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"People are fascinated by the questions posed by physicists—they just don't know it."

~ Lawrence M. Krauss, author, *The Physics of Star Trek*

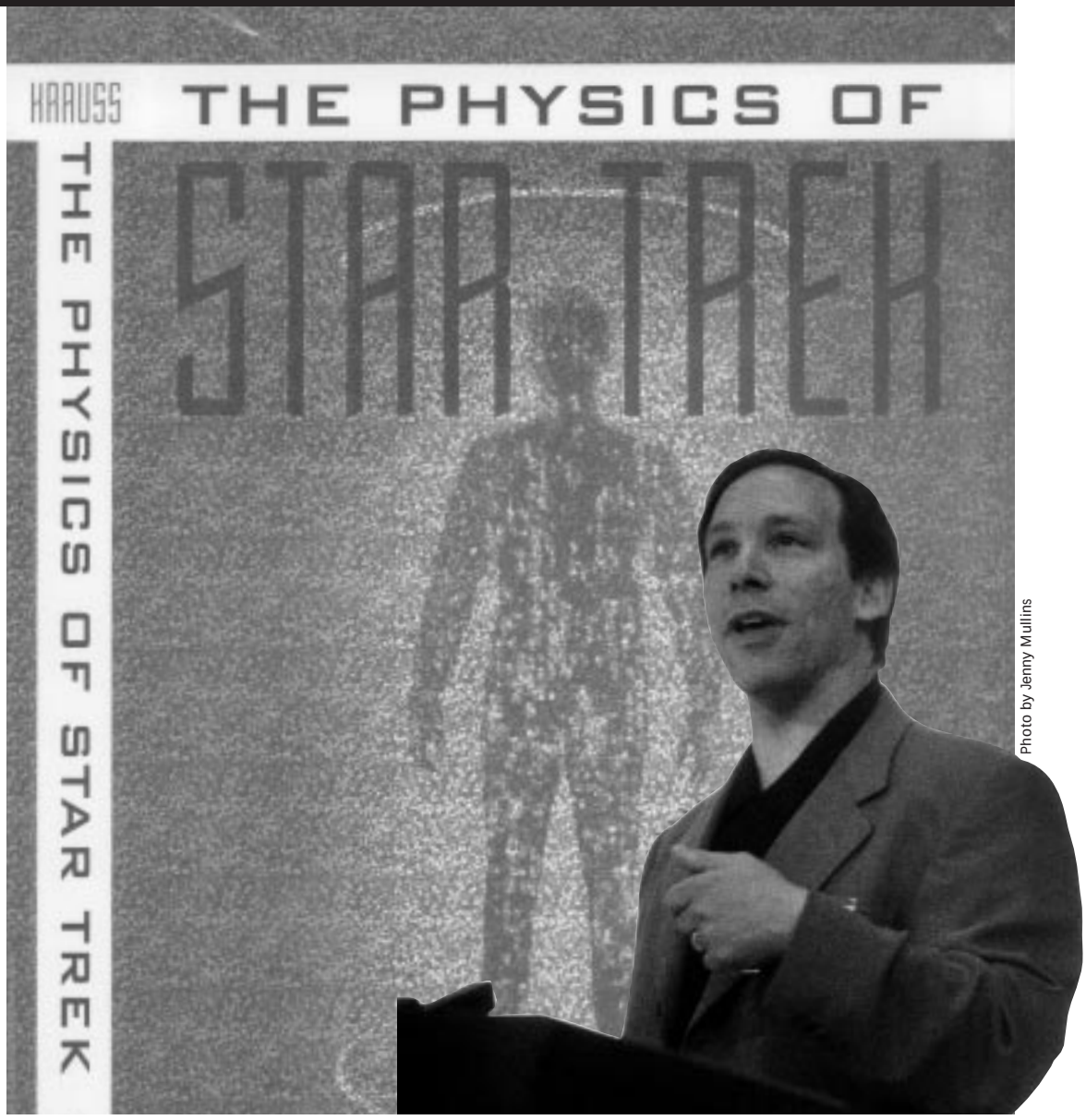

Photo by Jenny Mullins

INSIDE

Krauss Gives Users a Mission

In his keynote speech to the Fermilab Users' Annual Meeting, author Larry Krauss challenged all physicists to boldly go into the realm of communicating with the public, explaining that physicists attempt to answer the very questions that incite our wonder about existence.

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Krauss: The Mission is the Message

Physics addresses the questions of our deepest wonderings, but physicists must do a better job of telling the story.

by Mike Perricone, Office of Public Affairs

Physicist Larry Krauss of Case Western Reserve University found himself confronting a contradiction: almost anywhere he went, people told him they weren't interested in physics; then they immediately asked him questions about antimatter.

"If they weren't interested in physics, why would they want to know about antimatter?" he asked himself. "Then I realized why: because antimatter was so important on *Star Trek*."

So Krauss, the author of several books on "real" physics, turned to the science of science fiction in writing *The Physics of Star Trek*. And in his July 13 keynote speech at the Fermilab Users' Annual Meeting, Krauss dared physicists to boldly go where few have gone willingly before: the daunting realm of communicating science to the general public, a realm where room temperature can feel as if it's only a degree or two above absolute zero.

But don't get cold feet, Krauss advised: just understand the difference between the right way and the wrong way to warm up the audience.

"It's a mistake to assume that people are automatically interested in what we have to say," he declared. "Yet people are fascinated by the questions addressed by physicists—they just don't know it."

Krauss could have proved his point by mentioning that *The Physics of Star Trek* was a best-seller when published in 1995.

Instead, he posed three questions that virtually anyone will admit to pondering, regardless of affinity or antipathy toward science: What's out there in the universe? Where do we come from? Are the laws of nature the same everywhere?

"These questions are the very domain of high-energy physics," said Krauss, chair of the Physics Department at Case Western Reserve. "And these are the very questions that drive people to write stories and go to movies."

Then he offered up a story idea straight from the cutting edge of particle physics research: the growing evidence for neutrino mass, and the process of tracking down a single fleeting neutrino incident in a gargantuan liquid-filled detector.

"We see evidence of a neutrino when a chlorine atom is changed into an argon atom," he said. "Now who would ever suppose that we could actually find a *single atom* of argon in a hundred thousand gallons of cleaning fluid?

