

# Fermi News

Fermi National Accelerator Laboratory

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Number 22

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## High Hopes, Tight Quarters

Unique Recycler, world's largest array of permanent magnets, taking shape in crowded Main Injector tunnel.

by Mike Perricone, Office of Public Affairs

The magnets are numbered in the hundreds; their weight is measured in tons. The available space in the tunnel is usually about

four and a half feet, but it can be as little as two or three inches, and the forklifts doing the moving have been custom-designed for these tight quarters.

The obstacles include water systems, cable trays,

workers performing other installations, and the precisely aligned components of the signature Main Injector accelerator.

The consequences of a possible slip-up: Don't even ask.

Installation crews can put eight to 10 magnets in place in a day, if the magnets are located close together. Installing a magnet means lifting it from the floor level with the forklift, raising it to a level above the Main Injector magnets, fitting it between pipes for the low conductivity water system and cable trays suspended from the ceiling, moving the magnet horizontally to fit it onto the magnet stands, then moving out the forklift—being careful to avoid even slightly bumping the Main Injector magnet.

"This is a delicate operation and it requires some finesse," said Cons Gattuso of the Main Injector Department. "Even given the range of technical challenges we face in installation, safety is always our highest priority."

Gattuso, one of the careful

*continued on page 2*

Installing the Recycler in the crowded Main Injector tunnel requires ingenuity and agility, as welder Frank Camasta demonstrates.



Photo by Reidar Hann



Terry Anderson, of the Mechanical Support Department, inspects a beam tube section for the Recycler. The beam tube is baked at 500 degrees C and put under ultra-high vacuum to remove hydrogen gases from the material. The beam tube is then wrapped with heating strips and insulation, and bent about 0.6 degrees.



Reggie Harrington (left) and Bill Diamond, contract technicians, bend the beam tube at the MI8 service building. The tube is bent slightly more than specifications require, allowing for spring-back.



Fermilab technician Jeff Wittenkeller wraps the beam tube on a long, slow-revolving lathe at the MP9 facility in a former fixed-target experiment hall. The tube is wrapped before bending.



Photos by Reider Hahn

Fermilab's Doug Allen (left) and contractor Tim Vedder install a section of the Recycler beam tube in tight quarters.

overseers of the installation of the Recycler, is also the Operations Specialist for the machine that's the only one of its kind, anywhere.

When Run II of the Tevatron gets underway, the 1.99-mile circumference Recycler will act as a storage ring for antiprotons. But it will also do something no other accelerator has done before: it will salvage leftover antiprotons, literally "recycling" them for future use, thus saving time and energy in the production of the rare particles that occur only 15 times in a million proton collisions at the antiproton production target.

The Recycler is taking shape, with about 85 percent of its permanent gradient magnets installed (291 of 344); the beam tube that will house the streams of antiprotons currently extends approximately halfway around the ring. Gradient magnets combine the duties of quadrupole magnets, which focus the particle beam, and dipole magnets, which steer the beam around the circuit.

The Recycler's dependence on permanent magnets, instead of the electromagnets that are the usual equipment for particle accelerators, is an extension of the technology employed so successfully on the new 8-GeV line, which transfers protons between the Booster and the Main Injector (see the accompanying story). But the permanent magnets used in the Recycler represent the next generation of development, with different standards of

performance that translate into a need for greater precision.

"The 8-GeV line told us that our design for the gradient magnets works in the real world," Gattuso said. "But our concerns with the Recycler, where particles will be making multiple passes through the magnetic fields, are different from the 8-GeV line, where particles make a single pass through a transfer line."

When fully operating, the Recycler might be storing a particle beam for up to a week. Since the beam will complete about 100,000 revolutions per second, that means a staggering number of repeated trips past each magnet—and a staggering number of opportunities for error, requiring painstaking precision.

"Any error created because of a misaligned magnet gets multiplied every time the beam comes past that magnet," Gattuso said. "We would wind up losing beam over time. The design of these permanent magnets is similar (to the 8-GeV line), but the tolerances must be much tighter."

Gattuso said those responsible for the installation of the Recycler, coordinated through Main Injector Department Head Phil Martin, sometimes arrive before dawn and leave well into the night.

"It's a real hive of activity down there, with a lot of things going on at once," Gattuso said. "We installed our first magnet stand in the first week of February, and I feel as if we've done a lot of good work since then." ■

## CRITICAL PATH

## Permanent Magnets Make 8-GeV Line

# An **AWARD-WINNING** Energy Saver

by Mike Perricone, Office of Public Affairs

When Bill Foster and Gerry Jackson considered using permanent magnets instead of electromagnets for the 8-GeV transfer line between the Booster and the new Main Injector, they wanted to save time.

“The switch to ‘permags’ was more for reasons of schedule and for a demonstration project for the Recycler than for energy-saving reasons,” said Foster, of the Experimental Physics Projects Group in the Particle Physics Division.

The project was completed 18 months ahead of schedule, but the energy-saving results from the engineering design change of 1995 also speak for themselves.

