

## Calendar

[Have a safe day!](#)

Thursday, July 29

2 p.m.

[Computing Techniques](#)

[Seminar - FCC1](#)

Speaker: Borja Sotomayor,  
University of Chicago

Title: The OpenNebula Cloud

Toolkit: Experiences and  
Outlook

2:30 p.m.

[Theoretical Physics Seminar -](#)

Curia II

Speaker: Jessie Shelton, Yale  
University

Title: Excavating a Buried

Higgs

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4 p.m.

[Accelerator Physics and](#)  
[Technology Seminar - One](#)

West

Speaker: Lucio Rossi, CERN

Title: The CERN Plan for the  
LHC Upgrade

Friday, July 30

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO JOINT

EXPERIMENTAL-

THEORETICAL PHYSICS

SEMINAR TODAY

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

[Upcoming conferences](#)

[Campaigns](#)

[Take Five](#)

[Tune IT Up](#)

## Feature

### Weekend power, utility outages affect high-rise, Linac



A power outage this weekend in the Central Utility Building, shown above, will leave Wilson Hall and the Linac and Cross Gallery areas without air conditioning.

A series of outages and upgrades will knock out air conditioning and power to the Wilson Hall and Linac areas this weekend.

From 6 a.m. on Saturday, July 31, until approximately 4 p.m. on Sunday, Aug. 1, Wilson Hall will have no air conditioning. Shutdown-related maintenance requires staff to cut power to the Central Utility Building, which provides power to the pumps for the high-rise's air conditioning system.

Temperatures are expected to continue to hover around 80 degrees this weekend, which means uncomfortable conditions for anyone working in or touring the building.

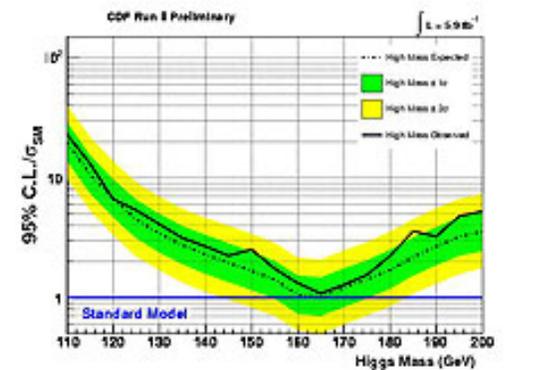
That same power outage will mean that the Accelerator Division computer room will be without air conditioning, requiring the controls system to be shut down. This means that Main Control Room operators will have no computer access. The Main Control Room and other important areas will have temporary air conditioning and limited power during the Central Utility Building power outage.

A second scheduled power outage in the Linac and Cross Gallery will also take place on Sunday. Last weekend's inclement weather prevented maintenance crews from turning off power to the feeder controlling the Linac and Cross Gallery in order to conduct scheduled maintenance. That maintenance has been rescheduled for this Sunday.

Also, the west side of floors 10, 11 and 12 in Wilson Hall will undergo an electrical upgrade

## Result of the Week

### Gaining confidence in Higgs mass exclusion region



The plot shows  $H \rightarrow WW$  sensitivity to the Standard Model Higgs Boson at CDF. The solid black line represents the maximum amount of Higgs boson production that could be hiding in the data, while the dashed line is the expected sensitivity if there is no Higgs boson production. When the sensitivity is less than one, it means that the analysis is sensitive to the Higgs boson.

We're often asked how we are sure of our results. After all, we can't actually see the particles and forces that we're studying.

Our answer is always the same. We are confident in our results because of the tests we do to ensure their accuracy.

CDF's most recent result, presented in combination with DZero's results at a Joint-Experimental-Theoretical physics seminar on Monday, July 26, excludes a mass range where the theorized Higgs boson could hide.

While we aren't sure that the Higgs exists, if it does, we are confident that it doesn't have a mass between [158-172 GeV](#).

CDF scientists arrived at this result by isolating a subset of events that resemble those we expect to see from the Higgs. To do this, we simulated events that would originate from both a potential Higgs signal and each of the background processes we expected to contribute events to our search samples.

