Fermilab Today

Tuesday, Feb. 17, 2009

Calendar

Tuesday, Feb. 17
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Accelerator Physics and Technology Seminar - One West
Speaker: Olivier Napoly, CEA-Saclay
Title: XFEL Module Assembly at CEA-Saclay

Wednesday, Feb. 18
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
Speaker: John A. Rogers, University of Illinois, Urbana-Champaign
4 p.m.
Fermilab Colloquium - One West
Speakers: Christina Frederick-Recascino, Embry-Riddle Aeronautical University
Doug Sweigard, Lockheed Martin Corporation
Title: The Integrated Airport: Building a Successful NextGen Testbed

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

Weather

Rain/Thunderstorms
41°/33°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

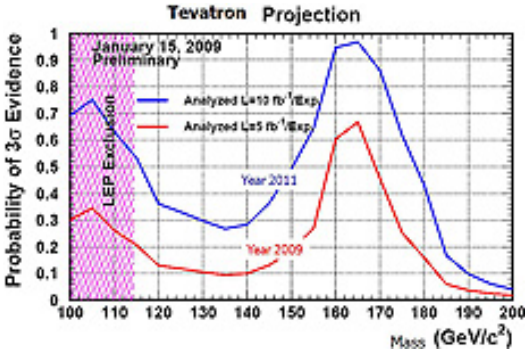
Wilson Hall Cafe

From *symmetrybreaking*

AAAS coverage

Editor's note: *Symmetry magazine staff wrote a series of blog posts from the AAAS meeting. The following articles are a sample of the posts available on the symmetrybreaking Web site.*

Hunt for the Higgs kicking into high gear



If the Tevatron experiments collect data through 2011, their chance of finding evidence for the Higgs particle is larger than 30 percent for most of the Higgs mass region of interest, 114 to 185 GeV/c^2. A Higgs mass of 170 GeV/c^2 already is excluded by the analysis of Tevatron data last summer (see plot below).

Researchers with the Tevatron experiments at Fermilab told fellow scientists and journalists not to count them out of the race to discover the Higgs boson.

“In the next few years, if the Higgs lives in the expected mass range of 114 to 185 GeV, we will see evidence of its existence,” said Dmitri Denisov, co-spokesman of DZero and a Fermilab staff scientist, Sunday at the American Association for the Advancement of Science conference in Chicago.

The Higgs explains how particles acquire mass, and is the last, missing piece of the Standard Model, which explains matter and how it acts. Essentially, the Higgs is the last piece of a puzzle describing everything around the world, including ourselves, Denisov said.

While the Large Hadron Collider in Europe is the new, bigger kid on the high-energy physics’ block, Tevatron researchers said their smaller experiments bring a finely-tuned machine and a head start to the game.

Director's Corner

Recovery


Pier Oddone

For us, passage of the American Recovery and Reinvestment Act was the big news of the week, the year and--barring discovery of the Higgs--the decade. It makes a large investment in science and technology to support not only the creation of jobs but the nation’s competitiveness. The investment in the DOE Office of Science contained in the act is $1.6 billion. Overall the act invests significantly in all the science agencies and in education.

While the specifics are still being worked out by DOE and the Office of Management and Budget, we hope for major advances here at Fermilab: funding to accelerate NOvA; to build the infrastructure for developing, prototyping, testing and industrializing superconducting accelerator components; and for the immediate construction of four general plant projects. The “GPP” projects include the upgrade of Feynman to support needed computational engines, the extension of the New Muon Laboratory to allow the full tests of three cryomodules, the development of the space necessary for the handling of neutrino beam radioactive components in MI-8, and the extension of our industrial building IB-3. By moving rapidly and responsibly to put these funds to work, we will maximize their impact on the economic recovery of our region, including creating jobs largely outside the laboratory. These funds will not only create jobs immediately but will also increase Fermilab’s capabilities and efficiency in carrying out our future scientific programs. At the same time we will increase the nation’s industrial capabilities to build future accelerator projects.

