Fermilab Today

Thursday, November 17, 2005

Calendar

Thursday, November 17

11:00 Academic Lecture Series - 1 West
Speaker: C. Quigg, Fermilab
Title: The Electroweak Theory and Higgs Physics – Lecture 6

2:00 Accelerator Physics and Technology Seminar - 1 West (NOTE TIME)
Speaker: M. Bai, Brookhaven National Laboratory
Title: AC Dipole Based Diagnostics

2:30 Theoretical Physics Seminar - Curia II
Speaker: M. Redi, New York University
Title: Cosmic D-Strings as Axionic D-Term Strings

3:30 p.m. Director's Coffee Break - 2nd Flr X-Over

Friday, November 18

3:30 p.m. Director's Coffee Break - 2nd Flr X-Over

4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West
Speaker: J. Link, Columbia University
Title: Meson Production Results from E910 and Their Relevance to MiniBooNE

Weather

Breezy **72º/52º**

Extended Forecast

Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

Community Group Discusses Fermilab ILC Siting Issues

Doug Sarno and Judy Jackson discuss ILC siting issues with community members. (Click image for larger version.)

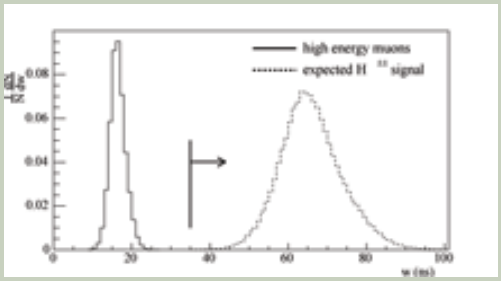
Fermilab's Community Task Force subcommittee on the ILC met Tuesday evening to discuss goals and objectives for community involvement in the possible siting of the ILC at Fermilab. Facilitator Doug Sarno of The Perspectives Group focused on the impact the collider would have on the community, and how the task force might get the community involved in the project.

"We want to focus on two things," said Sarno. "Goals and objectives for community involvement and what role the task force should play in that involvement." The conversation focused on incorperating community values into evaluating possible sites: Safety, construction (including trucks and noise pollution), the appearance of the above-ground facilities and how the collider might effect property values were topics of discussion.

But plans for the 120-150 meter-deep underground collider are far from complete. "We aren't even sure that it will run through Fermilab," said Steve

Fermilab Result of the Week

Double Jeopardy! Searching for Doubly-Charged Higgs Bosons at CDF



The distribution of the CDF tracking chamber measurement of *w* (ionization energy deposition) for high-energy muons and the expectation for long-lived $H^{\pm\pm}$ particles. The quantity *w* is encoded in electronic pulse width, measured in nanoseconds. The arrow indicates the signal selection region. Note the remarkable separation between background and $H^{\pm\pm}$ signal. (Click on image for larger version.)

One of the outstanding mysteries in particle physics is the mechanism by which particles acquire mass. The quantum theory known as the Standard Model has been very successful in describing the known fundamental forces; however this theory is obviously incomplete because it predicts all particles to be massless. A new particle, called the Higgs boson, has been hypothesized to fill in the missing piece of the puzzle by supplying mass to the fundamental particles. The plot thickens when we consider the recent observations of neutrino oscillations, implying that neutrinos have tiny but non-zero masses. An extension of the Standard Model which includes neutrino masses also predicts the existence of additional Higgs bosons, including one having twice the electron's charge! Searching for doubly-charged Higgs bosons is therefore very attractive,

Thursday, November 17
-Minnesota Wild Rice w/Chicken
-Tuna Melt on Nine Grain
-BBQ Ribs
-Chicken Casserole
-Buffalo Chicken Wrap
-Mexican Pizza
-Chicken Pecan Salad

Seasonal Changes in the Cafe Menu:
There is now a daily oatmeal bar with all of your favorite toppings and chilli will be offered on Monday, Wednesday and Friday each week.

The Wilson Hall Cafe accepts Visa, Master Card, Discover and American Express at Cash Register #1.

Wilson Hall Cafe Menu

Chez Leon

Thursday, November 17
Dinner
-Vol-au-Vents with Mushrooms
-Stuffed Filet of Sole with Crabmeat
-Vegetable Medley
-Maple Walnut Cake with Maple Glaze

Wednesday, November 23
Lunch
-Cheese Fondue
-Salad of Marinated Vegetables
-Poached Pears with Red Wine

Chez Leon Menu
Call x4512 to make your reservation.

Search

Search the Fermilab Today Archive

search

Info

Holmes, Associate Director for Accelerators at Fermilab. "We just know that a North-South orientation through the dolomite would be ideal." Dolomite, a sedimentary rock that forms beds up to hundreds of feet deep, lies underneath the area between Route 59 and DeKalb. The rock would provide a sturdy dry medium for the tunnel and temper vibrations that might otherwise disrupt the collider.

The group also discussed the economic, environmental and cultural benefits that the linear collider will bring to the region. "Fermilab has always been a great neighbor," said Batavia Mayor Jefferey Schielke. "And residents will want to keep it here."

—Siri Steiner

DOE Press Release: Science.gov 3.0 Launched

Offers Increased Precision Searches of Federal Science Database

WASHINGTON, DC—The latest version of Science.gov was launched today allowing more refined queries for searches of federal science databases. While Science.gov 3.0 is available to everyone, these improvements will be especially helpful to scientists and information specialists in their searches.

