

## Calendar

**Friday, Nov. 9**

**3:30 p.m.**

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over

**4 p.m.**

[Joint Experimental-Theoretical  
Physics Seminar](#) - One West

Speaker: E. Varnes, University  
of Arizona

Title: Measurement of the W  
Boson Helicity in Top Quark  
Decays at DZero

**Monday, Nov. 12**

**12 p.m.**

[Wellness Works Brown Bag  
Seminar](#) - Curia II

Speaker: R. Taylor (Author)  
Title: Alzheimer's from the  
Inside Out

**2:30 p.m.**

[Particle Astrophysics Seminar](#)

- Curia II

Speaker: D. Johnston, NASA  
JPL

Title: Constraining Cosmology  
with Weak Lensing of Galaxy  
Clusters: The SDSS to DES  
and Beyond

**3:30 p.m.**

DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over

**4 p.m.**

All Experimenters' Meeting  
Special Topic: CMS Installation  
and Commissioning - Curia II

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

## Weather

 **Partly sunny 49°/33°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Feature

### Auger Observatory closes in on long-standing mystery



The cover of today's issue of the journal *Science* features an all-sky projection of highest-energy cosmic rays detected by the Pierre Auger Observatory (open circles) that are correlated with the positions of nearby quasars (crosses), a measure of the local galaxy distribution. The background shows a composite image of a nearby galaxy (M82) observed by NASA's Spitzer, Hubble and Chandra space observatories. *Credit: Kelly Krause/Science.*

Scientists of the Pierre Auger Collaboration announced Thursday, Nov. 8, that active galactic nuclei are the most likely candidate for the source of the highest-energy cosmic rays that hit Earth. Using the Pierre Auger Observatory in Argentina, the largest cosmic-ray observatory in the world, a team of scientists from 17 countries found that the sources of the highest-energy particles are not distributed uniformly across the sky. Instead, the Auger results link the origins of these mysterious particles to the locations of nearby galaxies that have active nuclei in their centers. The results appear in today's issue of the journal *Science*.

Active Galactic Nuclei (AGN) are thought to be powered by supermassive black holes that are devouring large amounts of matter. They have long been considered sites where high-energy particle production might take place. They swallow gas, dust and other matter from their host galaxies and spew out particles and energy. While most galaxies have black holes at their center, only a fraction of all galaxies have an AGN. The exact mechanism of how AGNs can accelerate particles to energies 100

## Safety slogan results

### Safety contest winners



Safety contest winners Dave Schemanske and Mark Thompson pose with their prizes. Not pictured: Scott Dodelson.

Three weeks ago, we asked our readers to get creative and to submit safety messages that could be displayed at the three Fermilab site entrances. And you did.

"More than 60 people participated," said Tim Miller, associate head of ES&H at Fermilab. "Many submitted two, three or more messages or slogans. The response was great. Choosing the best ones was not easy."

Last Friday, Miller met with three colleagues to select the three winning entries. Here they are, in no particular order:

**We've always done it this way. Is it OK?**

-- Mark Thompson, technician, Technical Division

**A safe environment is a great place to work.**

-- Dave Shemanske, group leader, Roads and Grounds

**Many quantum worlds. Be safe in this one.**

-- Scott Dodelson, acting head, Center for Particle Astrophysics

The messages will be on display at the site entrances in the next three weeks. As prize, the winners could choose a Fermilab fleece pullover, a baseball cap or a flashlight.

## From ILC Newslines

## Wilson Hall Cafe

million times higher than the most powerful particle accelerator on Earth is still a mystery.

### Friday, Nov. 9

- Old fashioned ham & bean
- Philly style chicken
- Braised pork chops
- Baked fish over rice
- Roasted veggie & provolone panini
- Assorted pizza slices
- Baked potato

[Wilson Hall Cafe Menu](#)

## Chez Leon

### Wednesday, Nov. 14

#### Lunch

- Pork satay w/peanut sauce
- Sautéed asian vegetables
- Steamed jasmine rice
- Banana spring rolls

### Thursday, Nov. 15

#### Dinner

- Curried butternut soup
- Spiced rubbed duck w/port wine sauce
- Corn risotto w/tomato and basil
- Rum raisin soufflé

