

## Calendar

**Thursday, Aug. 28**

THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK

**2:30 p.m.**

[Theoretical Physics Seminar](#) -

Curia II

Speaker: J. Shu, University of Chicago

Title: Topological Interactions at the LHC and a Generalized Landau-Yang Theorem

**3:30 p.m.**

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO

ACCELERATOR PHYSICS

AND TECHNOLOGY

SEMINAR TODAY

**Friday, Aug. 29**

**3:30 p.m.**

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

**4 p.m.**

[Joint Experimental-Theoretical](#)

[Physics Seminar](#) - One West

Speaker: E. de la Cruz Burelo, CINVESTAV

Title: Observation of the doubly strange b baryon Omega-b

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

## Weather



**Thunderstorms**

**83°/59°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Feature

### NOvA moves toward Minnesota ground breaking



A site model and prototype building for the NOvA experiment. Collaborators hope to break ground in early 2009.

The longest-baseline neutrino project in the United States kicks into high gear this month following the release of \$1 million in federal funds and a review of the NOvA project baseline.

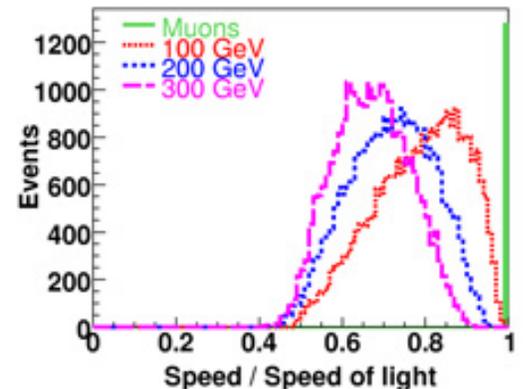
The next-generation neutrino experiment hopes to receive soon Critical Decision-2 approval by the U.S. Department of Energy, which would set the scope, price and timeline of the cross-country project. The Energy Systems Acquisition Advisory Board met Aug. 15 to review the project. CD-2 approval likely would have occurred in October 2007, but a Congressional continuing resolution and then a December halt to the project's funding stalled work.

Collaborators were told they could spend no money until February 2009, but a July supplemental funding bill gave the group about \$9.5 million and fast-tracked work. When in June it appeared the money might come to fruition, collaborators started gearing up with building design plans and getting ready to send out construction bid requests. They hope to bid all the work at once to cut costs.

The first million of the supplemental funding was paid to the University of Minnesota this month to finish designing the building in Ash River, Minn., at the end of the beam line. Design work could be done by early December to enable start of the bid process. Work could begin in spring on the site

## Fermilab Result of the Week

### DZero researchers seek special particle



This figure shows the predicted speed of the charged massive stable particles sought by the DZero researchers as a fraction of the speed of light. Normal muons travel very near the speed of light and can be clearly distinguished. The relative speeds of three potential masses for charged massive stable particles are shown in the figure.

If science were like dating, then the search for that special particle might start with a personal ad: dedicated DZero researchers seek charged massive stable particles that could shed light on the future of particle physics.

The Tevatron's numerous proton-antiproton interactions provide data where that special particle may reside. But still, finding that particle's signature amongst the many ordinary particles is a difficult task. DZero scientists hope the key to finding a perfect match is simply looking for specific traits that imply the particle fits DZero's high standards: massive, charged and stable.

For physicists performing the search, the particle's speed is a great indicator of whether the particle is a keeper. After a charged particle has been produced, it will leave a signature in DZero's tracking detectors. If it is also stable, it will not decay before it leaves the DZero detector and will appear very similar to a muon. But if the particle is massive, it should move relatively slowly compared to muons, which travel near the speed of light.

Exotic theories, such as supersymmetry, predict the existence of charged, massive and stable particles. This theory could potentially

**Thursday, Aug. 28**

- Tomato Florentine
- \*Pork BBQ sandwich
- Smart cuisine: Olive & artichoke paella
- Smart cuisine: Chicken Marsala
- Smoked turkey melt
- Assorted slice pizza
- SW chicken salad w/roasted corn salsa

*\*Smart Cuisine - Heart Healthy Choice*

[Wilson Hall Cafe menu](#)

**Chez Leon**

**Thursday, Aug. 28  
Dinner**

- Closed

**Wednesday, Sept. 3  
Lunch**

- Ham & gruyere crepes
- Confetti salad
- Mixed berry cobbler

[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)

preparation, which includes constructing a 3.5 mile-access road and a 40-foot-deep hole dug in granite to house the detector.

"We have the money so we are gathering the people and starting with the plan. Here at Fermilab they were diverted to other tasks and they have to finish what they were doing. It's the same at Argonne and at the universities," said Project Manager John Cooper. "By September 1, we will be doing what we said we would do by February 2009. We will be about five months ahead, and I hope to continue that."

Full construction approval, CD-3b, is expected by September 2009, paving the way for the building construction.

"It's a large object to build up there," Cooper said.

The 15,000-ton NOvA detector is 53 feet wide, 53 feet high and about 220 feet long.

-- Tona Kunz

**Photo of the Day**

**New to the world**



Dan Lee, of Village Housing Services, took this photo of a newly hatched cicada behind 8 Shabbona in the Fermilab Village on Tuesday, Aug. 26.

**DOE press release**

explain many of the mysteries of the universe, from dark matter to the Higgs boson. Two possible candidates for this particle predicted by supersymmetry, are scalar tau leptons (staus) and charginos.

