the future.

*continued on page 8*

# The Final Countdown

GETTING READY TO RUN

Third in a series of stories on preparations for the July 1 start of fixed-target operations

by Leila Belkora, Eric Berger, Judy Jackson and Donald Sena, Office of Public Affairs



Photo by Fred Ullrich

o peeking at your neighbor's answer! KTeV experimenters take a radiation safety test.

oe Lach prepares the hyperon channel for use in E781.



Photo by Reidar Hahn

In two weeks, Fermilab will begin fixed-target operations. The Accelerator Division has already delivered high-energy protons from the Tevatron to the Switchyard, where the beam splits. On July 1, when protons course along the beamlines to the targets, experimenters will be ready: downstream, detectors will monitor a cascade of secondary particles, and data acquisition systems will race to keep up with the flow of data. Earlier stories in this series described fixed-target preparations for the Accelerator, Computing, and Research Divisions, and the Facilities Engineering Services and Physics Sections. For this issue, members of the

Environmental Safety and Health Section and Business Services Section reported on their activities.

Don Cossairt, associate head of the ES&H Section, said the radiation protection groups have been working busily to get ready. "First," he said, "we've been conducting reviews of the radiation shielding assessment." The assessments verify that there is enough soil or rock around buried beamlines to prevent harmful radiation from reaching the surface. For surveying the site, ES&H employs a 4-wheel drive vehicle named "MERL," equipped with radiation sensors.

Cossairt said the section is also simplifying radioactive sources. "The fixed-target experiments use more sources than the collider program," he said. To ensure that experimenters know safety precautions relating to

sources and beams, ES&H and the Research Division have planned new training programs. The section supplies and maintains radiation safety instrumentation.

"ES&H constructed 50 new instruments," said Cossairt. ES&H members are calibrating these "chipmunks"—as the monitors are called, for reasons that are lost in Fermilab history—at Site 38. "They're rolling off the end of the assembly line as we speak."

In Business Services things are hopping, as well, said Dave Carlson, deputy head. "Summer procurement activity is enhanced by the fixed-target startup; it's sort of a compound effect," said Carlson. Business Services handles about 23,000 requisitions a year.

"Business Services in general is excited to be able to help in getting ready to run," he said.

Besides increasing working hours in the receiving, stockroom, property, and distribution centers, and bumping up taxi service to at least three vans, the section is making procurement smoother. "We increased the short-order limit to \$250," said Carlson, "and also started using procurement cards, on May 15th. Each division and section participates; there are 29 cardholders at the moment."

As the fixed-target experimental halls fill up with equipment, Business Services drivers have been busy transporting components around the lab. "For example," says Carlson, "drivers carry stuff to KTeV from the Village" or from the staging area at the New Muon Lab.

"It's been a long time since we ran fixed-target experiments," mused Carlson, who has been at Fermilab 18 years. "We'll see if our statistics bear out. Last time we transported about 3000 cylinders of gas per month. It'll be interesting to see how this fixed-target run is the same or different."

From Fermilab Director John Peoples' viewpoint, the upcoming fixed-target run is different in that it will use more resources of the Research Division and Physics Section. "This time...the experiments are actually more expansive and complicated," he said. "Every one of the gas systems is more complex than what the experimenters put together [last time], letting a bottle of this stuff flow into that thing," he continues, alluding to the old gas setup.

“What’s been replaced has been modularized, but it’s *better*.” Data acquisition is also more elaborate in this run; for example, he says, “Experiment 831 will take 20 times the data at five times the rate, and KTeV is in a class by itself as far as complexity... Every experiment has more channels.”

Peoples summarizes the director’s role in preparing for the run: “My job is to set the priorities of the lab, to make sure this run is successful and that the resources go to the fixed-target experiments, and that the quality of the physics meets my expectations.”

### E871, HyperCP Experiment

CP violation has only been observed in the kaon system. KTeV, a fixed-target experiment set to begin this summer, will continue a long line of kaon experiments. Another fixed-target study, E871, will attempt to observe CP viola-



Photo by Fred Ullrich

Kris Wieczorek (on top), Abhishek Tandon and Betsiada Bedialla, E871 collaborators, work to set up their experiment, the search for CP violation outside the kaon world.

tion using decays outside the kaon world. Experimenters will study the decay of the lambda hyperon and the cascade particle (or Xi), and their antimatter counterparts.

Craig Dukes, professor at the University of Virginia and spokesperson for E871, said researchers are looking for any difference in the decays of the particles and their antiparticles, evidence for CP violation. He added that any observed difference in the lambda hyperon decay and the decay of its antiparticle would be profound on two levels. signifying CP violation

outside of the kaon system and offering evidence for “direct” CP violation. Dukes said the Standard Model predicts that CP violation is present, but the magnitude of the phenomenon is uncertain. He said if CP violation is present but unexpectedly small, experimenters may not see it.

E871 collaborators are building custom electronics to keep pace with the staggering number of events—about 100,000 per second—that will occur in the detector.