Their work on the 8-GeV line has earned a 1998 Federal Energy and Water Management Award for Foster, Jackson,

of the Beams Division’s Main Injector Department, and their project colleagues, Bill Fowler (Main Injector Department); Ernie Malamud (Fermilab Assistant Director); Glenn Smith (Technical Division’s Engineering and Fabrication Department) and Jim Volk (Main Injector Department).

Presented by the Federal Interagency Energy Policy Committee and the Department of Energy, the award recognizes “outstanding contributions toward increased energy efficiency, renewable energy and water conservation within the Federal sector.”

“This is the premier energy award presented to federal employees,” said Fermilab Director John Peoples. “I offer my congratulations and my thanks for a job well done.”

Foster, Jackson and Malamud

represented the group of six at the awards luncheon on October 28 at the National Press Club in Washington, D.C. Their award was one of 45 given among 188 applications from throughout the Federal government and its agencies, including the military.

Permanent magnets, like the magnets sticking to your refrigerator door, do not require an electric current to generate their magnetic field. Steve Krstulovich, the Lab’s Energy Coordinator who ushered the award application process for the 8-GeV project, described the impressive savings permanent magnets produced in three critical areas:

- using permanent magnets eliminated the need for 100 kilowatts of power to run electromagnets;
- permanent magnets eliminated the need for a low conductivity water (LCW) cooling system that would have meant about an additional 300,000 gallons of water annually evaporating from the Lab’s network of cooling ponds;
- avoiding an LCW system also meant avoiding the use of ion beds to remove impurities from the circulated water, producing waste material that would require disposal by special methods.

“Further, this technology is not a one-time achievement,” Krstulovich pointed out. “The technology is also being used in the Recycler ring, another tremendous energy-saving installation. This new era in accelerator design will also bring future benefits with future development.”

Smith, who fabricates the permanent magnets, has also experienced unexpected (but welcome) savings. The 21-year Fermilab veteran found that the constant proximity to permanent magnets was erasing the black data strip on the back of his credit cards.

“At first I always carried the credit cards in my wallet, and I was constantly getting them replaced,” he said. “Then I just stopped carrying them. My credit card bills went down after that.” ■



Photo by Reidar Hahn

Bill Foster (left) and Gerry Jackson look over one of the permanent magnets for the 8-GeV line, which received a 1998 Federal Energy and Water Management Award for significant savings in energy and water use.

# The Computing Division's New Robotic Fido

by Sharon Butler, Office of Public Affairs

Have you seen that warning sign in your neighbor's yard with a picture of Fido baring his oversized canines? "I can make it to the fence in three seconds," the sign says, "can you?"

The Computing Division's new robot will remind you of Fido. Tell him to fetch a data tape, and this robotic Fido will come tearing down a 30-foot track inside a vault the size of a butcher's meat freezer, beady red eyes shining, jaws open, and pounce on an unsuspecting cartridge. As Fido comes bounding down the track, you can watch him through a glass door, but primal survival instinct tells you not to get too close.

In fact, says Mark Leininger, who was in charge of buying the robot from EMASS Corporation, Fido is surprisingly gentle. He halts just in front of the carousel carrying the tape he's been sent to fetch, aided by those red eyes, which are really optical sensors. And his vise-like jaw ever so gently eases the plastic cassette from its rack.

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## CRITICAL PATH

The \$1.1 million robot, just arrived, is the first major acquisition of computer hardware for Run II, according to Steve Wolbers, of the Computing Division. The vault in which it sits occupies a 630-square-foot space on the second floor of the Feynman Computing Center. A second robot will be purchased in fiscal year 1999. There will be one robot for CDF and one for DZero in Run II.

Racks on rotating carousels inside the robot's vault will each hold 5,000 tapes containing data from Run II, both raw data (recording, for example, the voltages and currents that particles generate as they fly through the detectors) and "reconstructed" data (raw data that has been converted to usable information on, say, the geometric coordinates of points along the particles' paths). The robot will be able to store at least 400 terabytes of information on its tapes, depending on the particular tape technology the Computing Division selects. Additional data tapes can always be placed in the ground-

floor storage. The overflow may be necessary. As the two experimental collaborations get closer to Run II and tighten up assessments of their detectors' performance, estimates of the volumes of data they'll collect keeps mounting. The current estimate is 1.5 petabytes, more information than in all the books and periodicals in the Library of Congress.

The robot's task is to fetch the tapes from the carousels and place them in tape drives. For the most part, human hands need not interfere. Physicists simply send a command to the robot telling it which tapes to fetch. The tapes are numbered with a bar code, and a computerized system keeps track of which ones are where. When the robot completes its job, it relays a message back to the physicists telling them in which drives it has placed the tapes. The physicists can then pull the data up on their computers, and proceed with their analyses.

Human hands come in only if tapes from storage have to be loaded. In that case, operators will retrieve the tapes, place them in canisters, and set the canisters in what looks like a vending machine at the front end of the robot's vault. The robot inserts the new tapes in the carousels, emptying out the old ones and keeping track of where each one is placed.

