

Calendar

Thursday, April 9
11 a.m.

[Special Particle Astrophysics Seminar](#) (NOTE DATE, TIME, LOCATION) - One West Speaker: Roman Scoccimarro, New York University Title: Large Scale Structure and Modified Gravity THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK
2:30 p.m.

[Theoretical Physics Seminar](#) - Curia II Speaker: Zackaria Chacko, University of Maryland Title: A Composite Little Higgs
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, April 10
3:30 p.m. DIRECTOR'S COFFEE BREAK (NOTE TIME) - 2nd Flr X-Over THERE WILL BE NO JOINT EXPERIMENTAL-THEORETICAL PHYSICS SEMINAR THIS WEEK

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

Weather

 **Sunny**
54°/33°

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

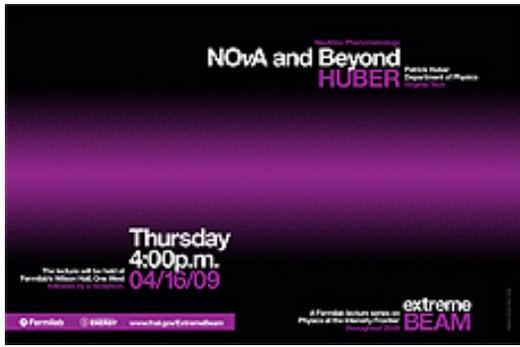
Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Feature

Extreme Beam lectures offer lens to laboratory's future



The third lecture in the Extreme Beam lecture series will take place Thursday, April 16, in One West.

Want to learn more about Fermilab's future? Then you should attend the Extreme Beam lectures, a series that brings high-energy physics experts to Fermilab to present information on the science and technologies the laboratory plans to pursue.

"The topics discussed in this series are a snapshot of the sort of things we can do at the Intensity Frontier," said Fermilab physicist Herman White, workshop co-organizer.

The series features talks at Fermilab throughout 2009, highlighting the science and technologies that Fermilab will build upon to create a world-leading physics program at the Intensity Frontier.

"A lot of this physics is not new to the world, but is new to Fermilab," said Brendan Casey, a DZero collaborator who also works on the g-2 muon experiment. "We have the ability to take it to the next level if we do our homework. That's what these lectures are – doing our homework."

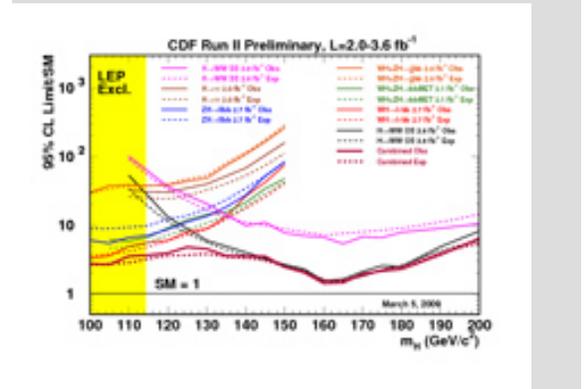
That's exactly what the lectures did for Casey.

"Lepton flavor violation is new to me," Casey said. "I spent a year reading papers trying to understand it, and in the last lecture, Yoshitaka Kuno was able to put it all together in one sentence."

Bob Bernstein, co-spokesperson of the Mu2e conversion experiment at Fermilab believes the lectures are beneficial for anyone interested in the laboratory's future pursuits,

Fermilab Result of the Week

Climbing up to the Higgs



Each dashed line represents the experimental limits on the Higgs boson production rate from an analysis focused on a specific production and decay mode. At low mass, many different channels are combined to get the full sensitivity. The combined limit is the line shown in red near the Standard Model prediction (SM=1). For each mass point, Higgs boson production rates above the red dashed line are excluded by this CDF result.

For decades, teams of dedicated scientists have scoured the data of high-energy collider experiments to seek out the elusive Higgs boson, the piece of the Standard Model jigsaw puzzle that is most glaringly missing. However, its outlines are becoming clearer. Scientists know, for example, that the Higgs mass should be in the range 114 - 185 GeV, which puts it within the reach of the Tevatron. They know that the Higgs boson has no spin, and that it prefers to interact with heavy particles rather than lighter ones. It is this last feature that makes it so hard to produce -- the light protons and electrons do not interact strongly enough with Higgs bosons for them to be made copiously; instead a mere trickle of these particles is produced, if at all. Even if the Higgs is produced, the Tevatron also produces plenty of other kinds of events that can mimic the Higgs signal. This mountain of data must be carefully analyzed in order to test whether it contains any Higgs bosons.

CDF surmounts this problem with teams of physicists, each focusing on a particular type of Higgs boson production or decay. Some decays, such as to a pair of W bosons, are quite distinct and separate easily from the backgrounds. Others, such as decays to b quarks, are beset with similar-looking background processes, requiring clever

Thursday, April 9

- Minnesota wild rice w/chicken
- Tuna melt on nine grain
- Italian meatloaf
- Chicken casserole
- Buffalo crispy chicken wrap
- Assorted slice pizza
- *Mandarin chicken

*Carb restricted alternative

[Wilson Hall Cafe menu](#)

Chez Leon

Thursday, April 9 Dinner

- Gourmet greens w/ dried cherries
- Walnuts & feta
- Halibut w/dill sauce
- Lemongrass rice
- Vegetable of the season
- Vanilla flan w/raspberry sauce

Wednesday, April 15 Lunch

- Fettuccini w/shrimp & portobello
- Arugula salad
- Cold lime soufflé

[Chez Leon menu](#)

Call x3524 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/

Send comments and suggestions to:

today@fnal.gov

but particularly useful for graduate students and young professionals.