Dukes said his team is “working furiously.” As one of the last proposals approved, E871 has had to wait for necessary resources. On a recent tour of the experimental hall, collaborators were testing electronics and workers were pulling cable. Dukes said he hopes to be taking beam by August.

### E781, Segmented Large X baryon Spectrometer

Simply put, E781 aims for charm.

“We’re looking for charm in general, and baryons in particular,” said E781 spokesman James Russ. “We expect to increase the present world sample of charm baryons by 10 to 10,000.” The 110 experimenters from nine countries will use a hyperon beam to enhance the production of charm-strange particles.

E781’s detector system can differentiate between pions and kaons up to an energy of 250 GeV, an accuracy that Russ describes as potentially a “world record.” The extensive system, one component of which contains about 60,000 active strips of silicon, will pinpoint the decays of the specific particles the experimenters are seeking.

“There is a lot of action in these systems so we can really make sure we’ve got a baryon, and not a meson,” he said.

The experiment has the potential to address three areas of particle-physics theory: weak-decay physics, spectroscopy of excited states and charm-production physics. The last intrigues Russ most. Charm quarks have many different colors — the property that allows quarks to arrange themselves in a way that seems to violate the Pauli Principle — but *b* quarks have only three colors. No experiment to date has been able to explain this incongruity.

“The biggest challenge of this experiment is to understand ‘color bleaching,’” Russ said. “Whatever happens, we hope to understand this puzzle.”



Photo by Fred Ullrich

Tom Golaszewski (left), senior technician, inserts a “chipmunk” radiation monitor into an oven for testing at the calibration lab in Site 38. John Larson (center), engineering associate and Fred Krueger, technical specialist, look on.

# The Final Countdown

continued from page 3

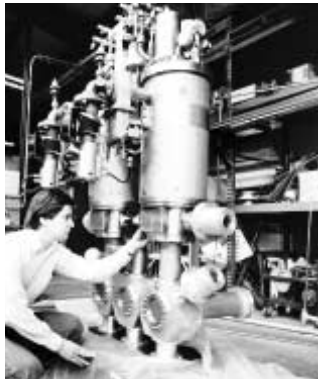


Photo by Reidar Hahn

Vassilios Papavassiliou, of Jew Mexico State University, checks the liquid hydrogen/liquid deuterium target in Lab 8.

## E831, FOCUS

Like submariners who go from looking through a periscope to standing atop the sub's deck, FOCUS experimenters will have a wider field of view when they capture one million fully-reconstructed charm particles during the upcoming fixed-target run.

E831 will use a similar spectrometer to the one used in its parent experiment, E687, which carried out detailed studies of the decay channels of charm mesons and baryons. Experimenters will boost their yield of charm particles by a factor of 10 by using a more efficient detector and increased beam intensity. Because much of the experimental apparatus is already in place from the E687 run, experiment spokesman John Cumalat said the experiment is in good shape.

But at an experiment-wide meeting of the E831 collaborators on May 31, tension was evident. The beam was imminent, yet there was work to be done. Nevertheless, despite the software and hardware work left to do, including waiting for undelivered silicon planes for the detector, experimenters expect to take useful data when the beam arrives.

By producing many decay channels of the baryons and mesons, Cumalat said the sheer number of events produced will give experimenters good looks at some of the more interesting decay channels. He believes the volume and quality of data collected will be unique for at least 10 years.

## E835, Charmonium States

In E835, scientists will attempt to produce new states of charmonium, a form of matter containing charm and anticharm quarks.

Collaborators, led by spokeswoman Rosanna Cester of the University of Torino in Italy, will force protons to collide with antiprotons at a 90 degree angle in the Antiproton Accumulator. By precisely tuning the antiproton beam's energy the experimenters will get charmonium in a small fraction of the interactions. The scientists will look for high-energy electrons and positrons, signaling charmonium decay.

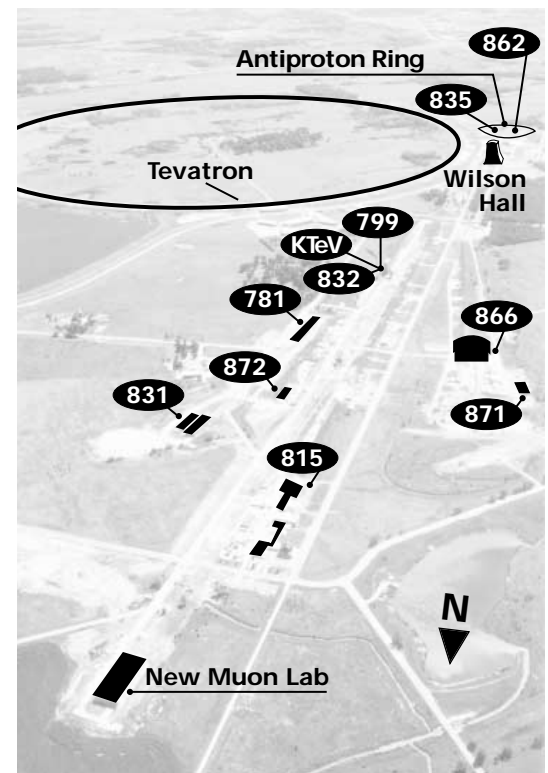
Experimenters plan to study charmonium to learn more about the strong interactions between the quarks. Fermilab physicist Stephen Pordes said previous similar experiments used electron-positron collisions, but such collisions can produce only a few charmonium states. Proton-antiproton collisions can produce a much wider array.