Our first priority now is to do our part to support economic recovery by spending these funds wisely, productively and rapidly, as contemplated by the legislation. Doing so will demand much of many of us, beyond our planned activities. I ask for your full cooperation when you get requests to pitch in to help with project specifications, quality

Tuesday, Feb. 18
- Creamy turkey vegetable
- Chili dog
- Shepard's pie
- Chicken cacciatore
- Italian panini w/provolone
- Assorted sliced pizza
- Super burrito

Wilson Hall Cafe Menu

Chez Leon

Wednesday, Feb. 18
Lunch
- Swiss steak
- Mashed potatoes
- Steamed broccoli
- Praline cheesecake

Thursday, Feb. 19
Dinner
- Closed

Chez Leon Menu
Call x3524 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

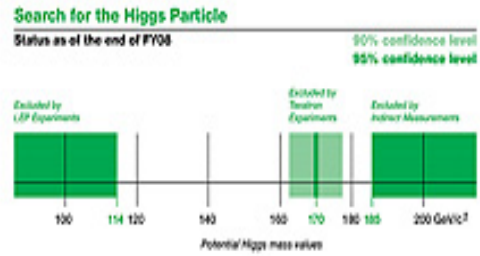
Fermilab Today
is online at:
www.fnal.gov/today/

Send comments and suggestions to:
today@fnal.gov

It will take the LHC until 2011 or 2012 to reach the energy levels expected to house the Higgs, said Jim Virdee, spokesman of CMS and a professor at Imperial College of London.

Read more

-- Tona Kunz



Higgs mass exclusion plot as of summer 2008.

A first: String theory predicts an experimental result

The biggest criticism of string theory is that it doesn't make predictions that can be tested experimentally–a requirement for any solid scientific idea.

That's not true anymore.

At an AAAS session on Sunday, physicists said string theory is making important contributions to the study of two extreme forms of matter –one heated to trillions of degrees, the other chilled to near-absolute zero. In both cases the matter became a "perfect liquid" that ripples and flows freely, like water. String theorists analyzed the results by applying what they had learned from pondering how a black hole might behave in five dimensions. Then they went on to calculate just how free-flowing these liquids might be, predictions that the experimenters are using to guide the next stage of their work.

"It's really a surprising, I would say serendipitous, once-in-a-generation convergence of scientific communities," says Peter Steinberg, a nuclear physicist at Brookhaven National Laboratory and one of the organizers of the panel. "None of us saw this coming."

Read more

--Glennda Chui

In the News

control and acceptance testing on all aspects of this new body of work. This is an exciting time for science and for Fermilab.

Accelerator Update

Feb. 13-16
- Two stores provided ~9 hours of luminosity
- New transformer connected
- More TeV dump switch damage discovered
- TeV quench
- MI vacuum burst

*The integrated luminosity for 2/9/09 to 2/16/09 was ~23.74 inverse pico barns

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

Announcements

Have a safe day!

Daycamp Information and Registration

Muscle Toning Classes

Outlook 2007 New Features classes scheduled Feb. 26

Recreation Facility Open House

Fermilab Blood Drive Feb. 17 & 18

Argentine Tango Classes begin Feb. 18

Special Seminar: Programming Multicore Clouds - Feb. 19

NALWO - Mardi Gras Potluck Dinner - Feb. 20

Discount Tickets: World's Toughest Rodeo Presents Toughest Cowboy - Feb. 21

NALWO - Brown Bag Lunch Program - "Australia: Travels in the Land Down Under" - Feb. 24

English Country Dancing, March 1

Introduction to LabVIEW class offered March 5th

On-Site Housing - Summer 2009

Cosmic mystery: High-energy invaders from space could signal a nearby pulsar, or perhaps dark matter

From ***Science News***, Feb. 28, 2009

There's an air of excitement in the astrophysics community, created by a surplus of particles from space invading Earth's atmosphere.

Balloon flights high in the stratosphere over Antarctica detected electrons in numbers and energies much higher than what usually pours in from space, scientists on a project called ATIC reported in November.

About the same time, a separate report from Milagro, a ground-based detector near Los Alamos, N.M., described two unexpected patches of high-energy protons in the sky. A review of seven years of Milagro data revealed an unusual distribution in the energies of these cosmic rays.

Read more

NALWO - Adler Planetarium Trip - March 21

Child Care program offered - March 24

Conflict Management & Negotiation Skills class offered Apr.1

2009 Standard Mileage Reimbursement Rate

Facilitating Meetings That Work class offered Feb. 16

Additional Activities

Submit an announcement