

Calendar

Wednesday, Sept. 3
3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
4 p.m.

[Fermilab Colloquium](#) - One
West

Speaker: L. Roberts, Boston
University

Title: Muon (g-2): A Probe of
the Standard Model and
Beyond

Thursday, Sept. 4

THERE WILL BE NO
PHYSICS AND DETECTOR
SEMINAR THIS WEEK

1 p.m.

Research Techniques Seminar
- West Wing, WH-10NW

Speaker: R. Mirzoyan, Max-
Planck-Institute for Physics

Title: The Cross-Talk Problem
in SiPMs and Their Use as
Light Sensors in Multichannel
Imaging Cameras

THERE WILL BE NO
THEORETICAL PHYSICS
SEMINAR THIS WEEK

3:30 p.m.

DIRECTOR'S COFFEE
BREAK - 2nd Flr X-Over
THERE WILL BE NO
ACCELERATOR PHYSICS
AND TECHNOLOGY
SEMINAR TODAY

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

Weather



Showers
73°/58°

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

[Current Security Status](#)

From symmetry breaking

Film chronicles race between Fermilab and CERN



Promotional poster
from "Atom
Smashers", a film
focusing on Fermilab
and CERN in the race
for the Higgs.

The 75-minute film
Atom Smashers will air Sept. 19 and 21 at the
Chicago Museum of Science and Industry with
a panel session following the initial screening.
Eight Fermilab scientists play key roles while
other employees appear occasionally in shots.

Following its Chicago debut, the film will head
to several international cities and hit the air
ways with a 53-minute version on PBS's
Independent Lens Nov. 25.

Co-director Monica Ross, an adjunct professor
at Columbia College in Chicago, said the film
doesn't follow the traditional NOVA-like format
of scientist interviews. Instead, the crew
followed the lives of scientists working and
trying to relax amidst the pressures of dealing
with budget cuts, aging machinery, and the
threat of watching the prize from a more than
decade long search be ripped out of their
grasp by the new experiment on the block: the
Large Hadron Collider at CERN.

-- Tona Kunz

[Read](#) the rest of the article in *symmetry
breaking*.

Definition of the Day

From the CMS Center

Ready for collisions

Lothar Bauerdick, head of the Fermilab CMS
Center, wrote this week's column.

As we move closer to
recording the first
collisions, working on the
CMS experiment gets
more and more exciting.
The CMS detector is now
closed, and the magnetic
field was switched on for
tests over the weekend.

Things are coming
together very nicely: the detector has almost
everything installed we planned to have for the
initial data taking, including both of the
detector end caps of the electromagnetic
calorimeter.

The CMS collaboration has been taking data
with cosmic rays most weeks for some time.
All detector components now send signals to
the detector readout. The collaboration has
recorded the first curved particle tracks with
the magnetic field on and is ready for the first
collisions.

The data taking chain is complex and is
improving rapidly. Data gets promptly
reconstructed at the CERN Tier-0 and is being
pushed out to Tier-1 and Tier-2 centers
around the world for analysis, including
Fermilab's Tier-1 center. On a weekly basis
results about detector performance based on
cosmic-ray and calibration data are reported.

If you pass by the Remote Operations Center
near the Fermilab cafeteria you frequently will
see CMS people taking shifts to monitor the
collection of cosmic ray data. These shift
responsibilities go back and forth between
CERN and Fermilab—an arrangement that
takes advantage of working in different time
zones. The CMS shift schedule fully counts on
the Fermilab ROC, and U.S. CMS
collaborators are taking shifts in the ROC as
their collaborators do at the control room in
Cessy, France, or in the CMS Centre at
Meyrin, Switzerland.

You can see the cosmic rays that we are
already recording by looking at the event



Lothar Bauerdick

[Secon Level 3](#)**Wilson Hall Cafe****Wednesday, Sept. 3**

- Portabello harvest grain
- Smart cuisine: Santa Fe chicken quesadilla
- Hoisin chicken
- Smart cuisine: Parmesan fish
- Cuban panini
- Assorted slice pizza
- Pesto shrimp linguini w/leeks & tomatoes

*Carb Restricted Alternative

[Wilson Hall Cafe Menu](#)**Chez Leon****Wednesday, Sept. 3****Lunch**

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

Thursday, Sept. 4**Dinner**

- Pasta carbonara
- Chilean sea bass w/spicy red pepper sauce
- Sautéed spinach with garlic & lemon
- Fresh fruit tart

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Archives[Fermilab Today](#)[Result of the Week](#)[Safety Tip of the Week](#)[ILC NewsLine](#)**Info****Solenoid vs. Spectrometer**

Editor's note: Fermilab Today will tackle LHC vocabulary words prior to the machine's start up next week as part of our new Definition of the Day section. The CMS experiment was misidentified in Tuesday's Director's Corner. Fermilab Today received reader responses inquiring about the difference between a solenoid and a spectrometer, which are both pieces of the CMS detector. Both are defined below.