Pordes says the experiment, a U.S.-Italy collaboration, should be ready to take data by mid-July. The inner part of the apparatus contains a series of concentric detectors, all



Photo by Reidar Hahn

Paolo Rumerio of the University of Torino in Italy working to get E835 ready for its summer run.



installed. Experimenters have also built the main detector to measure the electrons and positrons, and expect to mate the two parts soon.

## E866

The significance of E866, says Fermilab physicist Chuck Brown, is that "the ratio of the dimuon yields from the liquid hydrogen and deuterium is very sensitive to any asymmetry between the distribution of anti-up and anti-down quarks in the nucleon. There is circumstantial evidence that such an asymmetry exists at approximately a 10 percent level. Our measurement should provide a detailed and accurate measurement of the asymmetry."

For the upcoming fixed-target run, E866 collaborators have been upgrading drift chambers and the VME-based data acquisition system. "The chambers were built at Los Alamos," says Brown, "and have been installed in the last few months." On a tour of the Meson East building, Brown points out some of the unique features of the experiment, a continuation of measurements made for E605 and E772 in the 1980s and E789 in the last fixed-target run. One of the magnets is "big enough you can have a square dance in it," says Brown, pointing out the cavernous interior.

Aside from the drift chambers, "Much of the equipment remains from the previous experiments," says Brown. "This PDP-11 computer did experiments before it came to Fermilab in 1970." ■

# Cost Awareness the VIP Way

FESS employees find ways to save

by Donald Sena, Office of Public Affairs

A cost-awareness program, begun by the Facilities Engineering Services Section at the start of fiscal 1996, has yielded more than \$200,000 in savings in eight months, on the way to the section's goal of saving at least \$355,000, or three percent of its budget, by the end of the fiscal year.

FESS Section Head David Nevin said the reduced federal budgets for high-energy physics research provided the impetus for the program. The FESS allocation for fiscal 1996 amounted to \$11.18 million, or only .05 percent more than the previous year—an amount that didn't keep pace with inflation, calculated at about three percent annually. Nevin and Victor Kuchler, deputy head of FESS, said they are confident that their team will save at least the three percent, and maybe more.

According to FESS leaders, the Value Improvement Program has a well-chosen name. It is a cost-controlling program, but Nevin said the term "cost

controlling" usually stereotypes ideas as cuts in both cost and quality.

"It is never said, but it's somehow implied that we are talking about doing things cheaper," said Nevin. "But that's not the intent. What we want to do is get more bang for every buck. So, the name 'value' implies that we are getting more value...for the dollars."

Kuchler said FESS managers designed the program to involve all 157 people in his section. Nevin added that managers are often the people who feel the most responsibility to keep costs under control. Calling it a "bottom-up" initiative, Nevin said VIP aims to give the people in the trenches the opportunity to address concerns about spending in the same manner as managers.

According to Nevin, this is where real savings will occur, because those front-line employees make the critical decisions about resources.

## The Process

When an employee identifies a way to save money, the first step is to fill out a VIP reporting form. The form describes the idea, estimates a cost savings and details the impact on work in that area. The initiator of the idea also must also identify any up-front costs, because long-term savings often require short-term outlays. Each FESS group also has a VIP coordinator, who assigns a facilitator to help implement each idea. Monthly, during the FESS self-assess-

ment meeting, each group dedicates a portion of time to VIPs.

## The Progress Board

The first ideas that FESS employees identified and implemented resulted in what Nevin described as obvious savings. Nevertheless, he said, they were important because most of the initial ideas saved a large amount of money and got VIP off to a solid start, establishing its credibility as a legitimate cost awareness venture and not just another exercise in bureaucracy.

The early ideas were "the low-hanging fruit—the stuff that was really obvious—but it got the juices flowing," said Nevin.

For instance, the use of upgraded laser equipment for shaft coupling alignment reduces the amperage on a motor by about three percent, and saves about \$60,000 over the fiscal year. Greg Gilbert and Chip Kee, both of FESS Operations, proposed the idea.

In another FESS area, at the suggestion of Joe Pathiyil, employees eliminated PCB-contaminated oil in 12 transformers, reducing the inspection time for those transformers by 96 hours per year for an expected savings of \$30,000. In all, the section has implemented 11 ideas, and is about to launch two more.

Nevin said the second wave of VIP projects will yield smaller savings per idea, but will require more effort to find, showing that employees in the trenches are actively looking for ways to save money. For example, John Kedzierski, of FESS/Engineering, wants to do all retroactive billing electronically, resulting in less paperwork.