The robot will run around the clock seven days a week, never flagging in its duties, said Leininger.

Innocent passersby might be alarmed at Fido jumping on remote command and suddenly tearing down that track. But Fido only does what he's told and he doesn't bite. Good doggie... ■

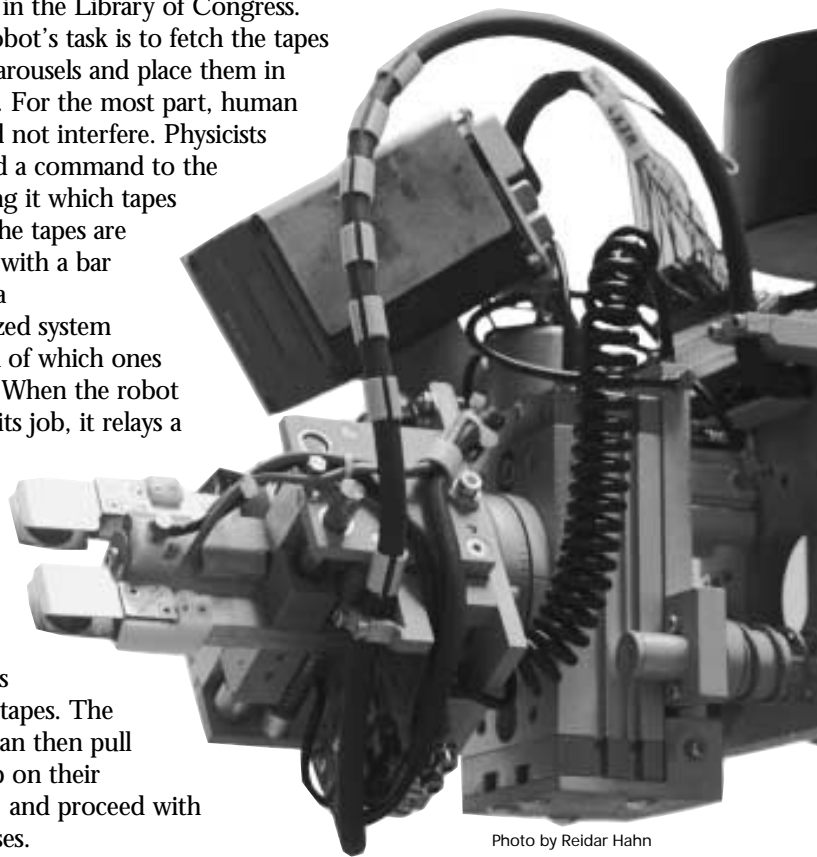


Photo by Reidar Hahn

# UEC Chair PLANS BIG IMPACT

By Sharon Butler,  
Office of Public Affairs

Greg Snow is the first to concede he overextends himself. In between delivering snappy demonstrations of physics principles before hordes of University of Nebraska undergraduates, pondering Run I data on the fundamental interactions between quarks and gluons, and slipping in work on a side experiment to explore the stability of antiprotons, this 40-something particle physicist offered to run for chair of Fermilab's Users Executive Council—and won.

What ever possessed him? He says he was eager to take on the job because it was a “transitional year with lots going on.” “Lots” includes the induction of a new Laboratory director, the commissioning of the Main Injector and the Recycler, completion of upgrades of the two collider detectors, and heavy contemplation of possibilities for the next-generation particle accelerator.

The UEC serves as a liaison between Fermilab's large “user” community (made up of the scientists from research institutions all over the world who make use of the Laboratory's experimental facilities), the Laboratory and the government agencies that fund the scientists' research. The UEC's most important activities are its Annual Users Meeting and its annual trip to Washington, D.C. Typically during the Washington visit, UEC members pay calls on Capitol Hill and stop by at Universities Research Association, Inc., which manages and operates Fermilab under contract with the U.S. Department of Energy.

The committee this year, says Snow, is blessed with “several forward-thinkers in high-energy



Greg Snow, UEC Chair

physics,” which gives the UEC a chance to make “a real impact.”

Snow is already devising the ways it can do that. For one, he'd like to create a subcommittee that will focus on future initiatives at Fermilab. Specifically, the role of the subcommittee would be to get the user community more involved in R&D efforts for a new future accelerator—a muon collider, perhaps, or a very large hadron collider.

Snow also believes that the UEC is obliged to help the user community connect with the new director, once he or she is appointed. Snow envisions sponsoring small meetings with various interest groups—scientists involved in fixed-target experiments and collider experiments, theorists, astrophysicists, neutrino physicists, and others. Such meetings would give the groups a chance to discuss their programs and concerns and to hear the new director's views on the Laboratory's future directions.

