

## Calendar

### Thursday, August 25

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

Speaker: P. Ko, Korea Advanced Institute of Science and Technology

Title: Partially Composite Two-Higgs Doublet Model

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

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

### Friday, August 26

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

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

Speaker: D. Ambrose, Fermilab  
Title: Top Mass Measurement with Dilepton Channel Using Template Methods

Speaker: D. Whiteson, University of Pennsylvania

Title: Top Mass Measurement with Dilepton Channel Using Matrix Element

## Weather



Mostly Cloudy **81°/63°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Fermilab Summer Students: Focus on Cesar Maldonado



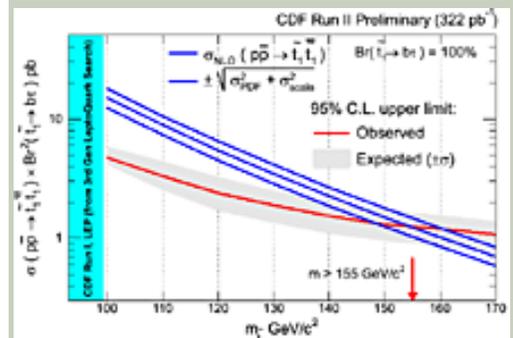
Cesar Maldonado was chosen by the Mexican Division of Particles and Fields to participate in Fermilab's summer internship program. (Click on image for larger version.)

Fermilab attracts scientists from around the world, and the lab's summer internship programs are no exception. Cesar Maldonado traveled from San Luís Potosi, Mexico to participate in Fermilab's Internships for Physics Majors (IPM) program this summer. He spent 10 weeks working on the Main Injector Particle Production (MIPP) experiment, doing hands-on laboratory work and analyzing the experiment's data.

"I spent a lot of time reading to learn about the experiment and the programs I had to use," said Maldonado, who is studying mathematical physics at the Universidad Autónoma de San Luís Potosi. MIPP's goal is to make precise measurements of particle production cross sections using several different types of targets and detectors. Maldonado's first major project was to help with the repair of a multi-wire proportional chamber, a device that allows scientists to determine the charge of a particle by looking at its path through

## Fermilab Result of the Week

### Heaviest Top! Lightest Stop?



The measured cross section upper limit (red) and expected cross section (blue) for stop events is shown as a function of stop mass. SUSY models predicting cross sections above the red curve are excluded by this analysis. Note that 1 pb (pico-barn) of cross section on the vertical axis corresponds to 322 stop events being produced at the Tevatron. (Click on image for larger version.)

Supersymmetry (SUSY) is a leading theory that uniquely opens the possibility of directly connecting the Standard Model (SM) of quarks and leptons with an ultimate unification of the fundamental interactions in nature. The theory predicts a SUSY partner for each of the SM particles. Based on the precise measurements we have of the top quark and W boson masses and their interaction strengths, the theory prefers a spectrum of SUSY particles in the range 100 to 1000 times the proton mass.

The top is the heaviest (185 times the proton mass) of the Standard Model's six types of quarks and the last to be discovered, in 1995. However, its SUSY partner (supersymmetric top quark or stop) may be the lightest SUSY particle, so pairs of stops may be copiously produced in collisions at the Fermilab Tevatron and thus the stop may be the first of six supersymmetric quarks to be

## Thursday, August 25

Minnesota Wild Rice with Chicken Soup

Tuna Melt on Nine Grain \$4.85

BBQ Ribs \$3.75

Chicken Casserole \$3.75

Buffalo Chicken Wrap \$4.75

Cheesy Breadsticks \$3.50

Chicken Pecan Salad \$4.85

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

[Wilson Hall Cafe Menu](#)

## Chez Leon

### Thursday, August 25

#### Dinner

Melon and Prosciutto

Scallops in Maple Cream

Sautéed Pea Pods

Black Forest Parfait

### Wednesday, August 31

#### Lunch

Grilled Duck Salad with Green Beans

Pear Almond Strudel

[Chez Leon Menu](#)

Call x4512 to make your reservation.

## Search

Search the Fermilab Today Archive

## Info

an electromagnetic field. "Some wires in the chamber needed to be replaced because sparks had damaged them," Maldonado explained. "We also cleaned some burnt cathodes and fixed a wire that was out of place."

Maldonado also worked on a computer program that calculates MIPP's average data acquisition rate per hour, the hourly average of spills per minute, and the average number of events in each run. "We need to have these plots to keep an accurate status record of the experiment," he said.

