

## Calendar

### [Have a safe day!](#)

Thursday, Sept. 24  
2:30 p.m.

[Theoretical Physics Seminar](#) -  
Curia II  
Speaker: Mariangela Lisanti,  
SLAC National Accelerator  
Laboratory/ Stanford University  
Title: Disentangling Dark  
Matter Dynamics  
3:30 p.m.  
DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
THERE WILL BE NO  
ACCELERATOR PHYSICS  
AND TECHNOLOGY  
SEMINAR TODAY

Friday, Sept. 25  
3:30 p.m.  
DIRECTOR'S COFFEE  
BREAK - 2nd Flr X-Over  
4 p.m.

[Joint Experimental-Theoretical  
Physics Seminar](#) - One West  
Speaker: Sascha Glazov,  
DESY

Title: Results from HERA

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

## Campaigns

### [Take Five](#)

### [Tune IT Up](#)

## Weather



Patchy fog  
77°/57°

[Extended Forecast](#)  
[Weather at Fermilab](#)

## Feature

### East gate to close 1 to 5 a.m. beginning in November



The turnaround outside the east gate will allow cars to turn around if they arrive between 1 and 5 a.m.

Fermilab's east entrance on Batavia Road will begin closing from 1 to 5 a.m. in November after, construction crews finish a turnaround and sliding gate.

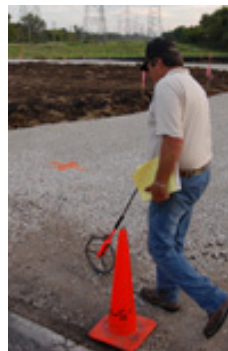
*Fermilab Today* will announce the exact November date the restricted hours will take effect.

The new operating hours for the east entrance means that all employees and users entering and exiting the site with motor vehicles between 1 and 5 a.m. will need to use the main entrance on Pine Street. The fastest way from the east side of the laboratory to the main gate is by taking Route 59 south and turning right onto Butterfield Road, then right again to Kirk Road, which leads to the main entrance.

Employees, users and residents of the Fermilab Village will still be allowed to enter and exit the east gate on foot and by bike 24 hours a day using the bike path, said Chuck Morrison of the Fermilab Security Department.

The reduction in operating hours of the east entrance will help to decrease personnel expenses charged to the limited funding available in the Safeguard and Security account for the Fermilab site.

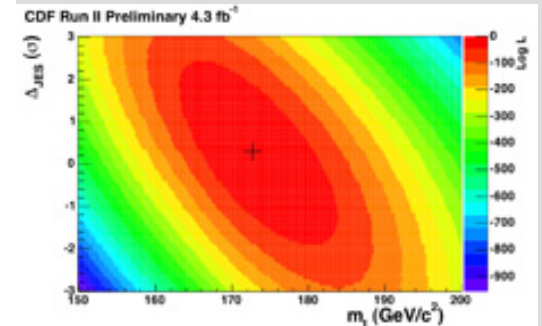
Construction crews have begun work on the



Contractor Sam Rapisarda calculates asphalt requirements.

## Fermilab Result of the Week

### A tip-top analysis



The cross marks the spot as the most likely value of the top quark mass. CDF scientists measure the top quark mass by calibrating a particle jet energy scale (JES) to match a known particle, the W boson.

Fermilab is still the only place on Earth where physicists can produce top quarks in the laboratory. Physicists know the mass of the top quark quite well. However, they want to continue to improve this measurement since it is an important component in predicting the Higgs boson mass.

CDF experimenters have measured the top quark mass using a large data sample of events where the top quark decays into jets and electrons or muons. Some of the selected events are actually not from top quark decay but from other particles that mimic the process. Scientists at CDF use a neural network, software designed to mimic the thought process in the human brain to identify these events in order to compensate for them.

Because the top quark decays into jets of particles, the top quark mass measurement depends on the jet energy reconstruction. Physicists can calibrate this reconstruction by using the W boson, a particle of known mass. They derive the likelihood of the signal from theory calculations for each event for many values of the top mass and the jet energies. By using this technique, scientists can simultaneously calibrate the jet energy and extract the most likely top mass from the distribution of data.

A total of 630 selected top quark pairs in 4.3 inverse femtobarns of collected data yield the final result for the top mass:  $m_{\text{top}} = 172.64 \pm 1.58 \text{ GeV}/c^2$ . The result of this analysis is the most precise single measurement of the top quark mass so far, truly making it a tip-top analysis.