"This is why high energy physics is more remarkable than anything that any science fiction writer can come up with. But until we can get that idea across, we're always going to be in trouble. We have to communicate that [idea] to the public."

Krauss' emphasis on communication was repeated and reinforced by several other speakers in two days of presentations at Fermilab's Ramsey Auditorium. The message was clear: money doesn't come easily, even with the possibility of budget surpluses. To continue embarking on voyages into the unknown, physicists (indeed, all scientists) must learn to navigate these Earthly seven C's: *Congress*; spending *constraints*; *competition* for funds; improving *collaborations* both international and internal, and *communicating* with the public in a *compelling* way.

Fred Gilman of Carnegie-Mellon University, chair of the recent DOE High Energy Physics Advisory Panel task force that is often referred to as the Gilman Subpanel, summed up the dilemma faced by high energy physics: greatly expanding results vs. non-expanding funds.

"We have questions from 20 years of the Standard Model and we're finally getting answers," Gilman said. "This is a very exciting time."

Yet Gilman's panel forecast a "constant level of effort," reflecting a science budget that remains constant or contains modest increases or decreases, despite the possibility of a surplus in the national budget.

Fred Bernthal, president of Universities Research Association, which operates Fermilab for the Department of Energy, saw erosion even in the good news of the Senate's Gramm-Lieberman Bill, which proposed doubling

Photo by Jenny Mullins

Fred Gilman, High Energy Physics Advisory Panel: "Any national program will probably involve an international facility. Each country having its own project is something that no longer works."

civilian research budgets over the next 10 years, an increase of approximately 7.5 percent yearly. Bernthal said the Senate was more likely to pass a replacement bill to double funding over 12 years, an increase of about 5.5 percent yearly.

"Science is not a natural beneficiary for a spending surplus," said Martha Krebs, director of the Office of Energy Research in the Department of Energy. "The issue of conveying what we're doing, in a way that's compelling, is important to all of us."

Krebs confirmed her support for U.S.—and Fermilab—efforts on the Large Hadron Collider (LHC) at CERN, as well as for neutrino research such as the Lab's NuMI experiment (Neutrinos at the Main Injector). But she left no doubt that the current top Energy Research priority is the $1.3 billion Spallation Neutron Source at Oak Ridge National Laboratory.

Robert Eisenstein of the National Science Foundation said cooperation is the only way for physicists to divide resources in the most productive manner.

"If we're not willing to set priorities among ourselves, somebody is going to set priorities for us, and we're not going to like them," Eisenstein said. "We have to continue to work together so LHC doesn't stand for *LAST* Hadron Collider."

In his keynote speech, Krauss underscored the rising stakes for physics.

"This is the most exciting time for high energy physics in perhaps the last 30 years," he said. "Everything points to an exciting future. And the results may mean we don't understand what we're doing, and that's even more exciting."

Building on that excitement will depend on helping the public understand what physicists are trying to do: answer the eternal questions of who we are and how we got here. ■

Photo by Reidar Hahn

Photo by Jenny Mullins

Robert Eisenstein, National Science Foundation: "Our fundamental challenge as a community is to establish intellectual linkages to the public and to other sciences."

Martha Krebs, director of the Department of Energy's Office of Energy Research: "Learning the origin and fate of the universe will reveal the secrets of energy and matter, and the NuMI experiment is an important part of that search."

Peoples: Science Can't Afford Silence

by Mike Perricone, Office of Public Affairs

Fermilab Director John Peoples, who was ordered to help dismantle the Superconducting Super Collider when Congress killed the project in 1993, strongly seconded the motion that physicists should become better communicators.

"When the SSC went down, it was a symptom of the problems in high energy physics and nuclear physics," Peoples told the Fermilab Users' Annual Meeting. "The public was not persuaded that we were worth that much money. Our field was not well understood, and the SSC was an easy target."

Peoples, named director in 1988, has announced his decision to step down in June 1999, and URA President Fred Bernthal told the users that the Director's Search Committee was on schedule to present three candidates to the Board of Overseers in October.

In a talk listed as a "Retrospective," Peoples outlined his goals for the Lab through 2003, admitting they would probably influence his successor:

- explore the energy frontier until the LHC begins operation;
- prepare to continue exploring that frontier at LHC;
- search for CP violation, which he said Fermilab has a good chance of observing;
- search for evidence of particle physics beyond the Standard Model through particle astrophysics experiments such as the Cold Dark Matter Search, the Sloan Digital Sky Survey and the Pierre Auger project;
- develop the accelerator technology to return the energy frontier to Fermilab in the second decade of the next millennium.

"I hope to leave choices for people," he concluded. "I hope I will also leave a legacy of a little added cooperation." ■

Photo by Jenny Mullins

Fermilab Director John Peoples: "In 1988, we were planning our future up to and beyond the SSC. In 1998, we're planning our future up to and beyond the LHC."

Photo by Jenny Mullins

Ian Adam (right) accepts his award for the best graduate thesis from URA President Fred Bernthal.

Fermilab Rewards Academic Excellence

by John Scifers, Office of Public Affairs

He says it began "the old-fashioned way—on paper." About five years ago, sketching ideas in a quiet corner of Java and Juice, a Naperville coffee shop, Ian Adam began writing his thesis, the final, steepest path toward appending "Doctor" to his name.

After countless trips to the coffee shop for outlining, drafting, and editing, he completed his thesis—describing an alternate method of measuring the W boson mass—and did earn his doctorate from Columbia University. More followed, however.

On July 13, at Fermilab's annual Users' Meeting, Adam's thesis earned high regard when Universities Research Association President Fred Bernthal presented him with a $3,000 check and a certificate recognizing his thesis as the best for 1997. His name will also appear on a new plaque in the director's office.

Using similar competitions at DESY as a model, in 1997, Fermilab Director John Peoples worked with physicist Roger Dixon and URA, which sponsored the award, to organize the contest. Dixon and a panel of five other judges began by devising criteria to evaluate entries solicited from Fermilab users and staff.

Fourteen nominations for doctoral theses submitted in 1997 arrived by the March deadline. As Dixon says, the "quality of all 14 theses was excellent; …it was very difficult to make a choice." Nevertheless, a points-based system made the difficult selection possible as the panel judged theses on clarity of expression, originality, physics content and accuracy. After collective deliberation and individually reading the theses, which ranged from approximately 100 to 350 pages, the panel made its decision.

