

Calendar

Thursday, July 27

2:30 p.m. Theoretical Physics Seminar - WH-3NE

Speaker: R. Zukanovich Funchal, Universidade de São Paulo

Title: Direct Mixing Effects Versus Induced Mass Matrix of Active Neutrinos

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m. Accelerator Physics and Technology Seminar - Curia II

Speaker: R. Pasquinelli, Fermilab
Title: Noise in RF Systems

6:00 p.m. UTeV Lecture - Curia II

Speaker: M. Wascko, Imperial College
Title: Low Energy Neutrino Physics with SciBooNE, A New Experiment at Fermilab

Friday, July 28

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

THERE WILL BE NO JOINT EXPERIMENTAL THEORETICAL PHYSICS SEMINAR THIS WEEK

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

Weather



Chance of Showers; 89°/70°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Out-of-area health coverage



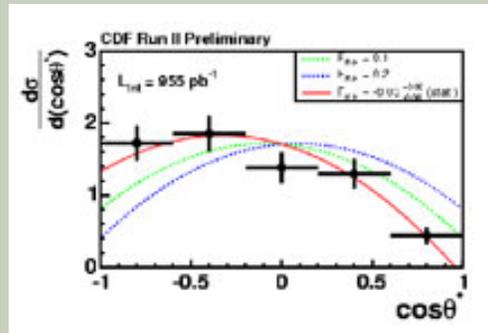
If you're planning an end-of-summer vacation, you can get health coverage while you're away.

Planning a long trip during the last days of summer? Kids going back to college in the fall? If so, it's time to consider your options for out-of-area health coverage. If you belong to a Blue Cross/Blue Shield HMO, HMO Illinois or Blue Advantage HMO, you are entitled to health services outside the covered area. You have two choices: 1) Away From Home Care, also referred to as "guest membership." This option is for people on extended trips who may want to go to regular doctor's appointments away from home; and 2) Blue Card Urgent Care Programs, for more urgent concerns that need more immediate treatment, but are not life-threatening emergencies. (In the event of a life-threatening emergency, you should always seek care at the nearest hospital.)

If you or your dependent will be living in a different, participating HMO service area for at least 90 consecutive days, you can choose the first option and become a guest member at a participating Blue Cross/Blue Shield HMO. Guest membership provides access to the

Fermilab Result of the Week

Wicked W Bosons in Top Quark Decays?



The decay angle θ^* carries the W boson helicity information and is defined as the angle between the lepton and the top quark flight direction in the W rest frame. The data prefer a right-handed fraction (FR^H) more consistent with 0.0 than with 0.1 or 0.2.

Throughout history being right-handed has been considered the norm, while the Latin word sinister meant left and was associated with wickedness.

In particle physics, handedness or helicity is defined as the projection of the angular momentum to the direction of motion. CDF studied the helicity of W bosons in top quark decays. W bosons can have one of 3 helicity states: right-handed, left-handed and longitudinal.

Our theoretical framework, the Standard Model of particle physics, predicts that 70 percent of all W bosons from top quark decays are longitudinally polarized and 30 percent are left-handed. Right-handed W bosons are considered wicked, and their unexpected appearance would indicate the presence of new unknown physics in top quark decays.

At CDF, three research groups have analyzed up to 1 fb^{-1} of data, which yield

Wilson Hall Cafe**Thursday, July 27**

- Minnesota Wild Rice w/Chicken
- Tuna Melt on Nine Grain
- BBQ Ribs
- Chicken Casserole
- Buffalo Chicken Wrap
- Assorted Slice Pizza
- Mandarin Chicken Salad

[Wilson Hall Cafe Menu](#)

Chez Leon**Thursday, July 20****Dinner**

- Layered Mozzarella and Tomato
- Grilled Swordfish w/Chipotle Butter
- Roasted Corn w/Potatoes and Bacon
- Banana Spring Rolls w/Caramel Rum Sauce

Wednesday, July 26**Lunch**

- Danish Open Sandwiches
- Cucumber Salad w/Dill
- Apple Walnut Cake w/Crème Chantilly

[Chez Leon Menu](#)

Call x4598 to make your reservation.

Search

Search the Fermilab Today Archive

Info

health care benefit coverage you need, such as regular doctor's visits. This benefit is geared toward members on extended trips or out-of state students. If you are interested in learning more about guest membership or want to sign up with a host Blue Cross and Blue Shield HMO, you should contact Blue Cross/Blue Shield member services at 800-892-2803. If you take advantage of a guest membership, keep in mind that when you or your dependent returns home, you will need to choose a primary care provider in your home service area.

The second out-of-area option, Blue Card Urgent Care, provides for urgent but non-life-threatening care away from home. "For example, if you are at a conference and have a sty in your eye," explained Mary Todd, of the Fermilab Benefits Office. "You could see a doctor because it is a more urgent concern than a regular checkup." To use the urgent care program, simply find a nearby provider when the issue arises by searching www.bcbs.com or calling 800-810-BLUE. You can choose the provider and make an appointment, making sure that you advise them of your Blue Cross and Blue Shield HMO membership. You will not have to pay for the visit upfront or submit a claim, but you will pay an applicable co-payment at the time of service.

