

## Calendar

### Friday, Sept. 5

3:30 p.m.

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

4 p.m.

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

Speaker: F. Vannucci, APC  
Paris

Title: Search for Heavy  
Neutrinos and Other Exotica

### Monday, Sept. 8

2:30 p.m.

[Particle Astrophysics Seminar](#)

- Curia II  
Speaker: B. Dingus, Los  
Alamos National Laboratory  
Title: Surveying the TeV  
Gamma-Ray Sky with Milagro  
and HAWC

3:30 p.m.

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

4 p.m.

All Experimenters' Meeting -  
Curia II  
Special Topics: CMS  
Installation and  
Commissioning; Latest Results  
from the T-979 PSEC  
Experiment

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

## Weather

 Sunny 70°/52°

[Extended Forecast](#)

[Weather at Fermilab](#)

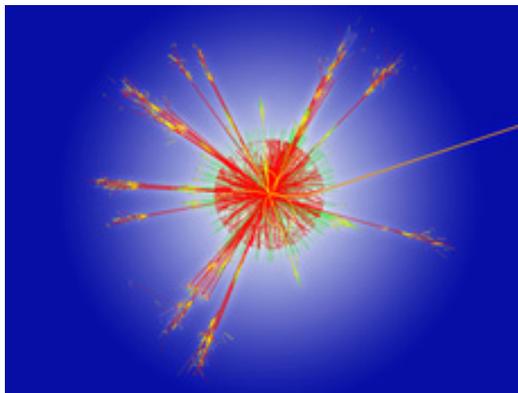
## Current Security Status

[Secon Level 3](#)

## Wilson Hall Cafe

## Definition of the Day

### Hadrons and their collisions



Simulated event of the collision of two protons in the ATLAS particle physics experiment. *Image courtesy of CERN*

#### Hadron/hadron collider:

Hadron refers to the type of particles that collide in the Tevatron and Large Hadron Collider. A hadron is a particle made of quarks.

Physicists categorize fundamental particles into two categories: fermions and bosons. Within the fermion group, particles are classified as either quarks or leptons.

The best known hadrons are protons and neutrons. While the Tevatron smashes together protons and their antiparticles, antiprotons, the LHC will make two beams of protons collide.

#### Antiparticles:

An antiparticle has the same mass but the opposite electric charge as a particle.

The antiproton is often represented as the letter p with a line over it, giving it the nickname p-bar.

#### How are antiprotons produced?

Fermilab produces antiprotons by accelerating protons to very high energy and slamming them into a metal target. For each of 200,000 protons that hit the target, one antiproton is produced. The antiprotons are then stored until enough are available for use in the Tevatron collider.

## Announcement

## From iSGTW

### Mega grid for mega science

In 1995, Ian Foster at Argonne National Laboratory and the University of Chicago, Ill., and Carl Kesselman in the Information Sciences Institute at the Univ. of Southern California, Los Angeles, known as the fathers of grid computing, looked at ways of using network technology to build very large, powerful systems, getting machines in different locations to work on parts of a problem and then combine for the result. Ultimately, these ideas together formed I-WAY, which enlisted high-speed networks to connect end resources at 17 sites across North America, marking the start of grid computing.

Advances followed, and in the summer of 2000, Kesselman went to CERN, near Geneva, to give a seminar on grid computing. The seeds for the Large Hadron Collider (LHC) Computing Grid were planted.

The Large Hadron Collider (LHC) is the largest scientific instrument on the planet. It will produce roughly 15 petabytes of data annually, the equivalent of about 3 million DVDs. Access to experimental data will need to be provided for more than 5,000 scientists in 500 research institutes and universities worldwide over the 15-year estimated lifetime of the LHC.

The LHC Computing Grid (LCG) is a worldwide network of thousands of PCs, organized into large clusters and linked by ultra-high speed connections to create the world's largest international scientific computing grid.

[Read more](#)

—Martha Walz, R&D

## Special Announcement

**Friday, Sept. 5**

- New England clam chowder
- Black & blue cheese burger
- Mardi Gras jambalaya
- Smart cuisine: Dijon meatballs over noodles
- Bistro chicken & provolone panini
- Assorted slice pizza
- \*Carved top round of beef

\*Carb restricted alternative

[Wilson Hall Cafe Menu](#)

**Chez Leon****Wednesday, Sept. 10  
Lunch**

- Chile reno with a tomato sauce
- Rice & beans ~ pico de gallo
- Cold lime soufflé

**Thursday, Sept. 11  
Dinner**

- Closed

[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)

**LCWS08 and ILC08 registration now open**

The 2008 Linear Collider Workshop (LCWS08) and the International Linear Collider meeting (ILC08) are being hosted by a consortium of Illinois institutions: Argonne National Laboratory, Fermilab, Illinois Institute of Technology, Northern Illinois University, Northwestern University, University of Chicago, University of Illinois at Urbana Champaign and University of Illinois at Chicago. The meeting will take place on the UIC campus in Chicago Nov. 16-20, 2008.