The FESS team has a unique way of tracking the program's progress. Paper fish hang on a paper hook outside Nevin's office in Wilson Hall with each fish representing a VIP idea. When FESS employees implement an idea that achieves a savings, FESS managers move the fish from the hook to a stringer. Nevin said FESS leaders will count the savings for each individual idea for one fiscal year before factoring it into next year's budget, forcing the FESS team to find new ways to add fish to their catch.

"We are going to keep this thing alive and...it is going to keep generating...valuable ideas for some time to come," said Nevin. "It is becoming a way of life." ■



Victor Kuchler, of FESS, with the fish representing VIP projects, which have resulted in more than \$200,000 in savings this fiscal year.

# DOE Finds Few Bones to Pick with PET Project

by Eric Berger, Office of Public Affairs

From May 29-31, a Department of Energy review of the Positron Emission Tomography Project took place at the Fermilab campus. The Laboratory's responsibility in the project is the development of a medical accelerator to generate the helium particle beam to be used for research.

Though rigorous, a project review benefits both DOE and the experimenters. For DOE, it ensures that money is well spent, and project leaders receive advice and action items from those who have experience completing projects. But a DOE project review is an exacting process. It may seem like part Spanish Inquisition, part IRS audit. A committee of DOE officials and scientific experts descend upon Fermilab and demand answers to tough questions. For those answering the questions, it can get rough.

"The review committee did what I expected," said project manager Ralph Pasquinelli, who has been through many such reviews. "Technically, the project is moving along very well. They had very few findings on technical matters. On the managerial level, they were expecting an organization of a huge project like the Main Injector. This project has a \$10 million total cost."

Since construction began in September 1995 at Fermilab, the project has spent approximately \$3.4 million and will probably spend a total of \$5 million before the accelerator is moved to Louisiana. The review committee expressed concerns about whether the work schedule for completing the accelerator is too ambitious for the allotted time, but Pasquinelli said he is fairly sure it will be completed on schedule.

"I am still looking for Feb. 1 as the date to turn the machine over to the chemists," Fermilab's Pasquinelli said. "We plan on delivering the accelerator to Shreveport before Christmas."

The Biomedical Research Institute, located near Shreveport, La., will house the accelerator. The 170,000 sq. ft. research laboratory stands next to the existing Louisiana State University school of medicine. The accelerator will generate radionuclides by shooting a 10.5 MeV beam of helium-3 into a target. The desired radionuclides used for PET, fluorine-18, oxygen-15, carbon-11 and nitrogen-13, have half-lives of a few minutes or hours, and therefore to be effective, production near their site of use is optimal. Currently, researchers use cyclotrons for this process, but they are heavy and difficult to operate.

"The hope is that this machine will be lighter and will not have as much induced radiation so it will provide the

basis for machines that are accessible to more hospitals," said Fermilab Associate Director for Administration Bruce Chrisman, who attended the review meetings.

## A Diverse Collaboration

The Department of Energy provided a \$10 million budget over three years to a collaboration including lead-partner Fermilab, the Biomedical Research Institute, the University of Washington and Science Applications International Corporation. Once the accelerator moves to Louisiana, Fermilab's role in the project will shrink to overseeing the accelerator, Chrisman said.

The University of Washington is a member of the collaboration because of its history in PET research. PET plays a useful role in patient care, but its most important function is advancing clinical research, said Kenneth Krohn, a University of Washington professor of radiology. While a Magnetic Resonance Imaging scan or an X-ray is a diagnostic tool, physicians use PET to determine the most effective treatments for patients and to evaluate the efficacy of treatments. Krohn, a leader in PET research, said the committee's review was about what he expected.

The final partner in the collaboration, SAIC, is a private research and engineering company based in San Diego. Chrisman described the organization as a technology development, analysis and integration company that does a considerable amount of government contract work.

Although the review committee appeared to be giving the project a tough look, Chrisman said the reviewers asked good questions that would allow Pasquinelli's group to make improvements to their machine. Review committee members agreed.

"When we come in here we concentrate on soft spots, and there is a tendency to forget that you're really doing a good job,"

said DOE review committee leader David Sutter to Pasquinelli and other project members in the close-out session. "We hope our comments will be useful." For Pasquinelli there was little time for reflection before getting back to work.

"We will be evaluating the comments this week and see if it is possible to incorporate the suggestions," Pasquinelli said, noting his project has limited funding and time to address some of the suggestions.

The DOE review committee scheduled another review for the PET project in early October. ■

**"When we come in here we concentrate on soft spots, and there is a tendency to forget that you're really doing a good job," said DOE review committee leader David Sutter to Pasquinelli and other project members in the close-out session.**

**"We hope our comments will be useful."**

# International School Bus

Photos by Reidar Hahn



◀ Just past 8 a.m. children of visiting users of Fermilab wait to catch the West Chicago school bus.

▶ A line of sleepy children boards the bus. At this hour Wilson Hall comes to life.