**Current Security Status**

[Secon Level 3](#)

**Wilson Hall Cafe**

- Thursday, Sept. 24
- Minnesota wild rice with chicken
  - Tuna melt on nine grain bread
  - Italian meatloaf
  - Chicken casserole
  - Buffalo crispy chicken wrap
  - Assorted pizza slices
  - Mandarin chicken

[Wilson Hall Cafe Menu](#)

**Chez Leon**

- Thursday, Sept. 24
- Dinner
- Closed

- Wednesday, Sept. 30
- Lunch
- Marinated flank steak with mushrooms and pea pods
  - Jasmine rice
  - Lemon cheesecake

[Chez Leon Menu](#)

Call x3524 to make your reservation.

**Archives**

**Fermilab Today**

[Result of the Week](#)

[Safety Tip of the Week](#)

[CMS Result of the Month](#)

[User University Profiles](#)

[ILC NewsLine](#)

**Info**

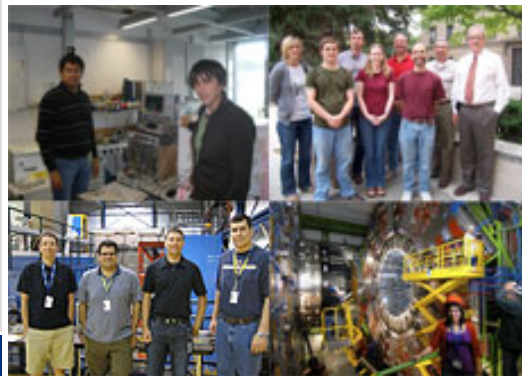
new sliding gate and the turnaround area. Crews are also installing additional lighting and signs that will alert drivers to the closure. DOE provided special, one-time Safeguard and Security funding of half a million dollars to pay for the design and construction.

Tim Trout, FESS, who is coordinating construction on the project, said the crews expect to finish the work by the middle of November. Trout does not expect construction to affect traffic during regular business hours, but said lanes will be restricted on two Saturdays — as yet to be determined — while crews install the gate and repaint the steel archway on Batavia Road. *Fermilab Today* will announce the dates when available.

-- Chris Knight

**University Profile**

**University of Nebraska-Lincoln**



Clockwise from upper left: Jose Lazo-Flores and Tony Kelly, PSI; Maria Becker, Jason Keller, Ilya Kravchenko, Emily Petermann, Dan Claes, Ken Bloom, Aaron Dominguez and Greg Snow; University of Nebraska-Lincoln; Kayle DeV Vaughn, Ioannis Katsanos, Dale Johnston and Mike Eads, Fermilab and DZero; Helena Malbouisson, CERN.

NAME:  
[University of Nebraska-Lincoln](#)

HOME TOWN:  
Lincoln, Nebraska

MASCOT:  
Athletic teams are Cornhuskers, or usually just Huskers. Herbie Husker and Lil' Red are the on-field mascots

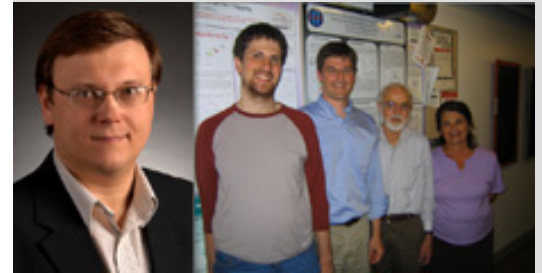
SCHOOL COLORS:  
Officially scarlet and cream, but functionally red and red



Herbie Husker

View the [public Web page](#) for the top mass result.

-- Edited by Craig Group



The CDF scientists responsible for this new measurement of the mass of the top quark (from left to right): Igor Volobouev, Texas Tech University; Paul Lujan, UC Berkeley and Lawrence Berkeley National Laboratory; Jason Nielsen, UC Santa Cruz; Jeremy Lys and Lina Galtieri, Lawrence Berkeley National Laboratory.

**Video of the Day**

**Fighting the flu**



In this approximately 5-minute video, Brian Svazas, Fermilab's medical director, gives tips on how to diagnose the signs and symptoms of the flu, prevent catching or spreading it, and what to do if you catch it. You can also learn more about the flu and Fermilab's policies on the laboratory's H1N1 [Web site](#). Click the picture for VMS's video link page.

