Fermilab Today

Thursday, May 14, 2009

Calendar

Have a safe day!

Thursday, May 14
THERE WILL BE NO PHYSICS AND DETECTOR SEMINAR THIS WEEK
THERE WILL BE NO THEORETICAL PHYSICS SEMINAR TODAY
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Accelerator Physics and Technology Seminar - One West
Speaker: Del Larson, University of Texas, Arlington
Title: ECOFusion: An Electron-Cooled, Cellular Approach to Harnessing Fusion Power

Friday, May 15
11 a.m.
Academic Lecture Series - One West
Speaker: Vincenzo Cirigliano, Los Alamos National Laboratory
Title: Kaons as Laboratories for Fundamental Physics: Course 2, Lecture 3
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Joint Experimental-Theoretical Physics Seminar - One West
Speaker: Jeff Hartnell, University of Sussex
Title: NuMI Muon Antineutrinos in MINOS

Click here for NALCAL, a weekly calendar with links to additional information.

NSF Media Advisory

NSF hosts media briefing on "Angels & Demons" science

Particle physicists to brief media and public on real science at CERN; May 19, 1 p.m. EST

On May 15, 2009, Sony Pictures will release "Angels and Demons," and bring the world's largest particle physics laboratory to the silver screen.

Based on Dan Brown's best-selling novel, this major motion picture, starring Tom Hanks and directed by Ron Howard, focuses on a plot to destroy the Vatican using a small amount of antimatter. That antimatter is made using the Large Hadron Collider (LHC) and is stolen from the European particle physics laboratory CERN. Parts of the movie were filmed at CERN.

Embracing this opportunity to discuss the real science of antimatter, the LHC and particle physics research, on May 19, 2009, the National Science Foundation (NSF) will host a live media briefing spotlighting three world-renowned physicists.

The event will feature:

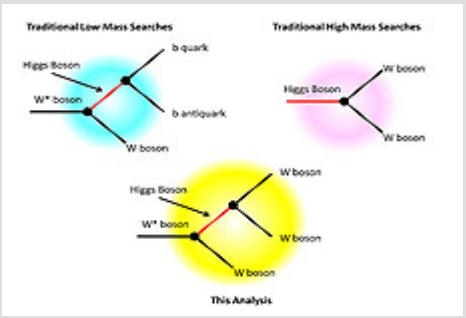
- Rolf-Dieter Heuer, director-general, CERN; former research director for particle and astroparticle physics, Germany's DESY Laboratory;
- Leon Lederman, Pritzker Professor of Science, Illinois Institute of Technology; resident scholar, Illinois Mathematics and Science Academy; director emeritus, Fermilab; Nobel, Physics (1988); and author, "The God Particle: If the Universe Is the Answer, What Is the Question?"
- Boris Kayser, distinguished scientist, Fermilab; chair, American Physical Society's Division on Particle Physics; former program director, NSF Theoretical Physics.

Read more

In Memoriam

Fermilab Result of the Week

The Higgs boson meets the WWW



This analysis combines search techniques used in more traditional analyses. The analyzers looked for events in which three W bosons were produced.

The three letters WWW usually invoke thoughts of the World Wide Web, perhaps particle physics' most famous spin off. Yet these three letters play an important role in another topic near and dear to modern particle physicists, the Higgs boson.

Physicists do not know the mass of the Higgs boson (or masses if there is more than one). Without knowing the mass, they cannot know its dominant daughter decay products. If the mass of the Higgs boson is above about 135 GeV, it dominantly decays into a pair of W bosons. Events with pairs of W bosons are relatively easy to identify. If its mass is below about 135 GeV, then the Higgs boson decays predominantly into a bottom quark/antiquark pair. Unfortunately, there are many ways that scientists can produce pairs of bottom quarks/antiquarks that don't involve a Higgs boson.

Given the difficulty of digging out an unambiguous Higgs signal from this overwhelming background, particle physicists looked for associated production, a process in which a Higgs boson is produced in association with a W boson. Events such as these are relatively rare and provide a good way to search for Higgs bosons. Indeed, both DZero and CDF are putting considerable effort into searching for events with a W boson and a bottom quark/antiquark pair.

Physicists decided to combine the two

Weather

Partly sunny
69°/47°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, May 14
- Tomato Florentine
- *Pork BBQ sandwich
- Pasta primavera
- Smart cuisine: chicken Marsala
- Smoked turkey melt
- Assorted sliced pizza
- SW chicken salad w/roasted corn salsa

**Carb restricted alternative*

Wilson Hall Cafe menu

Chez Leon

Thursday, May 14
Dinner
- closed

Wednesday, May 20
Lunch
- Steak salad w/pomegranate vinaigrette
- Italian cream cake

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/

In Memoriam: Danny Massengill

Danny Massengill

We are very sad to announce the death of Danny Massengill on Sunday, May 10. He was 52-years-old. Danny started his career at Fermilab nearly 30 years ago installing energy saver magnets on the Magnet Test Facility test stands located in the Industrial Building 1.

Danny was a very talented, versatile and dedicated employee who became a proficient operator of the IB1 helium refrigerator and a magnet measurer and mechanical technician. More recently, Danny made important contributions to the new IB1 Vertical Cavity Test Facility.

"Danny was not only the hardest, most dedicated worker I had the opportunity to work with during the last 30 years, he was also my best friend for the last 20 years," said George Kirschbaum, a long-time colleague and close friend. "When Dan passed, he left a very large hole in all our hearts and in IB1 Operations. We will truly miss our dear friend each and ever day for the rest of our lives."