▶ Pictured from front of line to back: Stag Krivosheev (Russia), Julia Novitski (Russia), Sonia Akopian (Russia), Leonardo Santoro (Brazil), Daniel Natella (Italy), and Cottesong Park (Korea), board the bus for school.



▼ A few moments later they're on their way.



## O'Leary Urges Passion in Support of Basic Research

*continued from page 1*

O'Leary said those future plans will be greatly affected by the current funding climate. The Secretary's remarks addressed shrinking federal budgets for fundamental research, including high-energy physics funded by the Department of Energy.

"We are under attack," O'Leary declared, contrasting the current budget cycle with those of earlier years when "we just strolled in and asked for what was necessary."

She cited studies showing that many Americans would prefer to devote federal funds to keeping a national park from closing before supporting science research.

"Why is the basic science budget so low?" O'Leary asked. "Because our competitors' claims are easy to explain" to the public and to Congress, while the value of fundamental science research is harder to communicate to non-scientists. "That has become our challenge," she continued. "The job of encouraging the American public is not mine or the Department's alone, but the job of every one of you."

Saying that science and technology are the heart and soul of the Department of Energy, the Secretary exhorted the audience of scientists to "become passionate supporters of science and technology, so that you can continue to answer the imponderable questions" of the universe.

In her speech, O'Leary also thanked Fermilab Director John Peoples for his service to the scientific community, the Department of Energy and the nation in directing the termination of the Superconducting Super Collider, while continuing his leadership of Fermilab.

### Physics, Policy and Funds

Before O'Leary's talk, the audience heard various speakers describe Fermilab management, achievements at the nation's premier high-energy physics laboratory, and gloomy funding scenarios for science. Universities Research Association President Fred Bernthal painted a vibrant picture of particle physics when he described the field's vigor.

"When the top quark was discovered I looked out and saw a sea of young, bright and energetic people," he said. Bernthal added that he believes this bodes well for the future of particle physics research.

But Martha Krebs, director of the DOE's



Photo by Reidar Hahn

Office of Energy Research, sounded a cautionary note, reflecting upon some members' of the U.S. House of Representatives attempt to dismantle the Department of Energy, and potential cuts in basic research funds. Krebs, whom Bernthal called a "devoted champion of science," described the 104th Congress as a challenge, and lamented that many strong supporters of basic research such as Sen. Mark Hatfield (R-OR) were leaving Washington. But the good news is Congress seems to recognize science as a necessary and fundamental base, she said.

Krebs, who donned a MINOS T-shirt in support of the NuMI (Neutrinos at the Main Injector) project, gave her address under the banner of "if we want to pull ahead, we have to pull together."

She recently visited Soudan, Minnesota with Fermilab users, including Stan Wojcicki, spokesman for the long-baseline experiment of NuMI, to learn about the neutrino oscillation experiment planned for 1999.

Krebs discussed the importance of moving forward in three specific areas: forefront physics, including Fermilab's Main Injector and NuMI, participation in the Large Hadron

Director of Energy Research Martha Krebs surprised the crowd at the annual users' meeting when she donned a bright red T-shirt with the logo from NuMI'S MINOS collaboration.



Photo by Reidar Hahn

Secretary of Energy Hazel O'Leary takes questions from the press following her address to Fermilab's annual users' meeting.



Collider at CERN and the need to support DOE's fiscal 1997 budget request. During a question period, Krebs responded to queries, including whether she felt the current figures proposed for the department's budget were subject to change.

"I believe right now the allocations are mechanical—they don't have true reality," Krebs answered. "But [the allocations] are indicative of a certain simplicity of whether or not science should be supported. This issue is not restricted to" one side of the aisle or the other.

Melissa Franklin, a professor at Harvard University and a member of the CDF collaboration, asked if she could question Fred Bernthal and, when he returned to the podium, queried him about whether URA would be more visible in the future. Bernthal said it would, but pointed out the URA charter does not allow the organization to lobby.

DZero spokesman Paul Grannis next addressed the swelling crowd in Ramsey Auditorium on "Physics at Fermilab: Achievements on the Energy Frontier." Grannis, of the State University of New York at Stony Brook, recapped the most recent collider run and the discovery of the top quark and described current work at the collider and fixed-target experiments.

CDF spokesman Bill Carithers explains to the press and DOE officials how experimenters used the detector to find the top quark.



Photo by Reidar Hahn

Head of Accelerator Operations Robert Mau shows Mason Wiggins one of the terminals in the Main Control Room. Mau said it takes five years to train one of his operators.

Following O'Leary's talk and a speech by Bob Eisenstein, director of the National Science Foundation's Division of Physics, and a lunch for VIPs in the New Muon Laboratory in the fixed-target experimental area, the afternoon of the first day of the users' meeting broke into two activities.

As Fermilab employees and users continued to address more technical topics in physics, a congressional aide, members of the media and DOE officials toured Fermilab research areas, including the Accelerator Division's Main Control Room, CDF and the KTeV experimental hall.

