

Calendar

Have a safe day!

Wednesday, Nov. 18

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4 p.m.

[Fermilab Colloquium](#) - One

West

Speaker: Hasan Padamsee,

Cornell University

Title: Superconducting RF, the

History, Challenges and

Promise

Thursday, Nov. 19

9 a.m. - 5 p.m.

[Higgs Physics at the Tevatron](#)

and LHC workshop: the QCD

[Issues](#) - One West

2:30 p.m.

[Theoretical Physics Seminar](#) -

Curia II

Speaker: Rouven Essig, SLAC

National Accelerator

Laboratory

Title: Probing Dark Forces with

Low-Energy e+e- Colliders,

New Fixed-Target

Experiments, and Dwarf

Galaxies

3:30 p.m.

DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

4 p.m.

[Accelerator Physics and](#)

[Technology Seminar](#) - One

West

Speaker: Bill Ng, Fermilab

Title: Coupling Impedances of

Accelerator Rings (Part 4 of 4)

Click here for [NALCAL](#),

a weekly calendar with links

to additional information.

Campaigns

Take Five

Tune IT Up

CMS Result of the Month

A gentle cosmic rain



Cosmic rays from space passing through the heart of the CMS detector help align the equipment to an accuracy that is nearly perfect.

Editor's note: This is the second article in a two-part series that describes the CMS experiment's successful cosmic ray run. Read the first part [here](#).

As I stare out my window at the cold and dreary rains of autumn, it reminds me of the sleet and snow soon to come. I have to remind myself that rain can be a good thing. For instance, the early spring rains are crucial for making the flowers bloom. Indeed, rain is vital for growth.

The CMS collaboration has exploited another type of rain, this one the constant flux of cosmic ray muons that bathes the Earth. Protons accelerated across the cosmos hit the Earth's atmosphere, initiating a shower of thousands of particles that eventually turn into muons. Muons have the very convenient property that they interact relatively weakly and travel essentially in a straight line as they pass through matter. A few of them will travel through the 300 feet of rock above the LHC and pass directly through the CMS detector.

A large detector such as CMS needs all of its equipment to function properly, but the heart of CMS has very special requirements. The CMS collaboration made the bold choice to build a central tracker entirely of silicon. Silicon detectors can measure the path of particles traveling through it with extraordinary precision. However, to exploit this ability, scientists need to know the exact location of each component. This is because each piece

From the ES&H Section

Take the "Take 5" challenge

Nancy Grossman, head of the ES&H section, wrote this week's column.

Our [Take 5 campaign](#) is five months old, and we are working on freshening it up.

Today we are launching our "Tell Us About Your Take 5 Moment" challenge. Share a time when taking five minutes to think about what you were doing was a good decision.

Use this [Web form](#). We

will post submissions on the Take 5 Web page. On Dec. 16, at the laboratory-wide potluck party, we will randomly choose five entrants and award each of them a Fermilab fleece sweatshirt.

Here are a few more highlights of the updated Take 5 campaign:

- Check out our [Take 5 Tools page](#) with information for work and home. Watch the [video](#) on the new cut-resistant gloves in the stockroom, and read information on electrical safety at home – just in time for the holidays. We have also added a link to the [Recreation Office](#), which offers many activities that will help you stay fit during the winter.
- Winter is around the corner. Please take five moments while getting in and out of your car and crossing the parking lot. Always assume the surface is slippery. Wear appropriate footwear. Keep in mind that snow often hides tripping hazards: If possible, keep both hands free for balance. As you enter a building, realize that your wet shoes could slip on non-carpeted surfaces.
- Our cafeteria has switched to bio-based recyclable carry-out dishware and has re-implemented the refillable coffee cup discounts program. It is up to you to take five seconds before you go to the cafeteria: Bring a reusable cup for your coffee and water and recycle dishware if possible.
- Fermilab is also helping its neighboring



Nancy Grossman

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

Wednesday, Nov. 18

- English muffin sandwich
- Cajun-style lentil soup
- Cajun chicken ranch
- Braised pork chops
- Chicken parmesan
- Smoked turkey panini pesto mayo
- Assorted slices of pizza
- Chicken Alfredo fettuccine

[Wilson Hall Cafe Menu](#)

Chez Leon

Wednesday, Nov. 18

Lunch

- Scallops with chipotle-orange sauce
- Yellow pepper rice
- Steamed broccoli
- Coconut cake with caramel sauce

Thursday, Nov. 19

Dinner

- Egg drop soup
- Asian braised beef short ribs
- Roasted new potatoes
- Sautéed spinach
- Lemon Napoleon

[Chez Leon Menu](#)

Call x3524 to make your reservation.