This is the eleventh in a series of workshops that have become the international fora for developing the physics case and reviewing detector and accelerator designs for an electron-positron linear collider. The workshop will consist of plenary and parallel sessions.

Details of the program, online registration, location and travel plans for the conference are available on the [LCWS Web site](#).

Register and make your travel plans early as the number of rooms we have reserved in local hotels is limited. If you would like further information about the conference, please contact the Local Organizing Committee at [lcws08@uic.edu](mailto:lcws08@uic.edu).

**In the News****How the Large Hadron Collider might change the Web**

From *Scientific American*,  
Sept. 4, 2008

*The LHC Computing Grid may teach the Internet how to quietly handle reams of information*

When the Large Hadron Collider (LHC) begins smashing protons together this fall inside its 17-mile- (27-kilometer-) circumference underground particle racetrack near Geneva, Switzerland, it will usher in a new era not only of physics but also of computing.

Before the year is out, the LHC is projected to begin pumping out a tsunami of raw data equivalent to one DVD (five gigabytes) every five seconds. Its annual output of 15 petabytes (15 million gigabytes) will soon dwarf that of any other scientific experiment in history.

[Read more](#)

**Deadline for pajama party registration today at 5 p.m.**

[Register](#) by 5 p.m. today to attend the LHC start-up pajama party. At 1:30 a.m. on Wednesday, Sept. 10, Fermilab will host a pajama party at the LHC Remote Operations Center to watch the first beam circulate in the LHC. Breakfast will be served following the LHC start-up. You may wear pajamas. All employees must [register](#) to attend.

**Announcements****[Have a safe day!](#)****Wilson Hall taxi service location change**

Taxi service for Wilson Hall has resumed pickup and drop off on the building's east side.

**Wilson Hall closed Sept. 6**

Wilson Hall and Ramsey Auditorium will be closed on Saturday, Sept. 6, between 6 a.m. and 6 p.m. for scheduled maintenance on Electrical Feeder 44 and the domestic water system. All exterior doors will be secured and signs posted nearby. Please turn off all electronics at close of business on Friday. Contact [John Kent](#), Wilson Hall building manager, with questions.

**U.S. visa application changes**

Average wait times for U.S. visas continue to lengthen. Administrative processing for U.S. visas now ranges between 45 to 60 days. The required security clearances for people working in science and technology caused the trend toward longer visa processing. These longer processing times will affect almost all Fermilab employees and foreign users seeking to visit Fermilab. As a result, visa applicants should provide all required paperwork. Check the U.S. Consulate's Web site prior to applying to find required paperwork. Do not rely on past experience - processes change. Notify the Visa Office if your application has been pending for four weeks. Also, employees should contact the Visa Office before making travel plans if you are contemplating applying for a U.S. visa abroad, whether for business or personal reasons. Employees also should advise the Travel Office of your visa application plans during the travel authorization process.

**Tuesday yoga class offered**

Relax, take yoga. Yoga classes are offered from noon-1 p.m. Tuesdays in Ramsey Auditorium. The next eight-week session will run Sept. 9 - Oct. 28 and cost \$80. For more

**In the News****Fermilab scientists prep for unveiling of European particle collider**

From *Chicago Tribune*,  
Sept. 5, 2008

*American physicists will have key role in studies after new machine begins work overseas*

With less than a week to go before a state-of-the-art European particle collider makes the one in Batavia a relic, scientists at Fermilab are testing ways of using the new facility from half a world away.

Fermilab researchers on Thursday showed off the suburban lab's high-tech communications links to the new Switzerland-based Large Hadron Collider, which is set to begin test operations Wednesday. The remote operations center, the only one of its kind in the U.S., is a major part of the American lab's strategy to ride an expected wave of discoveries from the European device.

[Read more](#)

information or to sign up, contact the Recreation Office at x5427 or e-mail [kphelan@fnal.gov](mailto:kphelan@fnal.gov)

**September Wilson Hall window washing**

Window washing of Wilson Hall's exterior windows began Tuesday and will continue through Friday. Wilson Hall interior window washing will begin on Monday and continue through Thursday. The schedule is below. Please clear all items from in front of windows prior to your floor's interior washing date.

Monday: Floors 12-15

Tuesday: Floors 8-11

Wednesday: Floors 4-7

Thursday: Ground, Mezzanine and floors 1-3.

**Classifieds**

Find new [classified ads](#) on *Fermilab Today*.

**[Additional Activities](#)**