Mason Wiggins, a staff member of the Basic Research Subcommittee of the House Science Committee, said that he enjoyed getting in the trenches of physics research and thought his visit was invaluable for understanding the work that goes on at Fermilab. He echoed the concerns and calls to action other speakers had expressed throughout the day. Earlier, Michael Vernon, an aide to Senator Carol Moseley-Braun (D-IL), also visited the CDF detector and KTeV, as well as listening to the morning talks.

*continued on page 10*

**"The job of encouraging the American public is not mine or the Department's alone, but the job of every one of you."**

~ Hazel O'Leary, Secretary of Energy

Photo by Reidar Hahn

## Users' Meeting

*continued from page 9*

### Challenging Science Ahead

As users came and went, numerous Fermilab staff scientists and users took turns at the podium to address specific physics issues, accomplishments and future plans.

Naomi Makins from Argonne National Lab reviewed the possibilities for QCD measurements at two fixed-target experiments, NuSea and NuTeV. Users who were present at her talk now know that the “nu” in NuSea stands for “neutron,” while the same syllable in the second experiment stands for “neutrino.” Her final transparency may have the distinction of being the first sign of life from the fixed-target season: she showed the first data from NuTeV, which is one of two experiments that already has beam from the Tevatron, the “TeV” in the experiment’s name.

On Tuesday morning, Steve Kent reviewed astrophysics at Fermilab, concentrating mainly on the Sloan Digital Sky Survey. Kent addressed the question of why Fermilab is involved in the sky survey, noting that “astrophysics is continually butting into unknown areas of physics.”

SDSS will map areas around the north and south galactic poles, helping astrophysicists answer three fundamental questions about dark matter: Where is it? How much is there? What is it? Kent ended with a brief overview of the Pierre Auger project, which proposes to study extremely high energy cosmic rays.

Director John Peoples concluded the two-day meeting by reiterating many of the views heard earlier in the conference. He said that all scientists must work hard to educate the American people and Congress about the importance of basic research in these times of budget constraints. The director said solidarity in the scientific community is of the utmost importance, emphasizing that scientists must support all research endeavors and not just specific projects. Peoples added that he was optimistic about the physics of the future, saying there were many exciting questions waiting to be answered.

“There’s really challenging, interesting science in front of us. We have to realize that there is not going to be an infinite amount of money—we’re going to have to be really careful with our resources,” said Peoples. “But don’t lose faith—these are very interesting things to work on.” ■

The users’ meeting tour was able to view CDF, which has rolled out of its collision hall for upgrades.

