

Calendar

Thurs., April 5

THERE WILL BE NO ALCPG ILC PHYSICS AND DETECTOR SEMINAR THIS WEEK

2:30 p.m.

CANCELLED: Theoretical Physics Seminar - Curia II
Speaker: J. Lykken, Fermilab
Title: Inclusive Signatures and 2008 Discoveries

3:30 p.m.

DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Fri., April 6

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

4:00 p.m. Joint Experimental-Theoretical Physics Seminar - 1 West

Speaker: W. Fisher, Fermilab
Title: Higgs Searches at DZero

[Click here](#) for NALCAL, a weekly calendar with links to additional information.

Weather



Mostly cloudy 59°/45°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secon Level 3](#)

Wilson Hall Cafe

Feature

Fermilab postdoc gets word out about the grid



Oliver Gutsche helps scientists -- from graduate students to senior physicists - to understand the capabilities of grid computing.

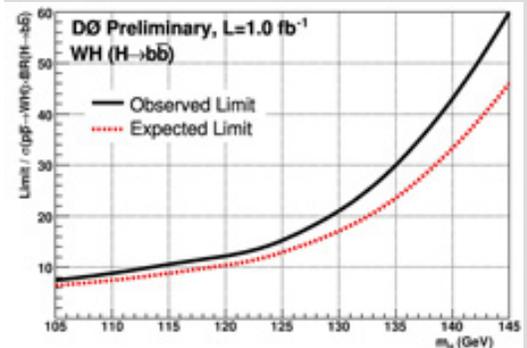
Last weekend, Oliver Gutsche, a Fermilab postdoc and member of the CMS collaboration, participated in the Midwest Grid Workshop at the University of Illinois in Chicago, where he taught students and scientists how to make the grid best work for them and their science. No stranger to science communication, Gutsche has enjoyed talking about physics since he gave organized tours to neighbors and visitors at DESY during his Ph.D. "The public usually thinks that we physicists just sit in our ivory towers," he said. "Informing the public helps in changing this."

At the workshop, Gutsche demonstrated the submission of several jobs to the grid; he calls his demo "Discovering the Higgs on the Open Science Grid." The grid concept employs interconnected computer centers distributed around the world to allow researchers to access and analyze data from afar. Gutsche showed students how to use the OSG by sending jobs to a remote computing center to perform the analysis. He used the interface program used by CMS, the CMS Resource Analysis Builder, to split up jobs and send them to available computing centers. Within 20 minutes, Gutsche had "discovered" the Higgs boson in a set of simulated data.

In theory, the CRAB software is simple - to access the grid, virtually all a user should have to do is install the grid client software on his computer. "It works perfectly in a controlled environment," said Gutsche. "But when your

Fermilab Result of the Week

Using the Buddy System



The ratio of 95% CL limits to the expected Standard Model cross section for associated W-boson plus Higgs production at the Tevatron.

The "Buddy System" has endured for years as a way to keep children from wandering off. Staying close to a friend greatly reduces the chances of getting lost. Tevatron physicists are hoping they can also rely on this principle to find a particle that has eluded discovery for over forty years: the Higgs boson.

Scientists currently believe a Higgs boson should have a relatively low mass: low enough so that the Tevatron experiments could have a chance at observing it if it exists. However, at low masses, the Higgs prefers to decay to two bottom quarks. With this signature, the Higgs would likely be lost amongst the enormous background of similar events. But the Higgs could be produced along with a very distinctive friend: the W boson. By searching for these two buddies produced together, physicists have a better chance of catching a glimpse of the Higgs. The decay of the W boson to a lepton and neutrino provides a useful means to weed out many of the background events. Through a processes called "b-tagging," physicists can separate bottom quarks from lighter quarks with a high efficiency and purity. The simultaneous observation of a lepton (electron or muon), missing transverse energy (signature of a neutrino), and two bottom quarks provides a less crowded landscape to search for a Higgs.