Archives

of silicon hit by a muon electronically reports the particle's passage. By knowing which silicon detectors are hit and their exact location, scientists can reconstruct the path of the particle.

The CMS detector consists of 75 million bits of silicon, contained in more than 16,000 modules. This is the largest silicon detector in the world, containing 100 times more channels than the previous generation. By using more than 3 million cosmic ray muons that passed through the CMS silicon detector, scientists know the [positions of the modules](#) to a precision better than 10 times smaller than a human hair. This has essentially achieved the detector's ideal performance and is a striking achievement.

— Don Lincoln



Andrew Altheimer Rice Univ. Freya Blekman Cornell Univ. Gavril Giurgiu Johns Hopkins Ashish Kumar SUNY, Buffalo



Keith Rose Rutgers Univ. Keith Ulmer Colorado Univ. Andrew York Univ. Tennessee

[These junior physicists were responsible for aligning the CMS silicon systems to an accuracy that is literally as good as possible.](#)



Mauro Dinardo Univ. Colorado Pieter Everaerts MIT Phil Harris MIT Bernadette Heyburn Univ. Colorado



Ben Kreis Cornell Univ. Steven Lowette UCSB Robert Stringer UC, Riverside Josh Thompson Cornell Univ.

This group of young scientists made substantial contributions in keeping the CMS silicon systems operating reliably. The first step in making a detector work is stable operations.

Photo of the Day

cities with their leaf disposals. We allow local municipalities to bring leaf collections on site, where the leaves are incorporated into our agricultural tracts. This is a good example of taking five and finding a better solution. The municipalities save on transportation costs by using our site, and we end up with soil enriched with organic material.

These are some examples of ways that taking five moments or seconds can help to keep you safe and successful. I encourage you — at work and at home — to always ask: Is there a safer or more environmentally sound way to do this? And remember: [Submit](#) your personal Take 5 moment before Dec. 16.

In the News

Big Bang machine nears restart after repairs

From the *Associated Press*, Nov. 17, 2009

Scientists have repaired the world's largest atom smasher and plan by this weekend to restart the machine that was launched with great fanfare last year before its spectacular failure from a bad electrical connection, a spokesman said Tuesday.

This time the European Organization for Nuclear Research, known as CERN, is taking a cautious approach with the super-sophisticated equipment, said James Gillies. It cost about \$10 billion, with contributions from many governments and universities around the world.

[Read more](#)

Safety Update

ES&H weekly report, Nov. 17

This week's safety report, compiled by the Fermilab ES&H section, includes two first-aid injuries. We have now worked 26 days since the last recordable injury. Find the full report [here](#).

[Safety report archive](#)

Announcements

[Fermilab Today](#)

[Result of the Week](#)

[Safety Tip of the Week](#)

[CMS Result of the Month](#)

[User University Profiles](#)

[ILC NewsLine](#)

Info

Fermilab Today is online at:
www.fnal.gov/today/

Send comments and suggestions to:
today@fnal.gov

Visit the Fermilab [home page](#)

Congressional staffers visit MINOS, New Muon Laboratory

On Friday, Nov. 13, Eleanor Bastian and Chris Schepis, two members of Sen. Roland Burris' office, visited Fermilab. Their visit included a tour of the 15th floor, the MINOS experiment and the New Muon Laboratory.



From left: Fermilab's Mike Andrews, Sen. Roland Burris staffers Eleanor Bastian and Chris Schepis, Department of Energy's Brian Quirke, and Fermilab's Elizabeth Clements and Peter Shanahan stand 350 feet underground in the MINOS tunnel.



In the New Muon Laboratory, Fermilab's Sergei Nagaitsev (right) allowed congressional staffer Eleanor Bastian (center) to cross the yellow barrier for a closer view of the first cryomodule to be constructed in the United States. Chris Schepis (left) observes.

[Diabetes Awareness Lunch & Learn - today](#)

[Book Fair ends today](#)

[Become the speaker and leader you want to be - Toastmasters today](#)

[Free Webinar on the Roth IRA Conversions in 2010 - today](#)

[Process Piping \(ASME B31.3\) class begins today](#)

[Argentine Tango at Fermilab meets tonight](#)

[International folk dancing Thursday evenings at Kuhn Village barn](#)

[Register for your TurkeyDate](#)

[2010 entertainment discount book available online](#)

[Lederman Science Center holiday hours](#)

[Consider a car or van pool this winter](#)

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

[Wilson Hall stocking stuffer holiday sale - Dec. 9-10](#)

[Fermilab Management Practices seminar - Feb. 11](#)

[Discount movie tickets available](#)

[Chicago Blackhawks discount tickets](#)

[Thai Village restaurant discount](#)

[Additional activities](#)

[Submit an announcement](#)