

## Calendar

**Friday, October 21**

**8:30 a.m. - 6:00 p.m.** [TeV4LHC 2005](#)

[Workshop](#) - 1 West

**11:30 a.m. - 12:45 p.m.** Top Celebration:  
poster viewing, punch and cookies -  
Atrium

**1:00 p.m. - 5:00 p.m.** Top Turns Ten  
Symposium - Ramsey Auditorium

**5:00 p.m.** Top Turns Ten Reception -  
Atrium

**8:00 p.m.** [The Rocky Horror Picture Show](#) - Ramsey Auditorium

**Note:** There will be no Joint  
Experimental Theoretical Physics  
Seminar or Director's Coffee Break today

**Saturday, October 22**

**8:30 a.m. - 1:00 p.m.** [TeV4LHC 2005](#)

[Workshop](#) - 1 West

**8:00 p.m.** [Avner the Eccentric](#) - Ramsey  
Auditorium

**Monday, October 24**

**2:30 p.m.** Particle Astrophysics Seminar  
- Curia II

Speaker: M. Tripathi, University of  
California, Davis

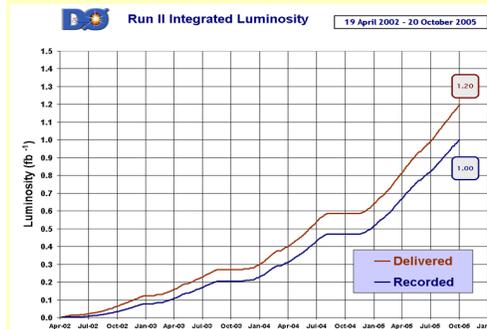
Title: A Search for Dark Matter with  
Cactus

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

**4:00 p.m.** All Experimenters' Meeting -  
Curia II  
Special Topic: Tevatron Crystal  
Collimation

## Weather

## DZero Reaches One Inverse Femtobarn of Luminosity



D0 passed the 1 fb<sup>-1</sup> mark at approximately 9:45 a.m. yesterday morning. This plot describes the integrated luminosity since April of 2002. (Click on image for larger version.)

DZero has collected one inverse femtobarn (1 fb<sup>-1</sup>) of luminosity in Run II with all of its detectors, which is about 10 times more data than was available from Run I. Another way to look at it: If you were to burn the data collected so far onto CDs and pile them on top of one another without their cases, they would form a stack as tall as the Eiffel Tower. "This is an important milestone," said DZero spokesman Jerry Blazey. "A major 2005 goal for DZero has been logging one inverse femtobarn with all detectors and utilization of that data in the search for Higgs, studies of the top quark and searches for new phenomenon."

Run II began in March 2001, with the collection of data from the full detector starting in April 2002. At the time, luminosity still was measured in nanobarns. Since then, the number of collisions delivered to the experiments has consistently increased. "The challenge is getting everything working together," said DZero run coordinator Bill

## Congratulations to Fermilab: A Letter From Ray Orbach

Today, Fermilab celebrates the [10th Anniversary](#) of the discovery of the top quark. Ray Orbach, director of the DOE Office of Science, sent this letter of congratulations.

October 21, 2005

Dear Colleagues and Friends,

It is my great honor, on behalf of the Department

of Energy, to congratulate Fermilab on the tenth anniversary of the discovery of the top quark. Fermilab is one of the Office of Science's most treasured and scientifically productive institutions, and the country and the world have been inspired by the exciting and pioneering research at the accelerator laboratory. At Fermilab, the energy, excitement and dedication of the scientists, the students, the engineers and the technicians, indeed of everyone, is as wonderful as it is contagious. We live in a scientific world. Our futures and our quality of life depend on it, and you play an important part of that future.



Raymond Orbach

[Read the full letter](#)

## Fermilab Theorist Giele Reflects on Top Discovery



Partly Cloudy 57°/40°

[Extended Forecast](#)[Weather at Fermilab](#)**Current Security Status**[Secou Level 3](#)**Wilson Hall Cafe****Friday, October 21**

- Beef Pepper Pot
- Buffalo Chicken Wings
- Cajun Breaded Catfish
- Sweet & Sour Pork over Rice
- Honey Mustard Ham & Swiss Panini
- Double Stuffed Pizza
- Carved Turkey

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

[Wilson Hall Cafe Menu](#)**Chez Leon****Wednesday, October 24****Lunch**

- Enchiladas
- Rice and Beans
- Pico De Gallo
- Pecan Rum Cake

**Thursday, October 20****Dinner****BOOKED**[Chez Leon Menu](#)

Call x4512 to make your reservation.

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Lee, adding that the Accelerator Division plays a large role in their success. About 2 million events per second occur at the DZero detector, of which a three-level trigger system narrows down the rate to 50 events per second.

But detector signals are of little use to scientists on their own. Data is run through DZero's reconstruction program to identify the locations of electrons, muons and other particles. "With Computing Division's help, we have sped up the reconstruction program by a factor of two to three for higher luminosity data," reconstruction program leader Qizhong Li said. One inverse femtobarn equates to about 1.8 billion recorded events, with about 640 million of those recorded this year alone.

