

## Calendar

### Thursday, September 8

**11:00 a.m. - 2:00 p.m.** Fermilab Health Fair - Wilson Hall Atrium

**2:30 p.m.** Theoretical Physics Seminar - Curia II - Speaker: D. Forde, Saclay  
Title: All-n Amplitudes in QCD

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

**6 p.m.** [UEC/GSA Career Night](#) - One West

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

### Friday, September 9

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

**4:00 p.m.** Joint Experimental Theoretical Physics Seminar - 1 West  
Speaker: M. D'Onofrio, University of Geneva - Title: B-Jet Production Cross Section at CDF

## Weather



Partly Cloudy **81°/59°**

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secou Level 3](#)

## Wilson Hall Cafe

## Fermilab Responds to Hurricane Katrina URA Accepts Donations for SIST Students



Undergraduate interns in the SIST program, including Trivia Frazier (5th from left), Marla Singleton (6th from left) and Donovan Tooke (far right), whose schools have been closed due to Hurricane Katrina. (Click on image for larger version.)

URA is accepting donations on behalf of these and other science and engineering students who need textbook relief due to Hurricane Katrina. Checks should be made payable to Universities Research Association and sent to the Accounting Department, Mail Station 112, Attn.: Cindy Conger. Please indicate on your check that it is intended for Katrina Textbook Relief.

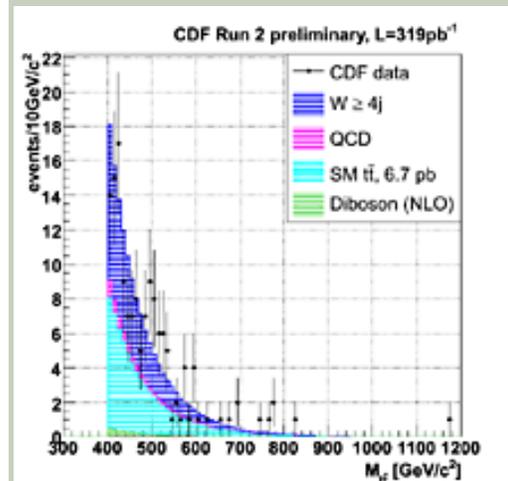
URA is a tax-exempt 501(c)(3) organization. Your donation is tax deductible to the extent allowed by law. Consult IRS Publications 526, "Charitable Contributions" for help in determining your allowable tax deduction.

[More Information](#)

## Russian Summer Student Will Soon Leave Fermilab

## Fermilab Result of the Week

### Do Top Quarks Resonate?



Results from the CDF search for new particles decaying to top quark pairs. Shown is the reconstructed invariant mass distribution for top pair candidates in the CDF lepton+jets sample. The data is represented by the dots and the contributions from the main Standard Model (SM) sources are in color. Even though an intriguing peak is observed at around 500 GeV, for now the data is still in reasonable statistical agreement with the SM expectation. (Click on image for larger version.)

A large part of the Run II physics program is dedicated to the study of the top quark and its interactions with other particles.

Many theories that predict physics beyond the Standard Model (SM) postulate heavy particles that could be produced at the Tevatron and decay into top quark pairs. One way to search for these particles is to reconstruct the mass of the pair and, if such a particle existed, a peak or "resonance" in the mass spectrum could be observed.

A team from the University of Florida working at the CDF experiment has recently completed a search for such a particle using Run II data. Their analysis uses a novel technique to reconstruct

## Thursday, September 8

- Southwestern Chicken Tortilla
- Philly Style Cheese Steak
- Chicken Pot Pie
- Tomato Basil Chicken Parmesan
- Southwestern Turkey Wrap
- 4 Cheese Pizza
- Marinated Grilled Chicken Ceasar Salad

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

[Wilson Hall Cafe Menu](#)

## Chez Leon

### Thursday, September 8

#### Dinner

- Vol-au-Vents w/Mushroom Duxelles
- Swordfish Kabobs
- Onion Risotto w/Corn & Bacon
- Banana-Walnut Spring Rolls w/Caramel Rum Sauce

### Wednesday, September 14

#### Lunch

- Chili Crusted Pork Loin
- Apple Salsa
- Roasted Sweet Potatoes
- Apple Walnut Cake

[Chez Leon Menu](#)

Call x4512 to make your reservation.

## Search

[Search the Fermilab Today Archive](#)

## Info



Student Sergei Tsaregorodtsev will be going back home soon. (Click on image for larger version.)

Sergei Tsaregorodtsev is one of eight Russian students who have come to work at Fermilab for the summer.

