

Calendar

Thursday, March 24

2:00 p.m. Computing Techniques Seminar - FCC1

Speaker: F. Carminati, CERN
Title: Alice Use of Grid Services - Status and Plans

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

Speaker: O. Mena Requejo, Fermilab
Title: Cosmic Neutrino Spectroscopy and the Early Universe

3:30 p.m. DIRECTOR'S COFFEE

BREAK - 2nd Flr X-Over

THERE WILL BE NO ACCELERATOR PHYSICS AND TECHNOLOGY SEMINAR TODAY

Friday, March 25

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. Tanaka, Argonne National Laboratory

Title: CDF Bs Mixing Results

Weather



Chance of Rain 48%/33°

[Extended Forecast](#)

[Weather at Fermilab](#)

Current Security Status

[Secou Level 3](#)

Wilson Hall Cafe

Electron Cooling Update: Installation Is Now Complete

After nine months of intense work, the Pelletron is back up and running. Since June 1, 2004 the Pelletron and its associated beam lines have been dismantled, transported across the lab, and reassembled at the new MI-31 service building. The Pelletron is a \$3 million, 3-story Van der Graff generator, electron accelerator, and recycler all in one. The electron beam generated by the Pelletron will be used for electron cooling of the antiprotons in the Recycler, which is

expected to increase the luminosity of the Tevatron by as much as a factor of two. Installation of the Pelletron has been a "very high priority at the Lab," said project leader Jerry Leibfritz of the Accelerator Division.

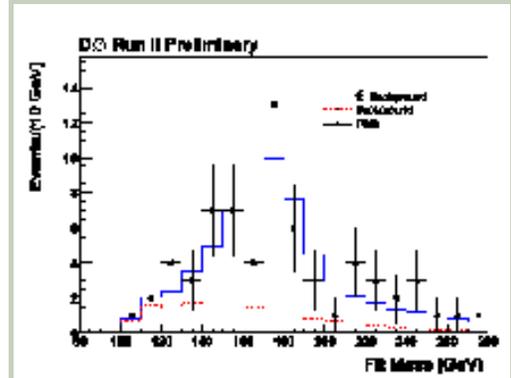
Electron cooling works by merging a beam of electrons with the antiproton beam circulating in the Recycler. The



The Electron Cooling Installation Team in front of the completed Pelletron accelerator at the MI-31 service building. Front Row (L-R): Jerry Nelson, Dan Assell, Jerry Leibfritz, Kermit Carlson. Back Row (L-R): Sharon Austin, Tom Regan, Wayne Johnson, Kelly Hardin, Bill Pritchard, Ron Kellett. (Click on image for larger version.)

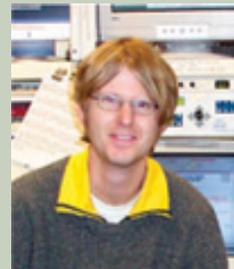
Fermilab Result of the Week

Topping the Top Mass



Plot of the top quark masses reconstructed from the events with one lepton. The points show the data, the solid blue line shows the simulation for the top signal plus background and the dashed red line for background only. (Click on image for larger version.)

Ten years ago, the CDF and DZero experiments discovered the top quark at Fermilab. The Tevatron is still the only source of top quarks and we are now measuring the properties of the top quark in detail. To test theoretical predictions it is important to know the top quark mass precisely. For example, the masses of the W boson, the top quark and the Higgs boson are related by theory. If we measure the top quark and W boson masses we can predict the Higgs boson mass. This is important because the Higgs boson has been predicted to exist but not yet observed.



Jonas Strandberg

This is not an easy measurement. The top quark is very short lived and decays into leptons (e.g. electrons or muons), neutrinos and other quarks, especially b-quarks.

Thursday, March 24

Southwestern Chicken Tortilla Soup

Philly Style Cheese Steak \$4.75

Baked Fish w. Roasted Leeks and

Peppers \$3.75

Tomato Basil Chicken Parmesan \$3.75

Classic Cuban Panini \$4.75

Four Cheese Pizza \$2.75

Marinated Grilled Chicken Caesar

Salads \$4.75

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American Express at Cash Register #1.