And rather than just meeting congressional representatives when UEC goes to Washington, Snow hopes the UEC can also meet this year with Secretary of Energy Bill Richardson. As Snow remembers it, when Richardson visited Fermilab in October, the Secretary said that he was committed to keeping U.S. high-energy physics first in the world, that he wanted to hear from Fermilab's users, and that “something big” lies ahead for Fermilab in the post-LHC era (the era after the

commissioning of CERN's Large Hadron Collider). Snow says he took Richardson's words “as an invitation to the UEC” to meet with him “so that he can hear from some of the people who will make that future happen.” ■



UEC members: (left to right, back row) Karen Byrum, Deborah Errede, Linda Coney, David Gerdes and Randy Ruchti; (front row) Raymond Brock, Sarah Eno, Bill Foster and Greg Snow. Not shown: Dan Amidei, Gerald Garvey, Ken Heller and Darien Wood.

Photo By Reidar Hahn

Photo by Jenny Mullins



Carli Vellega, one of Fermilab's newest neighbors, recently arrived in St. Charles, helped harvest prairie seeds with her mom and her sister, Lindsay.

**T**hanks to some 300 volunteer prairie lovers, Fermilab's annual harvest this year was a tremendous success. The harvest yielded record quantities of seed for the Laboratory's ongoing efforts to restore its native grassland, with plenty left over for sharing with other prairie projects throughout the Midwest.

Fermilab's annual prairie harvest has become a fall tradition for many area residents, who, armed with clippers, gloves and plastic bags, help gather the seeds of rare flowering prairie plants. This year, they collected hundreds of pounds of seed for such species as quinine and rattlesnake master, once common in Illinois's native tallgrass landscapes.

The seeds are used to enrich younger prairies on the Fermilab property. The Laboratory also donates seeds to about 60 schools in the area and trades seeds with local forest preserves, park districts and counties.

Some of Fermilab's neighbors have returned year after year to help with the annual harvest and have become experienced in searching for seeds of hard-to-find species in out-of-the-way places.

"We can harvest many of the tall grasses mechanically," said Fermilab prairie expert Mike Becker, "but the seeds of the lower, flowering plants we have to pick by hand. We couldn't do it without the help of the people in the community."

"I get the feeling that people like the opportunity to help preserve and restore a natural area in their own neighborhood," added Bob Lootens, Becker's colleague in the Roads and Grounds Department. "The Fermilab prairie represents a big piece of the green space that's getting so scarce around here." ■

# Autumn Prairie

# Harvest

## Canada Tick-Trefoil



Laura Johnson, Mark Figura and Bryan Judy, seventh graders from Wredling Middle School, fulfilled their community service requirement for school by pitching in at the prairie harvest.



Stephanie Maris is a student at the Illinois Mathematics and Science Academy.



Lucy de Barbaro, from Northwestern University, takes time out from physics.

Photos by Jenny Mullins



## Wild White Indigo

# Super COOL Cavities

Photoinjector Project, Fermilab's first application of superconducting RF cavities, achieves first electron beam.

by Mike Perricone, Office of Public Affairs

The Photoinjector Project is a linear accelerator with an attitude. It might look like an ambitious science fair project, and it will fit in your basement, but don't try this in your home.

Not unless you have:

- a refrigeration system capable of producing temperatures as low as 1.8 degrees above absolute zero;
- the liquid helium to supply your ultra-refrigeration system;
- a laser beam to release electrons from the photo-cathode, capable of delivering pulses measured in picoseconds ( $10^{-12}$  seconds, or a millionth of a microsecond);
- a cathode coated with cesium telluride, which will give off lots of electrons when struck by a laser, but which is spoiled quickly at pressures greater than  $10^{-11}$  Torr (the Main Injector operates at  $10^{-8}$  Torr);
- your own "clean room" to put together the vacuum system and radiofrequency components.

"This is not something you just go ahead and build," said Mark Champion, one of the leaders of the AZero Photoinjector Project that has used a superconducting radiofrequency (RF) cavity for the first time at Fermilab to accelerate an electron beam.

The new machine accelerates electrons. While the huge Cockcroft-Walton pre-accelerator starts the process of proton production at Fermilab, the equivalent component in this basement-sized machine is a radiofrequency gun with a cathode similar to those in phototubes employed for scintillation counters. This new gun launches electrons with a gradient of 3.5 MeV at the cathode, about 10 times the acceleration of the Cockcroft-Walton.

"There's a lot of research and development behind it," Champion said. "We don't know yet whether we'll achieve all our goals. But it looks very promising."

It certainly looks promising enough after achieving the major milestone of accelerating an electron beam to full energy (18 MeV) for the first time, on Friday night, October 9.

"It was exciting but it was also a relief," Champion said. "It meant we didn't have to stay all weekend to achieve beam."

The Photoinjector Project, at the AZero Test Facility, is part of a program led by physicist Helen

Standing behind their work on the AZero Photoinjector Project are (from left):

Alex Murokh, Mark Reichanadter, Wade Muranyi, Eric Colby, Arnold Germain and Jeff Bielicki.