While Maldonado is entering his third year of college, he will not be returning to his typical routine this semester. Instead, he is planning to study aboard at the Universitat de le Illes Balears in Palma de Mallorca, Spain. He hopes to continue his studies in graduate school and eventually work in theoretical physics. "Coming to Fermilab was one of my dreams, and I really hope I can come back one day," he said.

—Elizabeth Wade

## Science Grid This Week

### Brazil Makes Strides Toward Addressing the Digital Divide

A meeting between two physicists at a conference in 2001 has helped lead to a success in addressing the digital divide—the difference in computing and connectivity between the developed and the developing world.

"I was concerned about upgrading Brazil's computing capacity for high energy physics," said Alberto Santoro from Rio de Janeiro State University (UERJ). "After

discovered. A team from CDF tests a particular class of SUSY models where the stop is too light to decay into other SUSY particles, and favorably decays into a tau lepton and a bottom quark instead of an electron or muon or lighter quarks.

CDF has developed a special trigger to effectively detect such events. Analyzing 322 pb<sup>-1</sup> of data (or about 15 trillion proton-antiproton collisions) collected by the trigger, no signal is observed. The team uses this result to exclude regions of the stop mass below 155 GeV (165 times the proton mass).

As Run II continues, more data and improved analysis techniques will help push the sensitivity even higher, and may ultimately reveal evidence for new physics.



The analysis team: Clockwise from top left, Richard Lander, Maxwell Chertok, Alexei Safonov (UC Davis); Vadim Khotilovich and Teruki Kamon (Texas A&M). (Click on image for larger version.)

[Result of the Week Archive](#)

## Accelerator Update

Fermilab Today is online at:

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

Send comments and suggestions to

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

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reading a paper on grid computing, I approached one of the paper's authors, Harvey Newman from the California Institute of Technology, to talk about Brazil getting involved in grids."

The International Committee on Future Accelerators Standing Committee on Interregional Connectivity, which Newman chairs, had just decided that the digital divide would be a main focus of its activities. The committee started with Latin America, holding its 2002 workshop at UERJ. Representatives from Brazil's National Research and Education Network (RNP), network providers and the local community attended to discuss network requirements for scientific research.

[Read More](#)

### In the News

#### From *Interactions News Wire*, August 24, 2005

#### Bon Voyage - heart of world's biggest physics experiment leaves the UK

After years of painstaking effort, the last of the 4 barrels that make up the central part of the Semiconductor Tracker (SCT), the heart of the biggest physics collaboration in the world has today (August 24th) left Oxford for its new home at the European Particle Physics Laboratory, CERN, near Geneva.

At CERN, physicists from around the world are assembling the Large Hadron Collider (LHC) which will send two counter-rotating beams of particles round an underground ring at 99.999999 per cent of the speed of light. When the beams are brought into collision, a shower of new particles will be produced

### August 22 - August 24

- During this 48 hour period Operations established one store that combined with an existing store provided the experiments with approximately 44 hours and 58 minutes of luminosity
- MCenter held off due to LCW trouble

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

### Announcements

#### International Folk Dancing

International Folk Dancing will meet Thursday, Aug. 25, in Wilson Hall's Ramsey Auditorium. Dancing begins at 7:30 p.m. with teaching earlier in the evening and request dancing later on. Newcomers are welcome and you do not need to come with a partner. Dancing will continue in the Auditorium until Sept. 15, when it will return to Kuhn Barn. Info at 630-584-0825 or 630-840-8194 or [folkdance@fnal.gov](mailto:folkdance@fnal.gov).

#### Power Outage

The power will be cut to EAD Operations Center (although there should be a generator there to keep power up for the network and computers) on Saturday, August 27, from 7 a.m. to 4:30 p.m.

#### Building Manager Notice

In an effort to enhance the overall dependability and performance of Wilson Hall elevators, the building manager has scheduled extensive maintenance and repairs affecting all four cars. Every car will be taken out of service for four to five days until completion of the project. Only one car will be affected at any given time during these repairs.

reproducing conditions similar to those immediately after the Big Bang. These will be studied at four detectors around the ring. The largest of these detectors is called ATLAS and at its heart lies the SCT tracking the movements of the charged particles produced in the high-energy collision.

[Read More](#)

### **Vending Machines Out of Service**

Vending machine services will not be available for 2 to 3 days this week. The vending machine operation for the entire Lab is being transferred to another organization during this time. Full service should be restored by the end of the week. [More Information](#)

[Upcoming Activities](#)