

Calendar

[Have a safe day!](#)

Thursday, April 22

2:30 p.m.

[Theoretical Physics Seminar](#) - Curia II

Speaker: Zhenyu Han, Harvard University

Title: Spin Measurements in Events with Missing Energy at the LHC

3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd

Flr X-Over

4 p.m.

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

Speaker: Pantaleo Raimondi, INFN, Frascati

Title: Status of DAFNE and New Crab Waist Idea Implementation

Friday, April 23

3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd

Flr X-Over

4 p.m.

[Joint Experimental-Theoretical](#)

[Physics Seminar](#) - One West

Speaker: Todd Adams, Florida State University

Title: What's New in New Phenomena at DZero?

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

[Upcoming conferences](#)

Campaigns

[Take Five](#)

[Tune IT Up](#)

H1N1 Flu

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

Special Announcement

Celebrate Earth Day today at ES&H fair in atrium



Celebrate Earth Day at the ES&H Fair from 11 a.m. to 1:30 p.m. today in the Wilson Hall atrium.

Learn how to be a good steward of the Earth at the lab-wide, ES&H Section-sponsored Earth Day Fair from 11 a.m. to 1:30 p.m. today in the Wilson Hall atrium.

Taxi service frequency will be increased during fair hours. Arrange taxis by calling x4225.

[Learn more](#)

Feature

Toward a sustainable laboratory

As we celebrate Earth Day here at Fermilab, I would like to remind people of the [Executive Order 13514](#) – Federal

Leadership in Environmental, Energy and Economic Performance, signed by President Obama last fall. This order expands the federal requirements for sustainability and the reduction of energy consumption and greenhouse gas emissions. It lays out sweeping goals for the federal sector, including the following:

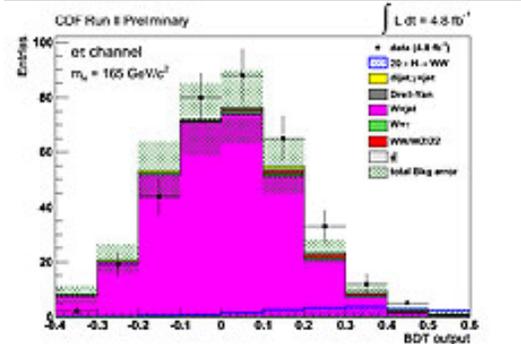
- Significant reduction in energy usage
- Reduce the use of fossil fuels in fleet vehicles
- Employ water conservation strategies, including responsible storm water management
- Recycle 50 percent of both general waste and construction and demolition waste
- Design new buildings to meet zero-net energy standard by 2020



Bruce Chrisman

Result of the Week

Not your ordinary lepton



An example of one of the discriminate distributions (the BDT output) used to separate the Higgs signal from the backgrounds. The signal (blue hatched histogram) tends to accumulate at high values of the discriminant, while the backgrounds tend to have lower values.

The CDF and DZero experimenters are making great progress in the search for the Standard Model Higgs boson.

Experimenters (or scientists) predict that a light Higgs boson will decay into a pair of bottom quarks. But if the Higgs' mass is more than 135 giga electron volts (GeV), it would decay primarily into a pair of W bosons. For Higgs masses of about 165 GeV, scientists expect that the Higgs will decay almost exclusively into pairs of W bosons. These W bosons can decay into leptons, including electrons, taus and muons, as well as three types of neutrinos. Events with two charged leptons would be easier to identify than events with two b quarks. Therefore, the best chance to discover or exclude the Higgs boson at the Tevatron is at the higher masses.

A recent combination of data from CDF and DZero searches for a high-mass Higgs boson in the WW decay channel excludes the existence of a Higgs boson in the 162-166 GeV/c² mass range. Of the three charged leptons (electrons, muons and taus) the electrons and muons are easiest to identify and have lower backgrounds. Therefore, in the combination of CDF and DZero data, CDF scientists only analyzed events in which W bosons decay into electrons or muons.

In order to improve the analysis, CDF scientists are now including tau lepton reconstruction into the search.

