

## Calendar

### Thursday, August 12

**10:30 a.m.** Academic Lecture Series - 1 West (NOTE LOCATION)

Speaker: L. Lyons, Oxford University

Title: Practical Statistics for Physicists: Bayes and Frequentism

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

Speaker: S. Vempati, Universita di Padua

Title: Lepton Flavour Violation in Grand Unified Theories and Its Consequences

**3:30 p.m.** Wine & Cheese- 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

### Friday, August 13

**3:30 p.m.** DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO JOINT

EXPERIMENTAL THEORETICAL PHYSICS SEMINAR THIS WEEK

## Wilson Hall Cafe

### Thursday, August 12

Southwestern Chicken Tortilla soup

Philly Style Cheese Steak \$4.75

Baked Fish with Roasted Leeks and Peppers \$3.75

Tomato Basil Chicken Parmesan \$3.75

Classic Cuban Panini \$4.75

Four Cheese Pizza \$2.75

Marinated Grilled Chicken Caesar Salads \$4.75

[Wilson Hall Cafe Menu](#)

[Chez Leon](#)

## Weather

## Experimentalists and Theorists Converge at the Tevatron Connection



Theorist Tao Han of the University of Wisconsin, Madison, presented at the Tevatron Connection earlier this week. (Click on image for larger version.)

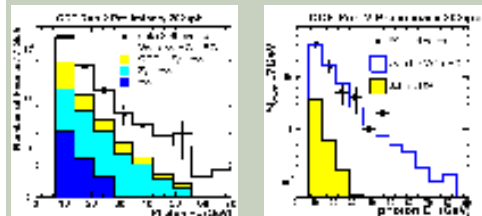
Monday and Tuesday, about 200 physicists from Fermilab and collaborating institutions gathered in Ramsey Auditorium for the Tevatron Connection, a series of presentations and discussions on Run II physics at the Tevatron. Members of the CDF, DZero and MiniBooNE experiments presented new results; theorists followed with presentations on the same topics and facilitated discussion between presenters and the audience.

"We've never before had this kind of interaction between theorists and DZero and CDF," said Young-Kee Kim, CDF co-spokesperson and one of the conference organizers. "I've gotten a lot of good feedback from people, and I hope we have more occasions like this."

CDF and DZero presented many new and updated results, including searches for supersymmetry, extra dimensions, Higgs bosons, leptoquarks and single-top

## Fermilab Result of the Week

### CDF Probes Electroweak Forces



Photon transverse momentum spectrum,  $E_T(\gamma)$ , for W+gamma (left) and Z+gamma (right) candidates selected in the leptonic decay channel. The data are compared with the Standard Model and background expectation. (Click on images for larger version.)

Interactions between elementary particles are described by the exchange of bosons. Within electroweak theory, these force propagators are the W and Z bosons, and the photon. High energy proton antiproton collisions at the Tevatron produce these particles singly in large quantities, but they are rarely produced in pairs. Measuring the production rate of two of these electroweak bosons in a single event probes the interactions between these particles, and allows experimental tests of the Standard Model's electroweak theory.

A group of CDF researchers has analyzed more than 200 pb<sup>-1</sup> of collisions looking for events containing both a Z and a gamma, or a W and a gamma. [The analysis](#) is based upon selecting the electron and muon (lepton) decay channels of the Z or W, and then identifying an isolated photon in those events having  $E_T > 7$  GeV, and delta R separation from the lepton  $> 0.7$ . The measured cross section, or production rate, for W+gamma is  $19.7 \pm 2.8$  pb, and



Chance Showers **63°/46°**

[Extended Forecast](#)

[Weather at Fermilab](#)

### Current Security Status

[Secou Level 3](#)

### Search

[Search the Fermilab Today Archive](#)

### Info

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](#)

[Fermilab Today PDF Version](#)

[Fermilab Result of the Week archive](#)

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

[Linear Collider News archive](#)

[Fermilab Today classifieds](#)

[Subscribe/Unsubscribe to Fermilab Today](#)

production; measurements of the mass of the top quark; lifetimes, masses and decays of B mesons; and results from QCD physics. MiniBooNE, which has seen 380,000 neutrino events so far, presented results from muon neutrino data. On Monday evening, participants and their families gathered in and around Kuhn Barn for a mid-conference dinner and party.

"I thought it went very well," said DZero co-spokesperson John Womersley, a member of the organizing committee.

"The talks were good, but the discussions were even better."



On Monday night, participants and their families attended the Tevatron Connection party at the Kuhn Barn. (Click on image for larger version.)