Besides Adam's thesis, which finished first in scoring, the panel chose two others as "outstanding": Eric Colby's "Design, Construction and Testing of a Radiofrequency Electron Photoinjector for the Next Generation Linear Collider" and Erich Varnes' "Measurement of the Top Quark Mass." Adam's thesis, Dixon says, was "extremely well-written and thorough." It also scored highly for "originality," because Adam's method of measuring the W boson mass applies particularly well to Run II's higher beam luminosity.

This accomplishment will continue to pay dividends to Adam—and future award winners. As Bernthal says, "having your thesis singled out from among the many that arise from work done at Fermilab each year cannot help but be a nice boost for…your career—particularly one that might involve an appointment in academe." ■

Theses from Fermilab research

Each year, students come to Fermilab from all over the United States to sift through, organize, and compile the data needed for writing the one comprehensive body of work that, once completed, leads to the title "Doctor:" the thesis. In 1997, 20 graduate students submitted theses based on their research at the Lab. Here are their names and home institutions:

Ian Adam,
Columbia University

Suren Bagdasarov,
The Rockefeller University

Glenn Blanford,
University of California Irvine

John Brubaker,
Illinois Institute of Technology

Eric Colby,
University of California Los Angeles

David Cullen-Vidal,
Brown University

Tom Fahland,
Brown University

Peter Grudberg,
University of California at Berkeley

Tacy Joffe-Minor,
Northwestern University

Katja Langen,
University of Wisconsin Madison

Sathyadev Ramachandran,
University of California Los Angeles

Prem Singh,
University of Pittsburgh

Benn Tannenbaum,
University of California Los Angeles

Jamal Tarazi,
University of California Irvine

Timothy Thomas,
Northwestern University

Kirsten Tollefson,
University of Rochester

Arun Tripathi,
The Ohio State University

Stephan Van Den Brink,
University of Pittsburgh

Erich Varnes,
University of California at Berkeley

Andreas Warburton,
University of Toronto

Neutrinos Are Hot

Evidence of neutrino mass has the NuMI project all fired up.

" [Super-K's] compelling evidence for neutrino oscillations… makes a confirmation and study of this phenomenon an important and exciting area of research."

~ Fermilab PAC

by Sharon Butler, Office of Public Affairs

Whether you read the *New York Times* or listen to hard-rock stations, said NuMI (Neutrinos at the Main Injector) Project Manager Tom Fields, you've undoubtedly heard the news: The Super-Kamiokande experiment in Japan has found new evidence to suggest that neutrinos have mass.

Some people may deduce that the results have rendered NuMI's MINOS (Main Injector Neutrino Oscillation Search) experiment obsolete. After all, MINOS is a long-baseline experiment shooting a beam of neutrinos from Fermilab all the way to Soudan, Minnesota, 730 kilometers away, to look for the same thing—the telltale oscillations of muons to tau neutrinos.

But nothing could be further from the truth. In fact, the announcement has only lit a fire under the collaboration.

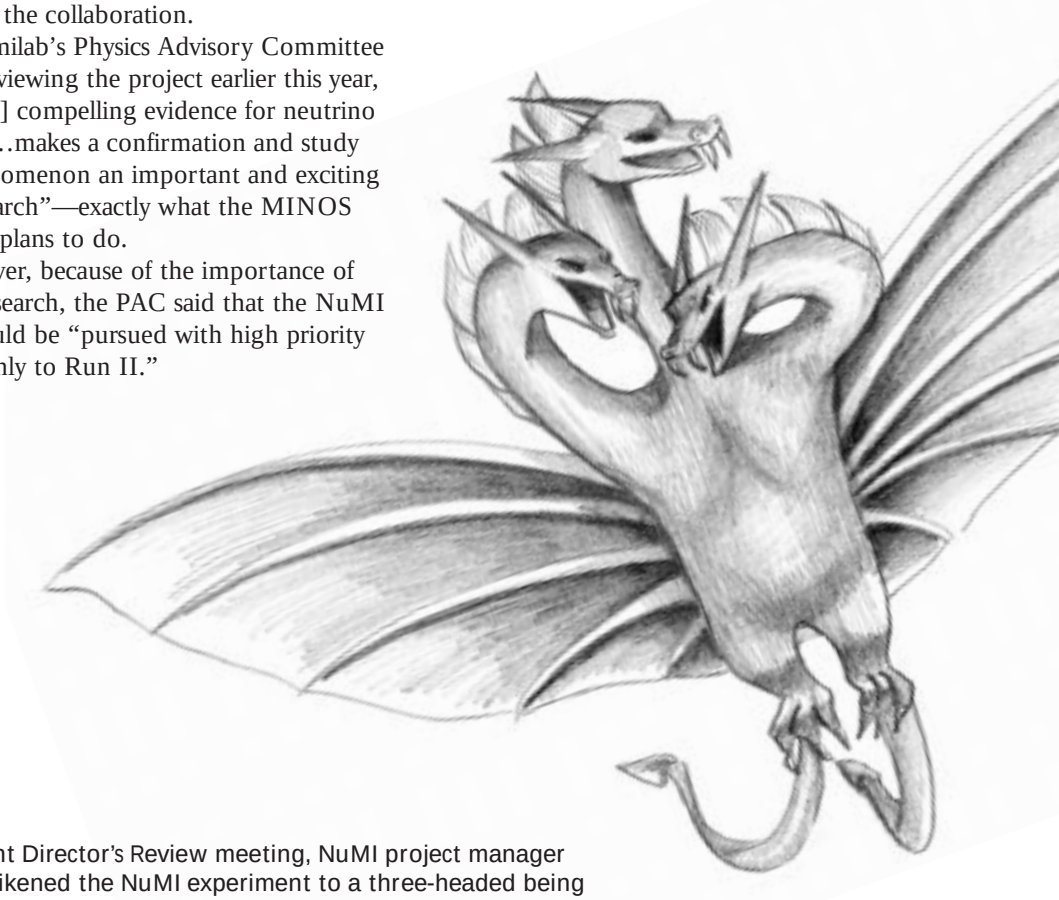
As Fermilab's Physics Advisory Committee said after reviewing the project earlier this year, "[Super-K's] compelling evidence for neutrino oscillations…makes a confirmation and study of this phenomenon an important and exciting area of research"—exactly what the MINOS experiment plans to do.