CDF scientists see evidence of most taus as narrow cones of energy deposited in the calorimeter. Unfortunately, other particles that are produced much more often than the Higgs boson can produce a similar signal, or background, in the detector. Because of these large backgrounds, CDF scientists developed techniques

Weather



Sunny
62°/41°

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

Current Security Status

[Secun Level 3](#)

Wilson Hall Cafe

Thursday, April 22

- Apple sticks
- Southwestern chicken tortilla
- Philly style cheese steak
- *Garlic herb roasted pork
- Mardi Gras jambalaya
- *Southwestern turkey wrap
- Assorted sliced pizza
- *Marinated grilled chicken caesar salads

**Carb restricted alternative*

[Wilson Hall Cafe Menu](#)

Chez Leon

Thursday, April 22

Dinner
- Closed

Wednesday, April 28

Lunch
- Crab cakes w/red pepper mayonnaise
- Lemon orzo
- Carrot cake

[Chez Leon Menu](#)

Call x3524 to make your reservation.

Archives

In response, DOE Secretary Chu has set an ambitious goal to reduce DOE greenhouse gas emissions by 28 percent by FY2020. At least 15 percent of the reductions should come from behavioral changes rather than expensive engineered solutions. Secretary Chu has proposed that employee performance plans include an energy conservation element. Fermilab management is considering implementing this idea for FY2011.

To meet our goals, we need to make changes in procurement, operations and management and to develop a culture of sustainability. Fermilab will attempt to:

- Reduce overall energy use
- Recycle more waste
- Procure Energy Star or Federal Energy Management Program-designated products when available
- Re-think expenditures for business travel and conferences
- Intensify efforts to minimize waste and prevent pollution at the source
- Utilize "smart building" technologies to optimize building and system operations
- Adopt landscape and land management processes that use less energy and water
- Seek conservation and energy reduction from vendors and sub-contractors

Achieving this goal requires all employees to take responsibility, help conserve water and energy, and recycle waste whenever possible:

- Turn off lights and computer monitors when not needed
- Minimize idling time of cars and equipment
- Establish and maintain thermostat temperature settings in individual buildings
- Turn off faucets after each use and report leaking and dripping faucets
- Ensure that computers employ energy-saving features
- Use rechargeable batteries whenever possible
- Keep cars in good working order, with tires properly inflated

By observing these simple practices, employees, users and contractors can make a difference—and not just on Earth Day.

--Bruce Chrisman, Fermilab chief operating officer

Update

to help discriminate between Higgs events with taus and the more common background events. These techniques combine kinematic information, such as the energies and angular relationships of the measured particles, with the quantities used in identifying the taus in the detector. This combined information is a discriminant, a powerful variable for separating signals and backgrounds.

By combining this new search with previous searches, which were based on electrons and muons, CDF scientists were able to improve the overall sensitivity of Higgs searches in the mass range around 165 GeV/c² by several percent. Check Fermilab Today for more results as CDF continues to add more channels and improves analysis techniques in order to increase the mass range of Higgs exclusion or maybe to see the first evidence of a signal.

- edited by Craig Group



The CDF scientists responsible for this new analysis. From left: Massimo Casarsa, Fermilab; Anadi Canepa, TRIUMF; and Sergio Jindariani, Fermilab.

What's happening here?

Wilson Hall lighting retrofit project now underway

Electricians will install new, energy-efficient lighting in Wilson Hall cafeteria over the next several days between the hours of 5 a.m. and 3 p.m. They are scheduled to finish on April 28, after which point they will replace selected lights in the auditorium. The activity will not result in any cafeteria closures.



Additional seating is available on the second floor crossover during meal periods.

This is part of a five-step, [energy conservation project](#) contracted out to energy-services company Ameresco. Ameresco is financing the project, and the laboratory will repay the company using the savings from reduced energy consumption over the 15-year contract term.

[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

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Visa holders: how to weather volcanic activity travel delays

The Visa Office has confirmed procedures for Fermilab users stranded in the U.S. because of the air traffic disruptions in Europe caused by the Icelandic volcano eruption.

