

# FermiNews

Fermi National Accelerator Laboratory

Volume 20

Friday, August 1, 1997

Number 15

## Particle Physics Family Reunion

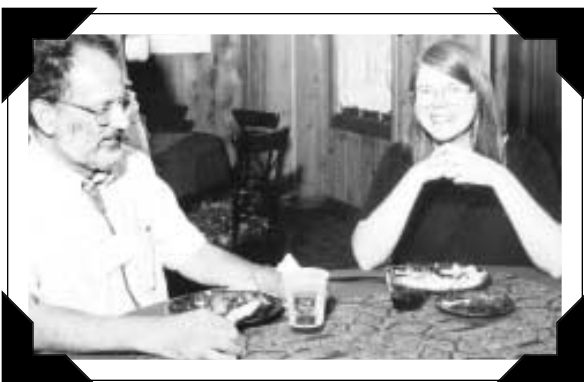
Back-to-back gatherings at Fermilab during the sweltering week of July 14 bore all the marks of a family reunion. Far-flung members of the Laboratory's user community, collaborating cousins by the dozens, came together to swap physics news, prognosticate, laugh, squabble, dream and generally renew family ties at the Users' Annual Meeting. The younger generation proudly made itself both seen and heard at the graduate student conference, and the tribal elders of the High-Energy Physics Advisory Panel considered the state of family fortunes at their regular quarterly meeting. The Laboratory even enacted the equivalent of showing off the new baby with a magnet milestone celebration for the new Main Injector accelerator. It was family week at the Old High-Energy Homestead.

Stories in this issue of *FermiNews* give accounts of the Users' Annual Meeting (page 2), the second annual graduate student conference (page 4), the HEPAP meeting (page 5), and the celebration for the welding of the last Main Injector dipole magnet (page 6).

At week's end, when the out-of-town kinfolk had cleared out, Fermilab seemed oddly quiet, like the day after Thanksgiving when the cousins go back to Cleveland. The cafeteria lines were shorter, and it was easier to find a parking space, but we sort of missed the visitors. They are, after all, family. ■



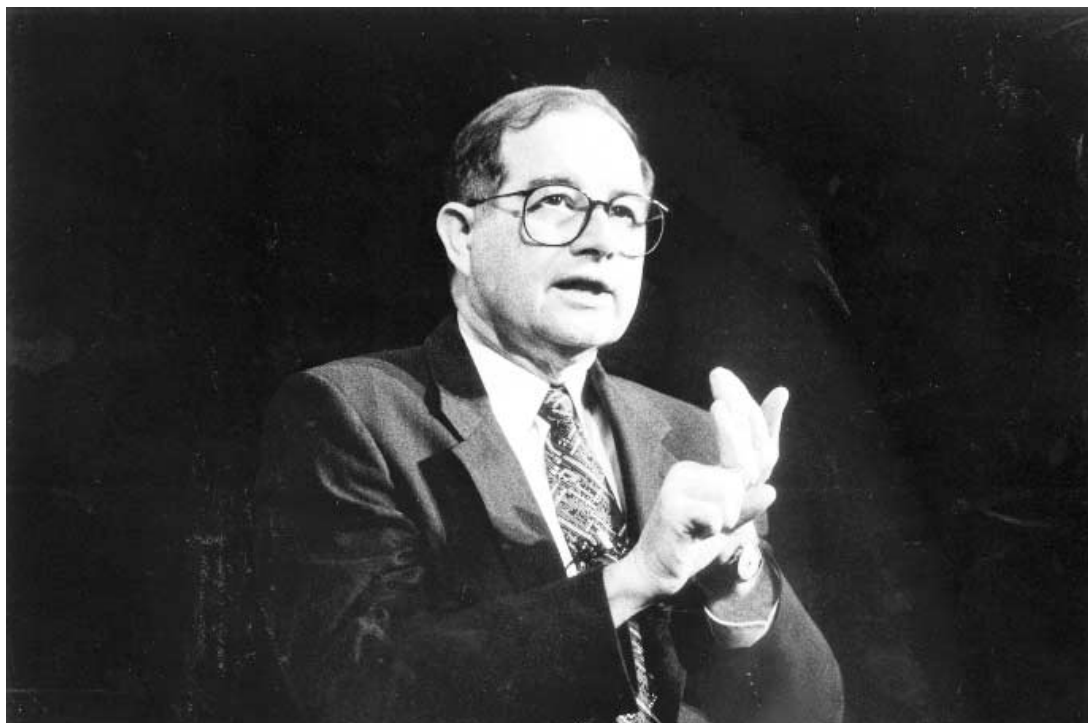
Magnet Macarena? HEPAP Chair Mike Witherell (left) joined DOE officials John O'Fallon, Bob Diebold and Peter Rosen, and Laboratory Director John Peoples in the celebration of a Main Injector magnet milestone.



Photos by Jenny Mullins

Physicists Satish Dhawan of Yale and Janet Conrad of Columbia shared dinner at the Users' Center.

DZero graduate student Jill Perkins of the University of Texas at Arlington explained her work at a poster session.