Moreover, because of the importance of neutrino research, the PAC said that the NuMI project should be "pursued with high priority …second only to Run II."

In a director's review convened earlier this month, Stanley Wojcicki, MINOS spokesperson, put the matter more bluntly: "Neutrinos are hot!"

That fact was evident at a series of recent reviews of the NuMI project, all intended to monitor progress and ensure that the project comes in on time and on budget.

The latest was an intense, two-and-a-half-day meeting covering every aspect of the experiment, from the design of the beam to construction to the cost of the project and its schedule. Voices of experience offered the collaboration words of advice and encouragement: firm up engineering requirements, for instance, and find a uniform method for estimating costs; tie up those loose ends in the analysis of bedrock topography, and



At the recent Director's Review meeting, NuMI project manager Tom Fields likened the NuMI experiment to a three-headed being (one head for the NuMI facility, and one each for the two detectors). "Keeping the necks untangled" was the key, Fields said. But he wondered aloud whether the being was a monster, a bat, or a wonderful new creature. Someone called out from the audience, "The main question is, can it fly?"

Illustration by Tracy Jurinek

design a beam line area to minimize, maybe even eliminate, the need for any future reconfiguration of shielding blocks. There were words of caution, too. In the excavation required to build the underground beamline, one reviewer warned, just remember that "you don't know what you're going to get until you open it up and look at it." But the bottom line was: The collaboration has made good progress since its reviews in April and May.

One session in the review covered a new design—principally the work of NuMI collaborators at the Institute for High Energy Physics in Protvino, Russia—for magnetic "horns" to tune, as needed, the energy of the beam. The horns, said physicist Jim Hylen, "act like a zoom lens in a camera, allowing an easy change from a high-energy beam focus to a low-energy focus."

That feature is important if the MINOS experiment plans not only to verify the Super-K results but extend them as well. One crucial parameter neutrino experiments want to measure is Δm^2—the difference in the square of the masses of the oscillating neutrinos.

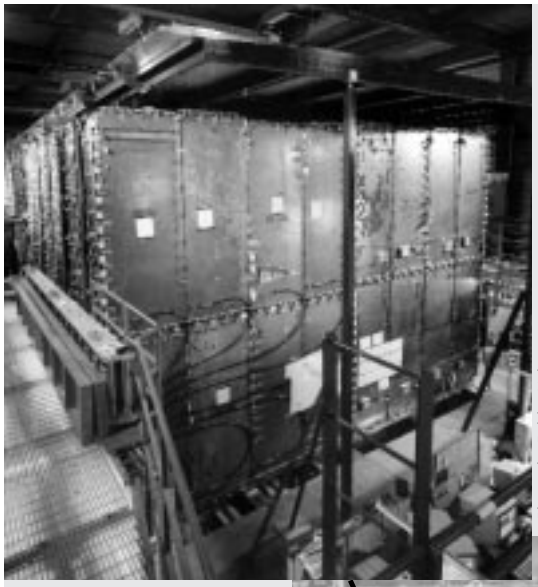
For Super-K, the value for this mass squared difference lay somewhere between 10^{-3} and 10^{-2} eV^2, lower than previously thought.

There are several possible ways to push an accelerator experiment's sensitivity to lower values of Δm^2. Experimenters could increase the distance between the source of the neutrinos and the detector. That, however, is not feasible in the MINOS experiment. The site for the detector has already been selected. And it is not even clear that an intense enough beam could be built if a detector were placed farther away. Brute force is another means—you can try to get "more mass, more beam, more time," said Wojcicki. But that's hard to do. The best option, Wojcicki said, is decreasing the beam energy. Hence, the importance of the horns. But there are limits to how low the beam energy can be. If it's too low, the experiment won't be able to find tau neutrinos.

With the new horns, NuMI hopes to have a flexible beam that can cover most of the region Super-K identified, a beam whose energy experimenters can tune to accommodate new developments in the field of neutrino oscillations. And then, we may finally make the acquaintance of those antisocial particles that, while streaming all around and through us, have eluded physicists so long. ■

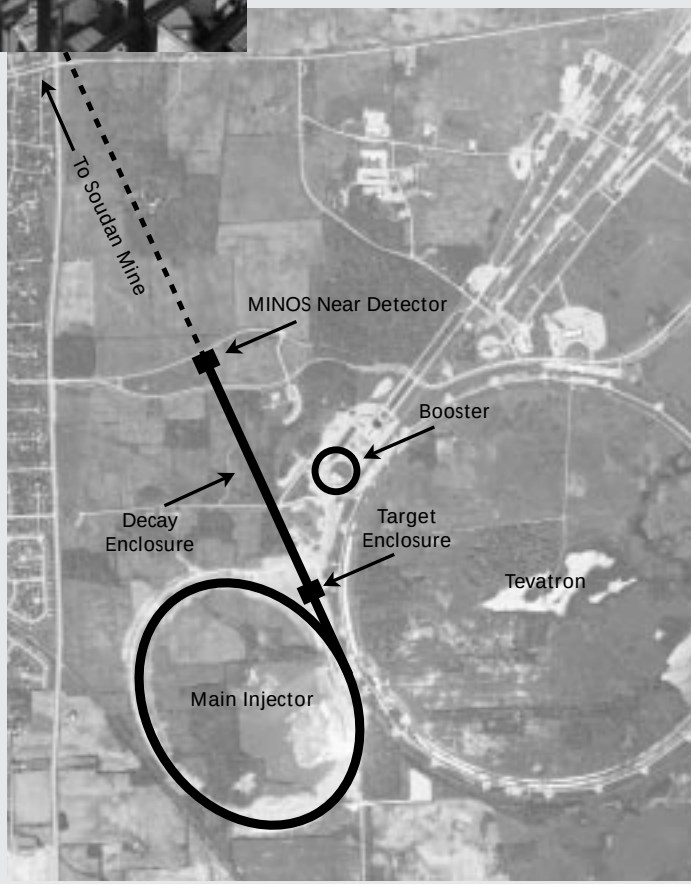
Photo by Jim Schultz

Stanley Wojcicki, spokesperson for the MINOS experiment.