“In these wonderful times for science, the tools by which we share science information must be extraordinary,” said Dr. Raymond Orbach, Director of DOE's Office of Science. “Science progresses when knowledge is shared and Science.gov 3.0 provides researchers with a tool to hone their queries, resulting in more

because of its multiple implications for new physics.

Physicists at the CDF experiment have searched for a long-lived doubly-charged Higgs boson, which deposits four times the "ionization energy" than the typical singly-charged particle. Ionization energy deposition occurs when a charged particle traverses through a gas and strips electrons off atoms turning them into ions. This energy can be measured by CDF's gaseous tracking chamber. This search has extraordinary sensitivity: if one event having the signal characteristics were observed, the odds that it is background would be one in 30,000!

In about 300 pb^{-1} of data, no candidate events were found. CDF set the best limits in the world on the pair-production of long-lived doubly-charged Higgs bosons: 133 GeV and 109 GeV, respectively, on the masses of long-lived doubly-charged Higgs bosons with left-handed (H_L) and right-handed (H_R) interactions, to be compared with the lower limit of 100 GeV from LEP. If the H_L and H_R bosons have the same mass, CDF's lower mass limit increases to 146 GeV. These results are published in Physical Review Letters. CDF has collected in excess of 1 fb^{-1} of data, and the search for this harbinger of new physics continues.

Left to right: Joshua Tuttle (left), Christopher Hays (middle) and Ashutosh Kotwal (right) from Duke University worked on this analysis.

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

Send comments and suggestions to today@fnal.gov

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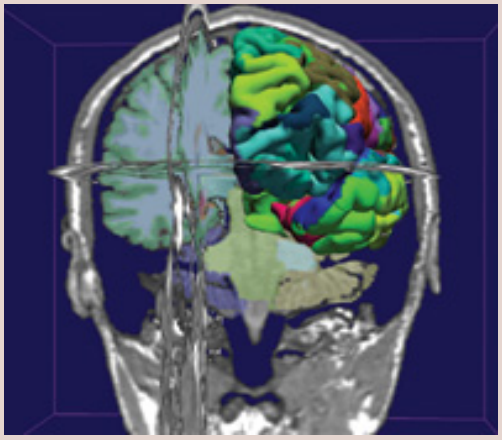
precise results."

Science.gov 3.0 introduces "MetaRank" which uses a sophisticated method for ranking science queries by searching "metadata," or bibliographic information such as title, author, date, abstract or other keyword identifiers. This technology complements the relevancy ranking capabilities of QuickRank, which was introduced in version 2.0 and is still deployed on every search.

Read More

Science Grid This Week

Grids and Gluons



3D Slicer visualization of a brain, obtained from an MRI scan. Colored areas show brain structures automatically detected by FreeSurfer.

All fields of science benefit from more resources and better collaboration, so it's no surprise that scientific researchers are among the first to explore the potential of grid computing to connect people, tools, and technology. Physics and biology were among the earliest adopters, but chemistry, astronomy, the geosciences, medicine, engineering, and even social and environmental sciences are now kick-starting their own efforts. Here is a small sampling of some of the projects now pushing the limits of grid computing.

Read More

Result of the Week Archive

Accelerator Update

November 14 - 16

- Two stores provided 41 hours and 15 minutes of luminosity.
- Safety system testing
- Ground water in MI-40
- Stack dumped to fix AP2 vacuum

Read the Current Accelerator Update

Read the Early Bird Report

View the Tevatron Luminosity Charts

Announcements

Holiday Book Sale

Your one stop shopping for the Holidays. The Fermilab Recreation will sponsor its annual Holiday Book Fair, hosted by Books are Fun, in the Atrium on Tuesday, November 29 from 10:00 a.m. until 6:00 p.m. and on Wednesday, November 30 from 7:00 a.m. until 3:00 p. m. The Book Fair accepts cash,check, MasterCard, Visa, American Express, and Discover card. Be sure to tell your spouse and mark your calendars now. A portion of the proceeds from the Book Fair subsidizes some of our Recreation Programs.

International Folk Dancing

International Folk Dancing will meet Thursday, November 17, at Kuhn Barn on the Fermilab site. Dancing begins at 7:30 p.m. with teaching and children's dances earlier in the evening and request dancing later on. Newcomers are welcome and you do not need to come with a partner. Next week, International Folk Dancing will not meet on Thursday, Thanksgiving day. Instead, all are welcome to come to a Day-After-

In the News

CERN Press Release, November 16, 2005:

CERN Awarded High-Performance Computing Prize at Supercomputing 2005

Geneva, 16 Nov 2005. CERN* has received the High Performance Computing (HPC) Public Awareness Award at a ceremony at Supercomputing 2005 in Seattle this week. Supercomputing 2005 is the foremost international conference for HPC. The award was presented by HPCwire, the leading HPC publication, as one of their 2005 Editors' Choice Awards, a category where the winner is determined by a panel of recognized HPC luminaries and contributing editors from industry. The award citation is for 'Outstanding Achievement in Creating Public Awareness for the Contributions of High Performance Computing', and reflects CERN's high visibility in scientific computing through its lead role in some of the world's largest and most ambitious international Grid projects.

Read More

Thanksgiving-Leftovers-Potluck and Folk Dance party on Friday, November 25. Bring food to share at 6:30, or come just to dance after 7:30. Info at 630-584-0825 or 630-840-8194 or folkdance@fnal.gov.

Fermilab Folk Club

Fermilab Folk Club Barn Dance Sunday, November 20 at 2 p.m. with music by Sean, Paul, and Smith with calling by Paul Ford. More info on the Web.

Upcoming Activities