Edwards to develop a superconducting RF program at Fermilab. The project brings together groups from around Fermilab and around the world. The University of Rochester collaborated with Fermilab in building the laser; the photo-cathode system was prepared by the University of Milan, with instrumentation from Frascati in Italy. Early tests and vacuum work were done at Argonne National Lab, and Cornell University lent superconducting RF expertise. The superconducting cavity came from DESY (Deutsches Elektronen Synchrotron) in Hamurg, Germany.

Superconducting electromagnets have been a Fermilab trademark since the construction of the Tevatron produced a quantum leap in accelerator technology, but superconducting accelerating cavities remain comparatively rare in high energy physics. In the last decade, several superconducting accelerators have come on line, notably at the Jefferson Laboratory in Virginia, with key contributions from Fermilab engineers who cut their teeth on the Tevatron.

In the phenomenon of superconductivity, some metals, including the niobium-titanium alloy used in these cavities, completely lose their electrical resistance when chilled to temperatures near absolute zero. In the case of superconducting cavities, that means all the electrical power is delivered directly to accelerating the beam, with none of it consumed by the apparatus itself.

But there's still no free lunch.

"You gain so much more efficiency with superconductivity," Champion said. "Of course, you have to pay for that in the costs of the cooling. But if it's done properly, even considering the cooling costs, you can still gain in efficiency over conventional RF accelerating cavities."

The need for cryogenic cooling means the relatively simple cavities must be enclosed in high-vacuum, gleaming stainless steel containers that resemble miniature Buck Rogers-style spaceships.

But there's nothing fictional about the growing number of possibilities for superconducting cavities and the other technologies being investigated by the AZero project.

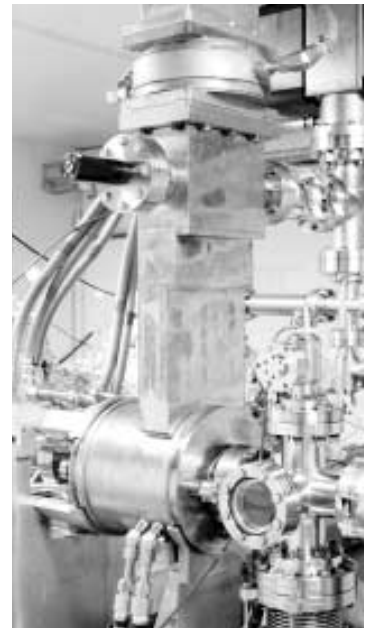
Using a laser to zap a plasma (a highly ionized gas) is the principle behind research into the plasma wakefield accelerator, where a beam of particles rides the waves generated in the plasma like dolphins riding the bow wave of a cruise ship, at relativistic speeds.

Superconducting cavities also have a role in the development of some of the new projects proposed for Fermilab's future, such as the

muon collider and the muon cooling system. And closer to the horizon, a superconducting separator, based on superconducting cavities, is a critical component of kaon decay fixed-target experiments that have been proposed at Fermilab. Only one other superconducting separator has been built, more than 20 years ago at CERN, the European Particle Physics Laboratory in Geneva, Switzerland. A superconducting separator would further the research into CP violation that was given a jolt of energy by the recent observation of time asymmetry in kaon decays by Fermilab's KTeV (Kaons at the Tevatron) collaboration.

"With an RF separator, you can separate species of charged particles in one beamline, isolating one type of charged particle from another," said Fermilab physicist Herman White of KTeV, who is also working on proposals for kaon separation. "This would produce a very pure kaon beam. We could do some very clean studies, eliminating the kind of background issues you ordinarily have in these kinds of experiments.

"While you do have large power use for refrigeration," White continued, "the superconducting cavities for these experiments will use something on the order of 100 watts of electricity—what it takes to run a light bulb. This is an enormous capability." ■



The RF gun provides a bunched 3.9 MeV electron beam.

This stainless steel vessel, resembling a scaled-down Buck Rogers spaceship, houses the superconducting cavity and the liquid helium required for cooling to 1.8 degrees above absolute zero.



Photos by Reidar Hehn

# DOE, Fermilab Agree to Phase One Road Study

By Judy Jackson, Office of Public Affairs

To traffic-weary motorists on Illinois Route 59, a state highway a half-mile east of Fermilab, the question of the need for a new north-south highway seems like a no-brainer.

"Traffic in western DuPage County has no place to go," said a local resident recently. "We've gotta have a new road."

Would a new four-lane highway get north-south traffic in Fermilab's neighborhood moving again? Or, as some experts suggest, would it provide a corridor for new development, spawning more traffic and leading to yet another gridlocked suburban highway?

Questions like these will come up for debate in coming months as DuPage County prepares to begin Phase One environmental and engineering studies for a proposed new county highway that, if constructed, would pass through the Fermilab site.

After nearly two years of discussions with county officials, Department of Energy and

Fermilab staff say that DuPage County has sufficiently addressed questions and concerns to assure them that the proposed alignment for a road would not unacceptably conflict with Fermilab's physics mission. The county has proposed an alignment for a four-lane north-south arterial road adjacent to the existing utility rights-of-way along the east and northeast borders of the site, connecting to the existing Eola Road at some point south of the Fermilab site.