Photos by Reidar Hahn

A 1-kiloton detector in the Soudan 2 lab in Minnesota was built to search for evidence of proton decay. It is now employed in the study of atmospheric neutrinos and will soon be modified for use in the MINOS experiment.



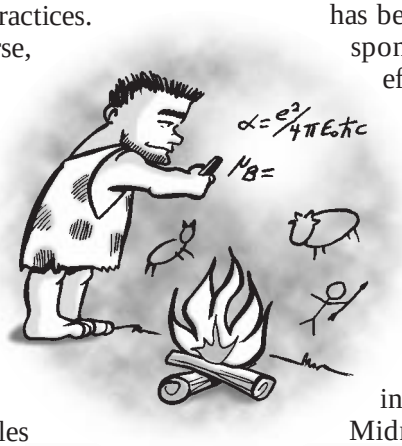
In the MINOS experiment, protons from the Main Injector will strike a nearby target, creating a spray of pions at different energies, ricocheting off at different angles. These pions then decay to neutrinos. The neutrinos will be sent on their way to Soudan, Minnesota. On that long journey, accomplished in a mere 2.5 millionths of a second, physicists suspect that muon neutrinos will oscillate, changing into tau neutrinos.

"Why should the U.S. remain a world leader in the science of high-energy physics?"

by Andrew Shih, former Public Affairs intern

For centuries, a dark and disturbing sect of deranged individuals has plagued civilization. From the beginning of time, these menacing figures have haunted communities with their bizarre practices.

I speak, of course, of high-energy physicists.



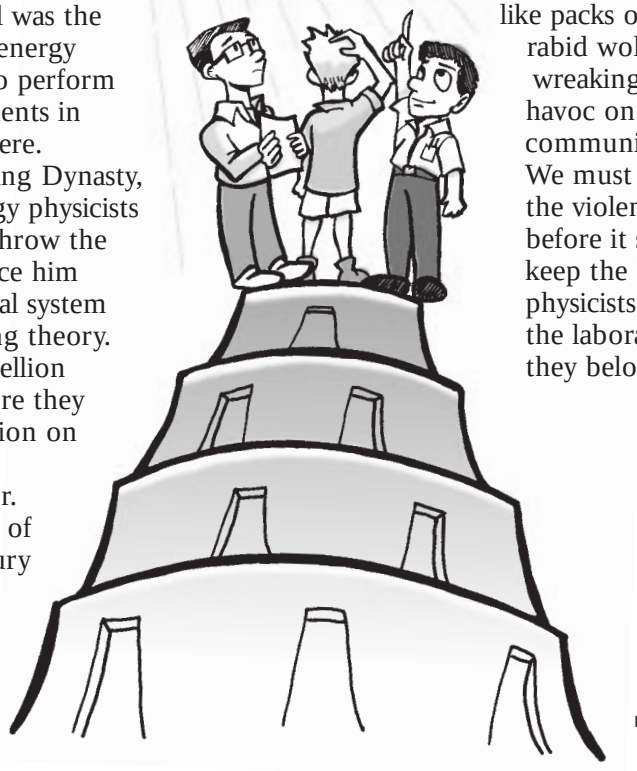
In the early Stone Age, these madmen and madwomen were often cast out of their clans after covering gorgeous cave paintings behind poorly scribbled miles of indecipherable formulae. Modern archaeological texts have ignored this significant prehistoric fact in order to preserve public order.

Later, Middle Eastern civilization suffered from this plague. Little-known fact: the Tower of Babel was the brainchild of high-energy physicists hoping to perform cosmic ray experiments in the upper atmosphere.

During the Tlang Dynasty, Chinese high-energy physicists attempted to overthrow the Emperor and replace him with a governmental system based on superstring theory. Thankfully, the rebellion was put down before they could begin operation on their gunpowder-powered accelerator.

With the dawn of the twentieth century came a new era in the High-Energy Physicist Problem (as it was then known). Out of concern for the public good, nations began to institute high-energy physics research facilities. Finally, we had a place to put these people before they could harm themselves or anyone else. America has been on the forefront of this effort, sponsoring dozens of programs in an effort to contain the high-energy physics "community" (some would liken it to a cult). Recent shadowy influences have attempted to cut funding for high-energy physics. Can you imagine the chaos that would result? And so, people of America, I urge you to maintain, nay, increase spending on high-energy physics in our nation.

Midnight basketball and prescription sedatives will not be enough to mollify these people. Without high-energy physics laboratories, this mad sector of the population would roam our streets like packs of rabid wolves, wreaking havoc on our communities. We must stop the violence before it starts—keep the high-energy physicists locked in the laboratories where they belong! ■



Illustrations by Tracy Jurinek

The Other Essay

It didn't place first or second in the recent *FermiNews* essay contest.

Luckily.

DOE, NSF Pledge U.S. Support for International Pierre Auger Project

By Judy Jackson, Office of Public Affairs

An international science detective squad determined to crack a cosmic mystery case got some good news from Washington this week.

Officials of the Department of Energy and the National Science Foundation informed Pierre Auger Project spokesman James Cronin that their agencies will provide $7.5 million, beginning in FY1999, for the initial phase of the project, an experiment to discover the mysterious source of very high-energy cosmic rays. The funding, spread over four years, will support construction of the Auger Observatory's city-of-Paris-sized detector in Argentina, one of two detectors that the collaboration plans to build.

"DOE and the NSF have agreed to proceed with the Pierre Auger Project, with detector engineering and preconstruction commencing on the first array at the southern site in Argentina in FY1999," the officials said in a July 24 letter to Cronin.

U.S. support for the international astrophysics project came as welcome news to Auger collaborators.

"We're delighted," said Fermilab physicist Paul Mantsch, the Auger project manager. "It's been a long road introducing this new project. Now we can join with our international partners to move ahead with this exciting science."

The Auger Project seeks to identify the source of the highest-energy particles ever observed in nature. Scientists have recorded cosmic rays with a hundred million times the energy of protons produced by Fermilab's Tevatron, the most powerful manmade accelerator. Yet the violent process that sends particles with such extraordinary energy towards earth remains unknown. The Auger project's two 3,000-square-km arrays of 1600 water Cerenkov detectors, combined with fluorescence "Fly's Eye"-type detectors, will attempt to track these extremely rare high-energy particles to their source, perhaps uncovering new physics or astrophysics in the process.