Physicists from the DZero experiment have searched for a Higgs boson accompanied by a W boson in one inverse femtobarn of data, and observed no evidence for signal. This result allows them to set the Tevatron's best

Thursday, April 5

-Minnesota Wild Rice w/
Chicken
-Tuna Melt on Nine Grain
-BBQ Ribs
-Chicken Casserole
-Buffalo Chicken Wrap
-Assorted slice pizza
-Toasted Pecan Chicken Salad

[Wilson Hall Cafe Menu](#)

Chez Leon**Thursday, April 5
Dinner**

- Stuffed Multicolored Peppers
- Pork Medallions w/Cider
Sauce
- Greens w/Cannellini Beans
- Almond Butter Cake

**Wednesday, April 11
Lunch**

-Veal Cannelloni
-Caesar Salad
-Tiramisu

[Chez Leon Menu](#)

Call x4598 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

tool is used by people who are not experts on the software, you get all sorts of crazy error messages." Gutsche and his colleagues are hard at work trying to make the system, as he says, "bullet-proof."

To help users prepare for data analysis at CMS, Gutsche also developed and conducts a day-long training seminar for new collaboration members every three months at the LHC Physics Center. By 2008, the CMS grid system is expected to support 200,000 computing jobs from these users per day - four times as many as in 2006. "There's a lot of work going into reaching the scale we need. We push the system to a limit, then reach the limit, then exceed it and continuously improve the system and our tools."

-- *Christine Buckley*

Feature**Raiford succeeds Buckley in transition for interns**

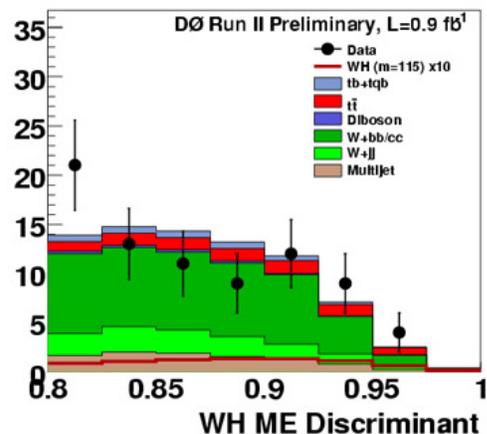
Public Affairs interns Christine Buckley and Kate Raiford contributed to Fermilab Today.

Christine Buckley completes her internship today in Fermilab's Office of Public Affairs, with Kate Raiford succeeding her. "Christine will be a tough act to follow," said former Fermilab Today editor Siri Steiner, who continues contributing to the online daily. "But I am confident that Kate will also do an excellent job."

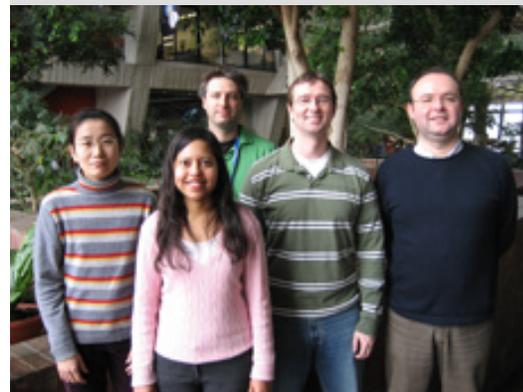
During her internship, Buckley has written about everything from Fermilab art exhibits to the meaning of color in particle physics. In an exceptional accomplishment for an intern, Buckley also successfully managed Fermilab Today during the transition from Steiner to new editor Rhianna Wisniewski.

"Christine took on a high level of responsibility with grace and good humor," said Judy Jackson, head of Public Affairs. "We relied on her ability, and she came through with flying

limit on the rate of Higgs production in this channel at 1.1 to 1.4 picobarns for Higgs masses from 105 to 145 GeV/c². This limit is a factor of 10.6 from the Standard Model cross section prediction at a Higgs mass of 115 GeV/c². By adding advanced search techniques like the ones used to find evidence for single top-quark production (see the Result of the Week in the December 13, 2006 issue of [Fermilab Today](#)), DZero plans to push this limit even lower. Furthermore, by combining these results with additional search channels, they can further eliminate hiding places for the Higgs (new results to be announced tomorrow at the FNAL Wine & Cheese seminar). Hopefully, by relying on the buddy system, the Higgs will never be lost again.



The likelihood discriminant used in the Matrix Element search for associated W-boson plus Higgs production.



The good performance of the Level-3 trigger / Data Acquisition system at the DZero experiment ensures data is efficiently recorded for use in all analyses. L3/DAQ experts include: Yunhe Xie, Tulika Bose (Brown University), Thomas Gadfort, Aran Garcia-Bellido (University of Washington) (front row, left to right), and Andy Haas (back row, Columbia University). Not pictured: Gordon Watts (University of Washington) and Dave Cutts (Brown University).