Neal Lane, director of the National Science Foundation, praised Fermilab for its educational programs for children. "All these kids will not become scientists, but they will become part of the informed public," he said.

## Politics Mixes with Science

"All our voices will need to be heard," NSF Director says, as the recent budget agreement threatens future funding for science.

by Sharon Butler, Office of Public Affairs

National Science Foundation Director Neal Lane, the keynote speaker at this year's Users' Meeting, called on Fermilab physicists to educate the public about the impact and value of science and speak up about the loss to society when funding for science declines.

His remarks took on added significance in light of the recent agreement reached by the White House and Congress to balance the federal budget by 2002 by limiting "nondefense discretionary spending." The category includes funding for government agencies such as the U.S. Department of Energy and, by extension, for scientific research. According to the American Association for the Advancement of Science, over the next five years, the budget agreement could force "cuts significantly greater than ... 14 percent [in] federal research and development" as spending on entitlement programs such as Medicare increases.

"Unfortunately, we've not done a very good job of sharing the excitement of scientific knowledge or the adventurous nature of scientific discovery with the world at large ...," Lane said. "Yet it is the rest of society that supports the opportunity to pursue that satisfying work."

"I believe that it must be our responsibility, in our role as civic scientists, to provide [the public] an opportunity to learn about that which is so satisfying to us and so important, in the long run, to society's well-being," said Lane, a former professor of physics at Rice University.

"Tangibility and accountability are with us today," he continued; legislators are increasingly requiring scientists to justify federal expenditures on research.

Lane was one of several messengers from Washington who sounded this theme before 300 scientists in Ramsey Auditorium during the annual Users' Meeting, held July 14 and 15. An extended, loose-knit family of more than 2,300 scientists—or users—from nearly 200 institutions rely on Fermilab's facilities to conduct high-energy physics research and expand the world's knowledge of the fundamental structure of nature. The scientists come to Fermilab from almost 100 U.S. universities and institutions in 36 states and 90 institutions in 20 foreign countries.

The two-day meeting included numerous presentations on research progress over the last year and future plans—so many talks, in fact, that Patricia McBride, chair of the Users' Executive Committee, said the organizers had



Photos by Fred Ullrich

Peter Rosen, DOE's associate director for high-energy and nuclear physics, told Fermilab scientists: "If we got a tenth of a penny for every hit on the World Wide Web, I don't think we would have any budgetary problems in high-energy physics."

difficulty squeezing them all into the agenda. The technical presentations ranged from discussions of top, bottom and charm physics to reports from the Beams and Computing divisions and designs for future experiments and colliders.

## “Flat-flat” budget for particle physics

Politics, however, overshadowed much of the discussion. Even as the sessions started, the House Appropriations Subcommittee on Energy and Water Development was marking up its spending bill, allocating \$680 million for high-energy physics. The House floor approved the measure on July 25.

The Senate appropriation for DOE’s high-energy physics program, approved the previous week, amounted to \$675 million. Differences between the House and Senate bills will be ironed out in conference over the coming weeks.

While these funding levels mean a “flat-flat” budget for fiscal year 1998, with no increase for inflation, Peter Rosen, DOE’s associate director for high-energy and nuclear physics, noted in his talk at the Users’ Meeting that the report from the Senate Appropriations Subcommittee on Energy and Water Development contained positive language. In particular, he said, the report strongly endorsed U.S. participation in the Large Hadron Collider. It also expressed concern that the money DOE requested for science is, in the report’s words, “inadequate to make full use of research facilities in which the Federal Government has made significant capitol [sic] investments.” Rosen said that the clause raised the possibility of funding increases for fiscal year 1999.

Even so, Lane emphasized, “if there is no sense of public alarm about a long steady decline in federal support for research, then that is most likely what we will see happen.”

“Demands continue to increase to explain our relevance,” he said.

## Topsy and Bopsy?

Rosen offered several suggestions for reaching out to the public. He said he drew the following ideas from his recent six-month assignment in Washington and from the National Aeronautics and Space Administration’s much-heralded public relations efforts surrounding the Mars landing.

- Call Fermilab the “home of the Third Family” (referring to the third generation of elementary particles discovered at the Laboratory) and give particles cute names. Rosen was only half joking. Just as NASA called the rocks on Mars Scooby Doo, Barnacle

Photo by Fred Ullrich



Physicist Heidi Schellman, Northwestern University professor and E815 collaborator, said the Standard Model has not changed since 1992, but “measurements have shown a lot of progress.”

Bill and Casper, Rosen suggested, Fermilab might call the *b* quark Bopsy and the top quark Topsy. While such names might seem “silly,” Rosen said, they “put a human face” on physicists’ work.

- Start a think tank in Washington.

Rosen recommended establishing a policy forum in Washington, like the Brookings Institution or the American Enterprise Institute, to study—and brief decisionmakers on—the economic, social and educational impacts of science.

- Open a museum of inner space.

