

## Calendar

### Wednesday, November 9

**11:00 p.m.** Research Techniques

Seminar - 1 West

Speaker: V. Buzoloiu, Universitatea Politehnica, Bucharest

Title: Research in Signal Processing at LAPI

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

**4:00 p.m.** Fermilab Colloquium - 1 West

Speaker: E. Adelberger, University of Washington

Title: Sub-Millimeter Tests of the Newtonian Inverse Square Law

**Note:** There will be no Fermilab ILC R&D Meeting Today

### Thursday, November 10

**11:00** - Academic Lecture Series - Curia II (Note location)

Speaker: C. Quigg, Fermilab

Title: The Electroweak Theory and Higgs Physics – Lecture 4

**12:00** Wellness Works Brown Bag Seminar - Auditorium (Note location)

Speaker: S. Osman, (Ethnic Hand Drummer)

Title: Hand Drumming – Balance, Creativity, Precision

**2:30** - Theoretical Physics Seminar - Curia II

Speaker: G. Nayak, State University of New York, Stony Brook

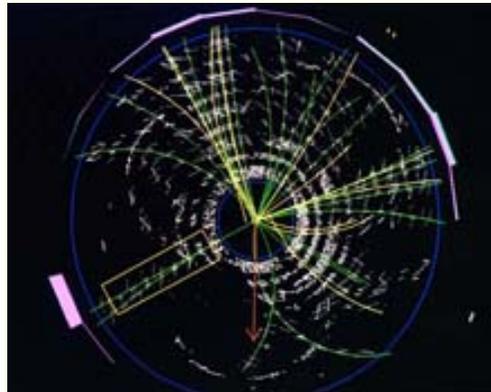
Title: Fragmentation, Factorization and Infrared Poles in Heavy Quarkonium Production

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

**4:00** Accelerator Physics and Technology Seminar - Curia II (Note

## Crash Course in Luminosity, Key to Discovery at Fermilab

*This is the second story in a series that explains [what luminosity is](#), and why we've recently gotten better at producing it in the Tevatron. This article explains why high luminosity, which provides a greater chance for collisions in the Tevatron, matters to anyone who is curious about the universe.*



When a new particle is created from a collision, tracks like these are scattered over the detector. Fermilab physicists can use the tracks to gain information about the short-lived particle. Shown above is the Top Quark, which was discovered at Fermilab in 1995. (Click image for larger version.)

### Why do we care about increasing our chances for collisions?

In the Tevatron, collisions can form exotic new particles that may help physicists discover the universe's best-kept secrets. When a proton and antiproton collide almost at the speed of light, they create an enormous burst of energy. Following Einstein's famous equation,  $E=mc^2$ , some of this energy can convert to brand new particles.

"Imagine a car crash," said Steve Holmes, Associate Director for

## NALWO Dedicates Bench in Memory of Sue Mendelsohn



Mady Newfield, NALWO treasurer, addresses friends of Sue Mendelsohn in front of the Lederman Science Center. (Click image for larger version.)

Yesterday at 1:00 p.m. in front of the Lederman Science Center, NALWO dedicated a special teak and oak bench to the memory of Sue Mendelsohn. Mendelsohn was an employee of the Lederman Center and a longtime secretary of NALWO, Fermilab's women's organization.

The bench was handcrafted by Sue's husband, Michael Church. "This bench will a place for me to remember Sue," he said. "And for others to remember her too."

Friends of Mendelsohn gave testimonials that described her as energetic, caring, optimistic and funny. Long-time friend, Marjory Appel remembered sharing time with Sue and her grandchildren at the Fermilab pool. "After we went swimming, she used to dress the kids by putting underwear on their shoulders and socks on their ears," she said. Mendelsohn, who passed away on November 12 last year, was also a nature-lover and an activist. "Sue didn't just complain about how things were, she really worked hard

location)

Speaker: M. Stockli, Oak Ridge National Laboratory

Title: Readyng the Injector for feeding the Spallation Neutron Source

## Weather



Windy 54°/30°

[Extended Forecast](#)

[Weather at Fermilab](#)

## Current Security Status

[Secon Level 3](#)

## Wilson Hall Cafe

**Wednesday, November 9**

- Fish & Chips
- Smart Cuisine Salmon w/Lemon Pepper
- Country Fried Steak w/Pepper Gravy
- Beef & Cheddar Panini w/Sauteed Onions
- Assorted Personal Size Pizzas
- Meatlover's Pizza
- Cavatappi Pasta w/Italian Sausage & Tomato Ragu

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

[Wilson Hall Cafe Menu](#)

## Chez Leon

Accelerators. "Two Minis run into each other and, instead of a fender rattling to the pavement, a 1997 Hummer pops out." The energy can take the form of huge chunks of matter that belong in another era. Some of these massive particles may give us clues about the evolution of our universe.