From *symmetry breaking*

**Fermilab workshop to explore how proton accelerators could produce nuclear energy**

The global demand for electricity is likely to double by 2030, according to the World Nuclear Association. Could particle accelerator technology help solve the world energy crisis?

According to scientists, accelerators might make it possible to use an alternative fuel to produce nuclear energy.

Currently, 6 percent of the world's total energy comes from nuclear reactors; while fossil

*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)

Visit the Fermilab

[home page](#)

PARTICLE PHYSICS COLLABORATIONS:  
DZero, CMS, Pierre Auger Observatory, RICE/NARC and CROP (a nationally-recognized education and outreach project)

EXPERIMENTS AT FERMILAB:  
DZero, CMS and Pierre Auger

SCIENTISTS AND STUDENTS AT FERMILAB:  
Seven

COLLABORATING AT FERMILAB SINCE:  
1993

MAJOR CONTRIBUTIONS:  
On DZero we are responsible for many aspects of luminosity monitoring, both hardware and software; and have done data analyses on QCD, new phenomena and Higgs searches. On CMS, we host a Tier-2 computing center and helped build the forward pixel detector. We are the lead institution for education and outreach activities on Pierre Auger Observatory.

PARTICLE PHYSICS RESEARCH FOCUS:  
We have a broad set of interests in both Standard-Model physics (electroweak, top, QCD) and searches for new phenomena (Higgs and SUSY), with a dash of cosmic-ray astrophysics, too. We are excited about the opportunities to discover new physics at the LHC.

WHAT SETS PARTICLE PHYSICS AT YOUR UNIVERSITY APART?  
Our particle physics research group is one of the fastest growing in the country, having increased in size from two faculty members to five in the past five years. This has allowed us to position ourselves to play a leadership role in the LHC physics program.

FUNDING AGENCY:  
National Science Foundation and the Department of Energy EPSCoR Program

FAVORITE NATIONAL LABORATORY:  
Muppet Labs? No, Fermilab!

fuels, a major contributor to global warming, provide approximately 85 percent, according to the International Energy Agency. Nuclear reactors could supply more of the world's power, but scientists believe that conventional sources of uranium, a natural resource found in the earth's crust that serves as fuel for nuclear reactors, are dwindling and could run out within the next century.

[Read more](#)

## Accelerator Update

Sept. 21-23

- Three stores provided ~35.25 hours of luminosity
- Pelletron turned off to fix controls, regulation and CDC PLC problems
- MI-30 suffering from vacuum bursts
- MiniBooNE down for air conditioning work
- MI vacuum and septa problems require access

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

## Announcements

### Latest Announcements

[Submit advance leave agreement form](#)

[Accelerate to a Healthy Lifestyle: Exercise! Wrap-up notification](#)

[Costco hosts Fermi reception in St. Clements- Sept. 24](#)

[International folk dancing on Thursdays begins today at Kuhn Village Barn](#)

[Argentine Tango through Sept. 30](#)

[ACU presents "Investing in an uncertain market" - Oct. 1](#)

[Toastmasters - Oct. 1](#)

[NALWO - Annual Autumn Potluck Luncheon - Oct. 2](#)

[Prairie Seed Harvest - Oct. 3](#)

[English Country Dancing - Oct. 4](#)





View all [University profiles](#)

In the News

## Department of Energy Announces Accelerator Symposium

From *Interactions.org*, Sept. 23, 2009

On Monday, October 26, the U.S. Department of Energy's Office of Science will host a Symposium on Accelerators for America's Future in Washington, DC. The symposium--drawing participants from science, industry, medicine, and the national security community--will focus on challenges and opportunities in maximizing the potential of next-generation accelerator technologies to energize the U.S. economy, strengthen American competitiveness, and help the nation achieve more in science, industry, medicine, energy and the environment, and national security.

[Read more](#)

[Thai Village restaurant discount](#)

[Sign up for fall Science Adventures classes](#)

[Buttered Rum performs on Fermilab Arts Series - Oct. 24](#)

[Fred Garbo Inflatable Theatre - at Fermilab Arts Series - Nov. 7](#)

[Process piping \(ASME B31.3\) class offered in October and November](#)

["The Night Before Christmas Carol" at Fermilab Arts Series - Dec. 5](#)

[Additional Activities](#)

[Submit an announcement](#)