With DOE and Fermilab's agreement, county officials expect to announce shortly their intention to conduct a Phase One study for the road, at an estimated cost to the county of about \$800,000.

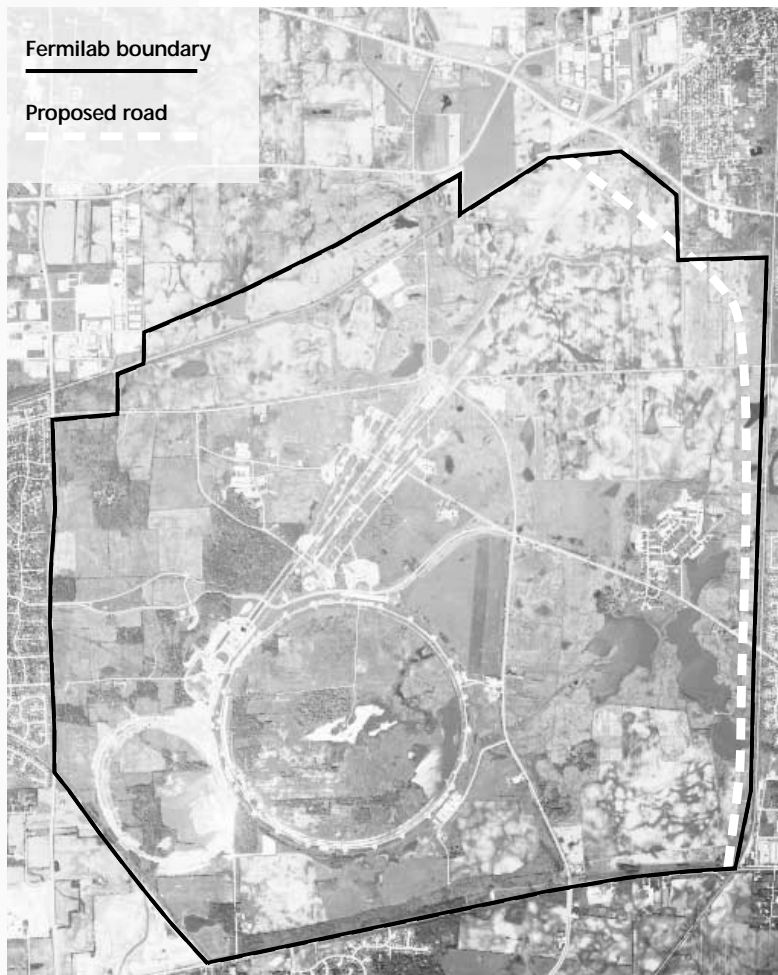
Because the proposed highway would cross the Fermilab site, the Department of Energy, which owns the Laboratory, will have the final say in whether to allow the route. While DOE and Fermilab take a neutral position on the need for a road, they emphasize that they have not made a decision about whether to allow its construction at Fermilab. The road's route through federal property means that the federal government has the responsibility, under the National Environmental Policy Act, to consider environmental impacts of the proposed action. The results of the NEPA process will determine DOE's decision.

The Federal Highway Administration, working with DuPage County, will serve as the lead NEPA agency to evaluate impacts of the proposed road—as well as of other possible routes and of the "no build" alternative. DOE and Fermilab have repeatedly emphasized their willingness to work with the Federal Highway Administration and DuPage County to ensure that Fermilab's neighbors and all those who would be affected by the proposed highway have meaningful opportunities to participate in the decision process.

"Both DOE and Fermilab are committed to open and frequent dialogue with stakeholders about this and any other matters of community concern at Fermilab," said Fermilab Associate Director George Robertson. "We are working with county officials as they shape their communication plans to provide ample opportunity for all stakeholders to express their views for this proposed new road through Fermilab." ■

**"Both DOE and Fermilab are committed to open and frequent dialogue with stakeholders about this and any other matters of community concern at Fermilab."**

~ George Robertson,  
Fermilab Associate  
Director



# CALENDAR

## NOVEMBER 15

Barn dance, Kuhn Barn 2-5 p.m. Music by Stephanie Coleman & Friends, calling by Paul Watkins. Stephanie, 13 years old, is already making a name for herself as a fiddler. All ages & levels of experience welcome. Admission, \$5; children >12, free; 12-18, \$2. Sponsored by the Fermilab Folk Club. More info, call Lynn Garren, x2061 or Dave Harding, x2971.

## NOVEMBER 17

The Adler Planetarium will host a viewing of the Leonid meteor shower at Fermilab's Lederman Science Education Center from 4-6 a.m. Staff from both organizations will be available for assistance. Meteor showers are best viewed with small binoculars or the naked eye. Interested viewers should bring a blanket for sitting on the ground. Cloudy conditions will make seeing difficult. Call (630) 840-5588 for more information.