A memorial service will take place on Friday, May 15, at 5 p.m. at the Beidelman-Kunsch Funeral Home, 24021 Royal Worlington Drive in Naperville, off of Route 59. A memorial visitation will follow after the service until 9 p.m. at the funeral home. Call (630) 922-9630 or visit www.beidelmankunschfh.com for more information.

-- *Ruben Carcagno*

Announcement

Buffalo burger BBQ Friday on Users' Center patio

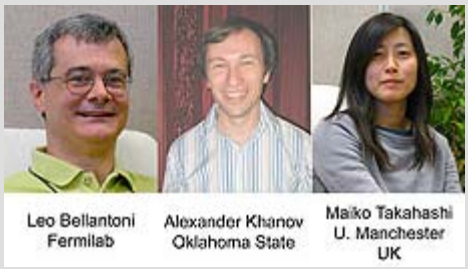
Southern Foodservice Management, Fermilab's foodservice company will host a Buffalo Burger BBQ on Friday,

decay signal searches as a new way to search for a Higgs boson. They looked for associated production in this analysis, specifically in events in which the Higgs boson decays into W pairs. Thus the experimental signature that scientists are interested in comes from events in which three W bosons are produced (or WWW).

DZero physicists combed through their large data set, looking for events like these. While doing so, they paid careful attention to understanding how their detector might mimic the events of interest. With their precise knowledge of the performance of the DZero detector, they were able to set limits on Higgs boson production. They expect this analysis technique to play an increasingly-important role in the intermediate mass region (130-150 GeV) which is a difficult area to search.

So keep an eye on the WWW for news of updates in the WWW search.

-- *Don Lincoln*



These analyzers played a crucial role in this analysis.

Verification that all detectors/algorithms performed well during data acquisition is critical for the validity of all data analyses. Meenakshi Narain and Kin Yip process the data and create summaries used by the DZero data quality group.

Accelerator Update

May 11-13
- Three stores provided 39.5 hours of

Send comments and suggestions to:
today@fnal.gov

Visit the Fermilab
home page

May 15. From 4-6 p.m. employees, users and their families can stop by the Users' Center Patio for a half-pound buffalo burger for $6, a half-pound hamburger for $5 or a quarter-pound beef hot dog for $3. Chips are included. None of Fermilab's bison were harmed to make this event possible.

In the News

"Fringe" season finale flirts With theoretical physics

From ***Popular Mechanics*** May 13, 2009

Promotional poster courtesy of FOX.

During the course of its first season, "Fringe" has played with the idea of that there are actually two realities, one slightly different from the other. In the season finale, "There's More Than One of Everything," the show delved into the science behind this idea, fleshing out the alternate reality with FBI Agent Olivia Dunham and company trying to stop über-villain David Robert Jones from getting to the elusive Massive Dynamic CEO William Bell, who, according to spokeswoman Nina Sharp, is hiding out in this other reality. PM spoke to physicist Michio Kaku, author of Physics of the Impossible, to perform our final fact check of "Fringe," season one.

In the previous episode, "The Road Not Taken," Jones shot Sharp and removed an energy cell that Bell had hidden in her prosthetic arm. Jones was using this mysterious cell to pry open a portal to an alternate reality, slightly different from our own, where Bell was hiding out.

According to Kaku, there are numerous

luminosity
- LRF4 driver and switch tube replaced
- Recycler kicker trip
- Pbar Debuncher septum problems

Read the Current Accelerator Update
Read the Early Bird Report
View the Tevatron Luminosity Charts

Announcements

Latest Announcements

Film Society looking for new members

Rapid Hardware Prototyping and Industrial Control Application Development Seminar today

Co-ed softball season begins today

French, Greek and other ethnic dances in John Parrish workshop, today

Toastmasters demonstration meeting - today

Accelerated C++ Short Course: registration open - June 8

Jobs at Fermilab: Employee profiles updated

Python training June 17-19

Intermediate/Advanced Python Programming July 22-24

Asthma & Allergy Awareness Lunch & Learn

Concerned about H1N1? Ask a question

Winners of the Asian/Pacific Quiz Contest: Week 1

English country dancing, May 17

May is Motorcycle Safety Awareness Month - send in photos - meeting May 19

"Angels & Demons" Lecture Night:

theories in physic that pertain to the existence of parallel universes—and "Fringe" is combining two of these theories. The first, called the "Many Worlds Theory," is widely accepted by theoretical physicists. "The universe splits every time a decision is made," Kaku explains. "One tiny quantum event could separate us from another reality." In "M-theory," on the other hand, our universe is an expanding membrane, sort of like a bubble—and there could be other bubbles out there. "These other universes, these bubbles, most of them are probably dead universes, so we don't have to worry about them," Kaku says.

Read more

The Science Revealed" - May 21

Deadline for The University of Chicago Tuition Remission Program - May 22

NALWO - Brown Bag Lunch - Chinese Pottery - May 26

Are you Fit to a T? May 27 event

Nanotechnology Lecture: Crafting of Self-Assembling Materials for Medicine & Energy - Fermilab Arts Series

Science Adventures for children

Discounted Rates at Grand Geneva Resort, Lake Geneva, WI

Summer co-ed volleyball league June 1

Registration for Users' Meeting is open

Conflict Management and Negotiation Skills class - June 3 and 10

Discount tickets to "1964"...Beatles tribute - June 6

Susan Werner - singer/songwriter performs at Arts Series

SciTech summer camps

Additional Activities

Submit an announcement