

## Calendar

### Thursday, September 15

**2:30 p.m.** Theoretical Physics Seminar - Curia II

Speaker: D. Renner, University of Arizona  
Title: Generalized Parton Distributions from Lattice QCD

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

**Note:** There will be no Accelerator Physics and Technology Seminar today

### Friday, September 16

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

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

Speaker: L. Shabalina, University of Illinois, Chicago

Title: Top Production Cross Section and Branching Ratio Measurements at DZero

## Weather



Partly Cloudy **75°/52°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Fermilab Completes 2005 Staff Reduction

In March of this year, then-Fermilab Director Mike Witherell announced the necessity of reducing lab staff by 90 positions and introduced a voluntary separation program. The tight budget situation at the laboratory had made the staff reduction plan unavoidable. Seventy-seven employees signed up for voluntary separation and left the lab in May. This week, lab management announced the layoff of 13 employees to achieve the required level of 90 people.

—Kurt Riesselmann

## Science Grid This Week

### PHENIX Experiment Uses Grid to Transfer 270 Terabytes of Data to Japan

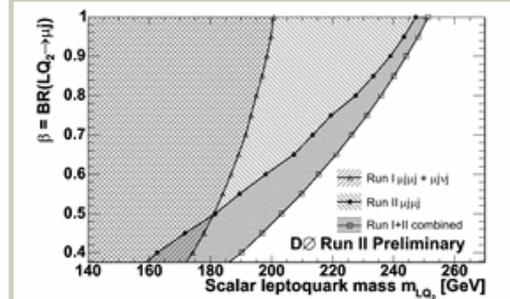
During the polarized proton-proton run that ended in June at the Relativistic Heavy Ion Collider at Brookhaven, grid tools were used by the PHENIX experiment to send recently acquired data to a regional computing center for the experiment in Japan. Brookhaven National Laboratory, on Long Island, New York, is home to the RHIC/ATLAS Computing Facility (RCF), which is the main computing center for experiments at RHIC and a Tier-1 computing center for ATLAS. The PHENIX regional computing center in Japan (CCJ) is at the RIKEN research centre on its Wako campus close to Tokyo.



Going into the polarized proton-proton

## Fermilab Result of the Week

### Searching for the missing link of quark and lepton symmetry



Excluded mass range of scalar second generation leptoquarks for various branching ratios of leptoquarks into a muon and a quark-jet. (Click on image for larger version.)

One of the remaining mysteries of particle physics is an intriguing symmetry between quarks (the constituents of protons and neutrons) and leptons (the most common example is the electron). In nature, quarks and leptons come in three seemingly matched sets. This intriguing symmetry could be explained by a new fundamental force, mediated through the exchange of a melded missing link, aptly called a leptoquark particle. Experimental limits and symmetry arguments lead to the conclusion that if leptoquarks exist, they come in three types, each interacting with one of the pairs.

All three versions of leptoquarks might be produced in proton-antiproton collisions at the Tevatron. The DZero collaboration has recently studied the pair production of leptoquarks that decay into a muon ( a heavy cousin of the electron) and a quark. Such events remain at large: no tracks of leptoquark decay into "normal matter" have been observed.

## Thursday, September 15

- Santa Fe Black Bean
- Sloppy Joe
- Stuffed Peppers
- Sauteed Liver & Onions
- Baked Ham & Swiss on a Ciabatta Roll
- California Pizza
- Crispy Fried Chicken Ranch Salad

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

[Wilson Hall Cafe Menu](#)

## Chez Leon

### Thursday, September 15

#### Dinner

- Chicken Sun Dried Tomato Rolls
- Coconut Shrimp Curry
- Lemon Grass Rice
- Ginger Souffle w/Rhubarb Sauce

### Wednesday, September 21

#### Lunch

- Spiced Cornish Hens
- Balsamic Rice w/Vegetables
- Bishop's Cake

[Chez Leon Menu](#)

Call x4512 to make your reservation.

## Search

## Search the Fermilab Today Archive

## Info

run, PHENIX faced the challenge that the RCF would be busy reconstructing and analyzing gold-gold and copper-copper data recorded in 2004 and 2005. The enormous polarized proton-proton data set was transferred to Japan to make use of the substantial computing resources at CCJ, which is comparable to the PHENIX portion of the RCF.