### Accelerator Update

#### August 9 - August 11

- During this 48-hour period Operations established one store that provided approximately 29 hours and 15 minutes of luminosity to the experiments.

- Pbar stack was lost
- Main Injector had power supply problems

[View the current accelerator update](#)

[View the Tevatron Luminosity Charts](#)

### In the News

for Z+gamma is  $5.3 \pm 0.7$  pb, both in good agreement with theoretical predictions. The W-gamma and Z-gamma production properties, such as the transverse energy spectrum of the produced photon, are also well modeled by the electroweak prediction. These measurements, in combination with those of WW, WZ and ZZ pairs, will be used to place limits on physics beyond the Standard Model, including searches for compositeness of the W and Z bosons.



The CDF W/Z + gamma working group is (left to right) Beate Heinemann (Liverpool), Michael Kirby (Duke), Helen Hayward (Liverpool), Al Goshaw (Duke), and Naho Tanimoto (Okayama). (Click on image for larger version.)

### Result of the Week Archive

### Announcements

#### Wilson Hall Power Outages

Listed below are the proposed dates and times for the upcoming 'shutdown' related power outages that will affect Wilson Hall: August 28 and 29 for 8 hours starting at approximately 7:00 a.m.

September 13 for half an hour starting at approximately 7:00 a.m.

September 18 for 8 to 10 hours starting at approximately 7:00 a.m.

September 24th for half an hour starting at approximately 7:00 a.m.

For more information, contact the Wilson Hall Building Manager, Stan Boyson.

#### Cruisin' the Lab August 17

The next Cruisin' the Lab will be Tuesday, August 17 at 11:30 a.m. and 12:15 p.m.

Docents from the Education Office will

## **From *Nature Magazine*, August 12, 2004**

### **Science in the movies: Hollywood or bust**

*Last month, a handful of scientists who have toyed with the idea of writing for the movies were given a masterclass by Tinseltown's finest. Jonathan Knight joined them.*

In the 1997 disaster movie *Volcano*, whole sections of Los Angeles are demolished by lava. For advice on the film, the production crew turned to Christopher Vogler, one of Hollywood's top story consultants. "Lava actually makes a tinkling sound like glass as it cools," Vogler says, "but they wanted it to roar like a freight train. Any volcanologist who saw the movie probably thought it was a comedy."

[read more](#)

## **FYI: AIP Bulletin of Science Policy News, August 10, 2004**

### **Record Federal Support for Academic S&E Activities**

An NSF survey shows that federal support to universities, colleges, and nonprofit institutions for science and engineering activities reached a new peak in fiscal year 2002, with the Department of Health and Human Services providing over 50 percent of that support. According to NSF, "Federal agencies obligated a new high of \$24.4 billion for academic science and engineering (S&E) activities in FY 2002." This is an increase of \$1.9 billion, or more than 8 percent, over the FY 2001 level of \$22.5 billion. The previous year's growth was even higher, climbing 13 percent from FY 2000 to FY 2001. This information is reported in a four-page June 2004 NSF InfoBrief entitled "Federal Science and Engineering

give tours of the Interpretative Trail. The group will meet at the Lederman Center. There will be no van rides from Wilson Hall to the Lederman Center. If you would like to go on the tour, please be sure to wear long pants and comfortable walking shoes. Mosquito repellent with DEET would also be helpful. Call x3092 or email [edreg@fnal.gov](mailto:edreg@fnal.gov) to sign up for the tour.

### **New Book Purchase Suggestion Lists**

New Book purchase suggestion lists for the week of August 10 are now [available online](#). These include Majors book lists in four subject areas. There is also an Amazon suggestion list in the form of a shopping cart, viewable by entering the password "library."

### **Recreation Office Closed Today**

Due to unforeseen circumstances, the Recreation Office will be closed today. All other Recreation sites will be open as usual, such as the Village Pool, Day Camp and the Recreation Facility.

### **CDF Posters Available in Public Affairs**

Free posters from the CDF experiment are available in limited quantities to anyone who would like one. If you are interested, stop by the Office of Public Affairs.

### **Wilson Hall Interior Window Washing This Week**

The cleaning crew started washing the interior windows in Wilson Hall this week. Please remove any papers that are taped to the windows in your office. Please move any papers or other items on your desk that are near the windows. For questions, contact Enixe Castro at x2798. The windows will be cleaned according to this schedule:

Obligations to Academic and Nonprofit Institutions Reached Record Highs in FY 2002" (NSF04-324).

[read more](#)

August 12: 6th, 5th, 4th floors  
August 13: 3rd, 2nd, 1st floors  
August 16: Ground floor and mezzanine  
August 17-18: Atrium