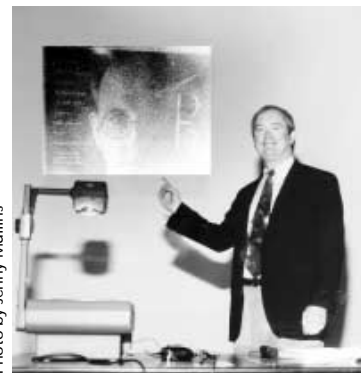
Impressed with the popularity of Washington’s Air and Space Museum—a museum of “outer space”—Rosen suggested that particle physicists open a museum of “inner space.”

## Politics calls

With Congress in the throes of budget negotiations, Lane regretted not being able to stay for the scientific discussions. Immediately after a brief tour of Fermilab, he rushed back to Washington, saying, elliptically: “You can never rest totally comfortably in your bed” when Congress is busy on appropriations.

Indeed. Two days later, according to *The New York Times*, the House of Representatives sliced \$174,000 from NSF’s budget, punishing the agency for underwriting an academic study of why many civic leaders choose not to run for Congress. ■

Photo by Jenny Mullins



Theoretical physicist Chris Quigg announced he had found the elusive Higgs boson—in London. Higgs Boson is the name of a New Wave music group and its key performer. Pointing to the photograph of Boson on the CD cover, Quigg guessed the Higgs mass to be about 11 stone.

# Conference Features Graduate Student Work

New Perspectives '97 provides forum for graduate students at Fermilab to present their research.

by *Katherine Arnold*,  
*Office of Public Affairs*

In the hubbub of meetings, conferences and celebrations during a whirlwind week at Fermilab, the Graduate Student Association hosted its second annual graduate student conference, New Perspectives '97. The conference incorporated a poster session, a keynote address and a day packed with presentations by graduate students from around the Laboratory.

"We chose a busy week deliberately," said GSA representative John Krane, a graduate student from the University of Nebraska at Lincoln. "The advantages were tremendous."

The poster session on the evening of July 15 featured 21 posters describing everything from research results to proposed designs for future experiments. Graduate students, Lab officials and physicists browsed the second-floor display, while the poster designers answered questions. Among the browsers was Deputy Director Ken

Stanfield, who was pleased with the displays and the students' involvement at the Lab.

"Fermilab is fundamentally an education institution, and research would not go on as effectively as it does without them," he said. "Given the quality of the research, these students are first-rate."

## A push for education

The next event for the conference was the opening address, given by Director Emeritus Leon Lederman. Lederman focused on the relationship between science and the public, and he challenged his audience not only to concentrate on research but also to consider efforts to improve science education.

"I think basic research in this country is essentially free," Lederman said. "It is not only an investment in doing good, it is an investment in our human understanding of the world in which we live."



Michael Begel, from the University of Rochester, at the graduate student conference.

The talks began Friday in One West and covered four main areas: exotics, detector physics, heavy flavor physics and quantum chromodynamics. Twenty-two graduate students presented their research, background information on their experiments or proposals they have worked on. Michelle Thompson, a graduate student from the University of California at Irvine, discussed her work at E835, an experiment using charm mesons to look at interactions between quarks. She said the conference was a good opportunity to get out of the daily routine of the experiment.

"It's nice to take my data and show it to someone else," she said.

## Sharing research

This opportunity for sharing research was one of the goals of the conference, said Sam Zeller, a GSA representative from Northwestern University. She added that the conference provides a formal setting for the students to learn about others' research.

"It gives us a chance to explore and see the rich variety of experiments, and hopefully it will expand our depth of knowledge," Zeller said.

GSA's efforts in coordinating the conference and assembling graduate students and scientists alike to see the posters and the presentations drew favorable reviews. Patricia McBride, chair of the Users' Executive Committee, spoke highly of their well-organized activities.

"The graduate students are very active members of the Fermilab community, not only inside their experiments but also for improving the quality of life around here," McBride said.

GSA's next big events are two summer classes being offered to graduate students at Fermilab. The first class, on collider physics, began on July 28. The second class, the Physics of Particle Detectors, will begin on August 18. ■



Photos by Jenny Mullins

Denis Prokofiev, a graduate student from St. Petersburg State University in Russia, discusses data at the New Perspectives '97 poster session.

# HEPAP Convenes at Fermilab

Advisory panel praises the Lab's current fixed-target program and discusses the future of particle physics in the U.S.

by Donald Sena, Office of Public Affairs

The U.S. Department of Energy's High-Energy Physics Advisory Panel convened at Fermi National Accelerator Laboratory July 16-17, discussing Fermilab physics accomplishments and plans and broader issues relevant to the nation's particle physics program.

HEPAP comprises seasoned physics professors and laboratory scientists appointed by the U.S. Secretary of Energy to review projects and plans of particle physics programs in the U.S. The panel advises the director of DOE's Office of Energy Research about directions the field should take and projects it should support; panel members serve three-year terms. HEPAP also forms subpanels to study specific particle physics issues in depth.

While commending the current fixed-target program, progress on the Main Injector and the planned upgrades to collider detectors, HEPAP members expressed concern about future funding for high-energy physics and planning for projects that will bring the energy frontier back to the U.S. after 2005.

