

## Calendar

### Thursday, August 4

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

Speaker: H. Nunokawa, Pontificia Univ. Católica do Rio de Janeiro

Title: Establishing Neutrino Mass Hierarchy and CP Violation by Superbeam with Twin Megaton Detectors

**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 5

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

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

Speaker: A. Taffard, University of Illinois, Urbana-Champaign

Title: Top Pair-Production Cross Section and a Search for Anomalous Heavy Flavor Decays in  $W+Jets$  at CDF

**8:00 p.m.** Fermilab International Film Society - Ramsey Auditorium

Title: "The Great Escape"

## Weather



Chance Thunderstorms **88°/61°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Study of Fermilab Insects Points to Lack of Diversity



An insect visits one of Fermilab's prairie flowers. Insect pollinators are essential to the success of the reconstructed ecosystem.

A study of insect pollinator populations in Fermilab's reconstructed prairies indicates that insect diversity has decreased on site. *Plant-Pollinator Associations in Reconstructed Prairies at Fermilab* was published in the July 2005 issue of the Chicago Wilderness Journal, and was co-authored by Sue Sheehan and Dee Huie, docents at the Lederman Science Center, and Rod Walton, environmental consultant and director of the Fermi National Environmental Research Park. Supported by funds from Chicago Wilderness and URA, the team surveyed pollinator activity on certain plant species during the summers of 2003 and 2004, and compared their data to similar historical studies of the same species and the same general area.

"The biggest surprise was the Bombus," or bumble bee, said Huie. "There was a small study done of them in 1993, and the population seemed very diverse then." While only 25% of the Bombus population belonged to the *B. impatiens* species in 1993, 85% of the Bombus are *B. impatiens* today. The team also found far

## Fermilab Result of the Week

### Looking for sTop Signs



Pedrame Bargassa of Rice University has been looking for signs of sTop. These seem somewhat harder to find than STOP signs which are readily found at Fermilab and elsewhere. (Click on image for larger version.)

One of the great challenges facing science today is the unification of the forces of nature. One theoretical way to unify the interactions of the elementary particles is to introduce an extension to the Standard Model of particle physics called supersymmetry (SUSY). In this extended theory, new particles are introduced that are partners of the known particles. For example, the Top quark, which was discovered at Fermilab by the DZero and CDF experiments, would have a SUSY partner referred to as a sTop. SUSY particles could also be the mysterious dark matter that pervades the universe and our galaxy, so it is of great importance to find these particles if they exist.

Interestingly enough, the sTop--the superpartner of the heaviest quark of the Standard Model--might be the lightest SUSY quark. At DZero, a sTop pair created in a proton-antiproton interaction could decay into a pair of bottom quarks,

## Thursday, August 4

Tomato Florentine Soup  
Grilled Chicken Cordon Bleu Sandwich  
\$4.85  
Chimichangas \$3.75  
Chicken Marsala \$3.75  
Smoked Turkey Melt \$4.75  
Italian Sausage Calzones \$3.50  
SW Chicken Salad with Roasted Corn  
Salsa \$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 4

#### Dinner

Smoked Salmon Plate  
Veal Picatta  
Spinach Fettuccini w/Tomatoes & Cream  
Chocolate Fondue w/Fruit

### Wednesday, August 10

#### Lunch

Thai Beef & Vegetable Salad  
Banana Bourbon Cake w/Cream Anglairs

[Chez Leon Menu](#)

Call x4512 to make your reservation.

## Search

Search the Fermilab Today Archive

## Info

more *Apis mellifera*, or honeybees, than had ever been recorded before. "We definitely thought we would see a more diverse group," said Sheehan.

The lack of pollinator diversity may significantly affect Fermilab's prairie. "The prairie is never going to be sustainable without pollinators," Huie said. Since the prairie reconstruction efforts began in 1975, the land has required regular reseeding and a great deal of maintenance. If diverse pollinator populations are encouraged, the ecosystem may be more successful. "The more complete sets of pollinators you have, the more healthy and robust the plant populations will be," Walton explained.

The team hopes that their paper will serve as a springboard for future investigations. "We need a lot more information," in order to draw complete conclusions or suggest solutions to possible problems, Walton said.

--Elizabeth Wade

## Science Grid This Week

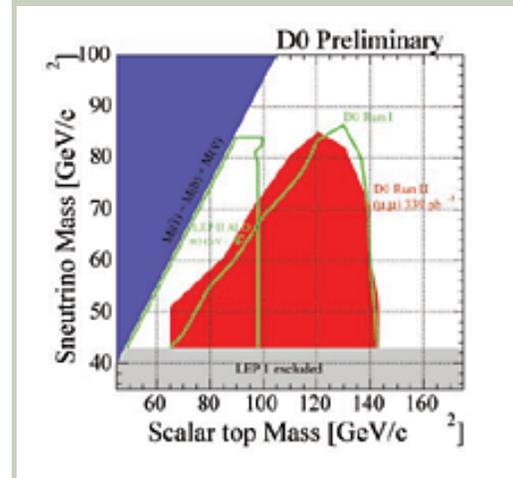
### DISUN Connects Universities to the LHC Through Grid Computing

Scientific research and grid computing at universities across the country took a big step forward recently with an award of \$10 million from the National Science Foundation to the Data Intensive Science University Network. DISUN will allow over 200 physicists at U.S. universities to study the fundamental properties of particles and forces by providing access to data from the Compact Muon Solenoid experiment at the Large Hadron Collider at CERN in Geneva, Switzerland.

leptons and sneutrinos, the latter decaying into neutrino and another SUSY particle.