With the data, physics coordinator John Hobbs and other scientists will be able to test theories about the top quark as well as try new analysis techniques involving the Higgs boson. "This is really an important jumping off point for the rest of the run as well as an important point within itself," Hobbs said.

—*Kendra Snyder*

**U.S. Delivers for the LHC**

Scientists around the world are awaiting the first LHC collision in 2007.



Walter Giele, of the Theory Group, came to Fermilab in 1989 and helped to discover the top quark.

Straight out of Leiden University in the Netherlands, Walter Giele began working on a computer simulation for a discovery that will forever mark Fermilab's history. When the top quark was revealed at Fermilab 10 years ago, Giele was one of the many scientists working behind the scenes, or more accurately, in the background.

Giele, of the Theory Group, came to Fermilab in 1989. "I was still a beginning postdoc so I had almost no experience with experiments and I came here and immediately I fell into the whole top quark project," he said. He brought an important skill with him, though: knowledge used to separate top quark signals from their impostors. More than 600 Feynman diagrams, a mathematical tool used to perform calculations, were needed to determine the top quark background. In the late 1980s, no technique was able to sort through so many diagrams. But Giele came to Fermilab with a thesis that offered the solution. Working on a program called VECBOS, Giele helped CDF and DZero scientists differentiate the top quark particle decay products from other processes producing a similar pattern. "It helped them make sure what they saw was really the top," he said.

Fermilab morale was high, Giele said.

## Info

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American scientists have just made good on a promise. In their decade-long commitment to help build CERN's LHC accelerator and the CMS and ATLAS detectors, they have reached their goal of 97 percent completion by September 2005. Thanks to hardworking physicists, technicians and engineers from Fermilab, BNL, ANL, LBNL, and over 70 universities around the country, the United States has completed LHC research, development, construction and testing on time.

This 97-percent milestone, officially known as "Critical Decision-4A," also marks a move into a new phase of U.S. contribution to the LHC. "As the completed pieces delivered to CERN are put into place, our role in the project has shifted from construction to becoming major players in the actual installation, commissioning and preparation for physics at the LHC," said Pepin Carolan, who is the U.S. LHC Federal Project director at Fermilab. "Over the next couple of years," he said, "we will help to bring about a successful conclusion."

In addition to the final installation tasks that the U.S. must coordinate with the international LHC schedule, there are a few remaining pieces on which to complete construction, including forward pixel and silicon trackers, (the latter of which was postponed due to delays in parts flow to the U.S.), the last two quadrupole magnets, and the trigger and data acquisition systems. The trigger and data acquisition systems are being delayed so the collider can have the latest technology for the first run.

The U.S. has made outstanding contributions to this international effort.

"Months before, there were rumors that the top was going to be found," he said. "We were all very curious about what was going to happen." Giele sees the top quark opening the door to other discoveries. He continues to work on programs to detect background in various experiments, with much of his current focus on the Large Hadron Collider at CERN.

To hear more stories from the top quark's discovery, attend the [Top Turns Ten celebration](#) from 1-5 p.m. today in Ramsey Auditorium.

—Kendra Snyder

## ILC NewsLine

## Four TESLA Cavities Delivered to Fermilab



One of the four ILC cavities being measured at Fermilab before it is sent to Cornell University for chemical buffering.

Four unprocessed TESLA cavities recently arrived at Fermilab for measurements and testing. The 9-cell, 1.3 Ghz cavities, manufactured by ACCEL in Germany, will be used to construct the first U.S. cryomodule for International Linear Collider R&D near the end of 2006.

[Read More](#)

## Announcements

"It's a huge science project," Carolan said about the 531 million dollar DOE-NSF venture, which represents the US's portion of the 30-nation collaboration.

"The project was done on time and on budget," said Dan Green, the U.S. CMS project manager. "Now we move forward to decisive preparation for the physics."

—Siri Steiner

#### In the News

### From *FYI: The AIP Bulletin of Science Policy News*, October 19, 2005

There is much of interest to the physical sciences community in the National Science Foundation's 2005 "Facility Plan" released on September 27. Many of the current and contemplated projects in the 61-page plan would provide cutting-edge instrumentation for the conduct of physical sciences research across a broad number of fields.

[Read More](#)

#### Construction in West Parking Lot

On Saturday, October 22, asphalt project prep work will be started in a large portion of the Wilson Hall west parking lot. The affected area will be barricaded off and will not be accessible for parking that day. Any vehicles parked in this area overnight Friday into Saturday morning will be towed to a spot farther out in the west lot. Normal parking can be expected Monday morning. Pedestrian access will be provided so that people can walk from unaffected parking areas to Wilson Hall on Saturday. The following Saturday, October 29, the area will be paved, weather permitting. The same parking restrictions will be in place. During the week between prep work and paving, pedestrians and drivers should be cautious of grooved surfaces and uneven pavement edges. Call Roads and Grounds with any questions or concerns (x3303).

#### FSGI01 Will Be Decommissioned On Dec 31, 2005

We are encouraging users of fsgi01 to migrate their interactive computer usage to other interactive machines in FNALU cluster. You can visit the following [link](#) for information on the cluster.

#### New Classifieds on Fermilab Today

New [classified ads](#) have been posted on Fermilab Today.

[Upcoming Activities](#)