From its start in 1992, the Auger Project collaboration has been thoroughly international. In contrast to many other international science projects, in which one country or one large laboratory plays a dominant role and others join as secondary partners, the Auger project has been conceived as a collaboration among international equals. Its members include scientists from some 40 institutions in 19 nations: Argentina, Armenia, Australia, Bolivia, Brazil, the Peoples Republic of China, the Czech Republic, France, Germany, Greece, Italy, Japan, Mexico, Poland, Russia, Slovenia, the United Kingdom, the United States, and Vietnam. Many of these nations have pledged significant financial support.

Auger Project leaders hope their international approach may prove a model for others. Congressional support is growing for leveraging U.S. research investments by collaboration with other nations, House Science Committee Chairman James Sensenbrenner (R-MI), told listeners in a June 11 speech on international science partnerships.

"Not only do international partnerships enable countries to make the most of federal resources," Sensenbrenner said, "they allow vital knowledge to be shared in hopes that it will be used to its full potential."

The Pierre Auger Project ultimately plans to build observatories in both Argentina and Utah, in order to explore the whole sky. The U.S. funding agencies recommended that work begin in the south, however, because the southern sky is largely unexplored for high-energy cosmic rays. Work in the north will begin after data-taking gets underway at the Argentinean site.

Leaders of the Auger collaboration will travel to Mendoza Province, Argentina, early in September to hold informational town meetings with area residents, and to meet with local officials and landowners of the southern site.

"Our American colleagues will be bringing good news with the announcement of the U.S. commitment to the Pierre Auger Project," said Alberto Etchegoyen, Argentina site spokesman.

Cronin, a Nobel laureate and professor of physics at the University of Chicago, cited Fermilab's role in the cosmic ray project.

"Fermilab is making a key contribution to the technical management of the Auger Project," Cronin said. "The laboratory's experience in managing large international science projects will be invaluable as we move toward construction." ■

CERN photo

Members of the Pierre Auger collaboration gather on the eponymous boulevard at CERN, the European Laboratory for Particle Physics.

Lifelines for the Main Injector

by John Scifers, Office of Public Affairs

Next spring, a network of over 8,000 cables will infuse power into the Main Injector and give operators command over 44,000 system parameters for Fermilab's newest accelerator.

But before the Main Injector can come to life, electricians must construct its nervous system—by pulling power and signal cables that will link its electromagnets, sensors and computers to power stations, electronics rooms and control rooms around the Laboratory site.

Though the Main Injector itself is only two miles in circumference, if the cables that will control and energize it were laid end to end, they would trace a 3,000,000-foot path—long enough to stretch from Fermilab to Oak Ridge National Laboratory in Tennessee, over 550 miles away. Laying all of these cables, which range in length from 150 feet to a few that exceed 2000 feet, has taken over a full year and cost about $2 million.

CRITICAL PATH

According to electrical engineer George Krafczyk, and Phil Martin, the associate project manager for Accelerator Systems, installing cable costs between 30 cents and $5 per foot, depending on the complexity of the job. Such costs usually exceed those of the cable itself, often by a factor of two or more. Under the guidance of task manager Bob Oberholtzer, Fermilab's "cable czar" for the project, two electrical contractors, Arbor Electric and West Elsdon, have performed most of the work.

Oberholtzer spends many of his Saturdays preparing the area for contractor work because, as Martin says, weekends are "the only time we can generally get half-free tunnel space [where] we can move these [cable] spools."

Most of the cable comes in 5,000-foot lengths, so Oberholtzer places the cumbersome spools where electricians can best use them. Two-, three- or four-person crews then manually install most of the cables. The lines can be as thin as a pencil lead at about two-tenths of an inch or, as with high-load power cables, as thick as the fat end of a cue stick, requiring winches for installation.

Taking place in stages—under numerous contracts that sometimes approach $200,000—the work begins with the installation of cable trays, following plans drafted by Krafczyk and technical specialist Bob Hively. Electricians then lay cables, each labeled with a distinguishing number corresponding to the plans, in the appropriate trays before pulling them through to their destinations. Fermilab engineers then step in to check for correct placement and installation with specialized equipment that generates and detects specified end-to-end signal pulses.

To save money, Fermilab uses some cables manufactured to custom lengths. Because cables are installed as whole pieces, with no splices, using standard 5,000 foot rolls can produce left-over pieces—wasting as much as 25 percent of the spool. Although the custom cables cost more, careful planning minimizes losses, which yields savings in the long run. Nearly all of the cables for the Main Injector have now been installed, and the approximately 1,000 left to go should be in place before Christmas.

With its newly acquired nervous system, when operations begin next spring, the Main Injector will come alive and send the Lab's potential for particle physics discoveries to the highest level ever. ■

The lines can be as thin as a pencil lead at about two-tenths of an inch or, as with high-load power cables, as thick as the fat end of a cue stick, requiring winches for installation.

Photo by Reidar Hahn

Electricians Jim Robinson (on ladder) and Jan Stasica, of Arbor Electric, install cable for the Main Injector