The PHENIX data acquisition can sustain a peak data rate of up to 600 megabytes per second, and runs at a typical rate of 250 megabytes per second while beam is stored in RHIC. The data were buffered at the experimental site before being transferred and archived in the RCF tape library. A 35 terabyte disk-storage system (about 60 hours at typical data rates) allowed PHENIX to archive and transfer data at a lower steady rate, taking advantage of various breaks in the flood of data. A transfer rate of 60 megabytes per second sustained steadily around the clock was able to keep up with the incoming data stream.

[Read More](#)

## Accelerator Update

### September 12 - 14

- During this 48 hour period Operations established one store that combined with an existing store provided the experiments with approximately 45 hours and 22 minutes of luminosity
- ComEd glitch causes loss of stash

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

## In the News

The absence of evidence can be recast as a limit on the mass of the leptoquarks. If leptoquarks are light they are easily produced at the Tevatron; if they are heavy, they are harder to catch. The lower mass limits, derived for leptoquarks that decay 100 percent of the time to muons and quarks (technically called second generation leptoquarks) is 251 GeV, if we combine data from the current and and past Tevatron runs. The lower mass limits, derived for leptoquarks that decay 100 percent of the time to muons and quarks is 251 GeV, if we combine data from the current and and past Tevatron runs. (Technically leptoquarks that decay to muons are called second generation leptoquarks.) The figure above shows the DZero exclusion limits if the decay to muons and quarks occurs 40 to 100 percent of the time.



Boris Tuchming of DAPNIA/SPP Saclay has worked on muon software used in this and many other analyses (left). Raimund Stroehmer of the University of Munich has worked on muon software and contributed to this analysis (center). Tim Christiansen of the University of Munich worked on this analysis (right). (Click on images for larger version.)

[Result of the Week Archive](#)

## Announcements

Fermilab Today is online at:

<http://www.fnal.gov/today/>

Send comments and suggestions to

[today@fnal.gov](mailto:today@fnal.gov)

[Fermilab Today archive](#)

[Hurricane Relief Page](#)

[Fermilab Today PDF Version](#)

[Fermilab Result of the Week archive](#)

[Fermilab Safety Tip of the Week archive](#)

[Linear Collider News archive](#)

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## From *The Inquirer*, September 13, 2005:

### CERN Itanium system powers large Hadron collider

A LARGE Hadron Collider that has a circumference of 27 kilometres and to start operations in 2007 is being designed and tested using an Itanium 2 cluster, Intel said.

The chip cluster is being used to run simulations of the heat flow around underground particle detectors.

CERN has told Intel that the system can export data at a rate of 600MB per second for 10 days to its sister labs around the world.

[Read More](#)

### Note the Change in Date for World Year of Physics Classroom Presentations

Brown Bag Orientation has been rescheduled for September 19, from 12:00-1:00 pm, Curia II.

### World Year of Physics Symposium for Students and Teachers

The symposium takes place on Saturday, October 8, from 8 a.m. to 3:15 p.m. at Fermilab's Ramsey Auditorium.

### Fermilab Happy Hour, organized by the GSA. Everyone is invited!

Are you interested in meeting new people at the lab? The Graduate Student Association (GSA) invites you to the Fermilab Users' Center this Friday, September 16, at 5:30 p.m. Meet up with old and new friends for a drink, and maybe make some plans for the evening or weekend. There's also a movie at the lab on Friday night at Wilson Hall - The Sting, at 8 pm - \$2 for students with lab ID!

### Theater for a Good Cause

TimeLine Theatre in Chicago presents the Tony-Award-winning drama *Copenhagen* on Sunday, September 25 at 6 p.m. 100 percent of the proceeds for this night will go to the American Red Cross Hurricane Relief Fund

[More Information](#)

### Building Manager Notice

The Ramsey Auditorium Lobby and access stairwell from the atrium level will be closed on Wednesday, September 14 and Thursday, September 15 due to area carpet installation. Please use designated alternate entrances and exits.

### Fermilab Arts Series

Natalie MacMaster will perform on Saturday, September 17 at 8:00. Tickets are \$28/\$14.

[Upcoming Activities](#)