Tsaregorodtsev will be leaving on September 28, but he has mixed feelings about it. Between creating a more user-friendly interface for the GUI computer program and playing basketball in the village after work, Tsaregorodtsev has managed to make himself at home here. "My parents wrote letters asking if I missed them," he said. "But I was having too much fun to say yes."

Tsaregorodtsev's visit is the result of an outreach effort that was created by Victor Yarba, who is the head of the Technical Division. Yarba says the undergraduate students' time at Fermilab gives them a chance to "see how they like the technology and a chance to see who is who." He started this program in 2001, with the goal of attracting high-quality students to American PhD programs in accelerator physics. And if Tsaregorodtsev is a good model, then Yarba's hope might pan out; Tsaregorodtsev, who had never left Russia before this summer, has already met with American professors and plans to apply for a PhD program in accelerator physics at the Illinois Institute of

probabilistically the invariant mass of the system with improved accuracy.

This analysis approach allows them to exclude the existence of new heavy particles predicted by a theory called "topcolor" with masses below 700 GeV. This is currently the world's best limit, surpassing the CDF Run I result by 220 GeV!

The data shows an intriguing peak at about 500 GeV. The analysis favors an extra 30% contribution to the top pair production cross section originating from resonance production. Statistical tests show that this is not a large enough effect to get too excited just yet. CDF and the Florida team looks forward to include more data in the analysis and to test further the hypothesis of a new 500 GeV particle that makes top quark pairs resonate.



The University of Florida analysis team: Valentin Necla (right) performed this analysis for his Ph.D. thesis and worked together with Roberto Rossin (left) and Jacobo Konigsberg (middle). (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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Technology. "This has been a wonderful opportunity for me," said Tsaregorodtsev. "There is nothing this big in Russia. I never could have done something like this if I hadn't come here."

—*Siri Steiner*

### Science Grid This Week

## Grid3 Ends Productive Two-Year Run

The first U.S. grid to allow multiple virtual organizations to share resources in a common infrastructure ended



its successful two-year run on September 1. Researchers from several scientific fields used Grid3 to test their new grid-enabled applications, learn how to operate and work within a grid environment, and produce scientific results.

"New discoveries in astrophysics, simulations in particle physics, earthquake engineering optimizations and analyses of protein sequences in biology all benefited from extended use of Grid3 resources," said Fermilab's Ruth Pordes, one of the Grid3 coordinators. "These results would not have been possible without interfacing individual projects' computing resources to Grid3's common infrastructure."

Grid3 was initially created to demonstrate specific technologies at the Supercomputing 2003 conference. It proved so successful that operation was continued well after the conference, to the benefit of participating scientists. Grid3 represented breakthrough collaboration between the National Science Foundation-

### September 5 - September 7

- During this 48 hour period Operations established one store that combined with an existing store provided the experiments with approximately 40 hours of luminosity
- Booster EAPS problems
- M05 LCW leak

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

### Announcements

#### World Year of Physics Picnic

It's the World Year of Physics and we are making a special effort to visit school children and tell them about the fun of physics. Visiting is fun too! If you would like to help, please join us at a picnic this Friday, 12:00 - 1:00 at the Users Center. You only need to bring your enthusiasm, we will provide the rest. Please tell Nancy Lanning at [lanning@fnal.gov](mailto:lanning@fnal.gov) by Thursday at 4:00 pm if you can come.

#### NALWO Star Party

Come see planets, the moon, star clusters, maybe a comet! Saturday, September 10, 2005 8:00 p.m. Location: Just west of Sauk Circle House. Please park on Sauk Blvd. or Sauk Circle. (In case of bad weather, this will be rescheduled) RSVP to Susan Kayser ([sukayser@fnal.gov](mailto:sukayser@fnal.gov)) 630.876.5998 or if you have questions.

#### Art Lecture

October 6th: 4-5pm Curia II, lecture by Chris Palmer. October 6th: 5-7pm Fermilab Art Gallery, Artist Reception. October 6th: 7-8pm Curia II, lecture by Lane Allen.

funded GriPhyN and iVDGL projects, the Department of Energy's Office of Science-funded PPDG project, the U.S. ATLAS and U.S. CMS particle physics experiments and the Condor and Globus teams—collaboration that will continue with the Open Science Grid infrastructure.

[Read More](#)

### In the News

#### From *The Economist*, September 1, 2005

**Strange behaviour: Particles that exist only fleetingly help make everyday matter magnetic**

In the world of particle physics, there is no such thing as nothing. Particles of matter, and their anti-matter counterparts, are forever flitting in and out of existence.

Theorists have predicted that the presence of such transient visitors has little effect on everyday life. However, a group of experimental physicists has just shown this view to be mistaken.

[Read More](#)

### 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.

### [Upcoming Activities](#)