DZero physicists searched for charged massive stable particles in 1.1 inverse femtobarns of data. They found no evidence for such a particle. However, the search results allow DZero researchers to set upper limits on the production rate of staus and on the possible masses of charginos. This greatly improves on results from searches at the LEP collider.

DZero researchers didn't find what they were looking for this time, but they plan to remain on the prowl. With three times more data recorded and significant analysis improvements on the way, these physicists aren't ready to give up searching for their special particle.



Sudeshna Banerjee  
Tata Institute, Mumbai

Michael Eads  
University of Nebraska



Tulika Bose

Dave Cutts  
Brown University

Yunhe Xie

[A team of DZero physicists made primary contributions to this analysis.](#)



Michael Kirby  
Northwestern University

Ron Lipton  
Fermilab

Peter Swoisky  
Radboud University

The DZero SMT radiation monitoring team provides tools to carefully monitor the radiation dosage delivered to DZero's silicon microstrip tracking detector by Tevatron interactions. By minimizing radiation damage to the SMT, the team helps ensure high-quality tracking data to help

## GLAST Observatory renamed for Fermi, reveals entire gamma-ray sky

From *SLAC*, Aug. 26, 2008

The U.S. Department of Energy (DOE) and NASA announced today that the Gamma-Ray Large Area Space Telescope (GLAST) has revealed its first all-sky map in gamma rays. The onboard Large Area Telescope's (LAT) all-sky image--which shows the glowing gas of the Milky Way, blinking pulsars and a flaring galaxy billions of light-years away--was created using only 95 hours of "first light" observations, compared with past missions which took years to produce a similar image. Scientists expect the telescope will discover many new pulsars in our own galaxy, reveal powerful processes near super-massive black holes at the cores of thousands of active galaxies and enable a search for signs of new physical laws.

The NASA mission was made possible by collaboration with many U.S. and international partners. As part of its support for particle physics research, DOE contributed funding to the LAT--the primary instrument on GLAST--and DOE's Stanford Linear Accelerator Center (SLAC) managed the LAT construction. SLAC also played a key role in assembling the instrument and now plays the central role in LAT science operations, data processing and making scientific data available to collaborators for analysis.

[Read more](#)

### In the News

## Double first for Large Hadron Collider

*Counter-clockwise beam test produces historic particle collisions*

From *Scientific American*,  
September 2008

Champagne corks popped at the Large Hadron Collider (LHC) this weekend after one of the facility's four giant particle detectors tasted its first authentic data. Crammed into a stuffy control room on the afternoon of Friday 22 August, physicists tracked the debris produced by protons that had struck a block of concrete during a test of the €3 billion (£2.1 billion) collider's beam-injection system.

Some 15 years in construction, the LHC is

make possible the many analyses at DZero that rely on charged-particle tracks.

### Accelerator Update

#### August 25-27

- Four stores provided ~40 hours and 38 minutes of luminosity
- Controls still searching for the cause of QF12 problems
- MTest T984 completes their experimental run
- CDF offline due to solenoid problems
- Run Coordinator schedules 10-hour access for CDF on Thursday

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

### Announcements

#### Have a safe day!

#### Weekly time sheets due 8/29

Because of the upcoming Labor Day holiday, weekly time sheets are due in Payroll by 10 a. m. on Friday, Aug. 29.

#### GSA triathlon Aug. 30

Fermilab's Graduate Student Association will host its annual triathlon on Saturday, Aug. 30, beginning at 7:30 a.m. The event will begin with an 800m swim in the Fermilab pool, continue with a 20km bike ride and finish with a 5km run. All events will occur on Fermilab property. Access more information on the [event Web page](#). To sign up, e-mail the [GSA Officers](#).

#### International Folk Dancing Thursday

International Folk Dancing will meet in Ramsey Auditorium on Thursday, Aug. 28. Dancing begins at 7:30 p.m. with teaching and children's dances earlier in the evening and request dancing later on. For more information, call (630) 584-0825 or (630) 840-8194 or e-mail [folkdance@fnal.gov](mailto:folkdance@fnal.gov).

#### Altera's Quartus II Software Design classes

The Office for Professional and Organization Development will offer classes in Altera's Quartus II Software Design Series. Altera's Quartus II Software Design Series: Timing Analysis - Sept. 16. [Learn more and enroll](#). Altera's Quartus II Software Design Series: Optimization - Sept. 17. [Learn more and enroll](#). The enrollment deadline for both classes is Aug. 29.

#### NIU offers quantum physics class

Northern Illinois University offers a physics

based at the European particle facility CERN near Geneva, Switzerland, and is due to fully switch on its proton beams on 10 September. But the LHC's particle detectors have been recording hits from cosmic rays for several months - and Friday's test now marks the first time particle tracks have been reconstructed from a man-made event generated by the collider. "It's amazing to have seen the first LHC tracks," Themis Bowcock of University of Liverpool, UK, who led the team, told Nature. "It's quite overwhelming actually."

[Read more](#)

class on quantum mechanics on Mondays and Wednesdays from 12:30 - 1:45 p.m. The class, titled "Quantum Mechanics Phys 660" will cover linear vector spaces, operators and the formal structure of quantum theory; elementary treatment of simple systems; matrix mechanics; angular momentum and spin, time-independent and dependent-perturbation methods, the variational principle; and applications to simple atoms and molecules.

[Additional Activities](#)