## Fermilab program

HEPAP members spent much of the meeting's first day hearing presentations about various parts of Fermilab's program. Paul Tipton, from the University of Rochester, summarized recent results of Collider Run I, saying Run I data continue to yield excellent physics results, including the best measured top quark mass and the "world's best measurement" of the mass of the *W*. Tipton also said Run II holds much potential for important physics insight. Fermilab physicist Gerald Jackson explained how Fermilab will prepare the accelerator complex for the necessary Run II upgrades. He updated



Members of HEPAP listen to presentations at Fermilab. Mike Witherell, chair of HEPAP, is in center of photo with John O'Fallon, from DOE, to his right.

HEPAP members on the progress of the Main Injector, the Lab's newest accelerator now under construction, and work on the Recycler Ring and Tevatron. Later in the day, Robert Tschirhart, a Fermilab physicist, summarized the Lab's current 800-GeV fixed-target experiments and plans for a limited fixed-target program in 1999. After a tour of Lab facilities for HEPAP members, Fermilab scientist Bob Bernstein presented the status of current neutrino experiments at the Lab and described the proposed neutrino oscillation program known as NuMI (Neutrinos at the Main Injector). Calling the physics compelling, Bernstein said Fermilab is the logical place for future neutrino oscillation experiments, as the Lab has developed the methods and has the experienced people to carry out neutrino studies. Bernstein also touched upon the international competition for such experiments, noting similar planned studies in Japan and at CERN.

"We have serious competition; we cannot stand still. We need the green light to go ahead with all deliberate speed," said Bernstein. He later noted, "This is a program that can go on for a very long time; we can make a major impact. If we discover neutrino oscillations, this [will mean exciting science at Fermilab for 20 years]."

The NuMI project engendered some concern from at least one HEPAP

member. Harvard physicist Melissa Franklin, a Fermilab user, questioned whether Fermilab might be overextending itself with the NuMI project. Franklin also questioned where funding will come from for NuMI, as the collider detectors are still performing upgrades to get ready for Run II. Fermilab Director John Peoples said NuMI will not interfere with the upgrades to the two collider detectors.

*continued on page 11*



Photos by Jenny Mullins

Jim Shultz, from Fermilab's Visual Media Services, coordinates closed-circuit television coverage for the open HEPAP meeting.

# Marking a Magnet Milestone

Main Injector dipoles reach the finish line.

by Andrew Shih, Office of Public Affairs

Blue sparks arced from behind a canvas curtain as a crowd of engineers, physicists, technicians and DOE officials waited impatiently on the other side. Minutes later, the welders paused. Main Injector Project Manager Steve Holmes turned to the restless audience with a smile.

“We have liftoff!”

His proclamation capped a party celebrating the completion of dipole magnets for the Main Injector. This milestone resulted from years of hard work by staff of the Beams and Technical divisions and close collaboration between Fermilab and industry. On September 30, 1990, the first dipole prototype rolled into the Magnet Testing Facility, and 366 magnets later, a major phase in construction of the Main Injector is complete.

## The magnets

Synchrotron accelerators like the Tevatron and Main Injector use dipole magnets to bend particle beams in a ring. Although these magnets appear straight at first glance, closer inspection reveals a small, precisely engineered curve, or sagitta, to each one. As charged particles travel through a dipole's magnetic field, their path bends ever so slightly to one side. When hundreds of these magnets are arranged in a ring, they create a circular channel for accelerated particles to travel.

The Main Injector ring uses 216 six-meter dipoles and 128 four-meter dipoles, designed by a Beams Division/Technical Division collaboration. Generating magnetic fields up to 1.7 Tesla, the 344 magnets (not including spares) will guide protons and antiprotons around the two-mile ring.

## Fabrication and assembly

During the early stages of the dipole project, Fermilab and the Department of Energy opted to attempt a new strategy for magnet manufacturing:

“We decided to contract out for major components, and Fermilab would do the final assembly,” remembers Main Injector Magnet Project Manager Gale Pewitt.



Photo by Jenny Mullins

He credits this approach with keeping costs down throughout production. Projections in 1992 set the budget for the magnets at approximately \$30 million, but as the manufacturing wound to a close, costs equaled just \$23.5 million.

A significant portion of the savings resulted from a competitive bidding process. After having several candidates manufacture sample components, the Laboratory selected the most cost-effective of the qualified vendors. Technical Division Material Control staff monitored the chosen vendors throughout production. The five companies each contributed a key element to the magnet fabrication.

LTV Inc. supplied 7,000 tons of steel, from which Electro Metal Products of Skokie, Ill., stamped laminations to precise Fermilab specifications. SVF Inc. of Rock Falls in western Illinois, stacked the laminations into dipole magnet cores. While these vendors were fabricating steel cores, Everson Electric was winding copper coils in Pennsylvania. These coils were then shipped to England, where Tesla Engineering insulated them. Cores and coils converged on Fermilab for final assembly.

Bob Williams welds the final Main Injector dipole magnet.

A crew of six Lab technicians labored for four years to assemble the pieces. They placed each coil into a half-core and then welded two half-cores together, creating a Main Injector ring dipole magnet. Three magnets moved through the assembly area each week, according to Chief Technician Todd Nebel.