"One could almost say that we are bringing extinct states of matter back into existence," said Roger Dixon, who manages the Accelerator Division.

Billions of years ago, the universe was denser, hotter and packed with energy, so the particles made in high-energy colliders may have been as common and natural then as carbon is today.

Physicists can study the tracks left by these fleeting particles in the Tevatron detectors to learn about the primitive environment they once thrived in. The more energy created by the proton-antiproton collisions, the more ancient the resulting matter. "The energy in the Tevatron is two TeV," said Pushpa Bhat, who manages the run II upgrades of the Tevatron. "That matches the universe's energy one picosecond after the big bang."

[Read More](#)

## In the News

**From *EurekaAlert*, November 8, 2005:**  
**What does 'almost nothing' weigh? FSU physicist aims to find out**  
 TALLAHASSEE, Fla.-- If subatomic particles had personalities, neutrinos would be the ultimate wallflowers.

One of the most basic particles of matter in the universe, they've been around for 14 billion years and permeate every inch

to make them better, that's why her legacy is so important to carry on," said Mady Newfield of NALWO. "She'd want this bench to remind us of that."

If you would like to make a donation contributions towards the cost of the bench materials and the commemorative plaque, contact Mady Newfield, NALWO's treasurer at 584-0825 or [mady.newfield@gmail.com](mailto:mady.newfield@gmail.com).

—Siri Steiner

## Photo of the Day



Russian figure skating pair Tatiana Totmianina and Maksim Marinin recently visited Fermilab with their coach, Oleg Vasiliev. Tatiana and Maksim are 2004 and 2005 World champions and are serious candidates for 2006 Olympic gold. After visiting CDF, DZero and the Main Control Room, the World Champions in figure skating said they were impressed by the Tevatron, World champion in luminosity.

## Announcements

### Payday Change

Due to the upcoming Veteran's Day on Friday November 11, 2005 and the fact that most banks will be closed, employees will be paid on Thursday, November 10, 2005. Advices will also be distributed on Thursday.

### Give the Gift of Good Health

Surprise someone with the gift of good health. Gift Certificates are available for a Recreation Membership for your spouse,

**Wednesday, November 9****Lunch**

- Calzone w/Procuitto
- Roasted Pepper, Basil & Three Cheeses
- Cesar Salad
- Espresso Coupe

**Thursday, November 10****Dinner**

BOOKED

[Chez Leon Menu](#)

Call x4512 to make your reservation.

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of space, but they're so inconceivably tiny that they've been called "almost nothing" and pass straight through things -- for example, the Earth -- without a bump.

So it's easy to see why no one thought they existed until the 1930s, and why it wasn't until the 1950s that scientists were finally able to confirm their inconspicuous presence. It's also easy to see why their masses, once believed to be zero, remain so elusive, but could help unlock the universe's mysteries on everything from dark matter to the births of galaxies.

With a Precision Measurement Grant from the National Institute of Standards and Technology that will provide up to \$150,000 in funding over three years, Florida State University research physicist Edmund G. Myers, in Tallahassee, Fla., and student researchers hope to meet part of that challenge by measuring the precise difference in mass of tritium, a form of hydrogen, and helium-3 atoms. This will help pin down the mass of the electron neutrino.

To make such a measurement, Myers will use the state-of-the-art Penning trap that he brought to FSU from the Massachusetts Institute of Technology in 2003. It's arguably the most precise equipment made for the purpose of determining atomic mass.

"With neutrino mass, the game is to keep lowering the upper limit until you find it," Myers said.

Right now, that ceiling is around 2 electron Volts (eV). Myers' work, combined with results from other

adult dependent, or co-worker. The Recreation Facility is open twenty-four hours a day, every day. The price for a membership is \$45 for graduate students and each of their qualified family members and \$75 for a regular membership and each of their qualified family members. Go [online](#) for more information and pictures of the facility.

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experiments, could drop this by a factor of at least 10, to 0.2 eV or even lower. By comparison, an electron, which is probably the lightest commonly known subatomic particle, has a mass of 511,000 eV.

[Read More](#)