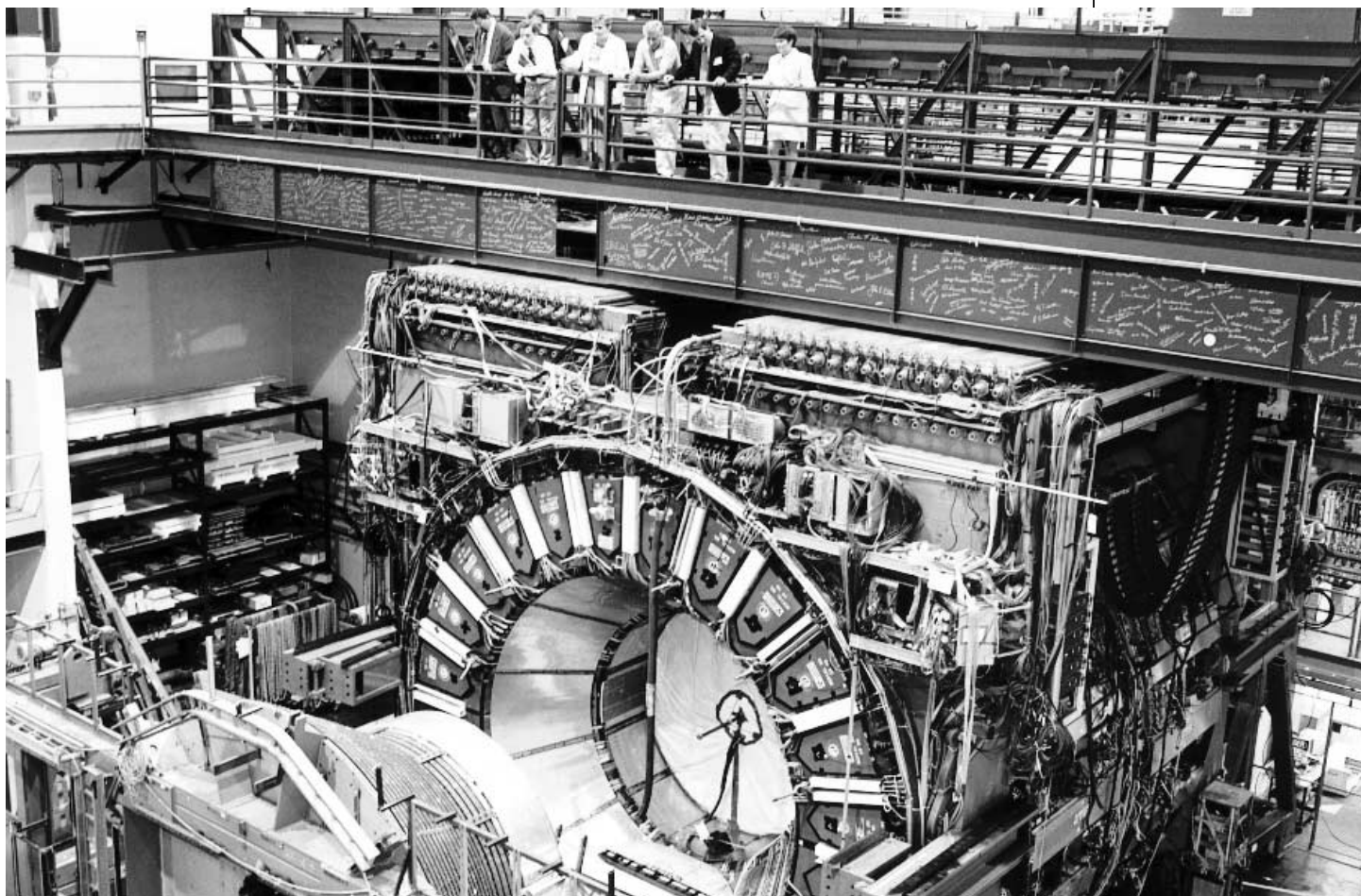


Photo by Reidar Hahn

# Chez Léon

## M E N U

Lunch served from  
11:30 a.m. to 1 p.m.  
\$8/person

Dinner served at 7 p.m.  
\$20/person

For reservations call x4512  
Dietary Restrictions  
Contact Tita, x3524

### Wednesday Lunch June 19

Selection of  
Stuffed Vegetables  
Chocolate Almond Mousse  
with Madeleines

### Thursday Dinner June 20

Smoked Salmon Toast  
Veal Saltimbocca  
Bowtie Pasta  
with Summer Vegetables  
Ricotta Cheesecake

### Wednesday Lunch June 26

Pita Stuffed  
with Chicken  
Tropical Fruit

### Thursday Dinner June 27

Tomato with Basil  
Grilled Pork Tenderloin  
with Madeira Sauce  
Bowtie Pasta  
with Vegetables  
Chocolate Cups  
with Mousse

# First Graduate Student Conference Held at Fermilab

by Benn Tannenbaum, graduate student at Texas A&M University

Because they feel there is little opportunity for graduate students associated with Fermilab to present their work, Users' Executive Committee members Janet Conrad and Heidi Schellman had the idea for a graduate student conference. Agreeing, the Graduate Student Association organized "New Perspectives '96," a conference where graduate students could give talks about their experiments.

New Perspectives '96, held directly after this year's annual users' meeting, served many purposes—including offering graduate students

an opportunity to talk about their work, and allowing them to meet with prospective employers.

Twelve informational posters of the graduate students' work were on display throughout the first week of June, with a formal poster session and reception on June 5. Thirty-three students spoke during the two-day conference, which closed with an address from Nobel laureate Leon Lederman. Organizers believe the conference will become an annual event as long as it attracts significant interest. ■

## CALENDAR

### JUNE 22

The Fermilab Art Series hosts Leon Redbone, a unique and creative entertainer, singer and guitarist. Redbone revives and revitalizes America's musical heritage from the turn of the century through the 1940s, inspired by artists such as Jelly Roll Morton, Blind Blake and Bing Crosby. Tickets \$18. 8 p.m., Ramsey Auditorium. Call (708) 840-ARTS for information and reservations.



"a bluesman who stepped out of a R. Crumb comic... old country blues, vintage jazz and antique schlocky pop... Redbone makes it come alive convincingly."

-San Francisco Chronicle

### JUNE 22 AND 23

The Fermilab Barnstormers Radio Control Model Club will host the 7th annual Anthony Frelø Memorial Helicopter Fly-In. Everyone is invited.

This is the second official Barnstormers Summer event, which includes two days of model helicopter flying fun. Pilots of all skill levels are encouraged to participate, with everything from trainers to scale models. Factory representatives will be on hand for demonstrations and advice on all aspects of the hobby. Guaranteed fun for all! Pilots must have Association of Model Aeronautics license. Spectators are welcome and refreshments will be available. For more information call Jim Zagel at x4076.

## LAB NOTES

### CHILDREN'S SWIMMING LESSONS

Fermilab offers children's swim lessons Monday, Wednesday, Friday. Beginners 10:45-11:30 a.m. Intermediate 10-10:45 a.m. Beginners must be 42" tall or five years old. Session I, June 10-July 12; Session II, July 15-August 16. Applications in the Recreation Office, WH15W. First come, first served.

### OZONE ACTION DAYS

Summer is here and along with all the pleasant activities associated with the season, summer also brings the possibility of air pollution and days when the ozone in the air can reach dangerous levels. Fermilab will again this year support the Partners for Clean Air coalition. The organizations that join this coalition pledge to take steps to minimize ozone levels. There are 240 Illinois partners in the Clean Air coalition. When the level of ozone in the air for the following day is expected to exceed a specific threshold, an Ozone Action Day is declared. The EPA then notifies all coalition partners.