A first search for the sTop has focused on final states with two muons. These final states are overwhelmingly dominated by the decays of the Standard Model Z boson into muons as well as multijet events involving muons. Making maximum use of the topological difference between Z and sTop events, only one b-tagged jet is required, leading to a diminished contamination after the final selection, while preserving the sTop signal.

No sign of SUSY has yet been observed at low sTop masses. With  $0.5 \text{ fb}^{-1}$  data in both dimuon and emu final states, a higher range of sTop masses will soon be explored.



Values of sTop mass vs sneutrino mass excluded by this study. (Click on image for larger version.)

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## Accelerator Update

### August 1 - August 3

- During this 48 hour period Operations established two stores that combined with an existing store provided the experiments with approximately 41 hours and 26 minutes of luminosity
- Pelletron network problems

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

## In the News

### From *The New York Times*, August 2, 2005

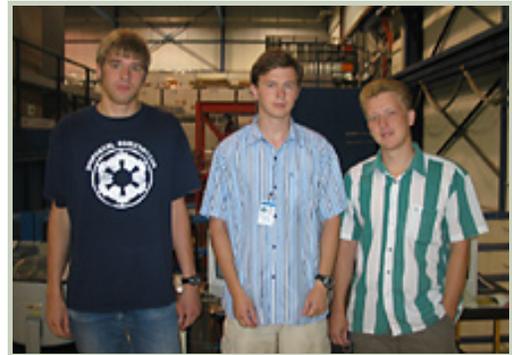
#### Lacking Hard Data, Theorists Try Democracy

By Dennis Overbye

TORONTO — Science is not done by popular vote. But nothing can be taken for granted when string theory is the subject.

So when Stephen Shenker, a Stanford University theorist who was moderating a panel discussion here on the future of the putative theory of everything, asked for a show of hands on the fate of a strange number known as the cosmological constant, some 400 physicists and mathematicians were happy to swallow their doubts and vote.

The panel discussion, titled "The Next Superstring Revolution," took place at Strings05, the latest yearly congress of string theorists, held in mid-July at the University of Toronto. That it was a somewhat unusual occasion was not lost on anyone. No other field of science, said Jacques Distler, from the University of Texas, would be presumptuous enough to



Alexei Ferapontov and Sergei Efremov of IHEP Russia, and Grigori Safronov of ITEP Russia have made important contributions to the muon system used in this analysis. (Click on image for larger version.)

[Result of the Week Archive](#)

## Announcements

### Fermilab Film Series

The Fermilab Film Series will present "The Great Escape" on Friday, August 5 at 8:00 p.m. in Ramsey Auditorium. Tickets are \$5. [More Information](#)

### Fermilab Arts Series

The Fermilab Arts Series will present the World Dance Showcase on Saturday, August 6, 2005 at 8 p.m. Tickets are \$18. [More Information](#)

### Tour of Victorian Mansion

Join NALWO on August 10 for a private tour of Ellwood House, an 1879 Victorian mansion in DeKalb, IL, built by millionaire and barbed wire manufacturer Isaac L. Ellwood. Admission is \$5.50 per adult; \$1.00 per child 14-under. Please bring a picnic lunch and beverage. Carpools will be arranged to leave from the Lederman Science Center at 9:30 a.m., and the tour is scheduled for 10:30 a.m. The group will return to the Lederman Science Center by 2:00 p.m. To register or for further information, please contact: [Cynthia Albright](#) (630)232-7476, or Rose Moore (630)208-9309.

### Batavia Fine Arts Festival

have a meeting about its next revolution.

But then no other field of science is like string theory, which says that nature with all its forces and particles is composed of tiny strings wriggling in 10 dimensions. In the last two decades it has taken academia by storm, and it has been rocked by periodic reinventions.

[Read More](#)

Plan to attend the Batavia Fine Arts Festival on Sunday August 14 at 12 Noon! The Fermi Singers will be performing a carefully chosen repertoire for your listening pleasure.

[More Information](#)

### **SciTech Exhibit**

The SciTech Museum in downtown Aurora presents the traveling exhibit, "Masters of the Night: The True Story of the Bats." Learn more about these flying mammals and the hundreds of species that exist. The exhibit runs through September 11. Admission is \$7 and includes the [Outdoor Science Park](#). To obtain a \$1-off coupon, visit [www.scitech.museum](http://www.scitech.museum).

[Upcoming Activities](#)