“It’s because of the technicians’ cooperation and pride in their work” that production has gone so smoothly, said Assembly Manager Dan Smith.

Following assembly, the magnets sojourned at the Magnet Test Facility, where a team led by Hank Glass measured magnetic field uniformity. Technicians then fitted them with beam tubes and packaged them for transportation to the Main Injector tunnel. Today 317 dipoles rest comfortably in the ring.

### A team effort

Each magnet required 90 hours of labor and the contributions of dozens of individuals at Fermilab alone. Pewitt praises the efforts of all Fermilab staffers involved in production, including designers Jack Jagger, Nelson Chester and the late Stan Snowden; Gregg Kobliska, Ron Evans and Bill Pritchard in Material Control; Beams Division physicists Dave Harding and Phil Martin; John Carson; Joe Collins; Leon Strauss; Sharon Beverly; and Nancy Theis.

“The team really worked well together,” stressed Chester.

John Zweibohmer, Material Control acquisition head, agreed: “The project was very well managed.”

Well managed, indeed. Three-hundred sixty-six magnets and seven years after that initial prototype took its first baby steps into the Industrial Building complex, dipoles by the dozen are ready to flex their magnetic muscle in Fermilab’s newest accelerator, the Main Injector. ■



Photo by Reidar Hahn

The dipole assembly crew: from left to right, Steve Puckett, Chris Exline, Paul Soto, Jackie Wilson, Sue Miller and Todd Nebel.



Photo by Jenny Mullins

Vendor representatives gathered as Fermilab recognized their contributions to the dipole project. From left to right: Mike Yeoward, Tim Hoaglund and Gary Durling of SVF; Len Larson of Electro Metal Products; David Everson of Everson Electric; Jon Sollberger of LTV; Greg Naumovich of Everson Electric; and Jason Mammosser of SVF.

### Power to the People

Construction crews are hard at work building a new master power substation at the southeast corner of the Main Injector. Here, 345-kilovolt electricity from Commonwealth Edison lines will be translated to 13.8 kilovolt for Lab use. This substation will meet the advanced pulsed power demands of the Main Injector, as well as protecting against site-wide power failures that can lead to expensive helium losses. Workers have moved in an unused transformer from the old substation (just above minivan). The modular design of the switch gear building to the left is the largest structure of its type on land.



Photo by Reidar Hahn

# First-Rate Analyses in a Converted Garage

In quality assurance, Fermilab's Activation Analysis Laboratory gets a perfect score.

by Sharon Butler, Office of Public Affairs

When Fermilab's founding director, Robert Wilson, announced his ambitions for a place of "architectural significance ... and grandeur"—not a "dowdy site with shabby buildings"—he probably wasn't thinking of the Activation Analysis Laboratory.

It's housed in a musty, bug-ridden garage in Fermilab's Village. The peeling red paint, rubbed pink with age, curls like stiff pieces of parchment. Brown stains on the ceiling attest to a history of roof leaks. Insects routinely crawl into the laser printer, ruining toner cartridges and inadvertently creating grisly, belly-up entomological displays on cover pages.

Steve Benesch, the lab's technician, has been attacked by geese nesting in the flower bed outside. And he vividly recalls the time a high-voltage power supply blew when he turned the switch on.

But as unlikely as it may seem, this converted garage crammed with aging spectrometers and scintillation counters remains a first-rate laboratory, and the scientist and technician who man this dusty outpost in The Village look after the safety of every Fermilab user and employee.

## Four-millirem standard

Every day, samples from all over Fermilab arrive in innocuous-looking plastic bottles and Ziploc bags—clumps of soil or silt, blades of grass, air filters, water and strips of foil. Benesch and the lab's manager, nuclear physicist Vernon Cupps, transfer the samples to tiny vials, assign them numbers and ready them for radioactive analysis. Although the two men help in research by calibrating the secondary emission monitors that count the number of particles hitting a target, their job mostly involves monitoring radioactivity generated in accelerator operations—radioactivity that, if undetected, might find its way from the beam areas to cooling water and the environment. They identify the type of radioactivity and its extent, alerting scientists to any possible dangers before they happen.

Cupps and Benesch are carrying out a long tradition of commitment to environmental protection at Fermilab. In 1971, Wilson issued a statement saying that Fermilab's goal was not to exceed a dose equivalent of 10 millirem per

year at any point on the site, according to an article written by Don Cossairt, head of the Radiation Protection Group. At the time, the Atomic Energy Commission's limit was 500, and other accelerator laboratory officials apparently balked at the stringent precedent Wilson was setting.

In fact, in all its history, Fermilab has never exceeded its goal by more than 4 millirem per year—an extremely low level compared with natural radiation levels of 300 per year.

Manager of the Activation Analysis Laboratory Vernon Cupps (left) and technician Steve Benesch ready samples for analysis in the liquid scintillation counter. Clear vials contain known quantities of tritium and carbon-14, used for calibration. Milky-white vials contain samples.



