

Calendar

Fri., July 27

8:00 a.m. - 5:00 p.m.

[Open Science Grid Users'](#)

[Meeting](#)

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m.

Joint Experimental -

Theoretical Physics Seminar -

One West

Speaker: M. Harrison,

Brookhaven National

Laboratory

Title: U.S. ILC R&D Plans

Mon., July 30

PARTICLE ASTROPHYSICS
SEMINARS WILL RESUME IN
THE FALL

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4:00 p.m.

All Experimenters' Meeting -

Curia II

[Click here](#) for NALCAL,
a weekly calendar with links
to additional information.

Weather



Thundershowers

83°/63°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Special Announcement

What do the neighbors think?

For months, as they learned about the ILC, members of Fermilab's ILC Citizens' Task Force have been hearing physicists' most profound questions for the universe. Now, these neighbors have some compelling questions of their own for the ILC and Fermilab community.

Today at 2:45 p.m. in One West, the entire Fermilab community is invited to join seven members of the ILC Citizens' Task Force help find the answers at this special session of the ILC Community School.

The ILC Citizens' Task Force of local community members has met monthly since January. Their job is to provide Fermilab with advice and guidance on the planning for the ILC from a community point of view.

Feature

Neutrino school inspires, connects students



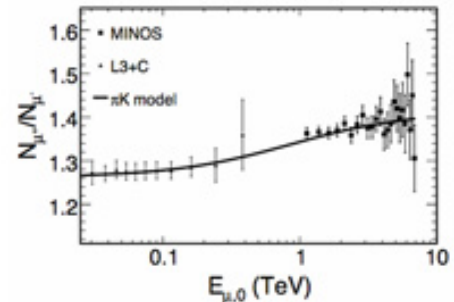
Neutrino Physics Summer School students pose for a group photo in front of Wilson Hall

When Columbia graduate student Matt Toups was in 11th grade, a teacher showed him that through physics, he could combine his two great loves: math and basketball. "I finally knew why some shots worked and some didn't. That was when I knew that I wanted to do physics," he said.

From July 2-13, Toups and approximately 50 other students from around the world convened on Fermilab's campus for the Neutrino Physics Summer School, an intensive course on the physics of neutrinos with non-zero mass, a subject that is just

Fermilab Result of the Week

Cosmic-ray muon charge ratio



The MINOS collaboration found that the muon charge ratio varies as a function of the muon energy. The black squares represent the MINOS measurements and the triangles represent results by CERN's L3+C experiment.

Physicists typically study pions and kaons by using particle accelerators. Deep underground in a mine in Minnesota, an analysis team using the MINOS detector has discovered how pions and kaons from cosmic rays behave at TeV energies at the surface above the mine.

The MINOS far detector was built in a mine one half-mile underground in northern Minnesota to study neutrinos generated at the Fermilab Main Injector. As is true for other experiments, the MINOS physics reach extends beyond this primary mission. As the first large underground detector with a magnet, a team of physicists exploited the MINOS magnetic field to investigate the electric charge of the cosmic ray muons energetic enough to penetrate to the detector.

The MINOS collaboration measured the muon charge ratio, or the ratio of the number of detected positive to negative muons. The main results of this study, which were reported at the recent International Cosmic Ray Conference in Mexico, are shown in the figure.

Cosmic ray muons, which come mostly from the decay of pions and kaons generated in interactions near the top of the atmosphere, are the only particles - other than neutrinos -- that can reach the detector underground. MINOS measured the charge ratio underground using muons carefully selected to minimize systematic errors and found the value of 1.374 with an error of about 1 percent.

Friday, July 27

- Beef pepper pot
- Buffalo chicken wings
- Cajun breaded catfish
- Sweet & sour pork over rice
- Honey mustard ham & swiss panini
- Assorted pizza slices
- Carved turkey

[Wilson Hall Cafe Menu](#)

Chez Leon**Wednesday, August 1 Lunch**

- Parsley poblano salad w/ orange glazed beef
- Blueberry cobbler

Thursday, August 2 Dinner

- Asian Spring Rolls
- Grilled Seafood in Saffron Sauce
- Vegetable risotto
- Grilled Bananas w/Rum & Ice Cream

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Archives**Fermilab Today****Result of the Week****Safety Tip of the Week****ILC NewsLine****Info**

Fermilab Today is online at: www.fnal.gov/today/

Send comments and suggestions to: today@fnal.gov

beginning to be addressed in general university curricula. Organizers of the school set out to inspire students to pursue careers in this cutting-edge facet of physics research. They offered lectures on topics ranging from the current state of the field to possibilities for future experimentation, and participants created mock experiment proposals as practice for the real process.

Toups felt that the best aspect of the school was its broad view. "It's easy to lose track of the big picture when you're working on a particular experiment," he said. "[The school] re-sparked my interest in new experiments and new possibilities, like exotic applications for neutrinos in beyond Standard Model physics." MIT graduate student Asher Kaboth, a schoolmate of Toups, agreed. "The school provided a great overarching perspective of what's going on in the field," he said.

Toups, Kaboth and their fellow students also made connections that could lead to research collaborations down the road. This fact, combined with the great scientific instruction, left Toups with a positive overall reaction to the school. "I really felt it will help me in my future career," he said.