[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/](http://www.fnal.gov/today/)

Send comments and suggestions to: [today@fnal.gov](mailto:today@fnal.gov)

"We have taken a big step forward in solving the mystery of the nature and origin of the highest-energy cosmic rays, first revealed by French physicist Pierre Auger in 1938," said Nobel Prize winner James Cronin, of the University of Chicago, who conceived the Pierre Auger Observatory together with Alan Watson of the University of Leeds. "We find the southern hemisphere sky as observed in ultra-high-energy cosmic rays is non-uniform. This is a fundamental discovery. The age of cosmic-ray astronomy has arrived. In the next few years our data will permit us to identify the exact sources of these cosmic rays and how they accelerate these particles."

[Read more](#)

## Photo of the Day

### Saturation at sunset



DZero collaborator Marc Buehler took this photo late one evening last week at the DZero outback. The building pictured is a Tevatron Satellite Refrigeration station.

## In the News

### How electrons 'gain weight' in metal compounds near absolute zero

From *ScienceDaily*, Nov. 5, 2007

Rutgers University physicists have performed computer simulations that show how electrons become one thousand times more massive in certain metal compounds when cooled to temperatures near absolute zero -- the point where all motion ceases. The models may provide new clues as to how superconductivity works and how new superconducting materials could be fabricated.

In a paper posted to Science Express, a Web

## ILC communication tools put to use



The crowd of more than 100 people had plenty of particle physics questions for Jim Brau at the Science Pub in Eugene, Oregon.

ILC: Gateway to the Quantum Universe? Got it. The September 2007 issue of NewsLineQ? Got it. General ILC brochure? Got it. A handful of one pagers to explain how the ILC works? Got it; got it; got it; got it. The ILC scientific community now has a number of communication tools at its fingertips. Handing out brochures is only half the job though. The rest is up to you, the ILC community. We can help you get started, perhaps at your local science café.

[Read more](#)

-- Elizabeth Clements

## Announcements

### Wilson Hall building closed Sunday

A scheduled power outage will affect all floors of Wilson Hall on Sunday, Nov. 11, between 7 a.m. and 5 p.m. The outage is necessary for annual feeder 44 maintenance. The building will be closed during the outage. Please remember to power down all essential electronics at the close of business this Friday.

### EAP office hours temporary change

The EAP office will be closed Friday, Nov. 9. The EAP office will resume the regular schedule on Wednesday, Nov. 14. The EAP is available 24/7 by calling (800) 843-1327.

### Alzheimer's Brown Bag Seminar Monday

Richard Taylor, PhD will present a Brown Bag Seminar on Monday, Nov. 12, 2007 from noon to 1 p.m. in Curia II. Dr. Taylor is returning by popular request. He is the author of "Alzheimer's from the Inside Out." Taylor has been diagnosed with dementia--probably of the Alzheimer's type. He will give an honest perspective of the disease and its challenges.

### English country dancing Sunday

English country dancing will meet this Sunday, Nov. 11, at Kuhn Barn, starting at 2 p.m.

site of research reports slated for upcoming print editions of Science, the researchers describe how electrons interact with other particles in these compounds to morph into what physicists call a fluid of "heavy quasiparticles" or a "heavy fermion fluid." While this effect has been previously observed in some materials, the Rutgers work employs new materials to provide a level of detail that has eluded scientists so far.

[Read more](#)

There will live music for dancing by Putting on Aires, a band from Evanston. A potluck supper will be held after dancing, at about 5:30 p.m. Tableware will be supplied and refrigerators are available. Newcomers are welcome and don't need to come with a partner. The next meeting will be Sunday, Dec. 2, and meetings will continue on the first Sunday afternoon of the month through the winter. For more information please contact [folkdance@fnal.gov](mailto:folkdance@fnal.gov) or call (630) 584-0825 or (630) 840-8194.

#### **Folkclub barn dance Sunday**

A Fermilab barn dance will be held on Nov. 11 at 6:30 p.m. with music by Good Gravity, featuring Peter Martin on hammered dulcimer, and calling by Paul Watkins. [More information](#)

#### **Classifieds**

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

#### **[Additional Activities](#)**