To validate our event simulation, we selected independent, non-overlapping data samples that contained events originating mostly from a single background process. We then compared the kinematic properties of events in these control samples with what we

## H1N1 Flu

For information about H1N1, visit Fermilab's flu information [site](#).

## Weather



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

## Current Security Status

[Secon Level 3](#)

## Wilson Hall Cafe

Thursday, July 29

- Breakfast: apple sticks
- Minnesota wild rice w/chicken
- Tuna melt on nine grain
- Italian meatloaf
- Chicken casserole
- Buffalo crispy chicken wrap
- Assorted sliced pizza
- Mandarin chicken

[Wilson Hall Cafe Menu](#)

## Chez Leon

Wednesday, Aug. 4

Lunch

- Spinach salad w/grilled shrimp
- Lemon-butter milk panna cotta w/blueberry sauce

Thursday, Aug. 5

Dinner

- Caesar salad
- Lobster tail w/lemon butter
- Grilled asparagus
- New potatoes
- Strawberry shortcake

[Chez Leon Menu](#)

Call x3524 to make your reservation.

## Archives

from 6 a.m. to noon on Saturday. Those areas will not have power. Workers in those areas should turn off any personal computers, lights and electronics before leaving this weekend.

A nearly site-wide power outage will take place from 7-7:30 a.m. on Tuesday, Aug. 3. The outage will affect all site buildings except for those in the Village and the Main Injector. Please turn off all personal electronics and computers before leaving work Monday.

-- *Rhianna Wisniewski*

[Interactions.org press release](#)

## First African School of Physics brings cutting-edge physics and technology to sub-Saharan Africa

This August, students and scientists from African countries will get the rare opportunity to learn about innovative physics experiments, accelerators and technology on their own continent.

The first African School of Physics will take place August 1-21 at the National Institute of Theoretical Physics in Stellenbosch, South Africa. Fifty-nine students—including 40 from 17 African countries—will take part in the program, learning about theoretical and experimental physics from leading international scientists. Most of the students are pursuing or have completed advanced degrees in physics but lack opportunities to gain specialized knowledge in subatomic physics. The trip and expenses for all African students are paid for by the school, which is supported by 13 international institutions.

"This may be the first opportunity these students have to learn about particle and nuclear physics," said Steve Muanza, a physicist at France's CNRS/IN2P3 and the co-founder and director of the school. "We hope that the material presented at the school piques their interest and they go on to pursue these topics."

Topics to be covered include current and future particle and nuclear physics experiments, theoretical physics, particle accelerators and technology, information technology and grid computing. Simon Connell, a member of the local organizing committee, believes that the intensive three-week program could equate to a semester-long university course.

obtained from our models.

Finally, we measured what our most signal-like backgrounds contributed to the search samples. The interesting background signatures are pairs of W and Z bosons from processes not associated with Higgs decay. Our measurement of background rates is consistent with previous measurements and provides further validation of our search techniques.

After validating our techniques, we confidently proceeded with searching for a potential Higgs signal. In its most recent search, CDF for the first time reached single-experiment sensitivity to a Standard Model Higgs boson at 165 GeV, the region where we would expect to see the most Higgs events.

This means that without a Higgs signal, CDF had a 50 percent chance of excluding a Higgs at this mass. In fact, CDF observed a possible slight upward fluctuation in the backgrounds. Therefore CDF alone was unable to exclude a Higgs mass.

However, when we combined our results with DZero, we excluded a wide range of potential Higgs boson masses. Most importantly, the great effort taken to verify the event modeling and techniques we used gave us the confidence to claim that the Higgs does not exist within this mass range.

[More information](#)

-- edited by *Andy Beretvas and Eric James*



[Fermilab Today](#)[Result of the Week](#)[Safety Tip of the Week](#)[CMS Result of the Month](#)[User University Profiles](#)[ILC NewsLine](#)[Info](#)[Fermilab Today](#)

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"We will cover a lot of subject matter not taught at any university in Africa," Connell said. "Students can take the knowledge they learn here back to their home institutions, where they can continue researching and teaching. We don't expect the benefits of the school to stop when they leave."