Photo by Jenny Mullins

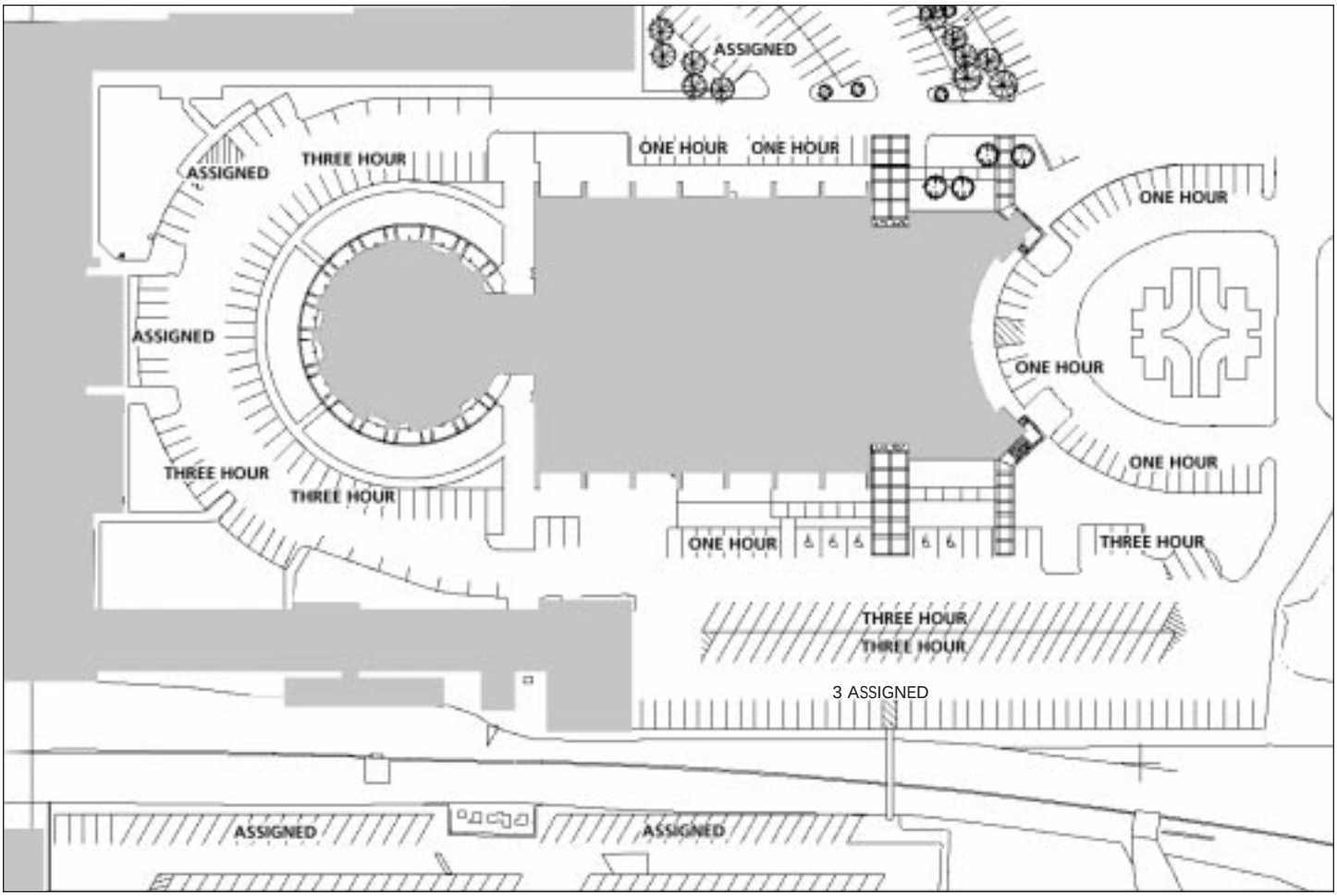
Graduate student Fernanda Garcia discusses her presentation on the SELEX experiment with scientist Bob Tschirhart.

Looking at Physics from New Perspectives

A poster session following Director John Peoples' address at the close of the Users' Meeting signaled the beginning of the Graduate Student Association's third annual conference, New Perspectives 98. The poster session, which has become a highlight of the conference, gives students a forum in which to showcase their work and exchange ideas about the experiments they're working on. As the title of the conference suggests, various perspectives on high-energy physics gained acknowledgement through the voices of conference speakers. Keynote speaker Melissa Franklin, of Harvard University and the CDF collaboration, set the tone for the conference with "The Future Imperfect." The talk painted a picture of the flawed future in physics that would arise if young physicists don't return to the fundamental questions of the field. According to Kevin Davis, the DZero GSA representative, "It was the sort of talk that everyone reads very differently, but one [that]…leaves no one unaffected." Other talks—from Mark Mattson's discussion of the SELEX online filter to Andrew Green's presentation of Technicolor—covered a wide range of notable topics in physics, from a variety of perspectives. Perhaps Davis' assessment of Franklin's speech also characterizes the whole conference, however: "My quote: 'It was, um, interesting.' And you can print that." ■

New Parking Rules

As of Monday, August 17, new parking rules will be in effect around the High Rise between 8:00 a.m. and 4:00 p.m.



Volunteer to take the "high road" from the High Rise and help clean up Casey's Pond on Thursday, August 20.

Fermilab photo

Fermilab Third-Thursday Lunchtime Volunteer Clean-Up Squad

With 6,800 acres to tend, Fermilab's hard-working Roads and Grounds crew could sometimes use a little help keeping things neat and clean, particularly in summer when recreational use of the site is high.

Beginning on August 20, employees and users who would like to lend a hand will have the opportunity to join the Fermilab Third-Thursday Lunchtime Volunteer Clean-Up Squad. On the third Thursday of each month (until it gets too cold), Roads and Grounds will pick an area of the site that needs help. Employees and users may volunteer to use their lunch break to help clean it up. First project: the shore of Casey's Pond on August 20.

Here's how it works:

- Grab a sandwich and a drink.
- Drive to Casey's Pond or hop the special Fermilab Clean-Up Van leaving the Wilson Hall Horseshoe at 11:45 a.m.
- Pick up gloves and a trash bag, courtesy of Roads and Grounds, at the clean-up site.
- Pitch in and clean up.
- Take the van back to the High Rise, arriving at 12:45.
- No sign-up! Just show up and clean up! Questions? Call the Office of Public Affairs, x3351.

LAB NOTES

Summer Recreation

For information on summer recreation activities, visit the Recreation Office web site at:

http://fnalpubs.fnal.gov/benedept/recreation/recreation.html

MILESTONES

BORN

■ Abigail Victoria Steimel to Jim (BD / Tevatron) and Danielle, June 12, at Edward Hospital in Naperville.

RETIRING

■ Angela Gonzales, I.D. # 11 will retire August 1, from the Directorate.

■ Richard Carrigan, I.D. #260 will retire September 15, from BD / AO Photo Injector Group, his last work day will be July 31.

■ Demetrios Zafiropoulos, I.D. #1500 will retire September 30, from PPD / Engineering & Tech Teams, his last work day was July 22.

DIED

■ Marianne Blotch, I.D. #10035, CD / Division Office, on July 14, 1998.