Photos by Fred Ullrich



Thanks are due, at least in part, to the Activation Analysis Laboratory, which began operation in 1972, the year Fermilab produced its first beam of protons. Having the analysis lab on-site has been critical, said Cossairt, because any short-lived, but highly radioactive elements might disappear by the time an outside contractor could complete its analysis. Also, on-site technicians can specialize in the particular mix of low-hazard radioactive elements associated with accelerator operations.

## Nightmare of peaks

"You never know what you're going to find," said Benesch, grinning like a kid. "It's like opening a Christmas present."

Sometimes he finds "the same old stuff." But other times, he said, "you see something that you've never seen before." Then he struggles to match the spectrogram with the textbook references.

He and Cupps once worked for a week on a "nightmare of peaks" in a spectrogram of a "wipe," or sample, taken from the APZero target area, where antiprotons are manufactured for the accelerator. Benesch and Cupps suspected the radioactivity was due to rhenium—an element Benesch had never seen before, "really, really exotic stuff"—but were puzzled because regular checks for radioactivity had always found the area to be clean. As it turned out, the experimenters had newly installed a target made of rhenium, expecting it to be a good source for generating antiprotons. They subsequently eliminated the rhenium.

The oddest material Cupps and Benesch ever analyzed was an artificial knee joint. The Neutron Therapy Facility was planning on irradiating a tumor in a patient's leg, next to the steel and titanium knee, and the technicians were worried about any long-term hazard from induced radioactivity in the joint.

"There was all kinds of neat stuff in that!" recalled Benesch.

## Quality assurance

To ensure that their analyses are accurate, Cupps and Benesch participate in a quality assurance program run by the U.S. Department of Energy's Environmental Measurements Laboratory. Twice each year, EML sends samples with known quantities of radionuclides to the 116 participating laboratories worldwide. The laboratories identify the quantities and types of radionuclides in the samples, and submit their answers. This year, Fermilab's Activation Analysis Laboratory was one of only four that scored a perfect 100.

What's more: other labs had state-of-the-art equipment—perhaps even the latest Compton suppressed gamma spectrometer,

with a price tag topping \$100,000. The workhorse at the Activation Analysis Laboratory was a 27-year-old gamma-ray spectrometer whose insides look like a brick oven.

"We take quality assurance very seriously," said Cupps. And the trick to his lab's success? "It's all in the calibration," he said.

Commending Cupps and Benesch for their perfect score on the quality assurance test, Director John Peoples praised their "careful maintenance of sophisticated equipment" and their "meticulous attention to detail."

Meticulous, indeed—to the power of 10. On the office blackboard, Benesch keeps a tally of errors: a mere two so far this year, neither of them consequential. Benesch checks and rechecks ever since his first year at the laboratory when he inadvertently "slipped a decimal point" in a report to DOE, and DOE thought Fermilab had enriched uranium in a dumpster. Turned out, it was depleted uranium, but it shouldn't have been in the dumpster anyway.

For William Griffing, head of Fermilab's Environmental, Safety and Health Section, the Activation Analysis Laboratory's perfect score on DOE's test eased his mind. "With the heightened concern about environmental contamination at energy laboratories," he said, "it's good to know that our analyses stand up to scrutiny."

He was pleased, too, he said, that the lab's roof had finally been repaired. ■



The laboratory regularly checks for radioactivity in surface water used for cooling magnets.

Lead bricks create a protective "cave" for radioactive samples in the gamma-ray spectrometer Cupps and Benesch used for their EML test.



Photos by Fred Ullrich

## George Robertson

Associate Director for  
Operations Support

I.D. #11822

by Katherine Arnold, Office of Public Affairs

In a stab at gallows humor, Laboratory colleagues have been asking newly arrived Associate Director George Robertson if he knows something they don't know.

Robertson has a reputation as an expert at shutting things down.

In fact, when asked about his new assignment at Fermilab in light of his executioner's role at other facilities, the former major general of the U.S. Army Corps of Engineers laughed, leaned back in his chair and said in his smooth Georgia drawl, "Well, my first shut-down operation was in 1972 ... ."

He most recently played Dr. Kevorkian to the Superconducting Super Collider, where he served as that terminated laboratory's final director from September 1994 to January 1997, following the interim SSC directorship of Fermilab Director John Peoples.

Robertson joined the Fermilab Directorate July 1 as associate director for operations support, which includes overseeing the activities of the Facilities Engineering Services Section and the Environmental, Safety and Health Section, and working on quality management systems.

His experience with high-energy physics began with the SSC project.

"The SSC was having some difficulties in having senior management who knew how to build things," Robertson said. "They had good

management to run a laboratory, but [the Department of Energy] was concerned that they didn't have people who were skilled in working with large construction projects."

He began as a deputy project manager in October 1990.

"I basically spent three years building and three years terminating," he said.

Former SSC Project Director Ed Cumesty of DOE worked closely with Robertson throughout his time at the canceled collider project and said Robertson worked hard to turn what was a traumatic time for many into a project with goals and milestones.

"The devil is in the details, and he wrestled the devil," Cumesty said. "He recognized that terminating the SSC was a project of its own and that it was an accomplishment and an effort to shut something down. He really focused on success."

