Fermilab Today

Thursday, April 8, 2010

Calendar

Have a safe day!

Thursday, April 8
8 a.m. - 6:30 p.m.
International Design Study for the Neutrino Factory meeting - Curia II
2:30 p.m.
Theoretical Physics Seminar - Curia II
Speaker: Erich Poppitz, University of Toronto
Title: Monopoles, Bions, and Other Oddballs in Confinement and Conformality
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4 p.m.
Accelerator Physics and Technology Seminar - One West
Speaker: Srivani Sirisha Motamarri, University of Illinois, Chicago
Title: Mechatronics in Embedded Motion Control Systems

Friday, April 9
8 a.m. - 5 p.m.
International Design Study for the Neutrino Factory meeting - Curia II
3:30 p.m.
DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
Joint Experimental-Theoretical Physics Seminar
Speaker: Ryan Patterson, California Institute of Technology
Title: New Results for Muon Neutrino to Electron Neutrino Oscillations in the MINOS Experiment

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

From *symmetry breaking*

Just what your iPod needs: a Fermilab rap video

Steven Rush, also known as funky49, a science rapper from Tampa, Florida, raps about Fermilab.

Rock stars of physics, particle business
smash matter, anti-matter and witness quarks, bottom to top
they don't stop
"Where the Higgs at?" Yo that's their mark!
Go! Go! Go!

Is this another music video explaining how the Large Hadron Collider at CERN operates? Nope, this time the beats bump and rhymes resonate to pay tribute to the original big-time atom smasher: the Tevatron.

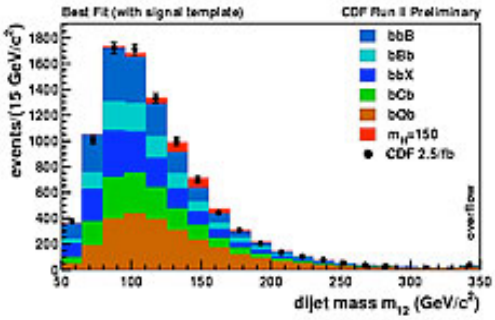
Wired magazine's Nerdcore Hip Hop All-Star funky49 releases today the first music video about Fermilab and its star particle accelerator. Rather than just focusing on how the mammoth machine works, science communicator funky49 looks at how the Tevatron fits into the "big picture": politics, national prominence and your pocketbook.

Although the Tevatron got dethroned this year as the world's highest-energy particle accelerator, a title it held for more than two decades, it remains the world's highest-energy proton-antiproton collider. The Tevatron also remains firmly in the race against the LHC in Switzerland to find the Higgs boson, a.k.a. the God Particle.

Read more

Result of the Week

Do SUSY and Higgs travel together?



The two-jet mass spectrum in the three b-quark event sample from in 2.5 inverse femtobarns of CDF data. bbB, bBb, etc. are nicknames for Standard Model processes with three b-quarks that comprise most of the sample. The small SUSY-Higgs-like excess is shown in red.

Could the Tevatron reveal supersymmetry (SUSY) and the elusive Higgs boson at the same time? A new result from CDF examines this possibility by searching for a supersymmetric Higgs boson produced in events with an extra bottom quark, or b-quark.

The Standard Model of particle physics predicts a very small rate for this process, but in SUSY models the rate could be high enough to observe at the Tevatron. Since these SUSY Higgs bosons decay into a pair of b quarks, the final signature is three simultaneous b-quarks, showing up as three high-energy particle b-jets that contain b-hadrons.

Because the b-hadrons travel a measurable distance from the collision point before decaying into other particles, scientists can identify the b-jets using information from CDF detector tracking systems. Events from non-Higgs processes with three b-jets are relatively rare but would still outnumber the SUSY Higgs events, so the search looks for an enhancement in the mass value of the two most energetic b-jets. The non-Higgs processes occur at all masses, but events containing a SUSY Higgs would pile up in a region around the mass of the Higgs boson.

The two-jet mass spectrum of three b-events is shown in the figure, along with a prediction of the background processes. A small excess of events near a mass of 140-150 GeV/c^2 is consistent with the hypothetical SUSY Higgs

Upcoming conferences

Campaigns

Take Five

Tune IT Up

H1N1 Flu

For information about H1N1, visit Fermilab's flu information site.

Weather

Rain
47°/29°

Extended Forecast
Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Thursday, April 8
- Apple sticks
- Minnesota wild rice w/chicken
- Tuna melt on nine grain
- Italian meatloaf
- Chicken casserole
- Buffalo krispy chicken wrap
- Assorted sliced pizza
- Mandarin chicken

*Carb restricted alternative

Wilson Hall Cafe Menu

Chez Leon

funky49, a science rapper from Tampa, Florida, presented his rap live to a Fermilab audience in August of 2009.