Visa waiver users with approaching departures (or who were unable to leave the U.S. as scheduled) should make an appointment with the [Visa Office](#). The Visa Office will provide a letter for the individual that confirms the guidance received from Customs and Border Protection. These users should carry this letter, along with a photocopy of their I-94 and original travel itinerary (showing the original departure date) during their next visit to the U.S.

B-1 users with approaching (or past) I-94 expiration dates must complete and file a Form I-539 Application to Extend Status with the United States Citizen and Immigration Service. The Visa Office will assist in this process. There is a mandatory \$300 fee for this filing. The USCIS accepts personal checks or money orders made payable to "The Department of Homeland Security." Individuals without U.S. bank accounts may obtain money orders from a U.S. Post Office in exchange for cash. The Department of Homeland Security will view the decision not to file the I-539 application as voluntarily overstaying. If you overstay in the U.S. you must make all future visa applications from your home country. The user also would be unlawfully present in the U.S., and so the Users' Office would be unable to extend the visitors' ID badge. As well, the failure to file the I-539 will be a factor that U.S. Consulates can consider in deciding whether to issue a new visa to the user.

[Read more](#)

In the News

Wanna routinely win March Madness? Bet on science

From *symmetry breaking*, April 20, 2010

When most people think of March Madness, they think of precision and brawn. But they ought to throw brains into that list.

Basketball teams from universities involved in the particle-physics outreach program QuarkNet routinely swoosh their way through the brackets in the annual National Collegiate Athletic Association tournament.

Since QuarkNet's inception 12 years ago, a dozen of the 64 competing teams, on average, have had QuarkNet ties. In 2004, all of the teams in the national finals, known as the Final Four, claimed QuarkNet allegiance.

QuarkNet-participating schools consistently have a

Accelerator Update

April 19-21

- Three stores provided ~26.5 hours of luminosity
- Store 7748 terminated unintentionally
- Vacuum work completed at MI-11
- TRF6 water turbine repaired
- Master substation work will occur on Wednesday afternoon

[Read the Current Accelerator Update](#)[Read the Early Bird Report](#)[View the Tevatron Luminosity Charts](#)

Announcements

Latest Announcements

[Recreation Facility closed Saturday](#)[Pool membership drive begins today](#)[Village power outage this Saturday, April 24](#)[English country dancing Sunday, May 2](#)[Ask HR in Wilson Hall atrium - April 28](#)[Ask HR comes to TD, Hermitage conference room - April 23](#)[IMAP users: Configure your e-mail client by May 5](#)[Thursday Phillips Park golf league](#)[Celebrate National Humor Month](#)[Heartland Blood Center needs blood types A-, B+, B- - reserves are very low](#)[Sign up now for National Lab Day 2010](#)[Argentine Tango through April 28 - student discount available](#)[FORE! The 2010 golf season is about to hit you](#)[SciTech summer camps start June 14](#)[Butts & Guts class - sign up now](#)[Qi Gong, Mindfulness and Tai Chi Easy for Stress Reduction](#)

higher proportion of men's teams advancing to the Final Four and women's teams advancing to the Sweet 16. Based on the number of QuarkNet teams that have participated in the NCAA tournament during the past 12 years, statistically 4.3 men's teams should have been in the finals, yet 10 teams made it. Only two QuarkNet men's teams should have become national champions, but five did. For the Women's teams, 4.3 should have made it to the finals, while 5 teams did and two should have claimed the national championship, which is what has happened.

[Read more](#)

[Blackberry Oaks Monday night golf league](#)

[Calling all softball players](#)

[Fermilab Management Practices Seminar classes take place in April](#)

[ANSYS Mechanical Application classes - May](#)

[Interaction Management class - May 5, 12 & 19](#)

[AutoCAD Intermediate classes - June 22 - 24](#)

[AutoCAD Fundamentals class - June 6 - 8](#)

[Performance Review class - May 26](#)

[Fermilab Functions class - June 2, 8 and 10](#)

[Additional activities](#)

[Submit an announcement](#)