## NOVEMBER 18

The Argonne Credit Union grand opening & ribbon-cutting ceremony will include refreshments & giveaways from 9-3 p.m. of our new branch office at Fermilab! Now located on the ground floor north, Wilson Hall. Sign up for a new ACU service and you will be entered into a raffle for official ACU shirts, sweatshirts & Chandler teddy bears. Raffle drawing at 3 p.m. The Fermilab branch office will be open for business during the grand opening celebration.

## NOVEMBER 19

Premiere of Fermilab's latest video "A Sense of Scale." A special colloquium at 4 p.m. in 1 West for all Fermilab employees.

## NOVEMBER 21

Fermilab Art Series presents: *Bimbeta*, Baroque music, \$17. Performance begins at 8 p.m., Ramsey Auditorium, Wilson Hall. For tickets or more info, (630) 840-ARTS.

### LETTER TO THE EDITOR

I wish to introduce myself to you and the reason for writing to you.

My daughter Janine is married to Dr. Alvin Tollestrup, a Fermilab physicist. Last year in October, Fermilab had an open house for the public, so I decided to see for myself what Fermilab is all about. Of course, I was impressed when I saw all the acres of land while viewing the property from the outstanding building structure Wilson Hall. Your guides were very cordial and informative in spite of all the questions asked by thousands of visitors. Before leaving, after several hours at Fermilab, I was approached by a lovely young lady who asked me if I would like to subscribe to *FermiNews*. Well, I'm pleased to tell you that I look forward to receiving *FermiNews* every two weeks, and I do read it thoroughly. I'm being educated as to what neutrons, protons, quarks, elusive quarks, etc. are. Alvin's and Janine's puppies are named P-Bar and Elusive Quark.

When I called Janine recently to tell her that Alvin was mentioned in a *FermiNews* article, she didn't know what I was talking about. So now this is the reason for this letter. Will you please put her on your mailing list? Apparently, Alvin doesn't read *FermiNews*!

Now I have another request. Janine has 7 aunts and uncles and many (24) nephews and nieces who would appreciate reading about the new Main Injector. It was nice to notice that the magnets that Alvin helped to build 20 years ago are being used again. Please put Janine's relatives on your mailing list, as well as my cousin in Krakow, Poland, whose son, Tom Bajer, graduated as the most outstanding student from a technical school and now will qualify to attend Jagiello University as a potential physicist!

Estelle Cukay / Berwyn, Illinois

## ONGOING

NALWO coffee, Thursdays, 10 a.m. in the Users' Center, call Selitha Raja (630) 305-7769. In the barn, international folk dancing, Thursdays, 7:30-10 p.m., call Mady (630) 584-0825; Scottish country dancing Tuesdays, 7-9:30 p.m., call Doug, x8194. English Classes Tuesday mornings at the Users' Center. Beginners meets from 9-10 a.m. and intermediate students 10-11 a.m. There is a fee of \$ 4 per morning. Students are welcome to attend both classes. The lessons are taught by Rose More. For more information please call Rose at (630) 208-9309.

## Web site for Fermilab events:

<http://www.fnal.gov/faw/events.html>

## LAB NOTES

### Social Security Wage Base

The Social Security Administration has announced that the 1999 social security wage base will be \$72,600, an increase of \$4,200 from the '98 wage base. There is no limit to the wages subject to the Medicare tax; therefore all covered wages are subject to the 1.45% tax.

The FICA tax rate, which is the combined social security tax rate of 6.2% and the Medicare tax rate of 1.45%, remains 7.65% for 1999. The maximum social security tax employees & employers will each pay in 1999 is \$4,501.20. This is an increase of \$260.40 from the '98 maximum of \$4,240.80. Any questions phone Ron Pahl, Payroll Manager x2991.

### Correct Delivery Address

The Fermilab telephone directory on the Web is a useful tool vital to our success in properly distributing packages. This directory is not automatically updated and requires employees and users to check the information for accuracy. Many times packages have been delivered to old and/or erroneous locations, causing disruptions in work schedules and experiment plans. The Receiving Department continues to receive packages that are not addressed properly (PRO-CARD orders and/or NON PO requests). When ordering materials, please stress to the supplier the importance of referencing a proper "DELIVER TO" address which includes a NAME & PHYSICAL LOCATION at Fermilab.

To provide the best service possible, the Receiving Department & Mailroom try hard to keep up with the changing work locations, but we need your help. Please review and update your address ASAP, especially if you have changed your physical location. If you have any questions, call the Receiving Department, x3575 or x3542.

## MILESTONE

### MARRIED

Steve R. Carrigan (ESH/EPG) & Lisa A. King (FESS/SG), on September 19, at Fisherman's Inn, Elburn.

### DIED

Joseph Otavka, I.D. #146, on October 21, formerly with the Technical Division.