Robertson's military training plays a large part in his project management success. A U.S. Military Academy graduate, he retired from military service in December 1989. His final assignment in the military was as the assistant commander of the Corps of Engineers and director of military programs. He earned degrees in civil engineering, theoretical and applied mechanics, and public administration, and is a registered professional engineer in Illinois and Texas.

Robertson replaces Fermilab physicist Ray Stefanski in the associate director position. Stefanski will be returning to the scientist ranks to analyze data and tackle some upcoming projects. Stefanski also worked with Robertson at the SSC.

"[Robertson] has the capacity to maintain his bright outlook and energetic presence even in the most difficult circumstances," Stefanski said. "The Lab is very fortunate to have him here."

Having spent two winters in Illinois in the 1960s, Robertson is not looking forward to returning to Chicago winters, but he is happy to be here, he said.

"I love it," he said. "I love to work with dedicated people, and I learned how to work with those dedicated to the advancement of science at the SSC."

From the proud grin he wears when he tells the story of mowing Georgia runways in exchange for flying lessons to the sparkle in his eye when he talks about his family, Robertson's own dedication and devotion to everything he does becomes evident. And when a reporter asked, just to make sure, whether Robertson does indeed know something sinister about Fermilab's future, he laughed again.

"No," he said. "Unequivocally, no." ■



Photo by Fred Ullrich

Photo by Jenny Mullins



L.E. Price, from Argonne National Laboratory, at his presentation to HEPAP.

## HEPAP

*continued from page 5*

Peoples pointed to current funding and personnel levels for the neutrino oscillation program, which are mere fractions of those for the upgrades. However, Peoples did say it was important to move forward, and said Fermilab would be able to break ground in 1999 for NuMI if sufficient funds are available.

Alvin Tollestrup and Bill Foster, Fermilab scientists, briefed the panel on possibilities for the Laboratory's long-term future. Tollestrup detailed the physics possibilities and challenges behind a Muon Collider, while Foster explained the concept of a Very Large Hadron Collider on the Fermilab site. Peoples said these issues are extremely important to high-energy physics in the U.S. beyond the turn-on of the Large Hadron Collider at CERN.

"We'd like to get back to the energy frontier," said Peoples. "We're thinking of two paths; however, they are not highly developed. They are more romantic because we don't have enough people working on them."

## HEP issues

During the two-day meeting, the HEPAP members also heard presentations on Argonne National Laboratory's high-energy physics plans, accounts of the work of smaller particle physics university groups and a report on Fermilab user groups. Marv Goldberg, from the National Science Foundation, discussed elementary particle physics programs at NSF, while John O'Fallon and Peter Rosen, both of DOE, spoke of particle physics projects supported by DOE. Advisory panel members also discussed performance measures and means of gauging progress in the field. During the close-out discussion, Michael Witherell, chair of HEPAP and a professor at the University of California at Santa Barbara, said he shared the members' concern about the feasibility of devising quantitative performance measures for high-energy physics, but also said it is an issue the field will have to accept and work with in the years to come. ■

# CALENDAR

## AUGUST 2

The Fermilab Arts Series presents South African band Mahlathini and the Mahotella Queens. In 1965 producer Rupert Bopape connected the Makgona Tsohle Band with Simon "Mahlathini" Mkabinde, a member of one of the leading vocal groups, and the Mahotella Queens, a new singing, dancing female troupe. Mahlathini's low, loud voice and stealthy warrior's dance led some to believe he had supernatural powers. Paired with the lush, sunny harmonies and inventive dance steps of the Queens, the super group became a sensation throughout South Africa. After a hiatus in the late '70s and early '80s, the group returned to an aggressive touring schedule, which continues today. See the power of this music for yourself as Mahlathini & The Mahotella Queens come to Fermilab's Ramsey Auditorium on Saturday, August 2, 1997, at 8 p.m. Tickets and information, call (630) 840-ARTS.

## AUGUST 8

International Film Society Presents:  
*Belle de Jour*; Dir: Luis Bunuel, France (1967). Admission \$4, in Ramsey Auditorium, at 8 p.m.

## AUGUST 15

Golf Outing at Pinecrest County Club, Huntley, Ill. For more information call Terry, x4851, or Mike, x4948.

### LETTERS TO THE EDITOR

I am catching up on my reading after a vacation. On pg. 3 of *FermiNews*, July 18 issue, it says "50M\$ for detectors." That should be 250M\$ from DOE and 81M\$ from NSF. Perhaps this can be fixed; otherwise, I really need a descope scenario.

Cheers,  
Dan Green  
US CMS Spokesperson

I was wondering if you could add me to your mailing list for *FermiNews*. I have been reading *FermiNews* for the past year and a half and I think that your writers have done a great job of presenting Fermilab as a community and not just a place where research is conducted.

Thank you!  
Jennifer Huergo  
Alexandria, VA

# 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  
Cakes for Special Occasions  
Dietary Restrictions  
Contact Tita, x3524

—  
**Lunch  
Wednesday  
August 6**

Closed

—  
**Dinner  
Thursday  
August 7**

Closed

—  
**Lunch  
Wednesday  
August 13**

Closed

—  
**Dinner  
Thursday  
August 14**

Closed

## CLASSIFIEDS

### FOR SALE

■ '93 Ford Ranger XLT ext. cab V-6, 5 spd, power steering, power breaks, AC, AM/FM cassette stereo, tonneau cover, bed mat, 41.5K miles, exc. cond., \$10,500; dirt bike, 175 cc Yamaha, \$300. Call Ron, x8864 or (630) 466-1823.