[Read more](#)[In the News](#)

## Lighting up the dark universe

From *symmetry breaking*, July 28, 2010

Exploring our dark universe is often the domain of extreme physics. Traces of dark matter particles are searched for by huge neutrino telescopes located underwater or under Antarctic ice, by scientists at powerful particle colliders, and deep underground. Clues to mysterious dark energy will be investigated using big telescopes on Earth and experiments that will be launched into space.

But an experiment doesn't have to be exotic to explore the unexplained. At the International Conference on High Energy Physics, which ended today in Paris, scientists unveiled the first results from the GammeV-CHASE experiment, which used 30 hours' worth of data from a 10-meter-long experiment to place the world's best limits on the existence of dark energy particles.

CHASE, which stands for Chameleon Afterglow Search, was constructed at Fermilab to search for hypothetical particles called chameleons. Physicists theorize that these particles may be responsible for the dark energy that is causing the accelerating expansion of our universe.

"One of the reasons I felt strongly about doing this experiment is that it was a good example of a laboratory experiment to test dark energy models," says CHASE scientist Jason Steffen, who presented the results at ICHEP.

"Astronomical surveys are important as well, but they're not going to tell us everything." CHASE was a successor to Fermilab's GammeV experiment, which searched for chameleon particles and another hypothetical particle called the axion.

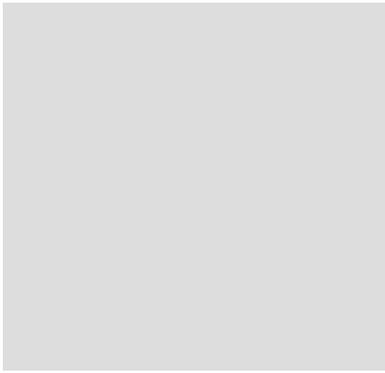
[Read more](#)

Inset image, front row: Jason Nett, Wisconsin; Rick St. Denis, Glasgow; Massimo Casarsa and Thomas Junk, Fermilab. Back row: Roman Lysak, Slovakia; Eric James and Sergo Jindariani, Fermilab; and Aidan Robson, Glasgow. Outside images, clockwise from bottom left: Matthew Herndon, Wisconsin; Peter Bussey, Glasgow; Simone Pagan Griso, Lawrence Berkeley; Donatella Lucchesi and Maria D'Errico, INFN Padova; Dean Hidas, Rutgers; Anadi Canepa, Triumf; Mark Kruse, Geumbng Yu, Doug Benjamin and Seog Oh, Duke; and Jen Pursley, Wisconsin.

[Announcements](#)

### Latest Announcements

[What's New with NI and the latest version of LabVIEW \(NI Week highlights\)? - Aug. 19](#)[Users Office closed, Friday, July 30, and Monday, Aug. 2](#)[JoAnn Larson wins iPod in walking program drawing](#)[Bristol Renaissance Faire discount](#)[Aug. 20 deadline for The University of Chicago Tuition Remission Program](#)[Applications for URA Visiting Scholars Awards due Aug. 20](#)[Martial arts classes begin Aug. 9](#)[Take 5 Challenge Quiz](#)[Benefit News](#)[Safari online access to O'Reilly content available for purchase](#)[Club & League Fair - Aug. 11](#)[Regal Movie Theater discount tickets available](#)[NIM and Physics Reports now completely online at Fermilab](#)[Toastmasters - Aug. 5](#)[Grounding and Shielding of Electronic Systems course - Aug. 12 and 13](#)[Free piano concert featuring Sandor Feher, Ramsey Auditorium at noon on](#)



[Aug. 12](#)

[Claudia Schmidt - Singer/Songwriter - Fermilab Arts Series - Aug. 14](#)

[Gizmo Guys - Fermilab Arts Series - Sept. 25](#)

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