# 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  
[http://www.fnal.gov/faw/  
events/menus.html](http://www.fnal.gov/faw/events/menus.html)

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**Lunch  
Wednesday  
November 18**

Cheese Fondue  
Field Greens with Herbs  
Poire Helene

—  
**Dinner  
Thursday  
November 19**

Steamed Mussels in  
White Wine and Thyme  
Quail in Red Wine Sauce  
Wild Rice and Barley  
Spinach, Garlic, Lemon,  
Prosciutto and Parmesan  
Beet and Horseradish Salad  
Amaretto Soufflé with  
Chocolate Sauce

—  
**Lunch  
Wednesday  
November 25**

Cheese Fondue  
Autumn Salad  
Orange Slices with  
Candied Rind  
in Grand Marnier

—  
**Dinner  
Thursday  
November 26**

Closed

# CLASSIFIEDS

## FOR SALE

■ '86 Pontiac Trans Am, 5.0, auto, T-top, 102K miles, green w/tan inter., recent rebuilt trans, \$2,250 obo, call Ed Dijak, x6300 or (630) 665-6674.

■ '84 Chevy Caprice wagon, 9 pass. New tires, full power, 125k miles. \$1,000. (630) 393-4420.

■ P205x70x14 tires (4), steel belted, on Ford steel wheels, \$40; PVC pipes, 1.5"x 10', 10 @ \$1 ea.; 3"x10', 3 @ \$2 ea.; king size waterbed mattress, heater, frame, liner, \$25. Call Ed Dijak x6300 or (630) 665-6674.

■ Good used truck battery - \$10. Call Lee x8236.

■ Black bucket seats from Chevy S-10 pickup, EC, pair \$140; Western aluminum wheels w/60 series tires, fits GM 4-3/4" bolt pattern. Complete set. EC. \$140. Call (630) 443-9881, please leave message.

■ 6 men's business suits, size 46. EC, \$45 ea or \$250 for six. Beautiful white glacial mink fur coat, full length 48", size 14-16, traditional collar, lined w/heavy floral embroidery, nonsmoker. Kept in storage out of season. Orig. \$3,500, sell \$950 obo; Animal carriers: 1 med. size \$10, 1 very lrg, \$35, 1 expandable gate \$20 new. Call (630) 443-9881, please leave message, or DTCordogan@aol.com.

■ Magnavox 4 head remote VCR \$75; toddler bed approx. 53" long w/new mattress \$40; 250 MB tape drive uses DC2120 tapes, \$15; king size waterbed frame & headboard, needs mattress, \$75; wood lathe with chisels, cabinet w/drawers, \$250; dive equipment, Parkway BC vest, \$85, US divers wet suit \$50; skis 195 Atomic Arc, bindings, poles, boots & bag, \$200 obo. Have some assorted skis for kids. 1 small Subzero fridge, \$95; lots of computer (DOS/WIN) software (shareware & boxed titles), call for details. Terry x4572 or skweres@fnal.gov.

■ Maytag washer & gas dryer, extra large, excellent condition, white, \$200 each. Moving soon. Call (630) 778-9902.

■ Rainbow vacuum cleaner w/power nozzle, aqua mate & rainbow mate. Orig. \$1,200 now \$450. Call Barbara, x3801.

■ 8 pc contemp. living room set, like new, \$640 (paid \$1,280 2 yrs ago). Futon bed (double) w/wood frame, \$90. Light, sturdy computer desk (white laminated top/steel frame), \$90. Laminated entertainment center, \$45. 2 large bookcases, kitchen table, coffee table, large steel storage shelves, \$25-\$35 each. small furniture pieces, lamps, fans, \$5-\$20. Call Dhiman, x8569, (630) 231-4170 or dhiman@fnal.gov.

■ Home, brick & cedar ranch, 3 br, 2 ba, formal living & dining rm, family rm w/fireplace, finished family rm in basement, updated country kitchen w/hardwood floors, heated garage, 3/4 acre lot w/mature trees & well landscaped. Asking \$189,900. Located ~ 20 miles west of Fermilab. Call (630) 557-2280.

■ Home, 2 bedroom, poss. 3rd, brick ranch, 2 1/2 car attached garage, 1 mile South of I88 on Farnsworth, lot size 80x240. Asking \$105,000 obo. Please call (630) 897-5464.

## RENT

■ Room with private bath, kitchen & laundry privileges. Some furniture (bed, TV, etc.) available. Short term, \$400/mo+deposit. In nice clean townhouse, Carol Stream. Call (630) 213-0878 leave a message.

## WANTED

■ Heated or attached garage space needed for classic vehicle storage. Preferably in Winfield, surrounding towns will do. Nov 98-?. Relocating Nov 2nd. Contact Evelyn, aponte@fnal.gov, x6498 or (630) 293-5104.



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## Missed the Prairie Harvest?

Want to help restore the environment? On November 19th, as part of its third-Thursday-of-the-month call for employee volunteers to help clean up the environment, the Roads and Grounds Department is sponsoring a lunchtime prairie harvest.

Meet the van in front of Wilson Hall at 11:45 a.m., or meet the group over at the entrance to the Science Education Center. The prairie is adjacent to the center's parking lot.



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