■ '90 Mazda Protege LX, 4 dr, 5 spd, over 100K miles. Power windows, locks, sunroof. Needs some work, \$1500 obo. Call Michael, x6290 or e-mail kriss@fnal.gov.

■ '90 Ford Escort LX, 5 spd, low mileage, 83K. Red outside/red interior, AM/FM cassette. Power mirrors, very clean, no rust, power steering. Runs great! \$3200 obo. Call Gustavo, x8762, or e-mail cancelo@fnal.gov.

■ '88 Toyota Camry, 4 dr, 5 spd, 103K miles, A/C, exc. cond., \$3900. Jackie, x3027, or Rick, x3030.

■ '85 Suburban, 130K miles, \$1,995. Call Peter, (630) 252-5848.

■ '86 Honda Accord in good condition, \$2000, contact Igor at Village residence, x4233, or e-mail giller@fnal.gov.

■ GE gas stove, Profile series, stainless steel, natural gas and LP gas jets, self-cleaning oven, sealed burners. Paid \$1350 in Oct '96; asking \$1100, used for a few hours. Will deliver if reasonable distance from Lab; Kenwood multi-component stereo system w/cabinet. Includes linear tracking turn table, amplifier KA-94, synthesizer AM/FM tuner KT-54 (memory holds 14 AM and 14 FM stations), graphic equalizer GE-34, dual-deck cassette recorder KW-64W, CD player DP-840, 2 4-way 150-watt speakers JL-840. \$2000 obo; 16 ft. Fiberglass DuoMarine boat, needs work, hardware removed, rough sanding completed. \$100 obo, includes trailer. Call Terry, x4572, or e-mail skweres@fnal.gov.

■ Hedstrom metal swingset with 2 swings, lawn swing, glider, and metal slide. Purchased 5 years ago for \$125, selling for \$40. Metal sand box with 2 wood seats, \$5. Call Jerry, x4571 or (630) 801-9408 or e-mail JerryZ@fnal.gov.

■ Aurora/Fox Valley 3-bedroom townhome 20 minutes from Fermilab. Walking distance to Fox Valley Mall. Backs to lake, deck has great view. 1,700 sq ft, 3 bdrm, 1.5 baths, new carpet, large pantry, new roof ('95). New paint, deck stained, ready to move in. \$89,900. Call Jeff, x8472 or (630) 978-1717.

### FOR RENT

■ Apartment-Sublet 1 bdrm in a 2-bdrm apartment either fall (Sep-Dec) or fall & spring (Sep-May) \$360/mo. furnished, heat included. Naperville, on Rte. 59 south of I-88. Close to lab, approx. 6 miles, or 15 minutes. Walking distance to Route 59 train station, and golf course. Near Fox Valley shopping mall. Nice place; AC, microwave, dishwasher, new carpet and paint. Complex has pool, sand volleyball court, lighted tennis court, and free bagels every morning! Call Andy, (630) 428-2310 evenings or e-mail apaulin@fnal.gov.

### WANTED

■ Used manual transmission for 1988 Toyota Celica GT. Will pay up to \$250 depending on condition. If it's on a car, we'll pull it out. Call John Spring, (510) 495-2093 (days) or (415) 333-5449 (message machine).



*FermiNews*  
Fermi National Accelerator Laboratory

Published by the  
**Fermilab**  
**Office of Public Affairs**  
MS 206  
P.O. Box 500  
Batavia, IL 60510  
630-840-3351  
ferminews@fnal.gov

*Fermilab is operated by  
Universities Research  
Association, Inc.,  
under contract with the  
U.S. Department of Energy.*

## Volunteers Needed for Fermilab Open House

Fermi National Accelerator Laboratory will host a Lab-wide Open House on September 13, 1997. All people from Chicagoland and beyond are welcome to visit the world's highest energy particle accelerator laboratory and explore experimental areas of the Lab not normally open to the general public. Visitors will also be able to attend science lectures, explore Fermilab's prairie and visit the Lederman Science Education Center, among other activities.

Fermilab employees and users are encouraged to volunteer. The Lab is expecting 20,000-30,000 visitors for the Open House, and volunteers are needed to give tours, give lectures, serve food and help coordinate. If any employee or user wants to volunteer, please contact your section or division office or experiment spokesperson. The Lab will provide lunch for the volunteers. All employees are also encouraged to invite family, friends and neighbors to the Open House, which will occur, rain or shine, from 10:30 a.m. to 4 p.m.

The deadline for the Friday, August 15, 1997, issue of FermiNews is Tuesday, August 5.

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

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

☆ U.S. GOVERNMENT  
PRINTING OFFICE:  
1997-545-057/60022



50%  
TOTAL RECOVERED FIBER  
10% POST-CONSUMER FIBER