Rotation of the solenoid magnet of the CMS experiment before the insertion into its cryostat. Image courtesy of CERN.

Solenoid

Solenoid refers specifically to a magnet made of coils of wire that produce a uniform magnetic field when an electric current flows through it. Solenoids can create controlled magnetic fields.

The largest solenoid ever constructed is found in the Compact Muon Solenoid (CMS) experiment at CERN. The magnet is superconducting, meaning that it is cooled to a level where the atoms inside the wires are almost frozen into place, allowing electrons to flow without resistance and create a powerful magnetic field. In the CMS experiment, the solenoid is nearly 43 feet long with a diameter of 23 feet and a magnetic field of 100,000 times stronger than that of the Earth.

Scientists at CMS need the very strong magnet to accurately measure very high momentum particles, such as muons. The more momentum a particle has, the less it bends in a magnetic field. Powerful magnetic fields, such as the one created by CMS's solenoid, force the particles to bend.

Spectrometer

A spectrometer is a tracking system that detects and measures the momentum of particles from how their tracks bend in a magnetic field. Both the CMS and ATLAS experiments have spectrometers to measure muons, particles with a very high momentum.

In the News

displays in the ROC or the big screens installed in LHC Physics Center on the 11th floor of Wilson Hall. Beams will be circulating in the machine very soon.

Register for the [Pajama party](#) on Sept. 10 and celebrate the start of the LHC!

Safety Update**ES&H weekly report, Sept. 3**

This week's safety report, compiled by the Fermilab ES&H section, lists no incidents. We have now worked 13 days since the last reportable incident. Find the full report [here](#).

[Safety report archive](#)

Accelerator Update**Aug. 29 - Sept. 1**

- Fours stores provided 65 hours and 45 minutes of luminosity
- Pbar's pulse magnet replaced
- LRF3's LCW leak repaired
- H- Source's output adjusted
- MIRF5 causes problems for NuMI

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Special Announcement**Register by Sept. 5 for 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 Large Hadron Collider. Breakfast will be served following the LHC start-up. Pajamas are optional. You must [register](#) by Friday, Sept. 5 to attend.

Announcements

Fermilab Today

is online at:

www.fnal.gov/today/

Send comments and suggestions to:

today@fnal.gov

Courts weigh doomsday claims

From *MSNBC Cosmic log*, Sept. 2, 2008

Critics who say the world's largest atom-smasher could destroy the world have brought their claims to courtrooms in Europe and the United States - and although the claims are getting further consideration, neither court will hold up next week's official startup of the Large Hadron Collider.

The main event took place today in Honolulu, where a federal judge is mulling over the federal government's request to throw out a civil lawsuit filed by retired nuclear safety officer Walter Wagner and Spanish science writer Luis Sancho.

Meanwhile, legal action is pending as well at the European Court of Human Rights in Strasbourg, France. Last week, the court agreed to review doomsday claims from a group of professors and students, primarily from Germany and Austria. However, the court rejected a call for the immediate halt of operations at the LHC.

[Read more](#)

[Have a safe day!](#)

Second meeting on the feasibility of a Muon g-2 experiment at Fermilab today

The second technical meeting on the feasibility of mounting a next-generation muon g-2 experiment at Fermilab will take place at 1:30 p.m. today, in One West. The meeting should last for two hours. The meeting will focus on several critical accelerator complex issues central to the core plan for the experiment and the experiment's compatibility with Mu2e. Organizers hope to establish a credible work and cost analysis. All interested parties may attend. Contact [Milorad Popovic](#) for more information.

URA Visiting Scholars Program applications due Sept. 10

The application deadline for the next round of scholarships for the Universities Research Association's Visiting Scholars Program is Sept. 10. The program will support visits by researchers from URA member institutions to work at Fermilab for periods of up to one year. [More information.](#)

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.

[Additional Activities](#)