LETTER TO THE EDITOR

Thanks for the book review on Richard Feynman (*FermiNews*, July 17, 1998). It's awesome to see a scientist with heart promoting science with heart. Chris Quigg has shown us all what Feynman knew all along: "The rainbow is just as important as the pot of gold at the end." I also really enjoyed the profile of Tom Fields. He's the kind of person that the Senators and Congress people need to see when they're debating budgets for High Energy Physics (clean office and all).

Thanks for a wonderful tool for our home education program.

Jeff Hauser, Lohrville, IA.

Chez Léon

MENU

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

Lunch
Wednesday
August 5

Pesto Vegetable Lasagna
Tomato, Red Onion and Black Olive Salad
Peaches in Port

Dinner
Thursday
August 6

Smoked Salmon Plate
Beef Tenderloin with Tomato Herb Butter
Zucchini with Corn and Chili Peppers
Roasted New Potatoes with Garlic and Rosemary
Strawberry Shortcake

Lunch
Wednesday
August 12

Grilled Salmon with Red Pepper and Parsley Salsa
Potato Wedges
Cold Lemon Soufflé with Blueberries

Dinner
Thursday
August 13

Fresh Mozzarella and Tomato Basil Salad
Scampi
Lemon Pepper Fettuccine with Multicolored Peppers
Blueberry Tart

CLASSIFIEDS

FOR SALE

■ '96 Honda Civic EX 2-dr Coupe, VTEC, 30K miles, auto, pwr moonroof, windows, remote entry, cruise, a/c, am/fm cassette $11,800. Call (630) 665–4168 or kazu@fnal.gov.

■ '95 Toyota Previa LE SC All Trac, dual air, cruise, pwr windows & door locks, cassette, 1 owner, maint. records available. Asking $15,000. Call (847) 888–3253.

■ '92 Ford Tempo GL, 4 dr., auto, a/c, driver side airbag, am/fm cassette, cruise, pwr windows, locks, & mirrors, 80K miles, very clean. Asking $4,250. Robert, x4190 or (630) 690–3314.

■ '91 Subaru Justy, silver, excellent condition, 28K miles, 5-spd, a/c, $3,600 obo. Erik Gottschalk, x6416, erik@fnal.gov.

■ '91 Chevy Prism, 4 dr, 69K miles, 4 cylinder, tape player, auto door locks, no rust, excellent cond., 1 owner, maroon. $5,500. Call Sue (630) 377–1331.

■ '90 Mercury Cougar LS-Bostonian Ed. w/gold emblems, V6, a/c, am/fm cassette, cruise, tilt steering wheel, digital dash, pwr windows & seat, well maintained, very good cond. $4,500.00 obo. (630) 898–1369 after 5:00 pm.

■ '87 Toyota MR2, T-bar roof, 101K miles, auto, a/c, p/w, new brakes, plugs, muffler, timing belt, & more $3,000. Call (630) 665–4168 or kazu@fnal.gov.

■ '86 Mercury Lynx station wagon, blue. Looks rough, but all panels match, very reliable, 4-spd, 70K miles on rebuilt engine. All receipts/ maint. records, 2nd owner. Great work car at $850. Call John, x2237, (815) 886–0036, or scifers@fnal.gov.

■ '85 Bronco II, 105K miles, 2.8 L manual trans, $1,500. obo. Dan Freeman x3924. dfreeman@fnal.gov. (630) 588–8037.

■ '84 Corvette, black, glass top, 60K miles, new paint & tires, very good running order. Best offer, (630) 852–2475.

■ '71 Volkswagen Karmann Ghia, bright orange. Original owners, complete maint. records, very clean, no rust, never wrecked. Runs beautifully, garaged year-round. New brakes, battery, seats. Asking $4,250. Dposner@orion.it.luc.edu or (847) 328–8631

■ '74 Triumph Trident, 750cc, 3 cylinder T150 Model, very good cond, <8K miles, black/gold. Collectors motorcycle, $4,700 obo. Call (630) 393–9079 or x2332.

■ Rowe sleeper sofa w/innerspring mattress, mixed floral pattern, mostly burgundy, 3 years old, rarely used, $350. Creme-colored Schweiger sofa w/oversized ottoman, <1 year old, $400. Nordic track ski machine w/pulse monitor, $200. Call John, x2237, (815) 886–0036, or scifers@fnal.gov.

■ Queen-size solid oak waterbed & newer high quality mattress, $450. Jeff, x3951 or (630) 690–3719.

■ Outboard Motor, Evinrude 9.5 HP, 6 gallon gas tank, storage stand, owners manual & small tool/parts kit. $650. John, x3428, (708) 795–8965.

■ Aluminum Extension Ladders, 14' ($30) 24' ($100). Call Michael Hanson x4879, (847) 577–5895 or mjh40@cornell.edu.

■ Simmons rifle scope, Pro-Hunter, 6-18 X 40 mm, new in box, $90. Adult air rifle, steel rifling barrel, 0.177 cal., spring piston, under lever cocking, good condition, $35. Hengjie, x4490, or mahengjie@fnal.gov.

■ Home, cute, clean 3 bedroom, 1/2 acre country ranch. Well-maintained. $107,900. (847) 683–3476.

RENT

■ Furnished room, close to Lab. Warrenville location. Quiet, smoke-free environment, kitchen & laundry available. Short-term availability, $100/wk or $400/mo, x2332 or 393–9079 after 5 p.m.

WANTED

■ Used two-seater go-cart or fun cart. Call Russ, x2888, rucinski@fnal.gov.

CALENDAR

AUGUST 7

Fermilab International Film Society presents *Kundun*, Dir: Martin Scorsese (USA). Film begins at 8 p.m., Ramsey Auditorium, Wilson Hall. Admission $4. (630) 840-8000.

AUGUST 29

Fermilab Art Series presents *Jay Unger & Molly Mason "Ashokan Farewell: The Civil War and Beyond,"* $16. Performance begins at 8 p.m., Ramsey Auditorium, Wilson Hall. For reservations or more information, call (630) 840-ARTS.

ONGOING

NALWO coffee mornings, Thursdays, 10 a.m. in the Users' Center, call Selitha Raja (630) 305–7769. In the Auditorium (during the summer), 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.

Web site for Fermilab events:
http://www.fnal.gov/faw/events.html

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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.

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