When an Ozone Action Day is declared, Fermilab will notify each division/section office, broadcast a message on Channel 13, and place signs on Wilson Hall exits. Employees will be encouraged to carpool, bike or walk to work on the Ozone Action Day. The Laboratory will also curtail site operations that may add to the ozone level, such as mowing, structural painting and deferrable auto/truck usage.

# Budget Update: The Struggle to Fund High-Energy Physics

by Judy Jackson, Office of Public Affairs

The House of Representatives bill that will help determine FY1997 federal funding for DOE-supported high-energy physics laboratories, including Fermilab, reached a perilous point in its progress toward enactment last week. The House version of this year's budget resolution initially called for a \$1.3 billion cut from the FY1996 allocation for Energy and Water Development, which funds DOE-supported high-energy physics. The House-proposed cut would trim an estimated \$20 to \$30 million from FY97 funding for high-energy physics research and would severely affect Fermilab.

However, protests from Energy and Water Development Subcommittee Chairman John Myers (R-IN), among others, may succeed in restoring some of the funding. "We're going to have to see some relief at some point," said Myers, who will retire at the end of his current term. He has refused to mark up—or put into

final form—his subcommittee's bill until the Appropriations Committee adds more money. Meanwhile, the Senate has approved a budget resolution that calls for \$5 billion more in total domestic discretionary funding than the House version, and House Appropriations Chairman Bob Livingston (R-LA) has said that he hopes to make more money available in the House for FY97 spending bills.

"High-energy physics is going to have to do its part in balancing the budget," Proctor Jones, minority clerk of the Senate Subcommittee on Energy and Water Development, told physicists in Washington last week. "But you won't have to do more than your part."

On June 7, the House and Senate and House conferees reached agreement on a budget resolution for the coming fiscal year. Both houses have scheduled votes on the budget resolution this week. ■

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## CLASSIFIEDS

### FOR SALE

- 1992 Nissan Stanza XE. Automatic, a/c, AM/FM/cassette, pwr. windows/locks, cruise control, Ex. cond. 23K miles, \$9,200. Call Erika at (708) 513-8186.
- 1983 Ford Ranger. \$1,800/o.b.o. For more information call Jean, x2548.
- 1986 Nissan Sentra 2-Dr sedan, blue, 5-speed, a/c, AM/FM. 95K miles, runs well. Ex. cond., no rust. \$1,600. E-mail Hengjie Ma at mahengjie@fnal.gov, or call (708) 406-8464, or x4490, leave a message.
- 1990 Subaru Legacy, metallic blue 4 door (built in Lafayette, IN). One owner, AWD, 80 Watt stereo, four wheel disk brakes, cellular phone, pwr. locks/windows, ps/pb, very good condition, (needs two tires). Book price \$7,400, asking \$6,800. Drive it. Contact Sharon at qmail: ESH-Section-Fire Dept., or call x3248 or (708) 393-1860.
- 1993 White Toyota Corolla DX. Front wheel drive, automatic, ABS, driver's side airbag, a/c, AM/FM/cassette, 40K miles. In ex. cond., maintained according to recommended Toyota schedule. \$10,400/o.b.o. Contact Ping Yeh, x2124 or pyeh@fnal.gov.
- Queen-size four poster bed with brand new deluxe mattress and box spring. \$250. Adorable, new, 2-bedroom ranch townhouse in Geneva. End unit. Bright, open and airy with cathedral ceiling in living room, skylight in 2nd bedroom. Neutral decor, one-car garage and full basement. \$112,900. Call Gerry at x3930, (708) 232-4061 or email gerryb@fnal.
- 1980 Honda CX500 black and chrome motorcycle. Water-cooled 500cc engine, shaft drive, only 15K miles. Always garaged, in ex. cond. \$650/o.b.o. Call Bill at x2666.

## MILESTONES

### BORN

### LETTERS TO THE EDITOR

I am not in the habit of writing letters to the editor but I am choosing to do so in the sorrow of seeing the diminished coverage given to employees with plus or minus 25 years of service at their retirement. I believe that the original idea of the *FermiNews* being an employee-oriented newsletter has been disregarded in all of its entirety. The coverage given to the retired employees Byrd, Caffey, and Dewitt in the May 31 issue is almost embarrassing since a reader can see that some of the for sale ads received as much if not more lineage, and whole page was given over to a catfish and non-employee.

I realize the Lab has changed the value it puts on its employees over the years as evidenced by things such as the new *FermiNews*, but to see good and faithful employees written off in such a cavalier manner is insulting to my way of thinking.

There I feel better.

Bill Butler  
FESS

Wow, the *FermiNews* is sure looking great these days!

Pat Colestock  
Accelerator Division

The deadline for the Friday, June 28 issue of *FermiNews* is Tuesday, June 18.

Please send your article submissions, classified advertisements and ideas to the Public Affairs Office, MS 206 or Email: ferminews@fnal.gov

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

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