-- J. Bryan Lowder

Photo of the Day**Pi pole replacements arrive**

The replacement process of Fermilab's pi-shaped power lines began yesterday afternoon with the arrival of parts from a company in Pennsylvania. The new poles, made of steel and designed to be visually identical to the current poles, were

delivered directly to the sites where they will be erected. Replacement is expected to take two months. Check Monday's Fermilab Today for a story including more information.

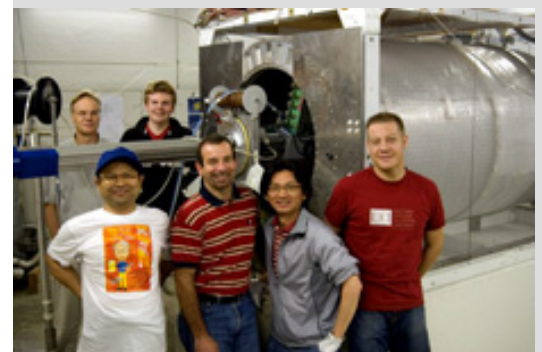
Feature

Since muons continuously lose energy at a well-known rate as they pass through rock, the distance that they travel provides a good estimate of their surface energy. The figure shows the charge ratio as a function of the muon energy at the surface. The MINOS measurements are the first high statistics determination of the muon charge ratio above 1 TeV.

In the energy range of 100 MeV to 300 GeV, many experiments find a charge near 1.25, significantly lower than the MINOS value (see figure). Building on previous work, Philip Schreiner, Benedictine University, constructed a model for the energy dependence of the charge ratio that describes this rise as a consequence of the kinematics of pion and kaon decay. The " πK " model provides an excellent fit to the data, as well as a way of estimating the K^+/K^- and π^+/π^- ratios from cosmic rays for the first time. This result was featured prominently as one of the highlights of the ICRC conference. A paper describing these results can be found [here](#).



The analysis team included Maury Goodman (Argonne), Stuart Mufson (Indiana University, pictured), Brian Rebel (Fermilab), Juergen Reichenbacher (Argonne), and Philip Schreiner (Benedictine University).

From ILC Newsline**Mapping a magnet**

three-lab team is working on mapping the Japanese magnet that went to space.

Three pairs of eyes cast one last look around the room. Have all scissors, ladders, metallic

Main Ring manners: obey posted speed limit



Two additional speed limit signs were posted at B-0 and E-0 around the Main Ring this week.

Speed demons take heed - safety is a priority at Fermilab and that applies to driving as well. During the lunch period between July 21 and 25, the average speeding citation recorded on the Main Ring was 41 MPH, 21 MPH over the posted speed.

"This is a potential hazard caused by motorists speeding past pedestrians," said security supervisor Chuck Morrison, who added that the danger is magnified due to the road's narrow configuration and blind spots.

As a reminder to motorists, the Traffic Safety Subcommittee has added two additional speed limit signs at sections B-0 and E-0. Fermilab will also have continued speed enforcement during lunch periods.

In the News

From *ScienceDaily*

July 26, 2007:

Extremely Short Bursts Of Light Produced: Could Probe Motion Of Electrons

Researchers at the U.S. Department of Energy's Brookhaven National Laboratory have generated extremely short pulses of light that are the strongest of their type ever produced and could prove invaluable in probing the ultra-fast motion of atoms and electrons. The scientists also made the first observations of a phenomenon called cross-phase modulation with this high-intensity light - a characteristic that could be used in numerous new light source technologies.

tables been removed? No pins or pens lying around anymore? Once the team is sure that nothing is left in the area, they close the security doors and give the go-ahead - the magnet that has been to space can be charged for the first time since its arrival at its new home in the DESY test beam.

[Read more](#)

-- Barbara Warmbein

Feature

Feedback prompts vacation donation enhancements

Employee feedback about Fermilab's new [vacation donation program](#) prompted an alteration of the definition of [medical emergency](#) as it applies to the program. The term will now include the employee's own medical condition, care for an immediate family member, and the birth, adoption or placement in foster care of a child.

Also, Fermi employees showed interest in setting up a vacation donor "on-call" list. Employees may volunteer to be on a mailing list (LISTSERV) that will include all donation requests. The "on-call donors" are not obligated to donate, but may decide to submit a Vacation Donation form. Employee Relations will also send a solicitation e-mail to departments/sections as specified by the requesting employee. To sign up for the Vacation Donation On-Call LISTSERV, contact [Employee Relations](#).

Announcements

Travel office relocation

The Fermilab Travel office and the foreign travel office have permanently moved from their first floor location to the fourth floor of Wilson Hall, WH4SE.

DOE Launches Search Site

The Department of Energy has launched the [Science Accelerator](#), a one-stop search tool to search the OSTI's key collections. The new service deploys federated search technology to retrieve results ranked by relevancy.

Last chance for Great America tickets

July 28 and 29 are Fermi Days at Great America. Tickets are \$27.25 and include unlimited rides, shows and Hurricane Harbor. Purchase tickets in the Recreation Office.



[Read More](#)

Classifieds

New [classified ads](#) have been posted on *Fermilab Today*.

[Additional Activities](#)