Fermilab Today

Thursday, April 13, 2006

Calendar

Thursday, April 13

2:30 p.m. Theoretical Physics Seminar - Curia II
Speaker: R. Van de Water, Fermilab
Title: An Improved Method for Calculating the Kaon B-Parameter Using Lattice QCD

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

4:00 p.m. Accelerator Physics and Technology Seminar - 1 West
Speaker: K. Gollwitzer, Fermilab
Title: Antiproton Source Studies and Stacking

Friday, April 14

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

4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West Speaker: F. Canelli, University of California, Los Angeles
Title: CDF Top Quark Mass Measurements

Weather

Chance of Showers **80°/59°**

Extended Forecast

Weather at Fermilab

Current Security Status

Secon Level 3

Wilson Hall Cafe

P5 meeting April 18-19: Neutrinos and dark matter

HEPAP's "Particle Physics Project Prioritization Panel" (P5) will meet at Fermilab with the goal of learning more about some of the proposed projects for neutrino physics and for dark matter detection. A subsequent meeting at SLAC will focus on Dark Energy and the International Linear Collider.

Open sessions will be held in 1 West. Additionally, a public reception will be held in the Gallery (Wilson Hall second floor crossover), with committee members present and interested in hearing opinions from the particle physics community regarding future plans for the field.

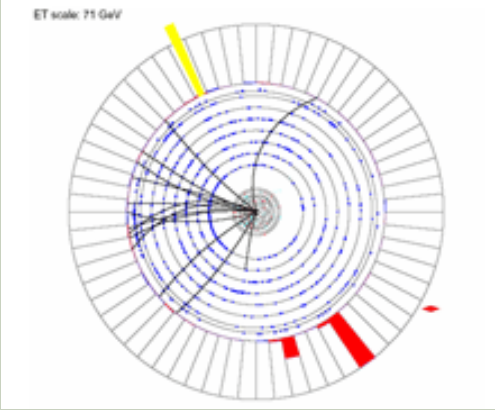
The open sessions will be viewable via streaming video on the web page set up for the P5 meeting. The agenda for the meeting, links to the presentations, and other details are available here.

Club fair a success: a sampling of images

The Fermi Singers performed at 12:15 and 12:45 for hungry employees in the cafeteria. (Click for larger version.)

Fermilab Result of the Week

DZero: Looking for new physics with light



A transverse view of a DZero event with two photons (red columns), and a significant misbalance of transverse energy (yellow column). Low-energy charged particles are represented as curved lines. Large missing transverse energy is typically associated with production of neutrinos, but could also signal the presence of supersymmetric particles. (Click on images for larger version)

Supersymmetry (SUSY) is one of the most promising extensions of the Standard Model and incorporates a new symmetry relating the force particles (bosons) and matter particles (fermions). SUSY offers a possible path to unify gravity with the electromagnetic, weak, and strong forces and provides candidates for the mysterious dark matter that dominates the universe.

One possible SUSY model, called Gauge Mediated Supersymmetry Breaking (GMSB), predicts events with two energetic isolated photons and large missing energy would be visible at the Tevatron. Now, using almost three times more data than in any previous search, physicists from the DZero experiment have extended the search for such events.

Thursday, April 13

-Tomato Florentine

-Grilled Chicken Cordon Bleu Sandwich

-Chimichangas

-Chicken Marsala

-Smoked Turkey Melt

-Assorted Pizza

-SW Chicken Salad with Roasted Corn Salsa

Wilson Hall Cafe Menu

Chez Leon

Thursday, April 13

Dinner

-Roasted Vegetable Salad w/Feta

-Veal Chops Oreganata

-Porcini and Tomato Risotto

-Swiss Chard in Garlic & Olive Oil

-Pear & Almond Strudel

Wednesday, April 19

Lunch

-Tri-Colored Tortellini w/Gorgonzola Cream

-Sauteed Spinach

-Ginger Pear Crisp

Chez Leon Menu

Call x4512 to make your reservation.

Search

Search the Fermilab Today Archive

search

Info

Azkadiy Bolshov of CDF played chess with Hermann Cease of PPD. Both are memebers of Fermilab's Chess Club. (Click for larger version.)

Howard Fulton, who worked in Tech Support for 32 years and is currently retired, is still an active member of the model airplane club, the Barnstormers. He made this "Piper Cub" model airplane. (Click for larger version.)

Science Grid This Week

Distributing a data deluge

Members of the L-Store team.

The event with the highest missing transverse energy observed so far can be seen in the figure. It has missing transverse energy of 105 GeV and two photons of 83 and 33 GeV. While this is definitely an interesting event, which could be a manifestation of supersymmetry, it is also consistent with the Standard Model process of Z boson production together with two photons, with the Z subsequently decaying into a pair of neutrinos. More data is needed to arrive to a definitive answer on whether or not these events are consistent with the Standard Model.

Using the available dataset, the collaboration has set the best current limits on SUSY models that predict production of two photons and missing transverse energy in the final state. These models predict new particles called gauginos, and the results indicate that if a charged gaugino exists, it must be at least 220 times heavier than a proton. Limits such as this provide important constraints on theories more general than the Standard Model and improve our understanding of the universe.

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The flood of data generated by scientific simulation and experimentation poses many challenges for researchers, including deciding how and where to store the data, and how to securely transfer it among worldwide collaborations. A team of computer scientists from Vanderbilt University is helping scientists meet these challenges with L-Store, a new system for distributed storage.

"When you visit a Web site, you don't think about the fact that the images come from one place and the ads from another," says Alan Tackett, technical director at Vanderbilt's Advanced Computing Center for Research and Education. "That's the way we feel data storage should work."

Read More

In the News

Physics Web, April 12, 2006:

Fermilab probes matter-antimatter transitions

The international CDF collaboration at Fermilab has made the most precise measurement to date of the extremely rapid transitions between matter and antimatter. The experiment has found that certain B mesons spontaneously turn into their own antiparticle equivalents -- anti-B mesons -- and back again at a rate of three trillion times per second. The result agrees well with the Standard Model of particle physics and confirms yet again the existence of CP violation -- the reason why there is more matter than antimatter in the universe.

Read More

Top: Yuri Gershtein (right) of Florida State University and Yurii Maravin (left) of Kansas State University performed the search for new physics in the two-photon channel. **Bottom, left to right**: Reiner Hauser (Michigan State), Leonard Christofek (Kansas), Alan Magerkurth (Michigan), Shaohua Fu (Fermilab), and Herb Greenlee (Fermilab) are members of the Common Samples Group which provides final data sets for analyses. Not shown are Slava Sharyy (Saclay) and Frederic Deliot (Saclay). (Click on image for larger version)

Result of the Week Archive

Announcements

English country dancing

English country dancing will continue at Fermilab's Barn, generally meeting the last Sunday afternoon of the month. The next session will be at 2 p.m., Sunday, April 30, and will continue through the summer, beginning with May 21 at 2 p.m. (early because of the following holiday weekend.) Please contact folkdance@fnal.gov or call 630-584-0825 or 630-840-8194.

Upcoming Activities