DOE Press Release

Department of Energy releases open government plan

From April 7, 2010

The U.S. Department of Energy today released its Open Government Plan highlighting DOE initiatives to maintain and increase transparency, increase participation between the Department, its program offices, sites and the American public, and increase collaborative efforts between the Department and its stakeholders.

“We are strongly committed to making government work better for the American people,” said Secretary Chu. “Through transparency and openness, we will provide better service to the public, give citizens a better understanding of how the Department works, and create new opportunities for people to engage the Department on issues that matter to them.”

The plan highlights flagship initiatives spearheaded by DOE including the launch of Open Energy Information (OpenEI.org), a new open-source web platform that opens DOE resources and data to the public. The free, editable, and evolving wiki-platform will help to deploy clean energy technologies across the country and the world. OpenEI.org also will provide technical resources, including U.S. lab tools, which can be used by developing countries as they move toward clean energy deployment.

Additional initiatives include ScienceEducation.gov, an interagency website and networking tool for the Science Technology Education and Math (STEM) education community; and the Energy Information Administration’s (EIA) Education and Literacy Initiative. The EIA Initiative is comprised of Energy Explained, an encyclopedia of energy issues; Energy in

boson contribution, shown in red. A statistical calculation shows a 6 percent chance that this is just the result of random measurement fluctuations, so the jury is still out. The only way to know if this excess is a signal from a Higgs boson is to examine more data. If SUSY and the Higgs boson travel together, then increasing the dataset used in this analysis may be all that scientists need to trap them in the same net.

- edited by Craig Group

This study was performed by Tom Wright and Dan Amidei from the University of Michigan.

Accelerator Update

April 5-7
- Three stores provided ~42.5 hours of luminosity
- TeV proton studies
- ARF1 problems
- MI LCW leak fixed
- Recycler beam valve air leak fixed
- MiniBooNE off due to IRM crate trigger problems

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

Announcements

Latest Announcements

Ask HR - 15th floor comes to Day Care on Monday, April 12

All on-site residents: US Census forms due tomorrow

Bulgarian dance workshop and live music party - today

Tai Chi for Health - today

Free staff appreciation massage April

Thursday, April 8
Dinner
- Closed

Wednesday, April 14
Lunch
VEGETARIAN MEAL
- Lasagna rolls w/red pepper sauce
- Sugar snap peas
- Cinnamon apple cake

Chez Leon Menu
Call x3524 to make your reservation.

Archives

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

Visit the Fermilab home page

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Brief, an article series; and Energy Kids, an interactive website for students and teachers.

View the entire release

In the News

Fermilab in race to find God particle

From ***Medill Reports***, April 7, 2010

The atom smasher at the Fermi National Accelerator Laboratory west of Chicago may still lead the charge in finding an elusive particle—the Higgs boson or "God particle"—that could help explain the makeup of all matter in the universe.

The Fermilab is now in a race with the new kid on the block—the far more powerful “Big Bang” collider in Switzerland. That collider, known as the Large Hadron Collider (LHC), has the edge on energies that can give scientists a time machine back to the first milliseconds after the Big Bang. Particles collide at high enough energies to mimic conditions that might have existed then. But the Higgs could be found at either lab.

According to physicists, the theoretical Higgs boson neatly ties together the Standard Model of matter that accounts for the particles and subsequent interactions that create mass. A coffee cup, for example, is made up of many atoms arranged in a certain way. Yet scientists so far have been unable to explain why those atoms stay together at the most fundamental level.

Read more

13 and 16

Retiree Club

Celebrate National Humor Month

Tartan Day party at Scottish dancing

Cross-step waltz workshop - April 11, Kuhn Village Barn

The Recipe Exchange potluck lunch - April 16

AutoCAD Intermediate classes - June 22 -24

AutoCaD Fundamentals class - June 6 - 8

FORE! The 2010 golf season is about to hit you

SciTech summer camps start June 14

Butts & Guts class - sign up now

Blackberry Oaks Monday night golf league

Employee discount at Batavia Rosati's

Country House discount for employees

Harlem Globetrotters special ticket price - April 15

Qi Gong, Mindfulness and Tai Chi Easy for Stress Reduction

Argentine Tango through April 28 - student discount available

Calling all softball players

Fermilab Management Practices Seminar classes begin in April

NALWO bus trip to The Museum of Science and Industry - April 24

ANSYS Mechanical Application classes in May

Intermediate /Advanced Python Programming - May 19-21

Additional activities

Submit an announcement