"There is more going on in the world than the search for the Higgs," Bernstein said. "This is a chance to get a sense of the bigger picture."

The next talk in the series will cover neutrino phenomenon in NOvA and other experiments. Patrick Huber, from the Virginia Tech University Department of Physics, will present this talk at 4 p.m. in One West on Thursday, April 16. A food and beverage reception will follow.

-- *Rhianna Wisniewski*

Announcement

Fermilab forms disability awareness group

A new group forming at Fermilab will dedicate its efforts to fostering respect and inclusion of persons with disabilities.

Unity Coat, a disability awareness affinity group, is open to all Fermilab employees and affiliates.

"Disabilities can be visible, transparent, stated, secret, permanent or temporary. They can be our own or belong to someone we know," said Kathy Johnson, Unity Coat co-organizer. "Unity Coat unites all for one cause."

The group will work to dispel stereotypes and prejudices, increase awareness, acceptance and recognition of individual diversity. It will also work to establish a central resource for anyone at Fermilab who shares the concerns of persons with disabilities.

The name Unity Coat is symbolic for the unification of persons who wear the "coat" of disability, said Julius Borchert, Unity Coat co-organizer.

"The disability coat, unlike our winter or rain coat, is one that often cannot be removed," Johnson said. "Disability is a minority, one that anyone can join at any moment."

The Unity Coat affinity group intends to promote diversity and foster a transparent culture of workplace inclusion. Planned activities include seminars, kiosk exhibits and community outreach. For more information on the group, or to join Unity Coat, contact Kathy Johnson at kjohnson@fnal.gov. For more information about the Fermilab Diversity Council and its subcommittees, initiatives and

techniques to tease out the signal events. CDF's teams have divided the data sample up into small pieces, each more easily analyzed and interpreted. Yet no single piece carries enough weight to do the job. To get the most out of the Higgs boson search, CDF scientists combine all of the individual analyses into a result that is stronger than any of the individual pieces.

When all is said and done, CDF neither observed nor excluded a Standard Model Higgs boson, but is getting awfully close to doing either at $m_H=160$ GeV, where CDF scientists excludes rates greater than 1.4 times those predicted by the Standard Model. The long climb is paying off for CDF scientists, as their results, combined with those of the DZero collaboration, provided the first exclusion of Standard Model Higgs bosons based on Tevatron data.

Click [here](#) to learn more about the individual CDF Higgs boson searches and the combination.



Some of the CDF scientists involved in the long climb for the Higgs boson shown as featured on a recent [symmetry magazine cover](#).

Accelerator Update

April 6-8

- There were no stores due to a TeV cold box turbine failure
- Accelerators: conducted maintenance

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

events, e-mail diversity@fnal.gov.

In the News

National laboratory avoids Italy quake damage

From *Nature.com*, April 7, 2009

The Gran Sasso National Laboratory, a particle physics research centre 15 km from L'Aquila in central Italy, has survived intact the earthquake that destroyed the historic town on 6 April and killed at least 180 people.

"Gran Sasso labs and experiments have not suffered consequences of the earthquake," says Eugenio Coccia, the centre's director. "But of course many staff have had their houses destroyed, like so many others who live in the region." No scientist has been recorded among the dead.

Scientific experiments are being monitored, but no major experimental work will take place until after the Easter holiday, says Coccia. Normal scientific work will begin Tuesday, April 14.

The research centre investigates the properties of neutrinos and dark matter. Its large underground labs built deep inside the Gran Sasso mountain were designed to withstand powerful earthquakes. The epicentre of this one, measuring 6.3 on the Richter scale, was just 10 km west of the centre.

[Read more](#)

Latest Announcements

[Lederman Science Center to Host Outdoor Fair](#)

[Fermilab blood drive April 21 and 22](#)

[NALWO - Mexican cuisine cooking demonstration](#)

[NALWO - Spring Tea](#)

[Argentine Tango classes April 15](#)

[Have a safe day!](#)

[Fermilab Garden Club spring meeting](#)

[FMUG 04-09 & Apple mobility tour](#)

[April is National Humor Month...click on the link for the joke of the day](#)

[Seeking Wellness Advisory Committee members](#)

[Fermilab club & league fair](#)

[Blackberry Oaks Golf League](#)

[Goodrich Quality Theater and AMC Theater tickets](#)

[Got golf? Join the Fermilab Golf League](#)

[Muscle toning classes](#)

[Barn Dance April 12](#)

[Harlem Globetrotter employee discount April 13](#)

[Argentine Tango classes begin April 15](#)

[Changes to participating pharmacies Blue Cross Pharmacy Program](#)

[Artist within - employee art show '09](#)

[MathWorks Seminar - April 21](#)

[Word 2007: Styles and Templates class offered April 23](#)

[Coed softball season begins May 13](#)

[Conflict Management and Negotiation Skills class offered on June 3 and 10](#)

[Discount tickets to "1964"...Beatles tribute](#)

[- June 6](#)

[SciTech summer camps](#)

[Tartan Day party at Silk and Thistle](#)
[Scottish country dancing](#)

[New Financial Planning & Investment](#)
[Services at ACU](#)

[Additional Activities](#)

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