Accelerator Update

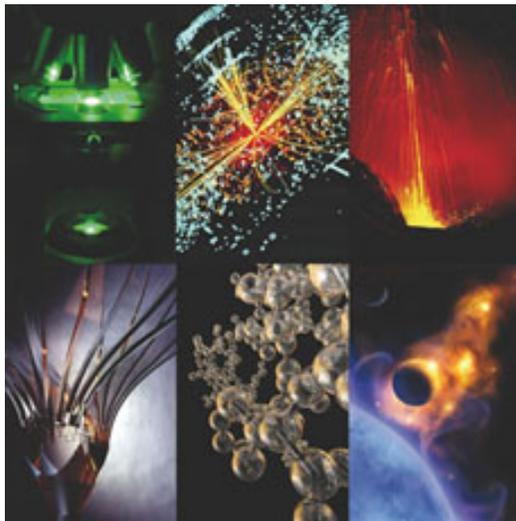
colors." Buckley will return to the University of Massachusetts at Amherst to finish her Ph.D. in ecology and evolutionary biology. She also plans to continue a career in science writing.

Raiford is completing her master's degree at Northwestern University's Medill School of Journalism. She has worked as a science and economics reporter for The Medill News Service, and was the Washington, DC-based reporter for the Madison Capital Times in Wisconsin. Her investigative science pieces have appeared in the Internet daily The Raw Story. She also spent three years producing 20-minute radio segments on biotechnology and science education for "Perpetual Notion Machine" on WORT-FM in Madison. Raiford says she loves writing about science and looks forward to the challenge of particle physics. "Usually I explain science for a lay audience," she said, "and this time I'll be explaining it for professionals who really know what they are talking about.

-- Siri Steiner

From iSGTW

EGEE-II: A Grid for Research



EGEE resources aid research in many scientific fields. *Image courtesy of EGEE*

Enabling Grids for E-science is a major European initiative to develop a grid for researchers. EGEE-II is the second phase of a four-year program, and includes 91 partners in 32 countries, with many other groups contributing to the project's work.

EGEE was originally developed to make grid resources available to European researchers, but is rapidly expanding to work with the global grid community. EGEE-II works closely with other grid initiatives such as DEISA, the

April 2-4

- One store provided 18 hours and 28 minutes of luminosity
- MTest T950 experiment completes its run
- Preaccelerator switched to the I- Source
- Recycler had emittance problems
- 13-hour shutdown for CDF on 4/3/07
- TeV store quenches during squeeze

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

In the News

The Beacon News

April 4, 2007:

Eyes on Fermilab after part explodes in Switzerland

BATAVIA -- In what might be a critical time for the future of Fermilab, the renowned laboratory took what Director Pier Oddone termed "a pratfall on the world stage" last week.

In a test conducted on March 27 in Switzerland, a part called a quadrupole magnet, designed and built by Fermilab for the Large Hadron Collider at the CERN laboratory in Switzerland, exploded.

The Large Hadron Collider is a 16-mile circular tunnel beneath CERN, the world's largest particle physics laboratory, and was expected to be on line this year. The effect this explosion will have on CERN's schedule is unknown, although Fermilab spokesman Judi Jackson said she doesn't believe it will have a negative impact.

[Read More](#)

Announcements

Upcoming Professional Development

Cascading Style Sheets (CSS): is an enhancement to HTML. It provides more control of page layout and text formatting which in turn makes it easy to apply the design of one page to multiple pages on your site. Learn to: Build attractive page layouts; precisely format and position text with the same level of control previously found only in desktop publishing software; create special effects such as drop shadows and highlighting; apply design decisions made for one page to a group of pages.

Adobe Acrobat: During this one-day session, you will learn to convert technical documents to PDF files, enhance and control PDF content

European supercomputing grid, Japan's NAREGI, and the Open Science Grid in the United States.

"EGEE is an ambitious program," said Bob Jones, the project's director, "but with the dedication of our many project members, we've been able to achieve a great deal in the last few years. We are helping make fundamental changes to the way modern research is carried out."

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Wisconsin Dells Coupon Book

Planning a trip to the Dells? Don't miss out on more than 150 discount coupons for lodging, food, entertainment, shops and activities. The book will pay for itself in the first two uses, and is good until December of 2007. Books normally sell for \$25.00 but the cost to Fermilab employees is \$20.25. These are not sold in the Dells. For more information contact the benefits office at x2548.

[Upcoming Activities](#)