Please be sure to bring your identification card with you while traveling as you will need to present it to the doctor's office or hospital.

Science Grid This Week

hundreds of top pair candidate events. Two approaches reconstruct the decay angle θ^* (shown in the figure), while one group uses the invariant mass of the charged lepton and the b quark jet as an observable. All three measurement are in excellent agreement.

As a result, CDF measures the fraction of longitudinal W bosons to be 61 ± 12 (stat) ± 6 (sys) percent, while the SM predicts 70 percent. CDF also measures with 95 percent confidence that there is not more than a 10 percent fraction of right-handed W bosons, again consistent with the SM's prediction of zero percent.



From upper-left: Nils Krumnack (Baylor), Markus Klute (MIT), Jeannine Wagner (Karlsruhe), Doug Glenzinski (Fermilab), Susana Cabrera (Valencia). From lower-left: Shulamit Moed (Geneva), Thorsten Chwalek, Wolfgang Wagner, Dominic Hirschbuehl (Karlsruhe). Not shown: Evelyn Thomson, Aafke Kraan (Penn).

[Result of the Week Archive](#)

Fermilab Press Release, July 26: U.S. scientists join in "cosmic challenge"

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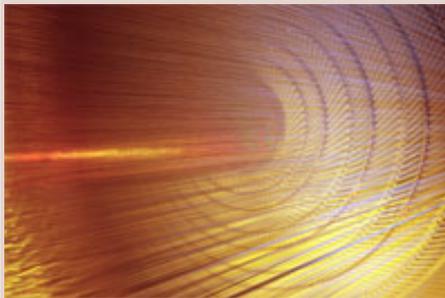
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Hunting for the Higgs, With the Grid as a Guide



The CDF Central Tracking Chamber.

The Higgs boson is elusive prey. Physicists have been searching for it since it was first proposed in the 1960s as a result of a theory to explain why all subatomic particles—and thus all objects in the universe—have mass.

"The understanding of particle physics has reached a very advanced level, but there are still things that are puzzling," says Duke University physicist Ashutosh Kotwal. "We understand why particles and forces behave the way they do, and how they interact with each other. But our theories all only make sense if these fundamental particles have no mass, which is obviously not true."

[Read More](#)

Photo of the Day



AD's Greg Vogel found this dragonfly Sunday afternoon near the bridge on the walking path to the Lederman Center. (Click image for larger version.)

In the News

Scientists at Fermilab joined collaborators from around the world in announcing that the giant CMS detector at CERN, the European Organization for Nuclear Research, in Geneva, Switzerland, has been sealed and switched on to collect data for an important series of tests using cosmic ray particles. Cosmic rays from space provide a source of high-energy particles like those from accelerator-generated particle collisions.

U.S. physicists are among the CMS scientists taking and analyzing data from cosmic rays to calibrate and align the CMS particle detector in preparation for the start-up of the Large Hadron Collider accelerator at CERN next year. DOE's Fermilab, near Chicago, Illinois, serves as the host laboratory for the U.S. CMS collaboration, and the U.S. helped to fund the design and construction of the detector.

[Read More](#)

Accelerator Update

July 24 - 26

- Two stores provided 25 hours and 19 minutes of luminosity
- Controls system problems
- Feeder 49 ground fault causes power glitch
- TeV quench due to kicker failure
- NuMI to start taking beam on Wednesday afternoon (7-26-06)

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

Announcements

**Amazon.com News,
July 26, 2006:****A Hint of Axions: An experiment may
have seen an elusive new particle**

Northeastern University researchers Pran Nath, Daniel Feldman and Zuowei Liu have shown that the discovery of a proposed particle, dubbed the Stueckelberg Z prime, is possible utilizing the data being collected in the CDF and DO experiments at the Fermilab Tevatron. The Stueckelberg Z prime particle, originally proposed by Boris Kors currently at CERN, Geneva, Switzerland and Pran Nath at Northeastern University in 2004, is so narrow that questions had been raised as to whether or not it could be detected. This new research, published in the July issue of Physical Review Letters, confirms that it can. The results are of importance because the discovery of this particle would provide a clue to the nature of physics beyond the Standard Model and a possible link with string theory.

[Read More](#)

Memorial Service for Jane Wilson

There will be a memorial service for Jane Wilson on Sunday, August 20 at 12:00pm in the Users' Center in the Fermilab Village. If you'd like to attend, please [click here](#).

East entrance to close this Saturday

On Saturday, July 29, the Batavia Road east entrance will close for road seal coating and striping. The entrance will be reopened Sunday morning, July 30, at 6:00 a.m. The bicycle path will remain open during this period.

English country dancing

English country dancing will meet this Sunday, July 30, at 2 p.m. Fermilab's Barn, and will continue to meet during the summer on the last Sunday afternoon of the month. Newcomers are welcome; partners and previous experience are not required. Please contact folkdance@fnal.gov or call 630-584-0825 or 630-840-8194.

[Upcoming Activities](#)