

Calendar

Thursday, July 7

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

Speaker: S. Wiesenfeldt, University of Illinois, Urbana-Champaign

Title: Sterile Neutrinos and Global Symmetries

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, July 8

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

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

Speaker: G. Hesketh, Northeastern University

Title: Recent Results from DZero

Weather



Partly Cloudy **83°/58°**

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Reuse Assets, Save Money In Lab's Surplus Program



Excess PCs are repaired and updated in the Property Office's PC Center. 15% of the lab's excess PCs are reutilized each year. (Click on image for larger version.)

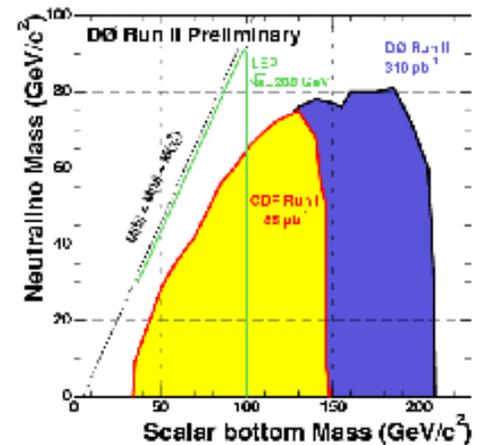
Much of the work done at Fermilab requires the most advanced technology available, but remaining up-to-date requires frequent and expensive upgrades and inevitably generates a great deal of excess materials. In order to prolong the life of equipment, cut costs, and reduce the amount of waste the lab generates, the Property Office's surplus program encourages the "reutilization" of excess assets.

"We see successes all the time - for example, if a governmental agency excesses a forklift on GSAXcess.gov, you can arrange with our office to potentially obtain this forklift just for the shipping costs instead of paying for a new one," said Jack Kelly, manager of the Property and Inventory Control Department. About 15% of Fermilab's excess PC's are also reutilized at the lab every year.

After surplus equipment is transported to the Property Office, it is examined and, if possible, made available for reuse. "If the

Fermilab Result of the Week

DZero: SUSY, where are you?



A plot showing which values of Sbottom Mass vs Neutralino Mass have been excluded by this result. (Click on image for larger version.)

Supersymmetry (SUSY) is a proposed extension of the Standard Model of particle physics (SM) incorporating a symmetry relating force particles (bosons = integer-spin fields) and matter particles (fermions = half-integer-spin fields). Indeed, SUSY is not only appealing from a mathematical point of view, but among other things, it can help truly unify the electromagnetic, weak and strong forces. Moreover, in the simplest implementations of SUSY, the lightest supersymmetric particle (LSP) is stable and could be a good candidate for the unexplained dark matter in the universe.

Because no pairs of known particles are related by this symmetry, SUSY predicts that there must be a new particle, a heavier "superparticle," for every ordinary particle. How much heavier it does not say. For instance, the bottom quark (spin 1/2), which is 4 times as heavy as a proton, has an associated scalar bottom

Thursday, July 7

Tomato Florentine Soup

Grilled Chicken Cordon Bleu Sandwich
\$4.85

Chimichangas \$3.75

Chicken Marsala \$3.75

Smoked Turkey Melt \$4.85

Italian Sausage Calzones \$3.50

SW Chicken Salad with Roasted Corn
Salsa \$4.85

The Wilson Hall Cafe now accepts Visa,
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Express at Cash Register #1.

[Wilson Hall Cafe Menu](#)

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asset is still operating in good condition, we try to reutilize it," Kelly explained. Reusable assets can be picked up from the warehouse by Fermilab employees or purchased through online programs, including GSAXcess (www.GSAXcess.gov) for governmental agencies and Bid4Assets (www.Bid4Assets.com) or eBay (www.eBay.com) for the general public. "The program is like a flea market for the federal government," added Eric Mieland of the ES&H section, Environmental Protection Group.

While some individuals and sections frequently take advantage of the excess program, especially when budgets are tight, Kelly encourages more employees to use it. "Just because something is excess to your needs, doesn't mean that someone else can't use it," he said. "You should send anything that is excess to your group's needs to the Property Office so we can reutilize it. We have a lot of options available to us."

--*Elizabeth Wade*

Accelerator Update

July 4 - July 6

- During this 48 hour period Operations established one store that provided the experiments with approximately 25 hours and 51 minutes of luminosity
- NuMI off due to power supply
- MI transformer replaced Monday evening
- Store established Tuesday morning

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

In the News

quark (spin 0) dubbed "sbottom" which could weigh a hundred times more.

No superparticles have been observed yet, but physicists have been actively trying to produce them in collisions at more and more powerful accelerators. At DZero, a sbottom pair created in a proton-antiproton interaction could decay into a pair of bottom quarks and two LSP's. Since the LSP's pass through our apparatus undetected, such an event in our detector consists of two jets of particles and momentum imbalance, taken away by the LSP's. The two jets originate from bottom quarks and can be identified as such by a technique called "jet b-tagging."

Having carefully sifted millions of events accumulated by DZero in Run II of the Tevatron, we do not find an excess in the number of events with such a topology, relative to what is expected from the SM. The neutralino being taken as the LSP, this allows us to determine, in the (sbottom mass, neutralino mass) plane, a significantly improved excluded region displayed in blue in the figure and compared to previous results.

So, still no sign of SUSY. Does this mean that SUSY is not a valid theory? Or could it just mean that the superparticles are too massive so that we cannot presently produce them? Where do you hide, SUSY?

From the *Daily Herald*, July 3, 2005

Retiring Fermi chief recalls achievements

By Tona Kunz

When Mike Witherell was tapped to be the fourth director of Fermilab six years ago, his colleagues alternated between telling him what a great honor that was and saying, "You're not going to do it, are you?"

He would need to move across the country and give up his teaching tenure at the University of California at Santa Barbara to take the helm of the high-energy physics laboratory. The timing wasn't great, either. Labs were consolidating and the fight for funding was intensifying.

All of the negatives were dwarfed in his mind by the chance to influence the course of science and preserve one of the few large research centers for the study of how the universe works.

"I wanted young scientists to have the same opportunities as me to do research," the 55-year-old said. "There is nothing, quite frankly, I feel I will do in the rest of my life as important as being director of Fermilab."

[Read more](#)



Arnaud Duperrin (left) and Eric Kajfasz (Both of Centre de Physique des Particules de Marseille) have conducted this analysis.



(Left to Right) Mike Kirby (Radboud University, Nijmegen), Sergey Burdin (FNAL) and Kristian Harder (Kansas State) are present and past leaders of the team that operates the silicon microstrip tracking detector. This detector is crucial to the b-tagging used in this and many other analyses from DZero. (Click on image for larger version.)

[Result of the Week Archive](#)

Announcements

TeV Particle Astrophysics Conference

The TeV Particle Astrophysics Conference will take place at Fermilab on July 13 through July 15. Registration is free.

[more information](#)

NALWO English Classes

Meet in the User's Center on Monday and Friday mornings from 9:30am until 11:00 am. Volunteer teachers work with students at all levels. Classes are free; you may begin any time. Two sessions meet simultaneously; one for beginners and one for more advanced students. There will be no English Classes during the month of July, classes will resume on Monday, August 1, 2005.

Wisconsin Dells Coupon Book Sale

The Recreation Office is selling the Wisconsin Dells Coupon Book for \$15.00. The coupons are good until April 30 of the following year. Interested, check out the sample books in the Recreation Office.

[Upcoming Activities](#)