[Wilson Hall Cafe Menu](#)

[Chez Leon](#) is now open. Call x4512 to make your reservation.

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electrons absorb excess antiproton energy, thereby "cooling" the beam and compressing the cloud of antiprotons into a tighter beam. A tighter beam yields more proton-antiproton collisions and greater luminosity, with a greater chance of seeing significant events. Electron cooling was invented in the 1960's but has never been done at the high energy needed to cool the beam in the Recycler.

The majority of the installation work was done by a core group of 10 technicians and engineers from AD, PPD, and TD. "We had an excellent team of people working on this project. They were incredibly motivated and took a great deal of pride in creating a state-of-the-art facility for the physicists," Leibfritz said.

The commissioning of the Pelletron has been going on for over two weeks now, with shifts running nearly around the clock. "Many people worked hard for a long time to get this project done on schedule, on budget, and safely," said Leibfritz. "Their effort is evident by how well the Pelletron is working, and they should be proud of their accomplishments."

-Eric Bland

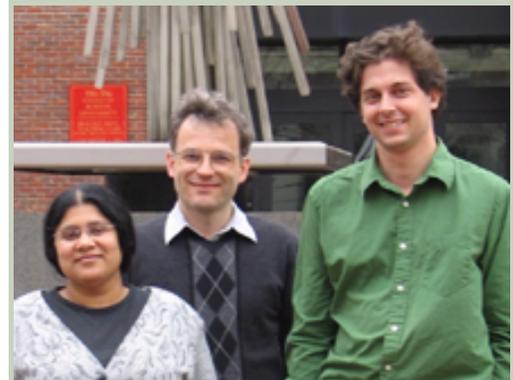
Accelerator Update

The quarks form jets of particles that cannot be measured individually. We have to relate the properties of the jets back to those of the original quarks.



Ariel Schwartzman (Princeton U.) (left), Lorenzo Feligioni (Boston U.) (right), and Jonas Strandberg (Stockholm U.) (above) developed the technique to identify b-quarks. (Click on image for larger version.)

DZero has just completed two preliminary measurements of the top quark mass using data from Run II of the Tevatron. One analysis used events in which the top quark decay involved one lepton and (for the first time at DZero) asked for a b-quark to be identified in the events. The result is $170.6 \pm 7.3 \text{ GeV}/c^2$ which is the most precise measurement of the top quark mass from Run II data to date. The other analysis uses top quark decays with two leptons.



The analyses were carried out by a team from Boston University: graduate students Kevin Black (right), Sarosh Fatakia (not pictured), postdoc Lars Sonnenschein (not pictured) and Professors Meenakshi Narain (left), Ulrich Heintz (center). (Click on image for larger version.)

March 21 - March 23

- During this 48 hour period Operations established two stores that provided the experiments with approximately 38 hours and 15 minutes of luminosity
- Store 4053 set record luminosity: 117.32E30
- Store 4053 lost due to separator spark
- Booster has RF problems

[Read the Current Accelerator Update](#)

[Read the Early Bird Report](#)

[View the Tevatron Luminosity Charts](#)

In the News

From *Mesabi Daily News*, March 22, 2005

First neutrino recorded at Soudan test site

by Charles Ramsay

SUDAN — The first neutrino has been captured here. William Miller, lab supervisor at the Soudan Underground Mine science project, said Tuesday he switched on his laptop computer at 7:30 a.m. Saturday to check the latest “bombardments” from the Fermilab’s MINOS neutrino particle accelerator toward Soudan.

[read more](#)

[Result of the Week Archive](#)

Announcements

Fermilab Children's Summer Day Camp

Day Camp is offered in three, three-week sessions: Session I: June 13 - July 1, Session II: July 5- July 22, Session III: July 25 - August 12. The program is held in the lower level of the Kuhn Barn in the village from 7:30 AM - 5:30 PM. Admission is made through a lottery held on the last weekday in March. You can choose any or all of the sessions. The fee for each Day Camp session is \$265.00 per camper. A \$100.00 deposit per session per camper must accompany the registration form. Registrations will be accepted beginning March 1 until 5:00 PM on March 30. An information booklet and registration form can be found on the Recreation Website, Recreation Office, Users Office and the Housing Office.

[Upcoming Activities](#)